IBM Systems and Technology Group University 2005

Identifying & Selling Grid Solutions

Grid and Virtualization
Sales Executive team

ON DEMAND BUSINESS™

As an STG seller, how can grid help me?

1. Grid is a powerful competitive weapon!
2. Grid differentiates IBM and helps sell our servers and storage!
3. Grid is an integral part of IBM's On Demand Strategy!
4. Grid is about business value and business transformation!
5. Grids are being built on an open standards ecosystem!
   - and seemlessly links to our Linux, Deep Computing and Virtualization plays
6. Grid helps you sell more of our stuff with our stuff (SOSWOS)!
   - Not only hardware, but software and services as well!

Agenda

1. **What is Grid?**
2. **How Do I Identify a Grid Opportunity?**
3. **Show Me How a Grid Works**
4. **Why Should I Sell a Grid Solution?**

Appendix

- Who's who in the grid team?
- Where can I learn more about grid?
- Education – Classes / Workshops
- Redbooks
- Glossary
- Key websites
- Opportunity Identification flowcharts

World Community Grid

Creating the largest public computing grid

– for the benefit of humanity

Organization

- IBM donated the hardware, software, technical services and expertise to build the infrastructure and provides free hosting, maintenance and support
- Advisory Board comprised of international experts including representatives from:
  - **United Nations**
  - **The Mayo Clinic**
  - **Environmental Protection Agency**
  - **World Health Organization**
  - **National Science Foundation**

Technology

- Volunteers download a small, free agent at www.worldcommunitygrid.org
- When idle, PCs request data from the WCG server, perform computations, send back results and request it for new work

Potential Projects:

WCG is a resource for research with a philanthropic or humanitarian purpose, conducted by public and not-for-profit organizations with the results available in the public domain.

•New and Existing Disease Research
•Natural Disasters and Hunger
•Environmental Research

First Project: Human Proteome Folding Project

Will provide scientists with data that predicts the shape of human proteins. With an understanding of how each protein affects human health, scientists can develop new cures for human diseases.

Agenda

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2. How Do I Identify a Grid Opportunity?
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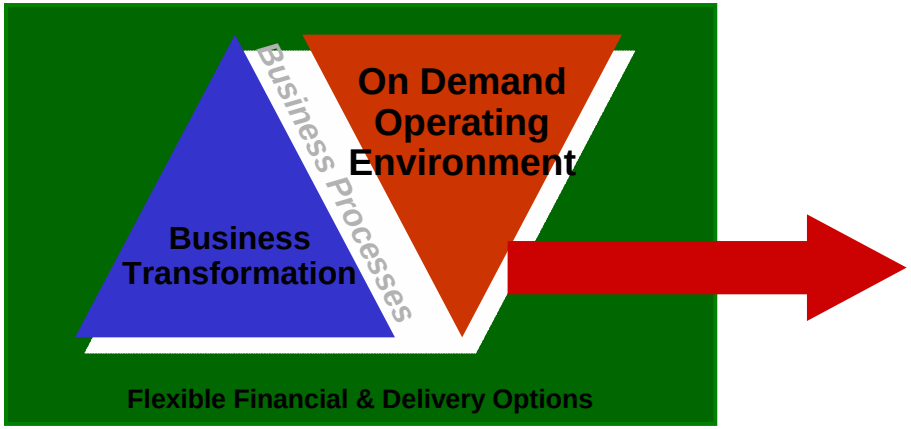
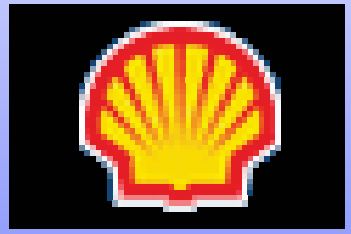
Grid Computing: An Enabler of On Demand Business

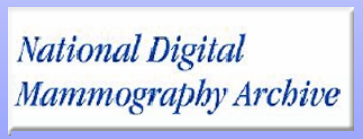


- **Virtualized**
- **Autonomic**
- **Open**
- **Integrated**

- Grid Computing is an integral part of IBM's On Demand Business strategy!
- Grid Computing is about virtualizing resources!
- Grid is about business value and business transformation!
- Customers are using IBM Grid Offerings to start small and grow!

