

OCCI & Interoperability

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Hello!



- OCCI Co-chair
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 - Zurich University of Applied Sciences
- [@dizz](#)

TL;DR



*Does enable interoperability.
True open specification.
Is the second API...*

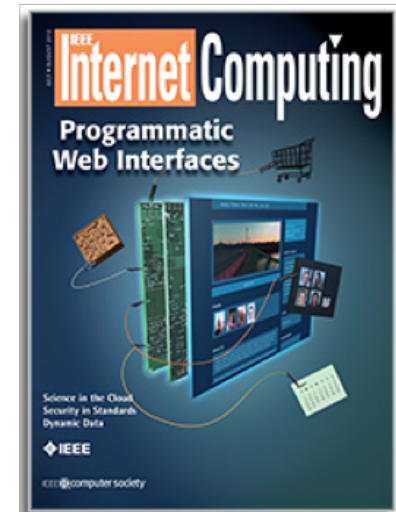
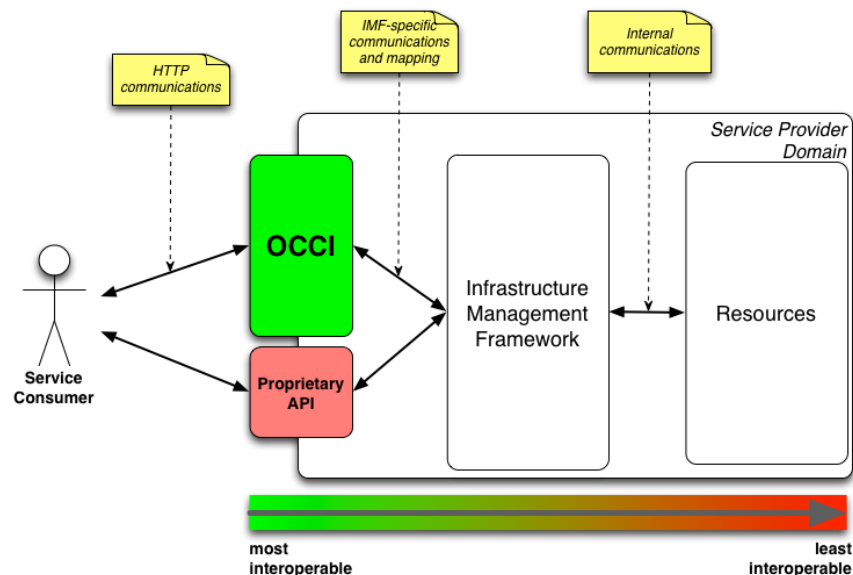
API of interop insurance

www.occ-wg.org

What is OCCI?



"Protocol and API for Management Of Cloud Service Resources."



bit.ly/ieee-occi

"It's just a CGI-script, init?"

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OCCI in Action

Python

```
comp = client.create_vm(token, [  
    'tiny; scheme="http://schemas.openstack.org/template/resource#"',  
    'cirros; scheme="http://schemas.openstack.org/template/os#"]])
```

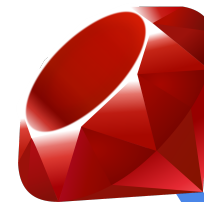
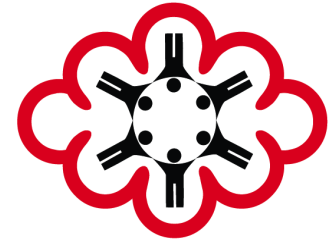
Ruby

```
cmpt = client.get_resource "compute"  
cmpt.mixins << client.find_mixin 'cirros', 'os_tpl'  
           << client.find_mixin 'tiny', 'resource_tpl'  
client.create cmpt
```

On-the-wire

```
> POST /compute/ HTTP/1.1#  
> User-Agent: occi-client/1.1 (linux) libcurl/7.19.4 OCCI/1.1  
> Host: localhost:8888  
> Accept: text/plain  
> Content-type: text/plain  
>  
> Category: compute; scheme="http://schemas.ogf.org/occi/infrastructure#"  
> Category: cirros; scheme="http://example.com/templates/os#"  
> Category: tiny; scheme="http://example.com/templates/compute#"
```

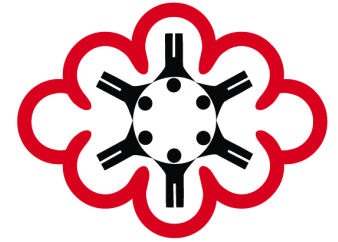
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http

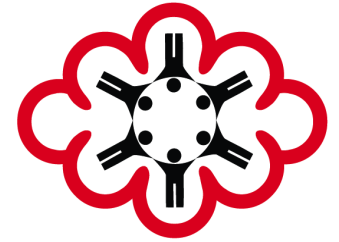
Does it matter?

