

# IEEE P2302

Standard for Intercloud Interoperability and  
Federation (SIIF)

Project Introduction and Status

**David Bernstein**  
**IEEE P2302 Working Group Chair**

**September, 2011**

# The Déjà Vu driving the project



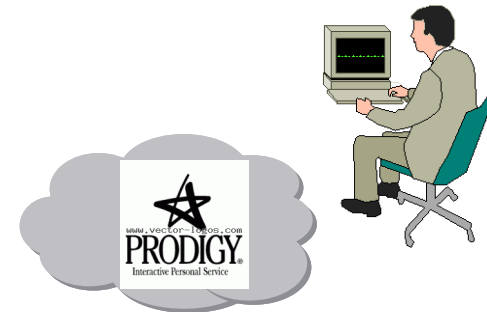
**"I'm seeing a possibility of inter-cloud problems mirroring the Internet problems we had thirty or forty years ago,"**, Vint Cerf, Vice President and Chief Internet Evangelist for Google

# Back Then ..

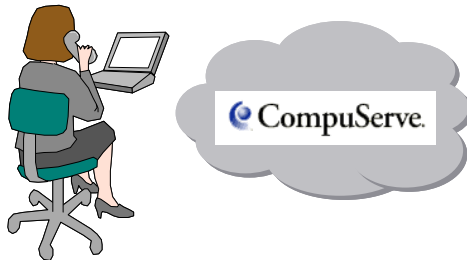