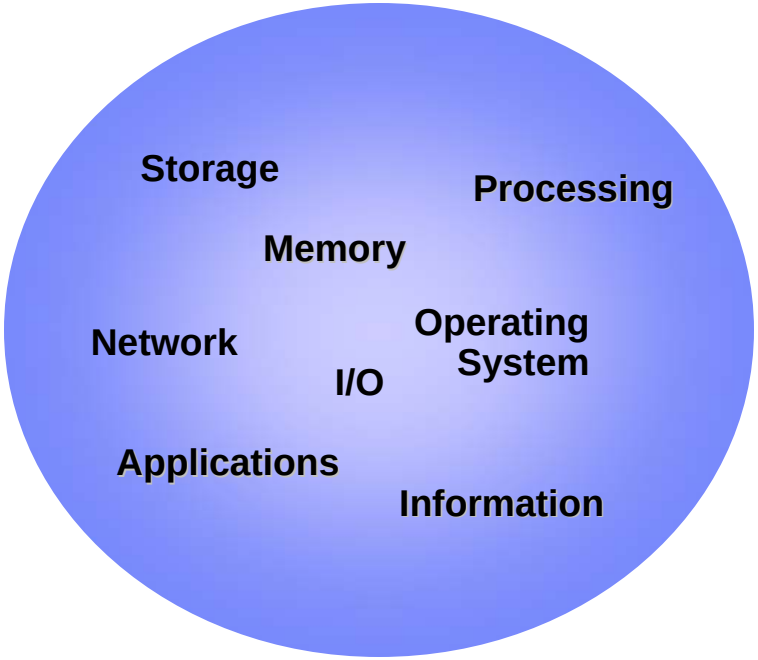
Marketplace Momentum – References Set IBM Apart



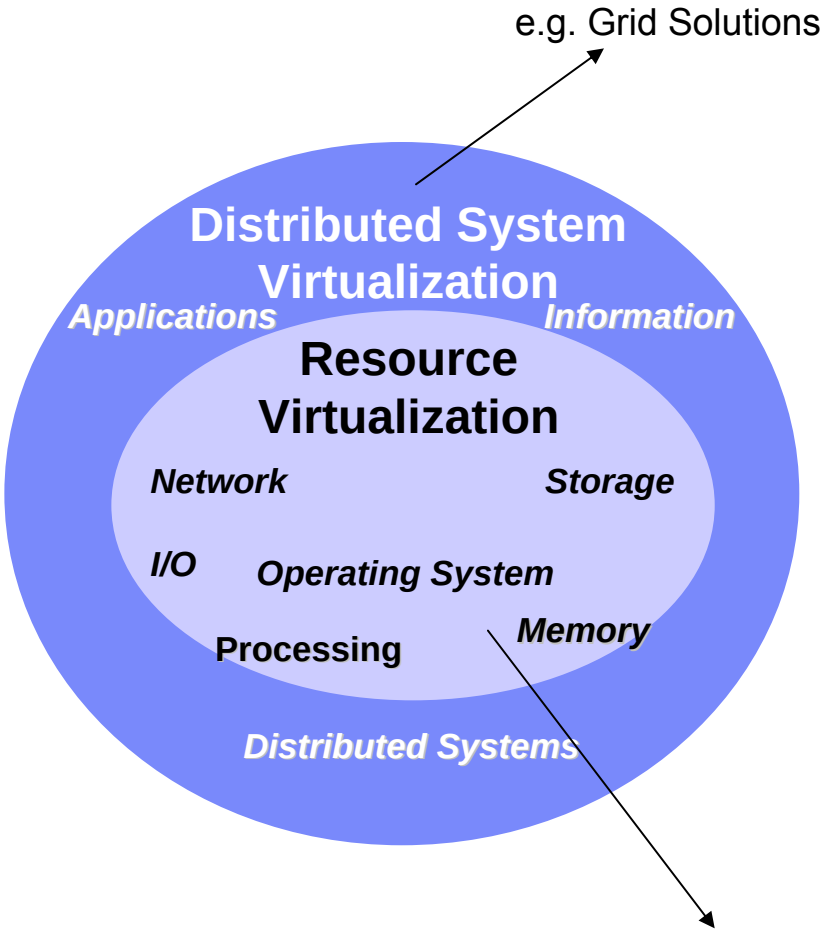


Virtualization

"Virtualization is the process of presenting computing resources in ways that users and applications can easily get value out of them, rather than presenting them in a way dictated by their implementation, geographic location, or physical packaging. In other words, it provides a logical rather than physical view of data, computing power, storage capacity, and other resources."
Jonathan Eunice, Illuminata Inc.



Why Virtualization?