- **Compliments** does not Compete
- Works with other specifications
 - e.g. CDMI, OVF
- Participates in Cloud Plugfests
 - Join the Madrid interoperability event: cloudplugfest.org

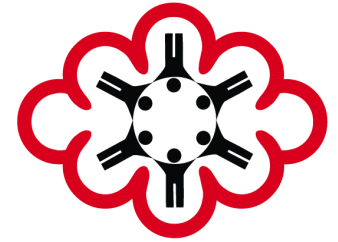


Does it matter?

1. Has **implementations**
2. Is an **open** specification
3. It poses **questions...**



1. OCCI

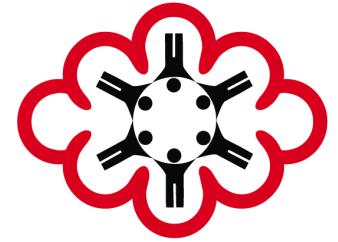


Implementations



Recommendations

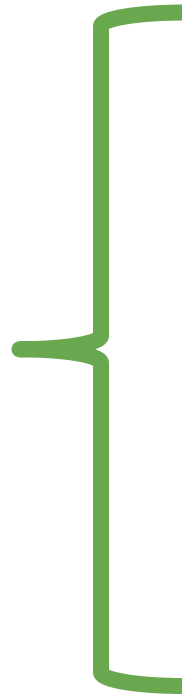




2. An Open What?

Open Standard elements:

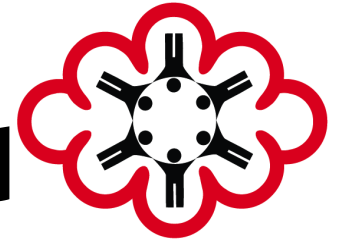
- Organisation
- Specification
- Implementation
- Adoption



- OCI
- Ken Krechmer
- OpenStand

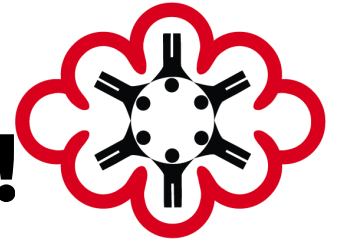


2. IaaS Specification Scorecard

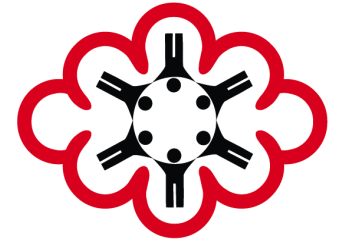


	EC2	OCCI	CIMI/OVF	OpenStack	CDMI
Open Meeting	No	Yes	No	Yes	No
Consensus	No	Yes	Yes	Yes	Yes
Due Process	No	Yes	Yes	Yes	Yes
Open IPR	No	Yes	Yes	Yes	Yes
One World	Yes	Yes	Yes	Yes	Yes
Open Change	No	Yes	Yes	Yes	Yes
Open Documents	Yes	Yes	Yes	Yes	Yes
Open Interface	Yes	Yes	Yes	Yes	Yes
Open Access	Yes	Yes	Yes	Yes	Yes
Ongoing support	Yes	Yes	Yes	Yes	Yes
Open Formats	Yes	Yes	Yes	Yes	Yes
Implementations	> 2	> 2	2	1*	>2

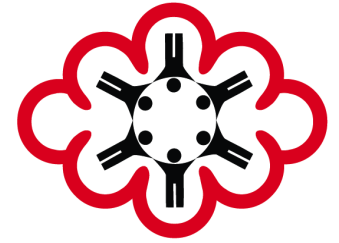
2. You Can Influence/Innovate!



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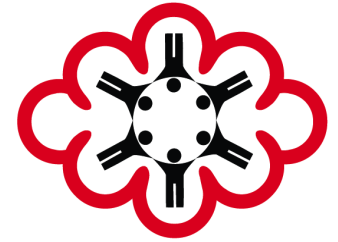


3a. Do SDO Specs Matter?



