

IEEE P2302

Standard for Intercloud Interoperability and Federation (SIIF)

Project Introduction and Status

David Bernstein
IEEE P2302 Working Group Chair

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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**

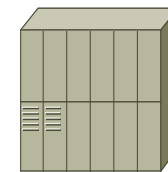


No "Inter-
net"

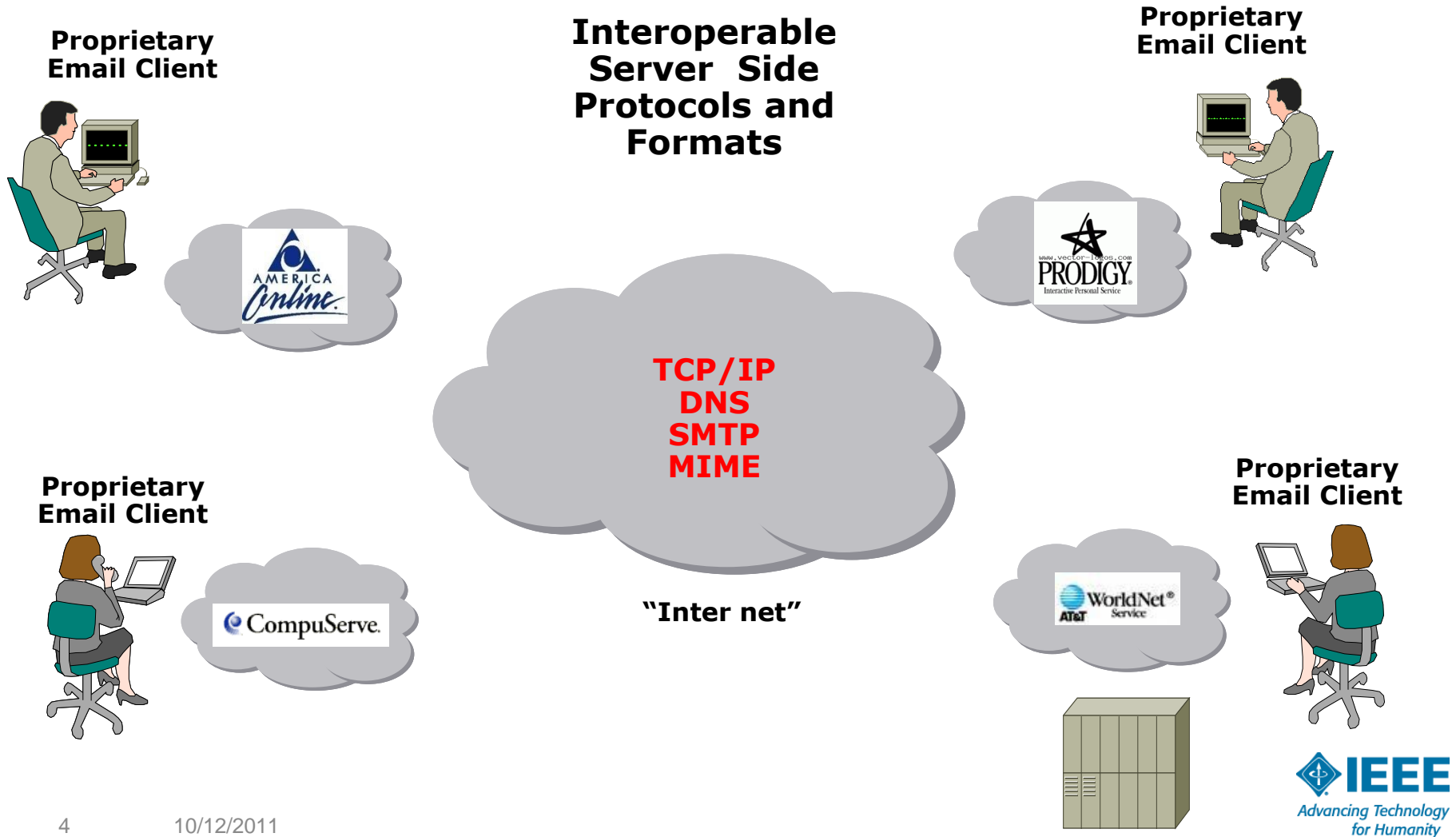
**Proprietary
Email Client**



**Proprietary
Email Client**

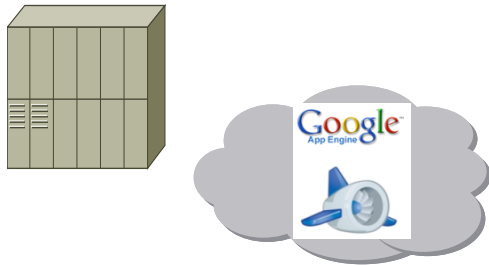


Enter Interoperability

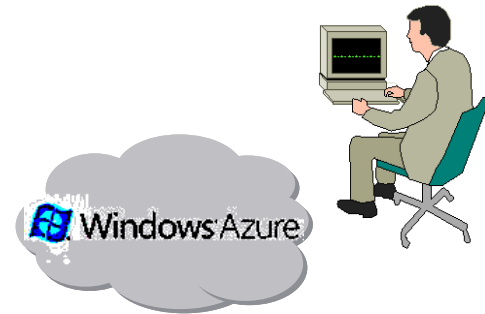


Déjà Vu ..

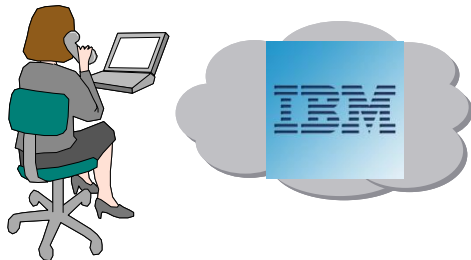
**Proprietary
Computing,
Storage Client**