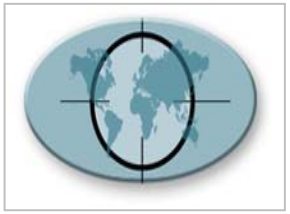


Customer Requirements

- **Lower the cost of their existing infrastructure by reducing operation and systems management cost while maintaining needed capacity.**
- **Reduce the complexity of adding to that infrastructure**
- **Gather information and collaboration across the organization to increase both the utilization of information and its effective use**
- **Deliver on SLA response times during spikes in production and test scenarios.**
- **Build heterogeneous infrastructure across the whole organization that are more responsive to the organization's needs**

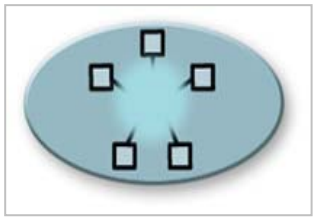
Virtualization Solutions - Stages

Orchestrate Infrastructure: **Sense and respond to changes based on policies**



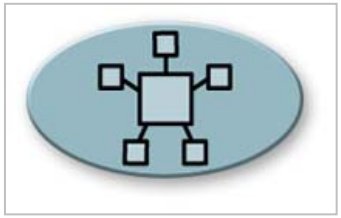
Virtualize Outside The Enterprise: **Suppliers, partners, customers and external resources**
(e.g. Public Grids)

Secure Cross Enterprises: **Enable internal & external integration & resources**

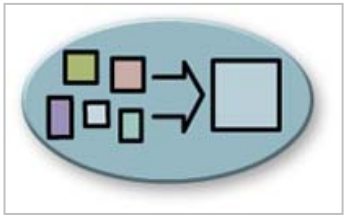


Virtualize The Enterprise: **Enterprise wide Grids and Global Fabrics**
(e.g. zSeries, Grid Enterprise Optimization)

Automate Workflows: **Tasks like change/config & ITIL processes**



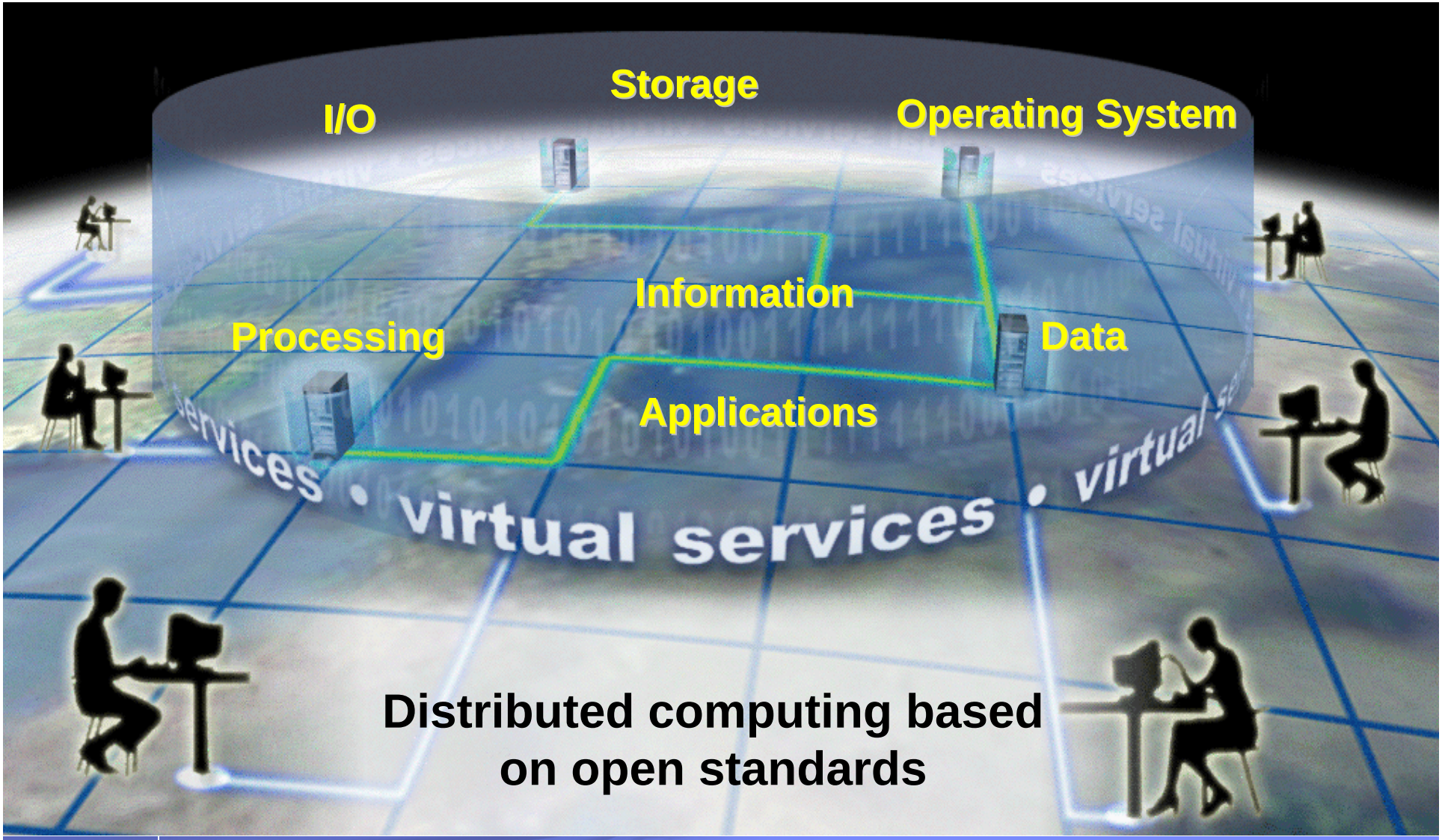
Virtualize Unlike Resources: **Heterogeneous systems, application based Grids and networks**
(e.g. VE Enterprise Edition; Grid Focus: Business Analytics, Engineering and Design, R&D, Gov't Dev.)



