Open Grid Forum

OGF's Role in the Community

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DMTF Alliance Partner Technical Symposium
May 16-20, Boulder, Colorado

Open Forum – Open Standards

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OGF and the Standards Development Process

- OGF began, based on previous roots in Grid Forum, Global Grid Forum and the Enterprise Grid Alliance, as an **open community** committed to driving the **rapid adoption** and evolution of **large-scale applied distributed computing**.
- Its current mission is to provide a vehicle for development of **open standards** of practical utility in such infrastructures.
- OGF contributors and members consist of representatives of **large-scale grid and cloud providers** and their user communities, with an emphasis on participants from **high transaction-rate, high throughput and high performance computing** projects.
- It is committed on a long-term basis to an **open, community-based and democratic process** for standards development and organizational operations.

Overview of Standards Areas

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Applications	Architecture
Compute	Data
Infrastructure	Liaison
Management	Security

OGF Standards Working Groups

Applications	Distributed Resource Management Application API WG (drmaa-wg) Grid Remote Procedure Call WG (gridrpc-wg) Simple API for Grid Applications WG (saga-wg)
Architecture	OGSA Naming Working Group (ogsa-naming-wg) Open Grid Services Architecture WG (ogsa-wg) Production Grid Infrastructure WG (pgi-wg) Reference Model Working Group (rm-wg)
Compute	Grid Resource Allocation Agreement Protocol WG (graap-wg) Grid Scheduling Architecture RG (gsa-rg) High Performance Computing Profile WG (hpcp-wg) Job Submission Description Language WG (jsdl-wg) OGSA Basic Execution Services WG (ogsa-bes-wg) OGSA Resource Selection Services WG (ogsa-rss-wg)
Data	Data Format Description Language WG (dfdl-wg) Database Access and Integration Services WG (dais-wg) Digital Repositories Research Group (dr-rg) Grid File System Working Group (gfs-wg) Grid Storage Management WG (gsm-wg) GridFTP WG (gridftp-wg) Info Dissemination WG (infod-wg) OGSA ByteIO Working Group (byteio-wg) OGSA Data Movement Interface WG (ogsa-dmi-wg)
Infrastructure	Firewall Virtualization for Grid Applications WG (fvga-wg) Grid High-Performance Networking RG (ghpn-rg) Network Mark-up Language Working Group (nml-wg) Network Measurement and Control WG (nmc-wg) Network Measurements Working Group (nm-wg) Network Service Interface WG (nsi-wg) Open Cloud Computing Interface WG (occi-wg)
Liaison	Standards development organizations Collaboration on networked Resources Management (scrm-wg)
Management	Access to Remote Instrumentation in a distributed environment – Working Group (ari-wg) Distributed Computing Infrastructure Federation Working Group (dcifed-wg) GLUE Working Group (glue) OGSA Resource Usage Service WG (rus-wg) Usage Record WG (ur-wg)
Security	Certificate Authority Operations WG (caops-wg) Firewall Issues RG (fi-rg) Levels of Authentication Assurance Research Group (loa-rg) OGSA Authorization WG (ogsa-authz-wg)

OGF Initiated, Developed and Shepherded Grid Computing!

- Since its inception in 2001, OGF has developed and encouraged adoption of a large number of standards in
  - compute-intensive,
  - data-intensive,
  - infrastructure-related and
  - job management related topics
- These enjoy a high degree of adoption in ***all areas*** of grid computing. (Summary at http://www.ogf.org/standards/)
- A large number of implementations exist that ***permeate*** *the fields of large-scale computational infrastructure* and that ***form the basis*** *of the current production-oriented distributed scientific computational and data grids.*

WLCG in 2011 - One of Many Large-Scale Production Grids:

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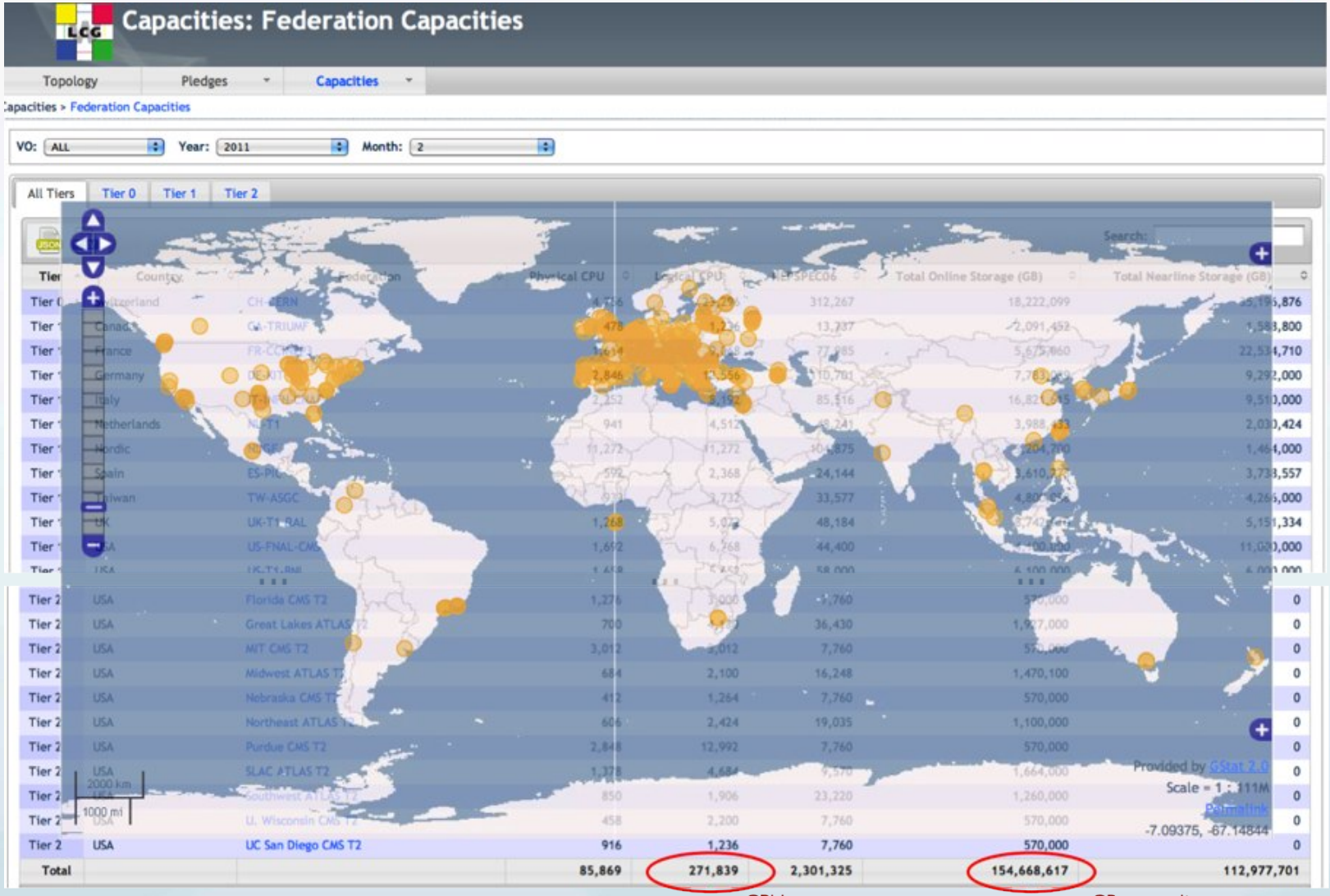
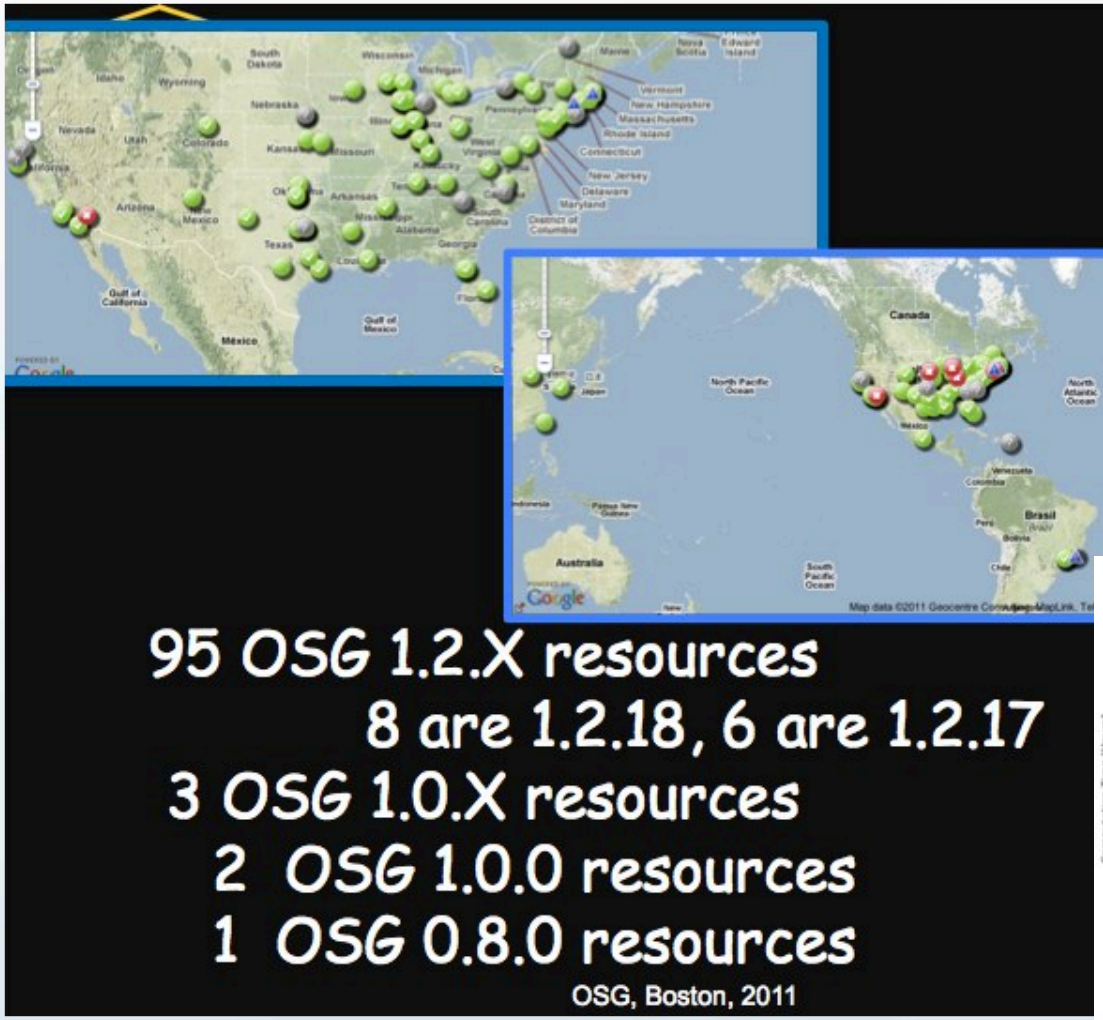
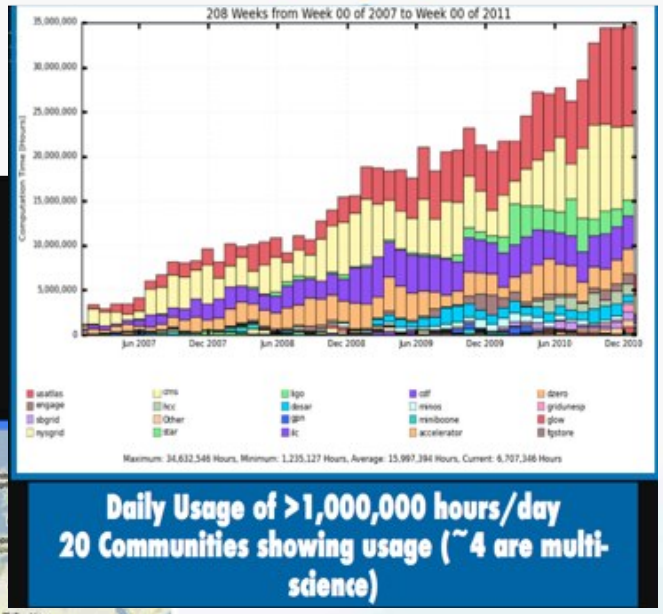


