



SEVENTH FRAMEWORK PROGRAMME

# CloudSpaces

(FP7-ICT-2011-8)

Open Service Platform for the  
Next Generation of Personal Clouds

## **D6.1 First version of the Exploitation Plan**

Due date of deliverable: 31-03-2013

Actual submission date: 26-03-2013

Start date of project: 01-10-2012

Duration: 36 months

## Summary of the document

<b>Document Type</b>	Deliverable
<b>Dissemination level</b>	Restricted
<b>State</b>	Final
<b>Number of pages</b>	21
<b>WP/Task related to this document</b>	WP6 / T1
<b>WP/Task responsible</b>	CNC / TST / EOS
<b>Author(s)</b>	Pau Garcia Milà, Pere Padrós, Stuart Landridge, Jose Miguel García López
<b>Partner(s) contributing</b>	CNC / TST / EOS
<b>Document ID</b>	CLOUDSPACES_D6.1_130326_Restricted.pdf
<b>Abstract</b>	<p>The collaboration between the three companies is very important in order to maximize the technology development and the following exploitation plan. We have many synergies both in the technical and the commercial area. This document explains the current market trends and which developments could be more interesting for the end users of the platform for every company.</p>
<b>Keywords</b>	Market analysis, swot, EyeOS, personal Clouds, ubuntu, web interface, tissat, datacenter

## Table of Contents

Summary of the document .....	1
Executive summary.....	3
1. EyeOS.....	4
1.1. Clear definition of the "end-results/products" .....	4
1.2. Preliminary view on the market situation and the project's positioning .....	5
1.3. SWOT analysis.....	8
1.4. Preliminary exploitation strategy .....	9
2. TISSAT .....	11
2.1 Clear definition of the "end-results/products" .....	11
2.2 Preliminary view on the market situation and the project's positioning .....	11
2.3 SWOT analysis.....	13
2.4 Preliminary exploitation strategy .....	15
2.5 Description of exploitation opportunities.....	16
3. Canonical Group.....	18
2.6 Clear definition of the "end-results/products" .....	18
2.7 Preliminary view on the market situation and the project's positioning .....	18
2.8 SWOT analysis.....	18
2.9 Preliminary exploitation strategy .....	18
4. Conclusions .....	20

## **Executive summary**

The first aim of this work package is to preview potential opportunities for the Enterprise partners. Every participating company (CNC, EOS, TST) have a distinct role in the industry and should devise commercial exploitation plans. For the SMEs in the consortium it is very important to develop the technical project keeping an eye on the client requirements in order to have a fast time to market once it is finished.

There are other multiple targets on the exploitation plan. First of all, the collaboration between the companies. As we said before, they have distinct roles in the industry, and the opportunity to collaborate between them to create a top-to-bottom technology. This means the CloudSpaces results could be validated by all the agents on the value chain.

The first task in the Exploitation Plan is to analyse and measure market opportunities. That is, to have a concrete idea of the size of the Cloud market, how much is it growing, and which are the main competitors.

Once we have the data of the market the SMEs on the consortium can prepare an exhaustive business plan to explore opportunities and prepare for the main threats. The SWOT analysis is the biggest instrument for this.

Finally, each company explains which business models could be the best to monetise the technology. It is important to know if they will use partners, distributors or will execute an independent commercial strategy. Currently, most Internet-based businesses use partners to launch new products.

## 1. EyeOS

### 1.1. Clear definition of the "end-results/products"

CloudSpaces will complement the EyeOS web desktop, providing a comprehensive solution for ubiquitous access to files and data in Cloud storage.

As a result of the project, we are expected to achieve a Web Desktop environment with the next features:

- An administration panel to manage system setup.
- A Ubuntu One file browser integrated inside EyeOS.
- A calendar manager application that interacts with Ubuntu One DB.
- A online text processor.

### Interoperability

EyeOS is an application platform that fits perfectly within a company's IT stack, between the infrastructure and the application layers. EyeOS runs on the companys' central servers and creates a private Cloud that is securely accessed by the user via browser.

The system administrators retain control over employees' workspaces by defining user profiles, rights, storage limits, restricted access to look & feel, applications and other EyeOS resources.

EyeOS interoperates with external resources as LDAP and Active Directory servers for authentication and group management, CalDAV and CardDAV servers for calendar and address book data management, NFS, CIFS and Samba File servers and IMAP, SMTP and POP3 servers for email purposes.

At the end of this project, EyeOS will interoperate with the CloudSpaces compliant resource providers such as Ubuntu One and Ubuntu One DB.