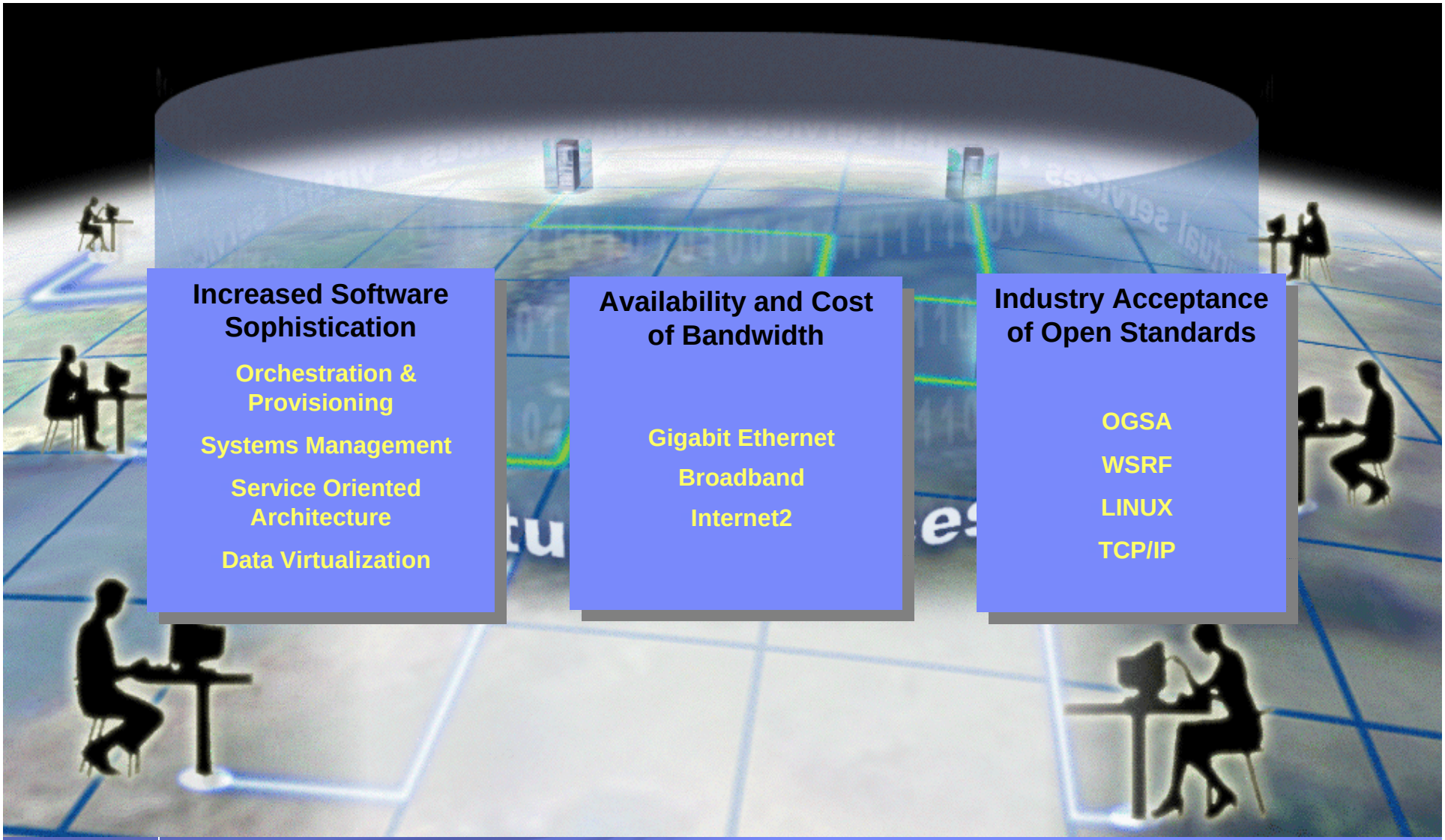
Virtualize Like Resources: **Homogenous systems, storage and networks (**e.g. VE Standard Edition)

