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New Paradigm of Webmail Interfaces

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Report of Project

Master in Informatics and Computing Engineering

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Abstract

This document describes the project, developed in Portugalmail – Comunicações S.A., called “New Paradigm of Webmail Interfaces”.

The initial motivation for this project was the development of new features and components to be added to the current Portugalmail webmail solution. However, while researching and analysing other existent solutions, many innovative ideas compelled the aim of this project to evolve to a completely new application.

This new application includes many innovative components over the common email functionalities, such as a smart contact manager, which integrates aspects of social networks; a system of small applications, aiming to expand the usefulness of the webmail; a files and attachments manager, which allows the user to easily access existing documents in the application; and a humanized personal assistant that uses intelligent ways to help the user to use and get the maximum benefits from the system.

The application is technically based in LAPP (Linux operative system, Apache web server, PostgreSQL database and PHP programming language) architecture, LDAP directory and Horde Platform. Horde platform was chosen due to its stability, robustness, specialization in webmail service, large development and support community and the fact that Portugalmail has a strong development background in this platform.

Even if the requirements were design, logical architecture, information architecture and graphical design were defined and the project plan was written, it wouldn't be possible to completely implement the solution (mainly because of the large number and complexity of requirements). The solution found was to divide the implementation phase in modules, three of them having already been developed (Application Platform Installation; Graphical Design and Information Architecture definition; and Contact Manager) while other modules are planned to be developed within next 6 months..

The project was developed without any major obstacles and its results were highly above what was initially expected. It is predictable that this new application will position Portugalmail as a top player in the world market of webmail solutions, bringing new business opportunities and financial return of investment.

Resumo

Este documento descreve todas as fases do projecto realizado na Portugalmail – Comunicações S.A., entitulado “Novo Paradigma de Interfaces de Webmail”.

A motivação inicial do projecto consistia na criação de novas funcionalidade e componentes para a interface de webmail actual da Portugalmail, no entanto, durante a fase de pesquisa e avaliação das soluções actuais do mercado, diversas ideias e soluções geradas levaram a que o projecto evoluísse para a criação de uma aplicação completamente nova.

Esta nova aplicação apresenta diversas componentes inovadoras para além das funcionalidades de email tradicionais. São exemplos disso: um gestor de contactos inteligente, que agrega funcionalidades de redes sociais; um sistema de aplicações de apoio ao utilização do sistema; um gestor de ficheiros e anexos avançado, que permite um rápido acesso aos documentos existentes no sistema; e a humanização de um assistente pessoal que ajuda o utilizador de forma inteligente a usar e tirar máximo proveito do sistema.

Este sistema está a ser construído recorrendo a arquitectura LAPP (sistema operativo Linux, servidor web Apache, base de dados PostgreSQL e linguagem de programação PHP), directórios LDAP e a plataforma Horde. A escolha deste plataforma deveu-se ao facto de ser estável, robusta, orientada a serviços de email, possuir uma grande comunidade de desenvolvimento associada e a Portugalmail possuir larga experiência com esta plataforma.

Apesar de desenhados os requisitos, definida a arquitectura lógica, a organização da informação e o design, e realizado o planeamento, sabia-se não ser possível completar o desenvolvimento de toda a solução (essencialmente devido ao grande número e complexidade das funcionalidades), por isso, a implementação do projecto foi dividida em módulos, sendo implementados até a momento três desses (Instalação da Plataforma de Suporte a Aplicação; Desenho do Design e Arquitectura da Informação; e o Gestor de Contactos), enquanto os restantes preve-se que sejam implementados dentro dos próximos 6 meses.

Assim, o projecto decorreu sem problemas, com resultados finais bastante acima dos inicialmente esperados. Prevê-se que a nova aplicação coloque a Portugalmail numa posição pioneira e inovadora no mercado mundial de sistemas de webmail, trazendo com isso, diversas oportunidades de retorno financeiro.

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Table of Contents

Chapter 1	Introduction	1
1.1	Portugalmail.....	1
1.1.1	Portugalmail Webmail Service.....	2
1.2	Project	2
1.2.1	Motivation	2
1.2.2	Expected Results	2
1.3	Report Organization.....	3
Chapter 2	State of Art	4
2.1	Available Solutions.....	4
2.2	Activities Associated with Email Use.....	5
2.2.1	Keeping in Touch with Friends	5
2.2.2	RSS Reading.....	5
2.2.3	Task List Control	5
2.2.4	Blog Posting/Email as Info Resourcing	5
2.2.5	Statistics & Info	5
2.2.6	Social Networks/Other Communication Alternatives	5
2.2.7	Mailing Lists & Groups.....	5
2.2.8	Calendar/Schedule/Meetings	6
2.2.9	Address Book/Contacts	6
2.2.10	Attachments/Repository/Storage	6
2.2.11	Password Box	6
2.2.12	Webmail Organization.....	6
2.3	Main Issues to Solve	6
2.3.1	Email Overload.....	6
2.3.2	Email Organization (Folders versus Tasks versus People)	7
2.3.3	Pressure to Reply Quickly + Losing Track of Email	7
2.3.4	Artificial Intelligence Use	8
2.3.5	Is Search Good Enough?	8
2.3.6	Email is Getting Replaced	8
2.3.7	Email as Life Organizer.....	9
2.3.8	Distraction by Unimportant Emails.....	9

2.3.9	SPAM	9
2.3.10	Extend Address Book Features	10
Chapter 3	Portugalmail Platform Analysis	11
3.1	Features and Usability Analysis	11
3.2	Architecture and Technologies	12
Chapter 4	Solution Conceptualization	14
4.1	Target Users Characteristics	14
4.2	Concept	16
4.2.1	Mind Map	16
4.2.2	Brainstorming	18
4.2.3	Mind Map + Brainstorming Results	20
4.2.4	Concept Creation Analysis	20
4.3	Restrictions	21
4.4	Dependencies and Assumptions	21
Chapter 5	Project Definition	22
5.1	Adapt or Rebuild?	22
5.2	Project Plan	23
Chapter 6	Solution Requirements Analysis	25
6.1	Interface Requirements	25
6.1.1	System Interface	25
6.1.2	User Interface	25
6.1.3	Hardware Interface	26
6.2	Functional Requirements	26
6.2.1	User Roles	26
6.2.2	User Cases	26
6.3	Information Requirements	30
6.3.1	LDAP.....	30
6.3.2	File System	30
6.3.3	Database.....	31
6.4	Non-Functional Requirements	31
6.5	Functional Specification	32
Chapter 7	Navigation and Interface Design	34
7.1	Navigation Design	34
7.1.1	Navigation Sections.....	35
7.1.2	Search Box.....	37

7.2	Interface Design	38
7.2.1	External Variants Analysis	38
7.2.2	Design Prototypes	42
7.2.3	Prototype Tests	44
Chapter 8	Technologies Definition	47
8.1	System Architecture Technologies	47
8.1.1	Backend Technologies	47
8.1.2	Frontend Technologies	47
8.2	Webmail Platform Study and Selection	48
8.2.1	Available Options	48
8.2.2	Comparative Analysis and Decision	52
8.3	Support Technologies	54
8.3.1	Darcs	54
8.3.2	Wiki	54
Chapter 9	Architecture and Software Design	56
9.1	Architecture	56
9.2	Communication and Control Mechanisms	56
9.2.1	Operation Logging	56
9.2.2	Dealing with Errors	56
9.2.3	Authentication	57
9.2.4	Security	57
9.2.5	Transactions	57
9.2.6	Settings and Preferences	57
9.3	Design Patterns	57
9.3.1	Factory Method	58
9.3.2	Singleton	58
9.3.3	Unit of Work	58
Chapter 10	Solution Development Plan	59
10.1	Implementation	59
10.1.1	Phases	59
10.1.2	Human Resources Factors	60
10.1.3	Schedule	61
10.2	Testing	61
10.2.1	Developer Testing	61
10.2.2	Integration Testing	61
10.2.3	Alpha Testing	62
10.2.4	Beta Testing	62

10.2.5	Non Functional Testing	62
10.3	Deployment.....	63
10.3.1	Release.....	63
10.3.2	Activate.....	63
10.3.3	Version tracking	63
10.3.4	Update.....	63
10.3.5	Deactivate	64
10.3.6	Retire	64
10.4	User Support	64
10.4.1	Welcome Guide	64
10.4.2	Transition Guide	64
10.4.3	Online Support.....	64
10.4.4	Trouble Tickets System	64
10.4.5	Community Support	65
10.5	Maintenance Plan.....	65
Chapter 11	Development.....	66
11.1	Phase One :: Platform Setup	66
11.1.1	Requirements	66
11.1.2	Implementation details	67
11.2	Phase Two :: Layout & Design.....	67
11.3	Phase Three :: Contact Me.....	67
11.3.1	Requirements	67
11.3.2	Information Design.....	73
11.3.3	Architecture	73
11.3.4	Implementation, Tests and Corrections	74
Chapter 12	Current Development Results.....	75
12.1	What is implemented?	75
12.2	Main Implementation Issues	75
12.2.1	Use Turba or Skeleton?	75
12.2.2	Multiple access locations to important actions.....	76
12.2.3	Use form editing or inline editing?.....	79
12.2.4	Use Dynamic form creation or hidden forms?	79
12.2.5	Initial page content	80
12.3	Requirements Review	82
12.3.1	Phase One	82
12.3.2	Phase Two	82
12.3.3	Phase Three.....	83
12.4	Tests and Corrections.....	84

12.4.1	Developer Testing.....	85
12.4.2	Integration Testing.....	85
12.4.3	Alpha Testing	85
12.4.4	Beta Testing and Usability Testing	85
12.4.5	Corrections Phase	88
12.5	Feedback	88
12.5.1	Portugalmail	88
12.5.2	Users	89
Chapter 13	Conclusions	90
13.1	Objectives Satisfactions	90
13.2	Decisions.....	90
13.3	Personal Development	91
13.4	Future Development Perspectives	91

Attachments

- A :: Email Applications Research
- B :: Análise da Plataforma de Email da Portugalmail como Utilizador
- C :: Webmail Secretary Mind Map Construction and Analysis
- D :: Alpha Testing Report

List of Figures

Figure 1 :: Portugalmail - Comunicações S.A. Logo	1
Figure 2 :: Portugalmail Webmail Interface	11
Figure 3 :: Portugalmail Platform Architecture	13
Figure 4 :: Portugalmail User Analysis : Age.....	14
Figure 5 :: Portugalmail User Analysis : Gender	14
Figure 6 :: Portugalmail User Analysis : Frequency of Use.....	15
Figure 7 :: Portugalmail User Analysis : Interests.....	15
Figure 8 :: Portugalmail User Analysis : Reasons to Reject an Email	15
Figure 9 :: Mind Map Construction	17
Figure 10 :: Mind Map Development	18
Figure 11 :: Brainstorming Session	19
Figure 12 :: Mind Map + Brainstorming Results	20
Figure 13 :: Screen Resolution Analyze : 02/08 to 05/08	39
Figure 14 :: Screen Resolution Analyze : 05/08 to 08/08	39
Figure 15 :: Screen Resolution Analyze : 08/08 to 11/08	40
Figure 16 :: Statistics TheCounter.com October 2008	40
Figure 17 :: Browser Usage Statistics [Browsers08].....	41
Figure 18 :: Digital Mock-up 01	42
Figure 19 :: Digital Mock-up 02.....	42
Figure 20 :: Paper Prototype Process 01.....	43
Figure 21 :: Paper Prototype Process 02.....	43
Figure 22 :: Paper Prototype Process 03.....	43
Figure 23 :: Paper Prototype Process 04.....	43
Figure 24 :: Paper Prototype Detail 01	44
Figure 25 :: Paper Prototype Detail 02	44
Figure 26 :: Concept Test Survey	45
Figure 27 :: Zimbra Interface.....	49
Figure 28 :: RoundCube Interface	50
Figure 29 :: Scalix Interface	50
Figure 30 :: Portugalmail (Horde) Interface	51
Figure 31 :: SquirrelMail Interface.....	52
Figure 32 :: Webmail Secretary Project Schedule.....	61

Figure 33 :: Horde Framework Structure	73
Figure 34 :: Add to Group Link on Contact Page.....	76
Figure 35 :: Select Social Group action.....	77
Figure 36 :: Dialog Box with auto-complete selection.....	77
Figure 37 :: Auto-complete container to add contacts to new Social Group.....	78
Figure 38 :: Drag and Drop Contact to Social Groups	78
Figure 39 :: Inline Profile Editing.....	79
Figure 40 :: Add Degree Link	80
Figure 41 :: Add Degree Dynamic Form.....	80
Figure 42 :: Option where users see their contact list.....	80
Figure 43 :: Option where users see update block about Contacts.....	81
Figure 44 :: Final Overview page	81
Figure 45 :: Email Interface with Secretary Tab Hidden.....	82
Figure 46 :: Contacts Interface with Secretary Tab Visible	83
Figure 47 :: Webmail Secretary Usability Test :: Tasks.....	86
Figure 48 :: Webmail Secretary Usability Test :: Questions	87

List of Tables

Table 1 :: Comparative Aspects between Adapt and Rebuild Platform	23
Table 2 :: Internship Plan	24
Table 3 :: Webmail Platforms Comparative Analysis	53
Table 4 :: Turba-Skeleton Comparison	76

Abbreviations & Acronyms

AJAX	Asynchronous JavaScript and XML
API	Application Programming Interface
BCC	Blind Carbon Copy
Blog	Web Log
CC	Carbon Copy
CSS	Cascading Style Sheet
Email	Electronic Mail
FAQ	Frequently Asked Questions
HTML	Hypertext Markup Language
HTTP	Hypertext Transfer Protocol
ICQ	Internet Chat Query
IMAP	Internet Message Access Protocol
ISP	Internet Service Provider
LDAP	Lightweight Directory Access Protocol
MIME	Multipurpose Internet Mail Extensions
PHP	PHP Hypertext Processor
RSS	Really Simple Syndication or Rich Site Summary
SMTP	Simple Mail Transfer Protocol
SPAM	Unsolicited Bulk Email (UBE) or Unsolicited Commercial Email (UCE)
SQL	Structured Query Language
URL	Uniform Resource Locator
WWW	World Wide Web
WYSIWYG	What You See Is What You Get
XML	Extensible Markup Language
XMPP	Extensible Messaging and Presence Protocol

Chapter 1

Introduction

In this first chapter all the base factors supporting the project will be described, namely the company Portugalmail, where the project was developed, its current Webmail Service and the motivation and expected results of this project. The organization of this report will be also presented on this chapter's last section.

1.1 Portugalmail

Portugalmail – Comunicações S.A. is a web-based company. It was created on March 20th, 1999 to support the very first free email service in Portuguese. Since then Portugalmail has grown to implement a large number of other web services, including Domain Registry, Web Storage, Online Advertisement, an International Blog Service (www.blog.com), a community site about football (www.futebol.com) and PHC management software consulting.



Figure 1 :: Portugalmail - Comunicações S.A. Logo

Nowadays Portugalmail aims to be a reference in webmail service offers with a free webmail that has 2000MB of storage for individual users and a dedicated platform of email for companies.

Media Capital, Onitelecom, Grupo Sonae, Grupo M. Coutinho and AICCOPN are some of the satisfied Portugalmail Clients.

1.1.1 Portugalmail Webmail Service

Portugalmail's Webmail Service is currently divided into two different categories, individual users and Professional Platforms.

Individual users can create and use an email account accessing portugalmail.pt or portugalmail.com domains. That interface has itself two categories, the basic service and the gold service, which has a better interface. Initially users had to pay for the gold service, but currently both services are free.

The Corporate Platforms are a solution dedicated to companies that want to outsource their corporate email management, maintenance and equipment. Portugalmail serves a large number of companies, from small companies with fewer than 100 users to large platforms with more than 300.000 users.

Two years ago, Portugalmail developed a new AJAX interface for its webmail system and is currently migrating accounts from previous versions to the new interface. This AJAX interface allowed Portugalmail to reach the level of quality of the major webmail services. The next step on the company roadmap is to put itself as a leader in innovation and features, which coincides with the main ambition that motivates this project.

1.2 Project

1.2.1 Motivation

The project developed, called "New Paradigm of Webmail Interfaces", was proposed by Portugalmail aiming to develop new and innovative features on Portugalmail Webmail Service, giving special focus to the Interface Layer.

However, during its research and planning phase, the project gained a boost of ambition and has grown to the development of a completely new and innovative paradigm of webmail applications. More details on that new vision will be explained in the following chapters.

1.2.2 Expected Results

The expected results for this project are new and useful features for the Portugalmail webmail service. These new features should be tested with real and potential users aiming at validating decisions made and correct possible mistakes in an early phase of the project.

These new features should also increase the commercial value of the service aiming to better satisfy current customers, attract new ones and consequently increase the incoming results for Portugalmail – Comunicações S.A.

1.3 Report Organization

This report is organized in 14 chapters, willing to review each of the phases associated with this project development.

This First chapter is dedicated to the description of the project context and report organization. The Second chapter covers the first step of the project where a thorough research into the state of the art of webmail platforms was made. The available solutions, activities and main issues of webmail are described here. On chapter Three, the current Portugalmail Webmail platform is analysed and discussed.

The solution concept was developed based on the state of the art study and Portugalmail Webmail Platform study. The methodology used and its results are described on chapter Four.

Chapter Five, Six and Seven are related to project decisions, requirements analysis and functional specification respectively.

Having a major role on this project, the navigation and interface design has the Eighth chapter dedicated to describe its analysis, activities, decisions and tests.

Chapter Nine and Ten are focused on decisions related to technologies to use and architecture and software design respectively.

Although the project was meant to be done over the course of 20 weeks, the eleventh chapter is focused on planning the future developments of the solution. The methodology for implementation, testing, deployment, user support and maintenance is explained.

Finally, in chapter Twelve, the developments made to the new platform are described and on chapter Thirteen its results are analysed. The last chapter is focused on the discussion of the work done and future developments.

Chapter 2

State of Art

In this chapter a description of the results of some weeks of research focused on analysis of the current state of email services was made. Going through Webmail and Desktop Clients, master theses, blogs, forums, reviews and the most recent advances in scientific research it was possible to identify the current strengths and weaknesses of email services, find out what activities users perform and associate with webmail management and, specially, identify all main issues email services still have to solve.

2.1 Available Solutions

The extensive research on available solutions found more than 35 different applications. From simple web services such as Inbox.com to complex Desktop Clients like Outlook 2007, from free services such as Gmail to paid services like Lavabit, from business interfaces such as Lotus Notes to friendly and fun interfaces like IncrediMail, webmail users have many different options. However, the main conclusion of this research was “None of these solutions completely satisfies customers”.

Since webmail is currently a fundamental activity to business and even to the personal lives of millions of people around the world, this problem comes as a huge business opportunity.

More details about selection and research on available solutions are described in Attachment A :: Email Applications Research.

2.2 Activities Associated with Email Use

Together with email applications research was also made into conference papers that aimed to analyse users' behaviour, as well as issues and activities encountered while using email applications. As well as answers, these conference papers bring up a lot of questions, some of them will be described in the following sub-chapters.

2.2.1 Keeping in Touch with Friends

Being the natural substitute to postal mail, email becomes an easy way to contact friends. Can it evolve? Should email systems provide features to improve interaction between friends? Social Networks are fast replacing email as a way for friends to contact each other.

2.2.2 RSS Reading

RSS Aggregators are very similar to an email client. Why not integrate both functionalities in one place?

2.2.3 Task List Control

Emails kept as unread are usually a way to highlight tasks to be done, some people even resend emails to themselves to keep important pending task at the top of their email lists and make them more visible. [MsT_GC06] Approaches to integrate a to-do list with webmail and email clients already exist but some of them are too complex or inefficient.

2.2.4 Blog Posting/Email as Info Resourcing

Email being a source of information, it is a common source of inspiration and content for blog posts. Connecting those two worlds is a natural step.

2.2.5 Statistics & Info

Local News, Weather and Statistics of use are interesting things to have available while checking email.

2.2.6 Social Networks/Other Communication Alternatives

With the growth of social networks (quantity and influence) the number of invitations and notifications associated with this is rising. [GabBI08] It is necessary for the email services to give an answer on that field (improving usability and efficiency).

2.2.7 Mailing Lists & Groups

Are emails coming from mailing lists, online groups and forums different from normal emails? If so, why not have a proper interface to them?

2.2.8 Calendar/Schedule/Meetings

Everyday meetings are organized using emails. Sometimes, even the minutes are also sent by email afterwards. Wouldn't it be interesting if it were possible and easy to integrate this organization, control, system of alerting and agenda of your calendar inside your email?

2.2.9 Address Book/Contacts

Email address books are usually not used because they only contain a few emails and names. They have a huge potential to be a source of useful information, to do this a jump is necessary to develop easy ways to complete, update, use and search through it.

2.2.10 Attachments/Repository/Storage

Many people use webmail as an online folder where they can easily access their files. This behaviour wasn't predicted when email was created, so it is necessary to re-think this concept and build a proper interface to upload and access these files.

2.2.11 Password Box

How often do you search for forgotten passwords on your email client? The idea here is to create an "Authentication Box" where all emails associated with passwords and registers should be automatically archived allowing an easy access to them when needed.

2.2.12 Webmail Organization

Email Organization is getting more important and, at same time, time consuming. Your email system should help you do this, saving you time. The simple model of listing your incoming messages by date is broken. It is necessary to apply new paradigms.

Your email system should understand your organization, should know what is important to you, and should automatically do tasks for you. Basically, it should work as your personal assistant.

2.3 Main Issues to Solve

Another important result of this research phase was a list of main issues email platforms still have to solve. It goes much further than just filtering unsolicited email (SPAM). These issues will be presented and described in the following sub-chapters.

2.3.1 Email Overload

Named by many researchers as the most important source of productivity problems nowadays, it is even considered a problem more important to solve than SPAM.

ReMail Team says "People are overwhelmed by the volume of new email they receive each day. They report spending increasing amounts of time simply managing their email. Email is an endless cycle of catching-up and falling behind. New messages arrive regardless of the activity the recipient is engaged in, causing a backlog in the user's mailbox. To prevent this backlog and stay on top of action items, people have developed the habit of checking their email frequently, adding to the overall disruption email can bring." [Pap_ReMail03]

Gabor Cselle writes in his blog "There are just too many emails flooding the inbox. Many are drowning in heaps of emails that aren't even important – it is just a colleague at work Cc-ing everyone evenly remotely connected to his project." and also "Overloaded office workers hate the email flood so much that companies are introducing email-free Fridays." [GabB108]

Email Overload is a new email disease which needs to be solved through new solutions.

2.3.2 Email Organization (Folders versus Tasks versus People)

Inside the email community there is a very interesting discussion about different ways to organize email accounts:

Folders are the usual approach, considered by many as broken.

Organizing your emails by associated Tasks or Social Circle/People are new approaches being experimented and applied.

What approach is best?

Gabor Cselle asks the same question "10 years from now, will you still be organizing your email in folders that you manually create? Or will your email be automatically organized around tasks, or even better, around people who are important to you and their profiles? It is clear that the "move to folders, sort by arrival time" system is broken - what will step into its place?" [GabB108]

2.3.3 Pressure to Reply Quickly + Losing Track of Email

With the growing number of emails arriving in the inbox, people feel an intrinsic pressure to quickly reply to emails and/or archive them.

ReMail Team says "People report feeling pressure to be more responsive to their email. Messages arrive continuously throughout the day, contributing to the sense of urgency to respond quickly." [Pap_ReMail03]

Another factor associated with the flow of emails arriving continually is the fear of losing track of the email account. Nowadays some people are even afraid to spend a few days without checking their Inbox.

ReMail Team says "and the increasing fear of doing so. High volumes of email cause important items to quickly move out of view. Users must hunt down their mail, often having to scroll to other parts of their mailbox. This problem is exacerbated as email arrives in a single, undifferentiated stream. The mailbox becomes an assortment of items requiring action, informational items, and items with no value to the user at all (e.g., SPAM)." [Pap_ReMail03]

2.3.4 Artificial Intelligence Use

With the objective/necessity of making email organization automatic and "smart", researchers start studying the application of Artificial Intelligence's concepts to webmail. This science is developing and will be the future for email applications.

Some features derived from this research are:

- Automatically summarizing email
- Predicting whether an email needs a reply
- Generating "smart" replies automatically
- Clustering or automatically labelling emails

Now it is necessary to apply these advances to email applications. What else can be done?

2.3.5 Is Search Good Enough?

Search motors evolved a lot during the past decade, although email search still lists the results simply by received date. With the amazing volume of received emails top executives have, simple and efficient search integration in email applications is necessary.

2.3.6 Email is Getting Replaced

Communication is getting more important everyday and during the last 10 years different ways to communicate have become stronger. Examples of this are:

- Social Networks (Facebook, MySpace, Hi5, Orkut, Twitter, LinkedIn, etc)
- Blogs
- SMS
- Instant Messengers
- VoIP

Many of these technologies are now "competitors" to email, being used many times as a substitute. This behaviour is seen typically in teenagers and young adults.

Gabor Cselle asks this question when he says "Until recently, all my electronic communication took place in email. It is now moving away, being replaced by more casual media, like IM, your Facebook wall, Twitter, or SMS. In the future, email could be where snail mail is today: A medium to receive advertising and official stuff." [GabBI08]

2.3.7 Email as Life Organizer

Many people organize their agendas using an email client interface. To-do lists, meeting organization, project discussions, contact list, documents and other work activities are getting integrated with email, but it is still necessary to develop them more.

Webmail wasn't designed for these purposes. Can webmail adapt to it without a fundamental change? Is it necessary to redesign everything?

2.3.8 Distraction by Unimportant Emails

Is every email important? Surely the answer is no! So why get interrupted from your work to read an unimportant email?

But this question doesn't have a simple answer, especially because our sense of importance changes depending on the situation, such as the time of day and deadline proximities. How can your email or notification program help to solve this issue?

2.3.9 SPAM

SPAM is an old problem that has been battled a lot during the last few years; however, spammers keep developing as well. Statistics say 92-99% of received emails are SPAM (most of them blocked on SMTP level, which makes it invisible to end users).

SPAM control still has some issues to resolve. As a source of dissatisfaction for users, it is important to keep these issues under control.

One negative aspect of SPAM barriers is the false positives (emails wrongly marked as SPAM). Having a good email blocked by SPAM is considered fifteen times worse than getting some SPAM. For example, using a generic SPAM filter, to someone associated somehow with the pharmaceutical industry or Viagra sales, it is probable that many emails are wrongly marked as SPAM.

On the technological side, it is interesting to notice that positive emails are the worst case in terms of processing necessities. Only that kind of email passes through the whole verification procedure (most SPAM is blocked before the end). Because of this, it is necessary to find solutions that make the acceptance of good emails less demanding to servers.

2.3.10 Extend Address Book Features

Accessing and organizing information from your contacts network is incredibly useful and becoming more important for the common internet user (the amazing growth of social networks proves it).

However, email address books usually have no practical use other than to keep a list of the email addresses of the people to whom you have sent an email. It is easy to see a great potential to evolve in this field.

Chapter 3

Portugalmail Platform Analysis

Willing to understand and get familiar with current Portugalmail Webmail Platform a deep analysis was made on that service, with special focus on supported features and usability aspects. On that phase it was possible to understand the system architecture and technologies in use.

3.1 Features and Usability Analysis

The current Portugalmail Webmail service uses a web application philosophy and has a big number of features recurring to new technologies as AJAX requests. It was developed in 2006 and since then it has been in constant maintenance aiming to develop minor new features and correct eventual bugs. Below can be seen its homepage interface.

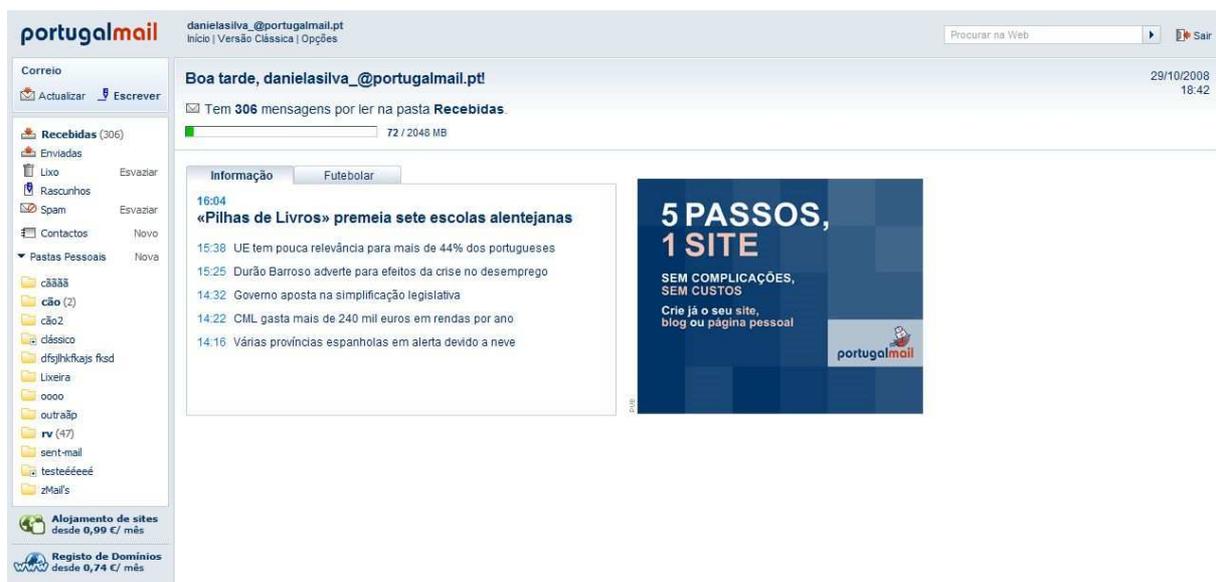


Figure 2 :: Portugalmail Webmail Interface

A comparative analysis between features provided by Portugalmail Webmail and other directly concurrent email platforms was made, resulting in a list of potential new features to integrate in future developments and the understanding of what are the killer features that make Portugalmail Webmail different from other platforms and attractive to users.

However the most important result of that analysis was an extensively descriptive evaluation of each interface, as folder view or email compose window, and associated usability aspects. That analysis resulted in a document (consult attachment B :: Análise da Plataforma de Email da Portugalmail como Utilizador :: due to target readers this document was written in Portuguese) and a list of more than 25 bugs/usability problems. That activity was very satisfying and important, because these bugs were corrected within some weeks resulting in a direct improvement to Portugalmail users.

3.2 Architecture and Technologies

Portugalmail Webmail platform is built over a variation of the famous LAMP server architecture. The acronym LAMP refers to a solution stack of software, free and open source, used to run dynamic websites or servers. This variation consists in the database software in use (from MySQL to PostgreSQL) creating the LAPP acronym.

This way, LAPP stands for:

- L**inux, operation system;
- A**pache, web server;
- P**ostgreSQL, database;
- P**HP + PHP Libraries, programming language.

Another important component on the system is the Horde Framework that stands over the PHP layer. Horde is a PHP-based Web application framework that provides a wide range of aspects as authentication, browser detection, compression, validations and other components that make web development easier. Horde architecture is based on applications. One of the most used and developed applications based on Horde is a webmail client called IMP and its AJAX version DIMP (Dynamic IMP), both versions offer access to email account on Web using IMAP or POP3. Portugalmail's Webmail is based on DIMP.

Portugalmail also uses a large number of other Horde Applications such as Turba to manage email contacts, Ingo to manage email filters and Passwd to manage user passwords. LDAP technology is also used to control user authentication and store their preferences.

The following figure illustrates how each component fits on the architecture.

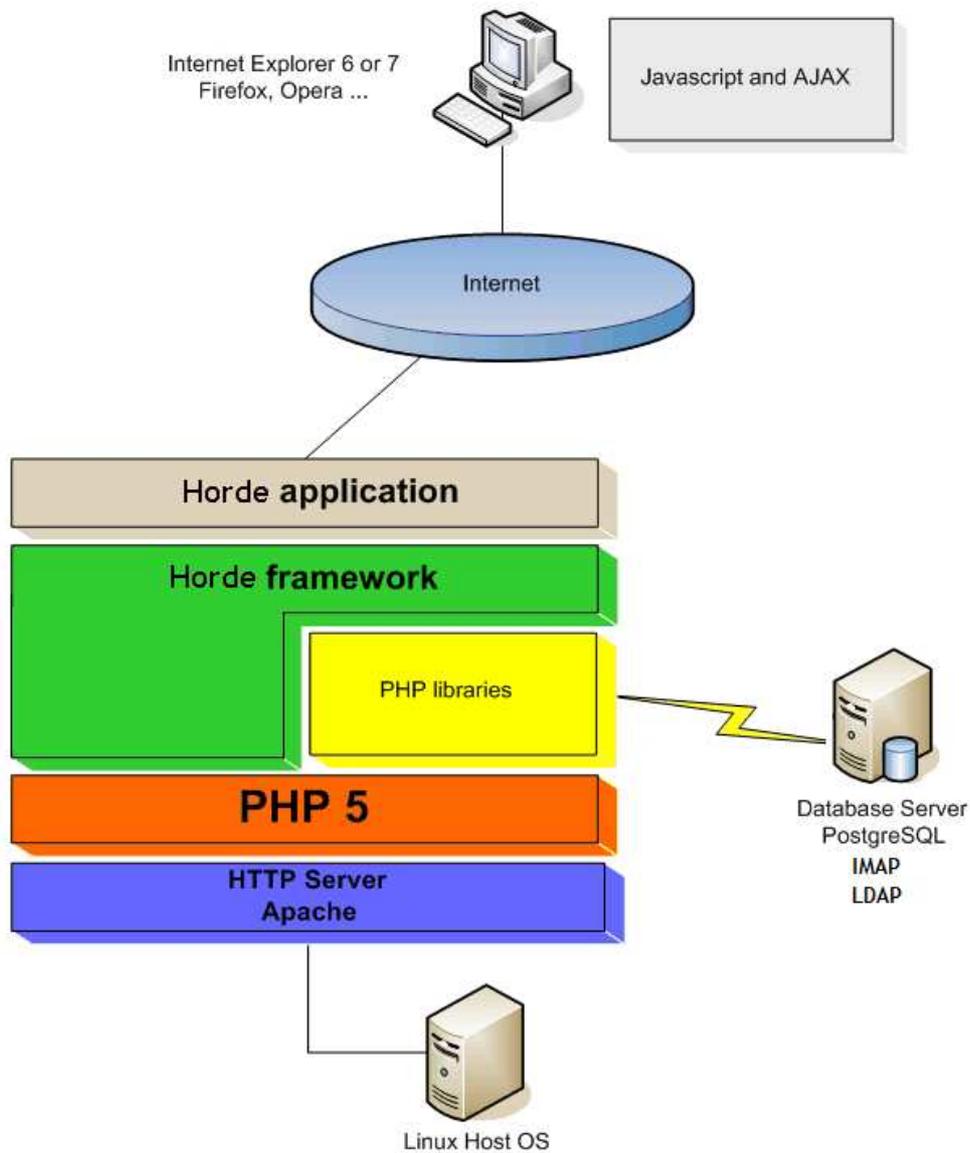


Figure 3 :: Portugalmail Platform Architecture

Analysing Portugalmail Platform allowed a better understanding of email platforms' structure and interaction. It also allowed to have a deep knowledge about what Portugalmail service could and couldn't do, which was essential to design new functionalities. The process to design these new features will be described in next chapter.

Chapter 4

Solution Conceptualization

4.1 Target Users Characteristics

Before starting any software project it is very important to know who will be the users, their most important characteristics and limitations.

However this project has two characteristics that make the research more complex:

- The target market of this new product is huge (every current and potential email user).
- It proposes to create a new paradigm (making it difficult to know how users will adapt to it).

