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Executive Summary

Our Standards Coordination work package serves to achieve the following EC objective:

*Increase European software standardization efforts
in Software Engineering, Services and Cloud Computing.*

In the first year of the project, the HTML5Apps staff has studied and talked to most active projects to find out which **Standards Developing Organizations** (SDOs) are relevant to both

- help the projects bring their pre-standard related work to the right SDOs, and
- help the projects understand the openness level of the various SDOs they are basing their innovation on.

At both concertation meetings (March and September 2014), we put the emphasis, especially for the Open Source related projects, on the OpenStand principles (presented below) as a simple instrument for scientists to evaluate the nature of existing SDOs.

At the September meeting, it became clear that in order to facilitate the projects discussions in this area, we need to better inform them, and describe the nature of the SDOs involved in the Unit work programme with an openness lens. These are the Cloud related SDOs whose standards are either used as a foundation for their R&D experiments, or as potential recipients of their innovative development in pre-standardization.

So we have now started, and will continue, to evaluate these Cloud SDOs in light of the OpenStand principles and their patent policy - important for Open Source.

We plan on publishing this study, after discussions with the SDOs involved, through the Future Internet Portal (new FIA) SDO repository, so that this can be used by a wider audience.

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1. INTRODUCTION

For a few years now, the EC DG Connect Unit E.2 has paid particular attention to the coordination between the R&D projects they fund and the ICT Standardisation Development Organisations potentially active in their areas.

This is a very good trend from the point of view of the SDOs themselves, which are not only interested in the coordination between SDOs - W3C has a long-standing activity on international liaisons, witness by its public page¹, listing all its "partners" SDOs - but also by the pre-standardization aspects, that is, the coordination between SDOs and advanced developers using the latest standard technologies, while at the same time evolving them, usually through new requirements.

One important thing to understand, which has been outlined several time in past EC declarations, is that in the ICT software area, and in particular on the Internet and Web platform, **innovation and standardisation** happen roughly at the same time, given the openness of the system and the easiness to change it from the inside. The time between the first definition by an R&D lab of a new API to access some new sensor/infoset, and the inclusion of this API into a revised global standard such as HTML5 or CSS3 has come down to a few months or years, whereas it used to be a few decades.

Such a dramatic change in transfer time between research and standard is made possible in the Internet and Web standard area because the research engineers defining new APIs can very easily make their experiments "fit" in the global open standard ecosystem, not just because of its openness - much like the Web was developed on top of the Internet open protocol without asking permission to anyone - but because of the openness of the SDOs developing them and their willingness to welcome them in pre-standardization mode.

¹ <http://www.w3.org/2001/11/StdLiaison>

2. SDO AND R&D SUPPORT

Since standardization and research happens at the same time, it's important that both communities can work together in harmony.

W3C has created various instruments to the effect of facilitating transfer of knowledge between R&D and Standardisation, which have been presented in the past and are summarized below:

- Community Group² or CG, which are open forum, without fees, where Web developers and other stakeholders such as researchers, can develop specifications, and connect with W3C's international community of Web experts. CG is a great way to do early standardization work in W3C for EU-funded project, independently of the official standard track dynamics, and without having to get the endorsement of the rest of the W3C membership and community, while using the W3C tools and pool of experts know-how.
- Multi-partner research membership³ which allows government-funded, time-limited, and unincorporated (such as an EU-funded Project) project to join W3C and be considered a regular W3C "Membership organization". This is specifically tailored to EC projects that wants to keep a tighter control on the work they submit to W3C as a potential new standard, by giving them a peer position in our standardisation community with the same rights to influence the future standards as the largest industrial players such as Google, IBM or Facebook.

W3C believes that early input from R&D projects contributes greatly to keeping the Open Web Platform relevant in the future. The threat of going back to a world of **proprietary** platforms, whether at the OS level (e.g. incompatible native apps on Android or iOS) or at the meta application levels (e.g. the walled garden of social networking environment) can be weakened substantially if we make sure the future killer application of ICT are built on top of the Open Web and that they operate best as such.

Cloud, IoT, Big Data, all fall in that category of R&D topics which requires a solid basis of open standards to deliver their full potential, but are not there yet in terms of organisation (who does what, with which IPR, process, etc).

