Welcome note

Welcome to the second Cloud4all newsletter! It has been more than a year and a half since Cloud4all started, and a lot of things have happened during this period. We have undergone our first year review, we have completed our first iteration of tests with users and we have presented our work in a whole lot of conferences and workshops, among lots of other activities. The main objectives of this Newsletter are to give an overview of the work that has been done within Cloud4all in these 20 months, as well as to provide an answer to some of the most frequent questions people have asked us when they have learned about Cloud4all and the GPII.

If you want to get more updated information about Cloud4all, please subscribe to our online newsletter. And please bear in mind that you can get continuous information about our developments in our usual communication channels Get informed. Get involved… We are looking forward to hearing your insights and to collaborate with anyone interested. Thanks for your attention!

Ignacio Peinado Martínez, Dissemination Manager in Cloud4all
Cloud4all: Year 1

The first year Technical Review of Cloud4all took place at the European Commission Headquarters in Luxembourg on January 24th, 2013, and it was a success. During the meeting, several demonstrations of the implementation of Cloud4all in different platforms (Linux, Windows) and applications (Mobile Accessibility for Android, Maavis, Read&Write Gold) were presented, showing the benefits of our ‘fast start’ approach, which made it possible to start having results at really early stages of the project. We got really interesting feedback from the EC experts that are guiding our work during this second year.

The following deliverables were approved by the EC experts and are now available for download in Cloud4all’s website:

- **D101.1. Cloud4all applications and User Profile Ontology.** This document presents the initial research with users, and how it served as the starting point to build the ontology of needs and preferences.
- **D101.2. Cloud4all Use Cases.** All use cases that will guide the implementation of Cloud4all.
- **D204.1. Profile matching technical concept.** Presents our technical approach to build the Matchmakers.
- **D401.1. User population and UCD implementation plan.** Who are our prospective users and how we will involve them in all phases of the project.
- **D402.1. Pilot scenarios.** Describes the tests with users that will be realized in the first iteration of pilot testing.
- **D502.1.2. Dissemination plan and activities V2.**
- **D505.1. Report on the extended network of external collaborators, key stakeholders and beneficiaries.** Describes our collaboration with other EC projects and initiatives.

Raising the Floor – International Hires New Executive Director and European Program Manager

Raising the Floor has announced the appointment of Eva de Lera as its new Executive Director. Eva is the first Executive Director of RtF-I and will also serve as the Program Manager for the European efforts to build the GPII.
Building key components of the GPII

Cloud4all is a FP7 project funded by the European Commission that is building key parts of the Global Public Inclusive Infrastructure (GPII). The GPII is an initiative of the Raising the Floor Consortium, a consortium of academic, industry and non-governmental organizations and individuals that is working to develop an infrastructure for making the development, identification, delivery and use of Access Technologies easier, less expensive and more effective. Cloud4all will focus on the development of key technical components that will advance the GPII concept by providing the algorithms and mechanisms that make possible the auto-configuration of the accessibility features of different devices, platforms and applications, and actually deploying these capabilities in 17 proof-of-concept solutions. Meanwhile, Preferences for Global Access in the US is working on building tools to make it easier for users to discover the types of features and solutions that would help them access and use ICT. Prosperity4all, another FP7 project currently under negotiation, would develop several other components of the GPII related to making it easier and less expensive to bring new ideas for products and services from research or concept to market internationally, and to allow products reach more users lowering the individual cost to develop and support new solutions. Prosperity4All is planned to begin in February of 2014. Two other initiatives are in proposal stage (more in next issue).
Cloud4all/GPII at a glance

1. The user sets her needs and preferences for using any application or device. This can be done using a web-based Preference Management Tool (PMT) or snapshotting the current settings of the system.

2. The user can store a token in a NFC tag (e.g., in a smart card, in an NFC ring...) or in a USB key.

3. The needs and preferences of the user are stored in the N&P server in a safe and secure way.

4. Whenever a user encounters a C4a/GPII-compatible device (a PC, a mobile device, an ATM, etc.), she can key in using one of the NFC or USBs.

5. The device sends the token and info about its accessibility features to the C4a/GPII infrastructure.

6. The matchmakers get information about the needs and preferences of the user, the device and the environment and work the 'magic', calculating the most appropriate device settings for this user and this situation.

7. Now the user can use the new device without having to tweak any settings. If the device has not all the accessibility features needed, Cloud4all will recommend solutions available in the Cloud. When the user keys out, the system will get back to its default settings.
Components of Cloud4all/GPII

(1) The Preferences Editor

Some studies have demonstrated that very few users change the settings of the technology they use [1]. Our own experience with users has told us that configuring the settings of their interactive systems is one of the main problems for users, either because configuration menus are too complicated for non-expert users or because users do not have any knowledge about the options available for them [2]. This is why in Cloud4all/GPII we are making a special effort to ensure that users feel comfortable discovering what they need and experimenting with new settings and tools.