The adopted solution was to use the current Portugalmail users as sample of the target market and analyse it. Using a market analysis [Intui06] made by Universal McCain with 12.950 current users was possible to know some of their characteristics. These characteristics statistics can be visualized in the graphics below:

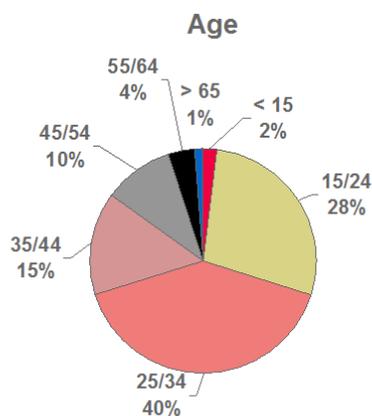


Figure 4 :: Portugalmail User Analysis : Age

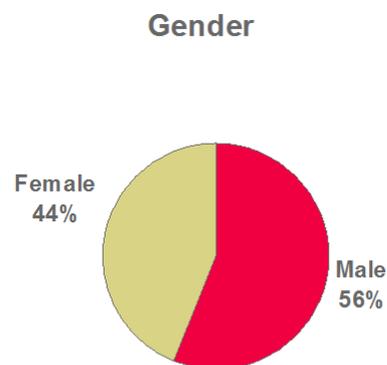


Figure 5 :: Portugalmail User Analysis : Gender

Frequency of Use

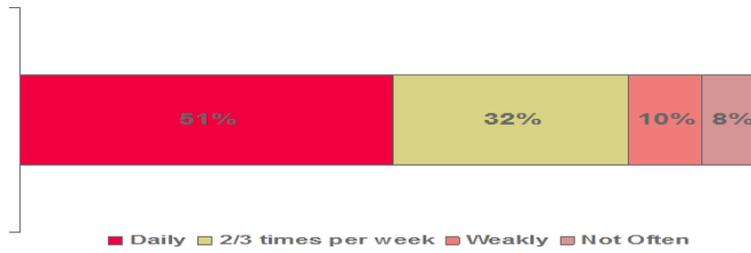


Figure 6 :: Portugalmail User Analysis : Frequency of Use

Interests

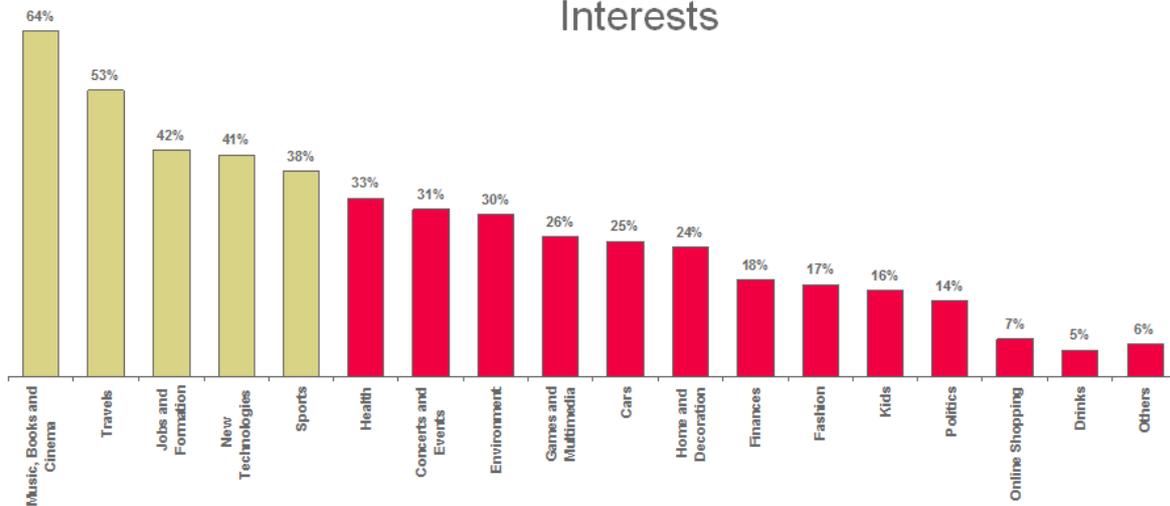


Figure 7 :: Portugalmail User Analysis : Interests

Reasons to Reject an Email

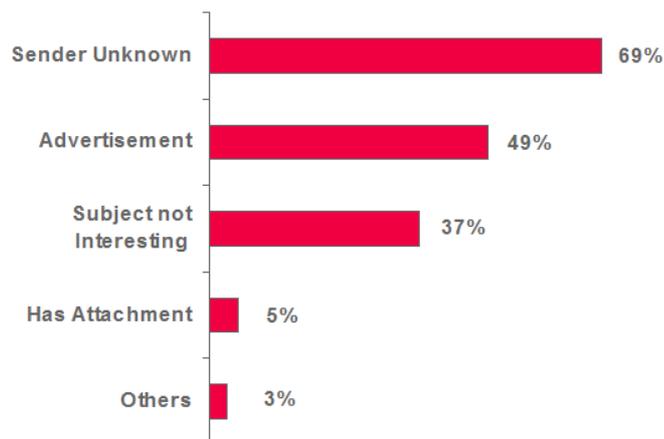


Figure 8 :: Portugalmail User Analysis : Reasons to Reject an Email

The main conclusions are:

The major part of users is 15 to 44 years old;

Gender is well distributed between Male and Female;

Users normally use webmail service daily or very often;

Main interests are Music, Books, Cinema, Travelling, Jobs, New Technologies and Sports;

Users often reject emails when the sender is unknown or they identify it as advertisement.

These conclusions were taken into consideration when developing the new concept.

4.2 Concept

Concept creation was based on the objective to build an “intelligent” webmail which uses automatic sorting, labelling and other artificial intelligence features that may help the user to have a better and friendly interaction with webmail.

From this idea the concept of an email as a personal secretary was born, helping you with what you need, organizing the email for you. Someone working for you!

However to make all these ideas clear and organized, a mind map was developed followed by some brainstorming sessions.

4.2.1 Mind Map

During all this research time it was possible to create, adapt and change some ideas. At this point it was time to “put it on the wall”!

4.2.1.1 Mind Map Organization

As shown on the image below, to create the mind map a meeting room was used inside Portugalmail's office. It has a table where the ideas were spread and a white wall where the ideas and sections were pasted.



Figure 9 :: Mind Map Construction

The wall space was organized following the rules below:

On the centre it was placed the new concept “Webmail Secretary”.

Around it were placed each of “Extended Activities Associated with Email Use” topics (previously described)

On the left were displayed basic email activities such as Read Email, Write Email and Search

On the right were displayed “Main issues of Email Use” topics (previously described)

4.2.2.1 Internal Brainstorming Session



Figure 11 :: Brainstorming Session

This phase was done during mind map construction and exactly after its completion. Email developers of Portugalmail came to the “Mind Map Room”, as shown in the image above, to read and discuss all ideas exposed on the wall.

This discussion included technical argumentation and was interesting to validate some of the concepts and ideas. New ideas were generated, based on personal opinions and previous user’s requests.

4.2.2.2 External Brainstorming Session

The objectives of the External Brainstorming Session were different from the Internal Brainstorming Session. At this point, using the different knowledge, education background (finances, marketing, design, sales and customer support) and point of view of other Portugalmail staff, it was possible to verify how non-IT people react to some ideas and generate new ones.

This session provided some very interesting feedback to the project. From these conversations a new concept of humanization of a secretary inside your email was born.

4.2.3 Mind Map + Brainstorming Results

In the end of Mind Map and Brainstorming process a diagram was created to visualize all the ideas and concepts generated on that phase. Below can be seen a sample of the final result in digital format.



Figure 12 :: Mind Map + Brainstorming Results

Each of these ideas was later transform in project requirements and is described on the associated chapter. More details about its ideas can be read in chapter Mind Map + Brainstorming Results in Attachment C :: Webmail Secretary Mind Map Construction and Analysis.

4.2.4 Concept Creation Analysis

The analysis of these results is rewarding, because so many interesting, useful and new ideas were generated, new concepts were created and a promising web application able to surprise the world is getting organized.

The balance of this Mind Map + Brainstorming process is very positive. It was very useful to organize the ideas previously created and specially to provide inspiration to create even more. Ideas will be popping up still around this project, but now it is time to think about how we can transform these ideas into a web application, how to build this application to support the weight of being used by millions of users and still have good performance.

This process was definitively a tremendous leap forward on this project.

4.3 Restrictions

Only one restriction was imposed by Portugalmail, the new solution must support the migration of all current users of Portugalmail's platforms.

A potential restriction is Human Resources, due to Portugalmail being a small company with a big number of projects going on. The short number of developers focusing on this project can mean a long time to finish its implementation.

Any technical or financial restriction was established by Portugalmail.

4.4 Dependencies and Assumptions

Webmail Secretary will be accessible through internet, this way, it is assumed all the users know at least the basis of how to interact with a computer and access a webpage.

Webmail Secretary will be built over current Portugalmail service Backend (set of applications that directly handle email messages manipulation). That Backend is composed by an SMTP server that deals with email sending and receiving processes. Webmail secretary assumes that Backend is working perfectly.

There is no initial dependency.

Chapter 5

Project Definition

After a thorough study into the state of the art of email systems, going through Portugalmail's current Webmail Platform and coming up with a large number of ideas and concepts, it was time to think about the new solution implementation and advance with a project design. However, some fundamental questions still need to be answered and that is what will be described in this chapter.

5.1 Adapt or Rebuild?

The first decision to be made was crucial to define how this project was going to advance. Adapt the current Portugalmail Webmail Platform, which means, build new functionalities over the current system; or Build a completely new Platform.

Adapting the current Platform has the advantage of saving time and effort to produce functionalities already in use, but also brings some negative aspects such as technology limitation (it would be mandatory to continue using the same version of Horde Framework), the Horde Framework used by Portugalmail Webmail Platform is not the latest version available and, since the project plans to be innovative in many different ways, some extra effort will be necessary to re-implement some parts of the current and poorly documented 3rd party code.

Building a complete new Platform has the extra advantage of no initial limitations on the conceptualization of new solutions.

	Positive Aspects	Negative Aspects
Adapt the current Platform	Save time and effort to produce functionalities already in use;	Technology limitation (obligation to continue using an out of date Horde Framework); Lose time and effort refactoring a current and not documented 3 rd party code;
Build a complete new Platform	No technology and conceptual limitation; Save time and effort refactoring current and poorly documented 3 rd party code;	Lose time and effort to produce functionalities already in use;

Table 1 :: Comparative Aspects between Adapt and Rebuild Platform

Based on these factors and the will of Portugalmail's development team of updating Horde Framework the option chosen was to build a completely new platform.

5.2 Project Plan

Another important decision is related with the project schedule and time limitations imposed by the University on this Project. Since the project is integrated on an Academic Internship with the duration of 20 weeks followed by a related thesis defence it is important that the project schedule fits in these 20 weeks.

After discussing with Portugalmail Development Team and doing estimations of time necessity for each project phase, it was possible to define a Project Plan and schedule it.

Name Phase	Phase Description	Start Date
State of Art	Research on the state of the art on Email Platforms	14th Oct 2008
Portugalmail Platfom Study	Study of current Portugalmail Webmail Service and its components	28th Oct 2008
Concept Creation	Development of ideas and concepts to new solution	11th Nov 2008
Project Plan	Define requirements, study of technological options, architecture and software design and develop implementation plan	25th Nov 2008

Features Selection	Selection of features to be implemented *	06th Dec 2008
Implementation	Implementation of selected features	09th Dec 2008
Validation and Tests	Requirements validation and interaction test with users	02nd Feb 2009
Modifications	Implementation of modifications based on validations and tests results	12th Feb 2009
Report Writing and Review	Finish writing and reviewing the report	24th Feb 2009
Report Delivery	Delivery of report and end of project	03rd Mar 2009

Table 2 :: Internship Plan

*The number of features to be implemented will be decided when the requirements are set, considering time and effort necessary to complete them within schedule.

Chapter 6

Solution Requirements Analysis

6.1 Interface Requirements

6.1.1 System Interface

Messages will be archived and organized in a maildir system using Dovecot and Postfix software. However that system is considered out of the scope of this project, being an external interface. The system will access messages of users using Internet Message Access Protocol (IMAP).

The System will also use Crontab application to perform scheduled tests and action scripts over the application.

6.1.2 User Interface

The user interface will have 3 interaction aspects.

6.1.2.1 Visual

Users will use a browser to interact with the web application. The application should be visually appealing and promote an easy interaction. CSS, XHTML and JavaScript should be used to create this dynamic interface.

6.1.2.2 Mouse

Users should be able to use the left mouse button to travel between interfaces and perform actions on the web application. For advanced users, the right mouse button should display a context menu with actions.

6.1.2.3 Keyboard

Users should be able to use the keyboard to introduce data on the web application. Advanced users should also have the option of keyboard shortcuts to perform frequent actions.

6.1.3 Hardware Interface

The hardware interfaces concerning this web application are only the connections between application servers, TCP/IP Network and users' computers.

6.2 Functional Requirements

6.2.1 User Roles

The web application only has one user role and is described as user for an individual and as users for a group of individuals (users expected characteristics have been described in chapter 4). Users are people that access the application using a web browser willing to use the functionalities provided by the system. Users should have access only to their own information.

The administration of the system will be made using an external application.

6.2.2 User Cases

Due the high number of requirements they were grouped by modules. On this sub-chapter each of those modules and associated requirements will be described. Some features are intentionally generic or even just initial ideas. Before each module's implementation starts it is important to perform an associated state of art the research, conceptualization and requirements design.

6.2.2.1 Module Email

The Module Email is the main application of the solution. It should innovate the way users read, send and organize emails, turning it into an easy and satisfactory experience for every kind of user.

The Module Email should allow users to:

- Perform all basic activities expected of a webmail service;
- Add notes to an email
- Create a task from an email
- Add email to special folders such as "Pending", "To read later", "Waiting answer"
- Archive messages
- Sort folders
- Add embedded media within emails

When listing email

- See attachment type
- Mark email as printed
- Hide email until a specific date
- Sort emails by importance (ranked by the system)

When reading an email, the system should

- when both users (recipient and sender) are online suggest Instant Messenger Application
- transform links into objects (images, videos)
- allow easy access to previous and next emails
- show email in friendly date format (N time ago)
- allow thumbnail attachment preview
- allow the download of all attachments at once
- allow to delete only the attachments of a message but not the message itself
- display a slideshow of images

When composing an email, the system should

- when forward/replying : automatically remove previous receivers headers
- when forward/replying : display check box to add/remove original message
- when forward/replying : display notification of other reply
- allow to use previously composed emails templates
- allow batch emails
- allow use of macros
- allow signature customization
- by identity
- random quote
- status on social networks
- allow emoticons
- record and send videos
- auto save drafts
- allow forwarding of the whole conversation
- send VCard
- define future date to send email

Module Email should also have an interface to Mailing Lists where it would be possible to see threads by father node, mute threads and create sub-thread easily.

6.2.2.2 Module Contacts

Module Contact aims to be an innovative integration between an address book and a social network. The user will have a personal profile and the ability to add contacts, and if this contact also has a profile, a connection can be created that will automatically update the address books of each other.

That solution aims to bring the dynamic interaction and usefulness of social networks inside an email address book.

The Module Contacts should allow users to:

- Create, List, Edit and Remove Contacts;
- Create, List, Edit and Remove Social Groups;
- Associate Contacts to Social Groups;
- Edit personal information that will be available to contacts;
- Connect to contacts and get information update from them;
- See list of emails and files sent by each contact or social group individually;
- See statistics about interaction with each contact or social group individually.

6.2.2.3 Module Applications

The Module Applications is structured in three phases:

- Develop a framework to support the development of applications. Ideally that framework would be able to run applications built by developers outside Portugalmail;
- Build applications to be used on the system;
- Develop an interface to display, add and remove applications.

Many applications are already design. Some possible examples of applications are: Contact Viewer – where is possible to quick search and visualize contact information; Agenda – where is possible to visualize calendar events by day; Tasks – where is possible to keep track of tasks; and Facebook, Twitter, Delicious and other social networks integration.

6.2.2.4 Module Search

The module Search should allow the user to easily and intuitively find an email, contact, social group, attachment, application and any other searchable entity.

6.2.2.5 Module Homepage

The module Homepage aims to develop the homepage of the web application. The homepage should bring to the user a complete overview of the web application and be as customizable as possible.

6.2.2.6 Module Ads

The module Ads aims to display and manage the advertisements throughout all the web application. Advertisement areas will include banners, text advertisement and secretary clothes and accessories.

6.2.2.7 Module Options

The module Options aims to develop functionalities that allow users to configure application settings easily.

6.2.2.8 Module Secretary Skills

The module Secretary Skills is related with features provided by the secretary application. These features include:

- Automatically update contacts
- Request info from contacts
- Suggest insertion of new contact to Social Groups
- Allow undo actions
- Automatic white-listing contacts
- Welcome guide tour
- Customize Secretary
- Gender
- Name
- Clothes
- Notify users about system updates
- Recognize patterns (as passwords, events, physical addresses, email addresses, books and movies names) in emails and perform associated actions.
- Summarize Emails

6.2.2.9 Module Calendar

The module Calendar is related with the development of a web calendar. This calendar should integrate with other modules of the web application and bring innovative and creative ways to manage user's events and agenda.

6.2.2.10 Module RSS Reader

The module RSS Reader is related with the development of a Feed Reader. It should be directly connected with the Contacts Module, allowing users to share interesting feeds and articles within their network.

6.2.2.11 Module Files

The module Files aims to be a smart, fast and simple interface to users visualize and interact with attachments, events files, contacts pictures and a personal storage account.

6.2.2.12 Module Instant Messenger

The module Instant Messenger aims to develop an AJAX/XMPP based instant messenger. That module should allow users to interact directly with their contact network and also use other Instant Messenger services such as ICQ, MSN Live and GTalk.

6.3 Information Requirements

This web application will deal with a massive number of information from users, such as emails, personal information, events data, users' preferences and more.

Taking a decision based on performance aspects, information should be stored depending on the type of access it will have. That way, the system will have 3 different methods to store information.

6.3.1 LDAP

The Lightweight Directory Access Protocol (LDAP) is an application protocol for querying and modifying directory services running over TCP/IP. A directory is a set of objects with similar attributes organised in a logical and hierarchical manner. This structure will allow LDAP, in comparison with relational databases, to have a very fast performance when requesting a selection, however it has a poor performance in insert and update actions.

This way, passwords, usernames and other data that are constantly accessed and have a low rate of update and insert operations will be stored using a LDAP service.

6.3.2 File System

Portugalmail Email Platform currently uses a maildir structure to store and manage email data, using external applications (Dovecot and Postfix).

“Maildir is a widely-used format for storing email that does not require application-level file locking to maintain message integrity as messages are added, moved and deleted. Each message is kept in a separate file with a unique name. All changes are made using atomic filesystem operations so that the filesystem handles file locking concurrency issues.”

The new platform will access email data through IMAP.

“Internet Message Access Protocol (IMAP or IMAP4) is an application layer Internet protocol operating on port 143 that allows a local client to access email on a remote server. The current version is defined by RFC 3501.”

This solution is currently seen as positive and will be kept.

6.3.3 Database

Personal Information, events data and other entities necessary to be stored by each module should be kept in a database SQL. Ideally each module should have an independent database and necessary information from other modules should be accessed using API methods.

6.4 Non-Functional Requirements

Non-functional requirements are requirements that specify criteria that can be used to judge the operation of a system, rather than specific behaviours. The number of non-functional requirements associated with a software application is extremely large, some of the most important (according to Portugalmail's development team) are described below.

Compatibility – The web application should be compatible with all major browsers (Internet Explorer, Firefox, Safari and Opera);

Efficiency – The web application should have good results based on the relationship between the level of performance and the amount of resources used, under stated conditions;

Extensibility – Application should be able to grow through the development of new features and modules;

Fault-tolerance – System should be able to continue performing in the case of a component failure or individual user problem;

Languages – The application should be available in a large variety of languages, aiming at make it easy for every user to use it;

Maintainability – Should be accessible for any member of the development team mainly to keep the application working. Maintenance processes should be developed to facilitate those activities;

Marketability – The application should constantly be seen as a product that aims to please users as customers. Features should aim to solve users necessities and wills;

Modularity – Application should be divided in independent modules willing to facilitate updates and maintenance;

Portability – Interface should run in any of the major Operating Systems (Windows, Mac OS and Linux distributions);

Reusability – Code should be written using abstraction levels to allow as much reuse as possible.

Robustness – System should be able to withstand stress, pressure, or changes in procedure or circumstance as abnormalities in input, calculations, etc.;

Scalability – Application should be able to handle a big increase of number of users with a minor efforts and keeping performance ratings.

Security – Information should only be accessed by owners or authorized people. Authentication mechanisms should be developed to secure that component.

Usability - Usability is a qualitative attribute that assesses how easy user interfaces are to use. It should involve different aspect as Learnability (How easy is it for users to accomplish basic tasks the first time they encounter the design?), Efficiency (Once users have learned the design, how quickly can they perform tasks?), Memorability (When users return to the design after a period of not using it, how easily can they re establish proficiency?), Errors (How many errors do users make, how severe are these errors, and how easily can they recover from the errors?) and Satisfaction (How pleasant is it to use the design?).

6.5 Functional Specification

Mojofat [Mojo08] describes Functional Specification as “the blueprint for how you want a particular web project or application to look and work. It details what the finished product will do, how a user will interact with it, and what it will look like.” Mojofat also presents benefits of doing it as “A key benefit of writing up a Functional Spec is in streamlining the development process. The developer working from the spec, ideally, has all of their questions answered about the application and can start building it. And since this is a spec that was approved by the client, they are building nothing less than what the client is expecting. There should be nothing left to guess or interpret when the spec is completed”.

However, many authors often describe Functional Specifications as useless.

Linus Torvalds, creator of Linux, says “A "spec" is close to useless. I have never seen a spec that was both big enough to be useful and accurate. And I have seen lots of total crap work that was based on specs. It is the single worst way to write software, because it by definition means that the software was written to match theory, not reality.” [Linus08]

37Signals defends that Functional Specifications are negative in many aspects to project development, essentially because, they are always too far from the finished product. “They don’t reflect reality [...] they are just words on paper”; “specs only lead to an illusion of agreement”; “specs lead to feature overload”; “specs don't let you evolve, change and reassess”. [Get06]

I believe Functional Specifications make software too rigid. Everything should be defined to early in the process, before you are aware of major development problems. “Specs don't deal with the reality that once you start building something, everything changes.” [Get06] Functional Specifications should only be applied to projects that really justify it use. Some example of projects were specs probably are necessary are critical software or when designers and developers won’t be working together, so it is not possible to ask any how or why questions during development.

That case doesn’t apply to this project, so functional specification won’t be performed on this project. Instead of this approach, the project will focus on building a prototype interface.

Through a real interface it will be easier to evaluate components, features, activities and usability. It will also be useful to play the role of the user and understand where the problems are before starting the implementation.

I'm sure that the prototype will define the final product much better and allow greater precision than any functional specification.

Chapter 7

Navigation and Interface Design

After all the ideas and concepts were formalized as requirements, it was time to start planning how to convert all these requirements to a product.

I decided to start by the Interface Level. First developing the Navigation Map and then the Interface Design, each of these phases shall be described.

Starting with interface was an important decision. “Programming is the heaviest component of building an app, meaning it is the most expensive and hardest to change. Instead, start by designing first. Design is relatively light. A paper sketch is cheap and easy to change. HTML designs are still relatively simple to modify (or throw out). That's not true of programming. Designing first keeps you flexible.” [get06]

Another reason to start at the interface stage was the possibility to visualize a sketch of the final product at an early stage, thereby validating the concept and testing how complex it will be for the user.

7.1 Navigation Design

Concerning Navigation Design or Information Architecture, an important concept researched is Findability, a concept credited to Peter Morville. “Findability refers to the quality of being locatable or navigable. At the item level, we can evaluate to what degree a particular object is easy to discover or locate. Findability is about designing systems that help people find what they need.” [Box08a]

Since “Webmail Secretary” is a complex system, access to all functionalities must be easy, quick and intuitive. Otherwise, those functionalities won't be used; or, even worst, the non-findability of these features will prevent user satisfaction. At same time the interface shouldn't have too many options available, or it will become a complex labyrinth.

According Steve Krug, in Don't Make me Think [DMmT06], users trying to find something online apply the same strategies they do in markets and "real life" in general. Steve Krug divides users into two groups according their searching personalities.

Users that browse first

Those users normally look for a hierarchy or signs to guide their way (like the store's department signs). Jakob Nielsen defines these users as "link-dominant" [alert08a].

User that ask/search first

Those almost always look for a search box as soon as they enter a site (in a "real life" situation this people normally look for someone to ask). Jakob Nielsen defines these users as "search-dominant" [alert08a].

Both kind of users are important and should be considerate when Information Architecture is defined.

Another important aspect is Navigation depth - the minimum number of clicks necessary to access any content in a website. For many years the "three-click rule/heuristic" [3cllc08] was accepted as something to follow. However, recently Nielsen and Norman Usability group stated that "the number of clicks is not important, as long as the content flow makes sense and is logical, leading the users in a way they understand and expect to the information that they need." [ThatD08].

Based on all that aspects, navigation was designed with 3 sections and a visible search box.

7.1.1 Navigation Sections

7.1.1.1 Main Activities Menu

This is the main section and its menu should be visible in every page of the system.

On this section should be available access to main features of this product. Some of these features are optional (since most of the users won't use them), which means that features will be invisible until users activate them. Each of these features should have its own sub-menu as listed below:

7.1.1.1.1 Home

Icon links to Initial Page.

Initial Page should present an overview of important and pending items.

7.1.1.1.2 Email

Email section is dedicated to manage and view personal email.

Menu Items:

- Compose
- Inbox (Indication of unread messages)
- Filters by Social Circle (Indication of unread messages)
- Mailing Lists (Indication of unread messages)
- Social Networks (Indication of unread messages)
- Sent Mail
- Drafts
- SPAM
- Bin
- Personal Folders
- Default Folders
- Created Folders

7.1.1.1.3 Contacts

Contacts section is dedicated to manage and view contacts information.

Menu Items:

- Add Contact
- Social Circles
- Suggested Contacts
- Import Contacts
- Export Contacts

7.1.1.1.4 Advanced Search

Advanced Search section will help users to filter and customize their searches aim better results.

7.1.1.1.5 Calendar (Optional Item)

Calendar section is dedicated to manage and view events information.

Menu Items:

- Create Event
- My Events
- Other Calendars
- List of Public Calendars

7.1.1.1.6 RSS Reader (Optional Item)

RSS Reader section is dedicated to managing and viewing feeds.

Menu Items:

- Add Subscription

- My Feeds
- List of Feeds
- To see later Items
- List of Feeds
- Stared Items
- Shared Items
- List of Shared Items by Contact

7.1.1.1.7 Files (Optional Item)

Files section aims to be an easy way to access files existents on that system.

Menu Items:

- All Files
- Email Files
- Contacts Files
- Calendar Files
- RSS Saved Files
- Personal Storage

7.1.1.2 System Configuration

On this section will be options to access system configurations, manage applications and edit the personal profile. It should have low visualization level (since it shouldn't have a very frequent use) and be located near the personal assistant.

Menu Items:

- Profile
- Applications
- Options

7.1.1.3 Support Applications Menu

Associated with Webmail Secretary will be a space dedicated to applications, these applications aim to be a contextual help for users. They will be optional to each user; being necessary to activate most of them in the system configuration.

The Support Applications Menu should display the applications activated by users and allow easy and fast switching between them.

7.1.2 Search Box

Together with scanning, searching is the most common activity on a webmail service. To support that activity, a search box should always be available. It should use the context as search indicator and be simple to use.

An advanced search will also be available in search results and through the main activities menu.

7.2 Interface Design

Design Interface is - or at least it should be - a critical phase in every web/software project. It is what users will see and essentially how they will interact with it.

Since users are the key point here, all the processes tried to involve them as much as possible. First looking at how users interact with webpages, through an analysis on user's resolutions and secondly creating prototypes, testing and adapting interface decisions with real users.

7.2.1 External Variants Analysis

If one wants to describe Interface Design using non-technical words, a possible way to express it is: "define how users will visualize and interact with the system". The problem here is that visualization doesn't depend only on the system but also on **Display and Browser characteristics** chosen by users.

7.2.1.1 Display Characteristics Analysis

Concerning display characteristics there are two main aspects: Screen Resolution and Colour Depth. However, Colour Depth is practically not an issue anymore, since 90% of Internet users' computers "use 24 or 32 bits hardware to display 16,777,216 different colours" with the figure still growing at a rate greater than 4%/year. [Stat08]

Thus, our main concern is Screen Resolution, meaning which resolutions our system should support. More specifically: what is the minimum resolution supported (normally users with a higher resolution have no usage or usability problems).

It is also important to refer that Webmail Secretary will be developed as a Web Application, which means all information should be shown without scrollbars on browser window, allowing functionalities such as Drag and Drop to any part of the application. This way, every space is critical, so a higher minimum resolution support means more space to organize all the information.

An analysis was performed on actual Portugalmail users Screen Resolution to make a consistent decision on the minimum resolution to support. The figures 13, 14 and 15 represent Screen Resolution evolution over the past 9 months in sets of 3 months. [Stat08]

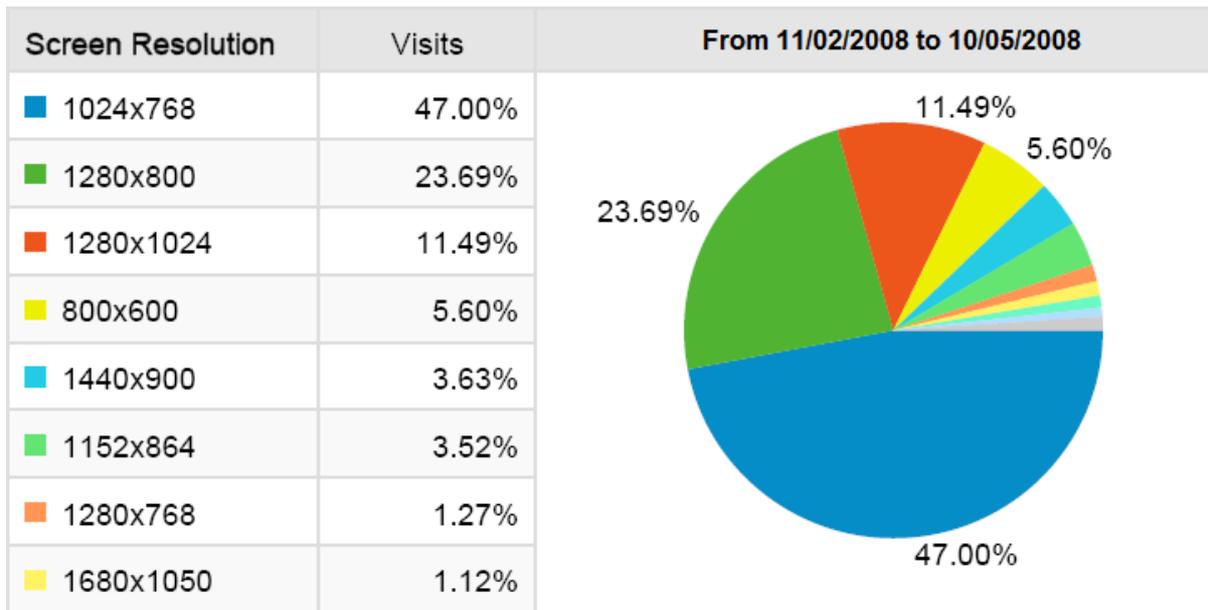


Figure 13 :: Screen Resolution Analyze : 02/08 to 05/08

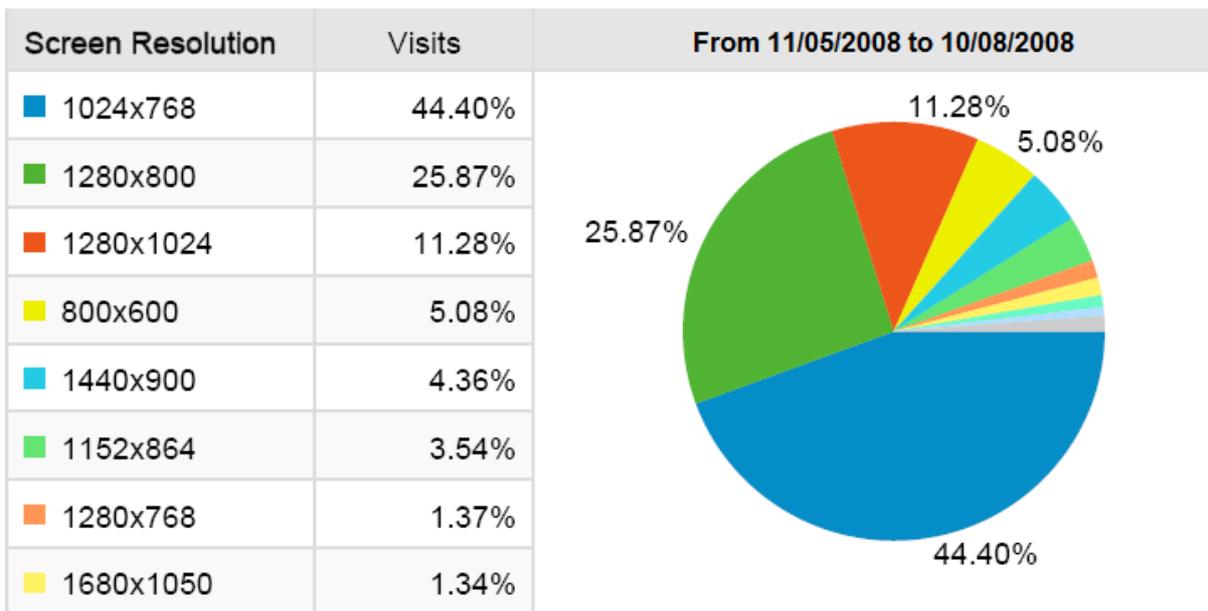


Figure 14 :: Screen Resolution Analyze : 05/08 to 08/08

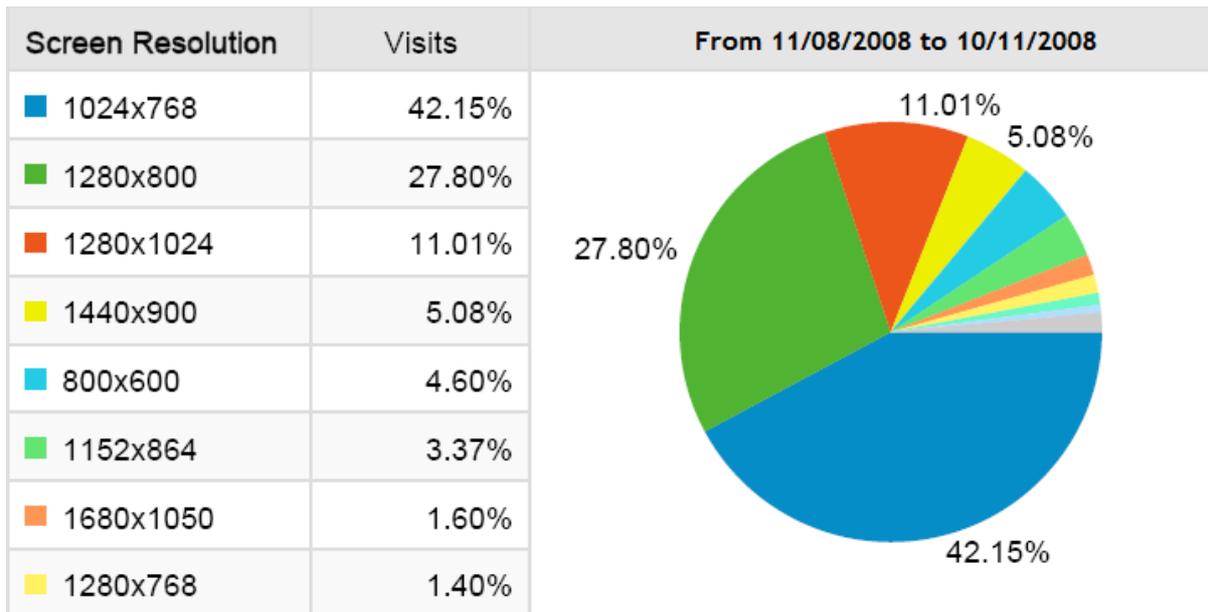


Figure 15 :: Screen Resolution Analyze : 08/08 to 11/08

Portugalmail users are a good base for this research, however, this project will be developed to the whole Internet community, so it was necessary to consider statistics with a larger and more diverse population, namely TheCounter.com Statistics [Count08a] for October 2008 presented below.

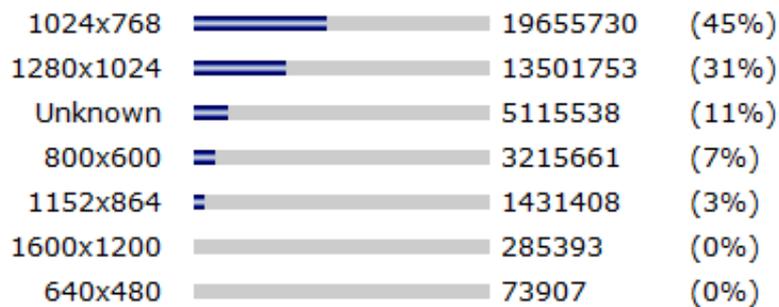


Figure 16 :: Statistics TheCounter.com October 2008

After analysing the graphs we could conclude that there is a fast evolution towards resolutions greater than or equal to 1280x800 (Portugalmail users) and 1280x1024 (TheCounter.com), however an important bulk of users is still using 1024x768.

The decision was considering 1024x768 the minimum resolution supported (800x600 users are just a small percentage and going down gradually) and create a wide version for users with superior resolution.

7.2.1.2 Browser Characteristics Analysis

Similarly to display resolution, another important aspect regarding how interface will be displayed in the users' monitor is what browser is used to access the web application. The variation between browsers' rendering is often high and usually a nightmare to web developers and designers. Due to the large number of browser options available to the users it is necessary to define what browsers the application should support. To decide this it is important to look again to usage statistics, the image 17 illustrates the variation of number of users by browser platform during the past few years in an interesting way.

