Cloud standards: Ready for Prime Time
15:00 – Welcome and introduction

John Messina, NIST

15:25 – ISO/IEC JTC1/SC38 ...
Peter Deussen

15:45 – Q&A
### Needs

- Greater trust in cloud services
- More options for interoperability & portability
- Monitoring, management & transparency
- Integration, open APIs, open source
- Business cases and proof

### Output

- SME guides & tools to the cloud
  - Legal tips on data protection
  - Recommendations for security & privacy certifications
  - Use cases & best practices
- Testing cloud standards & interoperability
- Cloud standard profiles based on real user stories & analysis of 52 R&I initiatives
- Market facing portfolio of cloud services from EU R&I

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EU-funded FP7 project (CS action)
- September 2013 – August 2015
- Main activity hub: [http://cloudwatchhub.eu](http://cloudwatchhub.eu)
- Partners
  - Trust-IT, UOXF, EGI.eu, CSA, Fraunhofer FOKUS, DIGITALEUROPE

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CloudBytes // CloudWATCH webinar: Standards ready for prime time (part 2)
CloudWATCH technical activities

- Use case collection & cluster analysis
  - Elicit and collate Cloud use cases
  - Produce Cloud requirements document
  - Cluster results from polling for prime needed Cloud characteristics

- Common standards profiles
  - Ingest WP2’s Cloud requirements document
  - Match with Cluster results and suitable Cloud-related standards
  - Develop profile specifications for clusters

- Contributing to IEEE P2301
- Facilitate seed clustering in EC projects
- Guideline for profile development strategy
Summary of part 1

- **Specific standards (OCCI, CDMI)**
  - Define access interfaces
  - Define (some) domain information model
  - Different designs, different processes

- **Standards application and deployment**
  - Scientific domain: European Grid Infrastructure
  - Federation vs. syndication balance
  - Technical federation based on standards
IEEE P2301 – CLOUD PROFILES

Guide for Cloud Portability and Interoperability Profiles (CPIP)
IEEE P2301 – Cloud Profiles

Guide for Cloud Portability and Interoperability Profiles (CPIP)
Chair: John Messina

CPIP Project: Purpose:
To develop a guide which advises cloud computing ecosystem participants (cloud vendors, service providers, and users) of standards-based choices in areas such as application interfaces, portability interfaces, management interfaces, interoperability interfaces, file formats, and operation conventions. This guide groups these choices into multiple logical profiles, which are organized to address different cloud personalities.
IEEE P2301: Action Plan

- Develop a Set of Cloud Profiles (Roles/Functions)
- Identify a Set of Relevant Cloud Computing Standards
- Map the Intersection of Profiles and Standards
- Document Intersection as a Guidance Standard
IEEE P2301: Cloud Profiles

- Leveraged the ISO/IEC JTC1 SC38 17789 Document

- Top 3 Levels: Cloud Provider, Cloud Customer, Cloud Partner

- Each Top Level Role split into multiple sub roles based on functionality

Examples:

Cloud Service Provider:
- Inter-cloud provider/Manage Peer Cloud Services
- Cloud Service Deployment Manager/Define environment and process

Cloud Service Customer
- Cloud Service Administrator/Administer tenancies

Cloud Service Partner
- Cloud Service Broker/Acquire and Assess Customers
IEEE P2301: Cloud Standards

- Multiple organizations are tracking the work on existing Cloud Computing Standards

- Two Major activities include the ITU-T JCA and the NIST Standards Road-mapping Public Working Group

- Chose the NIST Standards Roadmap (NIST SP500 291) as the starting point for the standards
IEEE P2301: Intersection

- Created a sparse matrix showing the intersection of the Cloud Profiles and the Standards

- For each Profile a given standard is either listed as likely relevant, possibly relevant, or unlisted

- Currently soliciting input from experts using a Google Forms submission page:

  https://docs.google.com/forms/d/1qiIKMfmKdEi8PGzcVJyGg-x5Ci12YOMfe8BjMj15X6A/viewform?c=0&w=1
IEEE P2301: Examples

TOSCA Version 1.0

<table>
<thead>
<tr>
<th>Cloud Role/Function</th>
<th>Likely</th>
<th>Possible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloud Service Customer [Cloud Service User/Use cloud Service]</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Cloud Service Customer [Cloud Service Administrator/Perform Service Trial]</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Cloud Service Customer [Cloud Service Administrator/Monitor service]</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Cloud Service Partner [Cloud Service Developer/Test Services]</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
IEEE P2301: Long Term Plans