**Proprietary  
Email Client**



**Proprietary  
Email Client**

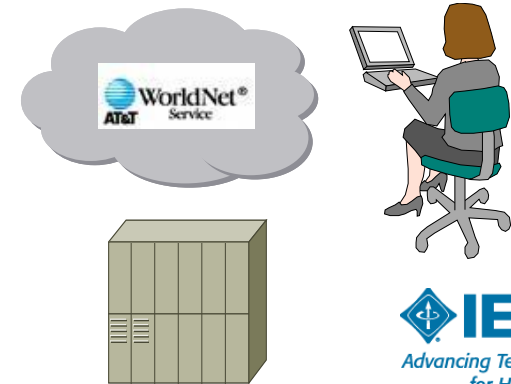


**Proprietary  
Email Client**

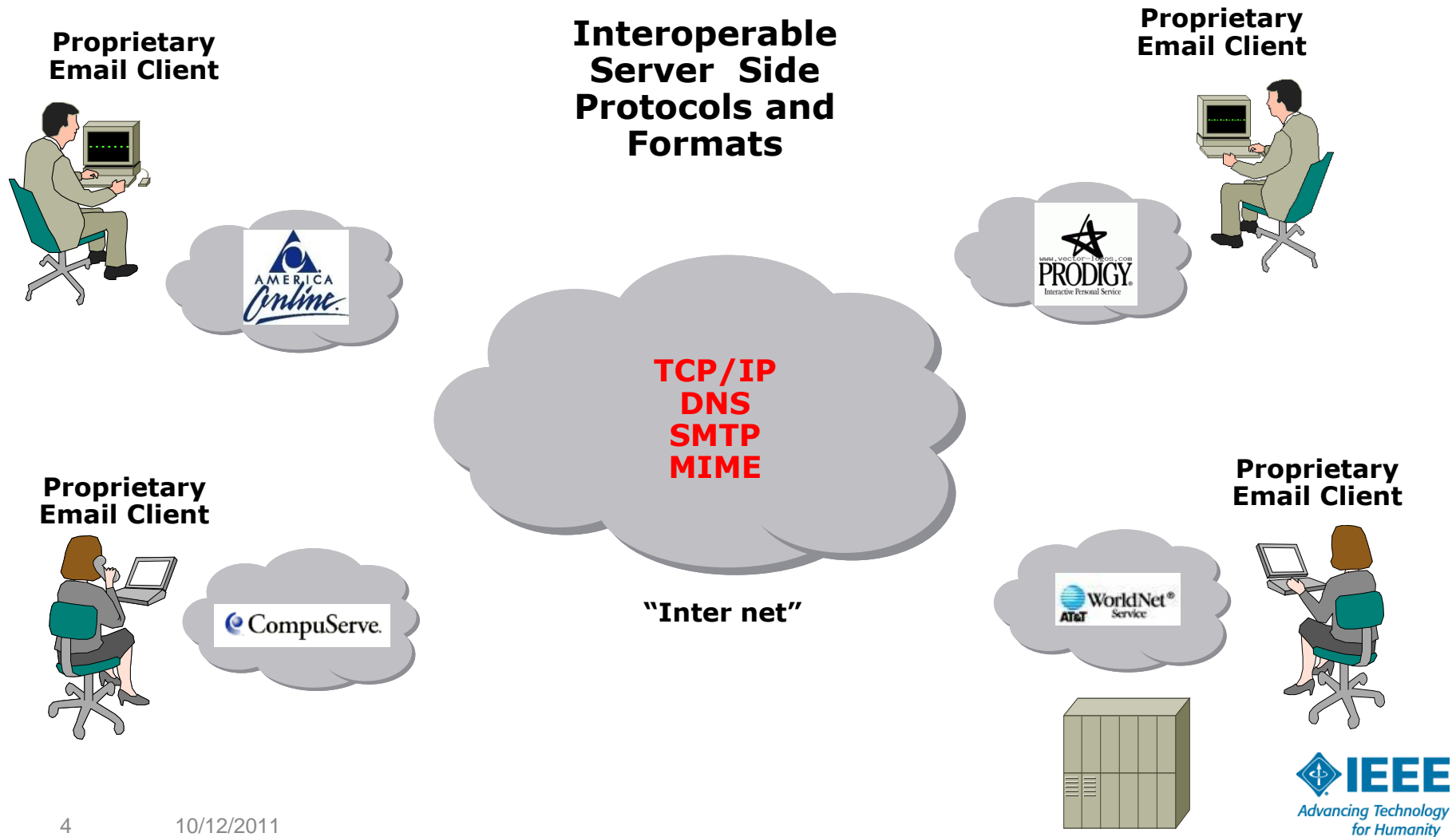


**No "Inter-  
net"**

**Proprietary  
Email Client**

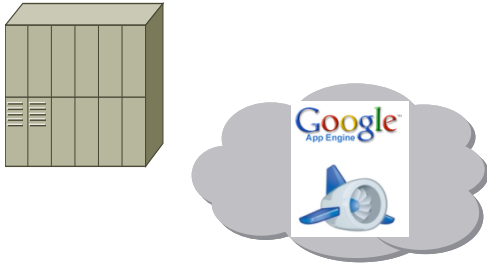


# Enter Interoperability

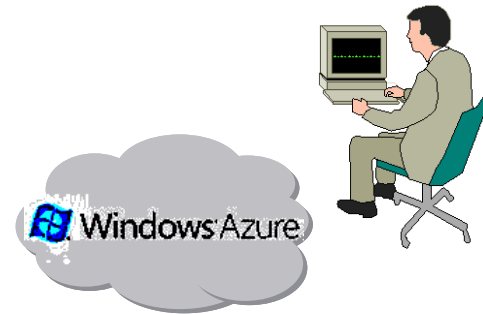


# Déjà Vu ..

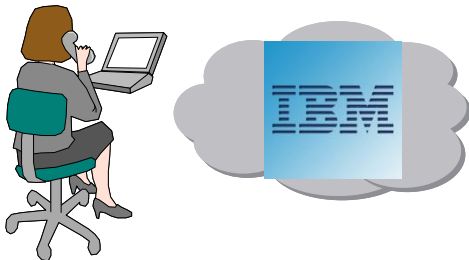
**Proprietary  
Computing,  
Storage Client**



