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CYBER Security InSURancE — A Framework for Liability Based Trust[†]

Deliverable D1.1: Project website and communication infrastructure

Abstract: This deliverable contains a short description of the *CyberSure* Communication infrastructure. This include the developing of the *CyberSure*'s website by the coordinator and that will be maintained throughout the project, to present the achievements, publications, and events. For document repository an OwnCloud based solution have been adopted. A project wide email list is also setup. Moreover a tool for teleconference is engaged and pretense to twitter has been setup.

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Table of Contents

- 1 INTRODUCTION 3**
- 2 WEBSITE..... 4**
 - 2.1 WEBSITE IMPLEMENTATION 4
 - 2.2 WEB STANDARDS COMPLIANCE 4
 - 2.3 HOSTING..... 4
 - 2.4 HARDWARE 4
 - 2.5 SOFTWARE..... 5
 - 2.6 WEBSITE DESCRIPTION AND SCREENSHOTS 5
 - 2.6.1 Home 5
 - 2.6.2 Partners..... 7
 - 2.6.3 Implementation..... 8
 - 2.6.4 Publications..... 9
 - 2.6.5 Contact..... 9
 - 2.6.6 Future sections 10
 - 2.7 WEB SITE ADMINISTRATION 10
- 3 MAILING LIST..... 13**
- 4 REPOSITORY..... 15**
- 5 TELECONFERENCE 17**
- 6 SOCIAL MEDIA 19**
- 7 CONCLUSION 20**

1 Introduction

This deliverable describes the **CyberSure** communication means that is one of the objectives of work package 1: Project Management. **CyberSure** communication and collaboration means consist of:

- The **CyberSure** project Web Site that contains information and new related to the project
- The **CyberSure** project Mailing List used for batch mail communication
- The **CyberSure** file repository used to store **CyberSure** related files
- A Teleconference tool able to share content.
- Social media interaction.

In the following chapters of this deliverable give a presentation on each of the above tools engaged by **CyberSure**.

2 Website

2.1 Website implementation

The implementation of the **CyberSure** Website was implemented using Twitter Bootstrap. Twitter Bootstrap is a CSS framework that allows the rapid prototyping of grid based website designs while working equally well when integrated into a production system. This way it is flexible to accommodate changes and future needs.

In grid based designs, the visual blocks that comprise the website (e.g., menus, text boxes, information boxes, ads etc.) are not placed on arbitrary positions. Instead they are laid out on predefined rigid positions on a grid. This may sound restrictive but in practice the resulting design is much more efficient in communicating its contents to the visitor. This is because placing the visual blocks of the website on a grid results in clear visual paths and visual structure and balance on the design. Additionally, a grid based design also ensures consistency between the website pages

2.2 Web standards compliance

The **CyberSure** website pages have been tested to comply with the *HTML5* standard, using the *W3C Markup Validator*. The situation is more complicated with regards to *CSS* compliance. We have chosen to use *CSS3* for the **CyberSure** website because it greatly simplifies the implementation of aesthetic elements such as rounded element corners, element shadows etc. Without *CSS3*, these elements have to be pre-rendered as bitmap images and then included in the page, which degrades the semantic integrity of the produced HTML output.



However, the *CSS3* standard is currently a work in progress. So, while we have taken every care for our *CSS* code, it has been proved impossible to have *CSS3* code that both validates on the *W3C CSS Validator* and works on all popular browsers. This made us take a more pragmatic approach and instead strive to have our pages render correctly with the latest versions of all popular web browsers.

2.3 Hosting

2.4 Hardware

The **CyberSure** website is hosted by the coordinator on FORTH premises located in Heraklion, Crete, Greece. The hosting server features two Intel Xeon dual-core CPUs running at 2.66GHz with a total memory of 4GB. It is connected to the Internet through FORTH's Gigabit connection to the GRNET backbone. The server has two high performance SAS disks (10k RPM) arranged as RAID-1 for fault-tolerance.

The server is protected by firewalls in order to minimize the risk from cyber-threats. As an additional security measure, the database server used by the **CyberSure** website is located on a separate host with even more restricted access rules. Both hosts are internally and externally monitored. Finally, remote backups through the rsync utility are performed for both on a daily basis.

It is also important that the hosts reside in a protected physical environment. They are located in one of FORTH's data-centers. For ensuring optimal operating environment, it is fitted with industrial-strength air conditioning with more than 240.000BTUs efficiency. In power emergencies, it is supported by a UPS power supply and an external power generator which is engaged automatically on power failure. Additionally, the data-center features an automatic carbon dioxide fire-extinguishing system

2.5 Software

For serving the **CyberSure** website we use a LAMPP software stack:

- Linux as the operating system
- Apache as the web server
- PHP for dynamic interactive web page support
- MySQL as the database backend
- Python for dynamically compiling the web pages

The later components of the stack have been distributed between two servers. The first server is dedicated to running the MySQL server, while the second runs the Apache web server and generates the dynamic pages using the python-based Django web framework.