Yes and No

SDO specs are essential but know where they come!



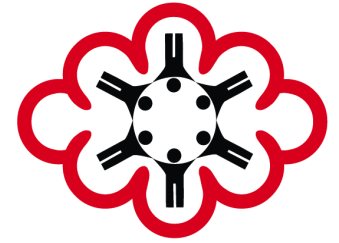
Where?

No

- Standards are not needed for many activities related to:
 - Start-ups
 - Prototyping

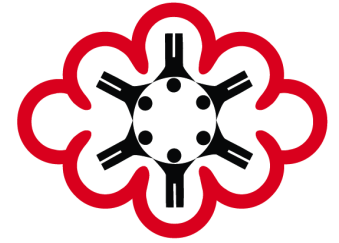
Yes

- Interoperability
 - Look at EGI FedCloud, CompatibleOne
- Compliance, Large IT organisations, Government



3b. Continue Ghettoisation of "Clouds"?

Ghettoisation?

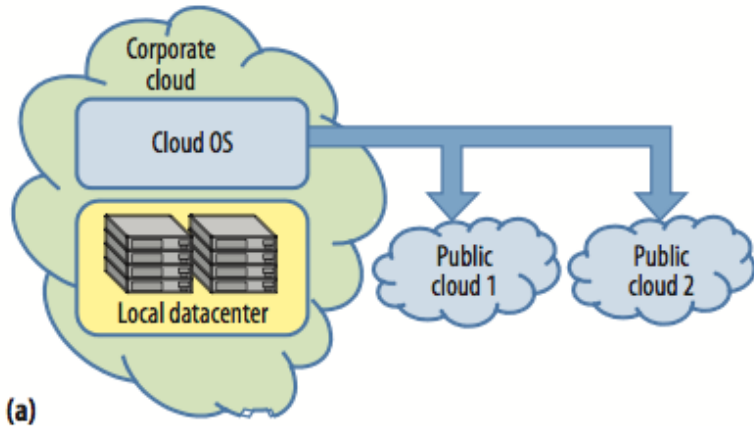


- Leverage lots of resources collectively?
- **A Commons?**
 - How to avoid "tragedy of the commons"?
- How best to **federate**?
- How to **interoperate**?
- How to **integrate** services?

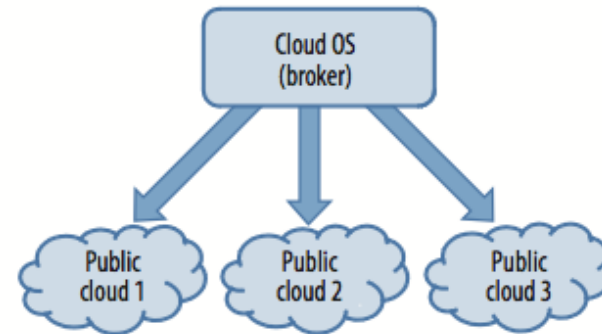
How can we create a Multi-Cloud?

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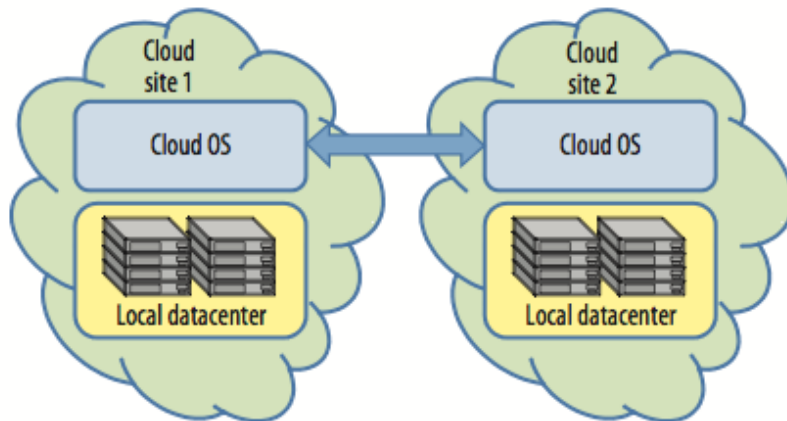
Q: Federate?