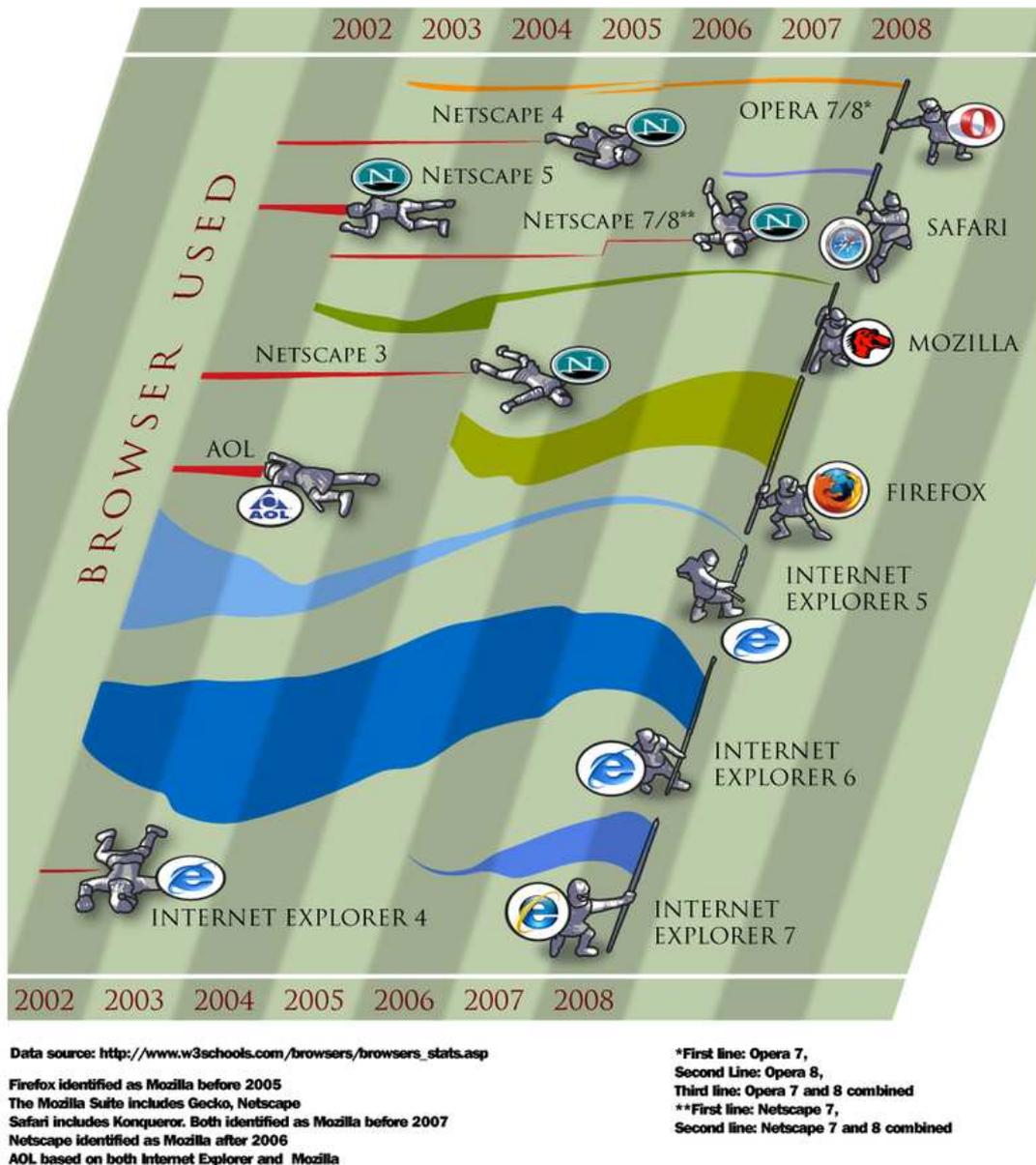


Figure 17 :: Browser Usage Statistics [Browsers08]

As we can see, Internet Explorer 6 and 7 and Firefox have most of users while Mozilla, Safari and Opera follow them with a small percentage. After this data analysis it was possible to decide that the application should work and be visualized perfectly running either on Internet

Explorer 6, Internet Explorer 7 or Firefox. It also should work without major problems when users use Mozilla, Safari and Opera.

7.2.2 Design Prototypes

“Prototypes provide the developers with a "working model" for demonstration or use by customers, quality-assurance, business analysts, and managers to confirm or make changes to requirements, help define interfaces, develop collaborating components, and to provide proof of incremental achievement of scheduled contractual agreements.” [WPr08]

To validate and test some new concepts we were planning to build on the new system, I decided to develop a prototype. Initially digital dock-ups were the solution chosen, however it has some limitations so, after some research [Pre_Ivo07], a second initiative was developed, namely a High Fidelity Paper Prototypes. Both prototypes construction process and results will be described on the next sub-chapter.

7.2.2.1 Digital Mock-ups

As referred before Digital Mock-ups were choose to create low fidelity interface options. To develop these mock-ups the Balsamiq Mockups Web Application [Bal08] was used. Initially there were produced two mock-ups. These mock-ups are presented in the images 18 and 19.

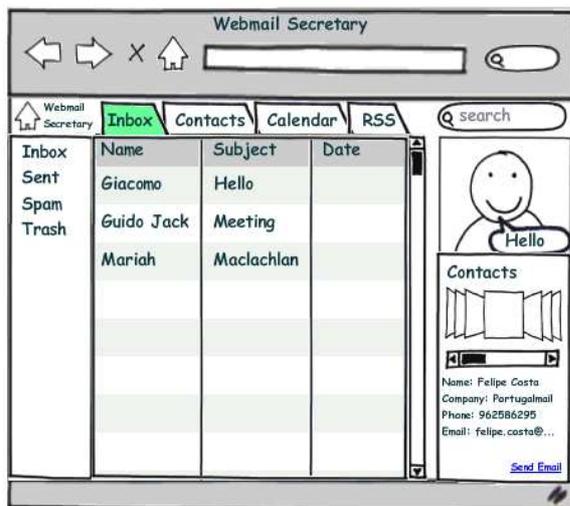


Figure 18 :: Digital Mock-up 01

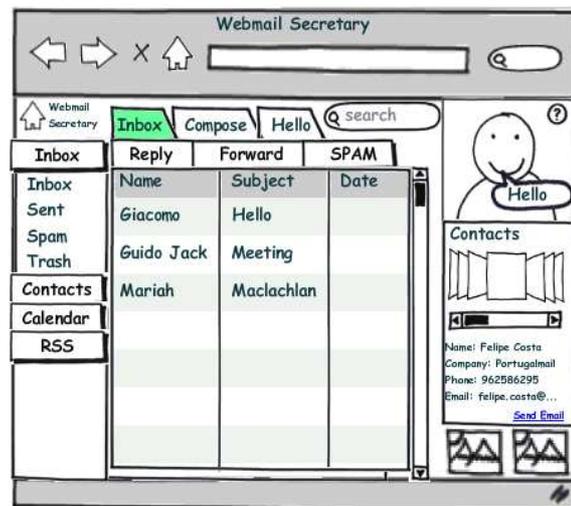


Figure 19 :: Digital Mock-up 02

These two mock-ups were presented to development team, getting a massive feedback and new ideas about them.

Being a good approach to create a few different interface sketches and display as options, it soon became not flexible enough to support brainstorming session. The solution was to develop a Paper Prototype.

7.2.2.2 Paper Prototype

Paper Prototyping has the advantages of “being the easiest method to write, erase, re-write, fold and cut time after time, fast to edit, it is faster than any software, easy to transform ideas into drawings and users are more critical over paper than software” [Pre_Ivo07]. It also has some negative aspects, namely the fact that “any code is writing during its development, does not test all usability aspects, users view it as non-professional method and it is hard to replicate some specific web elements such as scrollbars and animations” [Pre_Ivo07].

Since I was looking for a fast and easy-to-change prototype to support brainstorming the concepts, Paper Prototype characteristics fit perfectly with the requirements. Aiming future tests and concept validation with users, the prototype should be functional and with high fidelity.

Thus, the prototyping building process was developed step by step, as shown in the images below, getting continuous feedback from Portugalmail’s developers team, evolving to a complex manually interactive system.

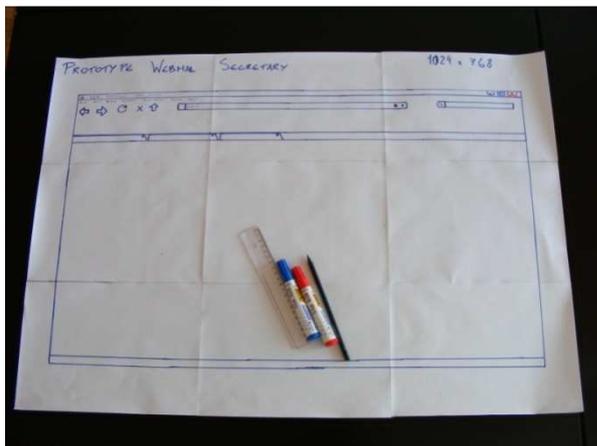


Figure 20 :: Paper Prototype Process 01



Figure 21 :: Paper Prototype Process 02



Figure 22 :: Paper Prototype Process 03

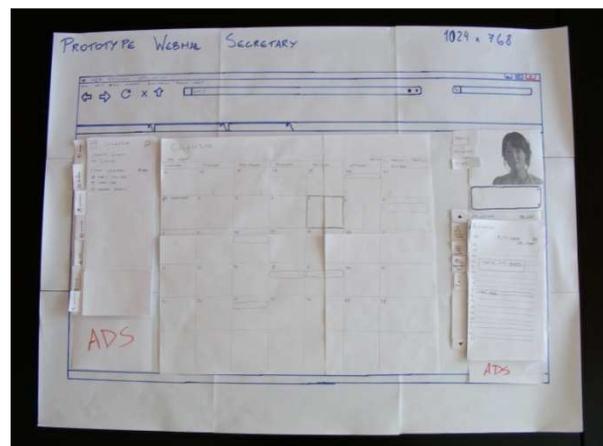


Figure 23 :: Paper Prototype Process 04

Navigation Menus, visible in figures 24 and 25, were fully created and filled with data to increase quality and fidelity in the prototype.

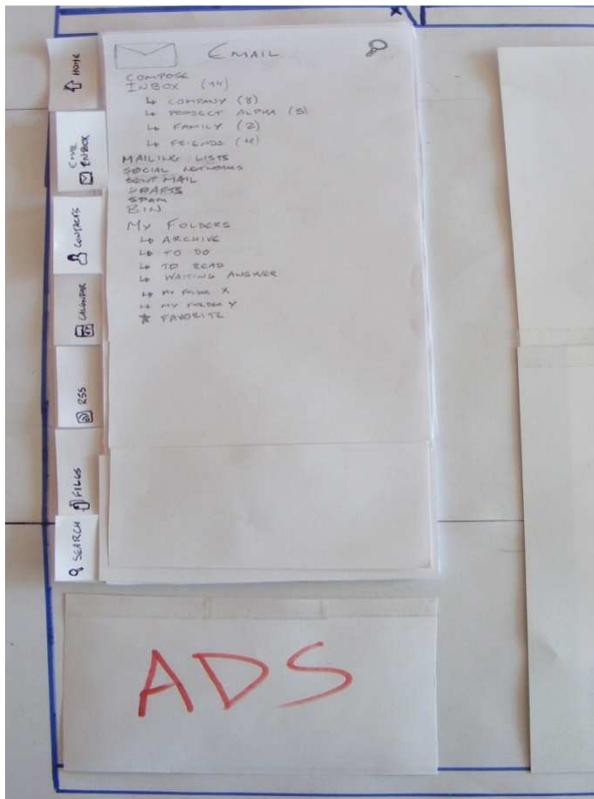


Figure 24 :: Paper Prototype Detail 01

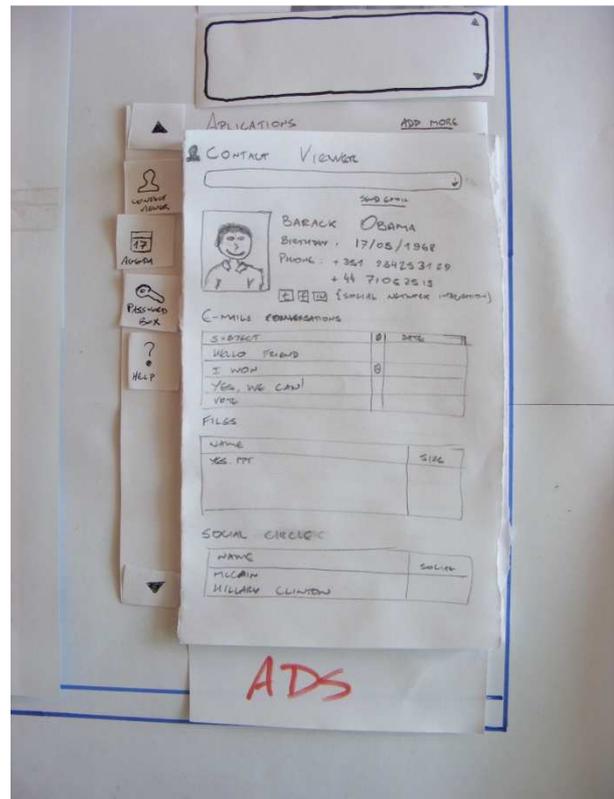


Figure 25 :: Paper Prototype Detail 02

The final paper prototype allowed all stakeholders to have a complete material visualization of the expected system, increasing motivation to develop this new system. It was also useful to realize some tests and concept validations.

7.2.3 Prototype Tests

In order to understand how users would react to all the new concepts introduced by this project some tests were made. These tests consisted in showing and explaining the paper prototype to a small number of potential users of this application.

After the explanation, testers were allowed to interact with the paper prototype and make question about features and concepts. Finally testers were asked to fill out a short survey. The figure below illustrates the survey page presented to testers.

Webmail Secretary Concept Test

Before you answer these questions you should get an explanation about "Webmail Secretary" based on a paper prototype. To answer these questions think about the final product, not about the paper prototype.

1 – Did you like the application?

Yes No

2 – What did you like the most? Why?

3 – What is your opinion about the secretary/personal assistant concept? Why?

4 – What didn't you like? Why?

5 – If the system was already available would you be willing to create an account?

Yes No

If yes, are you willing to make it your main email account?

Yes No

6 – Describe the application using 5 words (first words that come to you).

7 – Do you have any suggestion to make it more useful?

Thank you for your attention.

Figure 26 :: Concept Test Survey

After analysing all the surveys it was possible to reach some results and conclusions, such as:

- All testers liked the application;
- All testers would like to create an account and make it their main email account;
- Testers described the application as original, easy to use, innovative, efficient, helpful, intelligent, well structured, interactive, intuitive, practical, complete and useful.
- Testers referred the secretary concept and all associated applications as original and interesting, most them referred it as the feature they liked the most. One tester said "I mostly liked the variety of applications and the fact that they can make your daily use of the email easier, wider and quicker".

- Testers also referred the flexibility to adapt the application to their use and the easy access to documents and emails as positive aspects.
- Some interesting suggestions were made by testers such as an application that works as a music player, auto-saving while writing email and a male secretary.

It is also important to say that the results of this concept test were seen as very positive and worked as an extra motivation to the development team.

Chapter 8

Technologies Definition

Based on paper prototyping activity it was possible to reach an agreement about requirements and application aspect. This situation directed the project to implementation aspects including technology definition. This chapter will cover the study that was made to select the best technologies to build the designed system.

8.1 System Architecture Technologies

8.1.1 Backend Technologies

The new system will be developed over the current backend structure of Portugalmail Webmail service. That backend structure is responsible by email transactions (send and receive) and manipulate those emails (archive, retrieve and organize). Two fundamental components are Postfix and Dovecot software.

Postfix is an open source email server agent for Linux. It is a component that receives and sends emails through a SMTP channel and also archives it in maildir folders.

Dovecot is an IMAP server and is responsible by operations over emails such as visualization of messages, move to folders, mark as read or unread and delete. Dovecot is also responsible for system authentication communicating with an LDAP directory.

Filters and anti-SPAM protection is also made on the backend level.

8.1.2 Frontend Technologies

Since the application to be developed will be a web application, interface technologies such as XHTML, CSS and JavaScript will be used as well.

HTML, HyperText Markup Language, is the predominant markup language for Web pages. It provides a means to describe the structure of text-based information in a document

— by denoting certain text as links, headings, paragraphs, lists, and so on — and to supplement that text with interactive forms, embedded images, and other objects. HTML is written in the form of tags, surrounded by angle brackets. [wikiHTML]

Cascading Style Sheets (CSS) is a stylesheet language used to describe the presentation (that is, the look and formatting) of a document written in a markup language. Its most common application is to style web pages written in HTML and XHTML, but the language can be applied to any kind of XML document, including SVG and XUL.

CSS is designed primarily to enable the separation of document content (written in HTML or a similar markup language) from document presentation, including elements such as the colours, fonts, and layout. This separation can improve content accessibility, provide more flexibility and control in the specification of presentation characteristics, enable multiple pages to share formatting, and reduce complexity and repetition in the structural content. [wikiCSS]

JavaScript is a scripting language widely used for client-side web development. It was the originating dialect of the ECMAScript standard. It is a dynamic, weakly typed, prototype-based language with first-class functions. JavaScript was influenced by many languages and was designed to look like Java, but be easier for non-programmers to work with. [wikiJavaScript]

Nowadays it is very usual to see websites using many interaction methods (such as Drag and Drop) based on JavaScript with excellent results. The application in development will abundantly use these technologies so it is very important to choose wisely what JavaScript libraries to use.

The available options analysed were DOJO 1.1.1, Yahoo! User Interface 2.5.2, JQuery 1.2.6, Prototype 1.6 and Moo Tools 1.2. Moo Tools and JQuery have better performance results [JSTest] however Prototype library was chosen. Portugalmail had large experience working with Prototype and using Prototype allows developers to take advantage of the excellent and easy to use Scriptaculous effects libraries.

8.2 Webmail Platform Study and Selection

A very important technological decision made was the selection of what webmail platform would support the development of the application. It is possible to develop a webmail system without a platform as base, but there are so many good and stable options available so choosing one to support development is a smart decision.

8.2.1 Available Options

From the many different available options, the ones selected were those with major stability and development community support. Each solution description, based on Rui Santos' study [MsT_RS06], is presented in the following sub-chapters.

8.2.1.1 Zimbra

Zimbra is a complete AJAX-based web suite with email, calendar and agenda; it is compatible with major part of browsers and operative systems. Zimbra suite has two versions: one free and *open source* and other paid called Network Edition. Figure 27 shows Zimbra's Interface.

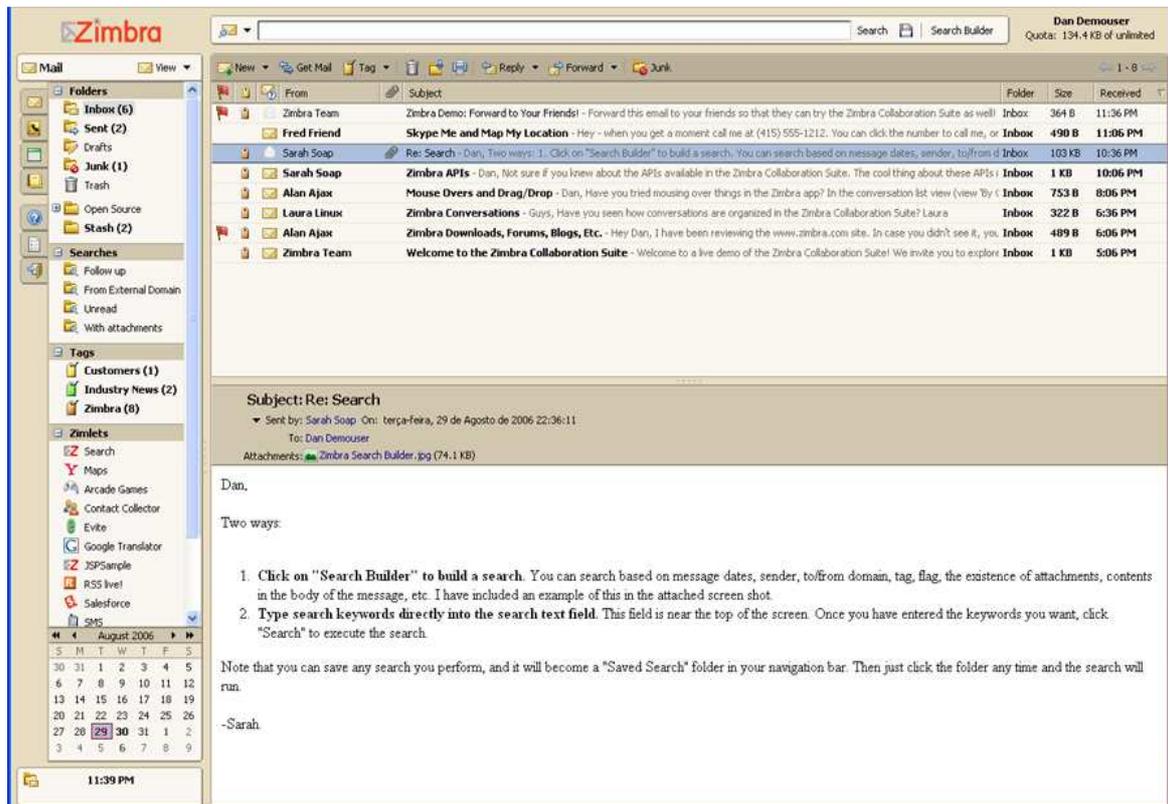


Figure 27 :: Zimbra Interface

Zimbra has as positive aspects the great visual interface and interaction, as well as being easy to install and it has good documentation. However its architecture can hardly be adapted to current Portugalmail architecture and it is not possible to remove the “Zimbra logo” from the interface.

8.2.1.2 RoundCube

RoundCube is an AJAX-based webmail client that supports MIME, address books, filters and folder manipulation. It is developed in PHP, using a MySQL database and is completely open source.

RoundCube seems to be a small and easily scalable webmail platform; however it misses important features such as forwarding messages with attachment and integration with Outlook. Figure 28 shows RoundCube's Interface.

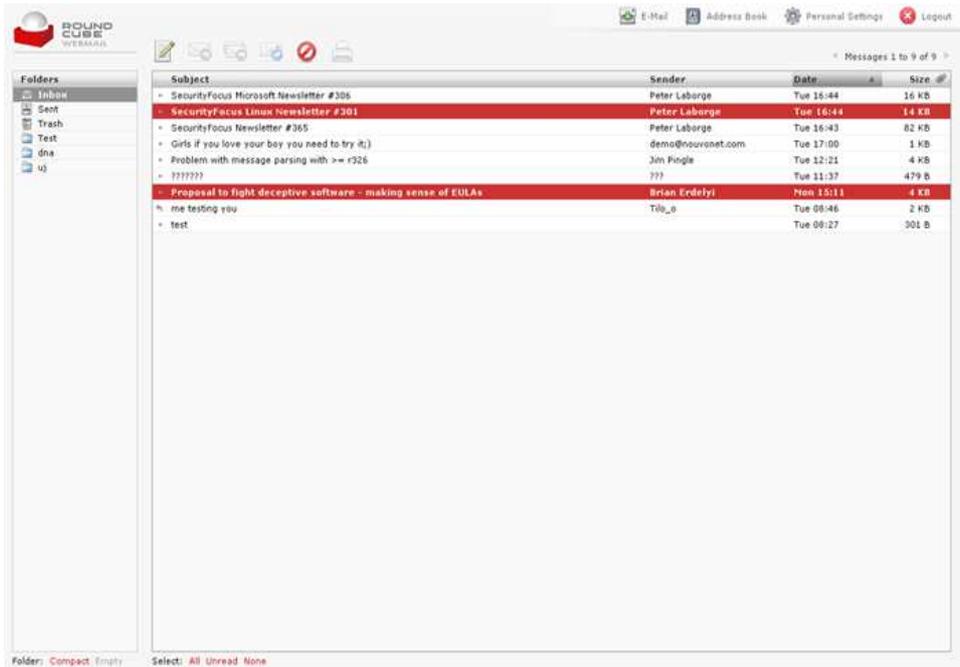


Figure 28 :: RoundCube Interface

8.2.1.3 Scalix

Scalix is a strong a stable webmail platform; however it is a closed source solution, that making it impossible to accept as a development platform. Figure 29 shows Scalix's Interface.

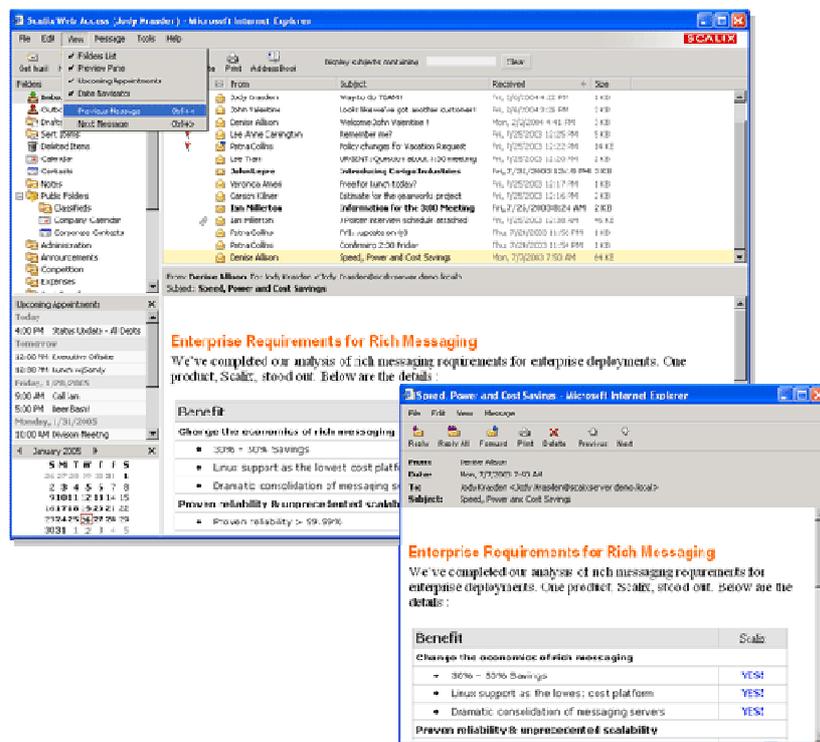


Figure 29 :: Scalix Interface

8.2.1.4 Horde

Horde is a complete open source suite of webmail, developed in PHP. It is currently used by Portugalmail webmail platform and has a strong and stable community supporting it. Horde platform was already described at Chapter 3.

The image bellow shows Portugalmail current interface, built over Horde platform.

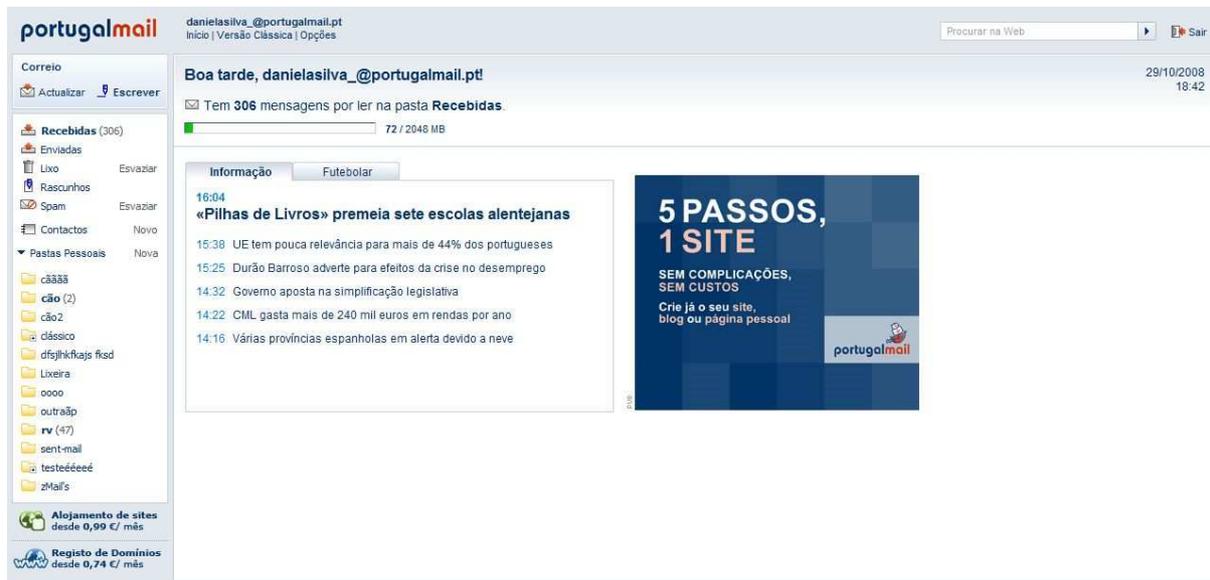


Figure 30 :: Portugalmail (Horde) Interface

8.2.1.5 SquirrelMail

SquirrelMail is a standards-based webmail package written in PHP. It includes built-in pure PHP support for the IMAP and SMTP protocols, and all pages render in pure HTML 4.0 (with no JavaScript required). It is easy to configure and install. SquirrelMail has strong MIME support, address books, and folder manipulation.

SquirrelMail is a small webmail platform and doesn't seem to be ready to support the scale requested by Portugalmail system (hundreds of thousands users). Because of this SquirrelMail was rejected. Figure 31 shows SquirrelMail's Interface.

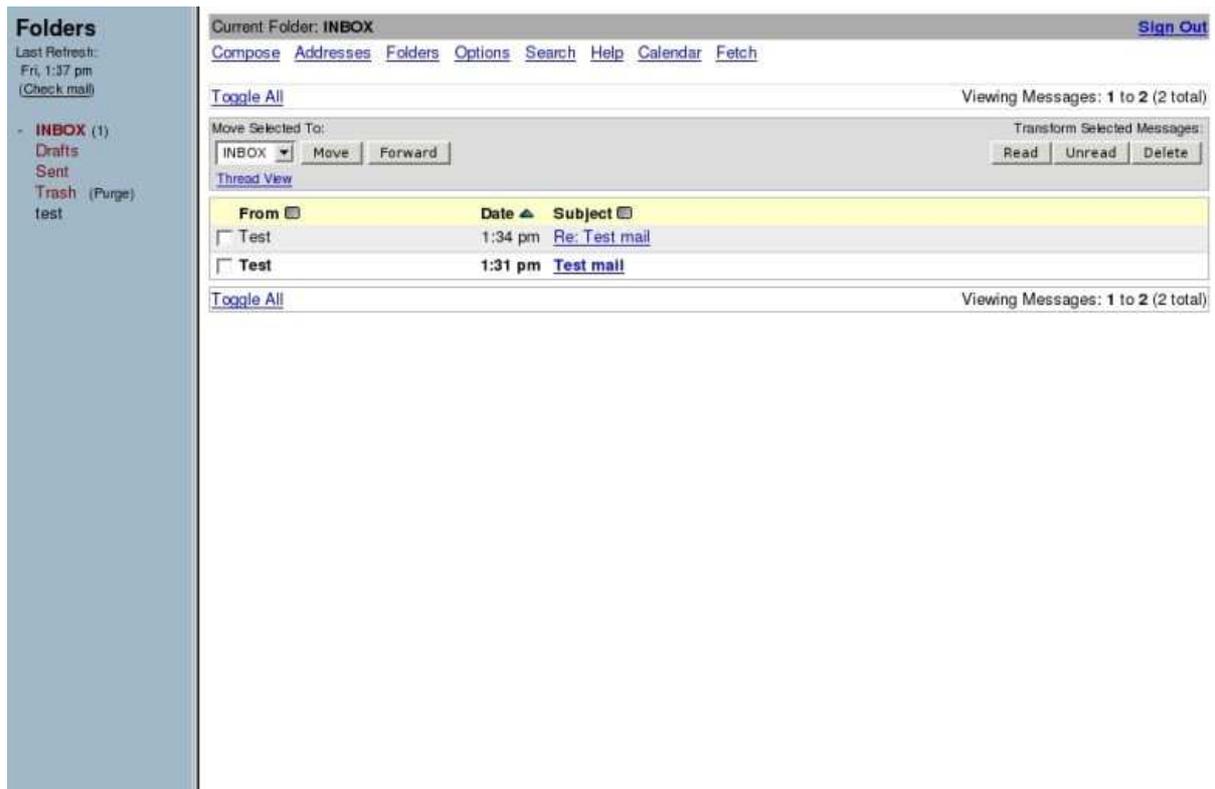


Figure 31 :: SquirrelMail Interface

8.2.2 Comparative Analysis and Decision

To support selection, a comparative table (Table 3) about email functionalities previously produced by a Portugalmail development team member [MsT_RS06] was also analysed.

Functionality	Zimbra	RoundCube	Horde
Message Listing			
Open Message	Double click	Double click	Double click (New Window)
Listing Style	Pagination	Pagination	Scroll
Sorting Options	From / Subject / Date	From / Subject / Date	From / Subject / Date / Attachment
Message Selection	Click + Key	Click + Key	Click + Key
Message Flagging	Yes	No	Yes
Information of Hard Disk Quote Usage	Yes	Yes	No
Contextual Menus	Yes	No	Yes
Drag and drop of Folders	Yes	Yes	Yes
Tags	Yes	No	No
Columns Customization	Yes (drag and drop)	No	No
Folder Management			
<i>Drag and drop</i> between folders	Yes	No	No
Specific Context Menu	Yes	No	Yes
Folders Creation	Contextual Menu or	Options Menu	Contextual Menu or

	button		button
Folder Rename	Yes	No	Yes
Message Composition			
Open in new window	No	No	Yes
Dynamic email addresses composing	Yes	Yes	Yes
HTML Composing	Yes	No	Yes
Spell Checker	Yes	No	Optional
Save attachments in sent folder	Yes	Yes	Optional
Save Drafts	Yes	No	Yes
One step attachment	No	Yes	No
Visualize Messages			
Attachments <i>Rendering</i>	Yes (<i>onMouseOver</i> on attachment)	Yes	No
See message source code	Yes	Yes	Yes
Recognize email addresses inside messages	Yes	Yes	Yes
Recognize physical addresses, phone numbers or dates	Yes	No	No
Search			
Search Available	Yes	No	Yes
Search Parameters	Many	N/A	From / Subject / To
Search inside messages	Yes	N/A	No
Search inside attachments	Only on paid version	N/A	No
Search inside address book	Yes	N/A	Yes (Application Turba)
Save searches	Yes	N/A	No
Dynamic search	Yes	N/A	Yes
Calendar			
Calendar available	Yes	No	Yes (Application Kronolith)
Events Creation	Drag and drop or Form	N/A	Form
Drag and drop for events	Yes	N/A	No
Connection with Contact's Calendar	Yes	N/A	Yes (Application Kronolith)
Visualization of Events at same time	Cascade Events	N/A	Only visible on Calendar (Application Kronolith)
Address Book			
Import/Export addresses	Yes	No	Yes (Application Turba)
Search/Browse	Yes	Only Browse	Yes (Application Turba)

Table 3 :: Webmail Platforms Comparative Analysis

Finally a decision was made. The webmail platform to be used is Horde because:

Costs: It is free and completely open source, which means it is possible to change current modules and develop new features on it.

Current functionalities: Comparing with other options, Horde has a big number of functionalities that can be used during development. It also has some modules in good state of development (Calendar (Kronolith), Address Book (Turba), Filters (Ingo)) that can be used as basis for designed modules. All these modules and features are in constant development and correction by the Horde community.

Short learning curve: It is currently the system in use at Portugalmail so there is no learning curve to Portugalmail development team and they are easily able to help me when necessary. Horde has also a big community of developers willing to help and there is a lot of documented help available.

Simple architecture: Horde architecture is developed based on modules, similarly with the new solution design.

Easy integration with other system components: since Portugalmail's current Webmail Platform also uses Horde, the knowledge necessary to integrate it with other system components is already hold by Portugalmail development team.

Programming Language: Horde is developed in PHP which is a programming language that the Portugalmail development team masters.

All these benefits made that decision easy when comparing with the other options' benefits.

8.3 Support Technologies

Other technologies were used to support the project development.

8.3.1 Darcs

Darcs is a free and open source, source code management system. Originally developed by physicist David Roundy, Darcs is based on a unique algebra of patches. It was first released in 2003 and is now managed by a sizable team of programmers. Darcs were used in this project to keep track of code versions developed.

8.3.2 Wiki

A wiki is a page or collection of Web pages designed to enable anyone who accesses it to contribute or modify content, using a simplified markup language. Wikis are often used to create collaborative websites and to power community websites.

Portugalmail has a wiki that keeps all information about its projects. This project followed a similar method and used wikis intensively to archive and share information regarding the project creation, evolution and development.

Chapter 9

Architecture and Software Design

9.1 Architecture

Due to the decision to keep the Horde Framework as platform to development, system architecture will be equal to the current Portugalmail Webmail system, already described in chapter 3.

9.2 Communication and Control Mechanisms

In this section, important system behaviours concerning application managements will be described, as well as development patterns and data security measures.

9.2.1 Operation Logging

Aiming to easily locate errors, every important operation (such as database accesses) made should create a new register in a log file. System administrator should have an easy and comprehensible access to this log file.

9.2.2 Dealing with Errors

Concerning system security and user interaction, error manipulation is a very important mechanism. Errors normally have two different origins:

- User errors (such as invalid data insertion);

- System errors (such as bad coding).

The first kind of errors should be avoided helping users while inserting data on the system through tips, drop down lists and other methodologies. Another important measure is to

replicate validation of every field using JavaScript and PHP, willing to protect lower levels in the architecture.

Both kinds of errors should create and display it to users a simple and comprehensive error message, despite showing internal error codes.

9.2.3 Authentication

Authentication should be done once and shared wisely by all system modules. Horde Framework will be responsible by this mechanism.

9.2.4 Security

The system should secure the consistency and privacy of user data. Private information should only be accessible by authorized accounts, passwords should be encrypted and sessions should expire after a pre-determined amount of time.

9.2.5 Transactions

Transactions management is very important to assure the consistency of the application. Operations that affect more than one aspect in the application should be managed as a block, which means, in case of an error, previously associated operations should be reverted.

9.2.6 Settings and Preferences

Users should be able to configure personal settings such as email signature or themes. These settings should be saved and restored on future interactions.

9.3 Design Patterns

Some of the problems that appeared while designing this software also appear frequently in other similar software projects. This is a typical situation where design patterns should be applied.

Design patterns make it easier to reuse successful design and architectures. Christopher Alexander says: “Each pattern describes a problem which occurs over and over again in our environment, and then describes the core of the solution to that problem, in such a way that you can use this solution a million times over, without ever doing it the same way twice” [AIS77]. Even though Alexander was talking about patterns in buildings and towns, what he says is true about software patterns. [Patterns95]

The following sub-chapters will describe each of the design patterns applied on this software design.

9.3.1 Factory Method

Factory Method defines an interface for creating an object, but it lets subclasses decide which class to instantiate. Factory Method lets a class defer instantiation to subclasses.

This software pattern is applied on Horde Framework to access database drivers. When a database function needs to be used, an instance of a database driver is created. This driver can be instantiated as one of several SQL subclasses depending on the database it should access.

9.3.2 Singleton

Singleton ensures that a class has only one instance, and provides a global pointer to it. This software pattern is used on the Horde Framework, specifically to access the database connection. Initially the database connection is instantiated and set to a global variable, accessible when requested.

9.3.3 Unit of Work

Unit of Work maintains a list of objects affected by a business transaction and coordinates the writing out of changes and the resolution of concurrency problems. This pattern will be used in database transactions mechanisms.