But, as it happens, **W3C doesn't have a strong activity around Cloud** and the projects are mostly Cloud oriented, so the work focus of this workpackage had to shift from helping projects bring their pre-standard work at W3C, to help them navigate in the sea of SDOs involved in Cloud.

Based on our experience with W3C facilitating participation from R&D projects in standardization and pre-standardization work, the following characteristics seem to be important to evaluate when considering exploitation of Cloud R&D results in an SDO:

- their compliance to the OpenStand principles (see next section),

² <http://www.w3.org/community/>

³ <http://www.w3.org/participate/eu-research>

- the presence of instruments such as pre-standardization groups and R&D special participation mode,
- and for projects that involves Open Source development, the nature of their patent policy, i.e. whether it operates on a royalty-free basis or not.

3. OPENSTAND AND CLOUD STANDARDIZATION

The HTML5Apps project aims to **educate** the R&D community involved in the Software and Cloud areas - where the active SDOs are legions - on the importance of the Open Standardisation paradigm, as recently expressed in the OpenStand principles⁴

In summary, and as presented in the slideset W3C and Cloud Standardization (see Annex A), slide number 7, the OpenStand principles are about cooperation, openness (public access and review), and transparency.

These principles matter because they come from the SDOs that have given us much of the Internet and the Web as we know them today: IETF, IEEE and W3C. They are being promoted as such since 2012 and are particularly important in the context of the HTML5Apps project workpackage 3, whose mission is to coordinate standardization output from EU researchers, a population not always aware of the concepts behind the standards they use or extend.

OpenStand does not take position on a the type of patent policy (royalty-free, reasonable and non-discriminatory or other) SDOs should use; as such, this criteria is an additional one to watch for in the case of Open Source development for instance.

We also need to assist projects involved in pre-standardisation to use the sort of instruments described above, if only to make sure that the output of the projects can live beyond the lifetime of their funding.

In summary, for each SDO identified, the HTML5Apps project will collect several kind of metadata and inform the projects about its finding.

Through the results of the surveys done by the CloudWatch project, we already have an idea of the relevant SDOs and their technologies, like **OGF-OCCE**, **OASIS-TOSCA**, **SNIA-CDMI** and **DMTF-OVF**.

But the list is not complete, and as further input, we need to look at the study of the Cloud SDO landscape done by ETSI in their November 2013 report⁵, which lists many more organizations. In this document, we find SDOs not mentioned in the project surveys, like ETSI itself, but also ITU, ISO, IETF, etc. We met several times with ETSI representatives to talk about the Cloud standardization openness to that effect.

We continue to coordinate with the CloudWATCH project⁶, funded by the European Commission FP7 programme specifically to support the technical coordination between projects, work on common practices, and improve standardisation liaising in general. This project can act as a central point of coordination, since the information it gathers is useful to all the other projects, in particular ours, as an SDO, to understand which projects can be best positioned to start pre-standardisation in Web related items. More discussions with **Michel Drescher**, from EGI & CloudWATCH are on the way.

⁴ <http://open-stand.org/principles/>

⁵ http://www.etsi.org/images/files/Events/2013/2013_CSC_Delivery_WS/CSC-Final_report-013-CSC_Final_report_v1_0_PDF_format-.PDF

⁶ <http://www.cloudwatchhub.eu/>

Finally, even though W3C doesn't have a strong Cloud work program, we nevertheless presented our Cloud work at the Unit Concertation meeting⁷ on March 12-13 2014 in Bruxelles. The slideset is on their site and also provided below in Annex A. It was important to present our concepts for cooperation to several players, and the vision of W3C for Cloud computing and standardisation.

The MobiWebApp project had previously started to publish its findings on standards coordination on the Future Internet SDO listing⁸. The HTMLApps project is now in contact with Anja Köhler, in charge of the new European Future Internet Portal⁹, to bring our additional data to that portal.