**Proprietary
Computing,
Storage Client**



**No "Inter-
cloud"**

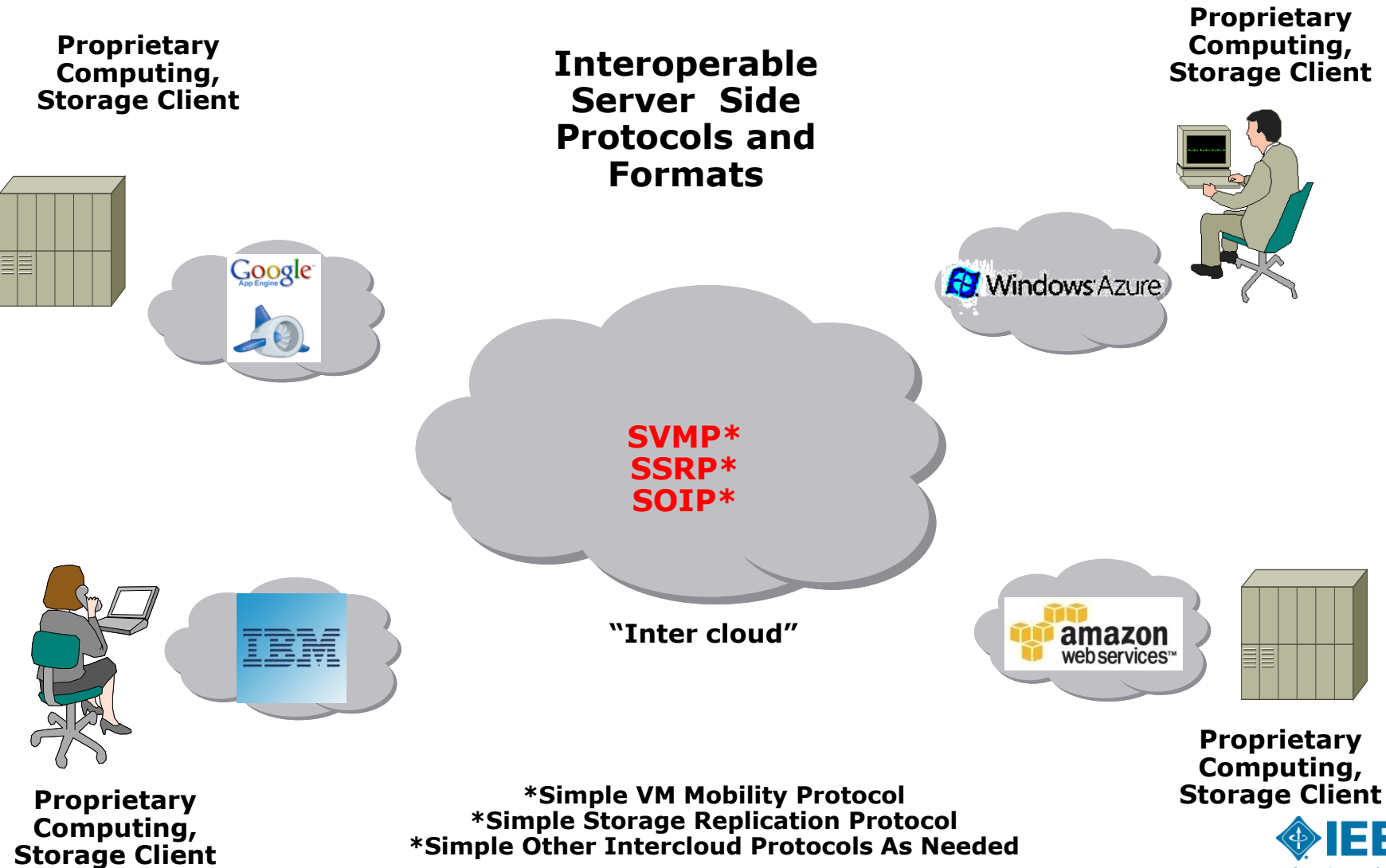


**Proprietary
Computing,
Storage Client**

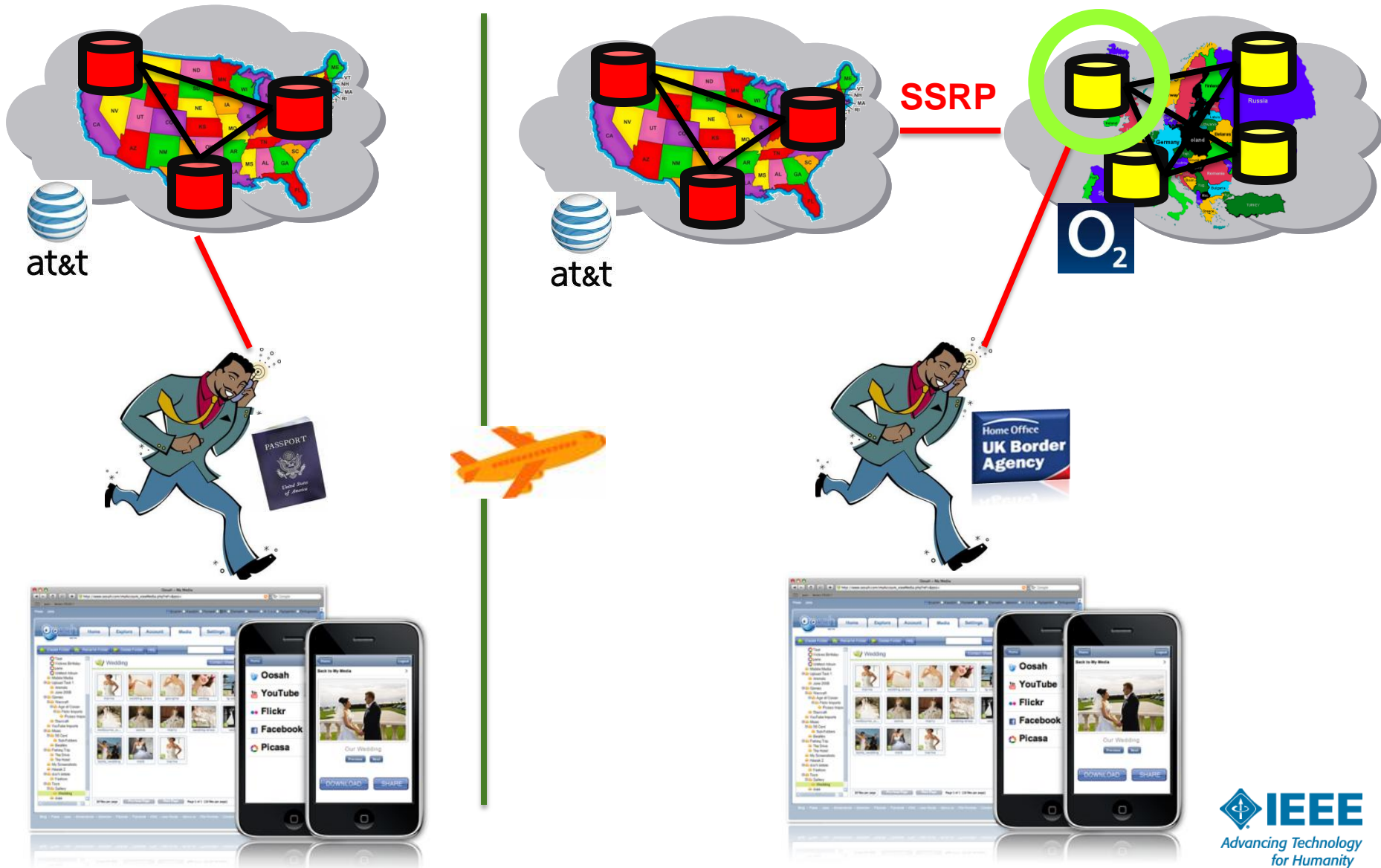