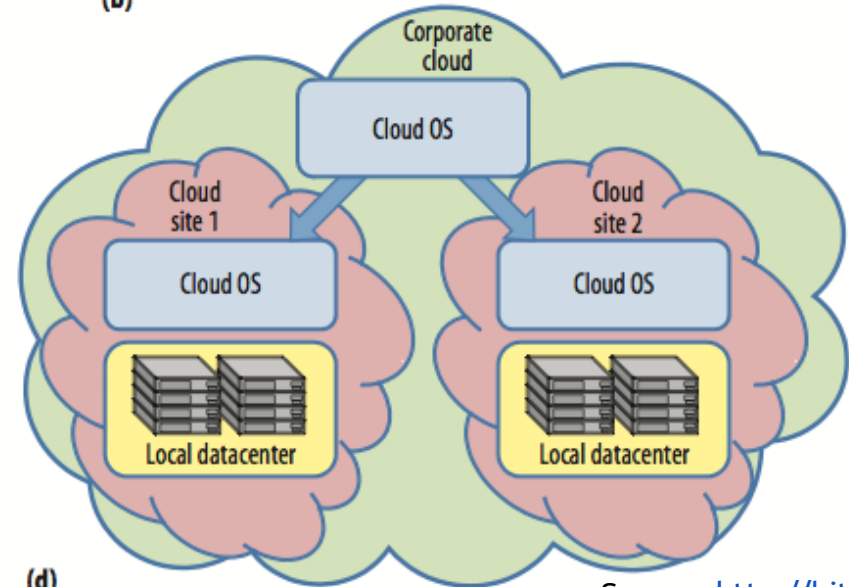
(a)



(b)



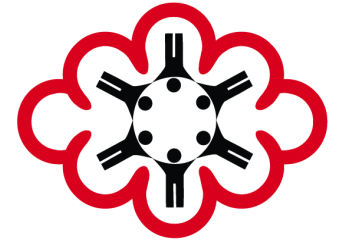
(c)



(d)

Source: <http://bit.ly/c-fed>

Q: Interoperable, Really?!!



OpenStack?

Amazon EC2?

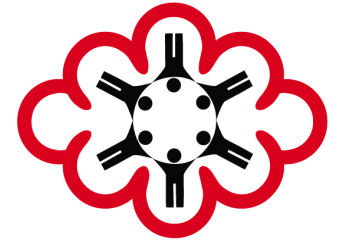
OpenNebula? etc....