⁷ <http://www.cloudwatchhub.eu/concertation-meeting-e2-software-services-cloud-computing-towards-interoperable-european-ecosystem>

⁸ http://fisa.future-internet.eu/index.php/FIA_Standardisation_Support

⁹ <http://future-internet.eu>

4. CONCLUSION

An important message that we conveyed at the Concertation gathering, before an assembly of technologists mostly involved in the Cloud interoperability, Cloud openness and federation, fair commercial competition, etc., is that **without a successful Open Web Platform** to write open Cloud applications on top of, there is a clear risk that the Cloud market stay under control of a few big and non-EU players, the same who will control the proprietary native application market, and the mobile OS market by the same venue.

In other words, it is a requirement that the Cloud standardisation efforts be open, and rest on open standards, but it's not sufficient: in practice, **it has to rest on open** Internet and Web layers, because if it rests on top of one or several proprietary application platforms, the cloud systems of the platform vendors will be used, as part of their proprietary stack, and not any open Cloud APIs.

Our objective in HTML5Apps to “**close the gap**” between Open Web apps and native one-platform-only apps, is therefore tightly aligned with the Cloud standardization objectives of being open and pervasive, and we want to encourage the Cloud projects to pay attention to the standards they are using, or improving, in addition to the Web platform.

ANNEX A

Two slide sets were presented by Daniel Dardailler at the Unit Concertation meeting in Bruxelles on March 12-13 2014.

The first one, an Overview of our project, can be found on the project Web site at <http://html5apps-project.eu/results/>

And this is the slide set on Cloud standardization referenced above.



W3C and Cloud Standardisation

w3.org
html5apps-project.eu

March 2014

Dr. Daniel Dardailier - W3C



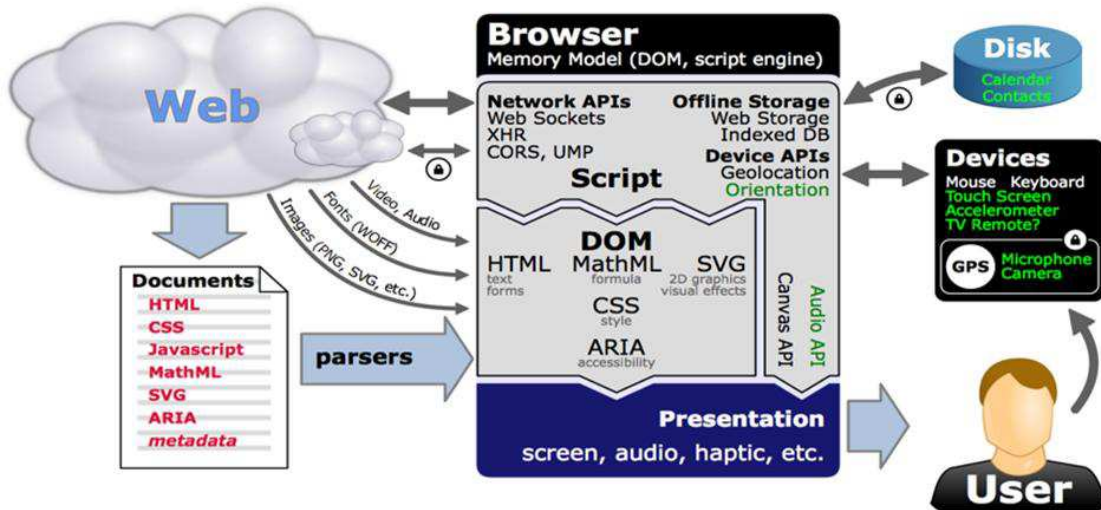
World Wide Web Consortium



- Universality
- Founded by Tim Berners-Lee in 1994
- W3C Standards: HTML, CSS, XML, WAI, RDF, ...
- About 80 staff, 4 hosts, 40% Europe



The Open Web Platform



The Open Web Platform





Web and Cloud

- Cloud as a specialized application of the Web
 - use URIs, HTTP, Linked Data, XML, Web Services, etc. *No need for new Web Standards*

- Web apps as generic consumer of Cloud services
 - MobileApps with limited storage, Data-intensive geomap apps, etc.
 - Some *pre-standardization* work started



Web and Cloud go together

- Open Web Platform impacts cloud requirements
 - *PaaS and SaaS live in the Web*
 - *Web is the entry points for consumers*
 - *Web is the Business platform for industry*
 - *Similar horizontal issues: Security, Privacy, Scalability, etc*

