EGR-RG Session

2nd June ’09
Enterprise Grid Requirements Research Group
OGF23

- http://forge.gridforum.org/projects/egr-rg/
- **Group Email:** egr-rg@ogf.org

OGF IPR Policies Apply

- "I acknowledge that participation in this meeting is subject to the OGF Intellectual Property Policy."
- Intellectual Property Notices Note Well: All statements related to the activities of the OGF and addressed to the OGF are subject to all provisions of Appendix B of GFD-C.1, which grants to the OGF and its participants certain licenses and rights in such statements. Such statements include verbal statements in OGF meetings, as well as written and electronic communications made at any time or place, which are addressed to:
  - the OGF plenary session,
  - any OGF working group or portion thereof,
  - the OGF Board of Directors, the GFSG, or any member thereof on behalf of the OGF,
  - the ADCOM, or any member thereof on behalf of the ADCOM,
  - any OGF mailing list, including any group list, or any other list functioning under OGF auspices,
  - the OGF Editor or the document authoring and review process
- Statements made outside of a OGF meeting, mailing list or other function, that are clearly not intended to be input to an OGF activity, group or function, are not subject to these provisions.
- Excerpt from Appendix B of GFD-C.1: "Where the OGF knows of rights, or claimed rights, the OGF secretariat shall attempt to obtain from the claimant of such rights, a written assurance that upon approval by the GFSG of the relevant OGF document(s), any party will be able to obtain the right to implement, use and distribute the technology or works when implementing, using or distributing technology based upon the specific specification(s) under openly specified, reasonable, non-discriminatory terms. The working group or research group proposing the use of the technology with respect to which the proprietary rights are claimed may assist the OGF secretariat in this effort. The results of this procedure shall not affect advancement of document, except that the GFSG may defer approval where a delay may facilitate the obtaining of such assurances. The results will, however, be recorded by the OGF Secretariat, and made available. The GFSG may also direct that a summary of the results be included in any GFD published containing the specification."

- OGF Intellectual Property Policies are adapted from the IETF Intellectual Property Policies that support the Internet Standards Process.

Agenda

- 2nd June 2:00 – 3:30 pm

- Discussion about informational document "Guidelines of Requirements for Grid Systems"
- http://ogf.org/gf/event_schedule/index.php?id=1325

  Document (Word): Guidelines of Requirements for Grid Systems
  Other: Worksheet for document

History

- 2004 BoF and Charter approved
- **Focus/Purpose**
  - <snip> The purpose of this research group is to identify key technical requirements, scenarios and common approaches to enterprise grid computing.
- **Scope**
  - The work of this research group should include both an examination of technical requirements and an exploration of common use cases for enterprise (on-demand, utility, automated, etc.) grid systems.

History (cont.)

- 2004-2008 workshop style discussion
  - British Telecom, United Devices, NICE srl Hitachi, Intel, AIST, NEC, NTT, Platform Computing, SURA, HP/Hartford, ITWM, Tangosol, eBay, SIMDAT, Novartis …
- Use case repository
  - Template for use case
    - NEC x3, AIST

EGR-RG informational document (draft)

- requirement-guideline-20080222
  - Copyright “Grid Computing Industrial Guidelines Standardization Committee” (OGF-independent activity in Japan)