### Privacy & Workspace

In the post-PC era, users want to use their own device for personal as well as professional duties –the BYOD Bring Your Own Device paradigm. Before EyeOS, it was difficult for IT to accommodate such situation while controlling the enterprise's assets, Information and Intellectual Property. Because EyeOS is a complete platform –that runs in any computing device with a browser–, the three main privacy problems are solved:

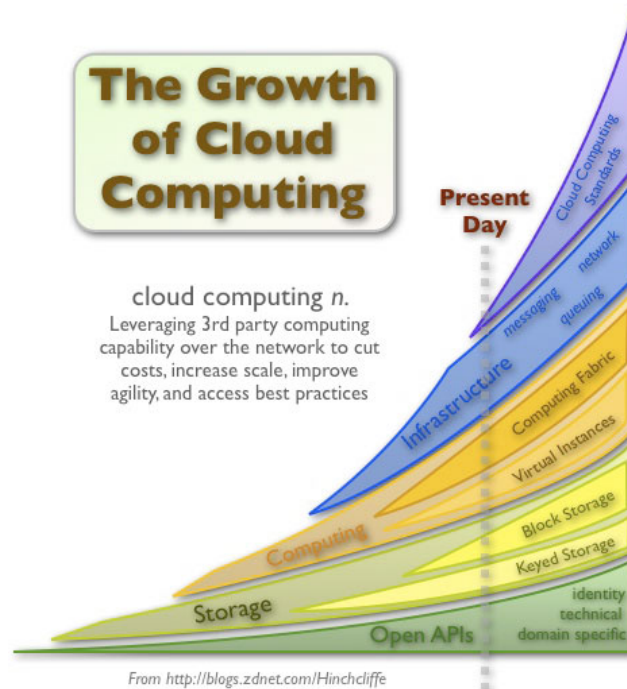
1. EyeOS solves the security. IT can setup EyeOS so that no file is ever stored locally in the device(s), providing a simple yet powerful DLP Data Leak Prevention solution, with no problems if one day the device is lost or stolen. All of the EyeOS

- functionality is available agentless, so no agent needs to be installed in any device, and no potential security holes are introduced.
2. EyeOS solves the efficiency. Because there are no agents to install, update, configure and maintain, the solution is particularly elegant and appreciated by the users. EyeOS also allows for Session Persistence, which means that a user can jump from device to device transparently without losing his work.
  3. EyeOS solves the Work vs. Personal segregation Once a user has defined his work environment, he can rest insured that IT cannot control, or even see, what is outside of this work space – IT cannot intrude in his personal space thanks to a very strong segregation of user space and compartmentalization techniques. Strict privacy laws are respected as private space cannot be touched by the enterprise, IT is only a secure enabler of a Corporate work environment in the user's device of choice.

## 1.2.Preliminary view on the market situation and the project's positioning

Deloitte agrees with most of the consultants who claim that 2013 will be the year of Cloud computing, though she says that "even exceed expectations curve will not be a super app". However, and according to Deloitte data handled, "in 2011 the Cloud computing services generated 55,000 million dollars, and experts predict that by 2012 the increase will be 20 percent to 70,000 million dollars." 2013 also will be the year in which SMEs will focus on this technology and where you have to solve the security problems "still has the Cloud," said Enrique Sanz [1].

Figure 1 – The Growth of Cloud Computing [2]



The Cloud-based processes are most of the Cloud services market, which includes advertising, e-commerce, human resources and payment processes. Gartner forecasts a growth of 19.8% in this segment to reach 46,600 million dollars this year. The advertising themes that support services such as those provided by Google and imitated by Microsoft, Yahoo and others, account for 60% of Cloud services and will remain the main industry until 2015, according to data provided by the consultant.