Django itself is a generic web framework that provides an Object-Relational-Mapper (ORM) that allows accessing objects stored in a relational database (in our case MySQL) as Python objects. For serving and managing our pages we use Django-cms a Content Management System built on top of django.

The benefit of the Django/Django-cms combo is that they provide a clear, well documented Application Programming Interface. They are much more compact than other solutions which make tweaking and extending them much easier. This could prove useful in case we need to extend the functionality of the **CyberSure** website beyond the basics. An additional benefit of this combo is the existing expertise of the consortium (specifically FORTH) on building and maintaining Django-cms sites. Finally, it should be noticed that all the software components will be regularly updated and patched. This way security vulnerabilities will be kept at a minimum level.

2.6 Website description and screenshots

The **CyberSure** website can be found at <http://www.cybersure.eu> and it is organized in several section that can be easily updated (add new sections/ subsections, plugins etc.). This subchapter describes the initial Layout of the site.

2.6.1 Home

Home section is provides a quick overview of the **CyberSure** project. Figure 1 contains a screen shot of the **CyberSure** website Home section. It can be seen that it uses a two-column layout. The larger left part is used to provide the **CyberSure** related information. The right part of the layout is used to show the latest **CyberSure** news. The displayed news are obtained real-time from the **CyberSure** Twitter feed. The same layout applies to the other sections of the site as well.



Figure 1: Home Section

2.6.2 Partners

This section contains information about the **CyberSure** partners including a short profile for each partner. The name of each partner contains a link for the relative partner website. Figure 2 contains a screen shot of this section