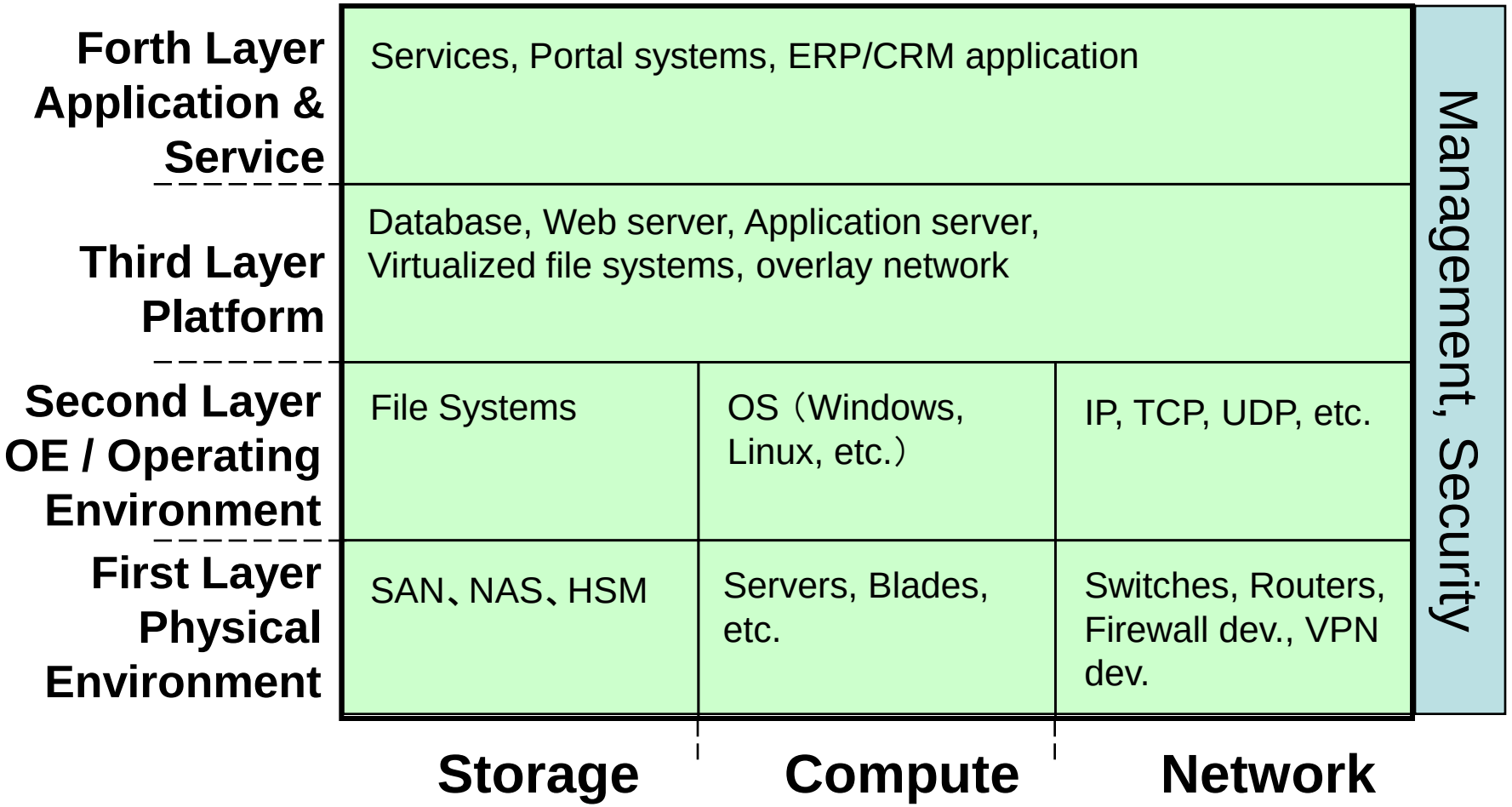
Improve and merge the use cases

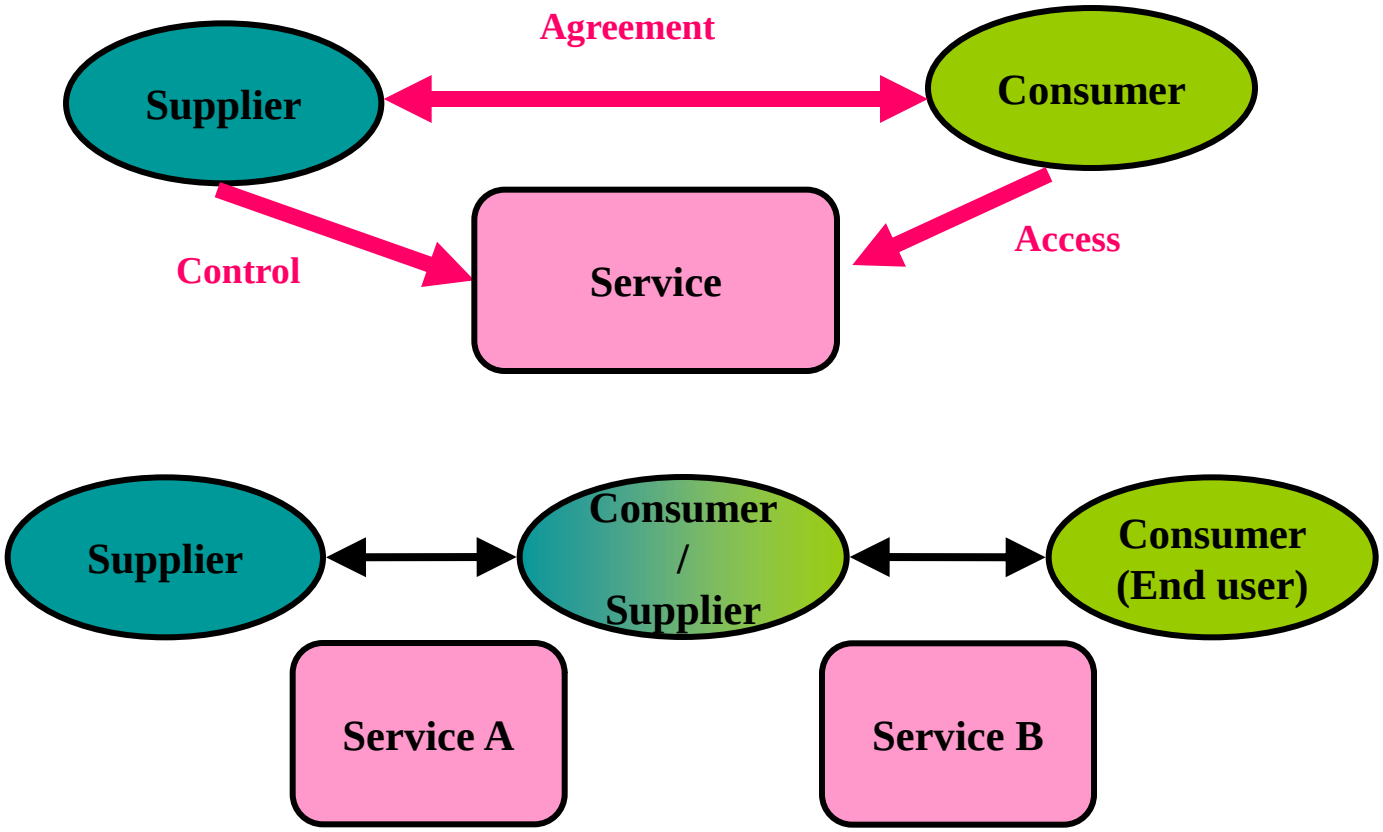
- EGR-RG Informational document
  - Copyright OGF
  - Acknowledgement in contributors
  - This document has been originally developed by “Grid Computing Industrial Guidelines Standardization Committee” on February 2008. The committee was organized in 2005 by AIST and was funded by METI through INSTAC from FY 2005 to FY 2007.

Case Study: Examples of Grid systems

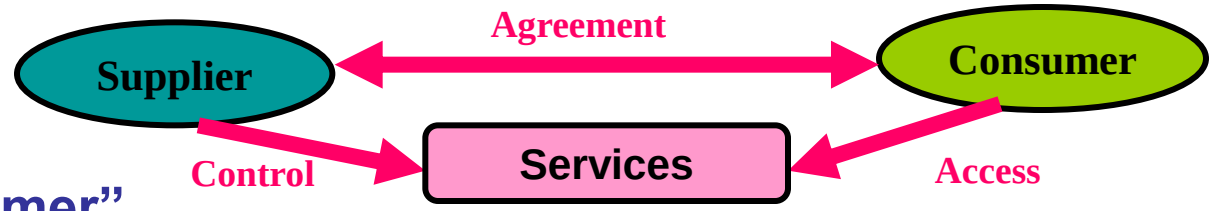
- In-house technical computing grid (Computing grid -cluster-)
  Semiconductor, Automobile, Construction
- In-house technical computing grid (PC grid)
  Novartis (Pharmaceutical company)
- In-house data grid
  Financial company
- Academic collaborative grid (Computing grid)
  APGrid (Asia Pacific Grid)
- Commercial data center grid (Business computing grid)
  Mazda operates Business Grid PJ in Japan on a trial basis
- Commercial data center grid (Commercial storage service)
  FRT(Data Center Company)

Services in Grid System




Agreement
Supplier
Consumer
Control
Service
Access
Supplier
Consumer / Supplier
Consumer (End user)
Service A
Service B

Example of Requirements for Grid Systems



"Consumer"

- The following items shall be considered as requirements from the usability point of view when consumers access services.
  - Consumers can access services without being aware of the lower level layers (including location, OS and middleware).
  - When more than one authentication mechanism are present, only a single authentication procedure is required and the rest procedures can be bypassed.