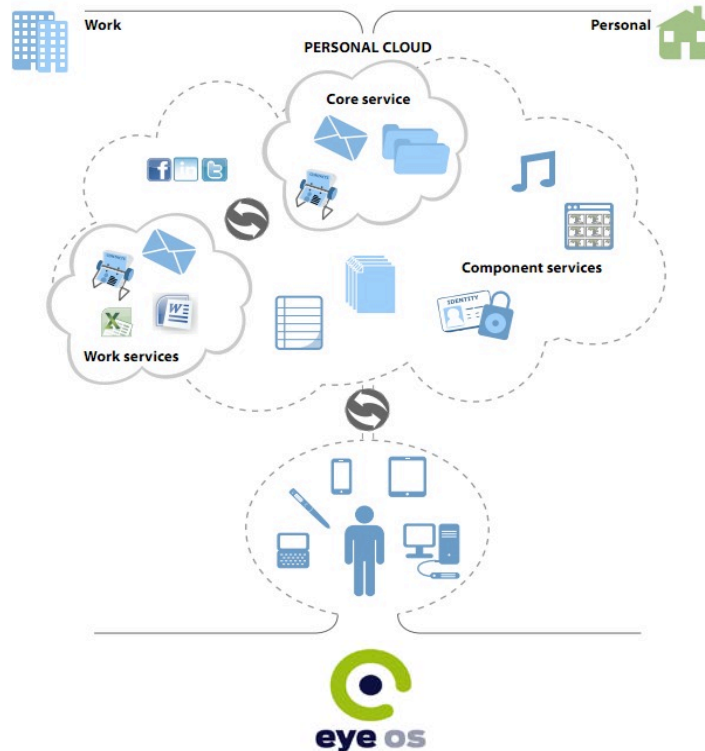
Last fall IDC expected a strong growth of Cloud computing and last week claimed that a shift to IT services in the Cloud was inevitable. "The personal computing experience is a victim of its own success" research company Forrester says in a report [3] outlining a strategy for consumers and corporations in approaching the "personal Cloud." Forrester predicts that the personal Cloud will be a \$12 billion dollar market by 2016. What is the personal Cloud going to look like and who are the leaders going to be?

EyeOS sees the CloudSpaces project as an opportunity to be one of the leader companies in Europe that provides the basic services personal computing. Personal computing has become complicated. Consumers and IT managers face dozens of services for a single functionality and users are increasingly using smartphones, tablets, and different PCs for home and work. It is hard to juggle it all.

### **Cloud Industry Positions**

Forrester predicts that the personal Cloud will be built around the large personal email systems that have extra layers of compatibility –iCloud [4], Gmail with Google Apps and Hotmail with Windows Live Essentials. According to Forrester, these will meet the basic needs of most individuals and will be complimented by third-party applications. The biggest of the core Cloud providers will be able to build application programming interfaces (APIs) that will allow other properties –like Flickr or Dropbox– to work within them. Across the device landscape, the PC will still be a central hub of computing and devices will align themselves with one of the major Clouds [5].

*Figure 2 – Personal Cloud Service*



Forrester sees the personal Cloud as a disruptive force to the current online service market. It says to "prepare for major opportunity and turbulence selling to individuals." That means marketers should explore the personal Cloud as a new channel to reach customers. IT managers should plan for personal Cloud integration as consumers continue to want information stored in personal services at work and the major email providers should create a better experience to capture users from any email address in the company's personal Cloud net.

## **Business Models**

Desktop virtualization has become a buzzword in the business world. Most companies adopt this technology in order to reduce costs and integrate solutions, creating an environment that IT departments can control centrally. There are many manufacturers in the market for desktop virtualization and, thus, each offers different benefits.

Still, the idea is always the same: to decouple IT resources in the form of different layers to enable streamlined management. For example, decoupling the desktop layer allows the user to work independently of their location while retaining the ability to access a family environment with all the applications he uses. For IT, this translates into the ability to manage corporate desktops as a unified layer, without dependencies on the underlying architecture and eliminating concerns compatibility with applications that depend on the desktop layer.



## EyeOS position

On this scheme EyeOS positions itself as a private-Cloud application platform with a web-based desktop interface. Commonly called a Cloud desktop because of its unique user interface, the developments runned on the CloudSpaces project will allow EyeOS to deliver a whole desktop from the Cloud with file management, personal management information tools, collaborative tools and with the integration of the the client's applications.

There are multiple innovative aspects the project CloudSpaces will bring to EyeOS current technology. As we mentioned before the expected results of the projects are:

- An administration panel to manage system setup.
- A Ubuntu One file browser integrated inside EyeOS.
- A calendar manager application that interacts with Ubuntu One DB.
- A online text processor.

The project Cloudspaces will allow EyeOS to develop core and work services with the following benefits for the users:

1. Improve desktop management tasks (administration panel and a file browser).
2. Improve employees' mobility by providing access through devices with Ubuntu operating system.
3. Increase productivity through 2.0 collaborative tools.

## 1.3.SWOT analysis

### Strengths

- 100% use of HTML5, PHP using HP compiler (cutting edge technologies).
- In-house version (against most of only public Cloud solutions).
- Became biggest Open Source project ever created in Spain in 2010. Track Record.
- Fewer resources needed per user in a virtualised workspace environment.
- Easeness of application integration.
- Entry point for corporative applications.