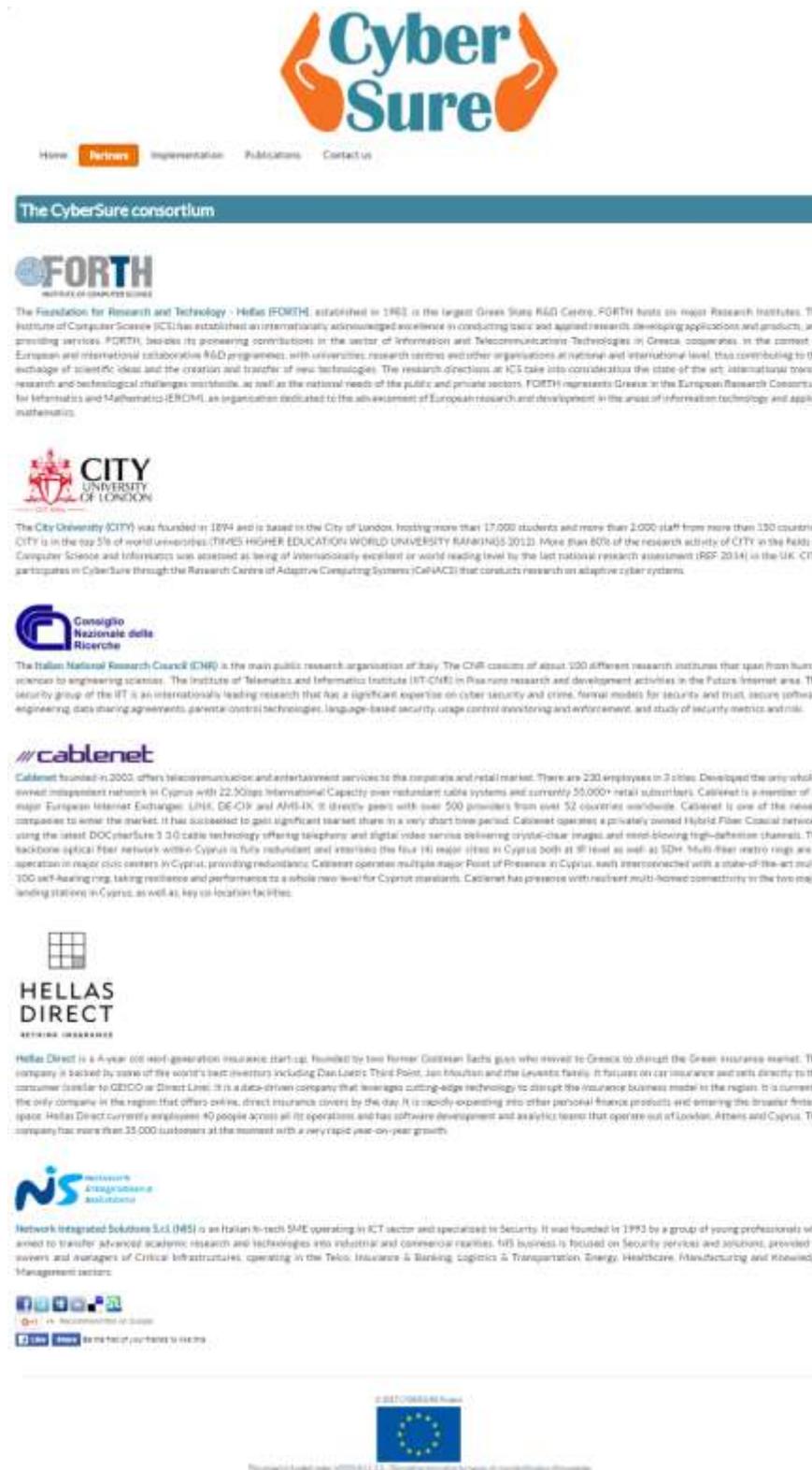


Figure 2: Partners Section

2.6.3 Implementation

This section contain information related to the implementation of **CyberSure** such ass work packages, time schedule etc. Figure 3 presents the implementation section

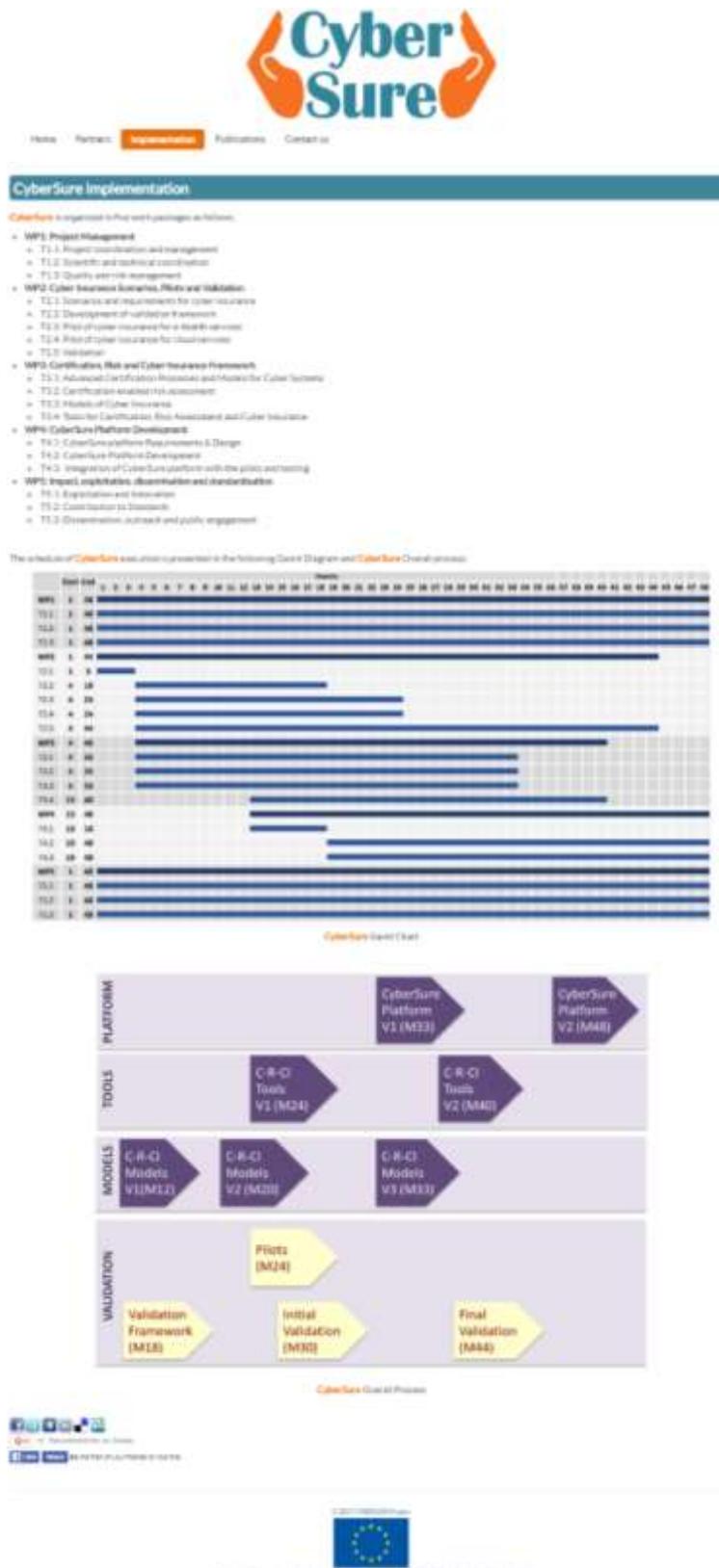


Figure 3: Implementation Section

2.6.4 Publications

This section will contain **CyberSure** related publication such as public deliverables, Publications in Journals & Conferences and press and media articles. A screenshot of this section is depicted in Figure 4



Figure 4: Publications Section

2.6.5 Contact

This section contains a contact form allowing visitors to contact project consortium and submit comments, questions, or suggestions. The email address of the visitor is required in order to send feedback. We opted for a contact form, instead of publishing a contact email address, in order to avoid having our email address harvested and spammed through the course of the project. As an additional anti-spam measure, the form is protected by a CAPTCHA. Figure 5 shows the contact form for **CyberSure** Web site.