"Supplier"

- The following items shall be considered as requirements from the controllability point of view when suppliers perform control-related operations against services.
  - Resource allocation is dynamically altered according to suppliers' operation policy
  - Suppliers can view access status of consumers
  - Services include a mechanism to easily perform maintenance.

Merge the use cases

- From GGF18
  - Fleet Numerical by Platform Computing
  - Financial Service by HP and Hartford
  - SURA campus grid.
- Almost all of requirements are included in the draft.
  - The one requirement was extracted from "Financial Service by HP and Hartford".
    It is "Real-time calculation is a competitive".

- "Performance of the system satisfies the criteria".

Fleet Numerical by Platform Computing

OpenGridForum

Platform

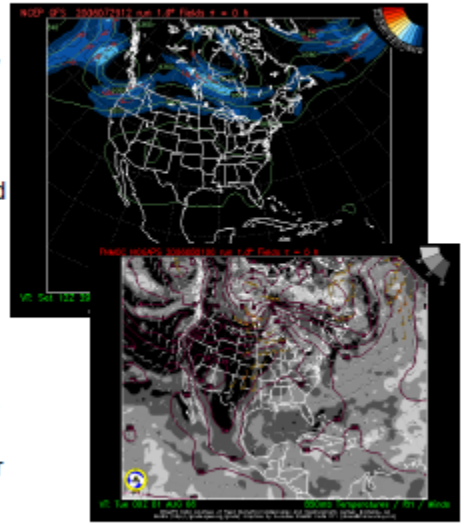
Sharing Virtualized Resources Across Multiple Locations To Realize Greater Efficiencies