Who's interoperable? **No one is!**

*Even **OpenStack's** are not*...*

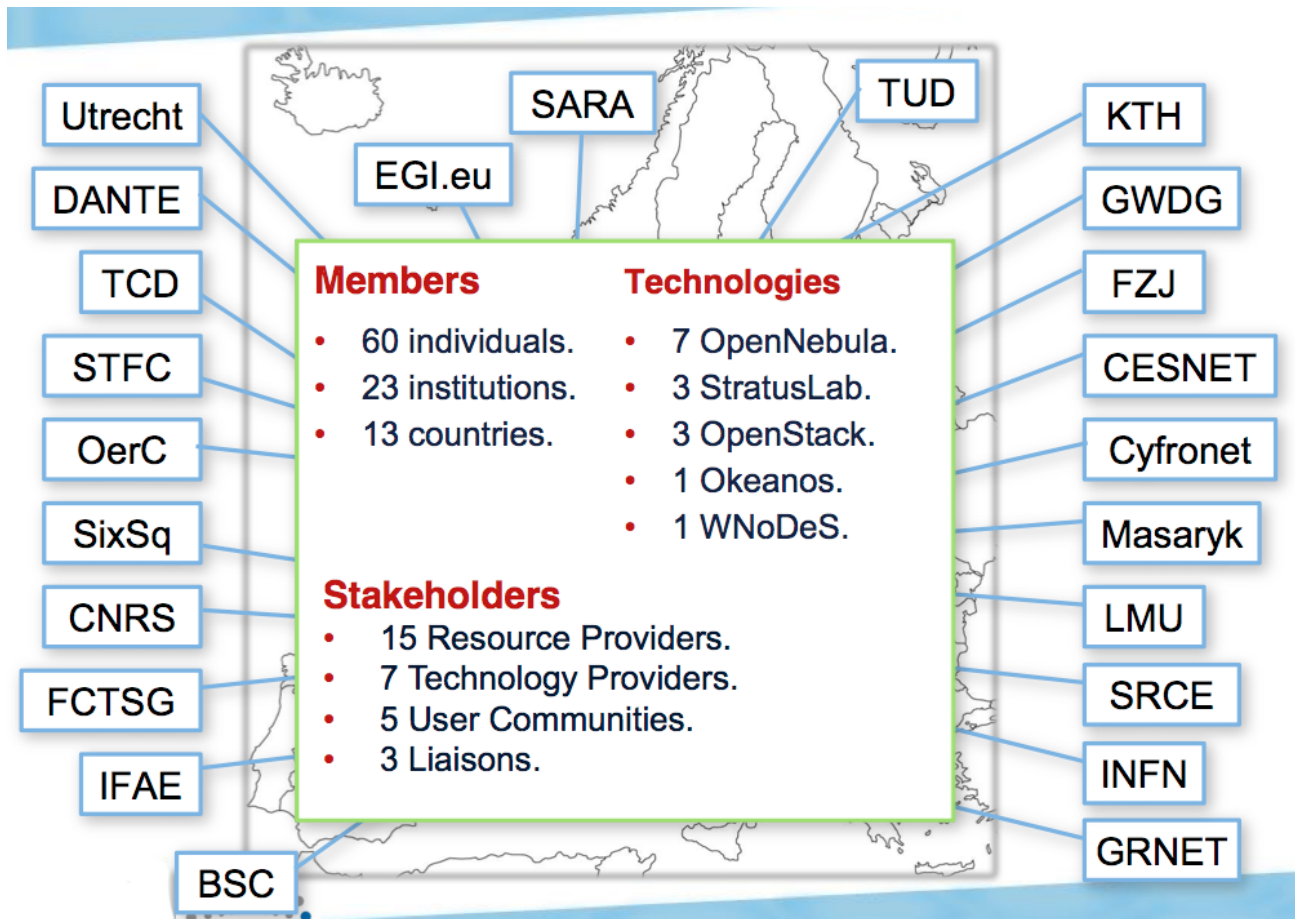


memegenerator.net



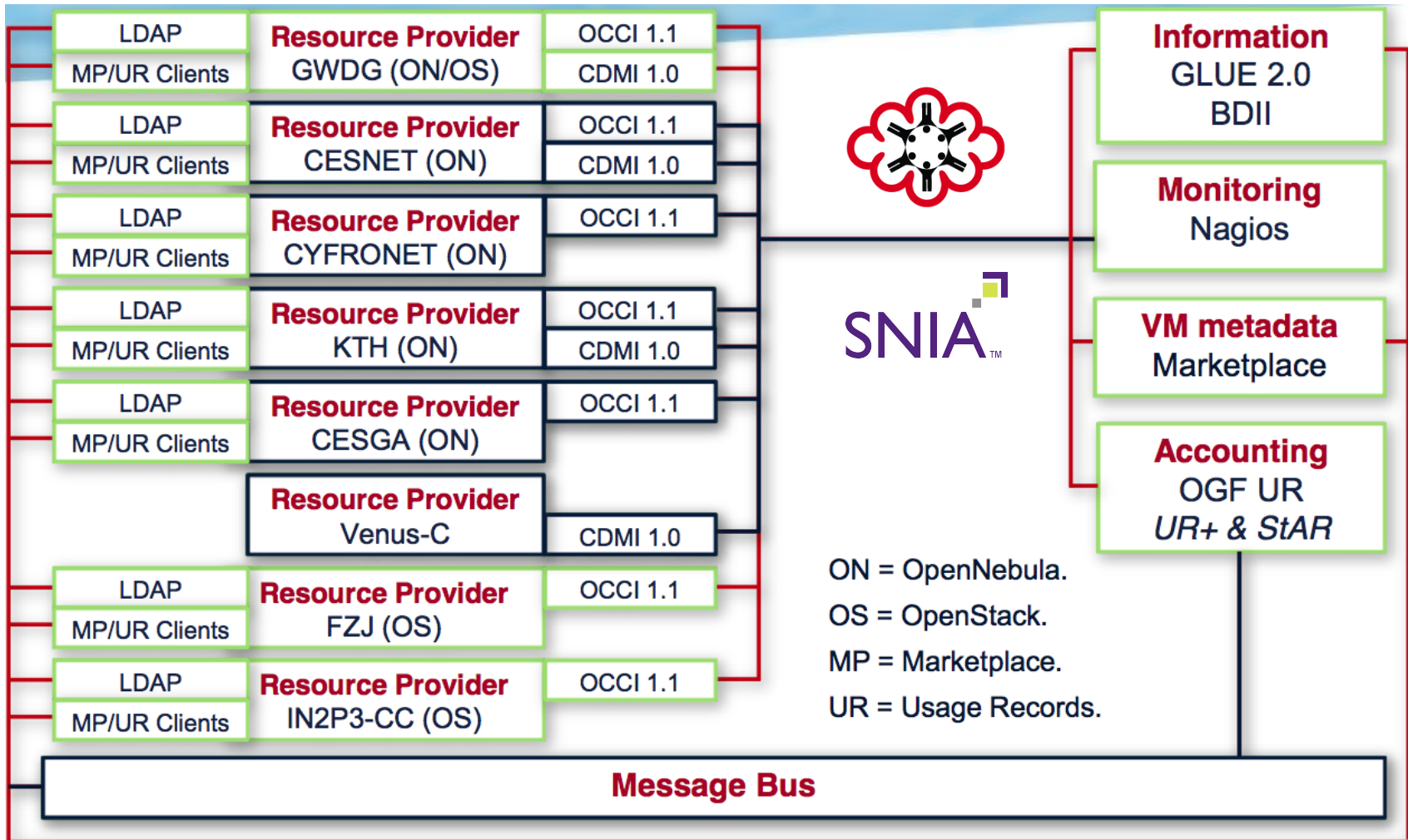
Some Possible Answers...