The two main preferences editors that are being built within Cloud4all are the Preferences Management Tool (PMT) and the Personal Control Panel (PCP). The PMT will be accessed as a familiar in-browser web application, optimized for larger screens and longer spans of usage. The PCP, on the other hand, will be always available on the particular device or system the user is interacting with, wrapped up as a “native” app, and will permit quicker, on-the-fly configuration changes.

(2) The User Listeners

The User Listener is the first step in the process of customizing a device, platform or application to fit the user’s needs and preferences. The user listener will get the id of the user (the ‘token’) in an easy and secure way and will start the personalization process. The Cloud4all/GPII architecture will permit many different strategies for implementing the user listeners: (1) a RFID reader, that will read the user token from a low-cost Near Field Communication (NFC) tag, that can be embedded in daily use objects such as a smart card or a ring (medium and high-end Android smartphones usually have NFC writer and readers installed); (2) a USB device, where the token may be installed; (3) a QR code comprising the token of the user (as in the case of NFC, most high-end smartphones are able to read QR tags); (4) typing in a special string on the keyboard; (5) a continually changing code; and etc.

(3) The Preferences Server

The Preferences server stores the user’s preferences. These preferences include general preferences ("I prefer high contrast"), context-specific preferences ("In the evening, I want the text to be 1.5x larger"), and application-specific settings ("I want X screenreader to read at Y speed"). The Preferences Server is a web-based service that provides a REST API for accessing preferences in a JSON format. Preferences are represented according to a new version of the AccessForAll ISO 24751 standard [3].

(5) (6) The Cloud4all/GPII Cloud Architecture

Well, this is half-truth. Most of the central components described in this section will be deployed in the Cloud, but there may also be local copies in different devices and applications. The following figure presents all the modules of the architecture and some indications about where they may reside.

The **Flow Manager** is the central component of the architecture, and is responsible of orchestrating the whole personalization progress, moving information from/to:

- **The Preferences Server.**
- **The Device Reporter** provides information about the user’s device, including information about the operating system and the list of applications currently installed.
- **The Environmental Reporter** provides information about the context surrounding the device, such as brightness level or noise level.
- **The Solutions Registry** is a comprehensive source of information about applications, access features and assistive technologies, both installed in the device and available in the cloud.
- **The Matchmakers** are responsible for deciding which solutions and settings will best meet the user’s needs and preferences.
- **The Lifecycle Manager**, that provides instructions to the Lifecycle Handlers and the Settings Handlers describing what should happen when a user logs in and out.

(7) **The Matchmakers**

Invoked by the Flow Manager, the Matchmaker will return a comprehensive list of Solutions and settings for the user. The Cloud4all/GPII architecture currently ships with several default Matchmakers; others are in active development:

- **The Statistical Matchmaker**, which directly infers application-specific settings using a complex statistical algorithm
- **The Rule-Based Matchmaker**, which evaluates a set of expert-defined rules for resolving conflict scenarios (such as when a preferred solution is unavailable on the current device)
- **The Flat Matchmaker**, which makes a direct match between user preferences and the declared capabilities of available solutions
- **The Canopy Matchmaker**, which uses a CSS-style fitness measurement algorithm and pluggable ontology to determine the alternative solutions that will most closely match the user’s needs.

You can get more information about the technical concept of the matchmakers in deliverable D204.1: Profile matching technical concept [4]
Some Frequently Asked Questions

How is Cloud4all related to accessibility?

Cloud4all/GPII will tackle one of the main barriers of entry for many users when facing interactive systems: the configuration of the system’s settings. Once the user has declared their needs and preferences (e.g., display in high contrast, using a screenreader, etc.) in an easy way, any Cloud4all/GPII-compatible device the user encounters will automatically adapt its accessibility features to accommodate the user’s needs and preferences (e.g., changing the theme to high contrast, launching any available screenreader, etc.), without any intervention from the user.

So, is Cloud4all building any Assistive Technologies?

No. Cloud4all/GPII will launch any installed Assistive Technologies (ATs) available within the device or platform, depending on the needs and preferences of the user. If the interactive system does not have all the ATs needed to accommodate the user’s needs and preferences (e.g. there is no screenreader installed and the user needs one), Cloud4all/GPII will look up the Cloud for available ATs. Nevertheless, as part of the Research activities within Cloud4all, we are working on developing a platform that allows the combination and orchestration of different services and applications into complex forms, therefore providing more advanced functionalities and service provision.