**Proprietary
Computing,
Storage Client**

Time for Interoperability again.



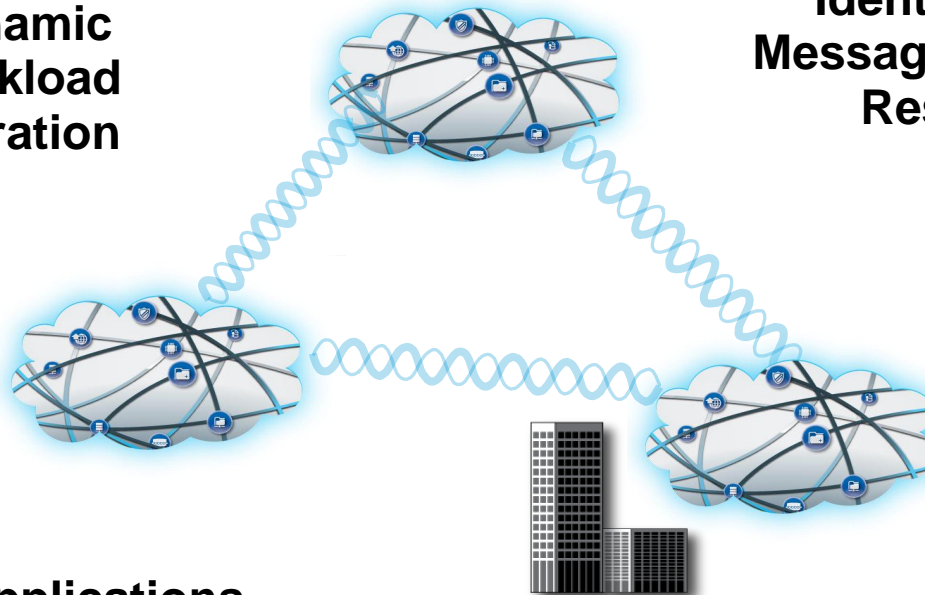
An Intercloud Use Case – Storage Roaming