A Problem?



Fed & Interop Challenge!

A Solution: EGI FedCloud



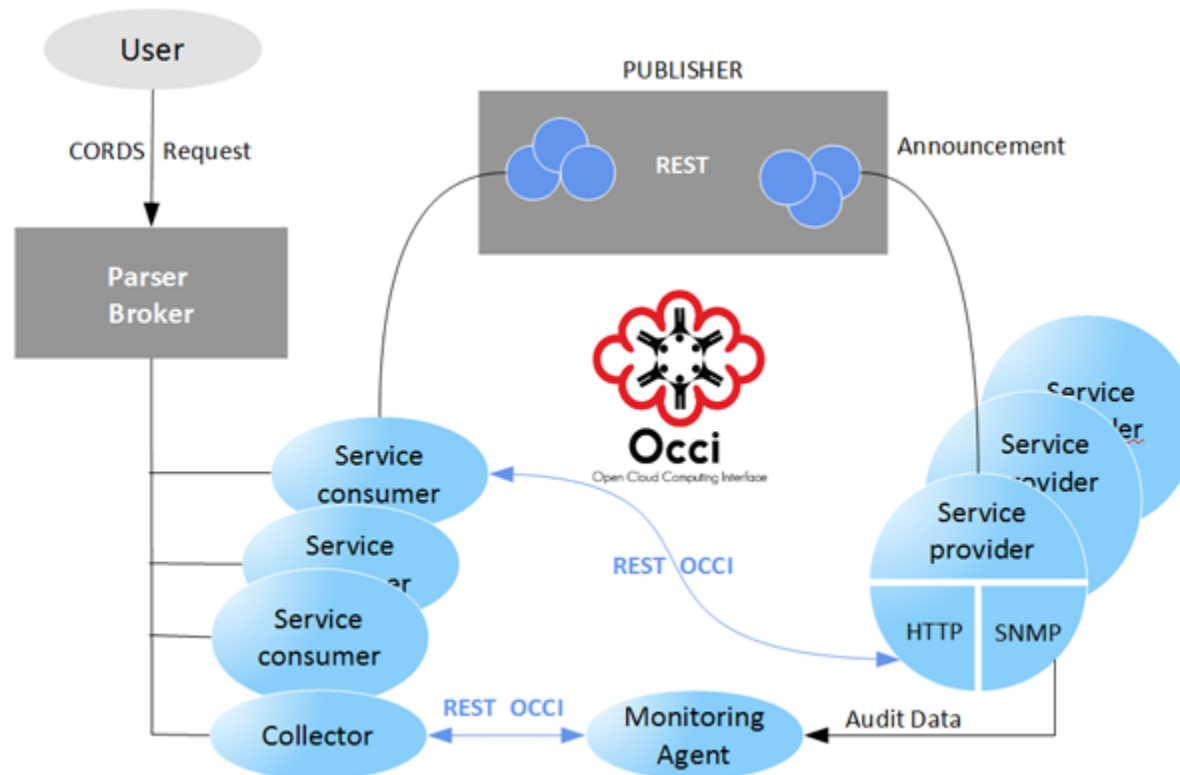
Federation, Integration & Interop in Action!