Is Cloud4all just a development project?

No. As any FP7 project, Cloud4all is a R&D project that aims at providing innovation in several levels. For instance, the matchmakers are quite an innovative approach, and will use machine learning techniques to calculate the transformation of settings needed to accommodate the user’s needs and preferences to different devices and platforms. Innovation will also be present at the semantic representation of services and solutions. Also an innovative approach to context will also be adopted, allowing for the personalization of user interfaces depending on environmental information.

You can check more FAQs and ask any doubts in our blogs [5]

Devices, platforms and applications

One of the objectives of Cloud4all and the GPII is that any platform or application developers can easily integrate their solutions with Cloud4all/GPII and benefit from our Auto-Personalization from Preferences (APfP, the ability of the system to adapt to the user’s needs and preferences). In order to demonstrate the feasibility of the Cloud4all/GPII approach, in Cloud4all we are developing proof-of-concept implementations for 19 different devices, platforms and applications. During the first pilots, a first implementation of Cloud4all in Windows 7 and Fedora 17 has been tested with users. Besides, users have also been presented with actual implementations of APfP in applications like Mobile Accessibility for Android by Code Factory, EASIT4all, Read&Write Gold by TextHelp and Maavis by OpenDirective. If you want to learn more about how different applications have been integrated with Cloud4all and the GPII, you can check our YouTube channel [6] where you will find demonstration videos for Maavis [7] (see following figure for a couple of screenshots) and Read&Write Gold [8].

Screenshots of the video "Maavis and Cloud4all" presenting 2 different GUls for 2 different sets of preferences

During this second year, much more complex adaptations will be supported by the platforms and applications already integrated, and a whole new bunch of solutions will be integrated with Cloud4all/GPII. By the end of this year we will have implementations of Cloud4all for feature Java phones and for Android devices, and other commercial applications like Allan EC and eCTouch by Omnitor will be integrated with the overall architecture. Besides, demonstrations of APfP for an online banking application and a smart house simulation will also be available for the end of the year.

Don’t forget that Cloud4all and the GPII are open source initiatives, and anyone who is interested is invited to collaborate, either by providing or reviewing code or by making your solutions Cloud4all/GPII compatible. If you want to learn more, visit our blog for developers and find out how you can collaborate with us!

[6] Cloud4all’s YouTube Channel
[8] Video: “Cloud4all/GPII and Read&Write Gold”
3 iterations of user testing will take place throughout the project. In this first iteration, the following number of people have expressed their thoughts and insights about Cloud4all:

- 90 Beneficiaries
- 30 Developers
- 15 Stakeholders

During the months lasting from April to June technical tests and users tests took place in the Berlin (Germany), Thessaloniki (Greece) and Madrid (Spain). Also as part of our User Centred approach, where involving users in the design process is paramount, creativity sessions as well as focus groups took place on the three sites.

The main objectives of all these evaluation activities were twofold: it was necessary to validate the project concept in the first instance, and secondly we needed to get feedback and information about the developments carried out during the first year. Volunteers were prospective users (beneficiaries), stakeholders and developers. A concept validation questionnaire was passed among all volunteers, and several tests were carried out to check the developments. One of the objectives from the testing tasks was to find out about the usability of the solutions tested: the Needs and Preference management tool with Basic and Extended versions, the Auto-configuration of solutions/applications through both the Statistical and Rule-Based Matchmakers, and the Semantic Alignment tool plus the Key in functionality of applications (real time for Linux and Windows). All of the opinions of the interviewees will drive the second phase of the developments in Cloud4all.

In each of the three sites 45 volunteers participated in the tests. The groups were comprised of 30 beneficiaries from various groups, 10 developers and 5 stakeholders. Objective and subjective measures had been collecting during the process. An overview of the data collected is encouraging and the project concept has been accepted with enthusiasm by all participants.

Fausto Sainz de Salces, SP4 leader
Disseminating Cloud4all and the GPII

Cloud4all and the GPII have been presented in several conferences and events around the globe. A Cloud4all/GPII special session took place in CSUN 2013; moreover, Mobile Accessibility for Android, with Cloud4all’s auto-adaptation capabilities, was also presented during this meeting. Cloud4all was also very present at the m-Enabling Summit that took place in Washington DC on May 6th and 7th: two special sessions took place and demonstrations of several Cloud4all solutions were also presented during the Conference. An implementation of Cloud4all/GPII in an Android mobile device was presented during the Google IO meeting that took place in San Francisco on May 2013. An effort is being made to raise awareness about Cloud4all among the open-source communities; in this sense, a presentation and a lightning presentation about Cloud4all and the GPII took place during the RMLL 2013 in Brussels. To sum up, during this period (November 2012 – July 2013) Cloud4all/GPII has been presented in 12 conferences and/or workshops, and 10 papers presenting Cloud4all results have been submitted to peer-reviewed conferences and journals.