Chapter 10

Solution Development Plan

The dimension of this project doesn't fit within the 5 months of internship, so some features/modules will be implemented within the internship time (described on chapters 13 and 14) and others will be developed later, involving others members of Portugalmail's development team. On this chapter all the phases of the project will be described as well as their associated procedures.

10.1 Implementation

Due to the large number of features and requirements, implementation will by far be the longest phase in this project. In order to create a better organization and understanding about the project evolution, the features were grouped in modules and each module grouped in phases.

10.1.1 Phases

On this sub-chapter each phase will be described along its associated modules.

10.1.1.1 Phase One :: Platform Setup

Phase One is named "Platform Setup" and aims to build and set up all necessary components to develop other modules. The activities associated with that module are:

- Install Horde Framework
- Install Horde Ground Applications
- IMP
- DIMP
- Setup and configure LDAP

Setup and configure IMAP
Setup and configure a Database Postgres

10.1.1.2 Phase Two :: Layout & Design

Phase Two is named “Layout & Design” and is associated to interface aspect and interaction of the web application. It should be based on the paper prototype previously produced and will be in constant development, initially associated to the system design and later on each module’s individual design.

10.1.1.3 Phase Three :: Contact Me

Phase Three is named “Contact Me” and is directly associated with Module Contacts (equivalent to the traditional Address Book).

10.1.1.4 Phase Four :: Core System

Phase Four is named “Core System” and involves the development of all other core features of the system, namely Module Email, Module Applications and Module Search.

10.1.1.5 Phase Five :: Release Details

Phase Five is named “Release Details” and involves the development of all non-core modules but important to be completed before release of the Beta version, namely Module Homepage, Module Ads, Module Options and Module Secretary Skills.

10.1.1.6 Phase Six :: New Features Integration

Phase Six is named “New Features Integration”. Modules like Calendar, RSS Reader, Messenger and Storage will be developed on that phase and integrated gradually on the application.

10.1.2 Human Resources Factors

To be able to plan the effort and time necessary to implement all the modules/features previously listed is necessary to take into account a very important management issue within software development, the human resources.

Portugalmail’s development team is currently formed by two development directors, four developers and one designer. Team members are currently working in a large number of other Portugalmail projects and will gradually be assigned to develop modules/features on this project within the next months.

Considering these factors a study was made and it was decided to hire four new developers to work exclusively on this project, that way the amount of time necessary to release the web application shall largely decrease.

10.1.3 Schedule

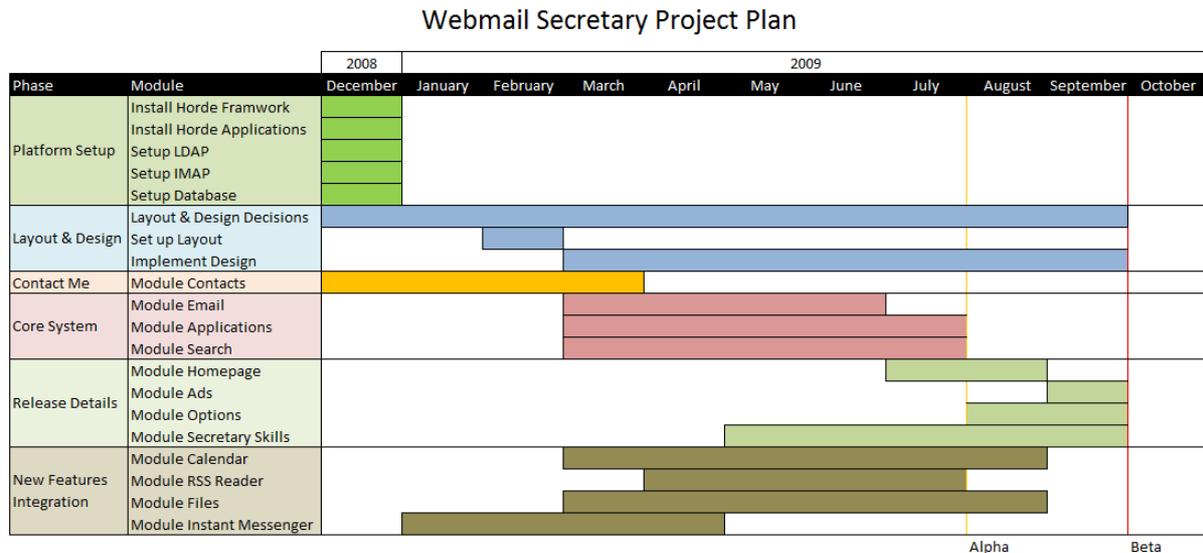


Figure 32 :: Webmail Secretary Project Schedule

According to the project plan, shown in figure 32, the web application should be available for alpha testing in August 2009 and released in Beta mode in October 2009.

10.2 Testing

Each module should go through a testing phase. That testing phase should verify and validate functionalities, producing a list of suggestions and correction requests to be delivered to module developers.

Software testing is a complex phase and it cannot establish that a product functions properly under all conditions, it can only establish that it does not function properly under specific conditions. That way, software testing should be split in different phases, with different methodologies, to be able to detect a large number and variety of errors.

10.2.1 Developer Testing

Developer testing should be done by the development team exactly after functionalities are developed, allowing to detect small mistakes on the go. Addison Wesley, in *“Effective Software Testing”*, says “software testing should start at the same moment the project starts and it is a continuous process until the project finishes.” [SoftTest02]

10.2.2 Integration Testing

Since each module on the project has a deep integration with other modules, integration testing assumes a very important aspect. Integration testing should be performed by

developers of all modules involved so as to verify functionalities associated to each API call made and received by the module in test.

10.2.3 Alpha Testing

Alpha tests should be performed by someone inside Portugalmail's developers team that isn't directly involved in the implementation phase. Alpha testing should use a Black box specification-based testing.

Black box testing treats the software as a black box without any knowledge of internal implementation. This approach includes a large number of methods, and at least specification-based testing should be used.

Specification-based testing aims to test the functionality according to the requirements. Thus, the tester inputs data and only sees the output from the test object. This level of testing usually requires thorough test cases to be provided to the tester so that he can simply verify that for a given input, the output value or behaviour is the same as the expected value specified in the test case. [Pap_Test08]

10.2.4 Beta Testing

A version of the software, known as beta version, should be released to a limited audience outside of the programming team, preferentially actual or potential users. That group of people should simulate a normal use of the product for a continuum amount of time and easily report eventual bugs found.

10.2.5 Non Functional Testing

A part of all functional tests previously indicated, it will be necessary to secure that non-functional requirements are covered by tests.

10.2.5.1 Performance testing

Performance testing should determine how fast some aspect of a system performs under a particular workload. This test can be integrated on beta testing functional testing and should focus particularly on AJAX asynchronous web requests behaviour.

10.2.5.2 Usability testing

After usability inspection (methods where experts use different methods to evaluate a user interface without involving users) made by Portugalmail's usability team, each module should pass a complete usability test.

Usability testing is a technique used to evaluate a product by testing it on users. Usability tests should be performed recurring to interaction by real users and analysis of their reactions and comments. External software as video and screen capture can be used.

10.2.5.3 Security testing

Security testing should cover the six basic security concepts that need to be covered by security testing: confidentiality, integrity, authentication, authorization, availability and non-repudiation.

An expert team from INESC Porto will be responsible for these implementation and tests.

10.2.5.4 Internationalization testing

Since this product has an international market target, it will be available in a large number of languages that need to be tested before official release. Ideally internationalization tests will be performed by users.

10.3 Deployment

The deployment is an important phase on the life time of a product and is deeply related with a marketing component. Some issues associated with deployment phase will be described on the next sub-chapters.

10.3.1 Release

The release will be done in two distinct phases. An initial Beta version will be released to a selected amount of users willing to test the web application's functionalities and performance. That Beta version should evolve through corrections and new features suggested by users.

Finally an official release for the general public to register and use should be done.

10.3.2 Activate

To activate an account it will be necessary to register on the web application, that interface should be simple, intuitive and fast. After registration users will have access to the web application through a username (their personal email) and a password.

10.3.3 Version tracking

Being a web application it will be in constant development. Versions will be managed using dedicated software (Darcs).

10.3.4 Update

From time to time a new set of features will be released to public use. Users should be notified about important new features through their Personal Secretary messages.

10.3.5 Deactivate

Users will be able to cancel their accounts and system managers will be able to remove an account (after a quarantine period). Deactivating an account will result in the loss of the whole information regarding that account. Deactivations should be avoided.

10.3.6 Retire

It is the end of the life cycle of a software product. In the case of retirement the necessity should be to secure the safety of user's data.

10.4 User Support

Webmail Secretary has a large number of innovative features and concepts. That initially can sound great and perfect, however, every innovation requires a learning curve and that shouldn't make a new user give up. To help users adapt and learn how to efficiently use the webmail secretary it is necessary to create a support network.

10.4.1 Welcome Guide

After the creation of an account a user should be guided, by his own secretary, around the web application, showing the available features and how to use them. Users should feel comfortable using the application after that initial guide and have constant access to secretary tips.

10.4.2 Transition Guide

Email applications have one of the most trustful users on the internet. This happens because normally it is hard to change. Willing to fight that issue, the secretary should provide a transition guide, where users will be helped to setup new accounts and import contacts, events, feeds and emails from other services.

10.4.3 Online Support

Online help and a FAQ should be provided to avoid unnecessary overload on personal support.

10.4.4 Trouble Tickets System

An accessible communication path should exist between users and developers. Following the normal procedure at Portugalmail, email and phone support will be provided.

10.4.5 Community Support

Forums and web-based group chat will be provided to the community. These are a great way to let customers ask questions and help each other out. It is the best way to provide an open stream of communication, saving time in the process. [Get06]

10.5 Maintenance Plan

Maintenance is normally divided in 4 different qualities:

Corrective maintenance - Reactive modification of a software product performed after delivery to correct discovered problems;

Adaptive maintenance - Modification of a software product performed after delivery to keep a software product usable in a changed or changing environment;

Perfective maintenance - Modification of a software product after delivery to improve performance or maintainability;

Preventive maintenance - Modification of a software product after delivery to detect and correct latent faults in the software product before they become effective faults.

All kind of maintenances should be necessary after release. Request of correction will be collected from users (directly on user support and indirectly on forums) and from the Portugalmail's developers team itself through tests.

To correctly manage corrections and new releases a dedicate software (Bugzilla) will be used.

Chapter 11

Development

After building a concept and defining an implementation plan, it was time to actually begin developing it. This chapter is focused on advances made on project plan described on the previous chapter.

Within 20 weeks of the internship it was possible to advance on three (out of six) phases: Platform Setup; Layout & Design; and Contact Me. The requirements and implementation details of each phase are described below and discussed on the next chapter.

11.1 Phase One :: Platform Setup

Phase One is named “Platform Setup” and is aimed to build and set up all necessary components on the Horde framework.

11.1.1 Requirements

The requirements associated to that phase are:

- Install Horde Framework
- Install Horde Ground Applications
- IMP
- DIMP
- Setup and configure LDAP
- Setup and configure IMAP
- Setup and configure a Database Postgres

11.1.2 Implementation details

The implementation of these components was made recurring to Horde tutorial guides and the expertise of Portugalmail's developer Team. It should take less than one week to be completed and tested.

11.2 Phase Two :: Layout & Design

Phase Two is named "Layout & Design" and is associated to interface aspect and interaction of the web application.

That phase will be constantly in development during the whole project, since it will be necessary to develop designs for each new module, but nevertheless it has an important initial effort associated with the development of the application layout and feel.

11.3 Phase Three :: Contact Me

Module Contact is aimed to build an innovative integration between an address book and a social network. The user should have a personal profile and the ability to add contacts, and if this contact also has a profile, a connection can be created that will automatically update the address book of each other.

11.3.1 Requirements

Due to the large number of requirements, in order to simplify comprehension and organize implementation, requirements were grouped by modules.

11.3.1.1 Module Profile

11.3.1.1.1 Add Account (Req_Contacts_001)

The application should be able to create a new profile based on a new register.

11.3.1.1.2 View Personal Profile (Req_Contacts_002)

The application should allow users to visualize their personal information data, including photo, avatar, status, general information, home contact information, work contact information, about me information, education information, work information and web social information.

11.3.1.1.3 Edit Personal Profile (Req_Contacts_003)

The application should allow users to edit their personal information data, including photo, avatar, status, general information, home contact information, work contact information, about me information and web social information.

11.3.1.1.4 Set Access Level to Personal Profile Information (Req_Contacts_004)

Users should be able to define which contacts or social groups have access to visualize Information of each tab of their own profile.

11.3.1.2 Module Curriculum

11.3.1.2.1 Add Degree (Req_Contacts_005)

Users should be able to add a new degree to their curriculum vitae.

11.3.1.2.2 List Degrees (Req_Contacts_006)

Application should allow users to visualize a list of their own degrees.

11.3.1.2.3 Edit Degree (Req_Contacts_007)

Users should be able to edit a degree in their curriculum vitae.

11.3.1.2.4 Remove Degree (Req_Contacts_008)

Users should be able to remove a degree from their curriculum vitae.

11.3.1.2.5 Add Job Experience (Req_Contacts_009)

Users should be able to add a new job experience to their curriculum vitae.

11.3.1.2.6 List Job Experiences (Req_Contacts_010)

Application should allow users to visualize a list of their own job experiences.

11.3.1.2.7 Edit Job Experience (Req_Contacts_011)

Users should be able to edit a job experience in their curriculum vitae.

11.3.1.2.8 Remove Job Experience (Req_Contacts_012)

Users should be able to remove a job experience from their curriculum vitae.

11.3.1.3 Module Contacts

11.3.1.3.1 Add Contact (Req_Contacts_013)

Users should be able to add a new contact to their contact list.

11.3.1.3.2 List Contacts (Req_Contacts_014)

The application should allow users to visualize a list of their own contacts. That list should allow users to perform frequent actions (such as sending an email) without the necessity of opening the associated contact page.

11.3.1.3.3 Dynamic Search of Contacts (Req_Contacts_015)

The application should allow users to search by contacts. If possible, that search should update results without the necessity of reloading the page, using AJAX technology.

11.3.1.3.4 View Contact (Req_Contacts_016)

Users should have access to the visualization of their contacts' information on a contact page. Information should include avatar, status, general information, home contact information, work contact information, notes, emails received from/sent to contact, files received from/sent to contact, latest updates from contact.

11.3.1.3.5 View Contact Profile (Req_Contacts_017)

If there is an accepted connection between two accounts, visualization of contact page (Req_Contacts_016) should also display about me information, education information, work information and web social information provided by the associated contact.

11.3.1.3.6 Edit Contact (Req_Contacts_018)

Users should be able to edit contact information, including avatar, general information, home contact information, work contact information and notes.

11.3.1.3.7 Send Email to Contact (Req_Contacts_019)

User should be able to have a direct access to composing an email to a contact while visualizing that contact's page.

11.3.1.3.8 Invite Contact to Event (Req_Contacts_020)

User should be able to invite contacts to events (on Calendar Module) while visualizing a contact page.

11.3.1.3.9 Remove Contact (Req_Contacts_021)

Users should be able to remove a contact from their contact list.

11.3.1.3.10 Mark Contact as Favourite (Req_Contacts_022)

Users should be able to mark a contact as favourite (add contact to favourites group).

11.3.1.4 Module Social Groups

11.3.1.4.1 Add Social Group (Req_Contacts_023)

Users should be able to add a new social group to their social groups list.

11.3.1.4.2 List Social Groups (Req_Contacts_024)

The application should allow users to visualize a list of their own social groups.

11.3.1.4.3 Dynamic Search of Social Groups (Req_Contacts_025)

The application should allow users to search by social groups. If possible, that search should update results without the necessity of reloading the page, using AJAX technology.

11.3.1.4.4 View Social Group (Req_Contacts_026)

Users should have access to visualizing their social group information on a social group page. Information should include photo, avatar, general information, notes, emails received from/sent to contacts on that social group, files received from/sent to contacts from this social group, updates from social group's members.

11.3.1.4.5 Edit Social Group (Req_Contacts_027)

Users should be able to edit social group information, including avatar, general information and notes.

11.3.1.4.6 Send Email to Social Group Members (Req_Contacts_028)

User should be able to have a direct access to composing an email to all members of that group while visualizing a social group page.

11.3.1.4.7 Invite Social Group Members to Event (Req_Contacts_029)

User should be able to invite all members of this social group to events (on Calendar Module) while visualizing a social group page.

11.3.1.4.8 Add Contacts to Social Group (Req_Contacts_030)

Users should be able to add contacts to a social group easily.

11.3.1.4.9 Remove Social Group Members (Req_Contacts_031)

Users should be able to remove a contact from a social group easily.

11.3.1.4.10 Remove Social Group (Req_Contacts_032)

Users should be able to remove a social group from their social group list.

11.3.1.5 Module Suggested Contacts

11.3.1.5.1 Add Suggested Contact (Req_Contacts_033)

The system should add a contact as a suggested contact after the user sends a message to an email that isn't on his contact list.

11.3.1.5.2 List Suggested Contacts (Req_Contacts_034)

Application should allow users to visualize a list of their own suggested contacts.

11.3.1.5.3 Dynamic Search of Suggested Contacts (Req_Contacts_035)

Application should allow users to search by suggested contacts. If possible, that searches should update results without the necessity of reloading the page, using AJAX technology.

11.3.1.5.4 Add Suggested Contact as Contact (Req_Contacts_036)

Users should be able to add a suggested contact as a contact.

11.3.1.5.5 Update Suggested Contact Statistics (Req_Contacts_037)

The application should keep statistics (such as number of interactions) about each suggested contact. These statistics will be used by the secretary module to suggest contacts additions.

11.3.1.5.6 Hide Suggested Contact (Req_Contacts_038)

Users should be allowed to hide a suggested contact. The application should, after this, ignore any event related with that contact, unless the user adds him as a contact.

11.3.1.6 Module Connections

11.3.1.6.1 Send Connection Request (Req_Contacts_039)

User should be able to request a connection to a contact with an account on the system.

11.3.1.6.2 List Connection Requests (Req_Contacts_040)

User should be able to visualize a list of pending connection requests to answer.

11.3.1.6.3 Accept Connection Request (Req_Contacts_041)

User should be able to accept a connection request. After a connection is accepted, both users will have access to the profile information of one another.

11.3.1.6.4 Ignore Connection Request (Req_Contacts_042)

User should be able to ignore a connection request.

11.3.1.6.5 Remove Connection (Req_Contacts_043)

The application should allow users to remove a connection. After a connection is removed both users will cease to have access to the profile information of each other.

11.3.1.6.6 Request Info from Contact by Email (Req_Contacts_044)

The application should be able to request information of a contact or social group members by sending a form to be filled by email.

11.3.1.6.7 Create Phantom Profile (Req_Contacts_045)

After a form is filled by an external contact, it should be saved as a phantom profile. That information should be kept for future use, either for an information request or an eventual register from that external contact on the application.

11.3.1.6.8 Update Phantom Profile (Req_Contacts_046)

External contact should be able to edit previously sent information when requested again.

11.3.1.7 Module Updates

11.3.1.7.1 Add a profile update (Req_Contacts_047)

When a user updates his personal profile, the application should create a profile update to notify his connections.

11.3.1.7.2 List profile updates from one contact (Req_Contacts_048)

Users should be able to visualize latest updates from a contact.

11.3.1.7.3 List profile updates from social group members (Req_Contacts_049)

Users should be able to visualize latest updates from members of a social group.

11.3.1.8 Module Overview

11.3.1.8.1 Display News Feed (Req_Contacts_050)

Users should be able to visualize latest updates from all contacts on the overview page.

11.3.1.8.2 Search Contacts Interface using Auto-complete (Req_Contacts_051)

The application should provide an auto-complete interface to search for contacts.

11.3.1.8.3 Search Social Groups Interface using Auto-complete (Req_Contacts_052)

The application should provide an auto-complete interface to search for social groups.

11.3.1.8.4 View Number of Pending Connection Requests (Req_Contacts_053)

A resume and access to pending connection should be displayed on the overview page.

11.3.1.8.5 View Upcoming Birthdays (Req_Contacts_054)

Upcoming birthdays should be displayed on the overview page.

11.3.1.9 Module External Interface

11.3.1.9.1 Import Contacts (Req_Contacts_055)

Import contacts directly from other applications (such as LinkedIn, Gmail, Yahoo!, MSN Live Mail and Outlook) or using a backup file (such as .csv or .vcf).

11.3.1.9.2 Export Contacts (Req_Contacts_056)

Save contact information such as a .csv or .vcf file.

11.3.1.9.3 Synchronize Contacts (Req_Contacts_057)

Synchronize Contact Information with external applications and/or devices (such as Mobile Phones, iPhones, PHC Software).

11.3.2 Information Design

Information about contacts is stored in two different ways (LDAP and a PostgreSQL database).

Information regarding authentication (such as username and password) are stored in a LDAP interface. This decision is justified by the fact that it is related to the characteristics of that information (frequent access but low rate of updates). LDAP brings clear performance benefits on situations like these.

Every other information such as profile data, contacts, updates, social groups is stored in a database.

11.3.3 Architecture

Contacts Module is designed to be an independent module on the Horde Framework. The contact module will settle between the Horde Framework and any interactions with other modules will obligatory go through the framework itself. The figure 33 aims to illustrates how this module should fit on the global architecture.

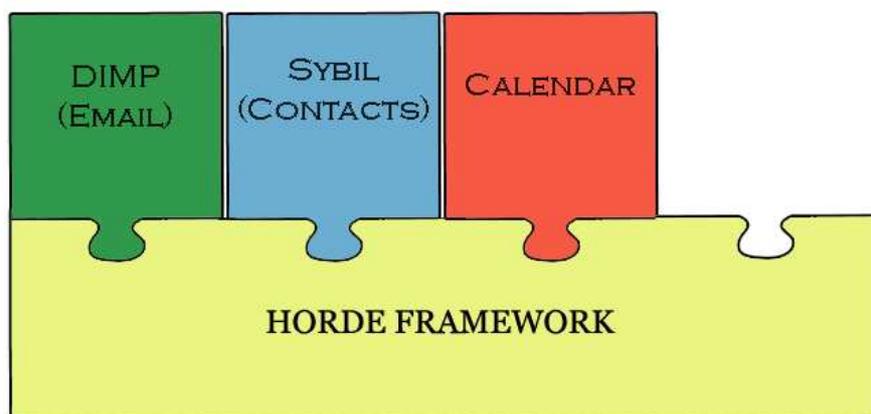


Figure 33 :: Horde Framework Structure

11.3.4 Implementation, Tests and Corrections

According to the internship plan, the implementation will be developed within 7 weeks, followed by 2 weeks of tests and 2 weeks for corrections detected during tests.

Chapter 12

Current Development Results

This chapter is focused on the description of all development results according to the development plan defined in previous chapters.

12.1 What is implemented?

A strong framework is built and a useful and innovative contact manager is available to be released and used.

12.2 Main Implementation Issues

During the implementation phase some decisions needed to be made. From structural to usability aspects, each decision had a fundamental impact in the final product's quality and stability.

12.2.1 Use Turba or Skeleton?

Before starting to implement the Contact module it was necessary to decide how the Horde module would be used as the base of the development. The options were to use Turba (the Address Book module developed by Horde Community) or Skeleton (the blank template module available in Horde website). Each option has positive and negative aspects that are described in the table below:

	Positive Aspects	Negative Aspects
Turba	Save time and effort to produce functionalities already implemented;	Lose time cleaning and restructuring code due to excessive number of unnecessary functionalities already implemented;
Skeleton	Learn how to create new module from a Skeleton template;	Lose time and effort to produce functionalities already implemented in Turba;

Table 4 :: Turba-Skeleton Comparison

Although the number of functionalities already implemented in the Turba Module that would be re-used in Contacts Module were small and that most of the functionalities would be very easy to implement, and that many other modules will be produced after the Contacts Module (making the learning component an important aspect) **the decision was to use Skeleton as base to development.**

12.2.2 Multiple access locations to important actions

Some important actions/features should be available often and using different approaches dependent of context. A good example of that features is “Add a Contact to a Social Group”, which is necessary to be available at Contact Page, Social Group Page, Create New Social Group Page and Advanced Management Page. Each page has a different interaction method to perform that action and is described in the following sub-chapters.

12.2.2.1 Contact Page: Select Form

Pedro



General	Home Info	Work Info	My Notes
Name	Pedro		Expand Name
NickName			
Birthday			
Email	manuel@mymail.com		
Phone			
Social Groups	Business ✕		+ Add to Group

Figure 34 :: Add to Group Link on Contact Page

Pedro

Send Email Invite to Event Request Info Remove Contact
★ Mark as Favorite

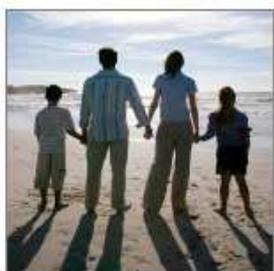


General	Home Info	Work Info	My Notes
Name	Pedro	Expand Name	
NickName			
Birthday			
Email	manuel@mymail.com		
Phone			
Social Groups	Business ×		
	Friends ▾	<input type="button" value="Save"/>	<input type="button" value="Cancel"/>

Figure 35 :: Select Social Group action

As seen in images 34 and 35, when users click on the “Add to Group” link a drop down list will appear, allowing users to select a new social group to add the contact.

12.2.2 Social Group Page: Dialog Box with auto-complete



General	My Notes
Name	Family 
Description	My Family Group 

Group Members (3)



Andre Restivo  faddfgdf@gfgf.com

Jo... joseph...

Email	Files	Stats	Update
Emails Tab			

Add Member to Social Group Family

Type Contact Name

-  **Andre Restivo**
faddfgdf@gfgf.com
-  **Daniela Figueiredo Ribeiro**
daniela.ribeiro@iol.pt
-  **Felipe Avila da Costa**
felipe@portugalmail.pt

Figure 36 :: Dialog Box with auto-complete selection

On Social Group page users are allowed to add contacts to this social group using an auto-complete selection, as seen in figure 36.

12.2.2.3 Create Social Group Form: Auto-complete container allows select more than one contact to add to new Social Group

Add Social Group

Name: FEUP

Short Description: Members of FEUP Community

Group Members: Daniela Figueiredo Ribeiro, Felipe Avila da Costa

Buttons: Add Social Group, Cancel

Figure 37 :: Auto-complete container to add contacts to new Social Group

When creating a new Social Group it is possible to add a large number of members to that group using a container with auto-complete selection, as seen in figure 37.

12.2.2.4 Advanced Management Page: Drag and Drop Contact to Social Groups

Manage Contacts and Social Groups

My Contacts

- Andre Restivo (faddfgdf@gfgf.com)
- Athenas (greek@god.com)
- Daniela Figueiredo Ribeiro (daniela.ribeiro@iol.pt)
- DJ (music@night.pt)
- Doug Funny (doug@mymail.com)
- Felipe Avila da Costa (felipe@portugalmail.pt)
- José (jose@mail.com)
- Joseph Jr. (joseph@aol.com)
- Loki (devil@nordicContries@nu)

My Social Groups

- Family (3 Members)
- Friends (6 Members)
- Grups Golf (5 Members)
- Portugalmail (2 Members)

Figure 38 :: Drag and Drop Contact to Social Groups

Finally an advanced interface was built to allow an easy and fast organization of contacts and social groups using a drag and drop interaction. That interaction is illustrated in the figure 38.

12.2.3 Use form editing or inline editing?

When deciding about what was the best interaction method to edit text information, two main options were available: a block edit form where users would be able to edit a large number of fields and submit changes as a block; or to use a new approach usually called inline editing, where users can easily and individually edit each field.

Block editing has better results when users have the need to edit most of the fields in a page (first editing situation) and inline editing has better results in fast editing situations. It was chosen to implement inline editing to all fields initially and give the possibility to access a block edit as well. The figure below shows an inline editing situation.



The screenshot shows a user profile for Sra. Eng. Daniela Silva. The profile includes a photo, name, and status. Below the profile is a navigation bar with tabs: General, Home Info, Work Info, About Me, Education, Work, and Web Social. The 'Home Info' tab is active, showing a list of fields for editing: HomeTown (Braga, Portugal), Political Views (Left), Religious Views (Protestant), Interests (Water Sports), and Favorite Music (Enya and Roxette). The 'Religious Views' field is currently being edited, with a text input containing 'Protestant' and 'ok' and 'cancel' buttons.

General	Home Info	Work Info	About Me	Education	Work	Web Social
HomeTown		Braga, Portugal				
Political Views		Left				
Religious Views		<input type="text" value="Protestant"/> <input type="button" value="ok"/> <input type="button" value="cancel"/>				
Interests		Water Sports				
Favorite Music		Enya and Roxette				

Figure 39 :: Inline Profile Editing

12.2.4 Use Dynamic form creation or hidden forms?

When creating new elements to profile or contact pages - such as degrees, job experiences, emails, phones and more – it was necessary to define how that interaction would be performed and coded.

Most web applications – such as Facebook and LinkedIn - use a technique to hide (defining an element as invisible) a large number of adding forms, however this technique doesn't seem to be the best possible solution, due to its limitation. So the solution taken was to dynamically create (using AJAX) a new form every time the associated add button is pressed, as can be seen in the figures 40 and 41. This way, there is no maximum number of new elements to add without refreshing the page.

Sra. Eng. Daniela Silva
Status :: is testing it!

General | Home Info | Work Info | About Me | Education | Work | Web Social

Skills

Languages I Speak Portuguese (Mother Tongue), Spanish (Fluent), Korean (Basic)

Other Skills Leadership, Creativity and Negotiation Skills

College/University Degrees

Degree Master in Software Engineering  

College/University University of Nottingham

Dates 2002-06-10 to 2007-06-10

Degree Workshop in Origami  

College/University Japan School

Dates 2001-01-23 to 2004-11-27

[Add Degree](#)

High School Degree

School EB2/3 Secundaria de Barcelos

Year Class 2005

Import Data from your LinkedIn Account

Figure 40 :: Add Degree Link

Sra. Eng. Daniela Silva
Status :: is testing it!

General | Home Info | Work Info | About Me | Education | Work | Web Social

Skills

Languages I Speak Portuguese (Mother Tongue), Spanish (Fluent), Korean (Basic)

Other Skills Leadership, Creativity and Negotiation Skills

College/University Degrees

Degree Master in Software Engineering  

College/University University of Nottingham

Dates 2002-06-10 to 2007-06-10

Degree Workshop in Origami  

College/University Japan School

Dates 2001-01-23 to 2004-11-27

Add New Degree

Degree

Mayor

College/University

Date Start

Date End

Figure 41 :: Add Degree Dynamic Form

12.2.5 Initial page content

An interesting issue is related to what users should see when reaching Contacts module. That issue was deeply discussed within Portugalmail's development team with two different points of view, shown in the images below.

12.2.5.1 Users should see their contact list

Search

Search:

My Contacts

-  **Andre Restivo**
faddfgdf@gfgf.com
-  **Athenas**
greek@god.com
-  **Daniela Figueiredo Ribeiro**
daniela.ribeiro@iol.pt
5845214585
-  **DJ**
music@night.pt
-  **Doug Funny**
doug@mymail.com
-  **Felipe Avila da Costa**
felipe@portugalmail.pt
-  **José**
jose@mail.com
-  **Joseph Jr.**
joseph@aol.com
-  **Loki**
devil@nordicContries@nu

Send Email Request Info

Figure 42 :: Option where users see their contact list

12.2.5.2 Users should see an overview about contact modules, including contact updates, upcoming birthdays and pending requests

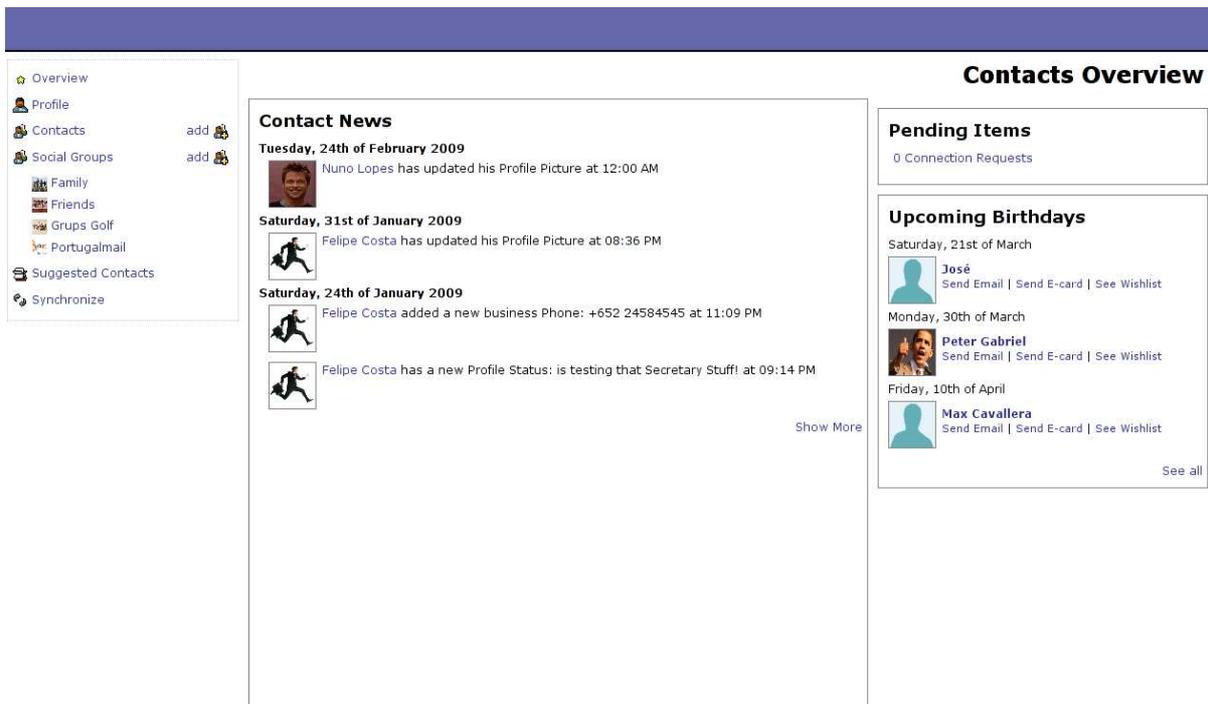


Figure 43 :: Option where users see update block about Contacts

The solution chosen evolved from both points of view, trying to integrate both necessities.

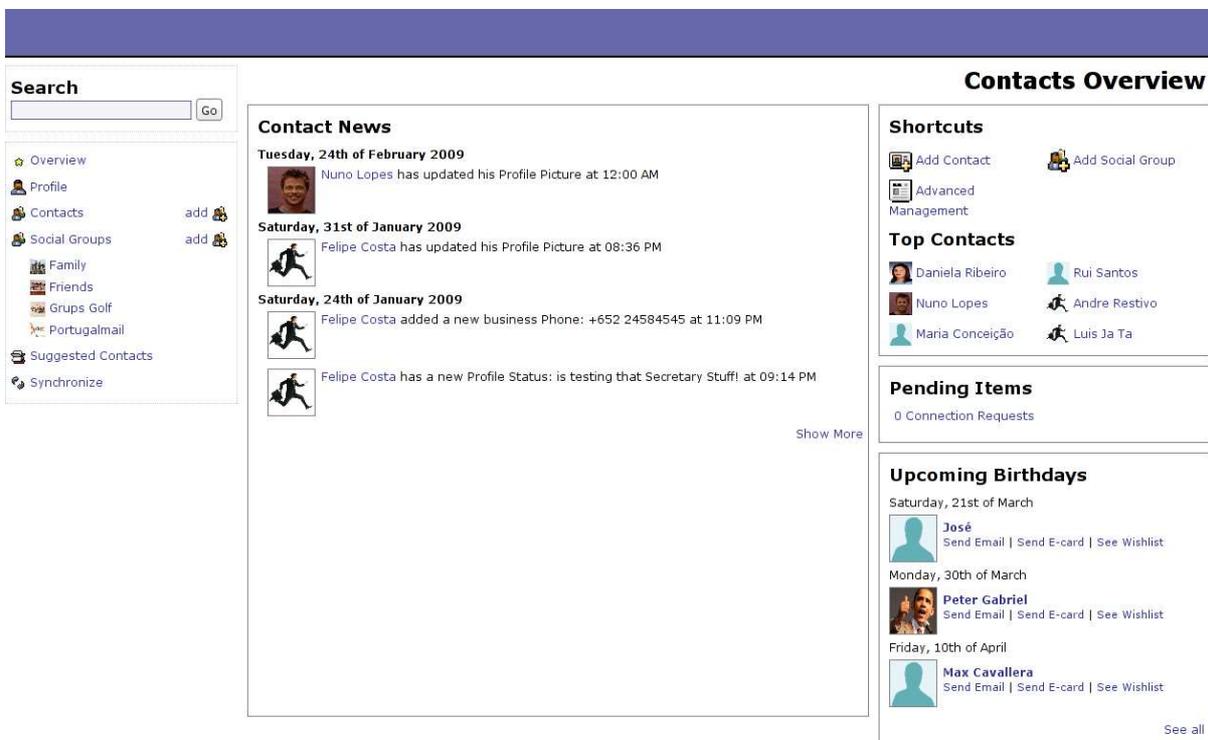


Figure 44 :: Final Overview page

This page, called Contacts Overview, allows users to see contact updates, upcoming birthdays and pending requests and at the same time give direct access to contacts to whom

they had had more interaction recently (Top Contacts block at top-right corner) and allows users to search for any contact or social group using a search with auto-complete motor (Search block at top-left corner).

12.3 Requirements Review

12.3.1 Phase One

All the requirements design described for phase one are completely implemented and tested.