Intercloud Vision

**Dynamic
Workload
Migration**

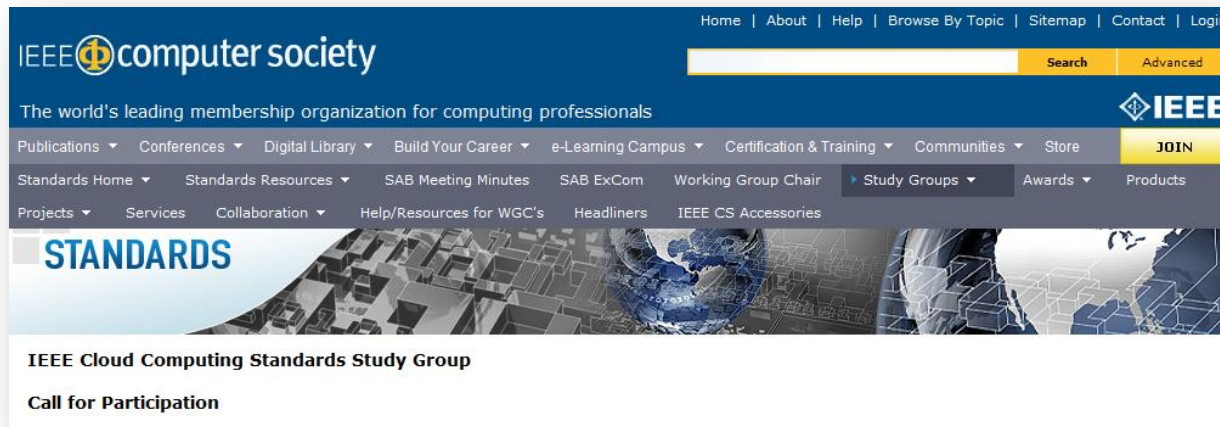
**Federation of Clouds with
common Addressing, Naming,
Identity, Trust, Presence,
Messaging, Time Domain, and
Resource Semantics**



**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.