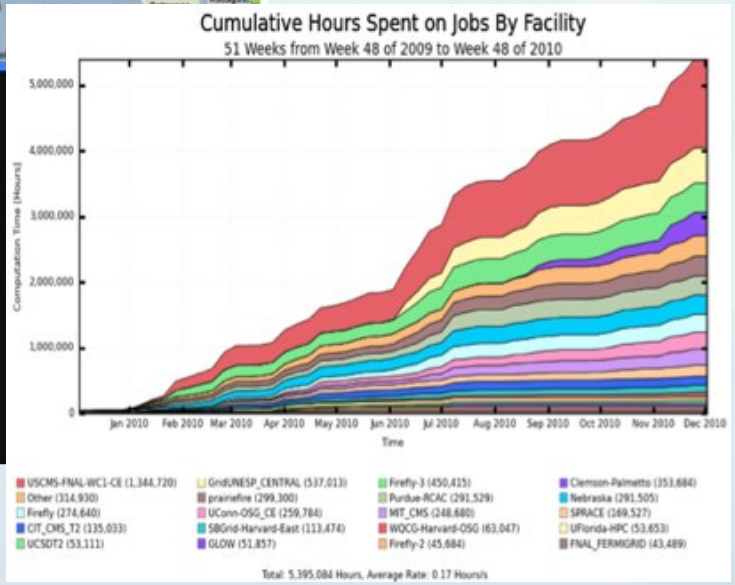
CPU cores

GBytes online

Open Science Grid in 2011







US-Based National Science Shared Infrastructure

OGF Is Also Already Very Active In The Cloud!

- We have recently produced related standards applicable to cloud computing that are rapidly becoming the dominant ones in their categories, including

  OCCI - Open Cloud Computing Interface

  DFDL - Data Format Description Language

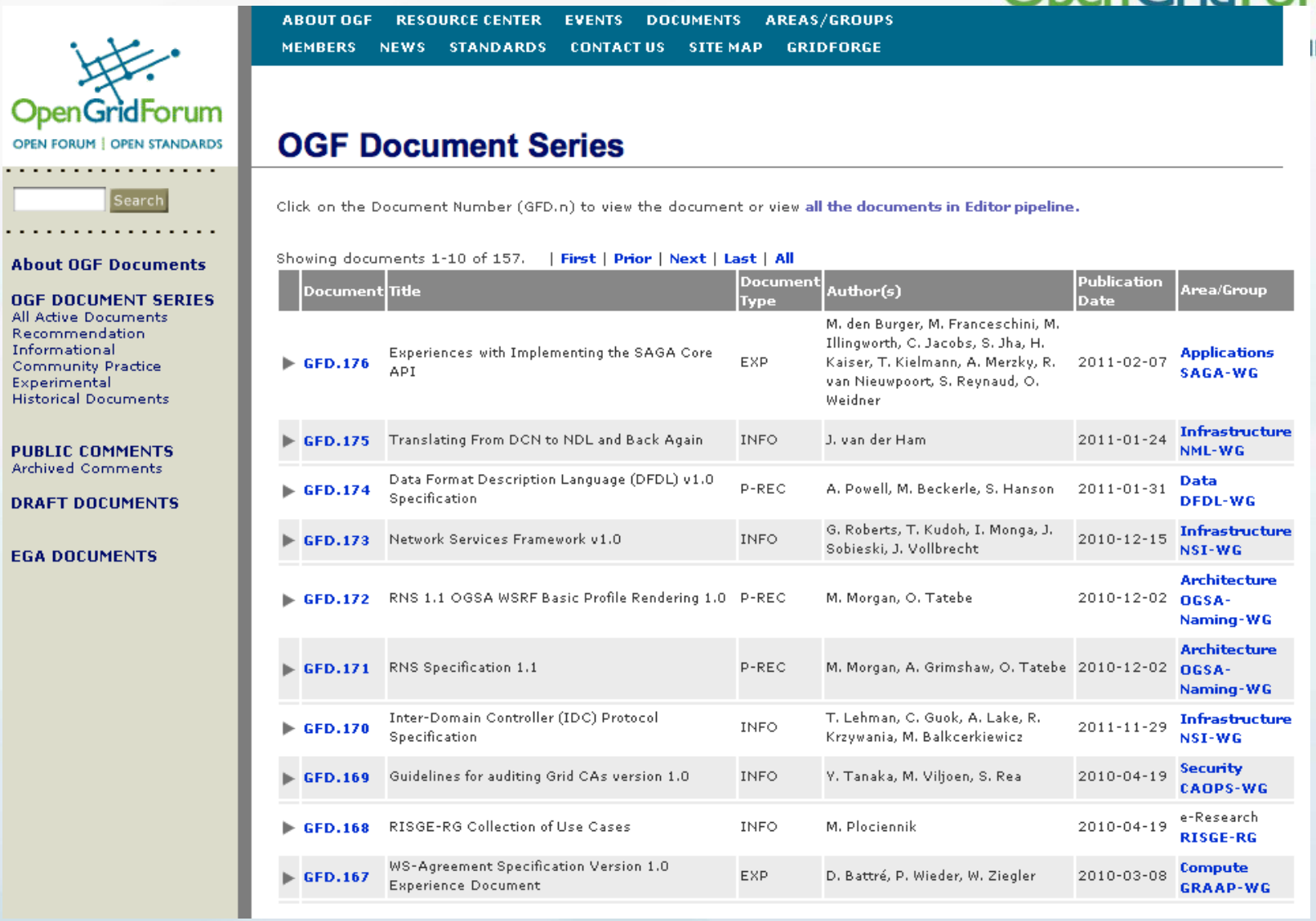
  WS-Agreement (2007) and WS-Agreement Negotiation (just ended public comment) – SLAs and license agreement management in clouds

- We also have formal MoUs and other collaborative working agreements in place with other standards development organizations, including DMTF, SNIA, OGC and CSA.
- There are *dozens of working implementations* of the above standards already in place!

OGF and Grid Security

- OGF's Grid Security Infrastructure (GSI) underlies almost all large-scale data transfer and forms a crucial portion of the security infrastructure for grid computing.
- Extension of GSI to other methods (OpenID, Oauth, Shibboleth/SAML, XACML-over-SAML, etc.) has been successfully carried out in almost every possible variation.
- Grid projects provide an example of how to run large-scale infrastructure projects with strong authentication and scalable, flexible security.
- OGF has collaboration agreements in place with CSA and is pursuing other agreements to build a roadmap for strong authentication and authorization use in the cloud.

Open Grid Forum Documents



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OGF Document Series

Click on the Document Number (GFD.n) to view the document or view all the documents in Editor pipeline.