12.3.2 Phase Two

Phase Two was divided in three phases: The initial phase was defined as the Information Architecture and page structure, the result can be seen in the paper prototype described at chapter 8; the second phase was when, based on this paper prototype, Portugalmail' Designer developed the following interfaces:

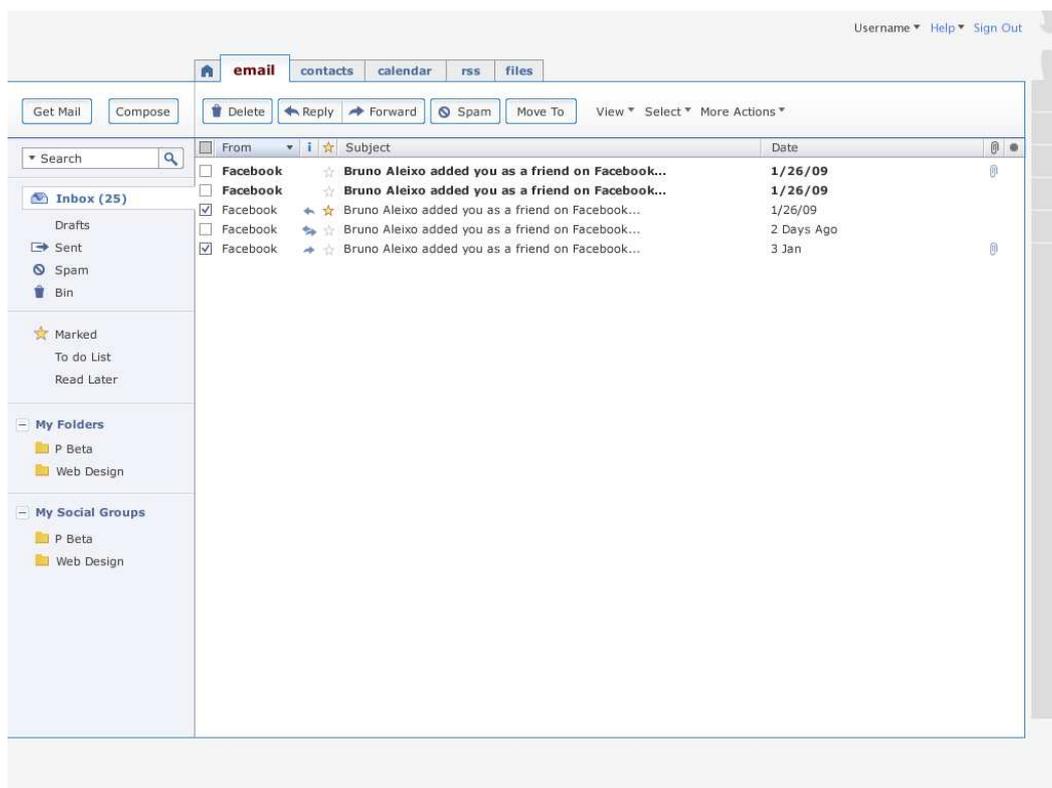


Figure 45 :: Email Interface with Secretary Tab Hidden

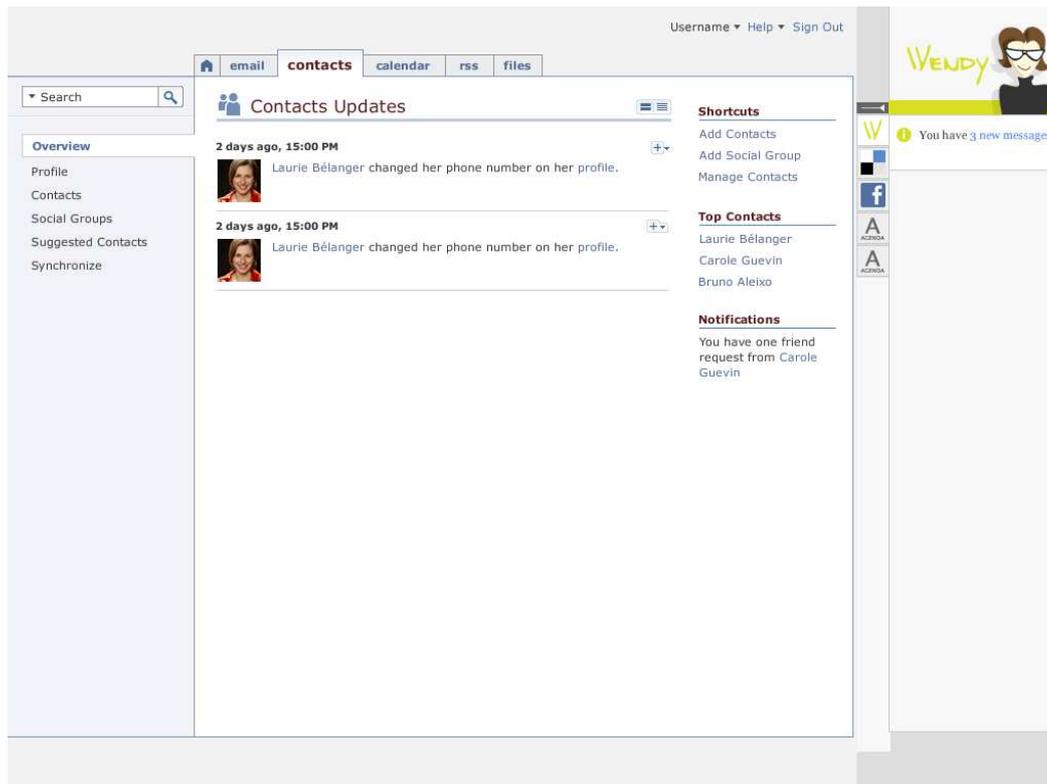


Figure 46 :: Contacts Interface with Secretary Tab Visible

Finally the third phase was to code this interface, however it was not possible to realise within the internship timeline.

12.3.3 Phase Three

From the 57 proposed requirements, 47 were successfully implemented, 4 of them are dependent on other modules and 6 weren't implemented yet. However, during development and testing process new ideas came up and 8 new requirements were designed and implemented.

12.3.3.1 Non-implemented Requirements

Due to time restriction it wasn't possible to implement the following requirements: Request Info from Contacts by Email (Req_Contacts_044); Create Phantom Profile (Req_Contacts_045); Update Phantom Profile (Req_Contacts_046); Import Contacts (Req_Contacts_055); Export Contacts (Req_Contacts_056); and Synchronize Contacts (Req_Contacts_057);

The other four requirements (Send Email to Contact (Req_Contacts_019), Invite Contact to Event (Req_Contacts_020), Send Email to Social Group Members (Req_Contacts_029) and Invite Social Group Members to Event (Req_Contacts_030)) were impossible to implement because of their dependency to the Email and Calendar Modules.

12.3.3.2 Additional Requirements Implemented

12.3.3.2.1 List Birthdays (Req_Contacts_058)

The application should provide an interface where all contacts' birthdays are displayed organized by month.

12.3.3.2.2 View Top Contacts (Req_Contacts_059)

Users should be able to access directly from overview page the most contacted contacts.

12.3.3.2.3 News Feed Extension (Req_Contacts_060)

Overview page shows a restricted number of contact updates. The application should allow users to see a page with a longer list of contact updates.

12.3.3.2.4 View Contacts Stats (Req_Contacts_061)

Users should be able to visualize statistics about previous interactions with contacts, such as the number of emails sent and received.

12.3.3.2.5 View Social Group Stats (Req_Contacts_062)

Users should be able to visualize statistics about previous interactions with social groups (based on interactions with social group's members).

12.3.3.2.6 Advanced Contact/Social Group Management (Req_Contacts_063)

Application should provide an advanced interface to perform easily batched actions such as move contacts to social groups.

12.3.3.2.7 Create Default Social Groups (Req_Contacts_064)

When a new profile is created, four new social groups (Favourites, Family, Friends and Business) should automatically be created.

12.3.3.2.8 View Public Profile (Req_Contacts_065)

Users should be able to see how their connections will visualize their profile.

12.4 Tests and Corrections

According to plan, features implemented passed a variety of tests. Each of these tests resulted in indications (bug detections and suggestions) that were corrected later on. Testing Phases will be described below.

12.4.1 Developer Testing

Development process aimed to detect mistakes while development was made. This process can be described as:

- Development of a set of requirements;

- Tests/simulation of real use;

- Correction of eventual detected bugs;

- Submit a new patch to Darcs Software.

Many bugs were detected and corrected using this methodology.

12.4.2 Integration Testing

Integration between Contacts module and Horde Framework was deeply tested with positive results. So far it is the only integration interface able to be tested since none of the other modules are implemented. Some functionalities related with API data access were implemented and tested under pre-determined conditions (such as code injection) with positive results, however it will only be able to be properly tested when the associated modules begin to be developed.

12.4.3 Alpha Testing

Alpha tests were performed by one member of Portugalmail's development team that wasn't directly involved on the development of Framework and Contacts Module. Many minor and major bugs were detected and some extra recommendations were made.

It was very useful to have someone else testing the system, bringing important quality improvements on the final application. A report was developed after alpha tests and can be found in Attachment D :: Alpha Testing Report.

12.4.4 Beta Testing and Usability Testing

Willing to validate design decisions and verify how easily and fast users perform specific actions, some tests were made with real users. A small number of potential users with no computer science background were selected to perform a sequence of tasks on Framework and Contacts Module and answer a few questions about that interaction. Tasks and questions can be seen in the images below:

Webmail Secretary Usability Test

Hello! Welcome to Webmail Secretary Usability Test.

First things you have to know is the subject of it test is the Webmail Secretary application, not you. So don't worry and try to do each task calmly.

The test consists in a sequence of tasks you have to perform followed by some questions.

To improve usability is important for us to understand what you are thinking while using our application, so express yourself as much as you can.

Tasks

- 1 – Open contacts overview page
- 2 – Find and open "Rui Santos" contact page
- 3 – Edit your personal nickname
- 4.1 – Add someone you know (it is really up to you) as contact
- 4.2 – Edit his/her personal address
- 4.3 – Mark him/her as favorite contact
- 5 – Find and open "Loki" contact page
- 6 – Add "Loki" to "Friends" social group
- 7 – Check how many members social group "Friends" has
- 8 – Remove "Seigmeister" contact from "Portugalmail" social group
- 9 – Delete "Midas" contact

Done! Congratulations, you pass Tasks phase!

It is time to answer a few questions...

Figure 47 :: Webmail Secretary Usability Test :: Tasks

Webmail Secretary Usability Test

Questions

1 – Did you like the application?

Yes No

2 – What did you like the most? Why?

3 – What didn't you like? Why?

4 – What tasks or activities were confusing or hard perform? Why?

5 – You notice the Suggested Contacts option at menu? What you expect to see at this page?

6 – Describe the application using 5 words (first words that come to you).

7 – Do you have any suggestion to make it more useful?

Thank you for your attention.

Figure 48 :: Webmail Secretary Usability Test :: Questions

To make this test, an account already filled with contacts, connections and social groups was used. That configuration was created willing to simulate a situation of common use of the application. Later will be performed a specific test covering initial impression with blank state interfaces.

This test began with a short explanation about objectives of the test (it was very important to make the testers understand we were testing the application and not them), the application and use context. Then, while testers were performing the test, a supervisor was taking notes about time and easiness of actions.

The tests happened without any problem; most users performed all tasks without major problems; and it allowed developers to reach some interesting conclusions:

- All testers enjoyed using the application;

- Testers described the application as easy, simple, fast, organized, objective, practical, complete, innovative, useful and customizable;
- A few tasks (such as edit personal address and remove contact from social group), previously understood as easy, were not intuitive for some users;
- Some actions that don't allow undo (such as delete contact) should have a confirmation question before performing it;
- Profile access should have more impact;
- Profile/Contact tabs and icons were not easy to understand for some testers;
- Testers used different approaches to find contacts (looking at Top Contacts block; looking in Contact list, then using dynamic filter or scroll; using Search block; or going through Social Groups);

Based on test conclusion and testers suggestions a list of corrections was made and implemented.

12.4.5 Corrections Phase

Correction Phase was based on the report developed on Alpha Testing and Beta Testing feedback. It had a very positive impact on the quality of the application, due to bug detection and new feature suggestions. Within 2 weeks of the correction process it was possible to implement a large number of corrections.

12.5 Feedback

Feedback is an important aspect in every interaction. Feedback allows us to understand how other people see us or something we did. Specifically looking at software applications, feedback is fundamental to guide development to what stakeholders want.

Concerning this project, it was not different, so feedback was requested to Portugalmail and, through usability tests, to potential users.

12.5.1 Portugalmail

Portugalmail saw a project which initially aimed to improve the current webmail application with new features, grow to a completely innovative system that may position Portugalmail as a top player in the world market of webmail solutions, bringing new business opportunities and financial return of investment.

Portugalmail is very satisfied with the current result of this project and the development team is motivated and working to make this project real as soon as possible.

12.5.2 Users

Users' feedback was taken in different phases of this project, initially going through users' forums and blogs about email systems, after using the paper prototype to validate concept ideas and finally with usability tests to see how users reacted to the final product's functionalities.

Every feedback was important, sometimes showing that features or functionalities that the development team thought important or easy to understand were actually not useful or even incomprehensible. It was important to developers to rethink some interactions and create a much better piece of software.

Finally, it is important to say, all testers liked the application and often demonstrated will to use it in the future. Some of them were even very enthusiastic about it, which brings extra motivation and confidence to Portugalmail to keep developing it.

Chapter 13

Conclusions

In this last chapter the conclusions of this project will be analysed, regarding objective satisfaction, decisions made, personal development and future development perspectives.

13.1 Objectives Satisfaction

The objectives initially defined by Portugalmail were accomplished. More than a new interface paradigm, this project went further and created and designed a new and innovative webmail system that aims to position Portugalmail as a top player on the webmail market.

More than just designing, it was also possible to start the implementation phase. A strong platform was built, the design layout and feel was defined and a complex contact manager implemented. Users' feedback was very positive and motivational. Even if the current version of the system is not ready to be released, it is possible to perceive a great advance (more and better features, more intuitive and complete interface) when compared with the current system version.

The internship plan (presented at chapter five) was successfully followed and accomplished.

13.2 Decisions

Many important decisions were made since the project started. It is important to mention that the decision of building a new platform allowed large flexibility to the development, resulting in a more consistent, stable and consequently, better platform. The same results were obtained when decided to develop Contacts Module based on Skeleton Module (rather than the Turba Module).

The technological decisions made during development have already brought a positive feedback. The Horde framework platform allowed a fast and consistent development and the JavaScript libraries chosen so far have had an excellent performance.

As we can conclude, the main decisions taken had a very positive feedback, which reinforces them as the correct decisions to be made.

13.3 Personal Development

This project was a great step forward on my personal development. Since its start, this project was an intellectual and strategic challenge that motivated me and all Portugalmail workers. It was possible to apply new creativity and brainstorming techniques, possible to learn and develop knowledge about webmail use, marketing strategies and usability.

Regarding technical aspects, it brought an amazing amount of new knowledge, specially related to technologies learning - such as LDAP, IMAP, PHP, AJAX, JavaScript Libraries (Scriptaculous and Prototype), HTML, CSS and SQL - and software use - such as Horde Framework Platform and Darcs.

Portugalmail had an essential role in these learning aspects, creating a creative, flexible and friendly environment that largely contributed to the success of this project.

13.4 Future Development Perspectives

Many of the project's future developments were already described in previous chapters. Implementing the design layout, applications framework module, calendar module, personal assistant intelligence skills and the search motor are just some of the new features already planned to be developed within the next months.

Regarding the Contacts Modules already implemented, there are still some few features to develop, some validations to perform and design to implement. These extra steps will allow Portugalmail to release this module to a selected group of users in Beta mode. This shall be a very important phase for this project where it will be possible to get feedback regarding usability and performance aspects directly from users.

Four new software engineers were recently hired by Portugalmail to integrate the development team. These new members will allow a faster development and release of the final application.

The Webmail Personal Assistant is a large step forward on the Portugalmail business consolidation. It is important to understand that this project is just starting and it will certainly open many doors to future developments and business opportunities.

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Attachments

Attachment A :: Email Applications Research

Attachment B :: Análise da Plataforma de Email da Portugalmail como Utilizador

Attachment C :: Webmail Secretary Mind Map Construction and Analysis

Attachment D :: Alpha Testing Report

Attachment A :: Email Applications Research

New Paradigm of Webmail Interfaces

Email Applications Research

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Portugalmail

OUT 2008



Table of Contents

Introduction	4
Email Applications	5
Online services	5
Gmail (Google).....	5
AIM Mail (AOL)	5
GMX Mail	5
Concast Mail	5
Yahoo! Mail (Yahoo!)	5
Zenbe.....	5
Inbox.com	5
Gawab.com.....	5
FastMail	6
Windows Live Hotmail.....	6
BigString.com.....	6
Lavabit	6
Zapak Mail	6
HotPOP.....	6
My Way Mail	6
Care2 E-mail	6
RoundCube Webmail	6
Yahoo! Zimbra Mail.....	7
Sapo Mail (Portugal)	7
Portugalmail (Portugal)	7
Email Clients for Desktop.....	7
Microsoft Office Outlook 2007	7
Microsoft Office Outlook Express 6	7
Mozilla Thunderbird.....	7
Yahoo! Zimbra Desktop.....	7
IncrediMail.....	7
Scalix	7
@Mail.....	8
Claws Mail.....	8
Lotus Notes.....	8
Windows Mail 6.0.....	8
Eudora 7.1 Email Program	8
Opera Email Program	8
Mulberry Email Program.....	8
Pegasus Mail	8
Foxmail	9

DreamMail.....	9
Sylpheed Mail	9
Mac OS X Mail	9
SeaMonkey	9
Selection Support	10
Usage Statistics	10
Top 10 email clients used by business recipients.....	10
Top 10 email clients used by consumer recipients	11
About.com Reviews	12
Top 17 Free Email Services	12
Top 12 Free Email Programs to Windows	14
Conclusions	16
Bibliography.....	17
Websites.....	17
Books.....	17

Introduction

This document presents a list of online email services and desktop clients found during the research phase of the “New Paradigm of Webmail Interfaces” project. Some of the studies and reviews that supported the selection of applications to analyse are also present.

These applications’ features were analysed, some deeply others superficially, resulting in many ideas and notes that support the concept of this new project.

Email Applications

Online services

Gmail (Google)

Gmail Review :: <http://email.about.com/od/freemailreviews/gr/gmail.htm>

Gmail on Wikipedia :: <http://en.wikipedia.org/wiki/Gmail>

Gmail Official Page :: <http://mail.google.com/>

AIM Mail (AOL)

AIM Mail Review :: http://email.about.com/od/freemailreviews/gr/aim_mail.htm

AIM Mail on Wikipedia :: http://en.wikipedia.org/wiki/AOL_Mail

AIM Official Page :: <https://my.screenname.aol.com/>

GMX Mail

GMX Mail Review :: http://email.about.com/od/freemailreviews/gr/gmx_mail.htm

GMX Mail on Wikipedia :: http://en.wikipedia.org/wiki/GMX_Mail

GMX Mail Official Page :: <http://mail-eu.gmx.com/us/cgi/g.fcgi/home>

Concast Mail

Concast Mail on Wikipedia :: <http://en.wikipedia.org/wiki/Comcast>

Concast Mail Official Page :: <http://www.comcast.net/webmail/>

Yahoo! Mail (Yahoo!)

Yahoo! Mail Review :: http://email.about.com/od/yahoomail/gr/yahoo_mail.htm

Yahoo! Mail on Wikipedia :: http://en.wikipedia.org/wiki/Yahoo_Mail

Yahoo! Mail Official Page :: <https://login.yahoo.com/>

Zenbe

Zenbe Review :: <http://email.about.com/od/freemailreviews/gr/zenbe.htm>

Zenbe Official Page :: <http://www.zenbe.com/welcome>

Inbox.com

Inbox.com Review :: http://email.about.com/od/freemailreviews/gr/inbox_com.htm

Inbox.com Official Page :: <http://www.inbox.com/>

Gawab.com

Gawab.com Review :: http://email.about.com/od/freemailreviews/gr/gawab_com.htm

Gawab.com on Wikipedia :: <http://en.wikipedia.org/wiki/Gawab>

Gawab.com Official Page :: <http://www.gawab.com/>

FastMail

FastMail Review :: http://email.about.com/cs/freemailreviews/gr/fastmail_free.htm

FastMail on Wikipedia :: <http://en.wikipedia.org/wiki/FastMail.FM>

FastMail Official Page :: <http://www.fastmail.fm/>

Windows Live Hotmail

Windows Live Hotmail Review ::

http://email.about.com/od/freemailreviews/gr/winlive_hotmail.htm

Windows Live Hotmail on Wikipedia :: <http://pt.wikipedia.org/wiki/Hotmail>

Windows Live Hotmail Official Page :: <http://get.live.com/mail/overview>

BigString.com

BigString.com Review ::

http://email.about.com/od/freemailreviews/gr/bigstring_com.htm

BigString.com Official Page :: <http://www.bigstring.com/>

Lavabit

Lavabit Review :: <http://email.about.com/od/freemailreviews/gr/lavabit.htm>

Lavabit on Wikipedia :: <http://en.wikipedia.org/wiki/Lavabit>

Lavabit Official Page :: <http://lavabit.com/>

Zapak Mail

Zapak Mail Review :: http://email.about.com/od/freemailreviews/gr/zapak_mail.htm

Zapak Mail Official Page :: <http://www.zapak.com/zapakmail.zpk>

HotPOP

HotPOP Review :: http://email.about.com/od/freemailreviews/gr/hotpop_free.htm

HotPOP Official Page :: <http://www.hotpop.com/index.jsp>

My Way Mail

My Way Mail Review ::

http://email.about.com/cs/freemailreviews/gr/my_way_my_email.htm

My Way Mail on Wikipedia :: <http://en.wikipedia.org/wiki/MyWay.com>

My Way Mail Official Page :: <http://www.myway.com/>

Care2 E-mail

Care2 E-mail Review ::

http://email.about.com/cs/freemailreviews/gr/care2_e-mail.htm

Care2 E-mail on Wikipedia :: <http://en.wikipedia.org/wiki/Care2>

Care2 E-mail Official Page :: <http://www.care2.com/>

RoundCube Webmail

RoundCube on Wikipedia :: <http://en.wikipedia.org/wiki/RoundCube>

RoundCube Official Page :: <http://www.roundcube.net/>

Yahoo! Zimbra Mail

Zimbra on Wikipedia :: <http://en.wikipedia.org/wiki/Zimbra>

Zimbra Official Page :: <http://www.zimbra.com/>

Sapo Mail (Portugal)

Sapo on Wikipedia :: <http://pt.wikipedia.org/wiki/SAPO>

Sapo Official Page :: <http://mail.sapo.pt/>

Portugalmail (Portugal)

Portugalmail on Wikipedia :: <http://pt.wikipedia.org/wiki/Portugalmail>

Portugalmail Official Page :: <http://www.portugalmail.com/>

Email Clients for Desktop

Microsoft Office Outlook 2007

Outlook 2007 Review :: <http://email.about.com/cs/winclientreviews/gr/outlook.htm>

Outlook on Wikipedia :: http://en.wikipedia.org/wiki/Microsoft_Outlook

Outlook 2007 Homepage ::

<http://www.microsoft.com/portugal/pe/products/office-2007-products/outlookbcm.msp>

Microsoft Office Outlook Express 6

Outlook Express 6 Review ::

http://email.about.com/cs/winclientreviews/gr/outlook_express.htm

Outlook on Wikipedia :: http://en.wikipedia.org/wiki/Microsoft_Outlook

Mozilla Thunderbird

Mozilla Thunderbird Review ::

http://email.about.com/cs/winclientreviews/gr/moz_thunderbird.htm

Mozilla Thunderbird on Wikipedia :: http://en.wikipedia.org/wiki/Mozilla_Thunderbird

Mozilla Thunderbird Homepage :: <http://www.mozilla.com/thunderbird/>

Yahoo! Zimbra Desktop

Zimbra on Wikipedia :: <http://en.wikipedia.org/wiki/Zimbra>

Zimbra Official Page :: <http://www.zimbra.com/>

IncrediMail

IncrediMail Review :: <http://email.about.com/cs/winclientreviews/gr/incredimail.htm>

IncrediMail on Wikipedia :: <http://en.wikipedia.org/wiki/IncrediMail>

IncrediMail Official Page :: <http://www.incredimail.com/english/home.aspx>

Scalix

Scalix on Wikipedia :: <http://en.wikipedia.org/wiki/Scalix>

Scalix Official Page :: <http://www.scalix.com/>

@Mail

@Mail on Wikipedia :: <http://en.wikipedia.org/wiki/@Mail>

@Mail Official Page :: <http://atmail.com/>

Claws Mail

Claws Mail on Wikipedia :: http://en.wikipedia.org/wiki/Claws_Mail

Claws Mail Official Page :: <http://www.claws-mail.org/>

Lotus Notes

Lotus Notes on Wikipedia :: http://en.wikipedia.org/wiki/IBM_Lotus_Notes

Lotus Notes Official Page :: <http://www-01.ibm.com/software/lotus/products/notes/>

Windows Mail 6.0

Windows Mail 6.0 Review ::

http://email.about.com/od/windowsemailclients/gr/windows_mail.htm

Windows Mail 6.0 on Wikipedia :: http://en.wikipedia.org/wiki/Windows_Mail

Windows Mail 6.0 Official Page ::

<http://www.microsoft.com/windows/windows-vista/features/mail.aspx>

Eudora 7.1 Email Program

Eudora 7.1 Email Program Review ::

<http://email.about.com/cs/winclientreviews/gr/eudora.htm>

Eudora 7.1 Email Program on Wikipedia :: http://en.wikipedia.org/wiki/Eudora_Pro

Eudora 7.1 Email Program Official Page :: <http://www.eudora.com/>

Opera Email Program

Opera Email Program Review ::

<http://email.about.com/cs/winclientreviews/gr/opera.htm>

Opera Email Program on Wikipedia :: http://en.wikipedia.org/wiki/Opera_Mail

Opera Email Program Official Page :: <http://www.opera.com/products/desktop/m2/>

Mulberry Email Program

Mulberry Email Program Review ::

<http://email.about.com/cs/winclientreviews/gr/mulberry.htm>

Mulberry Email Program on Wikipedia ::

[http://en.wikipedia.org/wiki/Mulberry_\(e-mail_client\)](http://en.wikipedia.org/wiki/Mulberry_(e-mail_client))

Mulberry Email Program Official Page :: <http://www.mulberrymail.com/>

Pegasus Mail

Pegasus Mail Review ::

http://email.about.com/cs/winclientreviews/gr/pegasus_mail.htm

Pegasus Mail on Wikipedia :: http://en.wikipedia.org/wiki/Pegasus_Mail

Pegasus Mail Official Page :: <http://www.pmail.com/>

Foxmail

Foxmail Review :: <http://email.about.com/cs/winclientreviews/gr/foxmail.htm>

Foxmail on Wikipedia :: <http://en.wikipedia.org/wiki/Foxmail>

DreamMail

DreamMail Review ::

<http://email.about.com/od/windowsemailclients/gr/dreammail.htm>

Sylpheed Mail

Sylpheed Mail Review :: <http://email.about.com/cs/linuxclientrevs/gr/sylpheed.htm>

Sylpheed Mail on Wikipedia :: <http://en.wikipedia.org/wiki/Sylpheed>

Sylpheed Mail Official Page :: <http://sylpheed.sraoss.jp/en/>

Mac OS X Mail

Mac OS X Mail Review :: <http://email.about.com/cs/macclientreviews/gr/mail.htm>

Mac OS X Mail on Wikipedia :: http://en.wikipedia.org/wiki/Apple_Mail

Mac OS X Mail Official Page :: <http://www.apple.com/macosx/features/mail.html>

SeaMonkey

SeaMonkey on Wikipedia :: <http://en.wikipedia.org/wiki/SeaMonkey>

SeaMonkey Official Page :: <http://www.seamonkey-project.org/>

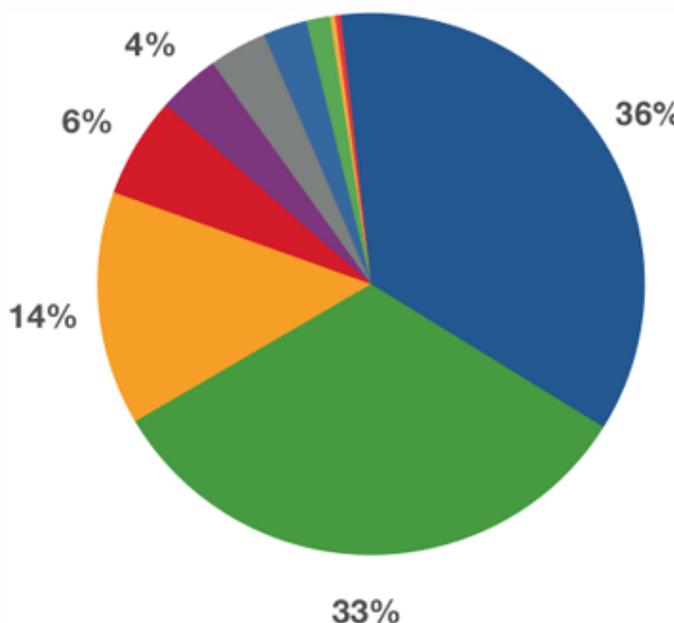
Selection Support

This chapter aims to present some of the aspects that supported the selection of applications to analyse.

Usage Statistics

The results of an email usage study using Fingerprint tool are presented below. The two studies had a different focus, the first study focused in professional usage and the second study focused in personal usage.

Top 10 email clients used by business recipients



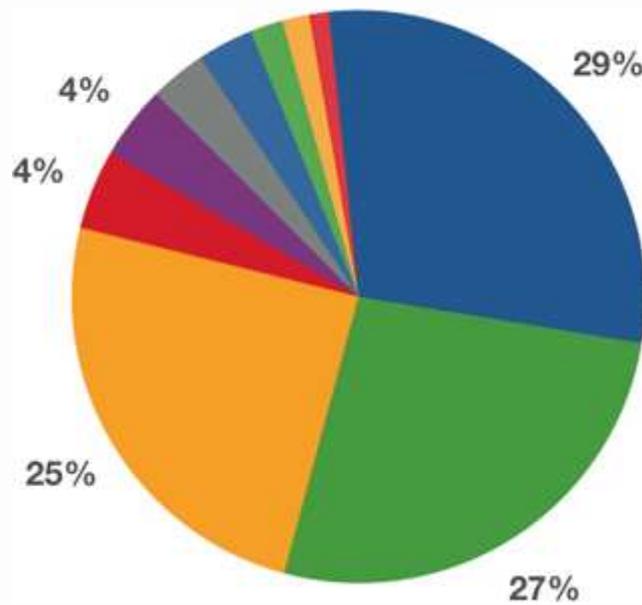
Email client	Market share
Outlook	36%
Outlook 2003 and earlier	29%
Outlook 2007	7%
Hotmail	33%
Yahoo! Mail	14%
Gmail	6%
Apple Mail	4%
Windows Live Mail (Desktop)	3%
Thunderbird	2.4%
iPhone	1.3%
Lotus Notes	0.2%

AOL Mail

0.1%

Data collected from 982,873 email recipients using Fingerprint analysis tool. The mailing list owners classified their mailing list as mainly business users. This chart shows the top 10 email clients by market share. Compiled 11 September 2008 (revised 15 September 2008).

Top 10 email clients used by consumer recipients



Email client	Market share
Yahoo! Mail	29%
Outlook	27%
Outlook 2003 and earlier	14%
Outlook 2007	13%
Hotmail	25%
Apple Mail	4%
Gmail	4%
Comcast	3%
AOL Mail	3%
Thunderbird	2%
Windows Live Mail (Desktop)	2%
iPhone	1%

Data collected from 1,963,046 email recipients using Fingerprint analysis tool. The mailing list owners classified their mailing list as mainly consumer users. This chart shows the top 10 email clients by market share. Compiled 11 September 2008 (revised 15 September 2008).

About.com Reviews

In the following sub-chapters are presented a list of 17 free online email services and 12 desktop clients which are considered the best options in email solutions by About.com.

Top 17 Free Email Services

Name	Thumbnails
Gmail	
AIM Mail	
GMX Mail	
Yahoo! Mail	
Zenbe	
Inbox.com	

Gawab.com	
FastMail	
Yahoo! Mail Classic	
Windows Live Hotmail	
BigString.com	
Lavabit	
Zapak Mail	
HotPOP	

My Way Mail		
Care2 E-mail		
Mail.com		

Top 12 Free Email Programs to Windows

Name	Thumbnails
Mozilla Thunderbird	
Windows Mail	
Eudora	
Opera	

Mulberry		
Pegasus Mail		
IncrediMail		
Foxmail		
DreamMail		
Alpine		
Sylpheed		
i.Scribe		

Conclusions

This initial research allowed developers to understand the email market, list the features users currently have available and develop a large number of ideas. These benefits surely will have an essential impact on the final product to be developed.

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http://en.wikipedia.org/wiki/Comparison_of_e-mail_clients

* Stats of E-mail Clients Using

<http://fingerprintapp.com/email-client-stats>

* E-mail Client on Wikipedia

http://en.wikipedia.org/wiki/E-mail_client

* Comparison of E-mail Clients to Macintosh

<http://www.tandb.com.au/email/clients/>

* E-mail client Comparison

<http://email.lib.utk.edu/emily/howto5.html>

* Blog Post of Gabor Cselle about E-mail Clients

<http://www.gaborcselle.com/blog/2006/07/how-researchers-are-reinventing-mail.html>

* Top 17 Free E-mail Services Reviews by About.com

http://email.about.com/od/freeemailreviews/tp/free_email.htm

* Top 12 Free Email Programs Reviews by About.com

http://email.about.com/od/windowsemailclients/tp/free_email_prog.htm

* Fingerprint Tool

<http://fingerprintapp.com/>

Books

No book was consulted.

Attachment B :: Análise da Plataforma de Email da Portugalmail como Utilizador

Novo Paradigma de Interface para Webmail

Análise da Plataforma de Email da
Portugalmail como Utilizador

—

Portugalmail

NOV 2008



Conteúdo

Introdução.....	4
Lista de Funcionalidades Suportadas	5
Limitações.....	5
Segurança	5
Organização	5
Compor E-mail.....	6
Ler E-mail	6
Suporte de Protocolos.....	6
Extras	6
Suporte	6
Lista de Funcionalidades Não Suportadas.....	7
Segurança	7
Organização	7
Compor E-mail.....	7
Ler E-mail	7
Suporte de Protocolos.....	7
Extras	7
Suporte	8
Análise das Interfaces.....	9
Página Inicial	9
Cabeçalho.....	9
Menu Lateral	10
Zona de Informações sobre Conta de E-mail	10
Zona dedicada a Publicidade	11
Transição entre Páginas	12
Compor Mensagem	13
Cabeçalho.....	13
Zona de Preenchimento de Dados.....	14
Corpo da Mensagem.....	14
Visualização de Pastas.....	16
Cabeçalho.....	16
Listagem de Mensagens	17
Visualização das Mensagens.....	17
Visualização de Mensagens	18
Visualização Parcial	18
Visualização Externa.....	19
Responder Mensagens.....	20
Opções	21

Feedback Pessoal	23
Página Inicial	23
Cabeçalho.....	23
Menu Lateral	24
Zona de Informações sobre Conta de E-mail	24
Zona dedicada a Publicidade	25
Transição entre Páginas	26
Compor Mensagem	27
Cabeçalho.....	28
Zona de Preenchimento de Dados.....	29
Corpo da Mensagem.....	29
Visualização de Pastas.....	31
Cabeçalho.....	31
Listagem de Mensagens	32
Visualização das Mensagens.....	33
Visualização de Mensagens	34
Visualização Parcial	34
Visualização Externa.....	35
Responder Mensagens.....	36
Opções	38
Conclusões.....	40
Bibliografia.....	41
Websites.....	41
Livros	41

Introdução

Este estudo tem como objectivos fazer um levantamento de todas as funcionalidades da plataforma actual de e-mail da Portugalmail.

Ao mesmo tempo será feita uma descrição das interfaces existente no webmail, seguido de comentários, indicação de erros e sugestões de melhorias.

Este estudo servirá futuramente de referência para a apresentação de uma nova solução de e-mail, tendo em vista a adição de novas funcionalidades a plataforma actual.

Lista de Funcionalidades Suportadas

Limitações

- Limite de Espaço em Disco :: 2048 MB
- Tamanho Máximo de Anexos :: 8 MB
- Tamanho Máximo de Mensagem Envio :: 8 MB
- Tamanho Máximo de Mensagem Recepção :: 8 MB
- Número Máximo de Anexos :: Não existe
- Número Máximo de Contactos no Address Book :: Não Existe
- Número Máximo de Destinatários de E-mail :: 500

Segurança

- Filtro de Spam
- Denúncia de Spam
- Virus Scanning
- Filtros de Phishing
- Bloqueio de Imagens

Organização

- Pastas
- Lista Negra/Branca
- Ordenações alternativas
- Livro de Endereços
- Guardar Destinatários Automaticamente no Livro de Endereços
- Pesquisa
- Resposta Automática
- Resposta Automática Selectiva
- Drag and Drop
- Esconde mensagens apagadas
- Exclui mensagens apagadas
- Indicação Lida/Não Lida
- Marcar Mensagens como Favoritas
- Marcar Mensagens como Respondidas
- Arquivar Mensagens
- Selecção de Multiplas Mensagens
- Selecção de Multiplas Mensagens não contiguas

Compor E-mail

- Composição HTML (WYSIWYG)
- Composição em Texto
- Spell Check em 6 linguas
- Assinatura Pré-definida
- Assinatura antes ou depois da mensagem original
- Guarda Rascunho
- To/cc/bcc E-mail auto-complete
- Usa nome ou apelido para aceder a endereço de e-mail no To/cc/bcc
- Mudar conta de envio “from” por mensagem
- Anexos opcionalmente incluídos ao encaminhar mensagem
- Resposta inclui mensagem original
- Definição de Nível de Urgencia da mensagem (5 níveis)
- Possibilidade de pedir “Aviso de Leitura”
- Guarda mensagens na Pasta “Mensagens Enviadas”

Ler E-mail

- Pré-visualização de Imagens (jpeg, gif, bmp, png)
- E-mail em HTML

Suporte de Protocolos

- Acesso por POP3

Extras

- Notificador
- Escolha do Domínio (Limitada)
- Atalhos do Teclado
- Backups

Suporte

- Suporte por Email

Lista de Funcionalidades Não Suportadas

...mas suportadas por concorrentes.