Home Partners Implementation Publications **Contact us**

Contact us

Please fill the following form to send us your comments, questions or suggestions:

Your email address:

Subject:

Enter your message below:

Please enter the two words on the image separated by a space:

 Type the text. [Privacy & Terms](#)


 Recommend this on Google
  Be the first of your friends to like this.

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Figure 5: Contact form

2.6.6 Future sections

During the execution of **CyberSure** other section could be added as necessary such as Events to describe events related to the project, workshops, Links etc.

2.7 Web site administration

The contents of the **CyberSure** website can be managed through a web interface. This feature is provided by the used Django-CMS which is presented in section 2.5. Django CMS is an enterprise-grade content management system that's been around since 2007. The platform was recently voted in as the Best Open Source CMS of 2015; which is some achievement considering the sheer quantity of competitors. It is built upon Django, a Python web framework, and is open source and free to download.



Of course, the access of this interface requires user authentication. The home layout of the CMS as applied to **CyberSure** website is shown in Figure 6 whereas Figure 7 presents the page hierarchy panel where page content is added. Pages can be rearranged by dragging them and dropping them on their new location in the hierarchy tree.

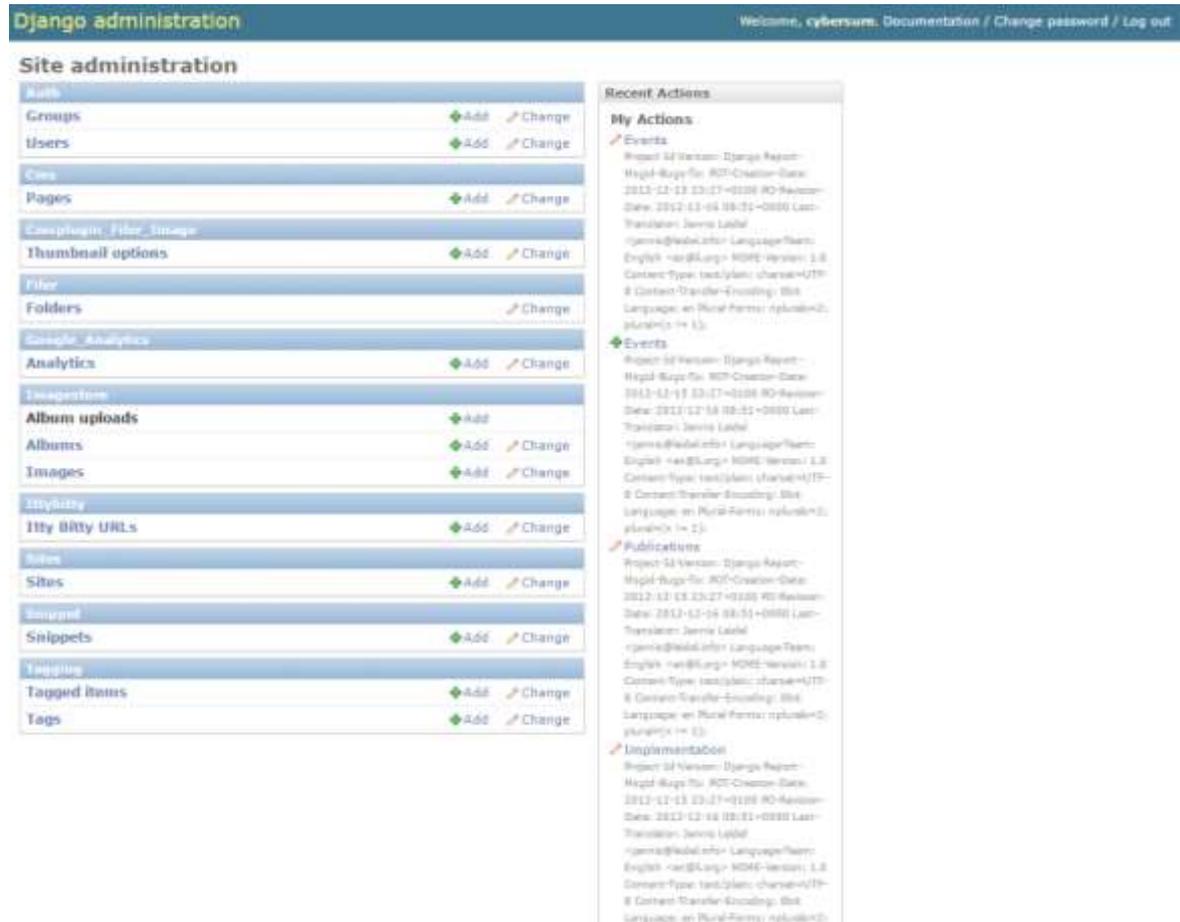


Figure 6: Home page of the **CyberSure** website CMS



Figure 7: **CyberSure** CMS page hierarchy panel.