### Weaknesses

- Limited scalability: Started to measure late in development stage. Need to be fixed.
- Product not 100% stable (including all major features).
- Heavy front-end programming versus simpler ways to create HTML5 apps available today.
- Implemented automated Unit Tests late in development. Heavy cost per bug fix, being under improvement today.
- Slow POC to production versus competence.

## Opportunities

- Competence (big companies) focused on improving agent based virtualization solutions.
- Competence works usually on one of the two big EyeOS challenges (workspace and VDI).
- Big partnerships signed; need to be transformed into real business (IBM, NEC, T-Systems, etc.).

## Threats

- More competence appearing every month.
- Big companies (competence) with more resources dedicated to VDI & Workspace products.
- Public Cloud solutions gaining users who do not care about privacy.
- Community getting weaker since movement from Open Source to Open Core.

## 1.4.Preliminary exploitation strategy

### Description of exploitation opportunities

Since 2011, EyeOS has opted for a business model through partners, VARs and OEMs many. This new technology offering EyeOS complete pack becomes a very attractive solution. Current EyeOS partners have confirmed their interest in the whole Technology.

The business plan goes through marketing actions with large strategic consulting to present our solution and get reports.

It is important for EyeOS to expand into Europe for their growth rates over the next four years. The company has already contacted with the following distributors:

1. IBM
2. NEC
3. T-Systems

### Opportunity 1: Become the leader of the European private-Cloud application platforms

- **Description:** While many companies and operating platforms are located on US, there is currently no private Cloud platform in Europe that offers virtualized desktop for personal and professional purposes. Web services like Google Drive, SkyDrive, or Box Embed could be the direct competition to EyeOS once the project is finished. These services are global but are not costumized to develop applications in a specific region. We are opening a new market for applications in Europe that meet the specific needs of our society.

- **Results/benefits expected:** It is expected a milestone on Cloud environment in Europe. There are multiple new born tech companies developing new Applications. EyeOS is expected to be one of the leaders in this new environment.
- **Actions planned for exploitation of results:** Execute a communication plan in multiple forums around Europe. Coordinate a partner program with other European companies.

### **Opportunity 2: New clusters in Europe for API development.**

- **Description:** Collaboration with Canonical opens a new window of opportunity for EyeOS. We can develop specific programs with one of the industry leaders. We expect this to be a long-term relationship and be able to create a new web interface for the new personal Clouds. Ubuntu One has millions of users and the collaboration with EyeOS can help both companies to improve their web interface.
- **Results/benefits expected:** An increase of personal users operating on the web interface. There is a natural synergy between the European companies to develop a common top-to-bottom platform from the data centers to infrastructure hardware and end-user services.
- **Actions planned for exploitation of results:** Continuous collaboration between TISSAT, Canonical, EyeOS and other European companies on more projects in order to develop new final products based on European R+D. We can also coordinate our product launching on the market in order to offer a full product to users in the value chain.

### **Opportunity 3: EyeOS on OpenStack**

- **Description:** Openstack is entering in the industry as one of the new infrastructure standards. For EyeOS is very important to understand the new opportunities this technology offers.
- **Results/benefits expected:** Run the first tests on OpenStack. We are very interested in adapting the current version of our personal desktop to this new technology and meet users' needs. Scalability of the platform is very important to deliver a highly reliable service, and that is one of the many benefits OpenStack offers to the community.

## **2. TISSAT**

### **2.1 Clear definition of the "end-results/products"**

As a result of the project, we are expected to achieve the following results:

- A secure Personal Cloud infrastructure for end-users and companies, including privacy, interoperability, synchronization and sharing.
- An advanced OpenStack Swift platform, stable, secure and fully operational, conveniently sized to thousands of users.
- Interfaces for basic registration, access and capability of use of the storage platform.
- Reports and statistics of loading and platform's use.
- Strategic positioning in the market for Cloud storage

### **2.2 Preliminary view on the market situation and the project's positioning**

Our initial analysis are based in the report by ONTSI (National Observatory of Telecommunications and the Information Society) which studies Cloud Computing: Challenges and Opportunities for Spanish SMEs. This report is submitted in order to analyze the current situation and the impact of Cloud computing technology in Spain. Also to identify growth opportunities and strategies for adoption of such technology model [6].

One of the most interesting aspects of this paper is the study on the macroeconomic impact of the Cloud. It has been evaluated through a model developed by Deloitte on macroeconomic aggregates (mainly GDP, employment and return to doing public) associated with the investment and development of business strategies from the use of Cloud computing, using a methodology based on macroeconomic input-output tables.