Segurança

- Sign-in Seguro
- Comunicação Encriptada durante sessão

Organização

- Filtros Customizáveis
- Importação de Livro de Endereços
- Exportação de Livro de Endereços
- Pesquisa por Imagens e Ficheiros em Anexo
- Visualização de e-mails como conversas
- Adicionar Etiquetas as Mensagens
- Permite acções de Undo Modelos de Mensagens (nova, resposta, encaminhamento, confirmação de leitura, impressão)
- Redirecionamento Automático

Compor E-mail

- Múltiplas Assinaturas pré-definidas

Ler E-mail

- Links para "próxima mensagem" e "mensagem anterior" ao ver e-mail

Suporte de Protocolos

- Acesso por IMAP

Extras

- Calendário
- Notas
- Versão Móvel
- Instant Messenger Integrado
- Online Storage

- Homepage Informativa
- Multiplas Linguas
- Sem Publicidade
- Sem Publicidade Gráfica
- Jogos
- Cartos Eletrónicos
- Gestão de Multiplas Contas
- Export/Import E-mails
- Interface Customizável

Suporte

- Ajuda Online
- Tutoriais/Demos
- FAQ
- Forums

Análise das Interfaces

Página Inicial



A página inicial (página vista após log in efectuado) apresenta 4 áreas distintas:

- Cabeçalho
- Menu Lateral
- Zona de Informações sobre Conta de e-mail
- Zona dedicada a Publicidade

A seguir serão descritas em pormenor cada uma dessas áreas.

Cabeçalho



No cabeçalho superior é apresentado:

- O logotipo da Portugalmail (canto superior esquerdo), identificando o site e sendo também um link para a página inicial.
- O identificador do dono da conta actual, através do endereço de e-mail
- Links para Página Inicial (Início) , Visualização clássica do e-mail (Versão Clássica) e Opções
- Barra de pesquisa na Internet (Google)
- Botão de Logout

Menu Lateral



O Menu Lateral é subdividido em 3 áreas:

- Correio (Com dois botões lado a lado)
 - Botão de Actualização da Caixa de Entrada
 - Botão Compor Mensagem
- Inbox
 - Mensagens Recebidas + (Indicação de número de Mensagens Não lidas)
 - Mensagens Enviadas
 - Lixo + Link para esvaziar Lixo
 - Rascunhos
 - Spam + Link para esvaziar Pasta Spam
 - Contactos + Link para adicionar novo contacto
 - Lista de Pasta Pessoais
- Espaço publicitário
 - Duas barras de publicidade

Zona de Informações sobre Conta de E-mail



Nesta zona é apresentada uma mensagem de simpatia para o utilizador (Bom dia, Boa tarde ou Boa noite) seguindo do seu endereço de e-mail. São também apresentados a data e hora do load da página bem como Informações sobre o estado da conta do utilizador:

- Numero de Mensagens não lidas na pasta Recebidas
- Quantidade de Espaço ocupado na sua conta, bem como o Limite

Zona dedicada a Publicidade

The screenshot shows a website interface with two main components in the 'Zona dedicada a Publicidade' section:

- News Feed:** A vertical list of news items with timestamps and titles. The first item is highlighted in bold: '18:42 **Ministra da Saúde não vai esclarecer saída de médicos do IDT**'. Other items include '18:31 Ronaldo e Deco candidatos a melhor do ano da FIFA', '18:12 CDS-PP adia eleições directas para 19 de Dezembro', '17:41 Portugal pode entrar em recessão no próximo ano', '16:04 «Pilhas de Livros» premeia sete escolas alentejanas', and '15:38 UE tem pouca relevância para mais de 44% dos portugueses'.
- Advertisement:** A large graphic for 'Soluções de Gestão' (Management Solutions). It features a person in a suit holding a tablet. Logos for 'pho Software' and 'portugalmail' are visible at the bottom of the ad.

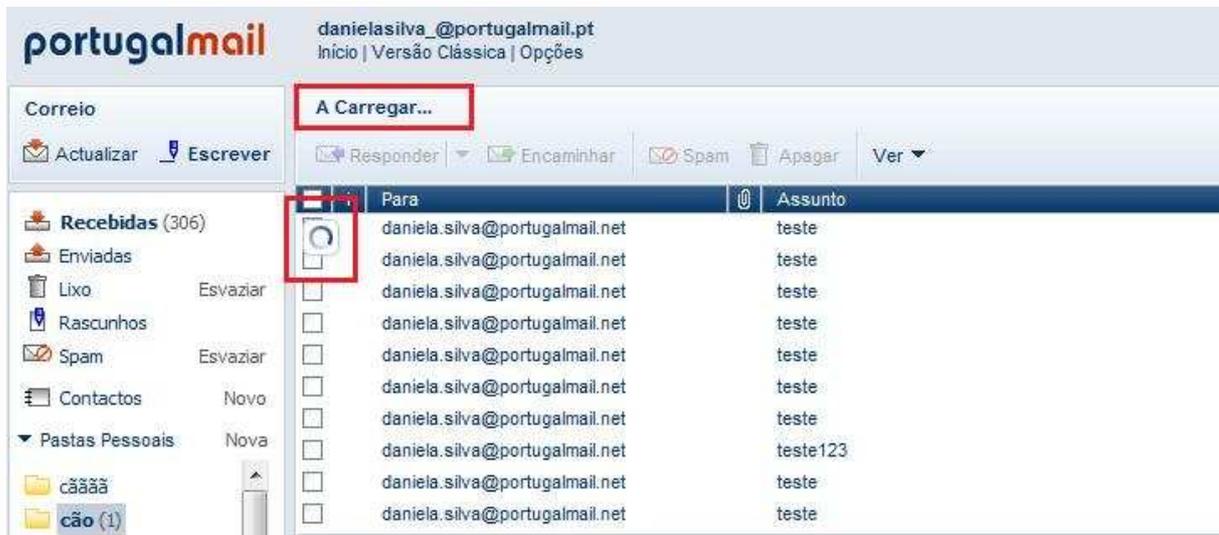
Esta secção apresenta duas parte distintas:

- Informativa: Últimas Notícias do Portal Portugamail e do Site Futebolar
- Imagem com Publicidade

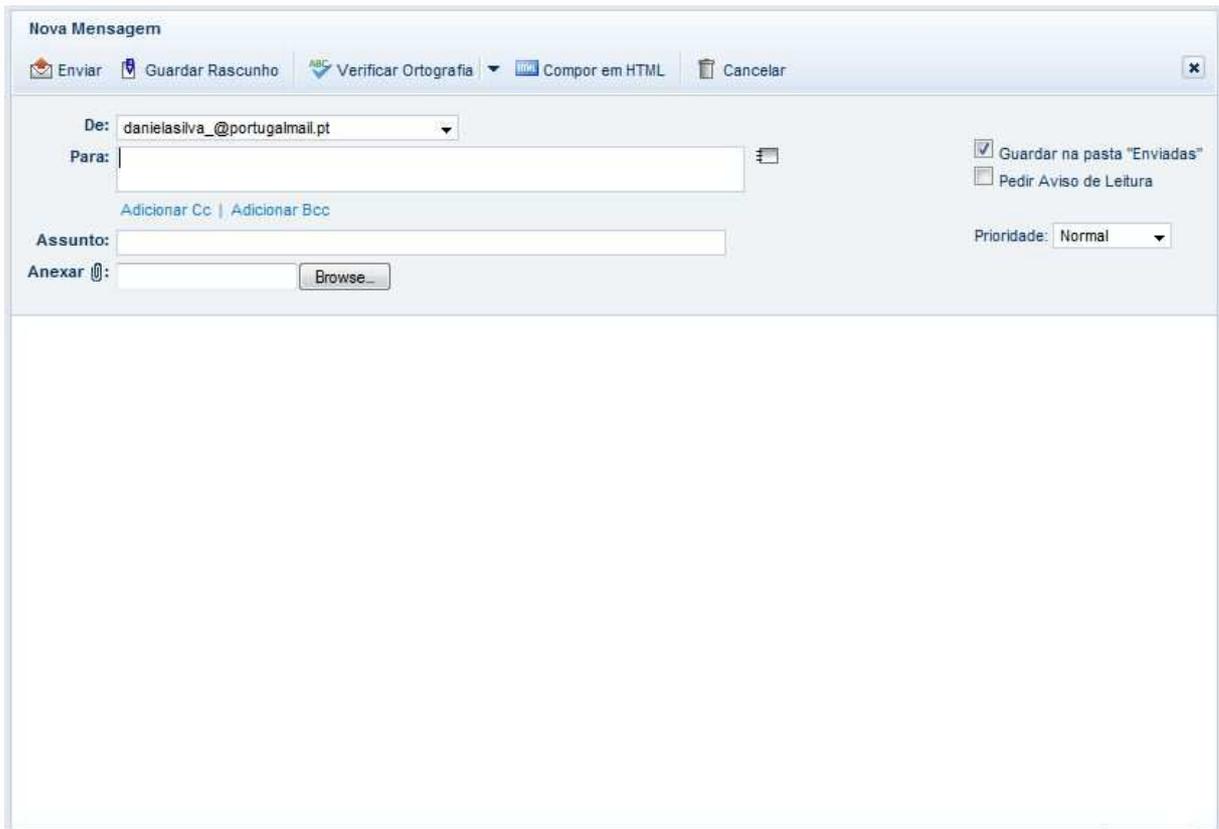
Transição entre Páginas

Ao mudar de visualização/pasta dentro do cliente de e-mail, enquanto a página não é completamente carregada, é dada a indicação de carregamento em progresso através de um texto a substituir o título da página e uma imagem animada.

A figura abaixo demonstra esta transição (elementos indicativos marcados a vermelho).



Compor Mensagem



Ao clicar em “Escrever” no Menu Lateral, uma nova Janela “Pop-Up” é criada com o aspecto apresentado na figura acima, tendo como funcionalidade a composição de um E-mail.

Esta janela está subdividida em 3 áreas (Cabeçalho, Zona de preenchimento de Dados, Corpo da Mensagem) que serão agora descritas em pormenor.

Cabeçalho



O cabeçalho da composição de e-mail apresenta:

- O título da Janela (Nova Mensagem)
- Botão “Enviar” (Para enviar mensagem)
- Botão “Guardar Rascunho” (Guarda como Rascunho e Fecha a Janela)
- Botão “Verificar Ortografia” + Seleccionador da Língua
- Botão “Compor em HTML/Texto” (Alterna entre o modo de composição)
- Botão “Cancelar” (Para cancelar envio da mensagem)
- Botão “x” (Para fechar a janela)

Zona de Preenchimento de Dados



The screenshot shows the 'Zona de Preenchimento de Dados' (Data Entry Zone) for composing an email. It includes the following elements:

- De:** A dropdown menu with the value 'danielasilva_@portugalmail.pt'.
- Para:** A text input field with a contact list icon on the right.
- Assunto:** A text input field.
- Anexar:** A text input field with a file icon and a 'Browse...' button.
- Options:** Two checkboxes: 'Guardar na pasta "Enviadas"' (checked) and 'Pedir Aviso de Leitura' (unchecked).
- Priority:** A dropdown menu set to 'Normal'.
- Links:** 'Adicionar Cc' and 'Adicionar Bcc' links.

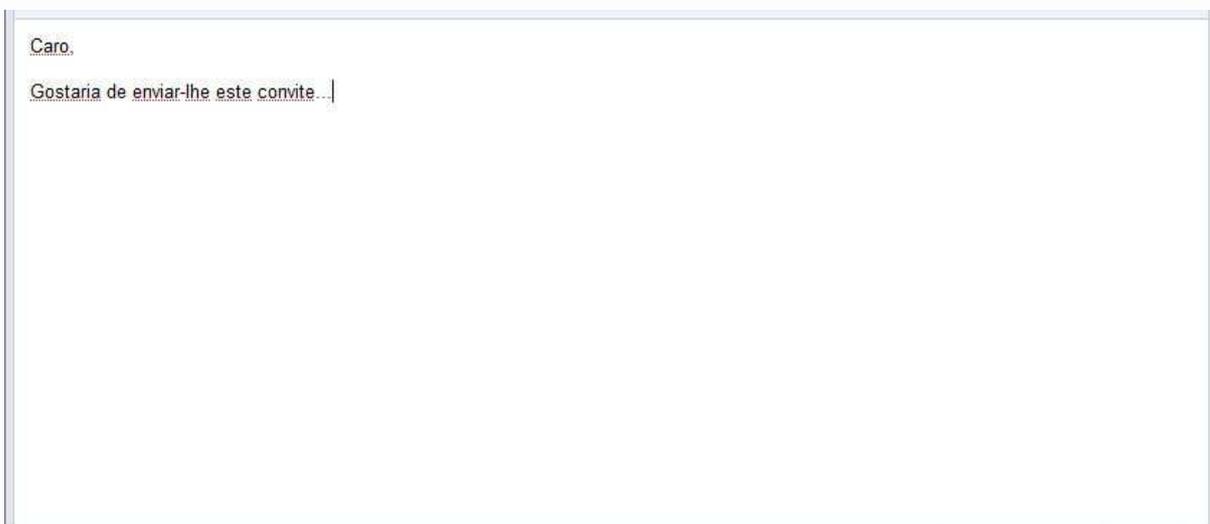
A Zona de Preenchimento de Dados da composição de e-mail apresenta:

- Campo "De/From" (possibilidade de selecção alternativa)
- Campo "Para/To" (dinâmico)
- Acesso a lista de contactos (pop-up)
- Campo "Cc" escondido
- Campo "Bcc" escondido
- Campo "Assunto/Subject"
- Campo "Anexar/Add Attachment"
- Opção "Guardar na pasta Enviadas"
- Opção "Pedir Aviso de Leitura"
- Campo "Prioridade" (5 níveis)

Corpo da Mensagem

O Corpo da Mensagem altera-se dependendo do modo de composição da mensagem.

Compor em Texto

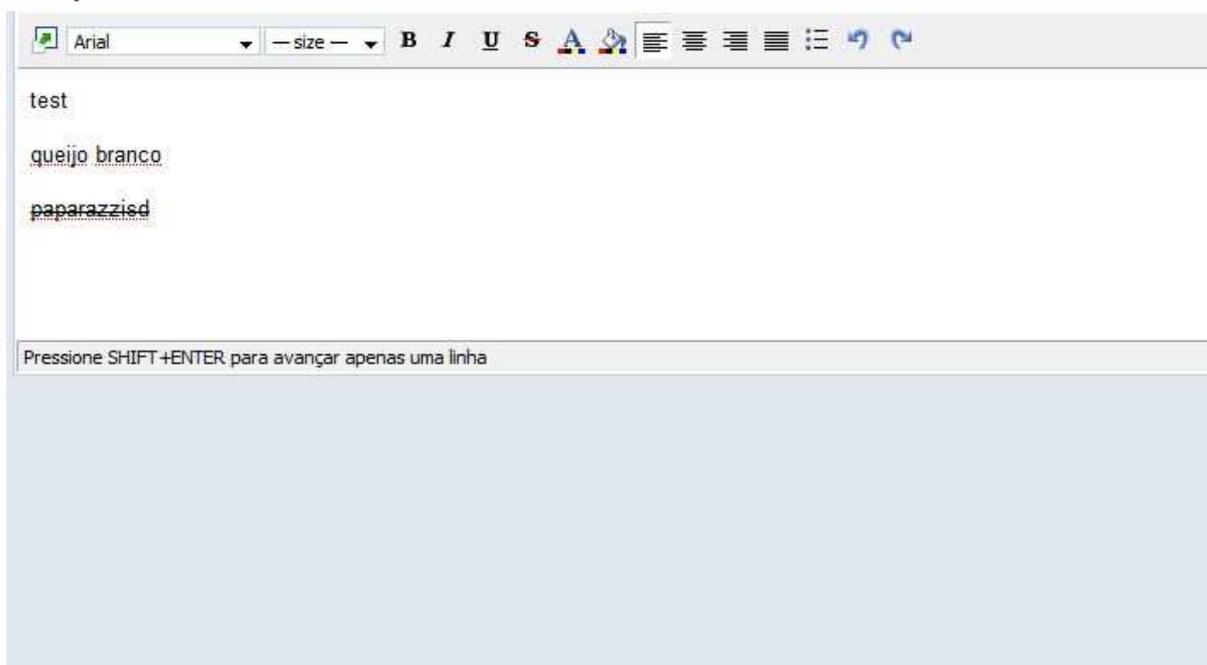


The screenshot shows the 'Compor em Texto' (Compose in Text) area. It is a large text input field containing the following text:

Caro,
Gostaria de enviar-lhe este convite...

Na composição em Texto, é apresentado uma caixa de texto simples, onde é possível escrever o conteúdo do e-mail.

Compor em HTML



A composição em HTML apresenta funcionalidades WYSIWYG convencionais, existindo ainda a possibilidade de expandir a composição para o tamanho da janela.

Visualização de Pastas

A visualização de pastas tem a arquitectura da página semelhante a Página Inicial sendo apenas alterada a zona central para uma interface própria (visualização abaixo) e adicionada uma barra lateral a direita para publicidade.



	De	Assunto	Data	Tamanho
<input type="checkbox"/>	Apoyo ao Cliente	Bem-vindo ao novo email	01/01/1970	91 KB
<input type="checkbox"/>	Apoyo ao Cliente	Bem-vindo ao novo email	01/01/1970	92 KB
<input type="checkbox"/>	Apoyo ao Cliente	Bem-vindo ao novo email	01/01/1970	92 KB
<input type="checkbox"/>	Apoyo ao Cliente	Bem-vindo ao novo email	01/01/1970	92 KB
<input type="checkbox"/>	Apoyo ao Cliente	Bem-vindo ao novo email	01/01/1970	91 KB
<input type="checkbox"/>	Apoyo ao Cliente	Bem-vindo ao novo email	01/01/1970	91 KB
<input type="checkbox"/>	Apoyo ao Cliente	Bem-vindo ao novo email	01/01/1970	91 KB
<input type="checkbox"/>	Apoyo ao Cliente	Bem-vindo ao novo email	01/01/1970	91 KB
<input type="checkbox"/>	Apoyo ao Cliente	Bem-vindo ao novo email	01/01/1970	91 KB
<input type="checkbox"/>	Apoyo ao Cliente	Bem-vindo ao novo email	01/01/1970	91 KB
<input type="checkbox"/>	Apoyo ao Cliente	Bem-vindo ao novo email	01/01/1970	91 KB

Sabia que...?

- Pode ordenar as mensagens clicando nos cabeçalhos das colunas.
- Pode arrastar mensagens seleccionadas para as pastas.
- Pode clicar com o botão direito do rato sobre mensagens/pastas para ver as opções disponíveis.
- Para seleccionar múltiplas mensagens pode usar as teclas **Shift** e **Ctrl**.

A zona central designada por “Visualização de Pasta” apresenta 3 áreas distintas (Cabeçalho, Listagem de Mensagens, Visualização das Mensagens) que serão descritas a seguir em pormenor.

Cabeçalho



O cabeçalho apresenta no seu canto superior esquerdo o nome da Pasta actual e no canto superior direito o número de mensagens que esta pasta possui.

Numa segunda linha visual existem as opções de acções a aplicar aos e-mails seleccionados:

- Responder
- Encaminhar
- Spam
- Apagar
- Ver

Os botões ficam clicáveis ou não-clicáveis dependendo da selecção ou não de mensagens na lista de mensagens.

Listagem de Mensagens

<input type="checkbox"/>	De	Assunto	Data	Tamanho
<input type="checkbox"/>	Apoio ao Cliente	Bem-vindo ao novo email	01/01/1970	257 KB
<input type="checkbox"/>	suporte@portugalmail.pt	Bem-vindo ao novo email	Data Desconhecida	257 KB
<input type="checkbox"/>	apoioaocliente@iol.pt	Bem-vindo ao seu novo email	Data Desconhecida	257 KB
<input type="checkbox"/>	nuno.lopes@portugalmail.net	testetete	30/08/2008	1 KB
<input checked="" type="checkbox"/>	nuno.lopes@portugalmail.net	testetete	30/08/2008	1 KB
<input type="checkbox"/>	dansi12345@portugalmail.pt	jhgjhghghghghghghg	30/08/2008	2 KB
<input checked="" type="checkbox"/>	dansi12345@portugalmail.pt	uuuuuu	30/08/2008	2 KB
<input checked="" type="checkbox"/>	dansi12345@portugalmail.pt	isto é um teste	30/08/2008	2 KB
<input checked="" type="checkbox"/>	Wall Street Institute - Portugalmail	Aprenda Inglês com 15% de Desconto	29/08/2008	113 KB
<input type="checkbox"/>	Wall Street Institute - Portugalmail	Aprenda Inglês com 15% de Desconto	29/08/2008	112 KB
<input type="checkbox"/>	WallStreet - Portugalmail	Aprenda Inglês com 15% de Desconto	29/08/2008	112 KB

Visualização das Mensagens

A visualização das mensagens será descrita em capítulo próprio.

Visualização de Mensagens

A visualização das mensagens pode ser feita de 2 formas distintas, visualização parcial, integrada na listagem de mensagens ou visualização externa, numa janela a parte.

Visualização Parcial

The screenshot shows an email client interface with a list of messages and a partial view of a selected message. The list has columns for 'De' (From), 'Assunto' (Subject), 'Data' (Date), and 'Tamanho' (Size). The selected message is from 'Geral' with subject '[SUPORTE #EKT-861872]: Email Ajax' and date '16/10/2007'. The partial view shows the start of the message body, including a greeting and a ticket ID.

	De	Assunto	Data	Tamanho
<input type="checkbox"/>	Geral	[SUPORTE #EKT-861872]: Email Ajax	16/10/2007	3 KB
<input type="checkbox"/>	suporte@portugalmail.pt	Bem-vindo ao novo email!	Data Desconhecida	257 KB
<input type="checkbox"/>	Apoio ao Cliente	Bem-vindo ao novo email!	01/01/1970	257 KB
<input type="checkbox"/>	suporte@portugalmail.net	Bem-vindo ao novo email!	01/01/1970	88 KB
<input type="checkbox"/>	Apoio ao Cliente	Bem-vindo ao novo email!	01/01/1970	88 KB
<input type="checkbox"/>	Apoio ao Cliente	Bem-vindo ao novo email!	01/01/1970	88 KB
<input type="checkbox"/>	Apoio ao Cliente	Bem-vindo ao novo email!	01/01/1970	88 KB
<input type="checkbox"/>	Apoio ao Cliente	Bem-vindo ao novo email!	01/01/1970	88 KB
<input type="checkbox"/>	Apoio ao Cliente	Bem-vindo ao novo email!	01/01/1970	88 KB
<input type="checkbox"/>	Apoio ao Cliente	Bem-vindo ao novo email!	01/01/1970	88 KB
<input type="checkbox"/>	Apoio ao Cliente	Bem-vindo ao novo email!	01/01/1970	88 KB

[SUPORTE #EKT-861872]: Email Ajax De: Geral <suporte@portugalmail.net> 16/10/2007

Daniela Silva,
O seu pedido foi recebido e um dos membros do suporte irá responder-lhe brevemente. Pode ver abaixo alguns dos detalhes do seu pedido. Por favor garanta que o identificador do pedido permanece sempre no assunto das mensagens que nos envia acerca deste assunto.

Ticket ID: EKT-861872
Assunto: Email Ajax
Department: Geral
Priority: Média
Status: Aberto

Pode consultar o Estado do pedido, responder e/ou acrescentar qualquer informação adicional que considere útil no seguinte endereço: <http://ajuda.portugalmail.pt/>

A Visualização Parcial está integrada na parte inferior da lista de mensagens, sendo adequada para visualização de e-mails muito curtos e onde não exista acção de resposta (neste caso será aberta uma janela externa).

Esta visualização possui um cabeçalho expansível onde é possível visualizar, na forma contraída os dados da mensagem básicos da mensagem (Assunto, De e Data) e na forma expandida os dados completos (Assunto, De, Data, Para, Cc e links para passar a visualização externa, ver código fonte e imprimir).

The screenshot shows a partial view of a selected message with an expanded header. The header includes the subject, sender, date, and recipient, along with action links for opening in a new window, viewing source code, and printing.

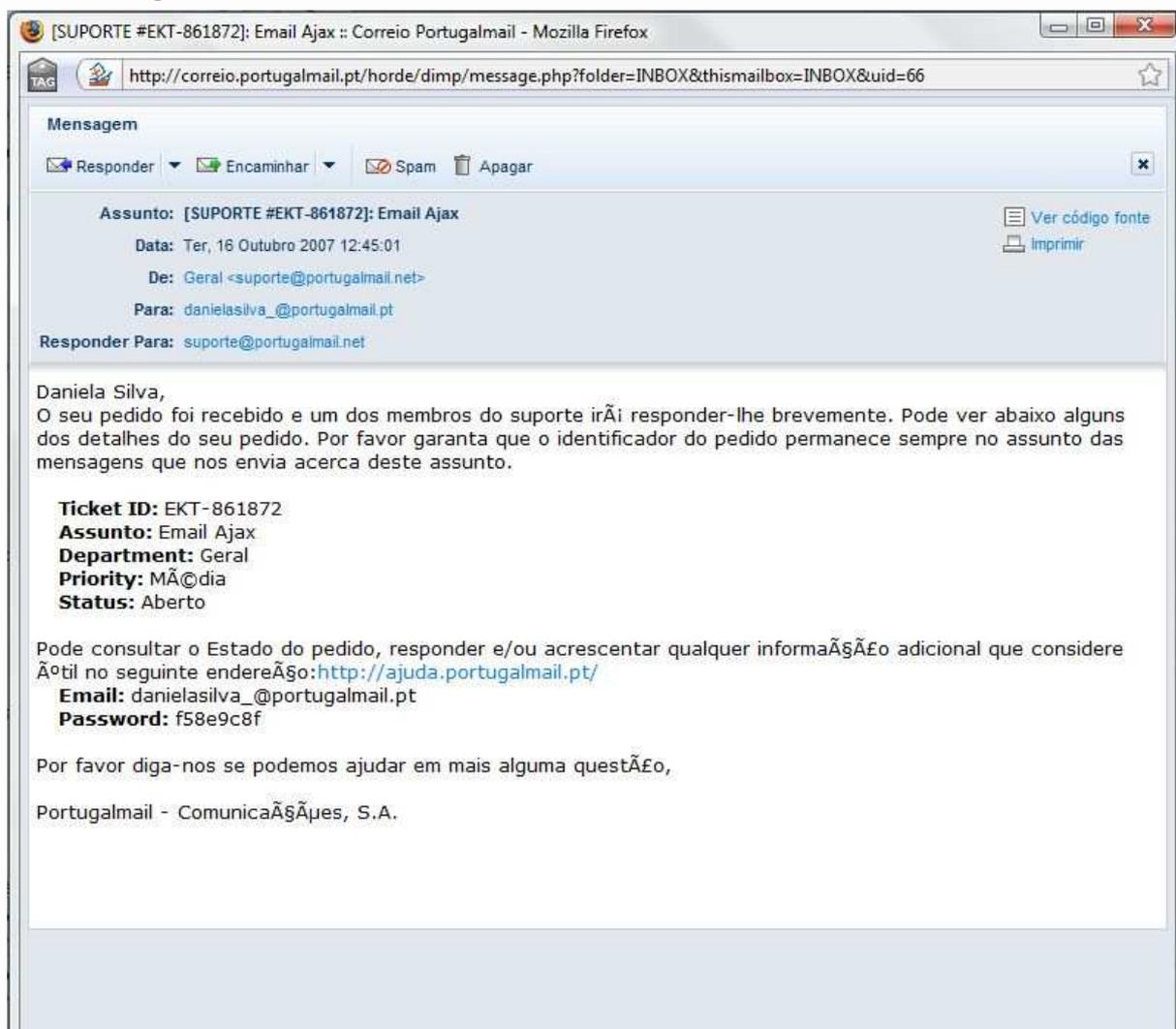
[SUPORTE #EKT-861872]: Email Ajax De: Geral <suporte@portugalmail.net> 16/10/2007

Assunto: [SUPORTE #EKT-861872]: Email Ajax
De: Geral <suporte@portugalmail.net>
Data: Ter, 16 Outubro 2007 12:45:01
Para: danielasilva_@portugalmail.pt

[Abrir noutra janela](#)
[Ver código fonte](#)
[Imprimir](#)

As acções associadas ao e-mail estão no topo da página, acima da lista de mensagens.

Visualização Externa



A Visualização Externa apresenta-se numa janela aberta em modo de Pop-Up com apresentação completa da mensagem, devido as maiores dimensões da janela, é possível visualizar mais conteúdo do e-mail sendo a sua utilização mais intuitiva.

A resposta ao e-mail esta bem integrada nesta visualização, sendo quase transparente para o utilizador a transição ver/responder mensagem.

Responder Mensagens

Ao responder mensagens a visualização é a mesma da composição de mensagens, estando a mensagem original adicionada ao corpo do e-mail, devidamente marcada como tal.

Enviar Guardar Rascunho Verificar Ortografia Compor em HTML Cancelar

De: danielasilva_@portugalmail.pt

Para: danielasilva_@portugalmail.pt

Adicionar Cc | Adicionar Bcc

Assunto: Re: Confirme novo endereço de email

Prioridade: Normal

Anexar Browse...

----- Mensagem de danielasilva_@portugalmail.pt -----
Data: Wed, 24 Oct 2007 16:18:35 +0100
De: danielasilva_@portugalmail.pt
Assunto: Confirme novo endereço de email
Para: danielasilva_@portugalmail.pt

> Você pediu para o endereço de email "danielasilva_@portugalmail.pt" ser
> adicionado à sua lista de endereços pessoais.
>
> Por favor clique no seguinte link para confirmar que este é realmente um
> endereço seu:
> <http://w6.mail.sapo.pt/services/confirm.php?h=y0vdxccqwatc4scog80>
>

Opções

A visualização das opções tem a arquitectura da página semelhante a Página Inicial sendo apenas alterada a zona central para uma interface própria (visualização abaixo) e adicionada uma barra lateral a direita para publicidade.

Opções do Correio

Opções Gerais	Opções da Mensagem	Outras Opções
Informações Pessoais Alterar o nome, endereço e a assinatura que as pessoas verão quando lerem e responderem às suas mensagens.	Composição de Mensagem Configure aqui as opções pré-definidas, sempre que compõe uma mensagem.	Esvaziar Lixo Opções para esvaziar a pasta Lixo ao sair.
Cartão de Visita Defina aqui a informação que deve aparecer no seu cartão de visita.	Visualização de Mensagens Configure a forma como as mensagens são visualizadas.	Resposta Automática Defina uma mensagem para ser enviada quando não estiver disponível.
Endereços de correio alternativos Defina novos endereços, e continue a receber aqui as suas mensagens.	Nova Mensagem Defina o intervalo de tempo para verificar a chegada de mensagens.	Lista Negra Defina um conjunto de endereços indesejados, e o que fazer às suas mensagens.
Palavra-chave Altere aqui a sua palavra-chave.		Lista Branca Defina um conjunto de endereços que confia, e que não devem ser sujeitos a filtragem.
Verificação de Endereço IP Verifica se o IP muda durante a sessão.		Notificação de Mensagem Nova Defina um endereço de correio para receber uma notificação, sempre que chegar uma nova mensagem a esta caixa de correio.
Interface Escolha a versão do interface, Clássica ou Dinâmica, que está pré-definida quando entra no correio.		Contactos Configure opções da aplicação "Contactos".
Dados da Conta Altere aqui os dados da sua conta, tais como pergunta e resposta secreta.		

As opções estão divididas em 3 categorias:

- Opções Gerais
- Opções de Mensagem
- Outras Opções

Cada categoria apresenta-se numa coluna onde são visíveis links e descrições das sub-páginas onde são realizadas as opções propriamente ditas.

Opções Gerais:

- Informações Pessoais
- Cartão de Visita
- Endereços de Correio Alternativos
- Palavra-chave
- Verificação de Endereços IP
- Interface
- Dados da Conta

Opções de Mensagem

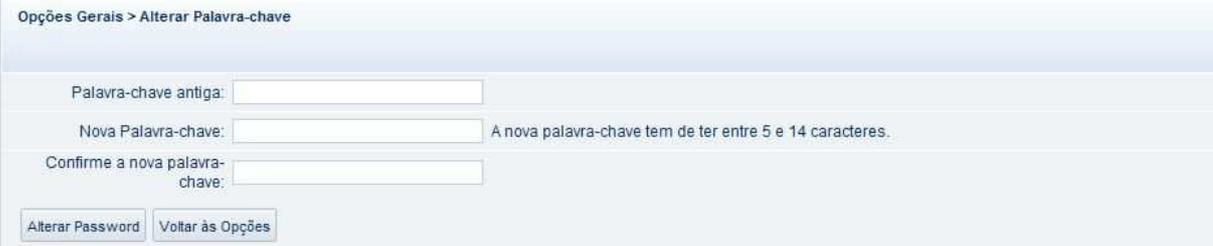
- Composição de Mensagem
- Visualização de Mensagens
- Nova Mensagem

Outras Opções

- Esvaziar Lixo
- Resposta Automática
- Lista Negra
- Lista Branca
- Notificações de Mensagem Nova
- Contactos

Cada uma dessas secções pode ser aberta em página própria, contendo as possibilidades de alteração das opções.

Um exemplo disso será a seção “Alterar Palavra-chave” apresentada na imagem abaixo.



The screenshot shows a web form titled "Opções Gerais > Alterar Palavra-chave". It contains three input fields: "Palavra-chave antiga:", "Nova Palavra-chave:", and "Confirme a nova palavra-chave:". The "Nova Palavra-chave:" field has a note: "A nova palavra-chave tem de ter entre 5 e 14 caracteres.". At the bottom, there are two buttons: "Alterar Password" and "Voltar às Opções".

Feedback Pessoal

Neste capítulo serão apresentados alguns comentários e sugestões sobre o estado da plataforma de e-mail actual, tendo em vista a sua melhoria a curto prazo.

É importante ter em consciência que este feedback apenas terá sugestões de correcção das funcionalidades actuais. Novas funcionalidades serão apresentadas em outro documento.

Página Inicial



Ao questionarmos sobre “O que o utilizador deseja ver ao abrir o seu cliente de E-mail?” a resposta parece apontar para “E-mails”, assim esta página não apresentará (tirando a Zona Informativa e o número de mensagens não lidas por pasta) informação útil para o utilizador.

Proponho assim que esta página, havendo a necessidade de existir, apresente mais informação útil para o utilizador. Sugestões dadas em subcapítulo próprio.

Cabeçalho



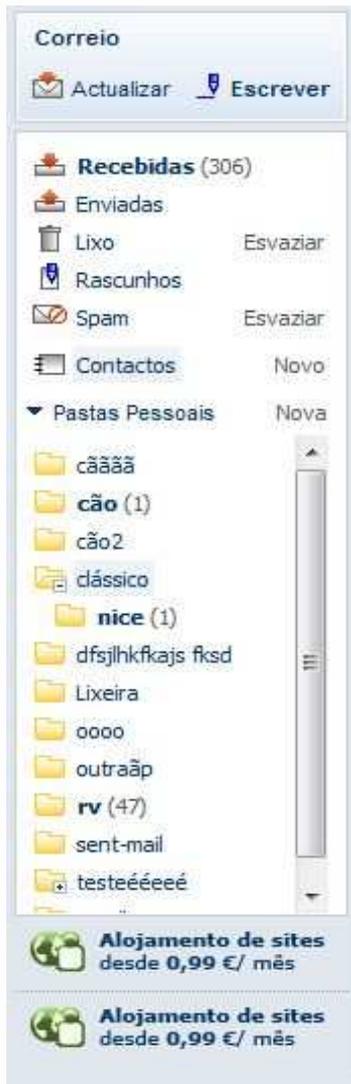
Algumas reparações:

- Botão Início é redundante com o logo da Portugalmail (Solução: Remoção do Link e Adição da Palavra Início na Imagem)
- Adicionar a seguir ao identificador do dono da conta actual “(Este não é o seu e-mail?)” para casos de acesso indevido (i.e. múltiplos utilizadores no mesmo computador)

- Mudar palavra “Versão” para “Visualização”
- Os browsers actuais apresentam pesquisa integrada no painel superior, sendo assim redundante o espaço para pesquisa na web (Solução: Remoção)

Menu Lateral

O Menu Lateral no seu geral está visualmente agradável e funcional. O uso de imagens identificativas para cada botão e as acções rápidas (Esvaziar, Novo Contacto, etc) são excelentes implementações.



Reparações:

- A existência do botão “Actualizar” da a indicação de que é necessário clicar neste botão para que o sistema actualize.
- O Botão “Actualizar” está mal localizado, visto ser algo que afecta toda o website, deveria esta no cabeçalho.
- Os botões “Actualizar” e “Escrever” ao estarem em paralelo vão contra a estrutura padrão apresentada no resto do Menu.
- A separação entre as funcionalidades de Correio e Inbox não é necessária.
- Devido a similaridade funcional a pasta rascunho deveria estar a seguir a “Enviadas” ou até mesmo a seguir a “Escrever”, da mesma forma “Lixo “ e “Spam” deveriam estar seguidas.
- O número de mensagens não lidas em subpastas deveria ser mostrado nas pastas-pai, caso contrário uma nova mensagem não lida poderá ficar escondida.
- As barras publicitárias não deveriam ser a mesma.
- O scroll das pastas deverá ficar encostado a direita

Zona de Informações sobre Conta de E-mail



A Zona de Informações tem potencial para ser uma área de resumo da informação importante para o cliente, podendo ser expandida.

