

Open Cloud Computing Interface

An Overview

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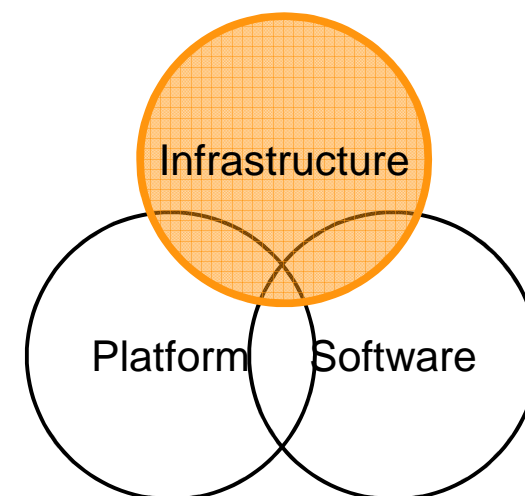
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Sun Microsystems – RESERVOIR project

SNIA Mini summit , July 22nd, 2009

Motivation

- The current lack of a standard for IaaS based Clouds lead to the creation of the group
 - OCCI was founded as Cloud API BoF during OGF 25 in March 2009 by Ignacio Llorente and Thijs Metsch
 - Renamed to Open Cloud Computing Interface working group and started work in April 2009
- The creation is driven based on the background of:
 - **Interoperability** – ability to let different system interoperate (HybridCloud)
 - **Portability** – ability to move services and port them as easy as possible
 - **Integration** – wire up cloud computing with the legacy resources



Contributors & Implementors



- Four different chairs to represent the whole cloud community
 - **Academia** – Andy Edmonds (SLA@SOI - Intel)
 - **Industry** – Thijs Metsch (RESERVOIR - Sun Microsystems)
 - **End-Users** – Sam Johnston (Australian Online Solutions)
 - **Service Providers** – Alexis Richardson (RabbitMQ & CohesiveFT)
- Over 170 members on the mailinglist – ~ 30 contributing actively
- 4 Providers and 2 projects are going to implement the OCCI standard
- Interest in the group has been huge
 - Used to setup use cases and requirements according to the needs of the Cloud community
 - Interactive development of the API on the Wiki

Open Process = Open Standard

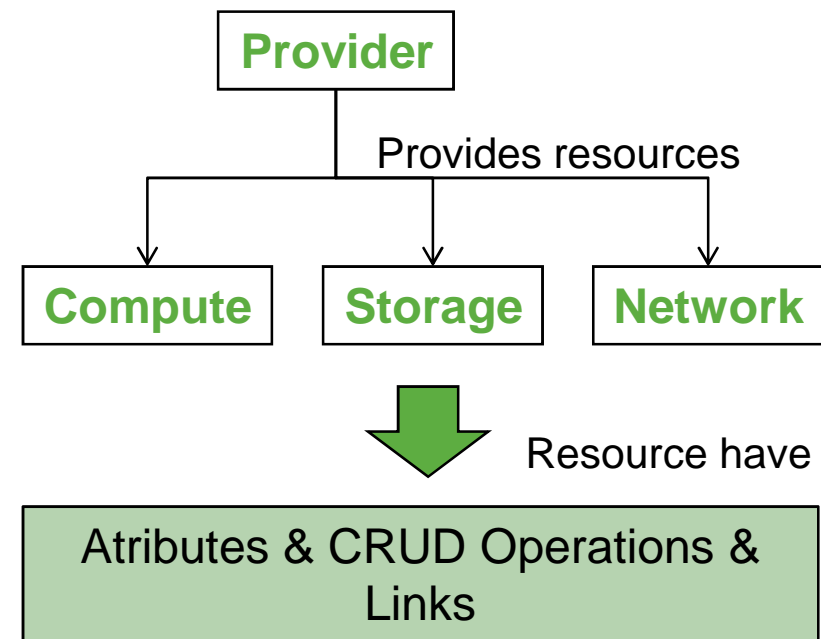
- The Open Grid Forum has an established open process where anybody can join and collaborate
 - Many people and companies joined and are so able to be part of the game
- Very aggressive timeline to be one of the first APIs in the field Clouds
 - OGF 25 – BoF session and creation of the group (100 Attendees)
 - OGF 26 – First presentations at a OGF meeting in Chapel Hill
 - OGF 27 – Presentation of the first API which will be ready to implement
 - OGF 28 – Start working on extensions to the API
- Feel free to join the discussion at:

<http://www.occi-wg.org>

The OCCI Cloud API

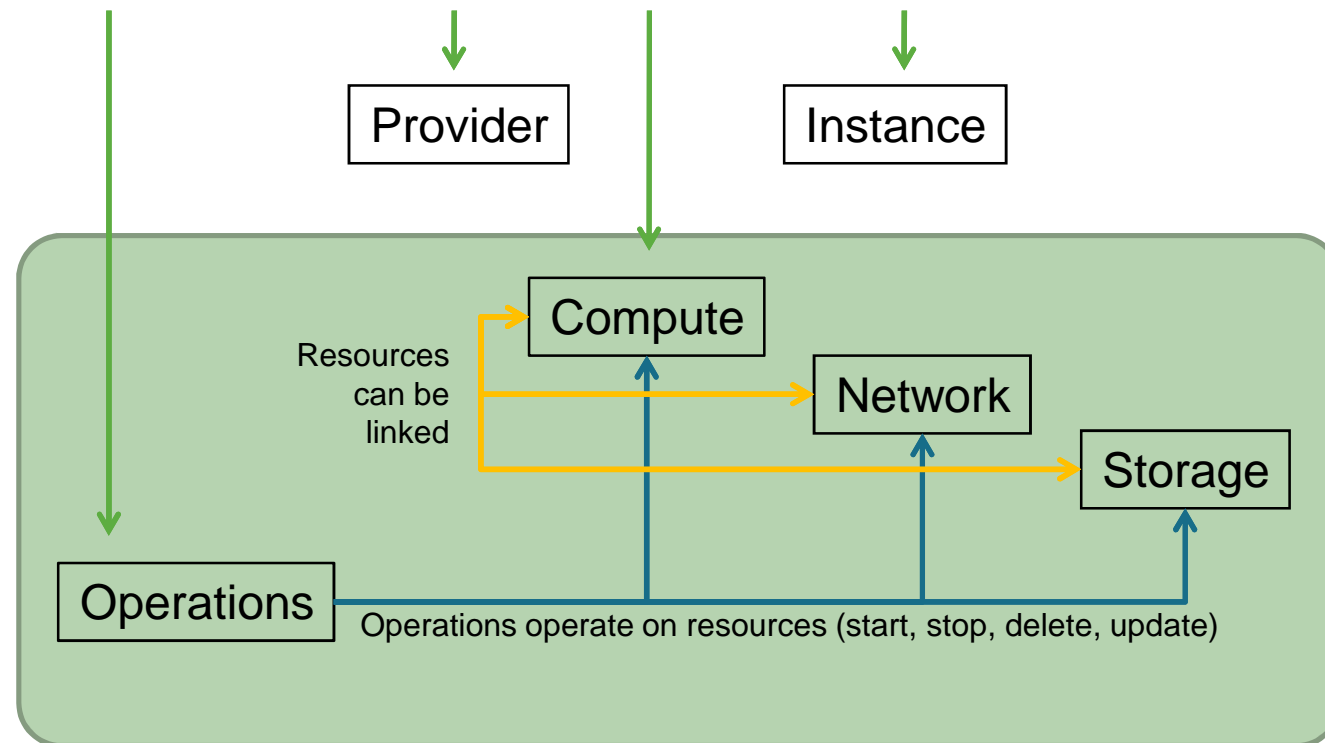


- Focused on the Infrastructure as a Service based Clouds
 - Small overlap with Software and Platform as a Service based Clouds
- Goal was the creation of a simple and **RESTful** API
 - Simple means ~15 commands → **slim**
 - Very **extensible**!
- Based on the requirements and ideas of existing APIs
- Still work in progress but many hurdles have already been taken



A RESTful view of the API

operation: `GET http://abc.com/compute/uid123foobar/`



Covered by OCCl

Another view of the API



- Each resource is identified by its **URL**
 - e.g. **`http://abc.com/compute/uid123foobar`**
- Create, Retrieve, Update and Delete (**CRUD**)
 - **POST** – Posting to a resource will lead to creation of a resource
 - **GET** – Getting will return information
 - **PUT** – Putting information to a resource will lead to updating/creating resource
 - **DELETE** – Will result in the deletion of a resource
- Attributes are assigned to resources e.g. compute resources:
 - **`compute.cpu.arch`**
 - **`compute.cpu.cores`**
 - **`compute.cpu.speed`**