The actual content of the page is encapsulated in Content Plugins. Content Plugins produce HTML output which is placed in designated locations in the template called placeholders. Obviously, the most commonly used plugin is the Text Plugin which is used to edit and then display html formatted text. However more specialized plugins exist for interfacing with specific data sources (e.g. Twitter).

The built-in editor used for editing the page text offers many of the formatting options found in a full-blown word processor. The formatting options supported by default have been chosen to encourage semantic-based html formatting. I.e. the editor marks-up the contents according to their semantics on the page and their final appearance is determined by the CSS stylesheet used.

3 Mailing List

For **CyberSure** batch mails, the Mailman mailing list manager is utilized. Mailman is a free software for managing electronic mail discussion and e-newsletter lists. Mailman is integrated with the web, making it easy for users to manage their accounts and for list owners to administer their lists. Mailman supports built-in archiving, automatic bounce processing, content filtering, digest delivery, spam filters, and more. The basic features of mailman are:

- Through-the-web list creation and removal (with automatic support depending on the MTA)
- Multi-lingual support: list web pages and email notices can be in any of nearly two dozen supported language, configurable per-site, per-list, and per-user
- "Real name" support for members
- Support for personalized deliveries and VERP-like message delivery for foolproof bounce detection
- Emergency moderation
- MIME-based content filtering, with demime/stripmime like options
- Regular expression based topic filtering
- Through the web membership management
- Through the web administrative requests pages
- Moderated newsgroup support
- Flexible moderation and privacy controls
- Subscription invitations
- Auto-response controls.
- User controllable delivery options
- Urgent: header support (bypasses digests to reach all users immediately).

In Figure 9 a screenshot of the **CyberSure** administration mailing list is depicted as provided by FORTH Mailman installation. The mailing list also features archiving functionality as depicted in in Figure 8 where we can recall any message send in the list.



Figure 8: Archive feature of **CyberSure** mailing list

The screenshot shows a web browser window with the URL `lists.ica.forth.gr/mailman/admin/cybersure/general`. The page title is "Cybersure mailing list administration General Options Section".

At the top, there are three columns of navigation links:

- General Options:** [General Options], Passwords, Language options, Membership Management..., Non-digest options, Digest options.
- Configuration Categories:** Privacy options..., Bounce processing, Archiving Options, Mail->News gateways, Auto-responder, Content filtering, Topics.
- Other Administrative Activities:** Tend to pending moderator requests, Go to the general list information page, Edit the public HTML pages and text files, Go to list archives, Logout.

Below the navigation is a text instruction: "Make your changes in the following section, then submit them using the *Submit Your Changes* button below."

The main section is titled "General Options" and contains the text: "Fundamental list characteristics, including descriptive info and basic behaviors."

The configuration is presented in a table with two columns: "Description" and "Value".

Description	Value
<i>General list personality</i>	
The public name of this list (make case-changes only). (Details for real_name)	Cybersure
The list administrator email addresses. Multiple administrator addresses, each on separate line is okay. (Details for owner)	npetra@ica.forth.gr asac@ica.forth.gr
The list moderator email addresses. Multiple moderator addresses, each on separate line is okay. (Details for moderator)	
A terse phrase identifying this list. (Details for description)	
An introductory description - a few paragraphs - about the list. It will be included, as html, at the top of the list info page. Carriage returns will end a paragraph - see the details for more info. (Details for info)	
Prefix for subject line of list postings. (Details for subject_prefix)	(Cybersure)
Hide the sender of a message, replacing it with the list address (Removes From, Sender and Reply-To fields). (Edit anonymous_list)	<input checked="" type="radio"/> No <input type="radio"/> Yes

Figure 9: The administration panel of the *CyberSure* mailing list

4 Repository

For file repository of the **CyberSure** the OwnCloud Solution is selected. OwnCloud is an online storage service that lets private users and communities run their own cloud storage service on a private root or intranet server. It is an open source licensed software. In contrast to closed or commercial offerings like Google Docs, Dropbox, or Ubuntu One, OwnCloud users can keep control of their data, so they can store data, share it with others, and access it from anywhere in the world. OwnCloud started in the spring of 2010 as a KDE project based on open standards but not requiring any KDE application as a dependency. It is free software released under the Affero General Public License Version 3.

