

# Open Cloud Computing Interface

## An Overview

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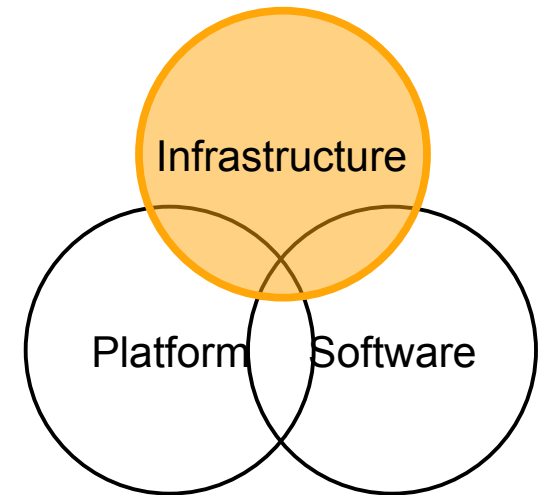
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Sun Microsystems – RESERVOIR project

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

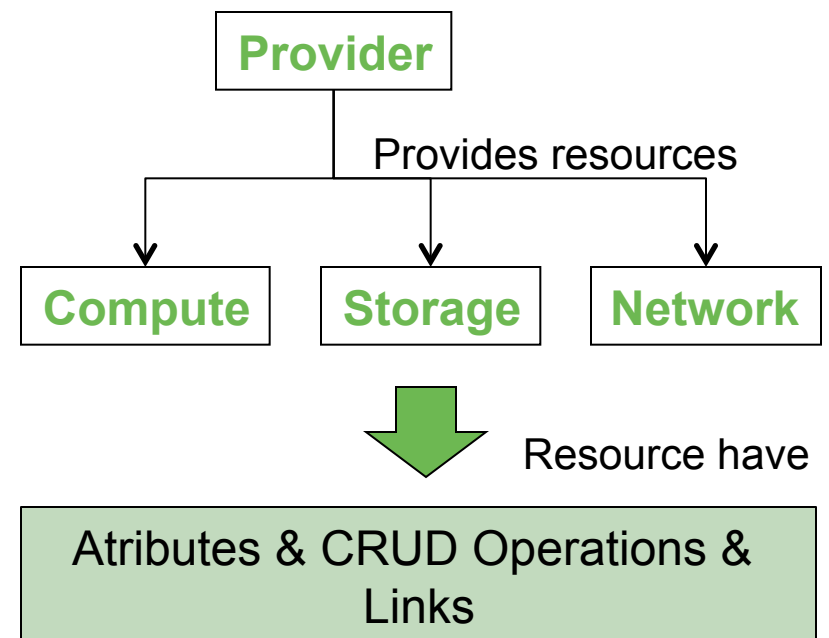
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- The Open Grid Forum has an established open process where anybody can join and collaborate
  - Many people and companies joined and are so able to be part of the game
- Very aggressive timeline to be one of the first APIs in the field Clouds
  - 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>