Showing documents 1-10 of 157. | First | Prior | Next | Last | All

Document	Title	Document Type	Author(s)	Publication Date	Area/Group
GFD.176	Experiences with Implementing the SAGA Core API	EXP	M. den Burger, M. Franceschini, M. Illingworth, C. Jacobs, S. Jha, H. Kaiser, T. Kielmann, A. Merzky, R. van Nieuwpoort, S. Reynaud, O. Weidner	2011-02-07	Applications SAGA-WG
GFD.175	Translating From DCN to NDL and Back Again	INFO	J. van der Ham	2011-01-24	Infrastructure NML-WG
GFD.174	Data Format Description Language (DFDL) v1.0 Specification	P-REC	A. Powell, M. Beckerle, S. Hanson	2011-01-31	Data DFDL-WG
GFD.173	Network Services Framework v1.0	INFO	G. Roberts, T. Kudoh, I. Monga, J. Sobieski, J. Vollbrecht	2010-12-15	Infrastructure NSI-WG
GFD.172	RNS 1.1 OGSA WSRF Basic Profile Rendering 1.0	P-REC	M. Morgan, O. Tatebe	2010-12-02	Architecture OGSA-Naming-WG
GFD.171	RNS Specification 1.1	P-REC	M. Morgan, A. Grimshaw, O. Tatebe	2010-12-02	Architecture OGSA-Naming-WG
GFD.170	Inter-Domain Controller (IDC) Protocol Specification	INFO	T. Lehman, C. Guok, A. Lake, R. Krzywania, M. Balkcerkiewicz	2011-11-29	Infrastructure NSI-WG
GFD.169	Guidelines for auditing Grid CAs version 1.0	INFO	Y. Tanaka, M. Viljoen, S. Rea	2010-04-19	Security CAOPS-WG
GFD.168	RISGE-RG Collection of Use Cases	INFO	M. Plociennik	2010-04-19	e-Research RISGE-RG
GFD.167	WS-Agreement Specification Version 1.0 Experience Document	EXP	D. Battré, P. Wieder, W. Ziegler	2010-03-08	Compute GRAAP-WG

OGF Compute-Related Standards

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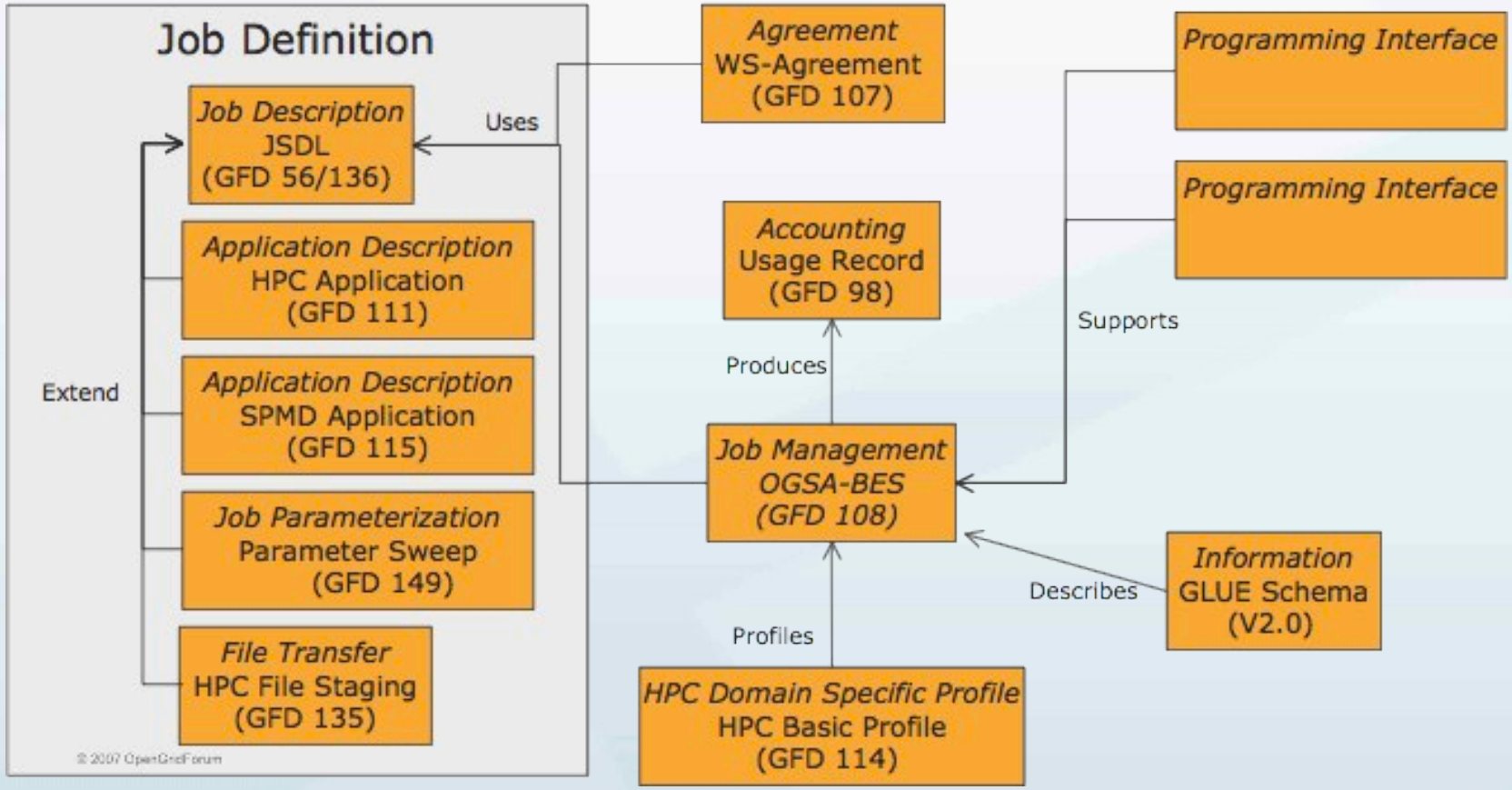
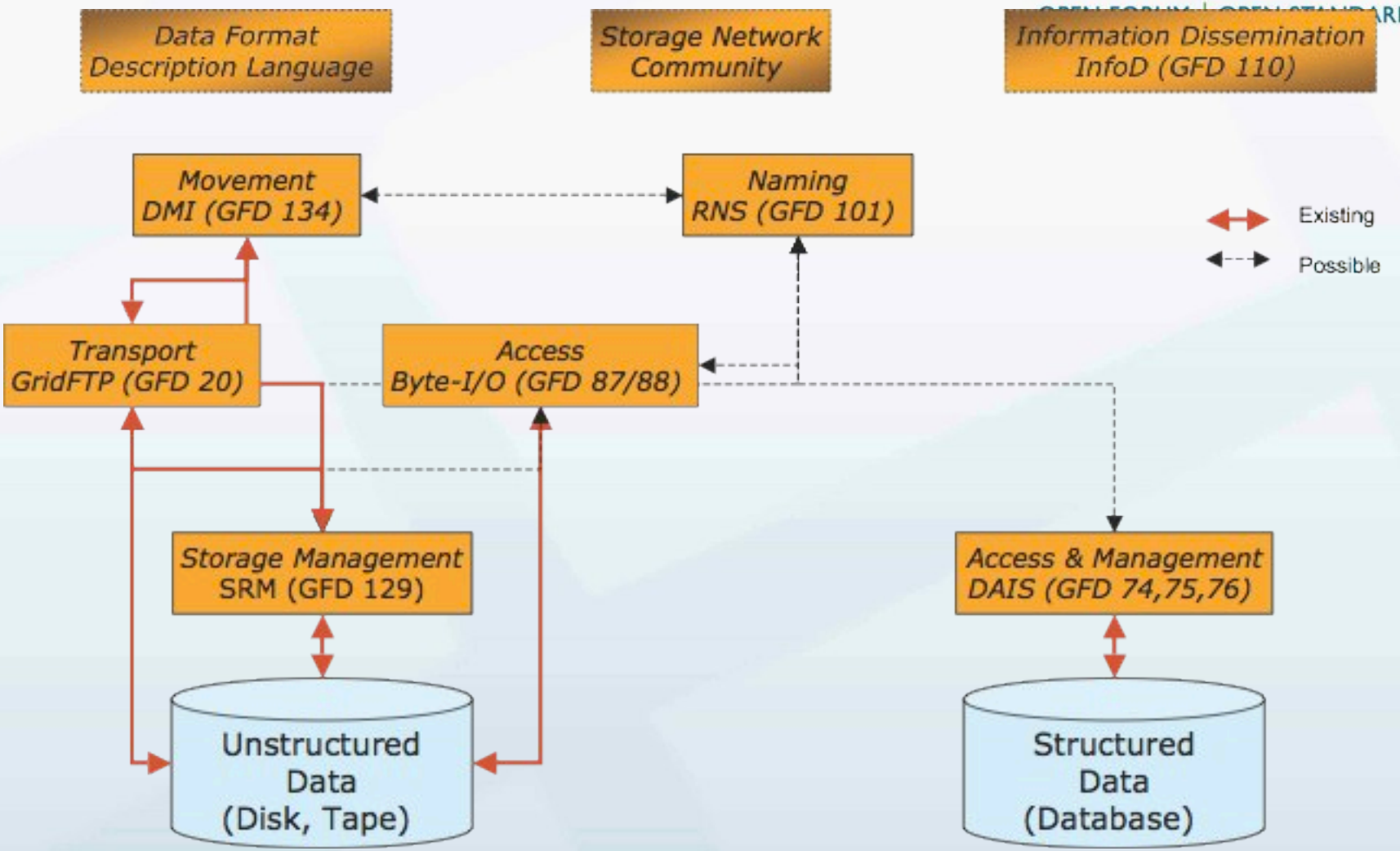
Architecture
OGSA EMS Scenarios
(GFD 106)