According to the Association of Multi-Sector Electronics, Information Technologies and Communication, Telecommunication and Digital Content (AMETIC), made up of companies and industry professionals, the business of Cloud computing surpassed the 1,800 million euros in 2012.

**Table 1. Projected economic impact of Cloud computing for Spain for the 2010-2015**

Economic benefits accrued for Spain 2010-2015 (EUR milles)		Private	Hybrid	Public	Total
<b>Development of new business opportunities</b>		<b>4773</b>	<b>8425</b>	<b>3668</b>	<b>16866</b>
<b>New Business Development</b>		<b>10434</b>	<b>10474</b>	<b>10031</b>	<b>30939</b>
<b>Cost savings</b>		<b>7714</b>	<b>11516</b>	<b>2778</b>	<b>22008</b>
	Investment cost savings	3660	12299	7052	23013
	Operating cost savings per personal	2285	5127	2984	10396
	Saving operation costs by energy consumption	1757	4244	7499	8510
	Additional Cloud charges		-10154	-9756	-19910
<b>Induced effect on the economy</b>		<b>11759</b>	<b>16251</b>	<b>12726</b>	<b>40737</b>
<b>Total profit for the economy</b>		<b>34680</b>	<b>46667</b>	<b>29203</b>	<b>110550</b>
<b>Direct and indirect employment generated</b>		<b>121.0</b>	<b>139.6</b>	<b>132.0</b>	<b>395.5</b>

Source: "The Cloud dividend: Part One. The economic benefits of Cloud computing to business and the wider EMEA economy. France, Germany, Italy, Spain and the UK", CEBR

According to these studies, the current project orientation towards such solutions is itself already promising.

Additionally, the lack of free available platforms makes the OpenStack solution a more promising platform on which to build Cloud services.

In Spain there are many companies that specialize in Cloud solutions (e.g. Arsys, Gigas or Interdominios, to name a few), but at present none of them has a storage solution based in the Cloud, as proposed by the current project. This is already a competitive differentiation and an advance on services offered by Spanish companies.

Large operators such as Telefónica or Vodafone are starting to offer such services as a value-added complements to businesses. However, today is an opportunity for Tisat to offer our specialized services to these companies, allowing them to focus on their business and create synergies of collaboration.

We recognize that there are many solutions on the market that offer similar services, and even higher in maturity and functionality to the ones raised in this project (e.g. Amazon Cloud Drive, Apple iCloud, Dropbox) and even new solutions to allow users to create their own Cloud (e.g. Transporter, ownCloud).

The result of this project proposes a new alternative that covers the needs not addressed by any of these solutions: Ensures compliance with the Spanish and European legislation on data

security in Cloud services delivers to users the control over their information, enabling integration of user-specific services and integration with other existing storage platforms.

According to the European Commission, an objective of the EU Cloud Strategy states that Europe should develop a EU-wide strategy on Cloud computing. These features, among others, distinguish this project from any existing commercial or free solution, also having a community that daily increases the potential of the platform [7].

The conversion of SARA Net as the public administration's Cloud becomes a priority for Spanish Government. According to SARA Net: Law 11/2007 of eGovernment, The central government, as well regional and local governments, must take the necessary measures in their respective areas to incorporate technologies for being able to interconnect their networks in order to create a communications network and allow the exchange of information and services between them. [6]

CCN-STIC guide 823 establishes requirements for selecting a Cloud service provider, considering aspects of information protection, encryption, data erasure, continuity:

*Table 2 – CCN-STIC selection requirements for a Cloud service provider [8]*

Category	Low	Medium	High
Public Cloud	Yes	No	No
Outsourced community Cloud	Yes	Yes	No
Internal community Cloud	Yes	Yes	Yes
Outsourced private Cloud	Yes	Yes	No
Internal private Cloud	Yes	Yes	Yes

This guide indicates to the companies interested in offering Cloud services, the type of access and restrictions to be set in order to offer their services to the public administration, according to the category of system security.

## 2.3 SWOT analysis

### Strengths

This project, as an example of storage solution in the Cloud, allows the elimination by incorporating information technology of the financial barriers that prevent knowledge and modernization of business processes.

It avoids capital expenditure on hardware, software, IT support and information security by outsourcing infrastructure / platforms / services while makes it flexible and increases resource scalability [9].

The proposed solution allows local and global institutions optimize their IT infrastructure through automatic space management, guaranteeing business continuity and disaster recovery capabilities.