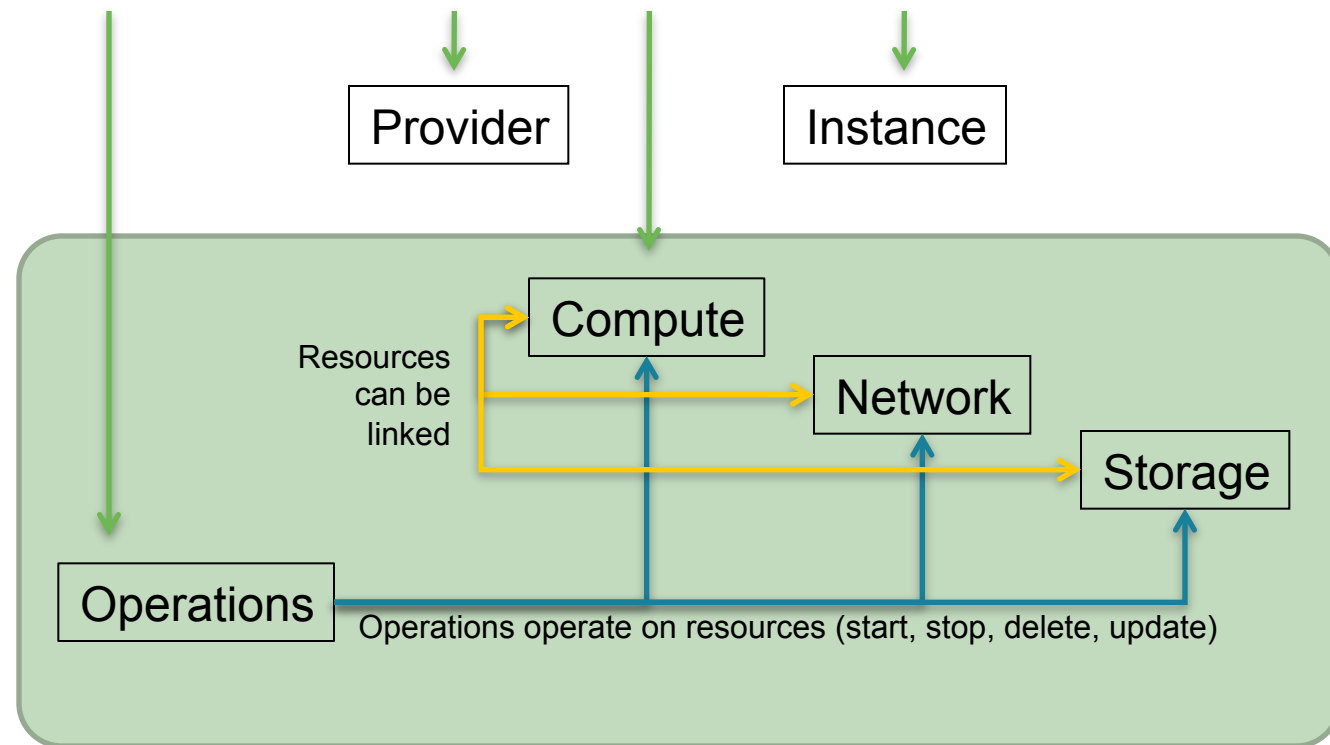
# The OCCI Cloud API

- 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

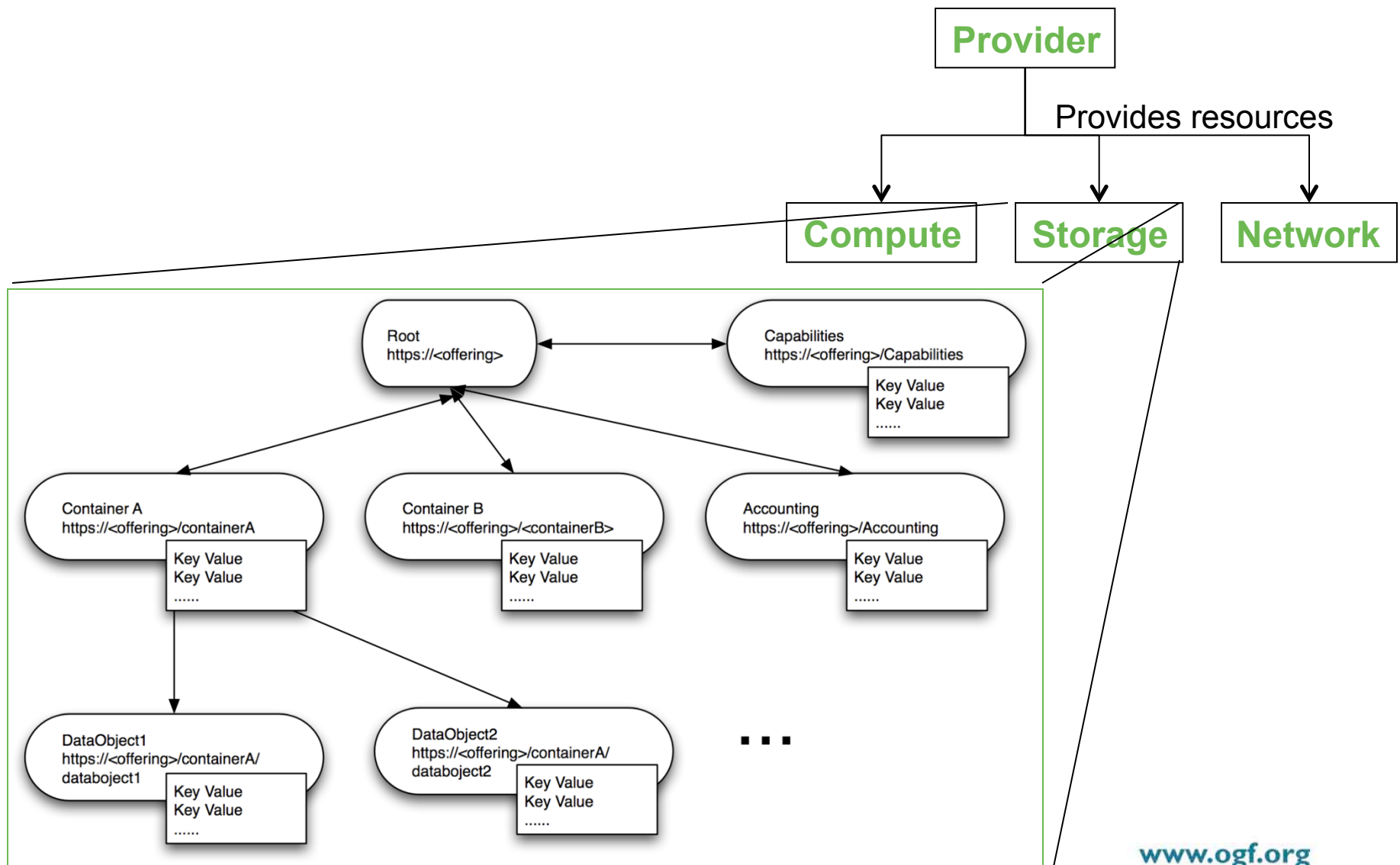
- Requests are used to trigger state transitions
  - Used for e.g. Backups, snapshots, migration,...
  - `POST /compute/uid123foobar/requests HTTP/1.1`
- Extensions
  - **Caching** – performance improving
  - **Links** – Linking to resources
  - **Status** – For monitoring of resource states
  - ...
- 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 OCCl
- Also OCCl is involved and engaging in collaboration efforts
  - OGF has a work register describing the collaboration with DMTF – And therefore also the Cloud Incubator
  - The OCCl working group will have joint meeting with the SNIA Cloud technical working group (Storage)
  - OCCl is aware and contributing to the SCRM group which tries to coordinate all Cloud standards efforts

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