- Lessons from Web standardization
 - *Royalty-free standards and cohesive architectures are the keys to interoperability and a thriving ecosystem*
 - *The cloud can expand more rapidly than its current pace*



Built on open standards

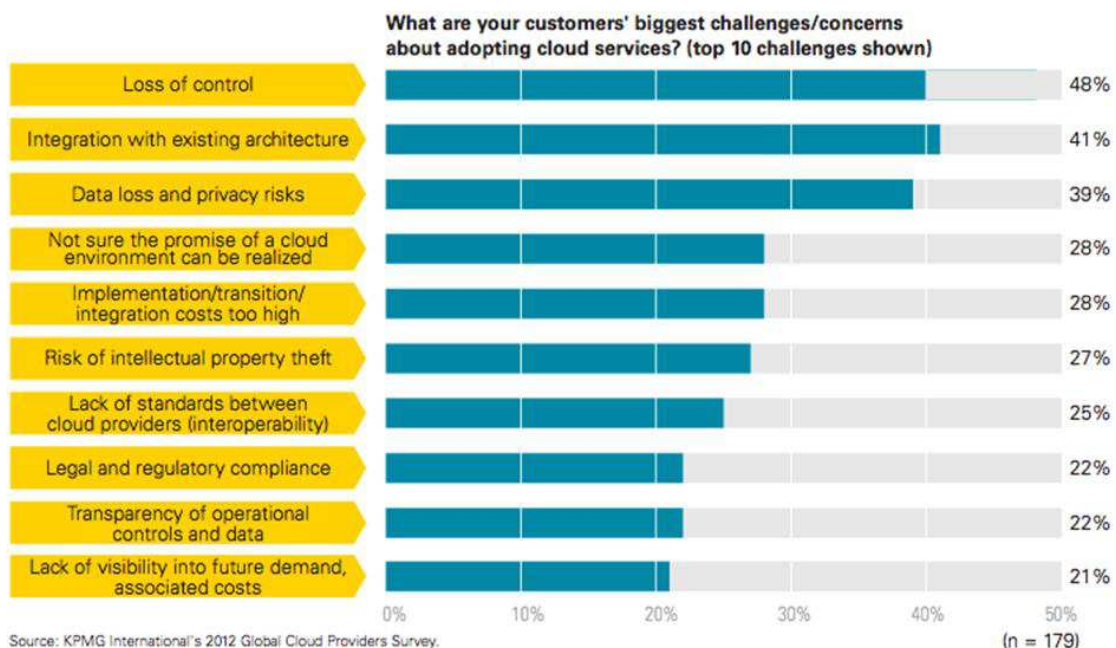
- ❑ Due process, cooperation, broad consensus, transparency
- ❑ Multi-stakeholder participation
 - ❑ *Address use cases and diversity*
 - ❑ *Need all players*
 - ❑ *Global participation*
- ❑ Longevity
 - ❑ *Ensure humanity's knowledge remains*
 - ❑ *Specifications are freely available*