Use Cases
Grid Scheduling Use Cases
(GFD 64)

Education
ISV Primer
(GFD 141)



OGF Data-Related Standards



New Standard: DFDL

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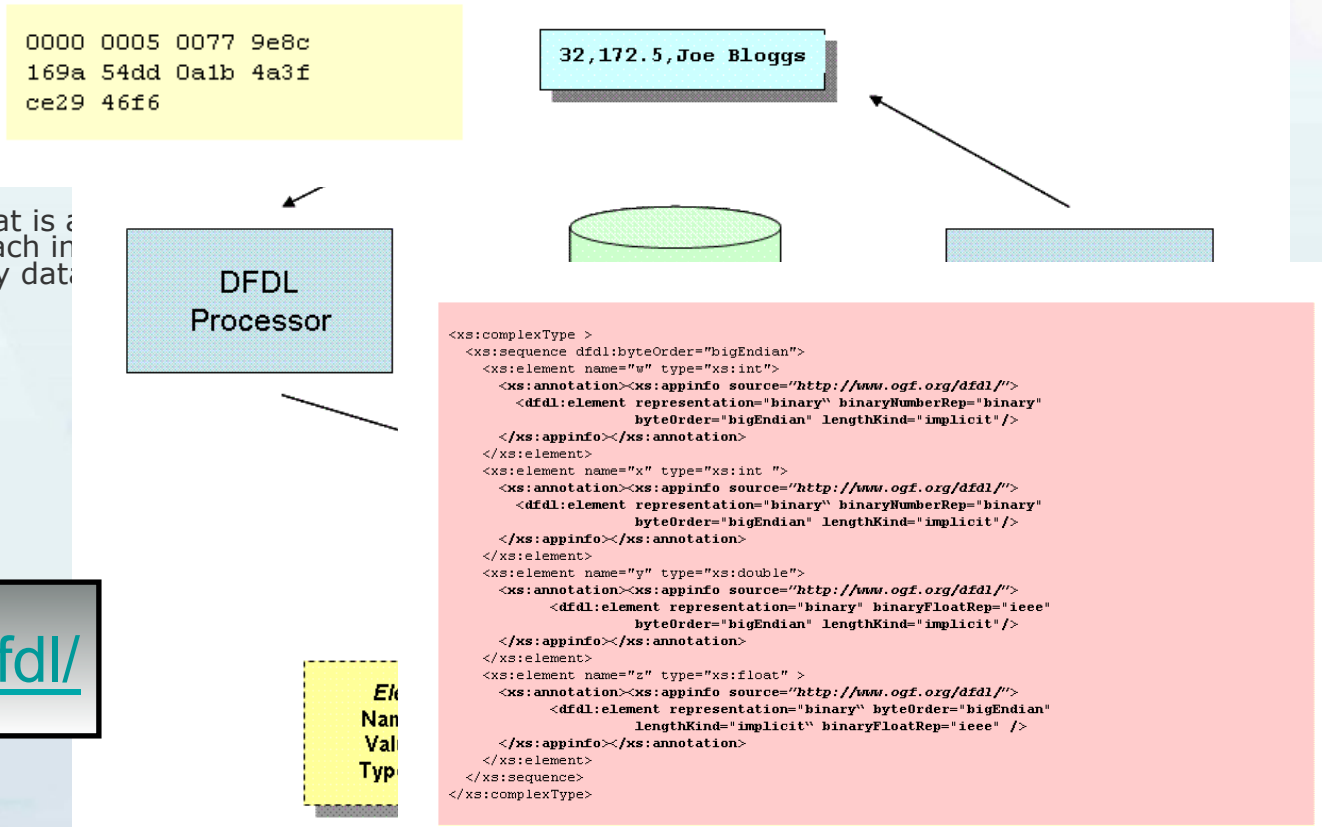
OGF Standards: Data Format Description Language (DFDL)

Just released!
GFD.174

Data Format Description Language (DFDL) is a language for describing text and binary data formats. A DFDL description allows any text or binary data to be read from its native format and to be presented as an instance of an information set. DFDL also allows data to be taken from ar
native format. DFDL achieves t
(XSDL) 1.0. It is therefore very
corresponding XML document.