Fleet
Numerical
Meteorology and
Oceanography
Center

out Fleet Numerical

the Naval Meteorology
ny Command, and one
mier Numerical
on centers

observations collected
eather balloons, etc
to predict global



3

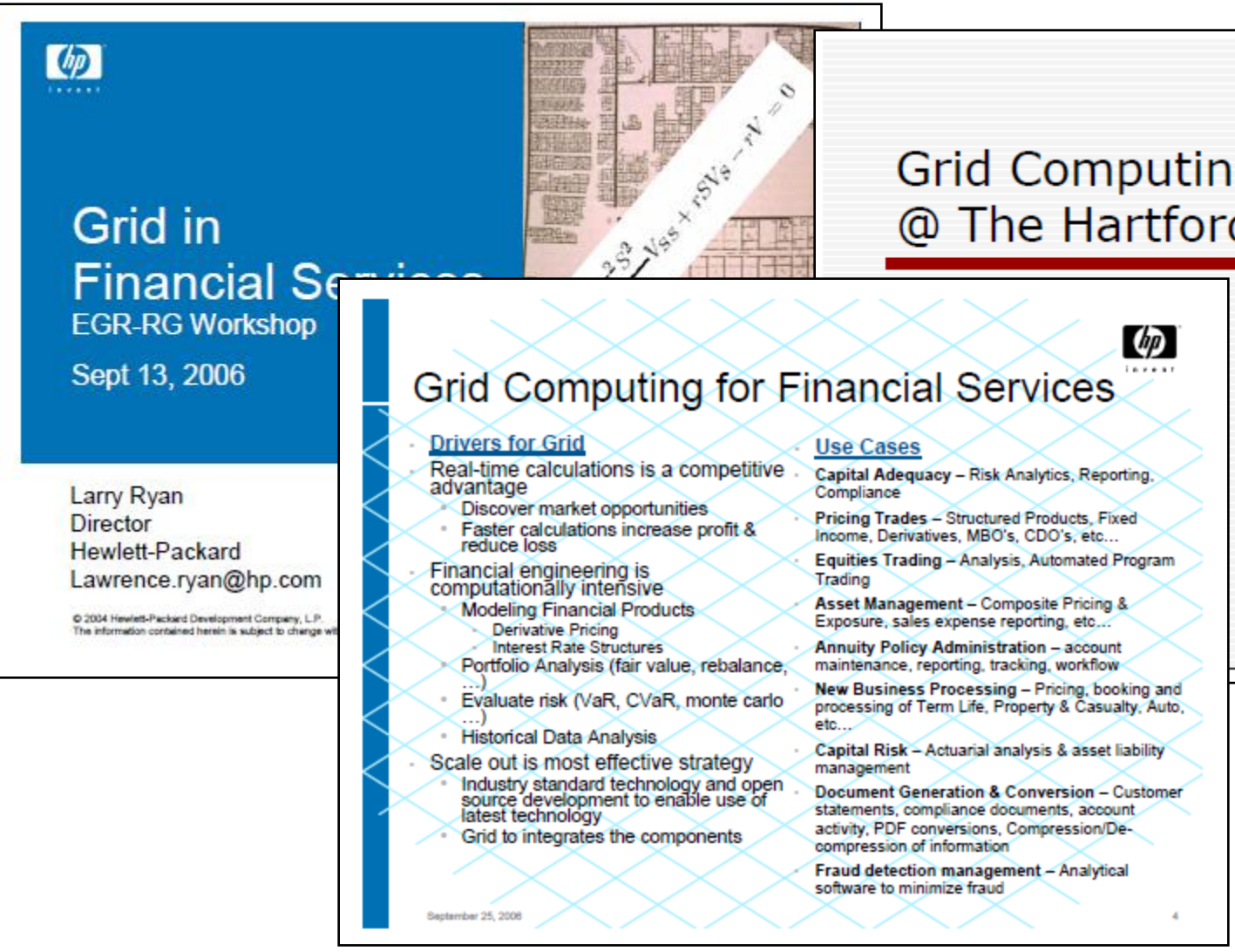
Platform

Challenges

- Maintain information with more accurate and detailed weather predictions - faster
- Easily scale to handle larger volumes of data and increasingly sophisticated models
- NWP jobs are computationally intensive and require these jobs to be executed within a strict schedule
- Complying with stringent military security requirements
- Additional HPC capacity available at NAVO MSRC, Stennis Space Center, MS located over two thousand miles away