- Created Create a standard from the sparse matrix (guidance standard)

- Find way to make this a living document with periodic updates or semi automatic through the use of a database

- Currently discussing options with IEEE Audit Committee
ISO/IEC JTC 1/SC 38
Cloud Computing and Distributed Platforms

Fraunhofer FOKUS
ISO/IEC JTC 1/SC 38
„Cloud Computing and Distributed Platforms“

Scope: Standardization for interoperable distributed application platforms and services including:

- (Web Services)
- Service Oriented Architecture (SOA)
- Cloud Computing

Old WGs
- WG1: Web Services
- WG2: SOA
- WG3: Cloud Computing

New WGs
- WG2: SOA
- WG3: CC SLAs
- WG4: CC Interop/portability
- WG5: CC Data and ist flows
ISO/IEC JTC 1/SC 38
„Cloud Computing and Distributed Platforms“

◆ Established by Fall, 2009 JTC 1 Plenary (Distributed application services and platforms)
  ◆ Initially 11 National bodies, now 15+ NBs
◆ CC related finalized standards
◆ CC related work in progress
  ◆ Service level agreement (SLA) framework and Technology -- Part 1: Overview and concepts
  ◆ Service level agreement (SLA) framework and Technology -- Part 2: Metrics
  ◆ Service level agreement (SLA) framework and Technology -- Part 3: Core requirements
  ◆ Interoperability and Portability
  ◆ Data and their Flow across Devices and Cloud Services
◆ Other
  ◆ Standing Document 1 - Compendium of CC Usage Scenarios and Use Cases Functions
  ◆ Standing Document 2 - Methodology and Guidelines for CC Usage Scenario and Use Case Analysis
ISO/IEC JTC 1/SC 38
„Cloud Computing and Distributed Platforms“

Standing Documents on Use Cases

- Living documents, basis for SC 38 work on cloud computing
- Standing Document 1: Methodology
  - Use case concepts
  - Presentation templates (aligned with CC reference architecture)
  - Analysis methodology
- Standing Document 2: Compendium
  - More than 80 use cases

Avail. at:
http://isotc.iso.org/livelink/livelink?func=ll&objId=8919753&objAction=browse&viewType=1
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Standing Documents on Use Cases

- Used as input for
  - CloudWATCH project
    (EC funded coordination and support action)
  - ETSI Cloud Standards Coordination (CSC)
    - EC initiative to understand the current state of standardisation
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CC Concepts/Vocabulary and Reference Architecture

- Developed by a collaborative team
  - SC38 WG3 (Cloud Computing, at this time)
  - ITU-T SB 13
- Common text
- Finalized 2014
CC Concepts/Vocabulary and Reference Architecture Views

- Parties, roles, and activities
- Functional Components, layers, multi-layers
- Cross-cutting aspects

Out of scope

Figure 7-1 – Transformations between architectural views
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CC Concepts/Vocabulary and Reference Architecture

Relation between user and functional view

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CC Concepts/Vocabulary and Reference Architecture

User view: Roles and Activities

Roles and sub-roles

Cloud service partner (CSN)
- Cloud service developer
- Cloud auditor
- Cloud service broker

Cloud service customer (CSC)
- CSC: cloud service user
- CSC: cloud service administrator
- CSC: cloud service business manager
- CSC: cloud service integrator

Cloud service provider (CSP)
- CSP: cloud service operations manager
- CSP: cloud service deployment manager
- CSP: cloud service manager
- CSP: cloud service business manager
- CSP: customer support and care representative
- CSP: inter-cloud provider
- CSP: cloud service security and risk manager
- CSP: network provider

Activities
- Provide services
- Deploy and provision services
- Perform service level management

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CC Concepts/Vocabulary and Reference Architecture

Functional view: components, layers, multi-layers
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New Projects

Service Level Agreements
- Concepts
- Metrics
- Core requirements
- Security (SC 27 liaison)

Interoperability and Portability
- Concepts and definition
- Types of Interop/Portability
- Use cases

Data and their flows
- Classification of data types relevant to CC
- Operations on data
- Interleaving of data usage due to BYOD, IoT
Questions & Answers
THANK YOU!

See other CloudWATCH webinars and presentations:
www.CloudWATCHhub.eu/webinars

www.CloudWATCHhub.eu