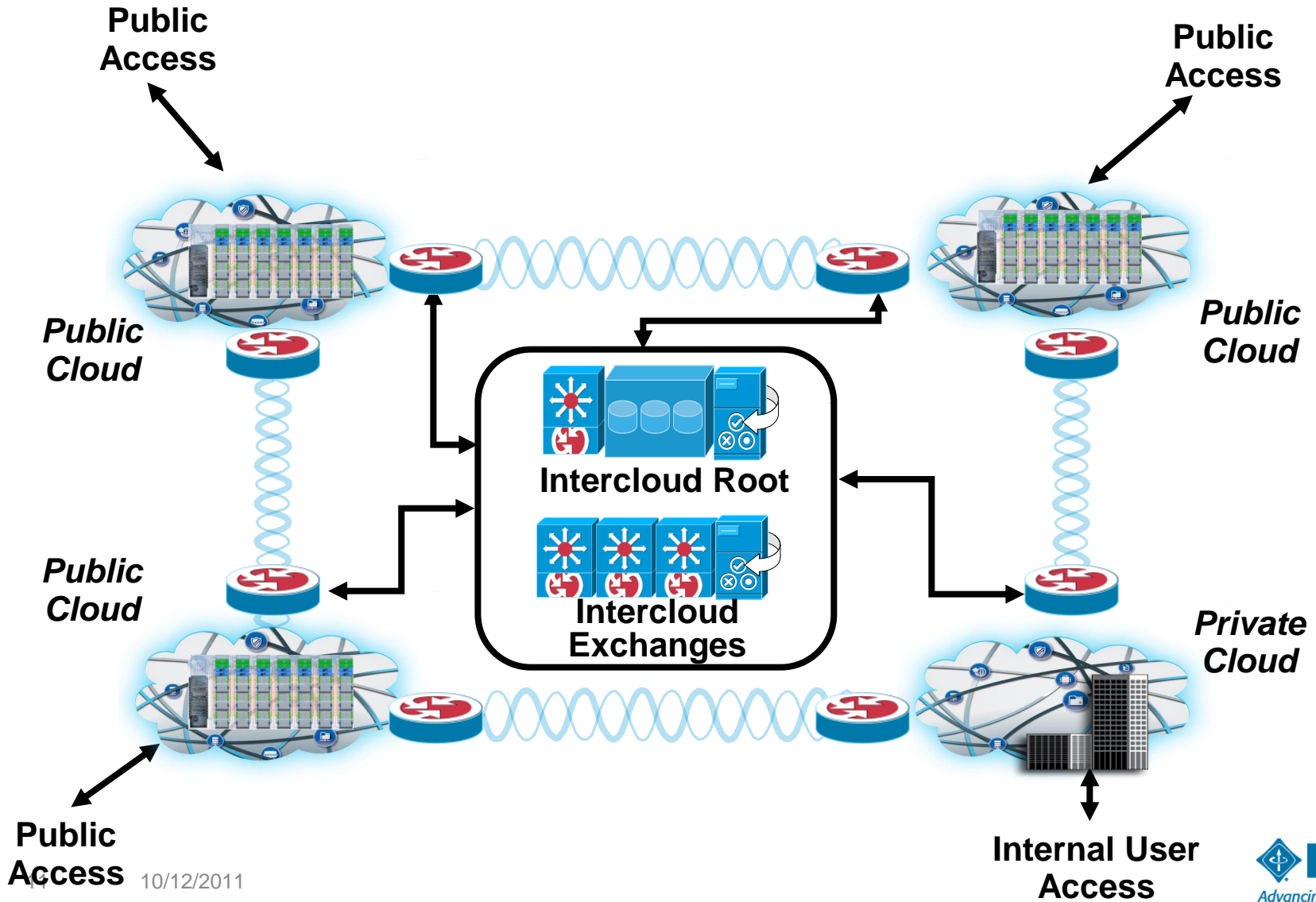
The mission of the IEEE Cloud Computing Standards Study Group was to determine the feasibility of developing an open standards profile which defines options for portability and interoperability of cloud computing resources.