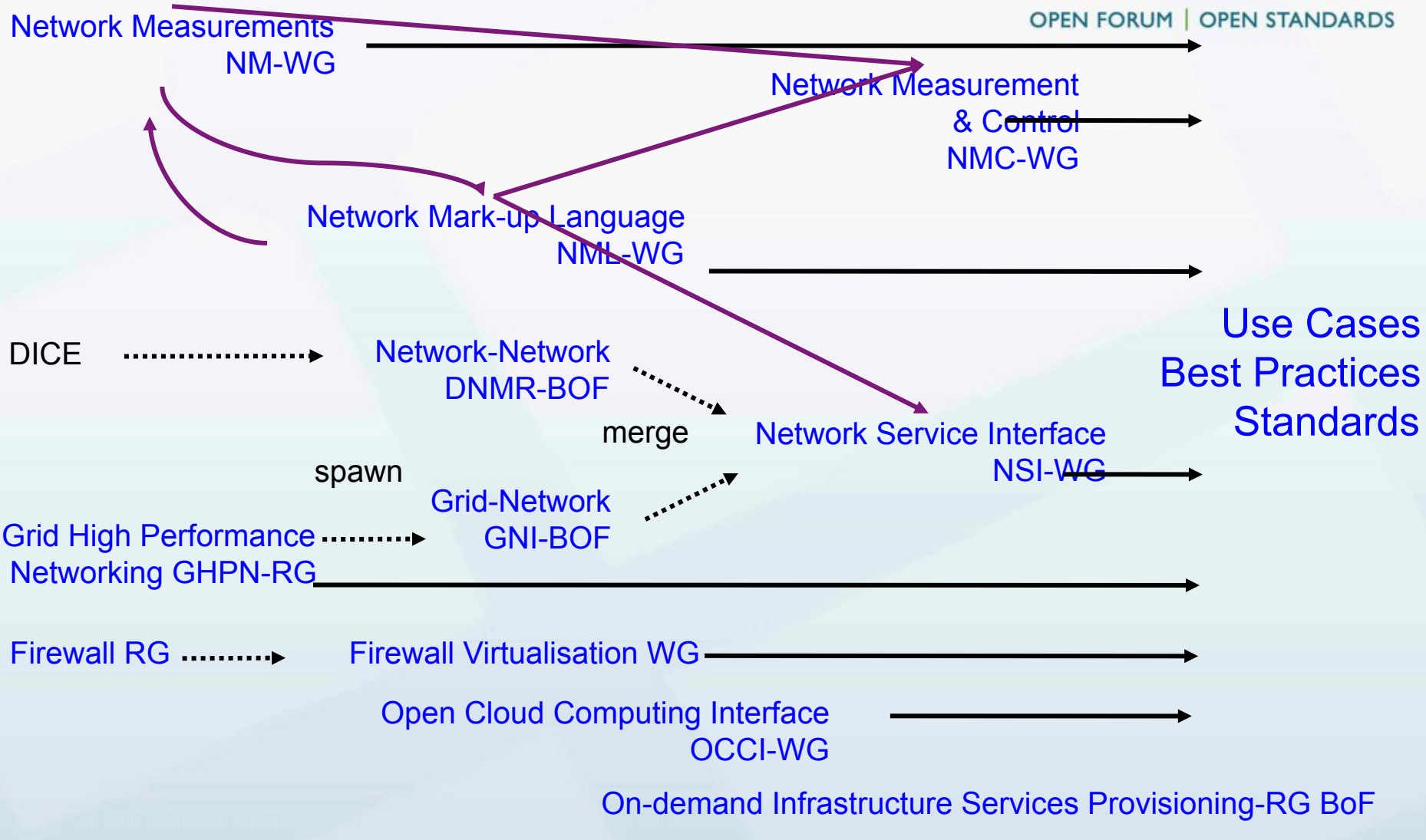
An XML schema is written for th
with special DFDL annotations.
XML) format of the data.

This is an established approach that is a
systems. DFDL evolves this approach in
almost any format of text or binary data