5

Financial Service by HP and Hartford



Grid in Financial Services
EGR-RG Workshop
Sept 13, 2006

Larry Ryan
Director
Hewlett-Packard
Lawrence.ryan@hp.com

Grid Computing
@ The Hartford

Bob Nordlund
The Hartford
robert.nordlund@hartfordlife.com

12

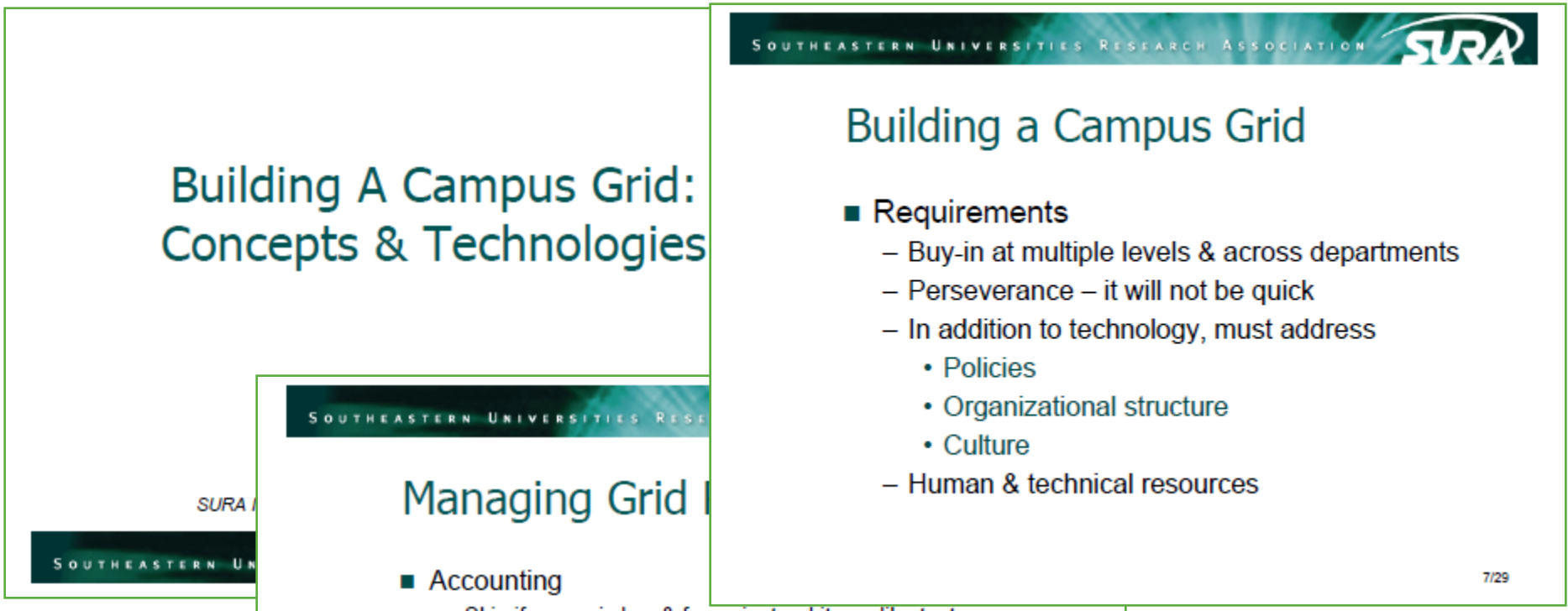
Grid Computing for Financial Services

- Drivers for Grid
- Real-time calculations is a competitive advantage
  - Discover market opportunities
  - Faster calculations increase profit & reduce loss
- Financial engineering is computationally intensive
  - Modeling Financial Products
    - Derivative Pricing
    - Interest Rate Structures
  - Portfolio Analysis (fair value, rebalance, …)
  - Evaluate risk (VaR, CVaR, monte carlo …)
  - Historical Data Analysis
- Scale out is most effective strategy
  - Industry standard technology and open source development to enable use of latest technology
  - Grid to integrates the components

- Use Cases
- **Capital Adequacy** – Risk Analytics, Reporting, Compliance
- **Pricing Trades** – Structured Products, Fixed Income, Derivatives, MBO's, CDO's, etc…
- **Equities Trading** – Analysis, Automated Program Trading
- **Asset Management** – Composite Pricing & Exposure, sales expense reporting, etc…
- **Annuity Policy Administration** – account maintenance, reporting, tracking, workflow
- **New Business Processing** – Pricing, booking and processing of Term Life, Property & Casualty, Auto, etc…
- **Capital Risk** – Actuarial analysis & asset liability management
- **Document Generation & Conversion** – Customer statements, compliance documents, account activity, PDF conversions, Compression/De-compression of information
- **Fraud detection management** – Analytical software to minimize fraud

September 25, 2006 4

SURA campus grid



How to contribute

Add your use case

		Item No.	Requirement	Technology to satisfy requirements	1. Enterprise Technical Computing Grid (Computing Grid)	Fleet Numerical by Platfrom Computing	Financial Service by HP and Hartford	2. Enterprise Technical Computing Grid (PC grid)	3. Academic Cooperative Grid (Computing Grid)	SURA campas grid	4. Business Computing Grid (Provision of server resources to business systems)	5. Storage Infrastructure Service (Storage Grid)	6. Enterprise Data Grid (Database Federation)
Access	Usability	4.1.1-a	Consumers can access services without being aware of the lower level layers (including location, OS and middleware)	virtualization technology	Job submission to execute application and retrieval of result are possible without being aware of the location of resources to be executed and the OS used. (necessary)	Multi site, heterogeneous platform	Multi site	Job submission to execute application and retrieval of result are possible without being aware of the location of resources to be executed and the OS used. (necessary)	Job submission to execute application and retrieval of result are possible without being aware of the location of resources to be executed (compute server, data) and the OS used. (necessary)	Across Departments access to other campuses' resources	It is available without being aware of the location of services. (necessary)	Storage resources are virtualized, and the way of accessing their logical location and interface is provided. Namespace and access method of resources are logically provided and therefore they will not be recognized by consumers when physical resources are changed.	Job submission to execute data reference and retrieval of result are possible. (necessary)
		4.1.1-b	Services are accessible using a uniform interface	Standard interface	Job execution can be requested from the same interface without relying on the OS and middleware of compute resources.	single 'console' across locations		N/A	Uniform interface to heterogeneous computer is provided (necessary)	Portal accessibility	Uniform interface to the services is provided. (necessary)	Either data and files to storages, and access and control of database are standardized or they are provided by the interface that aims to be industry standard.	Access to database is possible from a uniform interface. (optional)
		4.1.1-c	Access protocols to services are selectable where there are more than one access protocols present		N/A			N/A	N/A		N/A	Access methods of storage provided are virtualized and multiple selections are possible. Specifically, the following access methods are possible. <Block> <FILE> *iSCSI *NFS *FC-SAN *CIFS *SATA *SMB *SAS : :	N/A
		4.1.1-d	Existing applications are operable without any change		It can be used without changing commercial applications.		Ability to minimize application changes to take advantage of a Grid-based infrastructure	N/A	Programs by users can be used. (necessary) It can used without changing commercial applications. (preferable)		N/A	Compatible systems for each system of DB, contents, files and block that existing applications use are provided and they are available for use without restructuring applications.	It can be used without changing commercial applications.
		4.1.1-e	When more than one authentication mechanisms are present, only a minimal authentication mechanism is required	Realized by single sign-on technology (Proxy certificate and delegation)	Access to multiple computer systems is possible without multiple signing-in.(necessary)			Access to multiple computer systems is possible without multiple signing-in.(necessary)	Access to multiple computer systems is possible without multiple signing-in.(preferable)		Access to multiple services and management systems is possible without multiple signing-in.(necessary)	When multiple systems are involved in authentication, authorization and signature of access to storage system, it can collaborate with multiple authentication systems or with a system that integrates them.	Access to multiple computer systems is possible without multiple signing-in.(necessary)
		New	Performance of the system satisfies the criteria				Real-time calculation is a competitive advantage						