One of the strengths of the project is that it allows viability and profitability evaluation of new services (such as through the development of case studies in the Cloud) and allows the incorporation of redundant resources to increase availability and resilience.

### **Weaknesses**

There are many issues that need to be resolved before Cloud storage can be accepted as a viable choice in business computing. Organizations will be justifiably wary of losing physical control over data that is put in the Cloud.

Ensuring Spanish legislation on data protection forces companies to ensure the location of the information stored in the Cloud in addition to complying with security assurance and access control.

Part of the risk of the project goes to the design review in order to ensure compliance with the legislation. Furthermore, it is also necessary to break cultural misgivings by offshoring of information inherent to the Cloud.

### **Opportunities**

The ability to scale up services at a very short notice and forget about backup considerations obviates the need for underutilized servers in anticipation of peak demand. When an organization has unanticipated demands in storage above its internally installed capacity, it has the ability to request more resources on the fly. Cloud storage offers organizations the ability to effectively use time-distributed storage resources.

Cloud computing services allow an organization to control when, where, and how employees have access to the organization's storage systems, all managed by a simple web-based interface.

Employees are also benefited since they are able to make full use of the company's computer using less powerful devices such as a smartphone or a netbook.

On Cloud, the oversized file systems becomes unnecessary in organizations, assuming real savings for them, not only in technical costs, but also in direct savings by the pay-per-use model.

According AMETIC studies, Cloud Computing business was expected to exceed 1,800 million a year in Spain in 2012 [10].

For services provider, this means a new argument to attract public and private entities, and migrate its information to the Cloud.

### **Threats**

One of the biggest threats of migrating data to the Cloud is the rejection of incumbents, which are difficult to change their business formula and sales structure to compete in a more open environment.

Closed business models and the initially strong position of current technology providers, are a threat to the current Cloud model.

It is necessary to define security standards and quality certifications, taking public administration a critical role in the evolution of technology in the Cloud.

SMEs have shown willingness to adapt and quickly migrate to the Cloud. Public administration and large companies have expressed concern about moving their information to other companies. Another reasonable concern focuses on the situation that can occur if their Cloud provider goes bankrupt, or is prevented access by governments, as in the recent case of MegaUpload, where access to their platform was forbidden by U.S. authorities.

Recently, operators started to offer ownCloud platforms, that is an open source solution which has a friendly interface and storage, phonebook and calendar capabilities. Although it is a real and direct competition, the solution is very different from the current CloudSpaces draft, because CloudSpaces is intended to be used in large data centers with thousands of users and is focused on offering high security, interoperability and efficiency levels; in contrast with ownCloud, designed for non-critical, small scale Clouds.

The lack of standards is also a source of concern. The Cloud is seen by some sectors as a trap where large companies gradually forces users to adapt their tools, preventing migration of information between different Cloud platforms.

Undoubtedly one of the biggest problems for the adoption of Cloud storage is the local, national and international legislation. Because requirements of privacy and content rights may vary depending on the region where the information is located.

Although, this project is a first step in this direction: looking for communication between Clouds while having in mind the location of the data and security according to legal compliance.

## **2.4 Preliminary exploitation strategy**

Tissat' datacenter has been described by press as the most advanced in Europe, being awarded the Datacenter Leaders Awards 2010.

The management of Tissat's high quality infrastructures, as approved by Uptime Institute Tier IV, opens two different ways of operation. On the one hand, we can offer the Cloud infrastructure to companies that have their own solutions; on the other hand, let us focus our efforts in concrete solutions oriented to our main markets.

Tissat describes itself as a "Mission-Critical Outsourcing Company", being most of its clients government agencies that require a high degree of security and confidentiality. Prominent among our critical services, technology management of 1-1-2 Murcia and Valencia, as well as service management for public administration.

Therefore, part of our plan for dissemination and exploitation will focus on the most critical aspects of security, and the most demanding market in this respect.



Tissat dissemination activities aim at providing awareness of the project and its results, both to the internal audience, the scientific community and the potential business users of the outcomes of the project. Tissat will also participate in demonstrations at specific events about information management and Cloud services. Tissat can also organise demonstrations at potential user sites to exploit preliminary results. Among the primary target groups for dissemination are:

- The government, providing security solutions that meet the Spanish legislation on data protection.
- Service providers providing safe infrastructure use.
- End users as a result of the evolution of the prototypes in personal services.
- Venture capitalists and investors in the field of advanced technologies as main target for exploitation of the most innovative parts of the technology.