Exemplos de funcionalidade a adicionar são:

- Acesso as últimas 5/10 mensagens recebidas não lidas
- Estatísticas da Conta
 - Número de E-mails recebidos e enviados este mes
 - Número de Spam bloqueado
- Próximos aniversários dos contactos e feriados nacionais
- Próximos eventos da Agenda pessoal

Funcionalidades a modificar:

- Data e Hora do Load da Página: Informação interessante no momento de load, no entanto perde a sua validade num curto espaço temporal (1 minuto) levando inclusive a uma eventual desinformação do utilizador (Solução: Actualização, Remoção ou Fade out ao final de 1 minuto).

Zona dedicada a Publicidade



The screenshot shows a web interface with two tabs: 'Informação' (selected) and 'Futebolar'. Under 'Informação', there is a list of news items with timestamps and titles. To the right of the news list is a large advertisement for 'Soluções de Gestão' by 'pho Software' and 'portugalmail'. The ad features a person in a suit holding a smartphone. The 'pho Software' logo is in red and blue, and the 'portugalmail' logo is in blue and white.

Informação Futebolar

18:42 **Ministra da Saúde não vai esclarecer saída de médicos do IDT**

18:31 Ronaldo e Deco candidatos a melhor do ano da FIFA

18:12 CDS-PP adia eleições directas para 19 de Dezembro

17:41 Portugal pode entrar em recessão no próximo ano

16:04 «Pilhas de Livros» premeia sete escolas alentejanas

15:38 UE tem pouca relevância para mais de 44% dos portugueses

Soluções de Gestão

pho Software

portugalmail

Sendo informação não solicitada pelo utilizador e devido a estar a ocupar a zona central da página inicial pode gerar insatisfação no utilizador.

Sugestões:

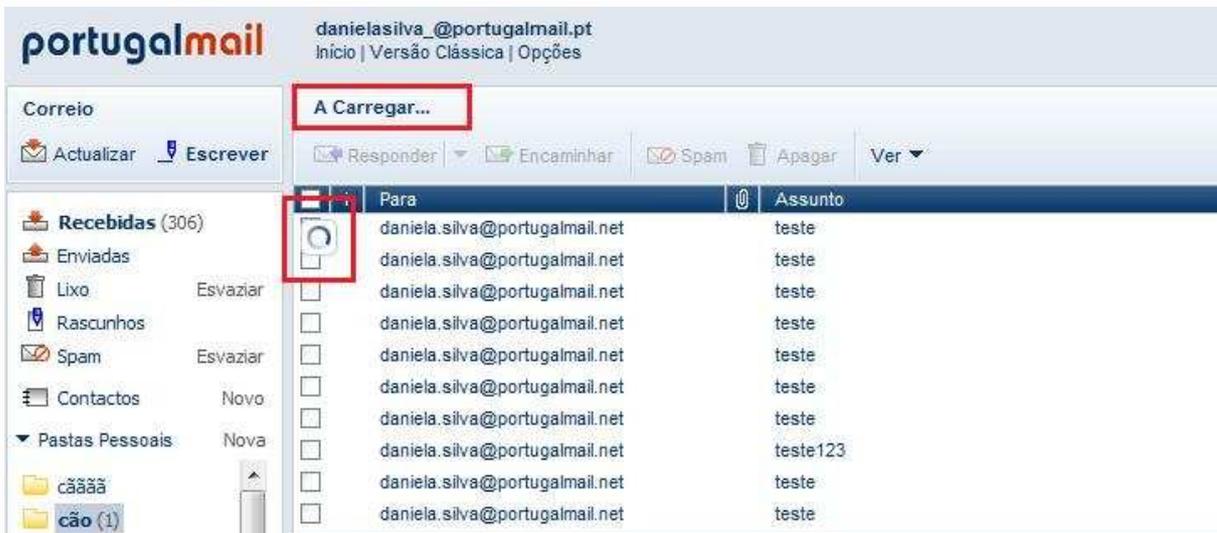
- Possibilidade de adicionar novas tabs com outras fontes de Informação (Jn, Publico, A Bola, O Jogo, Record, NYTimes, etc)
- Dar menos destaque a este conteúdo.

Transição entre Páginas

Os elementos de transição são importantes e foram muito bem integrados.

Reparações:

- Durante a transição, é gerada uma inconsistência visual, onde a pasta a visualizar já esta selecionada, no entanto a anterior continua visível (Solução: Limpar a lista de mensagens durante a transição e dar mais destaque a imagem animada)

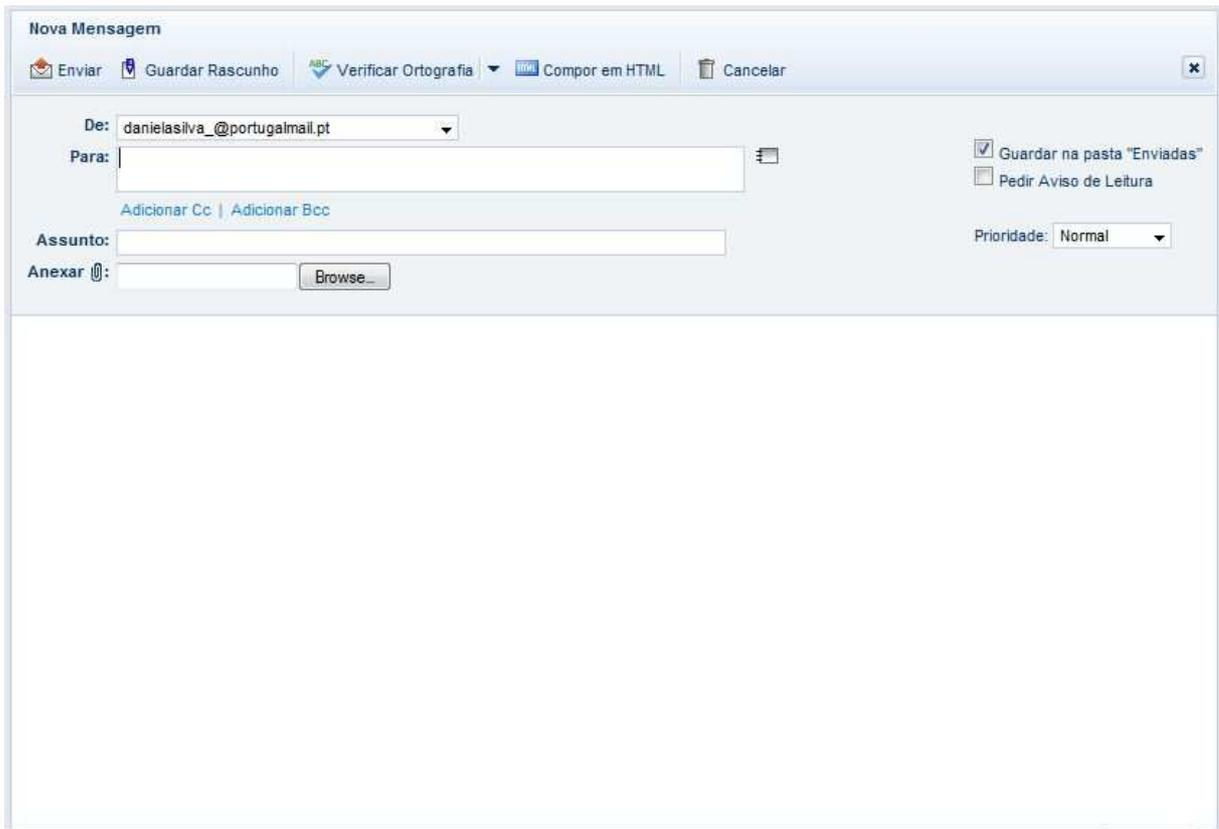


- Na transição para a Página Inicial o estilo da letra e a ausência da imagem apresentam uma inconsistência com as restantes transições, como demonstra a figura abaixo.



- O mesma situação acontece ao carregar o painel das pastas no menu lateral.

Compor Mensagem



A janela de composição de mensagem encontra-se muito agradável visualmente e sua interação é bastante intuitiva, no entanto apresenta uma série de pequenos detalhes a serem corrigidos para uma performance mais satisfatória.

Uma situação que merece atenção é o redimensionamento da janela. Ao redimensionar lateralmente para tamanhos pequenos (como demonstrado na imagem seguinte) a organização dos elementos no ecrã perdem estrutura. Inclusivamente os botões do cabeçalho desaparecem.

A solução indicada, é estabelecer uma largura mínima para a janela, a partir da qual deverá ser apresentado um scroll horizontal.



Cabeçalho



Reparações:

- Guardar Rascunho não deve fechar a janela.
- Guardar Rascunho deve guardar a mensagem por cima das versões anteriores (actualmente cria uma nova versão da mensagem na pasta rascunho).
- Verificar Ortografia deve ter uma lingua predefinida.
- Ao escolher nova língua para Verificação Ortográfica esta deve realizar automaticamente a verificação.
- A verificação Ortográfica deve correr em paralelo com a escrita do texto, podendo estar sempre activa. No modelo actual ao realizar a Verificação Automática actual a escrita do texto fica bloqueada, sendo inclusive complexo a saída deste modo.
- A listagem de opções de palavras da correcção ortográfica deve ser acessível com o botão direito do rato (como no MS Word e no Firefox).
- Botão para finalizar correcção ortográfica “Continuar a editar” não é claro (Solução: mudar nome para “Finalizar Verificação”).
- Ao cancelar, mensagem indica a existencia de rascunhos automaticos (informação errada).

- Fechar a janela através do botão “X” apresenta a mesma funcionalidade que o botão “Cancelar”, tendo inclusive a mesma mensagem.

Zona de Preenchimento de Dados



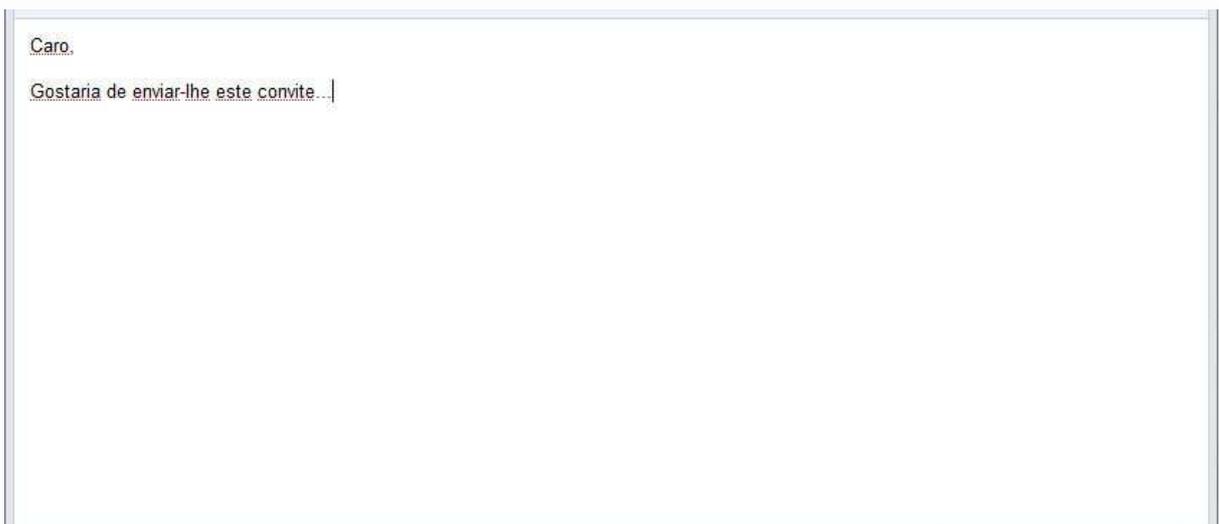
The screenshot shows the email composition interface. It includes a 'De:' field with the email address 'danielasilva_@portugalmail.pt'. The 'Para:' field is empty. There are links for 'Adicionar Cc' and 'Adicionar Bcc'. The 'Assunto:' field is empty. The 'Anexar' field has a 'Browse...' button. On the right side, there are checkboxes for 'Guardar na pasta "Enviadas"' (checked) and 'Pedir Aviso de Leitura'. The 'Prioridade:' dropdown is set to 'Normal'.

Reparações:

- Após selecionar um ficheiro para anexar, enquanto este faz o load para o servidor, deveria ser possível iniciar o processo de escolha de outro anexo.
- Não deve ser possível anexar o mesmo documento várias vezes (pelo menos sem avisar o utilizador desta situação)
- Ao atingir o limite de número de anexos e/ou tamanho total dos anexos o sistema deve emitir uma notificação para evitar o retorno da mensagem.
- Não deve ser possível adicionar o mesmo e-mail mais do que uma vez na lista de destinatários.
- Não deve ser possível adicionar o mesmo e-mail no Para, CC ou BCC ao mesmo tempo.
- A opção “Guardar na pasta “Enviada” é útil? Alguém não deseja guardar? Essa era uma preocupação que existia anteriormente devido ao limite da Inbox. Será necessária essa preocupação nos dias de hoje?

Corpo da Mensagem

Compor em Texto

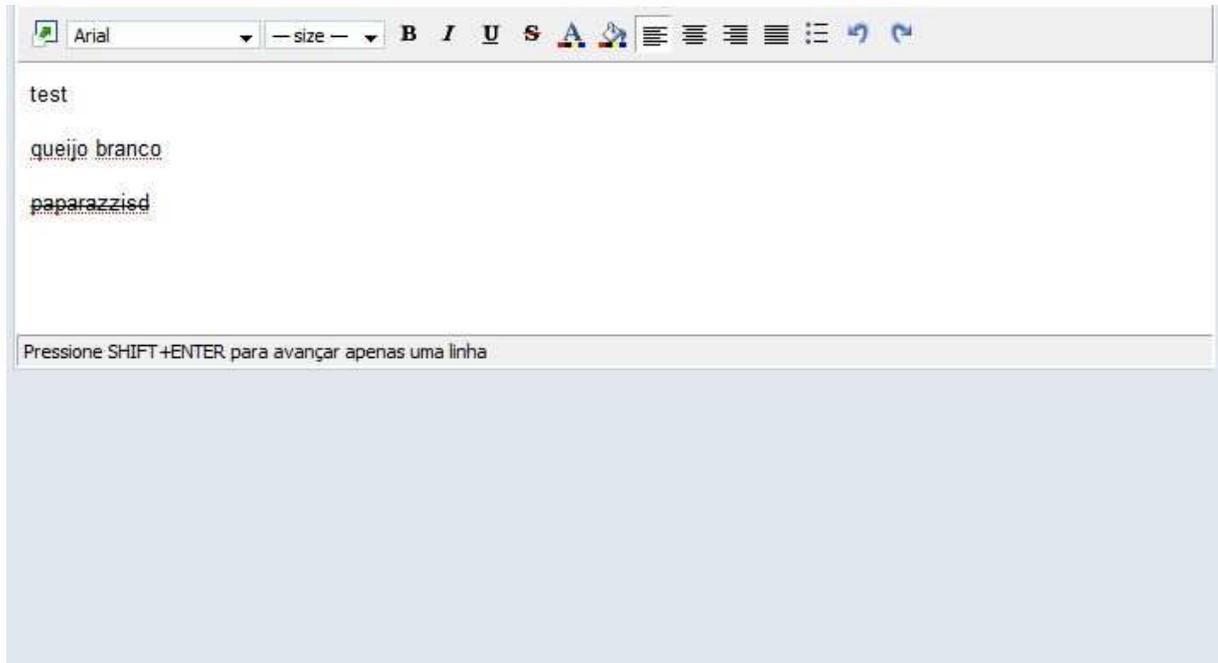


The screenshot shows the email body composition area. It contains the text 'Caro,' followed by a line break and 'Gostaria de enviar-lhe este convite...'. The text is highlighted, indicating it is selected.

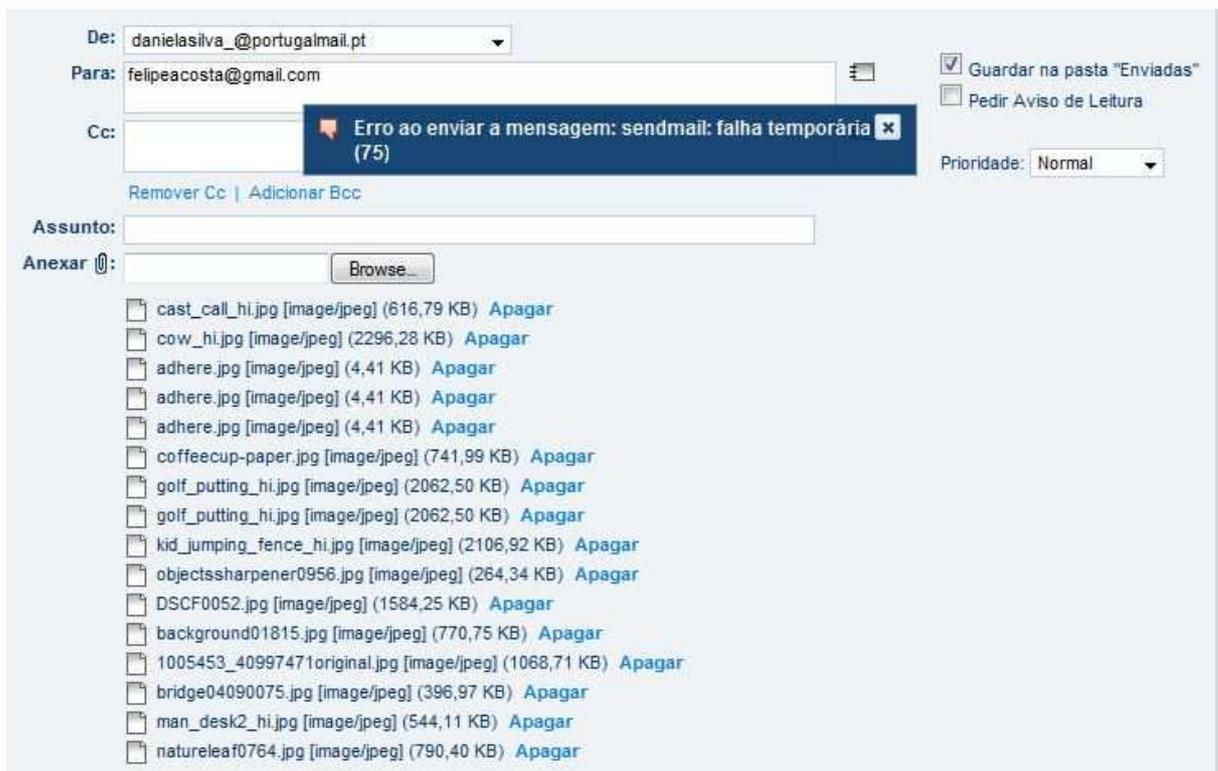
Reparações:

- O final da caixa de texto coincide com o final da Janela, dando a indicação de que existe algo mais para baixo (muitas vezes até existe uma barra de scroll vertical que reforça esta teoria).

Compor em HTML



Mensagens de Erro



As mensagens de erro devem ser compreensíveis pelo utilizador.

Visualização de Pastas



The screenshot shows an email inbox titled "Recebidas" with 524 messages. The interface includes a toolbar with "Responder", "Encaminhar", "Spam", "Apagar", and "Ver" buttons, along with a search bar. The message list has columns for "De", "Assunto", "Data", and "Tamanho". Below the list is a sidebar with a "futebolar Opina" advertisement and a "Sabia que...?" section with tips.

	De	Assunto	Data	Tamanho
<input type="checkbox"/>	Apoio ao Cliente	Bem-vindo ao novo email	01/01/1970	91 KB
<input type="checkbox"/>	Apoio ao Cliente	Bem-vindo ao novo email	01/01/1970	92 KB
<input type="checkbox"/>	Apoio ao Cliente	Bem-vindo ao novo email	01/01/1970	92 KB
<input type="checkbox"/>	Apoio ao Cliente	Bem-vindo ao novo email	01/01/1970	92 KB
<input type="checkbox"/>	Apoio ao Cliente	Bem-vindo ao novo email	01/01/1970	91 KB
<input type="checkbox"/>	Apoio ao Cliente	Bem-vindo ao novo email	01/01/1970	91 KB
<input type="checkbox"/>	Apoio ao Cliente	Bem-vindo ao novo email	01/01/1970	91 KB
<input type="checkbox"/>	Apoio ao Cliente	Bem-vindo ao novo email	01/01/1970	91 KB
<input type="checkbox"/>	Apoio ao Cliente	Bem-vindo ao novo email	01/01/1970	91 KB
<input type="checkbox"/>	Apoio ao Cliente	Bem-vindo ao novo email	01/01/1970	91 KB
<input type="checkbox"/>	Apoio ao Cliente	Bem-vindo ao novo email	01/01/1970	91 KB

Sabia que...?

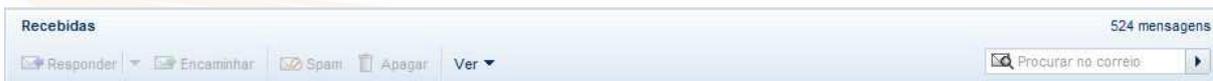
- Pode ordenar as mensagens clicando nos cabeçalhos das colunas.
- Pode arrastar mensagens seleccionadas para as pastas.
- Pode clicar com o botão direito do rato sobre mensagens/pastas para ver as opções disponíveis.
- Para seleccionar múltiplas mensagens pode usar as teclas **Shift** e **Ctrl**.

Interações interessantes, como o apagar mensagem, no entanto muitas áreas para corrigir. Algumas acções são algo lentas introduzindo insatisfação temporal a utilização do e-mail.

Reparações:

- O bloco Inferior ocupa um espaço elevado e será informação antiga apos leitura (não existindo motivo para a sua visualização neste caso). Solução Sugerida: "Sabia que..?" aparecer no rodapé e fazer fade out após 5 segundos se não houver mouse-over.

Cabeçalho



The screenshot shows the header area of the email inbox, including the "Recebidas" title, "524 mensagens" count, and the toolbar with "Responder", "Encaminhar", "Spam", "Apagar", and "Ver" buttons, along with a search bar.

Reparações:

- Opções de ordenação em Ver deve ter um default marcado.
- Tanto a acção "Responder" como "Reponder a todos" devem estar visíveis no menu directamente.
- Todos os botões são acções e tem nome de acções, com excepção do botão "Spam" gerando assim uma inconsistencia. Solução: Alterar nome do botão para "Marcar como Spam".

Reparações **Pasta Rascunho**:

- Na pasta rascunho as acções “Responder”, “Encaminhar”, “Spam” não fazem sentido e devem ser removidas.
- Botões como “Editar” e “Enviar” seriam úteis.

Reparações **Pasta Spam**:

- Botão “Spam” não faz sentido, substituir por botão “Não Spam”.
- Botão “Esvaziar” local seria útil

Reparações **Pasta Lixo**:

- Botão “Restaurar” seria útil

Listagem de Mensagens

<input type="checkbox"/>		De	Assunto	Data	Tamanho
<input type="checkbox"/>		Apoio ao Cliente	Bem-vindo ao novo email	• 01/01/1970	257 KB
<input type="checkbox"/>		suporte@portugalmail.pt	Bem-vindo ao novo email	• Data Desconhecida	257 KB
<input type="checkbox"/>		apoioaocliente@iol.pt	Bem-vindo ao seu novo email	• Data Desconhecida	257 KB
<input type="checkbox"/>	<input checked="" type="checkbox"/>	nuno.lopes@portugalmail.net	testetete	• 30/08/2008	1 KB
<input checked="" type="checkbox"/>		nuno.lopes@portugalmail.net	testetete	• 30/08/2008	1 KB
<input type="checkbox"/>		dansi12345@portugalmail.pt	jhgjhghghghghghghg	• 30/08/2008	2 KB
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	dansi12345@portugalmail.pt	uuuuuu	• 30/08/2008	2 KB
<input checked="" type="checkbox"/>		dansi12345@portugalmail.pt	isto é um teste	• 30/08/2008	2 KB
<input checked="" type="checkbox"/>		Wall Street Institute - Portugalmail	Aprenda Inglês com 15% de Desconto	• 29/08/2008	113 KB
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Wall Street Institute - Portugalmail	Aprenda Inglês com 15% de Desconto	• 29/08/2008	112 KB
<input type="checkbox"/>		WallStreet - Portugalmail	Aprenda Inglês com 15% de Desconto	• 29/08/2008	112 KB

Reparações:

- A ordenação default deve estar assinalada na coluna própria.
- Ao ordenar por data, ocorre um erro de ordenação para datas a 01/01/1970 (ver imagem abaixo)

<input type="checkbox"/>		De	Assunto	Data	Tamanho
<input type="checkbox"/>	<input checked="" type="checkbox"/>	PORTUGALMAIL	Futebolar	• 27/10/2008	46 KB
<input type="checkbox"/>	<input checked="" type="checkbox"/>	PORTUGALMAIL	Futebolar	• 27/10/2008	46 KB
<input type="checkbox"/>		PORTUGALMAIL	Futebolar	• 28/10/2008	46 KB
<input type="checkbox"/>	<input checked="" type="checkbox"/>	PORTUGALMAIL	Futebolar	• 28/10/2008	46 KB
<input type="checkbox"/>		PORTUGALMAIL	Futebolar	• 28/10/2008	46 KB
<input type="checkbox"/>		Apoio ao Cliente	Bem-vindo ao novo email	• 01/01/1970	88 KB
<input type="checkbox"/>		Apoio ao Cliente	Bem-vindo ao novo email	• 01/01/1970	88 KB
<input type="checkbox"/>		Apoio ao Cliente	Bem-vindo ao novo email	• 01/01/1970	88 KB
<input type="checkbox"/>		Apoio ao Cliente	Bem-vindo ao novo email	• 01/01/1970	88 KB
<input type="checkbox"/>		Apoio ao Cliente	Bem-vindo ao novo email	• 01/01/1970	88 KB

- Nem todas as colunas são ordenáveis, no entanto não existe qualquer diferenciação entre as colunas ordenáveis e as não ordenáveis.
- Deve ser possível visualizar somente mensagens não lidas
- Devido ao facto de a imagem da checkbox durante o mouse-over ser muito similar a imagem da checkbox quando seleccionada não é possível perceber com clareza que a mensagem teve a sua selecção cancelada.

- Ao ordenar por De, a ordenação não é clara para o utilizador ou errada (ver imagem abaixo)

	De	Assunto	Data	Tamanho
<input type="checkbox"/>	DVDtoDVDr	Novo Registro em DVDtoDVDr (DVDtoDVDr)	21/12/2007	3 KB
<input type="checkbox"/>	DVDtoDVDr	Account: rvmartins, validated at DVDtoDVDr (DVDtoDVDr)	21/12/2007	2 KB
<input type="checkbox"/>	ajuda@continente.pt	Cartão Continente - Confirmação de Associação	28/11/2007	10 KB
<input type="checkbox"/>	ajuda@continente.pt	Cartão Continente - Confirmação de Associação	28/11/2007	10 KB
<input type="checkbox"/>	ajuda@continente.pt	Bem-Vindo ao Continente Online!	11/09/2007	12 KB
<input type="checkbox"/>	Beatrice George	SOLD OUT - LIMITED OFFER- I Selling Rolexes and other watches? DO uo	09/01/2008	2 KB
<input type="checkbox"/>	Turistrela - Dep. de Reservas	Informação	20/12/2007	891 KB
<input type="checkbox"/>	Turistrela - Dep. de Reservas	Confirmação de Reserva	20/12/2007	167 KB
<input type="checkbox"/>	TV Cabo - Servico de Apoio ao Clienti	Pedido de 2ª via de factura	28/02/2008	163 KB
<input type="checkbox"/>	TV Cabo - Servico de Apoio ao Clienti	Pedido de 2ª via de factura	28/02/2008	164 KB
<input type="checkbox"/>	confirmation-commande@amazon.fr	Amazon.fr: votre commande	14/12/2007	15 KB
<input type="checkbox"/>	Test&Vote	E-mail para confirmar o registo	07/03/2008	9 KB
<input type="checkbox"/>	Cristina Pereira	Marcação Planador Sintra, dia 26 Janeiro às 16h00	24/01/2008	28 KB
<input type="checkbox"/>	booking.com	A sua reserva em Estalagem Varanda Dos Carqueijais	20/12/2007	32 KB
<input type="checkbox"/>	booking.com	A sua reserva em Estalagem Varanda Dos Carqueijais	20/12/2007	34 KB
<input type="checkbox"/>	iTunes Store	Welcome to the iTunes Store!	20/07/2007	11 KB
<input type="checkbox"/>	iTunes Store	Your receipt #559300625	22/07/2007	14 KB
<input type="checkbox"/>	edp.online@edp.pt	Comunicação de Leituras Electricidade	01/11/2007	3 KB

- Por vezes ao seleccionar uma ordenção no menu “Ver” está acção não é executada.
- Ao clicar sobre um mensagem está deverá ser seleccionada (mark checkbox), fora do contexto sua selecção não é clara (especialmente quando o Painel da Mensagem está oculto ou reduzido ao mínimo).
- Ao fazer mouse-over das mensagens aparece o título da mensagem em destaque, informação redundante. Poderia aparecer informação útil sobre cada coluna (mais informações sobre o contacto ao fazer mouse-over sobre “De”, primeiras linhas da mensagem ao fazer mouse-over sobre “Assunto”, pre-visualização dos attachments ao fazer mouse-over sobre “attachment”)
- Numa pasta vazia, ao clicar na checkbox para seleccionar todas as mensagens ficam disponíveis as opções do menu (mesmo estando nenhuma mensagem activa).



Visualização das Mensagens

Comentários a visualização das mensagens serão descrita no capítulo dedicado a visualização das mensagens.

Visualização de Mensagens

A visualização das mensagens pode ser feita de 2 formas distintas, visualização parcial, integrada na listagem de mensagens ou visualização externa, numa janela a parte.

Cada uma apresenta problemas e características diferentes, sendo por isso analisadas independentemente.

Visualização Parcial

The screenshot shows an email client interface with a list of received messages and a detailed view of a specific message. The list of messages is as follows:

	De	Assunto	Data	Tamanho
<input type="checkbox"/>	Geral	[SUPORTE #EKT-861872]: Email Ajax	16/10/2007	3 KB
<input type="checkbox"/>	suporte@portugalmail.pt	Bem-vindo ao novo email	Data Desconhecida	257 KB
<input type="checkbox"/>	Apoio ao Cliente	Bem-vindo ao novo email	01/01/1970	257 KB
<input type="checkbox"/>	suporte@portugalmail.net	Bem-vindo ao novo email	01/01/1970	88 KB
<input type="checkbox"/>	Apoio ao Cliente	Bem-vindo ao novo email	01/01/1970	88 KB
<input type="checkbox"/>	Apoio ao Cliente	Bem-vindo ao novo email	01/01/1970	88 KB
<input type="checkbox"/>	Apoio ao Cliente	Bem-vindo ao novo email	01/01/1970	88 KB
<input type="checkbox"/>	Apoio ao Cliente	Bem-vindo ao novo email	01/01/1970	88 KB
<input type="checkbox"/>	Apoio ao Cliente	Bem-vindo ao novo email	01/01/1970	88 KB
<input type="checkbox"/>	Apoio ao Cliente	Bem-vindo ao novo email	01/01/1970	88 KB

The detailed view of the selected message shows the following information:

Assunto: [SUPORTE #EKT-861872]: Email Ajax
De: Geral <suporte@portugalmail.net>
Data: 16/10/2007

Daniela Silva,
O seu pedido foi recebido e um dos membros do suporte irá responder-lhe brevemente. Pode ver abaixo alguns dos detalhes do seu pedido. Por favor garanta que o identificador do pedido permanece sempre no assunto das mensagens que nos envia acerca deste assunto.

Ticket ID: EKT-861872
Assunto: Email Ajax
Department: Geral
Priority: MÁ@dia
Status: Aberto

Pode consultar o Estado do pedido, responder e/ou acrescentar qualquer informação adicional que considere útil no seguinte endereço: <http://ajuda.portugalmail.pt/>

A Visualização Parcial é adequada apenas para visualização de e-mails muito curtos e onde não exista acção de resposta. Sua utilização aproxima-se das aplicações desktop.

O cabeçalho expansível é uma excelente funcionalidade para a gestão do espaço.

The screenshot shows an email client interface with an expandable header for a message. The header is expanded, showing the following information:

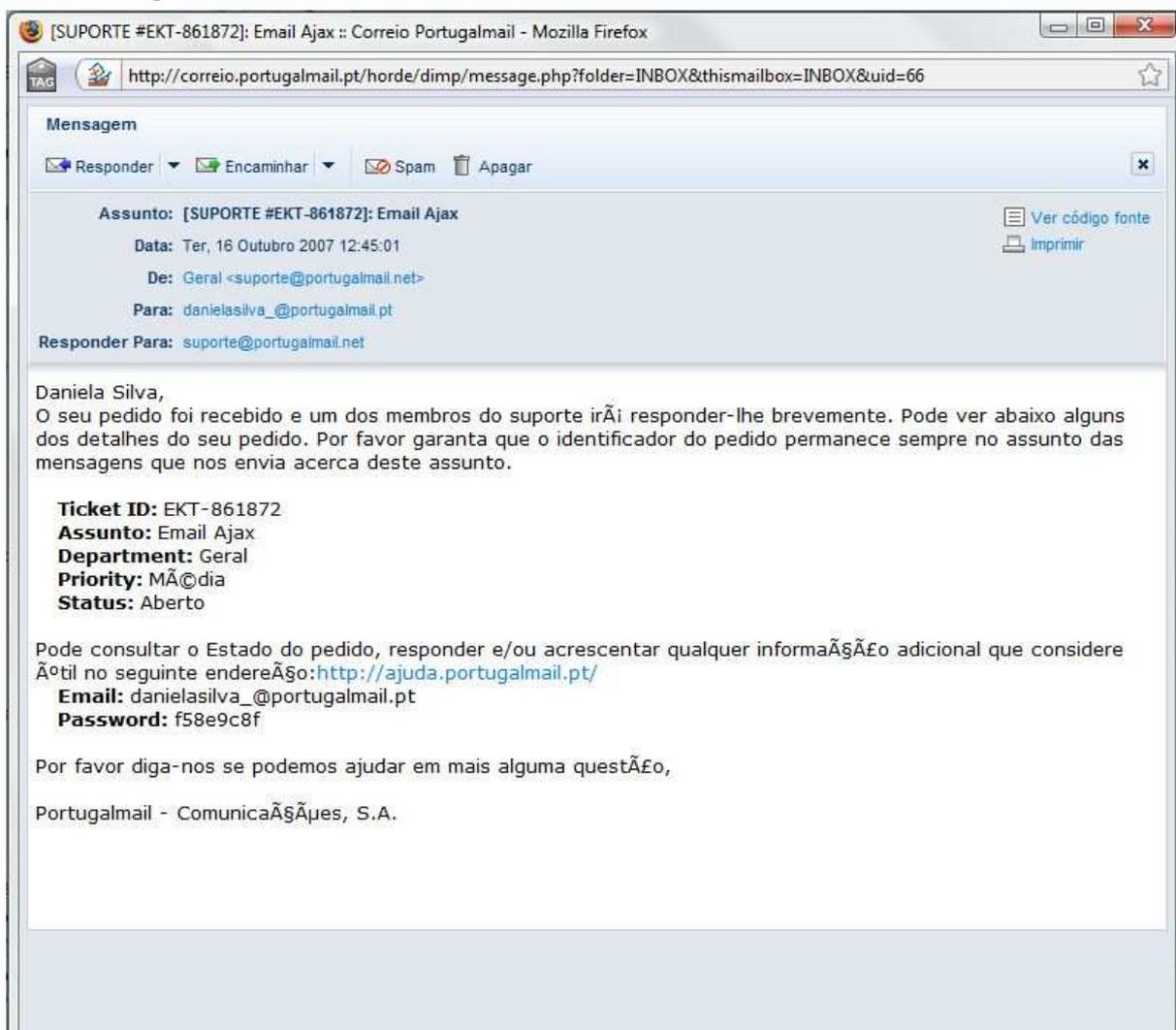
Assunto: [SUPORTE #EKT-861872]: Email Ajax
De: Geral <suporte@portugalmail.net>
Data: Ter, 16 Outubro 2007 12:45:01
Para: danielasilva_@portugalmail.pt

On the right side of the header, there are three icons with corresponding text: "Abrir noutra janela", "Ver código fonte", and "Imprimir".

Para leitura e resposta de e-mails de tamanho superior a medio, ao meu ver, esta visualização apresenta uma má distribuição de espaço, dado ao facto de as acções associadas ao e-mail (Responder, Encaminhar, Spam, Apagar) encontra-se "longe" do campo de visualização.

Por outro lado, devido a sua visualização limitada em termos de espaço não é possível ter uma visão geral do e-mail, bem como ler sem a utilização constante do scroll, interrompendo assim o processo de leitura.

Visualização Externa



A Visualização Externa em termos funcionais e de design está muito boa, no entanto o seu aparecimento em Pop-up não é do agrado de muitos utilizadores.