Cloud4all @ WSIS 2013

For the second year in a row, Cloud4all and the GPII have been presented in the World Summit on the Information Society, whose last edition took place in Genève (Switzerland) from May 13th to May 17th, 2013. WSIS represents the world’s largest annual gathering of the ‘ICT development’ community. This annual gathering, co-organised by ITU, UNESCO; UNCTAD and UNDP, attracted more than 1800 WSIS Stakeholders from more than 140 countries in its latest edition. Cloud4all/GPII had a booth thorough the whole event, where Mr. Kasper Markus from Rtf-I performed a demonstration of the auto-configuration capabilities of Cloud4all to several attendants. In the picture, Mr Kasper Markus from Rtf-I showing the APP demo to Mr. Houlin Zhao, Deputy Secretary-General, ITU
The annual ‘Association for the Advancement of Assistive Technology in Europe’ (AAATE) Conference is one of the most important international events in the field of accessibility. AAATE 2013, the 12th European AAATE Conference, will take place September 19 to 22 in Vilamoura, Portugal. Cloud4all will be very present in the AAATE, with 1 special session, 2 open workshops and a demonstration booth that will be open throughout the whole Conference.

Special Session: Using the Cloud to enhance AT

Thursday, Sept 19th - from 11:15 to 13:00, Room Taurus

This Special Session wants to share knowledge on cloud and ATs and the experiences of Cloud4all/GPII. The way to create an infrastructure to enable users to declare requirements in functional terms (whether or not they fill into traditional disability categories) and new systems that will allow users to access and use solutions not just on a single computer, but on all of the different ICT that they must use. The goal of the session is to show how to take advantage of the cloud for the challenge of handling user settings across devices, applications, platforms and ATs. By substantially improving accessibility, over the next ten years these technologies will open up access to, and improve the use of, ICT products and services in general (whether e-Commerce, e-Government, e-Health, e-Culture, or Internet banking) and make opportunities available for older people and for people with disabilities (i.e. to make online job applications, use job-matching platforms or eLearning applications).

Open Workshop – No one left behind: an infrastructure to break down barriers and empower citizens

Thursday, Sept 19th - from 14:30 to 16:00, Room Taurus

What if all interactive systems citizens use in their daily lives could automatically adapt to suit their needs and preferences? What if the systems could automatically recommend the citizen with the most suitable AT to suit their needs? Cloud4all/GPII is working on the development of an infrastructure that will make this possible, tearing down entry barriers to technology and empowering citizens to participate in e-commerce, e-governement. In this workshop, AT developers and resellers and end-users can learn how they can benefit from the creation of the GPII.

Open Workshop - A glimpse at the future: sharing the state of the art in Accessibility

Thursday, Sep 19th - from 16:30 to 18:00, Room Taurus

During this open workshop, partners from the most relevant European projects, AT developers, designers and vendors will showcase the tools that are shaping the future of accessibility. Anyone interested will have their 5 minutes of fame where they will be able to demonstrate how their tools and solutions work. The main objective of this session is to share the state of the art in the field of the development of accessibility tools, and to establish a collaboration framework that enhances new collaboration opportunities for transferring these technologies to the real world.
Get informed. Get involved.

Cloud4all is following an open software approach, and all the information about our activities, as well as the code we are building, is available for anyone interested. If you are interested in keeping track of all the technical work you can visit Cloud4all/GPII’s wiki page. All of our code is available in our github repositories. Of course, you may always find information about the project in our official web page. In order to provide more detailed information to specific target audiences, we have recently developed 3 blogs and forums for end users, developers and stakeholders.

Cloud4all/GPII Blog and Forums

This blog will provide general information about advances in the field of accessibility, and how they may improve the life of any users. The forums will be used to recruit new users for the next pilots and to keep in touch with them after their participation.

Visit the Cloud4all/GPII blog for end users

Cloud4DEVELOPERS

Are you developing any ATs? Or are you developing any piece of software and you would like to make it adaptive and accessible? Here you will find some information about our latest developments, and you will be able to get in touch our developers in our forums.

Visit the Cloud4all/GPII blog for developers

Cloud4STAKEHOLDERS

Where you will find information of all scientific- and industry-related information of Cloud4all. Our participation in scientific and technical events, our work in standardization and other related information will be available here.

Visit the Cloud4all/GPII blog for stakeholders
Cloud4all Consortium

The Consortium brings together 24 partners and 3 Collaborators from 9 European Countries plus Canada and USA

Led by:

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Project Details

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http://cloud4all.info