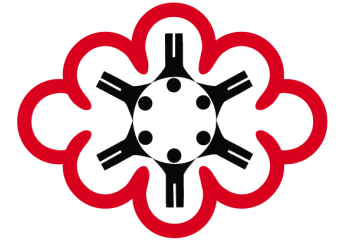
compatibleone

A Solution: CompatibleOne

This is an interop scenario for IaaS and PaaS with some Monitoring and SLA 'sauce'.



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The Future...

- Monitoring
- Billing
- Contextualisation
- Inter-domain Networking



*"Enabling End-to-End
cross domain cloudified
telco services"*

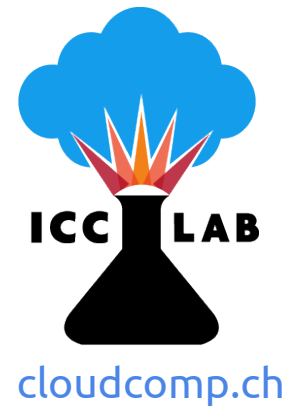
mobile-cloud-networking.eu



*Does enable interoperability.
True open specification.
Is the second API...*

API of interop insurance

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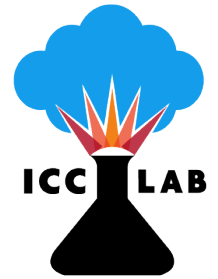
Thanks!
Questions?

www.occi-wg.org

Samir Khadem: www.flickr.com/photos/zibbah

Backups

Open Standards



Defined by:

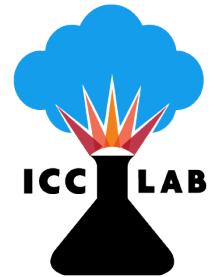
- Ken Krechmer, Colorado University - **KK**
 - Paper: "Open Standards: a Call for Action"

- Open Cloud Initiative - **OCI**



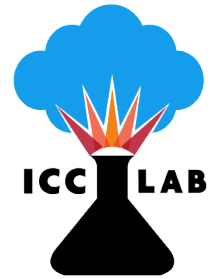
- OpenStand - **OS**





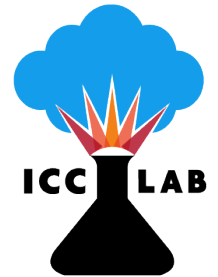
Open Standards

- Open Meeting (KK, OS)
 - All can join in without barrier, **no "pay-to-play"**
- Consensus (KK, OS)
 - **All views** considered
- Due Process (KK, OS)
 - Provide **time** for objections/updates, process in place to oversee document creation/updates



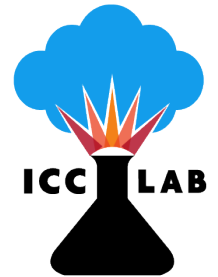
Open Standards

- Open IPR (KK, OCI)
 - Copyright, Trademarks, Patents
 - IPR must **not** be used as an offensive strategy
- One World (KK)
 - **Not** specific to a geographic region
- Open Change (KK, OS)
 - process, modifications are **documented**



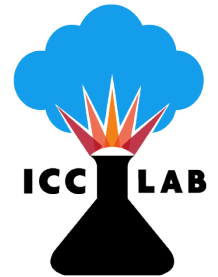
Open Standards

- Open Documents (**KK**, **OS**)
 - All documents easily and publicly **accessible**
- Open Interface (**KK**, **OCI**)
 - IPR **unencumbered** interface, supports backward compatibility
- Open Access (**KK**, **OCI**)
 - Publicly accessible, **minimal barriers** to access



Open Standards

- Ongoing Support (**KK**)
 - remain open to **adjustments** from implementers
- Open Formats (**OCI**)
 - Data and meta data must be represented in Open Standards formats



BUT!

- A "*standard*" in these terms is **only** a *specification*
- To be a "standard" it requires **adoption**
 - The beginning of adoption comes with reference implementations (**OCI**)
- An open standard requires **implementations**
 - IETF "running code"
 - Multiple - one is **not** enough
 - At least one under Open Source License (**OCI**)