**Proprietary  
Computing,  
Storage Client**



**No "Inter-  
cloud"**

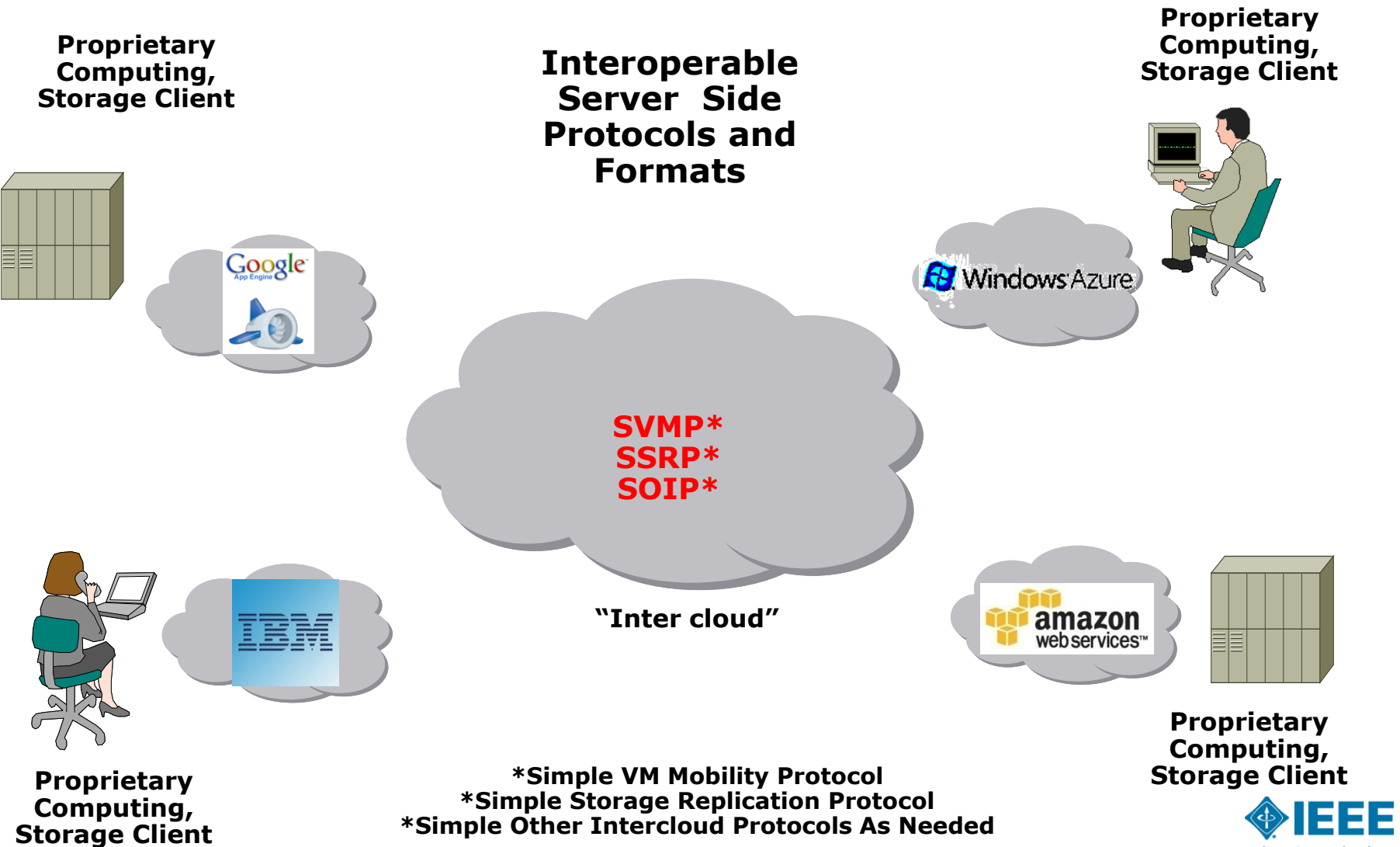


**Proprietary  
Computing,  
Storage Client**

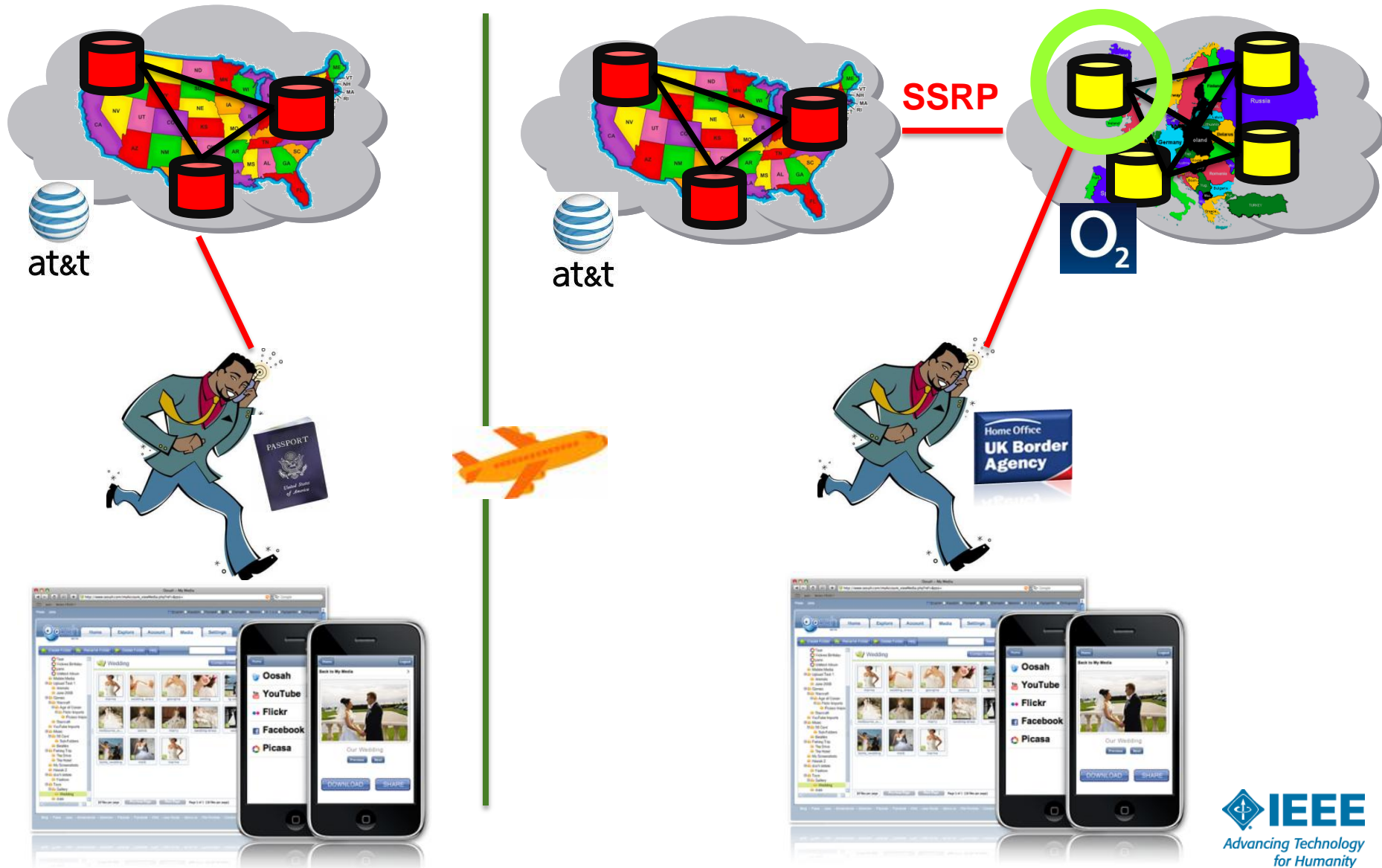


**Proprietary  
Computing,  
Storage Client**