Add requirement

Add example

Item No.	Requirement	Technology to satisfy requirements	1. Enterprise Technical Computing Grid (Computing Grid)	2. Enterprise Technical Computing Grid (PC grid)	3. Academic Cooperative Grid (Computing Grid)	4. Business Computing Grid (Provision of server resource business systems)
4.1.1-e	When more than one authentication mechanisms are present, only a minimal authentication mechanism is required	Realized by single sign-on technology (Proxy certificate and delegation)	Access to multiple computer systems is possible without multiple signing-in.(necessary)	Access to multiple computer systems is possible without multiple signing-in.(necessary)	Access to multiple computer systems is possible without multiple signing-in.(preferable)	Access to multiple services management systems is pos without multiple signing-in.(necessary)
4.1.2-a	Consumers and services are mutually authenticated					
4.1.2-b	Confidentiality, completeness and availability of accesses to services by consumers are guaranteed	Policy control	To which computers consumers are accessing is not open to other consumers. Range of computers available to consumers is controllable.	Range of computers available to consumers is controllable.	Communication channels of accesses are encrypted. (preferable) Range of computers available to consumers is controllable. (necessary)	
4.1.2-c	Confidentiality, completeness and availability of contents such as data generated by accesses to services by consumers is guaranteed	VM technology, VLAN technology	Jobs and data are protected from other consumers on the server (management node) which distributes jobs to compute resources (compute node). (necessary)	Jobs and data are protected from other consumers on the server (management node) which distributes jobs to compute resources (compute node). (necessary)	Jobs and data are protected from other consumers on the server (management node) which distributes jobs to compute resources (compute node). (preferable)	Business programs and data consumers in grid systems a protected from other consum (necessary)

How to contribute (cont.)

Requirements are categorized by kinds of players and operations.

4.1 Access

4.1.1 Usability

The following items shall be considered as requirements from a usability point of view when consumers access services.

* a: Consumers can access services without being aware of the lower level layers (including location, OS and middleware)
* b: Services are accessible using a uniform interface
* c: Access protocols to services are selectable where there are more than one access protocols present
* d: Existing applications are operable without any change

* e: When more than one authentication mechanisms are present, only a minimal authentication mechanism is required
* f: Performance of the system satisfies the criteria

Add requirement

4.1.2 Security

The following items shall be considered as requirements from a security point of view when

Schedule

- OGF23 : 09’ June Barcelona
  - Explain how to contribute the document
- During June - August
  - Accept additional requirements and comments through e-mail
- OGF24 : 09’ Sept. Singapore
  - Summarize the requirements and comments
  - Submit the document to GFSG, ASAP
- After OGF24 (hope before OGF25)
  - Public comment
  - Publish the document

Full Copyright Notice