http://ogf.org/dfdl/

Infrastructure Area: The Groups



OGF HPC Basic Profile

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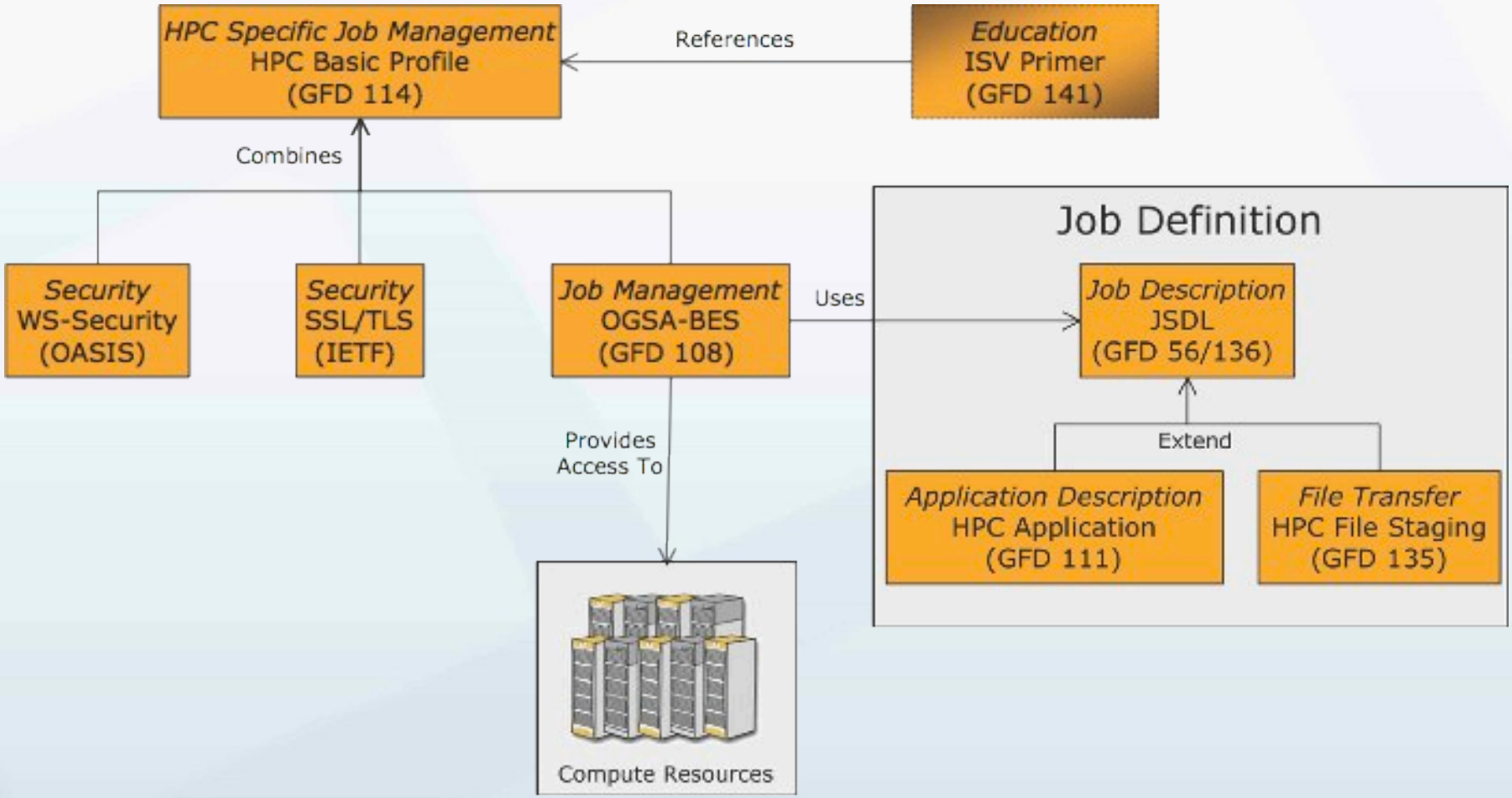

OGF Results & Standards Show Up Everywhere!

- *Practically every recent demonstration* of grid and cloud technology in some way uses OGF standards or refers to OGF as the venue to develop standards further:
  - Open Nebula (OCCI part of base implementation)
  - OpenStack (OCCI first open standard included!)
  - FutureGrid (demos & deployment throughout this year)
  - CloudCom, Cloud Demo 2010, SC'10, Telecom Cloud
  - OGF events themselves are prime forums for new technology demonstrations and innovation
- Production grids still dependent on GridFTP, GLUE, SRM, DRMAA, GSSAPI and other OGF-developed standards.

OGF standards

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The standards and implementations listed here, representing only a partial list of OGF implementations, form the backbone of current business and scientific DCI production distributed computing.

Implementations of OGF standards

This page contains a list of software implementations of various OGF specifications. The information has been provided by members of the Grid community, and has not been verified by the OGF. As such, the OGF makes no statement about the accuracy of the information provided.

If you have implemented an OGF specification (or several) as part of your project or product and would like to be listed, or would like to report inaccurate information in the table below, please send email to **standards@ogf.org**.

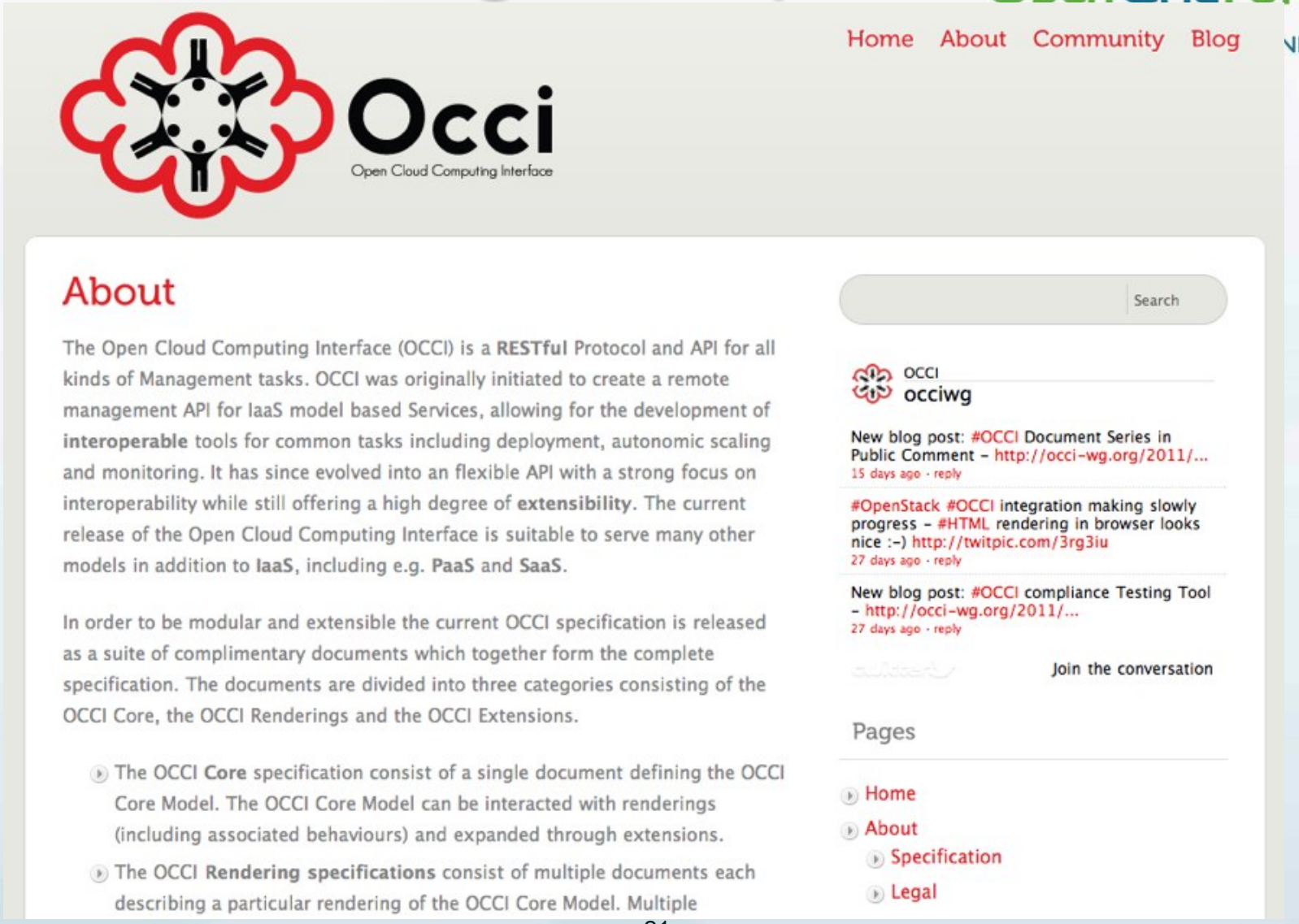
Software / Link	Specifications Implemented	Organization
SAGA-C++	**SAGA:** GFD.90, GFD.144 C++ and Python bindings	Louisiana State University (USA)
JavaSAGA	**SAGA:** GFD.90, GFD.144 Java and Python bindings	Vrije Universiteit Amsterdam (Netherlands)
JSAGA	**SAGA:** GFD.90 partial implementation Java and Python bindings	IN2P3 (France)
DESHL	**SAGA:** GFD.90 partial implementation Java binding	DEISA (EU), EPCC (UK)
BES++ for LSF/SGE/PBS	**BES/HPCBP/JSDL:** GFD.108, GFD.111, GFD.114, GFD.136	Platform Computing
Windows HPC Server 2008	**BES/HPCBP/JSDL:** GFD.108, GFD.111, GFD.114, GFD.136	Microsoft
Genesis II	**BES/HPCBP/JSDL:** GFD.108, GFD.111, GFD.114, GFD.115, GFD.135, GFD.136, GFD.149 **ByteIO:** GFD.72, GFD.87, GFD.88 **RNS:** GFD.101 **WS-Naming:** GFD.109 **Security Profiles:** GFD.131, GFD.132, GFD.138	University of Virginia (USA)