# Time for Interoperability again.



# An Intercloud Use Case – Storage Roaming

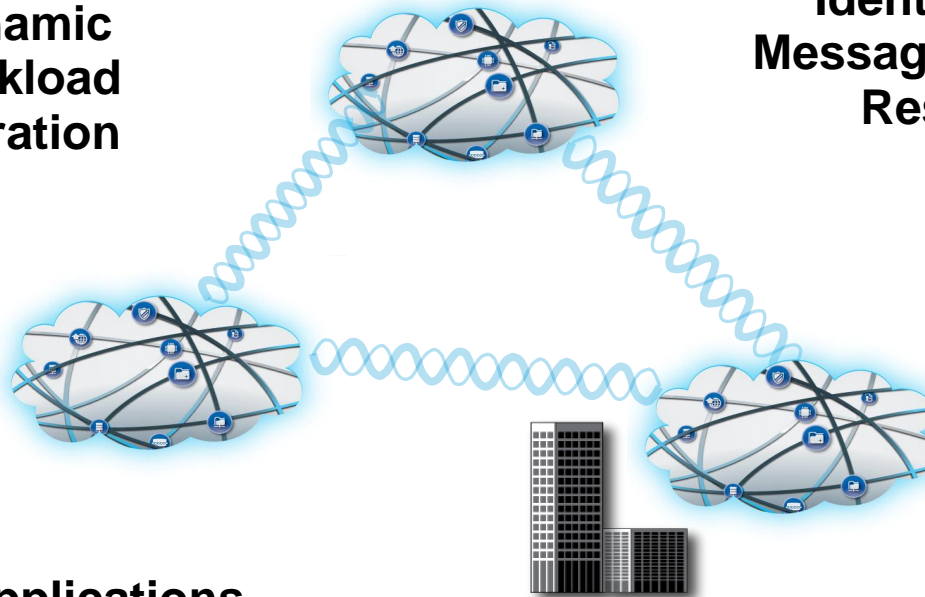


# Intercloud Vision

**Dynamic  
Workload  
Migration**

**Federation of Clouds with  
common Addressing, Naming,  
Identity, Trust, Presence,  
Messaging, Time Domain, and  
Resource Semantics**