Other features of OCCI



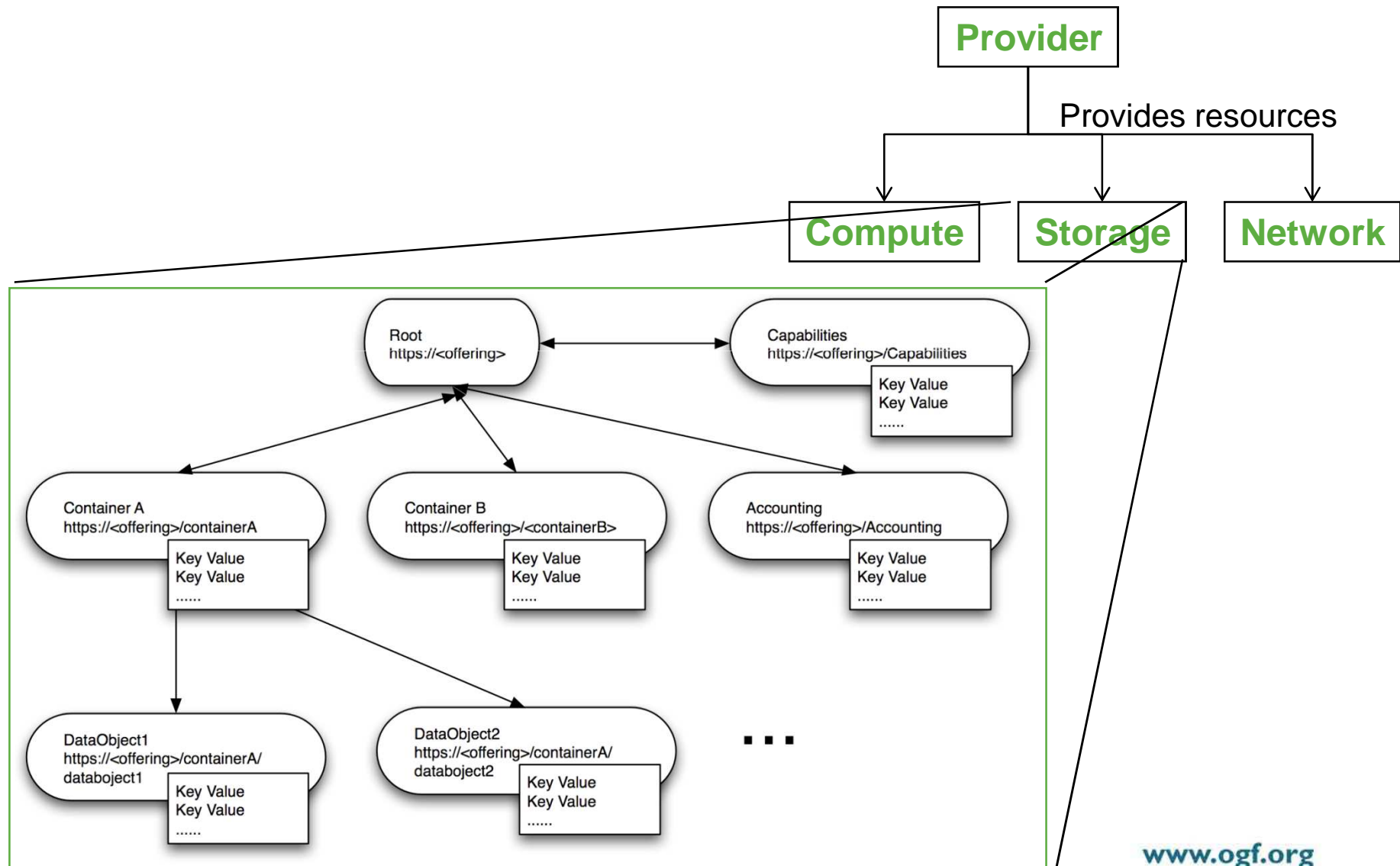
- Requests are used to trigger state transitions
 - Used for e.g. Backups, snapshots, migration,...
 - **POST /compute/uid123foobar/requests HTTP/1.1**
- Extensions
 - **Caching** – performance improving
 - **Links** – Linking to resources
 - **Status** – For monitoring of resource states
 - ...
- Rendering formats
 - Support of AtomPub, TXT, JSON renderings

OCCI & Storage



- Currently the OCCI specification states the following about storage
 - A storage resource is capable of mass storage of data (e.g. a virtual hard drive).
 - **storage.reliability** which can be *transient*, *persistent*, *reliable*
 - **storage.size** an Integer (10^9 bytes) Drive size in gigabytes
- Collaboration between OCCI and SNIA Cloud TWG needed!

OCCI & Storage (2)



Conclusions & Future work



- Currently the group is working on
 - **Requirements & Use cases** – prioritize and finalizing the document on requirements
 - **API design** – creation of the draft API description which can be implemented
 - **Members and Implementers recruitment** – Gather all the members and implementers of OCCI
- Also OCCI is involved and engaging in collaboration efforts
 - OGF has a work register describing the collaboration with DMTF – And therefore also the Cloud Incubator
 - The OCCI working group will have joint meeting with the SNIA Cloud technical working group (Storage)
 - OCCI is aware and contributing to the SCRM group which tries to coordinate all Cloud standards efforts

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