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

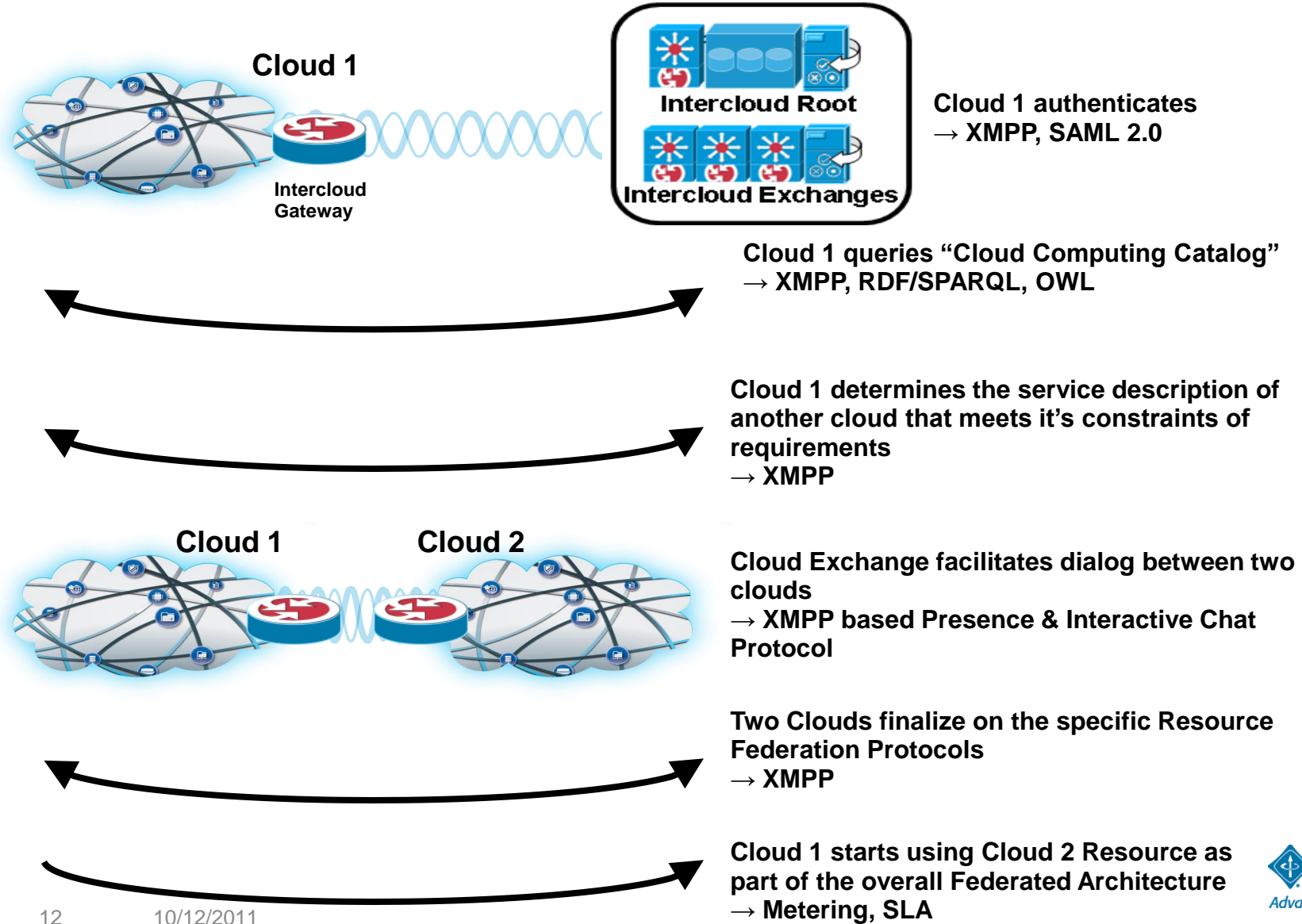
P2302 - Standard for Intercloud Interoperability & Federation (SIIF)