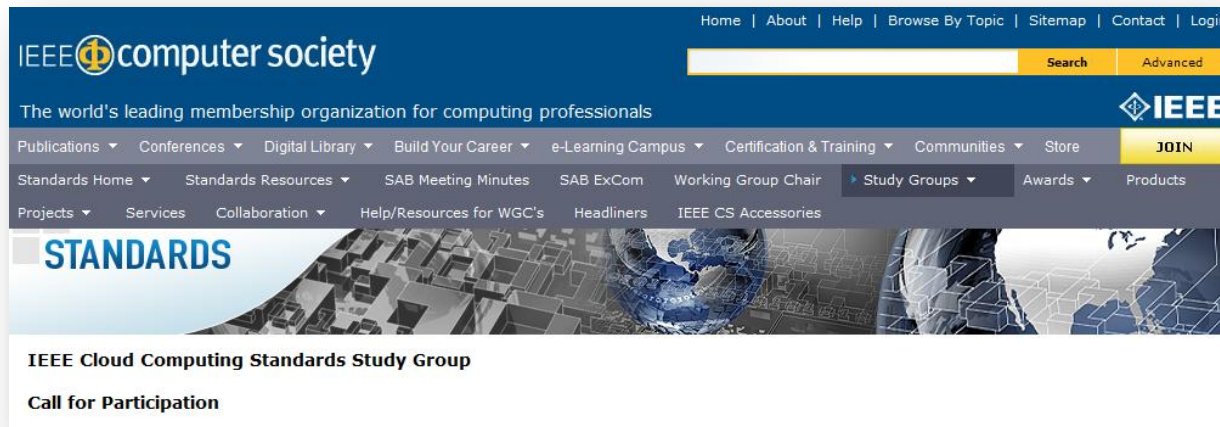
**Applications  
Integrate Services  
from Multiple Clouds**





# History of IEEE P2302

**In May of 2010 the IEEE Cloud Computing Standards Study Group issued a Call for Participation.**



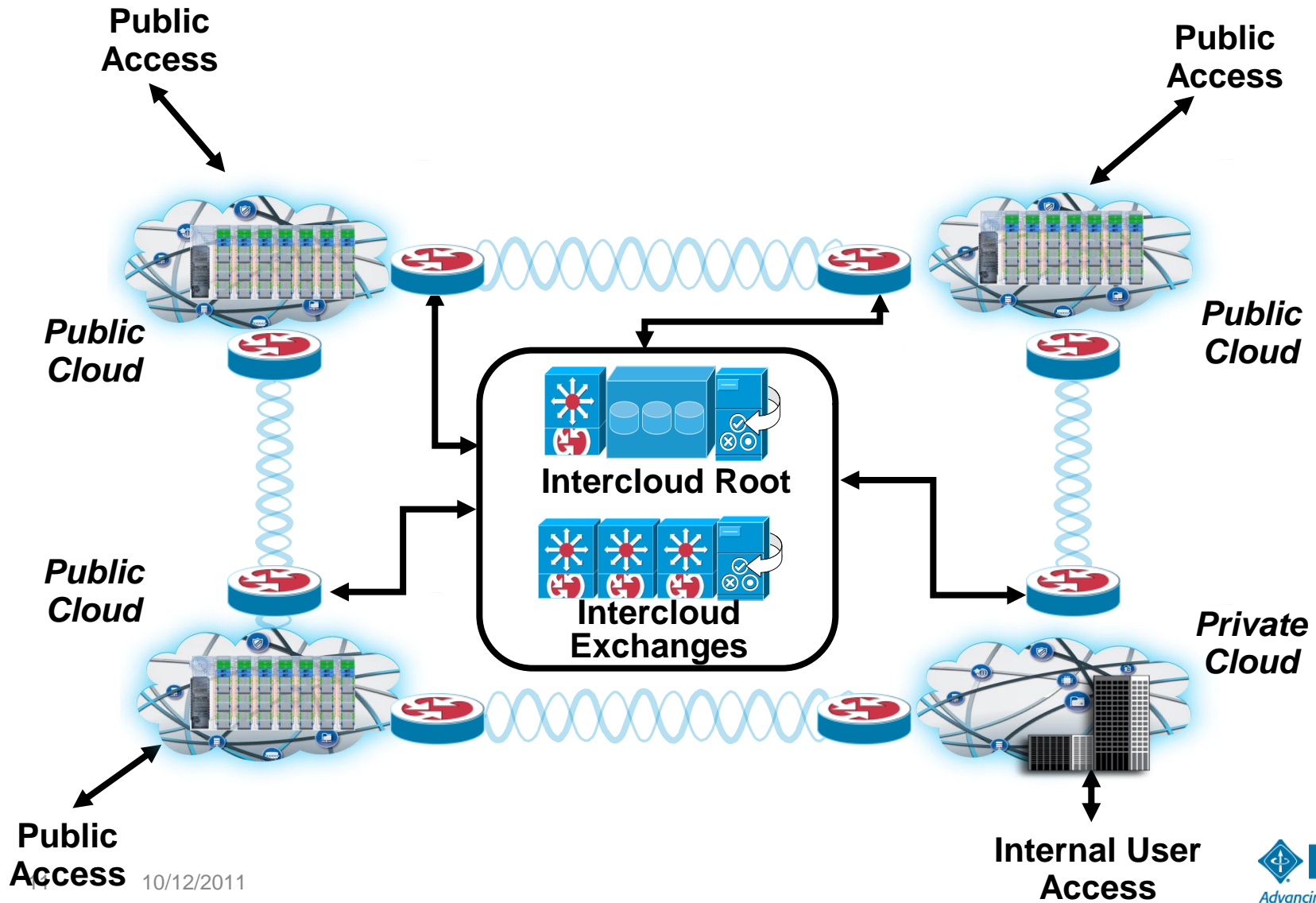
**The mission of the IEEE Cloud Computing Standards Study Group was to determine the feasibility of developing an open standards profile which defines options for portability and interoperability of cloud computing resources.**