In details, some exploitation opportunities for Tissat are:

1. Offer Cloud services that meet data protection laws.asd
2. Offering Infrastructure as a Service (IaaS).
3. End-user services.

## 2.5 Description of exploitation opportunities

### Opportunity 1: Offer Cloud services that meet data protection laws

- **Description:** The Spanish Data Protection Act sets out the obligations that those responsible for the files, both public and private, must ensure the right personal data protection.  
The data controller is the entity, person or administrative body that decides on the purpose, content and use of personal data processing. Over the data controller falls the obligation under the Data Protection Act and is responsible for ensuring compliance with the law in the organization.  
While many companies offer hosting in the Cloud, there is currently no datacenter in Spain that offers specialized Cloud storage systems which comply with the data protection law.  
The use of open source technologies such as OpenStack offers competitive differentiation in the face of public administration by eliminating ties to specific technologies of large service providers.
- **Results/benefits expected:** It is expected a gradual increase in migrations inside the public administration by moving their storage systems to the Cloud, reducing customer's internal costs and increasing the use of this high availability secure platform.
- **Actions planned for exploitation of results:** Inform those people responsible for public administration and critical service providers. Statistics about actual storage costs and benefits of migrating to a Cloud system in compliance with the Data Protection Act.

- **Further additional research and development work:** Will continue research and development of the prototype to specific systems, integrating storage services with customer technology platforms.

### Opportunity 2: Offering Infrastructure as a Service

- **Description:** Infrastructure as a Service is a provision model in which an organization outsources the equipment used to support operations, including storage, hardware, servers and networking components. The service provider owns the equipment and is responsible for housing, running and maintaining it. The client pays on a per-use basis.  
As experts at OpenStack installation and management, and as providers of high quality technological platforms, a direct form of exploitation is selling IaaS services to companies and organizations that wish to maintain their own private platform based on these technologies.
- **Results/benefits expected:** Results are immediately reflected in a higher utilization of the hardware and increased versatility of services offered from our data centers, creating synergies of collaboration with multiple entities.
- **Actions planned for exploitation of results:** Dissemination of project results, intensifying the action from a selected subset of target entities. Additionally, we will offer test platforms for limited use, to enable those responsible to know the full functionality of the platform.

### Opportunity 3: End-user services

- **Description:** The development of applications based on OpenStack allows creating scalable solutions for multiple users. The development and use of service applications based on Cloud services allows end users the acquisition and management of their space. Also allowing Tissat leverage its infrastructure and provide specialized services to end users, either through Tissat's own solutions or by companies that use our platform for these services.
- **Results/benefits expected:** Allow the use of technology platforms for end users opens the use of technology to a potential market of millions of users. This is a change of perspective to the traditional model of service management between companies, but can increase both revenue and potential use of the platforms.
- **Actions planned for exploitation of results:** To present a new platform by end users involves contacting them through their media. Launching campaigns through social networks is essential, as well as making presentations of these new services between major magazines and media.
- **Further additional research and development work:** It will require research on fluctuating demand for these services, developing tools for analyzing the information in order to anticipate and adapt the platform to the different types of customer.

### **3. Canonical Group**

#### **2.6 Clear definition of the "end-results/products"**

CloudSpaces will help to bring new, widely-acceptable features to the Ubuntu One personal Cloud. Wider acceptance of data synchronisation and a more detailed and diverse implementation through the UIDB product will make it possible to have applications synchronise all contained data through the personal Cloud, allowing for a new type of experience: seamless moving between devices and applications while keeping the user's data available to them everywhere. Sharing and proximity services allow a user to interact with colleagues, friends, and other contacts via their personal Clouds, making the personal Cloud a mediator for interactions across all their properties.

#### **2.7 Preliminary view on the market situation and the project's positioning**

As EyeOS state above, Cloud computing is a hugely growing trend in the market. Cloud services are now a standard, expected part of a market offering. Ubuntu One has a strong position on Ubuntu devices, from the phone and tablet up to the desktop, web, and smart TVs. The addition of data sync services and sharing from CloudSpaces will help to augment Ubuntu One's already-existing position on other platforms (Windows, iOS, Android, OS X) which makes the project confidently positioned for market analysts: a service which can be ubiquitous is attractive since it can embrace any combination of devices for a user or corporation.