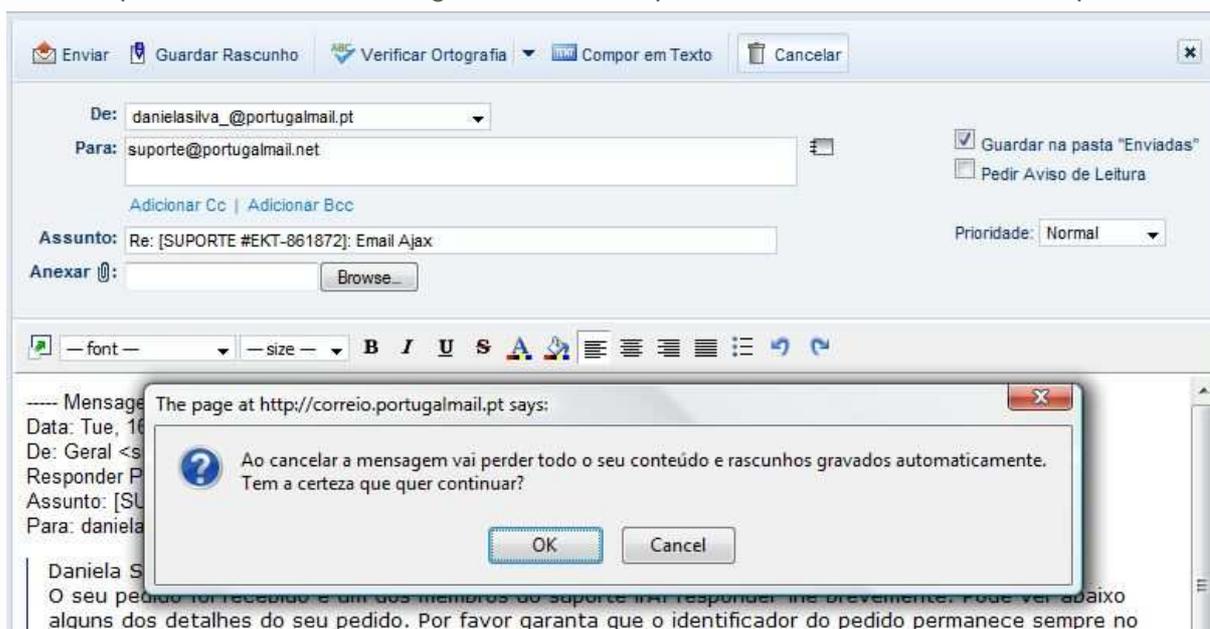
Reparações:

- Devido as duas soluções actuais não serem satisfatórias, defendo a criação de um novo sistema de visualização. (Um boa solução será o sistema de tabs desenvolvido no Yahoo! Mail).
- As opções encaminha Mensagem e Encaminhar só texto não fazem sentido quando a mensagem não tem anexos, e mesmo quando tem anexos, ao seleccionar encaminhar Mensagem é ainda possível apagar os anexos automaticamente incluídos. (Solução: retirar opção “encaminhar só texto”).
- Deveria ser possível navegar para a anterior ou a próxima mensagem nesta visualização também.

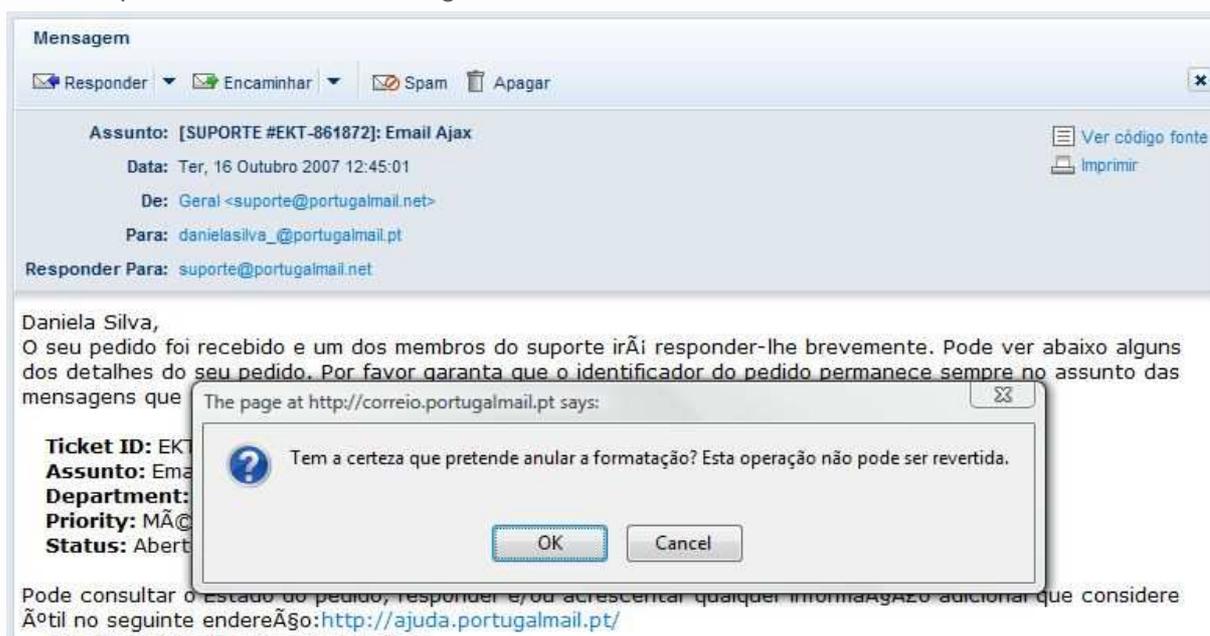
Responder Mensagens

Reparações:

- Ao selecionar responder/encaminhar mensagem o utilizador tem interesse em escrever no corpo da mensagem (dado todos os restantes dados já estarem preenchidos), assim o foco do teclado deverá estar no corpo da mensagem com algumas linhas em branco antes do início da mensagem anterior.
- Ao selecionar responder/encaminhar mensagem e sem editar nada cancelar o seu envio (caso de engano ao selecionar responder/encaminhar mensagem) é apresentada uma mensagem de aviso de perda de conteúdo sem sentido prático.



- Na sequência do caso anterior, ao editar em HTML em Mozilla Firefox 3.0, é apresentada outra mensagem sem sentido.



- Ainda em Mozilla Firefox, ao iniciar a escrita da resposta em modo HTML, ao clicar ENTER no início da mensagem a visualização mantém a mensagem original no topo, através de um scroll down automático que deve ser retirado.

Opções

Opções do Correio

Opções Gerais	Opções da Mensagem	Outras Opções
Informações Pessoais Alterar o nome, endereço e a assinatura que as pessoas verão quando lerem e responderem às suas mensagens.	Composição de Mensagem Configure aqui as opções pré-definidas, sempre que compõe uma mensagem.	Esvaziar Lixo Opções para esvaziar a pasta Lixo ao sair.
Cartão de Visita Defina aqui a informação que deve aparecer no seu cartão de visita.	Visualização de Mensagens Configure a forma como as mensagens são visualizadas.	Resposta Automática Defina uma mensagem para ser enviada quando não estiver disponível.
Endereços de correio alternativos Defina novos endereços, e continue a receber aqui as suas mensagens.	Nova Mensagem Defina o intervalo de tempo para verificar a chegada de mensagens.	Lista Negra Defina um conjunto de endereços indesejados, e o que fazer às suas mensagens.
Palavra-chave Altere aqui a sua palavra-chave.		Lista Branca Defina um conjunto de endereços que confia, e que não devem ser sujeitos a filtragem.
Verificação de Endereço IP Verifica se o IP muda durante a sessão.		Notificação de Mensagem Nova Defina um endereço de correio para receber uma notificação, sempre que chegar uma nova mensagem a esta caixa de correio.
Interface Escolha a versão do interface, Clássica ou Dinâmica, que está pré-definida quando entra no correio.		Contactos Configure opções da aplicação "Contactos".
Dados da Conta Altere aqui os dados da sua conta, tais como pergunta e resposta secreta.		

Alterar as opções de e-mail apresenta uma interface complexa devido aos seguintes motivos:

- Demasiadas opções: O que o sistema puder definir pelo utilizador, o deverá fazer (Referência: Getting Real)
- Demasiada categorização: existem muitas categorias, levando o tempo de pesquisa pela opção que se deseja aceder seja longo e que cada uma das sub-páginas tenha poucas opções. É assim possível agrupar secções.
- Demasiado texto na página: considerando que as pessoas não irão ler os textos (Referência: Don't Make me Think, Capítulo 5) é apenas ruído aos olhos dos utilizadores. Defendo a colocação de imagens associadas a cada opção e a eliminação do texto descritivo.
- Nome dado as secções não são claros: um exemplo será "Nova Mensagem" poderá ser interpretado como definições relacionadas com a criação de novas mensagens por parte do utilizador.

Defendo a criação de um secção única, possivelmente chamada "Definições Gerais" que agrupará as opções das secções:

- Esvaziar Lixo
- Notificação de Nova Mensagem
- Contactos

- Verifica endereço de IP
- Interface

E outra secção chamada “Opções de Mensagem” que agruparia as opções das secções:

- Composição de Mensagem
- Visualização de Mensagens
- Nova Mensagem

Conclusões

A solução de e-mail actual da Portugalmail encontra-se, tanto a nível de funcionalidades como de design e interacção, num nível bastante bom.

Ao longo desta análise foi possível entender melhor o seu funcionamento, bem como reparar nas suas características negativas. Esses aspectos serão agora reportados para o controlo de erros, sendo a sua correcção iniciada brevemente.

Assim será possível, num curto espaço temporal começar a ver os resultados práticos desta análise.

Esta informação será ainda, fundamental na conceptualização das novas soluções a propor para o webmail da Portugalmail.

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Don't Make me Think – A common Sense Approach to Web Usability, Steve Krug

Getting Real – 37 Signals

Attachment C :: Secretary Mind Map Construction and Analysis

New Paradigm of Webmail Interface

Webmail Secretary Mind Map Construction
and Analysis

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Portugalmail

NOV 2008



Table of Contents

Introduction.....	3
Background	4
Main Issues of email use.....	4
Extended Activities associated with email use	7
Mind Map Construction	10
From Issues and Activities to an Mind Map	10
Mind Map Organization	10
Mind Map Development	11
Brainstorming	12
Internal Brainstorming Session	12
External Brainstorming Session	13
Mind Map + Brainstorming Results	14
Ideas around Activities	14
Social Networks/Other Communication Alternatives.....	14
Keep in Touch with Friends.....	15
RSS Reading	15
Task List Control	15
Blog Posting/E-mail as Info Resourcing	15
Statistics & Info	15
Mailing Lists & Groups	16
Calendar/Schedule/Meetings	16
Address Book/Contacts.....	16
Attachments/Repository/Storage.....	17
Password Box	17
Webmail Organization (Secretary Job).....	17
Ideas around Email Basic Actions.....	18
Compose Email.....	18
Read Email	19
Search	19
Ideas around Secretary Concept.....	19
Analysis	21
Bibliography.....	22
Websites.....	22
Books.....	23
Papers	23
Thesis.....	23

Introduction

This document aims to describe the organizational and creative process of the Mind Map building and analysis for the project “New paradigm of Webmail Interface” at Portugalmail.

In the first chapter will be described the background of this process, how and where the ideas came from. The main issues associated with email use and main activities associated with email use will be explained as well.

The Mind Map building process, including the organization choice and description of idea sources, is presented on the second chapter.

The third chapter is dedicated to the Brainstorming process over the Mind Map, and the fourth chapter focuses on the description of the results.

The final chapter will cover the analysis of the process and its results.

.

Background

The beginning of “New Paradigm of Webmail Interface” was focused on researching the email world. Roughly two weeks were spent reading conference papers, master thesis, blogs, forums and reviews about webmail, email clients and software associated with e-mail, artificial intelligence advances, information management, searching tools and other concepts on the email sphere.

Some outcomes associated with this research were “Main issues associated with email use” and “Activities associated with e-mail use”. Both of them were very important to develop new ideas to webmail and will be listed on the sections below.

Main Issues of email use

Email Overload

Pointed by many researchers as the most important source of productivity problems nowadays, it is considered more important to solve than SPAM.

ReMail Team says "People are overwhelmed by the volume of new email they receive each day. They report spending increasing amounts of time simply managing their email. Email is an endless cycle of catching-up and falling behind. New messages arrive regardless of the activity the recipient is engaged in, causing a backup in the user's mailbox. To prevent this backup and stay on top of action items, people have developed the habit of checking their email frequently, adding to the overall disruption email can bring."

Gabor Cselle referred in his blog "There are just too many emails flooding the inbox. Many are drowning in heaps of emails that aren't even important – it's just a colleague at work Cc-ing everyone evenly remotely connected to his project." and also "Overloaded office workers hate the email flood so much that companies are introducing email-free Fridays."

It is a new email disease which needs to be solved through new solutions, chocking the simple listing by date e-mail in the Inbox folder.

Email Organization (Folders versus Tasks versus People)

Inside Email Community lives a very interesting discussion about different ways to organize e-mail accounts:

Folders are the usual approach, pointed by many as broken.

Organizing your e-mails by associated Tasks or Social Circle/People are new approaches getting experiment and applied.

What approach is the best?

Gabor Cselle asks the same question "10 years from now, will you still be organizing your email in folders that you manually create? Or will your email be automatically organized around tasks, or even better, around people who are important to you and their profiles? It's clear that the "move to folders, sort by arrival time" system is broken - what will step into its place?"

Pressure to Reply Quickly + Losing Track of Email

With the growing and growing number of emails arriving in the inbox, people feel an intrinsic pressure to quickly reply e-mails and/or archiving them.

ReMail Team says "People report feeling pressure to be more responsive to their email. Messages arrive continuously throughout the day, contributing to the sense of urgency to respond quickly."

Another factor associated with the flow of emails arriving continually is the fear of losing the track of email account. Nowadays people are afraid to spend days without checking their email.

ReMail Team says "and the increasing fear of doing so. High volumes of email cause important items to quickly move out of view. Users must hunt down their mail, often having to scroll to other parts of their mailbox. This problem is exacerbated as email arrives in a single, undifferentiated stream. The mailbox becomes an assortment of items requiring action, informational items, and items with no value to the user at all (e.g., spam)."

Artificial Intelligence Use

With the objective/necessity of make email organization automatic and "smart", researchers start studying the application of Artificial Intelligence's concepts to webmail. This science is developing and will be the future for email applications.

Some features derivate from this research are:

- Automatically summarizing email
- Predicting whether an email needs a reply
- Generating "smart" replies automatically
- Clustering or automatically labelling emails

Now it is necessary to apply these advances to email applications. What else can be done?

Is Search Good Enough?

Search motors developed a lot during the past decade, although email search is still listing the results simply by received date. With the amazing volume of received emails top executives have, it's necessary to have a simple and efficient search integrated in email applications.

Email is Getting Substituted

Communication grows more important with each passing day and during the last 10 years different ways to communicate became stronger. Examples of this are:

- Social Networks (Facebook, MySpace, Hi5, Orkut, Twitter, LinkedIn, etc)
- Blogs
- SMS
- Instant Messengers
- VoIP

Many of this technologies are now "competitors" to e-mail, many times being used as a substitute to it. This behaviour is seen typically in teenagers and young adults.

Gabor Cselle bring this question when he says "Until recently, all my electronic communication took place in email. Now it's moving away, being replaced by more casual media, like IM, your Facebook wall, Twitter, or SMS. In the future, email could be where snail mail is today: A medium to receive advertising and official stuff."

E-mail as Life Organizer

Many people organize his/her agenda using an email client interface. To do lists, meeting organization, project discussions, contact list, documents and other work activities are getting integrated with email, but it is still necessary to develop it more.

Webmail wasn't designed for that purpose. Can webmail adapt to it without changing its basis? Is it necessary to redesign everything?

Distraction by Unimportant Emails

Is every email important? Surely the answer is no! So why be interrupted from your work to read an important e-mail?

But this question doesn't have a simple answer, especially because our sense of importance changes depending of situation, time of the day and deadlines proximities. How can your e-mail or notification program help solving this issue?

SPAM

Spam is an old problem and solutions have developed a lot during the last few years, however spammers keep developing as well. Statistics say that 92-99% of received emails are Spam (most of them blocked on SMTP level).

Spam control still has some issues to solve. And being a source of dissatisfaction for users, it is important to keep these issues under control.

One negative aspect of Spam barriers is the false positives (e-mails wrongly marked as Spam). Losing a good e-mail by Spam block is pointed as fifteen times worst than getting some Spam. For example to someone associated somehow with pharmacy industry or Viagra sales, often can the system mark good e-mails as Spam.

By the technological side, it is interesting to notice that positive e-mails are the worst case in terms of processing necessities. Only that kind of e-mails passes by the whole verification procedure (Spam is blocked before the end). This way, the necessity of find solutions to make the acceptance of good e-mails less demanding of servers.

Extend Address Book Features

E-mail addresses book usually becomes a list of e-mails with no practical utility. At same time, and as time passes, projects and activities are based on relationships (the amazing growth of social networks proves it), being important to archive information about your contacts.

Extended Activities associated with email use

Keep in Touch with Friends

Being the natural substitute to postal mail, email becomes an easy way to contact friends. Can it evolve? Should email systems provide features to improve interaction between friends? Social Networks are fast replacing email as a way for friends to contact each other.

RSS Reading

RSS Aggregators are very similar to an email client. Why not integrate both functionalities in one place?

Task List Control

Emails kept as unread are usually a way to highlight tasks to be done, some people even resend emails to themselves to keep important pending task at the top of their email lists and make them more visible. Approaches to integrate a to-do list with webmail and email clients already exist but some of them are too complex or inefficient.

Blog Posting/E-mail as Info Resourcing

Email being a source of information, it is a common source of inspiration and content for blog posts. Connecting those two worlds is a natural step.

Statistics & Info

Local News, Weather and Statistics of use are interesting things to have available while checking email.

Social Networks/Other Communication Alternatives

With the growth of social networks (quantity and influence) the number of invitations and notifications associated with this is rising. It is necessary for the email services to give an answer on that field (improving usability and efficiency).

Mailing Lists & Groups

Are emails coming from mailing lists, online groups and forums different from normal emails? If so, why not have a proper interface to them?

Calendar/Schedule/Meetings

Everyday meetings are organized using emails. Sometimes, even the minutes are also sent by email afterwards. Wouldn't it be interesting if it were possible and easy to integrate this organization, control, system of alerting and agenda of your calendar inside your email?

Address Book/Contacts

Email address books are usually not used because they only contain a few emails and names. They have a huge potential to be a source of useful information, to do this a jump is necessary to develop easy ways to complete, update, use and search through it.

Attachments/Repository/Storage

Many people use webmail as an online folder where they can easily access their files. This behaviour wasn't predicted when email was created, so it is necessary to re-think this concept and build a proper interface to upload and access these files.

Password Box

How often do you search for forgotten passwords on your email client? The idea here is to create an "Authentication Box" where all emails associated with passwords and registers should be automatically archived allowing an easy access to them when needed.

Webmail Organization (Secretary Concept)

Email Organization is getting more important and, at same time, time consuming. Your email system should help you do this, saving you time. The simple model of listing your incoming messages by date is broken. It is necessary to apply new paradigms.

Your email system should understand your organization, should know what is important to you, and should automatically do tasks for you. Basically, it should work as your personal assistant.

From this ideas was born the new concept of Web Secretary

Mind Map Construction

From Issues and Activities to an Mind Map

During all this research time it was possible to create, adapt and change some ideas. At this point it was time to “put it on the wall”!

Mind Map Organization

To create the mind map a meeting room was used inside Portugalmail’s office. It has a table where the ideas were spread and a white wall where the ideas and sections were pasted.



The wall space was organized following the rules below:

On the centre it was placed the new concept “Webmail Secretary”.

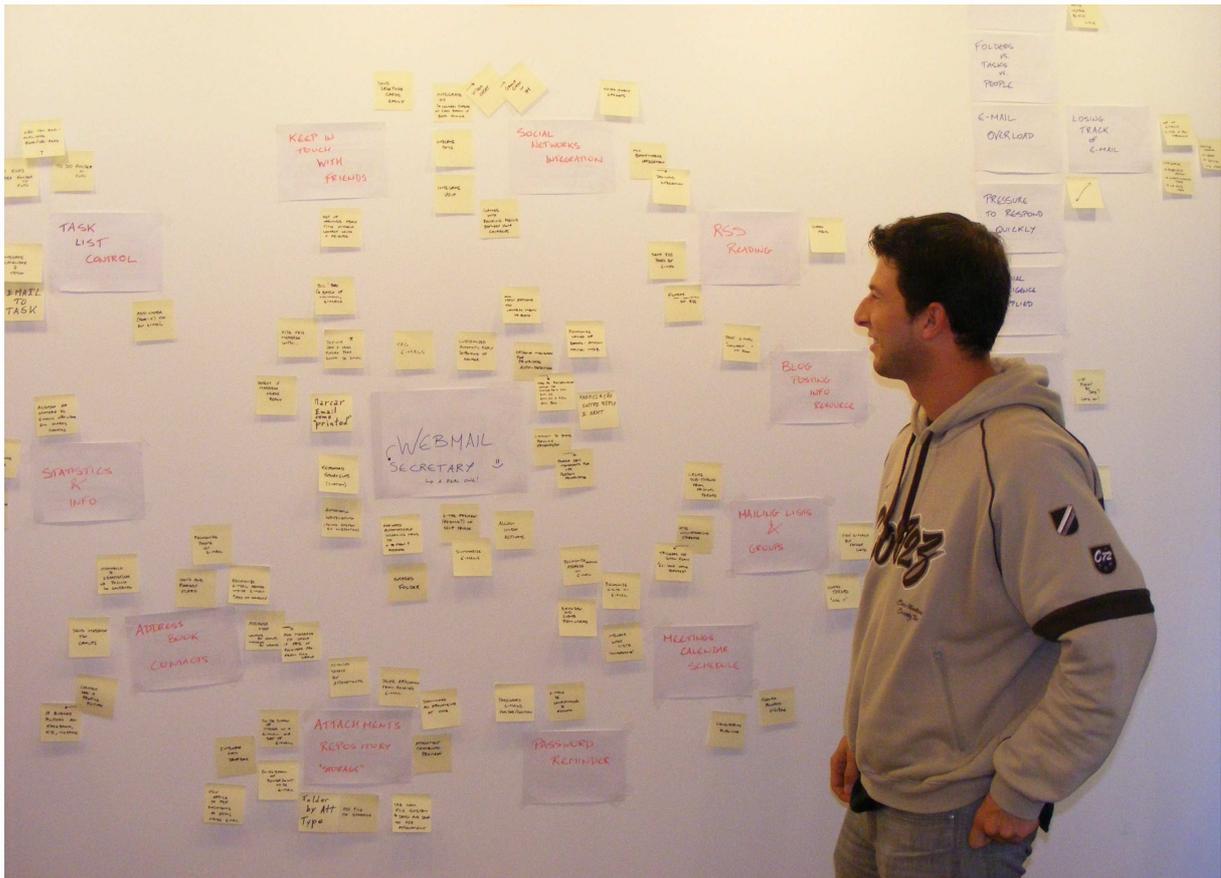
Around it were placed each of “Extended Activities Associated with Email Use” topics (previously described)

On the left were displayed basic email activities such as Read Email, Write Email and Search

On the right were displayed “Main issues of Email Use” topics (previously described)

Mind Map Development

After defining each area, it was time to place all the ideas on the wall. Each of the ideas was placed near of the section most related to. The final result was quite impressive.



This discussion included technical argumentation and was interesting to validate some of the concepts and ideas. New ideas were generated, based on personal opinions and previous user's requests.

External Brainstorming Session

The objectives of the External Brainstorming Session were different from the Internal Brainstorming Session. At this point, using the different knowledge, education background (finances, marketing, design, sales and customer support) and point of view of other Portugalmail staff, it was possible to verify how non-IT people react to some ideas and generate new ones.

This session provided some very interesting feedback to the project. From these conversations a new concept of humanization of a secretary inside your email was born.

This concept will be developed in the new chapter.

- MySpace
- Orkut
- hi5
- LinkedIn
- Integrates Games
 - World and between your Contacts Ranking

Keep in Touch with Friends

- Send Greeting Cards Easily
- Set up Warnings about time passed without contact with selected friends

RSS Reading

- Share Items
- Send RSS Posts by Email
- Filters on RSS Posts Content

Task List Control

- Add Notes to E-mail (Post it's)
- Convert Email to Task
- To Do List always Visible
- Special Folders
 - To Do
 - No read/unread propriety
 - To Read Later
 - No read/unread propriety
 - Waiting answer
 - Warning after N days waiting

Blog Posting/E-mail as Info Resourcing

- Convert E-mail to Post

Statistics & Info

- See Local Weather
- See Local News
- Information about other personal accounts
 - Unread Emails
 - Messages on Social Networks
- News about your contacts updates

Mailing Lists & Groups

- Create Sub-thread from Original Thread
 - When Conversation Goes in Different Ways
- Hide Uninteresting Threads
 - Triggers to Show Thread Again
 - Example: Your Name is Refereed
- View Thread by Father Node

Calendar/Schedule/Meetings

- Agenda Always Visible
- Allow Add Other Calendars
 - Public Calendars
 - Other Personal Calendar
- Recognize Events in Emails
 - Add Automatically to Calendar
- Birthday and Events Reminders
 - Integrate Wish Lists (Birthdays)
- Recognize Physicals Addresses in Emails
- Show Weather Forecast at Event Location
- E-mail "What happened today in the history?"
 - Events Celebration around the world
 - Born/Dead of Celebrities
 - What you did one/10/50 year(s) ago

Address Book/Contacts

- Implement Address Map
 - Organize Contacts by Groups
 - Organize Emails by Groups
 - Add Email to Group if 70% of receipts are member of the group
 - Suggest add of sender and other members to group
 - Send Email to Groups
- Recognize Email Addresses Inside Email
 - Add to Address Book Option
- Associate Profile Picture to Contacts
 - Integrate with Social Networks
- Contact Page
 - See Historical and Statistics
 - Request VCard
 - Personal Notes
- Send VCard

- Categorize Contacts
 - Professional
 - Personal
 - Family
- Send profile updates to other secretaries within contacts

Attachments/Repository/Storage

- Download All Attachments at once
- Attachment Thumbnail Preview
- Add File to Storage Interface
- Forgotten Attachment Alert
- Tab with File System Available while Composing Email
 - Drag and Drop to Add Attachment
- Allow Delete Attachment from Received Email
- Advanced Search by Attachments
 - by type
- Folder with all Attachments received
- Integrate with DropBox
- Slideshow of Images attached to one or more selected Emails
- Slideshow of PowerPoint Inside Email
- View Office and PDF files as HTML Inside Email
- Allow attachment Directly from 3rd-Party Websites
 - Flickr Photostream
 - YouTube Favourites

Password Box

- Password Emails Folder/Section
- Recognize Emails with Passwords Automatically
- Recognize Confirmation Register E-mails Automatically
- Strong Password Generator

Webmail Organization (Secretary Job)

- Automatic Labelling Emails
- Keyboard Shortcuts
 - Custom
- Mark Email as "Printed"
- Hide Messages until Specific Date
- Batch of Individual Emails
- Define Future Sending Date and Time of an Email
- Archive Messages

- Customized Automatic Reply by Sender
- Add Main Actions to Mouse Context Menu
- Recognize Names on E-mails
 - Contacts
 - Books
 - Integrate with Amazon
 - Movies
 - Integrate with IMDB
 - Series
- Sort Messages by Priority
 - Detect if Message Needs Reply
 - Analyse Number and Type of Email Receipts
- Associate Reply and Sent Emails after N forwards
- Allow Folders/Groups Ordination
 - Decrease importance if it has no unread emails
- Allow undo actions
- Summarize Emails
 - Email resume preview
- Shared Folders
- Forward Automatically Emails to Multiples Accounts
- Automatic White listing
 - Contacts Points System

Ideas around Email Basic Actions

Compose Email

- Automatically Remove Previous Receivers on Forwarding
 - Against SPAM e-mail collection
- Checkbox for add/remove original message on reply
- Accept Embedded Media
- Macros
 - MACROTHANKS produces a full paragraph meaning Thank you
- Customized Signature
 - by Identity
 - random
 - Quote
 - Listening Now
 - Social Networks
 - Facebook Status
 - Twitter

- Emoticons
- Record and Send Videos
- Notification of external reply to thread while writing reply
- Draft Auto Save
- Email Templates
- Forward the whole conversation

Read Email

- Accept Embedded Media
- Easy access to Previous and Next Message while reading Email
 - Links
 - Mouse gestures
 - Keyboard
- Show email date in format (N days/weeks/months ago)
- See attachment type before on message lists

Search

- Virtual Folders "Saved Searches"
- List only unread messages and last days

Ideas around Secretary Concept

Based on the objective of build an "Intelligent" webmail which using automatic sorting, labelling and other Artificial Intelligence features helps the user to have a better and friendly interaction with webmail.

From this idea was born the concept of an e-mail as a personal secretary, helping you with what you need. And from this concept come the idea of humanization of this secretary, a character that you can personalise and interact with. Organizing the e-mail for you! Someone working for you!

Below you can check some ideas associated with this concept.

- Online Help
 - Voice
 - FAQ
- Guide you when create account
- Communication between secretaries

- Customize your secretary
 - Men/Women
 - Choose Pre-defined Characters
 - Portugalmail staff
- Give you tips and tell you what's new
- Special Clothes for Special Dates (Christmas, Halloween, etc)
- Add Ads in clothes, hair, etc
- Request Information from Contacts
- Arrange Meetings
- Human Character of your secretary
- Notifications
 - Voice
 - JavaScript
- Consult public agenda of your contacts
- Recognize commands by natural language interpretation
- Directories Integrated
 - Find Dentists, Shoes Store, Market, etc
 - Nearest
 - Cheapest
- Suggest contacts to group

Analysis

The activities described in this document are the result of 3 weeks of researching, reading, comparing, organizing and specially creating and adapting everything that exist related with the email world.

The analysis of these results is rewarding, because so many interesting, useful and new ideas were generated, new concepts were created and a promising web application able to surprise the world is getting organized.

The balance of this Mind Map + Brainstorming process is very positive. It was very useful to organize the ideas previously created and specially to provide inspiration to create even more. Ideas will be popping up still around this project, but now it is time to think about how we can transform these ideas into a web application, how to build this application to support the weight of being used by millions of users and still have good performance.

This process was definitively a tremendous leap forward on this project.

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Attachment D :: Alpha Testing Report

New Paradigm of Webmail Interfaces

Alpha Testing Report

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Portugalmail

FEB 2009



Table of Contents

Introduction.....	3
Alpha Testing Report.....	4
Module Overview.....	4
General.....	4
News Feed.....	4
Search Contacts Auto-complete.....	5
Search Groups Auto-complete.....	5
List Pending Connection Requests.....	5
List Upcoming Birthdays.....	5
Module Profile.....	5
Add Account.....	5
View Personal Profile.....	5
Edit Personal Profile.....	6
Set Access Level.....	6
Module Contacts.....	6
General.....	6
Add Contact.....	7
View Contact.....	7
Edit Contact.....	7
Actions.....	7
Module Social Groups.....	7
Add Social Group.....	7
View Social Group.....	8
Edit Social Group.....	8
Actions.....	8
Module Suggested Contacts.....	8
Dynamic Search of Suggested Contacts.....	8
List Suggested Contacts.....	8
Add Suggested Contact.....	8
Bibliography.....	9
Websites.....	9
Books.....	9

Introduction

This document is about alpha tests made on Module Contacts of the Webmail Secretary Project. Alpha Tests were developed by Rui Santos, Portugalmail software engineer.

Alpha Testing Report

According to the project plan, Alpha tests should be performed by someone inside Portugalmail's developers team that isn't directly involved in the implementation phase. Alpha testing should use a Black box specification-based testing.

Black box testing treats the software as a black box without any knowledge of internal implementation. This approach includes a large number of methods, and at least specification-based testing should be used.

Specification-based testing aims to test the functionality according to the requirements. Thus, the tester inputs data and only sees the output from the test object. This level of testing usually requires thorough test cases to be provided to the tester so that he can simply verify that for a given input, the output value or behaviour is the same as the expected value specified in the test case.

Indeed, Alpha Testing consisted in the verification of the correct execution of all requirements of Contacts Module. Performance and usability aspects were also the focus of attention.

The following sub-chapters list problems detected, corrections requests and suggestions made by the tester.

Module Overview

General

- Everything is working properly.

Suggestions

- If there are no contacts let's use this page to suggest adding them.
- I'd like to somehow be able to see my contacts when I enter the Contact Module. It could be here, it could be in the sidebar, somewhere, opened to discussion.

News Feed

- Smaller pictures (eg. 32x32) could work better in long lists (like this one, or contacts lists).
- Use the item's date to split them. This way we prevent having 5 items all ending in "on Saturday 24th...." and the text would focus on what really matters (the info itself).

Suggestions

- Typically "News Feed" would show about 10 items, we could use a "Show More" link to show some more news (maybe in a dedicated page).

Search Contacts Auto-complete

- This search can be the default Sybil search and always be visible throughout the application. It should be in the same place as the search inputs of the other applications.
- It'd be cool to show a small avatar on the left side of the contact information (in the auto-complete dropdown).
- The "Submit" button should redirect us to a "Search Results" page. Either that, or remove the button.

Search Groups Auto-complete

- The search bar in this page only return "Contacts" results. When implementing the general search bar, we should split the results into "Contacts" and "Groups".

List Pending Connection Requests

- Everything is working properly.

List Upcoming Birthdays

- Everything is working properly.

Suggestions

- It would be nice to have a "Show More" link that would show us a page of all our contacts birthdays, sorted by month or something.
- Have link to "Send Mail", and when available: "Send e-card", "Send Gift" (from available wish lists).

Module Profile

Add Account

- Everything is working properly.

View Personal Profile

- The photo should be bigger. If you are seeing a contact, you get a large photo, why can't we see our own photo that way? Besides, makes the interface a bit more consistent and you get to see how others see your profile.
- The "Photo" tab could be replaced by clicking the photo itself to change it. And it could also appear as a link "Add photo" in the "General" tab.
- An e-mail address should be a link to e-mail that address right away.
- A web URL should be a real link to the website.

Suggestions

- It could show the profile "Last updated time". Both in your profile and your contacts.
- "Home Info" and "Work Info" could be merged into a "Contact Info" section.
- I don't think the current "Web Social" tab interface works very well right now.
 - Have a description saying what this is all about. That this way other people will have access to your updates, etc. This way I'm not feeling very compelled to use this.
 - When you add a website to your profile, create a section to show which ones you already have instead of having the ticks beside them.

Edit Personal Profile

- Updating your status with inline edition is a great way to do it.
- Each tab should have an "Edit" link that would replace the tab content with a proper edition form. Inline edit does not work well in these cases. Takes too many clicks (thus too much time), and it's not a common interaction at first glance.
- The "Photo" tab could be replaced by clicking the photo itself to change it. And it could also appear as a link "Add photo" in the "General" tab.
- I can add a lot of stuff (phone numbers, IM, e-mail addresses, websites) but I can't edit or delete them.
- "Professional Address" and "Home Address" aren't organized in the same way ("Country" field).
- Adding a "Web Social" item works well. Still, it should say "Add a website you use", and have "hover" states when you move your mouse over a link to show you can do something with it.
- When you add a "Web Social" item it should show an "Edit" link after it.

Suggestions

- Home/work addresses idea: It would be cool if after you fill an address, the system could generate a Google Maps link to that location. Future development, of course.

Set Access Level

- Couldn't find the access/privacy settings in "My Profile".

Module Contacts

General

- Everything is working properly.

Suggestions

- I tend to think that "My Contacts", "My Groups" and "Manage Contacts" could all well be in the same page. After all, "Manage Contacts" it's just a representation of both lists where you can drag the elements around (more about this, in the proper section).

Add Contact

- After filling the contact's name and e-mail, I get a screen saying that he's not on the system. OK, but by this point, the user is already in my contacts list without me knowing about it. If I leave that page, I'd assume I'd be cancelling the all thing.
- "Send Email" not implemented yet.

View Contact

- Good way to view/edit the contact photo.
- I should be able to see which (if any) social groups this contact belongs to.
- I should be able to add a contact to a social group from the contact view page.
- The top tabs should try to be consistent with your profile tabs (you can fill more or less the same information).
- Again, link URLs and e-mail addresses.
- Suggest sending an invitation if a contact doesn't have a profile in our system.
- The "Updates" tab items could be split by date as mentioned in the section about the "Overview".

Suggestions

- Show "Last update time".

Edit Contact

- Once more, I can add a bunch of items, but can't delete or edit them.
- There should be a "Edit" link in each tab that would replace the tab content with a proper full edition form (basically mimic the "My Profile" way of doing things).

Actions

- Remove contacts doesn't work. It should show a confirmation window or have an "Undo" action associated in the future.
- The other actions don't seem to be implemented yet.
- Manage Connection: I think this should be the other way round. In my profile I'd say what people that are in the system can see (based on the group they belong, whatever). I don't think it's very practical to go to each of your contacts and say what each one individually can see...It could be an advanced option but not the default mechanism.

Module Social Groups

Add Social Group

- The first form doesn't let me add a photo to the group.
- In the next step I should be able to choose several contacts at once. Use checkboxes, clicking on the contatcs, whatever.
- Again, after the first step the group is already created without we knowing that. If I navigate away from the process I'd expect to be cancelling the action.
- Drag and drop should not be the only way to add the selected contacts to the group.

- I'd expect a "Save" or "OK" button to end the process of creating a group. I knew that there wasn't one in there, but still when I finished adding the contacts, I found myself looking for the "OK" button to conclude the action.
- "Cancel" and "Visualize" links still not implemented yet.
- When I'm adding contacts to the group, I don't think it's a good idea to be able to enter the contact's page when clicking them. I'd would feel afraid to click a contact's name, because that way I'd navigate away from the page and loose my actions. If we are adding contacts to a group, then only do that.

View Social Group

- In the "Updates" tab, the contact's name should be a link. We could use the item's date to the split them (mimic the contact's tab behaviour).
- Define standard photos sizes. We could a have a small one for listings/auto-completes (32x38), a medium square, and the normal size.

Suggestions

- When I click a contact inside a social group, it would be nice to have a "Back to Group" link in the contact page.

Edit Social Group

- Each tab should have an "Edit" button like it was suggested in the Contacts Module.
- When adding a description, the buttons location is messed up.
- Must have a clearer way to show how we can add something in the "Notes" tab.
- I should be able to add a contact to a group when viewing the group page. Maybe a general button, whatever.

Actions

- Deleting a social group works well, the other top actions don't seem to be implemented yet.

Module Suggested Contacts

Dynamic Search of Suggested Contacts

- If it's a dynamic search, remove the "Go" button.
- Could have a "Clear" link to reset the search.

List Suggested Contacts

- Link e-mail addresses.

Add Suggested Contact

- Works well. Still, shouldn't we show the normal "Add Contact" form? So that we could check if the user was in the system, etc and maintain consistency?

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No website was consulted.

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No book was consulted.