**This resulted in a proposal to start a Working Group to develop a Standard for Intercloud Interoperability and Federation, approved in January of 2011.**

# P2302 - Standard for Intercloud Interoperability & Federation (SIIF)

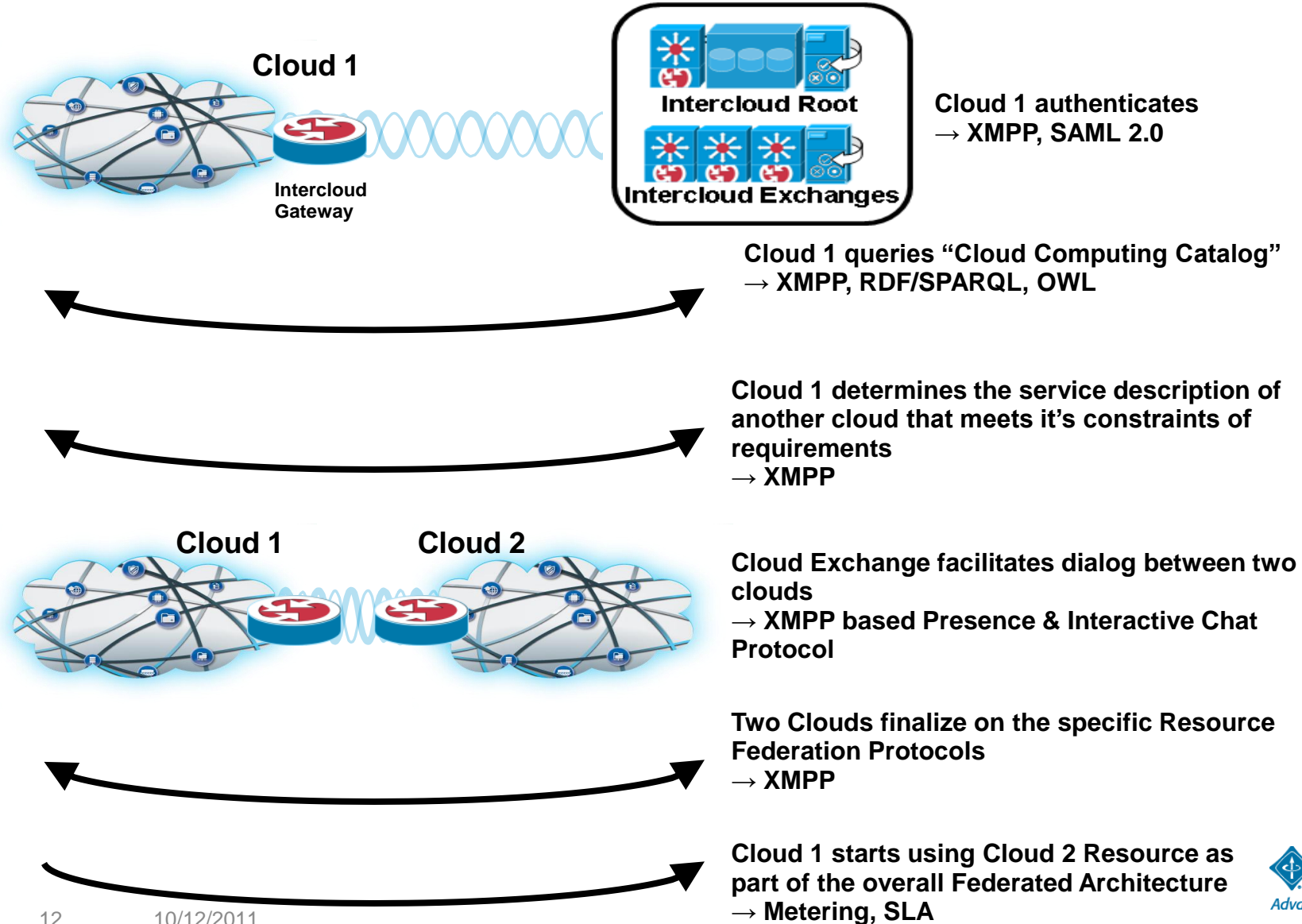
- This technical area is specific standards-development for Cloud to Cloud federation/interoperability
- This area requires protocols, directory service, registration authority, trust authority, and governance coordination
- IEEE SIIF will develop this standard in partnership with real-world test-bed projects, using the open yet formal SDO process

# Reference Network Intercloud Topology



10/12/2011

# Summary Conversation Flow



# P2302 Potential Registration and Trust Authorities

## IEEE Standards Association

PROJECT SEARCH | IEEE-SA MEMBER AREA

Text Size: A A A

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### Registration Authority Home

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### IEEE Registration Authority

Registration is the assignment of unambiguous names to objects in a way which makes the assignment available to interested parties.