- 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



Summary Conversation Flow



P2302 Potential Registration and Trust Authorities

IEEE Standards Association

PROJECT SEARCH | IEEE-SA MEMBER AREA

Text Size: A A A Search IEEE-SA Site Go

PRODUCTS & SERVICES | IEEE-SA MEMBERSHIP | STANDARDS DEVELOPMENT | NEWS & INFORMATION | HOME

Registration Authority Home

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 working 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

Registration Authority Home

Registries

Public Listings

Tutorials

Resources

Frequently Asked Questions

Registration Authority Committee

Registry Standards

Contact Us

IGTF 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.

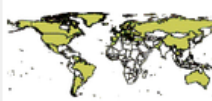
The International Grid Trust Federation (IGTF) is a body to establish common policies and guidelines between its Policy Management Authorities (PMAs) members and to ensure compliance to this Federation Document amongst the participating PMAs. The IGTF does not provide identity assertions but instead 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.

Functions and the Trust Anchor Distribution

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.

- [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.

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.

About the IGTF

IGTF Charter
Yakov Andriev (2003)

Member PMAs and Registries

[APGridPMA](#)
[EUGridPMA](#)
[AmericasGridPMA](#)
[Yakov](#)

Authentication Profiles

[Classic X.509 CAs](#)
[Simple User Credential Services \(VNC\)](#)
[Memory Integrated Credential Services](#)

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

[IGTF RAT tool](#)

Open Grid Forum Relationships

[CA Operations WG](#)
[OGF documents](#)

Links

[Open Grid Forum](#)
[VERENA/FRENIC](#)
[Infrastructure Reflection Group](#)

[Comments to info@igtf.net](#)
[Declaration and Privacy Policy](#)

IGTF
Trust Federation

IEEE Liasion Roadmap



How to Get Involved in IEEE P2302

The screenshot shows the IEEE Standards Association website. At the top, there is a navigation bar with "IEEE STANDARDS ASSOCIATION" on the left, "Contact" and "FAQs" on the right, and a search box. Below this is a secondary navigation bar with "Find Standards", "Develop Standards" (highlighted), "Membership", "News & Events", "About Us", and "myProj". The main content area has a blue header with "STANDARDS DEVELOPMENT WORKING GROUP" and "ICWG/2302 WG - Intercloud WG (ICWG) Working Group". Below the header is a paragraph of text describing the standard's scope. To the right of the text is a "STATUS:" box with "Active Working Group" and a question mark icon. Below the text are links for "Working Group Chair", "Society", "Sponsor", and "IEEE-SA Liaison". At the bottom, there is a section for "Active Projects Managed by this Working Group" with a table listing the project "P2302 Standard for Intercloud Interoperability and Federation (SIIF) (P)".

IEEE STANDARDS ASSOCIATION Contact FAQs

Find Standards **Develop Standards** Membership News & Events About Us myProj

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>