#### **2.8 SWOT analysis**

Ubuntu One is a core part of the Ubuntu OS, and Ubuntu's multi-device strategy, encompassing phone, tablet, desktop and TV means that Ubuntu's successes in these device configurations brings Ubuntu One, as a personal Cloud and identity service, to large new classes of user. Ubuntu One's existence on other platforms as well means that a user can embrace some Ubuntu device classes and not others and still see their Ubuntu One personal Cloud as linking all their devices. There are other competitors in the personal Cloud market, of course, who are all looking to deliver the same thing. However, all competitors are either broad on platform support but narrow on features (that is: they do one thing, such as file sync, on many platforms) or broad on features but narrow on platform support (that is: they do many things, but are restricted to one particular platform, such as iOS). One of Ubuntu One's strengths is exactly that it caters for both. The advance of Ubuntu's multiple-device strategy is a large opportunity for Ubuntu One, and thus the wider adoption of services provided, such as data synchronisation, and Ubuntu One provides a platform onto which additional third-party services can be built such as proximity-awareness.

#### **2.9 Preliminary exploitation strategy**

Initially, as mentioned, a key part of exploitation of Ubuntu One's features is to extend them to many device classes via Ubuntu's expanding device strategy. This will involve many deals with OEM manufacturers in many device types; with Ubuntu One as a core part of the

Ubuntu offering, this enables OEMs to strike revenue share deals for their part in providing an Ubuntu One delivery and signup channel.

Equally, U1DB's data sync features can and will be implemented across many platforms, allowing developers who want data sync capabilities to embrace u1db and see Ubuntu One as a leading provider of U1DB sync services.

## 4. Conclusions

The Cloud management platform market is very immature, and its deployments will reflect a 10X increase in 2013. The Cloud market is growing on a two-digit ratio and four distinct categories are forming up: a) virtualization platforms expanding “up”, b) traditional management vendors expanding “down”, c) open source-centered initiatives (most notably OpenStack), and d) start-ups often focused on Amazon interoperability.

CloudSpaces focus is totally aligned with the current market trends. EyeOS on virtualization platform, Tissat on traditional vendor management and Canonical on open sourced initiatives. The different products presented by partners in the consortium cover the whole value chain. It is still very soon to define the synergies between companies, but this first document serves as a good start point to collaborate.

The SMEs on the consortium have assumed that the primary benefit of private Cloud is not the lower cost. According to recent polls, the majority of large enterprises consider speed and agility to be the primary benefit. This is making end-result products of CloudSpaces more sophisticated and based on business requirements.

## References

- [1] Deloitte - The Technology, Media, Telecommunications Predictions 2012
- [2] Cloud Computing Is a Great Option for Small Business. The Growth of Cloud computing. <http://blogs.zdnet.com/Hinchcliffe>
- [3] Forrester - The Personal Cloud: Transforming Personal Computing, Mobile, And Web Markets – *A BT Futures Report*  
<http://www.forrester.com/The+Personal+Cloud+Transforming+Personal+Computing+Mobile+And+Web+Markets/fulltext/-/E-RES57403?objectid=RES57403>
- [4] Forrester - Apple's iCloud Takes The Lead In Pursuit Of The \$12 Billion Personal Cloud Opportunity, [http://blogs.forrester.com/frank\\_gillett/11-06-06-apples\\_iCloud\\_takes\\_the\\_lead\\_in\\_pursuit\\_of\\_the\\_12\\_billion\\_personal\\_Cloud\\_opportunity](http://blogs.forrester.com/frank_gillett/11-06-06-apples_iCloud_takes_the_lead_in_pursuit_of_the_12_billion_personal_Cloud_opportunity)
- [5] Forrester - The Personal Cloud Will Be A \$12 Billion Industry in 2016, [http://readwrite.com/2011/06/06/the\\_personal\\_Cloud\\_will\\_be\\_a\\_12\\_billion\\_industry\\_i](http://readwrite.com/2011/06/06/the_personal_Cloud_will_be_a_12_billion_industry_i)
- [6] ONTSI. Ministerio de Industria Energía y Comercio. Cloud Computing Retos y Oportunidades. May 2012.
- [7] Francisco García Morán. DG Informatics. Unleashing the potential of Cloud Computing in Europe. Global Forum Stockholm. 29-10-2012.
- [8] Ministerio de Hacienda y Administraciones Públicas. La conversión de red Sara como el cloud de la Administración, proyecto de interés prioritario. Madrid, 31-01-2013
- [9] Unidad de Informática. DGT. Ministerio del Interior. Cloud Computing. Madrid, 31-01-2013.
- [10] "Cloud computing superará los 1.800 millones de euros en 2012". Ministerio de Industria Energía y Comercio; Noticia 14/10/2011.