The IEEE Registration Authority was formed in 1986 to register Identifiers (OUI) at the initiative of the P802 (LAN/MAN) standards group, which is recognized by [ISO/IEC](#) as the authorized Registration Authority world-wide.

Since that time, the activities of the Registration Authority include:

- Organizationally Unique Identifiers (OUI)
- OUI-36
- Individual Address Blocks (IAB)
- EtherType Fields
- Manufacturer ID
- Logical Link Control (LLC)
- Standard Group MAC Addresses
- Unique Registration Numbers (URN)
- IEEE Template/TDL Items
- PSID
- IEEE 802.16 Operator ID



## The International Grid Trust Federation

The international community is deploying large scale distributed computing grids on a production scale, across organisations, across countries, and across continents, for the advancement of science and engineering. In shaping this common grid infrastructure, many of these grids are relying on common practices, policies and procedures to reliably identify grid subscribers and resources.

The International Grid Trust Federation (IGTF) is a body to establish common policies and guidelines between its Policy Management Authorities (PMAs) members and to ensure compliance to this Federation Document amongst the participating PMAs. The IGTF does not provide identity assertions but instead ensures that within the scope of the [IGTF charter](#) the assertions issued by accredited authorities of any of its member PMAs meet or exceed an authentication profile relevant to the accredited authority.

The IGTF maintains a list of trust anchors, root certificates and related meta-information for all the accredited authorities, i.e., those that meet or exceed the criteria mentioned in the *Authentication Profiles*. The Distribution contains Certificate Revocation List (CRL) locations, contact information, and signing policies.

**Functions and the Trust Anchor Distribution**

- [Download the latest update of the Common Distribution](#)
- [Download the Distribution Tools and the fetch-crl utility](#)

**Constituency**

The IGTF constituency consists of our three member PMAs: the [APGridPMA](#) covering Asia and the Pacific, the [EUGridPMA](#) covering Europe, the Middle East and Africa, and [The Americas Grid PMA](#) covering Latin America, the Caribbean and North America. All registered members in each regional PMA are also members of the IGTF. These include identity providers, CAs, and their major Relying Parties, such as the international Grid Deployment and Infrastructure projects.

Each member PMA holds regular meetings and manages a (closed) email list for discussion. The open IGTF meetings are held at the Open Grid Forum's regular meetings. You can get in contact with the IGTF through your Regional PMA.

### About the IGTF

[IGTF Charter](#)  
[IGTF Charter \(2003\)](#)

### Member PMAs and Registries

[APGridPMA](#)  
[EUGridPMA](#)  
[The Americas Grid PMA](#)

### Authentication Profiles

[Classic X.509 CAs](#)  
[Simple Integrated Credential Services \(SICS\)](#)  
[Member Integrated Credential Services \(MICS\)](#)

[Download the Distribution](#)  
[Download the Utilities](#)

[IGTF RAT Wiki](#)

### Open Grid Forum Relationships

[CA Operations WG](#)  
[Open Grid Forum](#)  
[YERENA TIF-ENOC](#)  
[Infrastructure Reflection Group](#)

### Links

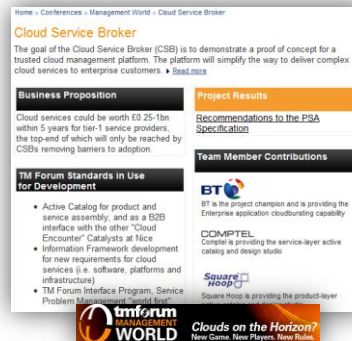
[Comments to InfoGrid.net](#)  
[Declaration and Privacy Policy](#)