An OwnCloud server stores user data and offers interfaces for client access. The data can be normal files such as documents, music, or images but can also include records such as contacts or calendar entries. Data access is handled via WebDAV and is possible on any Linux, Mac, or Windows system, as well as on mobile devices. Additionally, OwnCloud provides a convenient web interface that allows administrators to configure the system and manage users and data.

The integrated plugin system extends OwnCloud by adding, for example, an HTML5 music player, a synchronized calendar, and an address book and letting you develop your own functions as well.

To access OwnCloud storage directory transparently, a file manager with WebDAV or Secure WebDAV support suffices. On Linux operating systems OwnCloud Storage directory can also be accessed by a filesystem driver such as davfs2 to mount the WebDAV storage directory as a local filesystem and thus make it globally accessible to all applications.

An Ajax-based web front end with modern design is used both for administration and storage. The interface is compatible with most of the popular browsers (chrome, Firefox, Internet Explorer - Edge, Safari etc.). Using the web interface, each user can upload and download files, as well as delete files or create folders. Also, a user can select multiple files or complete folders for download, which OwnCloud automatically compresses to ZIP files.

CyberSure file repository is hosted in a Virtual Machine (2 cores 4GB Ram) on a Server. The server is located in Forth premises and has Internet access trough GRNET backbone. The same as in section 2.4 apply for this server as well. In Figure 10 a screen shot of the **CyberSure** file repository presented. The repository is accessible through its web interface at <http://repo.cybersure.eu> and of course requires authentication to access.

The **CyberSure** file repository has been setup in a way that any user is able to read create and modify any file, however he cannot delete files. The file repository supports simple version control system for files. Versioning creates backups of files which are accessible via the Versions tab on the Details sidebar. This tab contains the history of the file where any **CyberSure** user can roll back a file to any previous version or view older versions of the file.