http://www.ogf.org/gf/page.php?page=Standards::Implementations

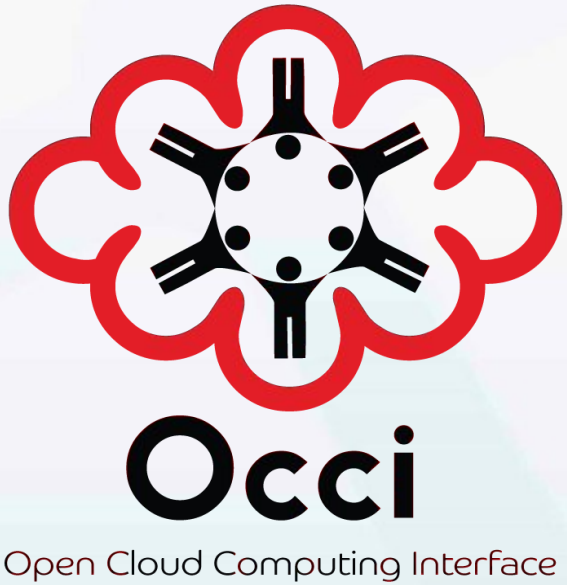
OGF and International Standards

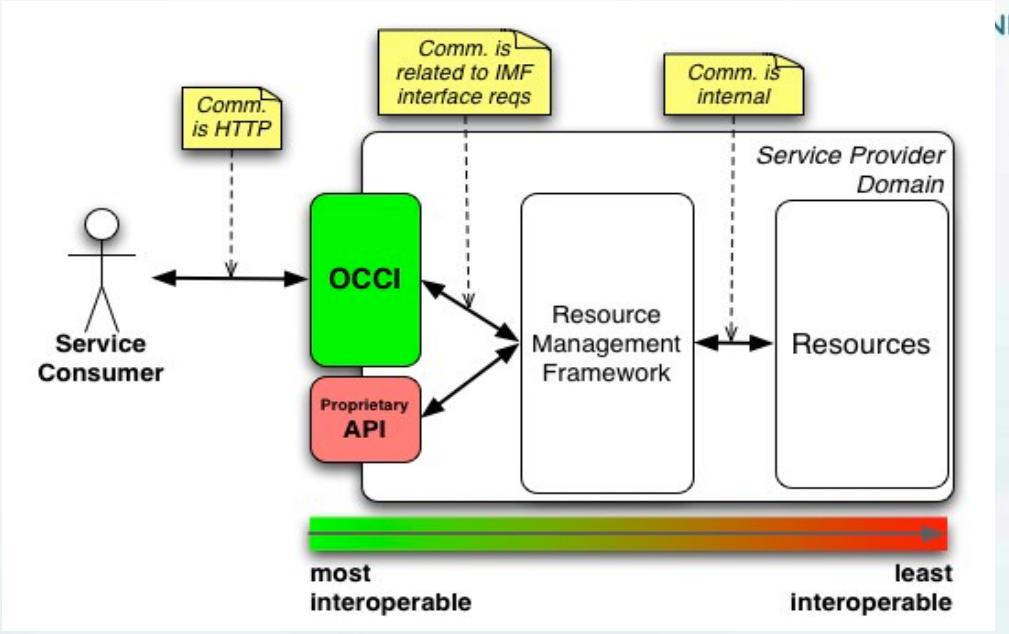
- OGF views its mission as integrally tied to the creation and implementation of **practical standards** of use across a wide variety of boundaries.
  - Interoperability and utility for implementation for multiple stakeholders, both commercial and academic, is essential
  - Interoperability and usability across international boundaries for efforts pursued on a global basis is required
- OGF's approach to standards creation and curation promotes development of standards that will be of use in **large-scale production deployments**.
- Standards are developed by **participants** in these projects.
- Now extending these efforts to cloud computing.

OCCI Working Group



Open Cloud Computing Interface®





OCCI® by OGF

- OCCI is an API and Protocol
- Sits on the boundary of a Service Provider and Service Consumer
- No assumptions about the boundary

>10 implementations!

Summary and Conclusions

- OGF is a well-established vehicle for creation, dissemination, implementation and adoption of useful cross-cutting standards for distributed grid and cloud computing software environments.
- Our *greater than decade-long track record* has produced a very large number of widely adopted standards implemented across many fields.
- OGF's involvement in cloud computing standards is firmly underway and well established.
- OGF provides a *trusted, effective path* to future software infrastructure standards development.