open-stang.org

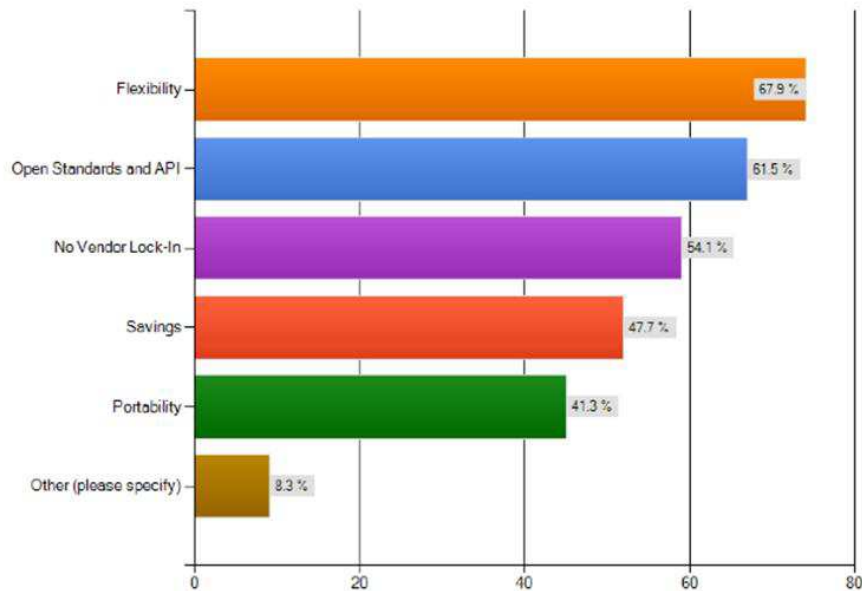


Slowing down factors





Driving factors for Open Source Clouds



In Summary

- We need urgently a set of

Royalty-Free Standards
For
Cohesive Cloud Architecture

ANNEX B

List of projects with potential pre-standardization actions in Web related topics. These are the active projects funded by the EC DG Connect Unit E.2 in call 5 8 and 10 or FP7. In bold are those relevant for the Open Web Platform, with details given after the table.

Project Name	Title
ARTIST	Advanced software-based seRvice provisioning and migraTion of legacy SofTware
BETAAS	Building the Environment for the Things as a Service
BIGFOOT	Big Data Analytics of Digital Footprints
Broker@Cloud	Enabling Continuous QA and Optimization in Future Enterprise Cloud Service Brokers
CELAR	Cloud ELAsticity pRovising
CLOUDSCALE	Scalability Management for Cloud Computing
CloudSpaces	Open Service Platform for the Next Generation of Personal clouds
COMPOSE	Collaborative Open Market to Place Objects at your Service
HARNESS	Hardware and Network-Enhanced Software Systems for Cloud Computing
LEADS	Large-Scale Elastic Architecture for Data-as-a-Service
MARKOS	The MARKet for Open Source, An Intelligent Virtual Open Source Marketplace.
MIDAS	Model and Inference Driven, Automated testing of Services architectures
MODAClouds	MOdel-Driven Approach for design and execution of applications on multiple Clouds
OCEAN	Open Cloud for Europe, Japan and beyond
OPENi	Open-Source, Web-Based, Framework for Integrating Applications with Cloud-based Services and Personal Cloudlets
OSSMETER	Automated Measurement and Analysis of Open Source Software
PaaSage	Model-based Cloud Platform Upperware
PROSE	Promoting Open Source in European Projects
PROWESS	Property-based testing of web services
RISCOSS	Managing Risk and Costs in Open Source Software Adoption
SUCRE	Supporting Cloud Research Exploitation
U-QASAR	Universal QA & Control Services for Internet Apps with Volatile Requirements and Contexts
ASCETIC	Adapting Service lifeCycle towards EfficienT Clouds
CACTOS	Context-Aware Cloud Topology Optimisation and Simulation
CloudWave	Agile Service Engineering for the Future Internet
ClouT	Cloud of Things for empowering the citizen clout in smart cities
ENVISAGE	Engineering Virtualized Services.
HEADS	Heterogeneous and Distributed Services for the Future Computing Continuum
MONDO	Scalable Modelling and Model Management on the Cloud
ORBIT	Business Continuity as a Service
PANACEA	Proactive Autonomic Management of Cloud Resources
S-CASE	Scaffolding Scalable Software Services
SeaClouds	Seamless adaptive multi-cloud management of service-based applications
SyncFree	Large-scale computation without synchronisation
SOCIETIES	Self Orchestrating Community ambiEnT IntelligEnce Spaces

ARTIST, BETASS, MODACloud, OPENi, PaaSage, S-CASE:

Projects concerned with new standard for Cloud application level API, or with the re-engineering of legacy applications to the Cloud platform, so they are of interest as a source of expertise for the design new HTML5 Webapps cloud API, to be put in touch with our Community Group on Cloud.

CloudSpaces:

Project concerned a user-centric approach with strong privacy, to be put in touch with our Security/Privacy activities.

COMPOSE:

Already involved with W3C for its new IoT / WebOfThings activity. Involved in the W3C Workshop on the Web of Things held in June 2014, in Berlin. See [the WOT Workshop page](#) for more information.

MONDO:

Relevance to Big Data and Semantic Web.

SOCIETIES:

This project is already involved in W3C, through its interest in XMPP, XEP (CG under preparation), the Context aware and personalisation work and a future Federated Social Web group.