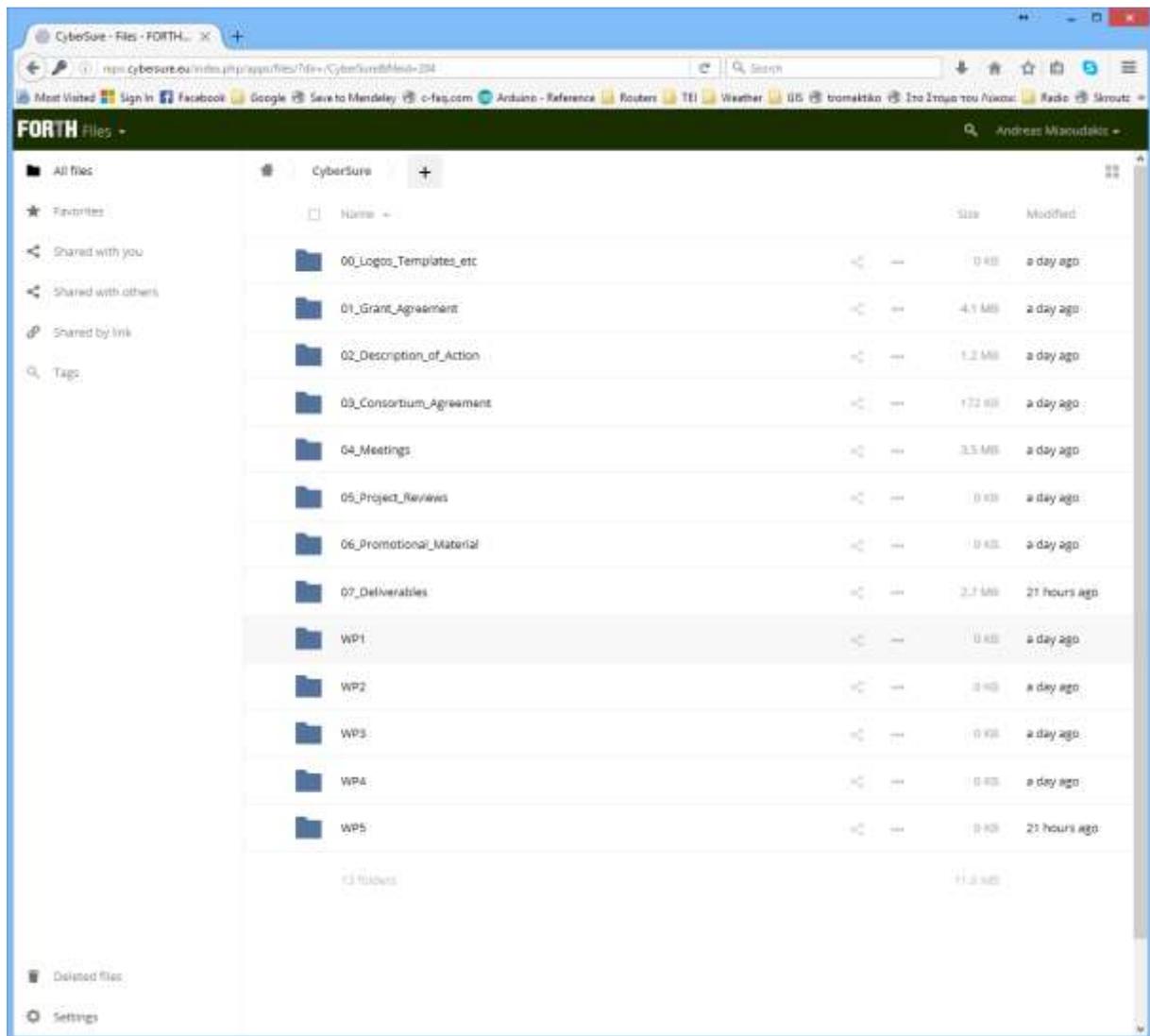


Figure 10: The *CyberSure* file repository files view

5 Teleconference

For establishing virtual meetings (meet with partner in a remote fashion) the Webex meeting tool is selected. WebEx allows to have online meetings with anyone who has an Internet connection – including mobile users. The participants can be connected via audio and the can also you can share content from their computer. This way everyone participating the meeting can see the same things at the same time – like PowerPoint files, Word documents or even browse the web together. Within the meeting, there is a “Pass the Ball” feature allowing any attendee to control the meeting and share.

In more detail WebEx offers the following features:

Audio: With an online meeting, anyone can join using landline telephone, mobile or VoIP using a headset connected to your computer. When an attendee log in to the meeting, phone numbers for connecting are provided or you can choose to use your VoIP headset.

Video: Online meetings are often called “video conferences” because participants have the option to share their image via webcam. With WebEx, the attendees can have a conversation with the other people in the meeting and the image will dynamically change to show you who is speaking. It’s like meeting in person but using everyone’s webcams.

Text: A text based chat functionality is provided as well. The text on the chat window can be send to either all the meting attendees or a particular one.

Mobile: Meetings don’t have to happen just on the computer. WebEx has free mobile applications for most SmartPhones, and the iPad so you can join a meeting when an attendant is out of the office. There is an application to download and join.

Recording: One of the WebEx features its recording capability. Once everyone has connected into the meeting, there is a record button and when pressed WebEx is capturing whatever is happening on audio, video, along with what you are sharing on screen. This means if someone misses the meeting, there us a copy available that can be send to him to catch up. It also means that this feature can be used to produce meeting minutes in an asynchronous fashion.

The WebEx meetings can be scheduled using the meeting scheduling feature of the WebEx management interface as shown in Figure 11. A specific meeting URL is then created that can be used to invite attendees. There is the option to predefine who is permitted to attend the meeting if required so.

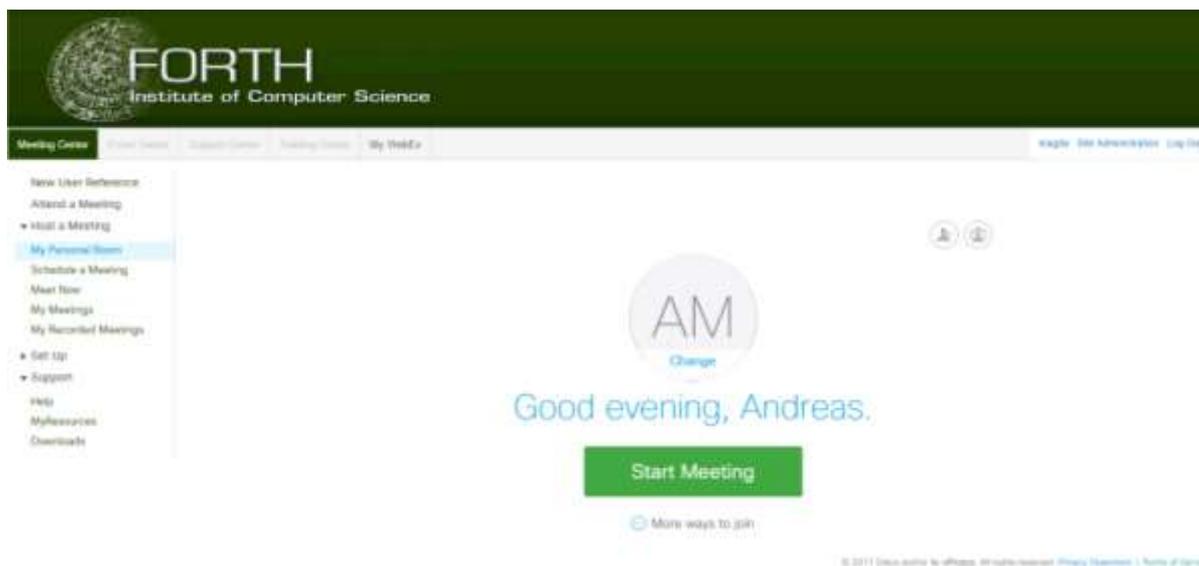


Figure 11: FORTH WebEx management interface.