### News

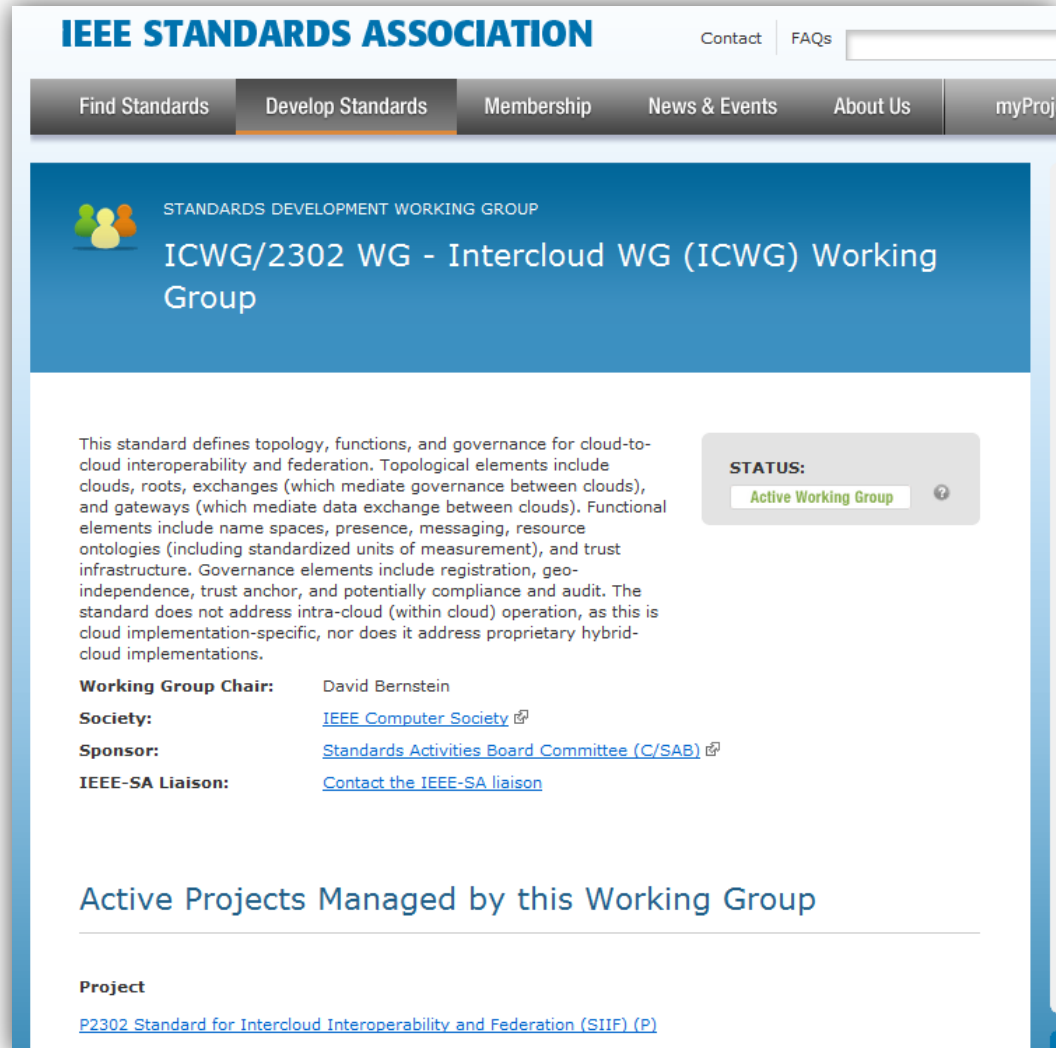
The latest IGTF trust anchor distribution is always available from the PMA web sites: [EUGridPMA](#) and [APGridPMA](#). Please refer to the README and CHANGES files for information about the distribution and its use.



# IEEE Liasion Roadmap




# How to Get Involved in IEEE P2302



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 **STANDARDS DEVELOPMENT WORKING GROUP**

## ICWG/2302 WG - Intercloud WG (ICWG) Working Group

This standard defines topology, functions, and governance for cloud-to-cloud interoperability and federation. Topological elements include clouds, roots, exchanges (which mediate governance between clouds), and gateways (which mediate data exchange between clouds). Functional elements include name spaces, presence, messaging, resource ontologies (including standardized units of measurement), and trust infrastructure. Governance elements include registration, geo-independence, trust anchor, and potentially compliance and audit. The standard does not address intra-cloud (within cloud) operation, as this is cloud implementation-specific, nor does it address proprietary hybrid-cloud implementations.

**STATUS:**  
Active Working Group

**Working Group Chair:** David Bernstein  
**Society:** [IEEE Computer Society](#)  
**Sponsor:** [Standards Activities Board Committee \(C/SAB\)](#)  
**IEEE-SA Liaison:** [Contact the IEEE-SA liaison](#)

### Active Projects Managed by this Working Group

**Project**  
[P2302 Standard for Intercloud Interoperability and Federation \(SIIF\) \(P\)](#)

<http://standards.ieee.org/develop/project/2302.html>