6 Social media

For **CyberSure** a twitter account was created that will be used to disseminated **CyberSure** related news and events. This twitter account is also connected to the **CyberSure** Web site (see section 2.6) where twitter feeds are presented as well. In Figure 12 the **CyberSure** twitter account is shown.

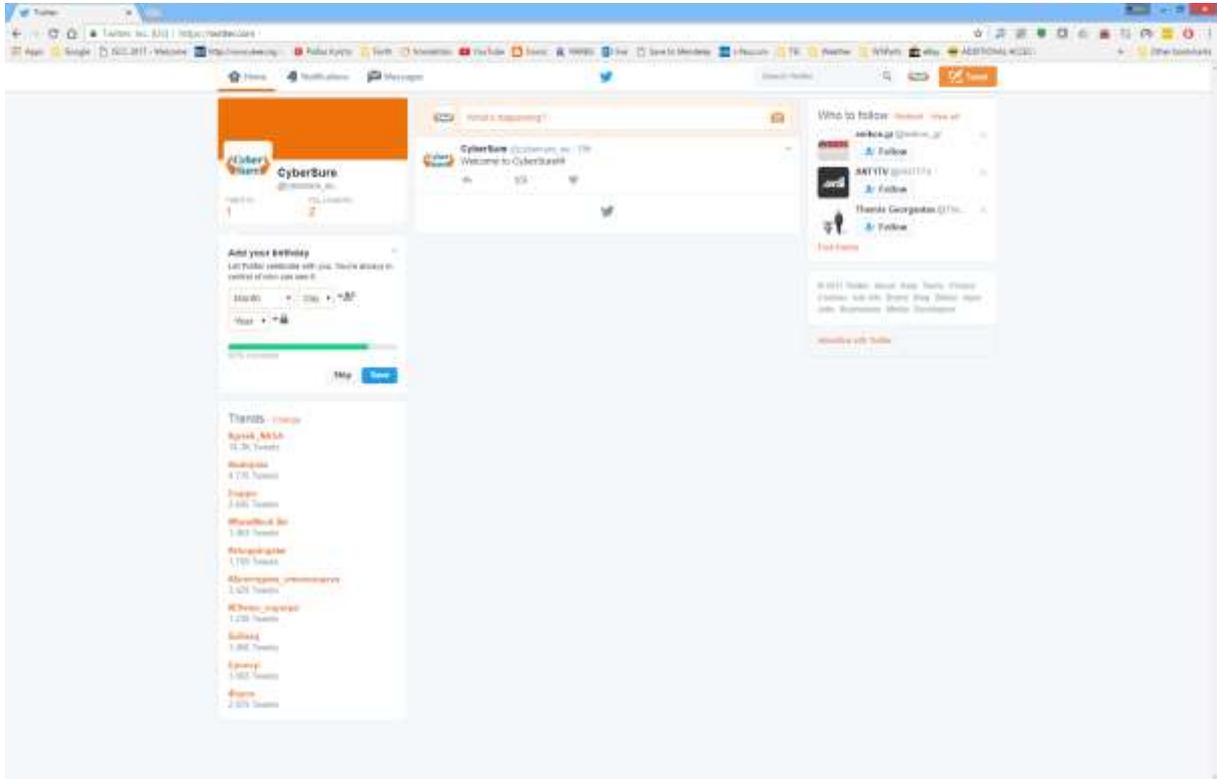


Figure 12: The **CyberSure** Twitter account.

7 Conclusion

This deliverable presented the communication and collaboration infrastructure utilized by the **CyberSure** project. This infrastructure consist of a Web Site, a mailing list, a file repository, a visual meeting tool supporting Voice and content sharing and social media presence.

Some of the above items such as the web page and the file repository were designed/implemented from the scratch based on open source tools (e.g. Django CMS, OwnCloud) and hosted on FORTH's datacenter. Both the website and file repository are maintained by FORTH and fulfill all the requirements of the **CyberSure** project.

The WebEx virtual meeting solution is a commercial one that FORTH had already purchased and uses it for several meeting needs. FORTH WebEx license allows for two concurrent meetings with up to 200 users each which is more than enough for **CyberSure** needs.

Similar to the meeting tool the mailing list is provided by Mailman which is used by FORTH for several years.

Regarding Social media presence for the time being the Twitter was chosen to be used.