Updated IT Governance and Management Processes

Grid Computing is about virtualizing and sharing resources



Key enablers of Grid Computing



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Grid Computing Focus Areas

Business Analytics	Engineering & Design	Research & Development	Government Development	Enterprise Optimization
Enable faster and more comprehensive business planning and analysis through the sharing of data and computing power	Share information and computing power, for sophisticated engineering and scientific applications	Accelerate and enhance the R&D process by enabling the sharing data and computing power seamlessly for research intensive applications	Create large-scale IT infrastructures to drive economic development and/or enable new government services	Optimize computing and data assets to improve utilization, efficiency and business continuity
				
• Better Decision Making • Time to Solution • Reduced Costs	• Improved Product Design • Time to Solution • Reduced Costs	• Improved Collaboration • Time to Solution • Reduced Costs	• Better Decision Making • Improve Collaboration • Stimulate Economic Development	Improved: •Resiliency •Productivity Reduced: •Costs •Complexity

Environmental Protection Agency

Government Development

Challenge:

Build and deploy enterprise Data and Computation Grid across EPA – to leverage aggregated intellectual, physical and computational resources of EPA and partner organizations

Solution:

- ✓ IBM Global Services and Computer Sciences Corporation (CSC)
- ✓ Avaki Data Grid
- ✓ eServer pSeries,
- ✓ IBM Grid Toolbox

"Through grid services, EPA researchers, partners, and stakeholders have access to geographically distributed computing and storage. Such broad access to enhanced resources supports the in silico transformation of EPA's science." *Dr. Gary Foley, Director, National Exposure Research Laboratory, EPA*

Benefits:

- Reduce barriers and stovepipes between EPA labs and Program Areas
- Enable productivity gains – collection and sharing of information in a timely and efficient manner across all of EPA's community
- Improved resource utilization and lower IT unit cost
- Enable faster 'time to solution'
- Increased data management efficiency
- Enable researchers to now perform calculations with a wider spread of variables

How Do I Identify a Grid Opportunity?

Grid is a powerful competitive differentiator and competitive weapon!

- **Use with customers where you are targeting a non-IBM environment in one of the Grid Focus Areas.**
- **Multiple examples where we replaced or added to competitive systems:**
  - **External references: Schwab, Magna Steyr,**
  - **Internal references: Mass Mutual, ICM Seimens, Airbus, Kaiser Permanente**
- **Open standards based strategy is appealing to a wary customer considering switching to IBM (avoids lock-in).**
- **Use IBM references to demonstrate our clear leadership**

SIEMENS Mobile

Engineering and Design

Challenge:

- Increasing demand for rapid development of mobile phone software caused a continuous growth of compute and storage infrastructure.

- The existing IT architecture and the current set- up of the software revision system were not scalable enough to ensure a predictable quality of service.

Solution:

✓IBM Global Services
✓Platform LSF
✓IBM xSeries e325 AMD Opteron servers
✓SUSE Linux

SIEMENS mobile

Benefits:

- Siemens Mobile can now set up a scalable system which will be able to adapt to their current and future demands for mobile phone software development.

- Better manageability and failure detection, critical set up of the individual development environments, is now decentralized and distributed.

- The compute intensive compilations are separated from the centralized CVS installation. This allows the compute intensive compilation workload to be distributed to the least used resource in the Grid.

"We chose an IBM Grid Computing for our phone software development in order to increase our quality of service levels. This fits with our continuous growth plans perfectly."

Ulf van Laak, Engineer of Development at Siemens ICM Kamp-Lintfort

How Do I Identify a Grid Opportunity?

"Engaging a Grid discussion opens up the entire customer infrastructure"

Richard Bailey, Industrial Sector eSM, EMEA

Grid is about improving infrastructure utilization and professional productivity!

- ***Heterogeneous IT optimization:***
  - ***Server load balancing***
  - ***Storage, file and database virtualization***
- ***Accelerating time to results***
  - ***Either via compute aggregation or via better workload distribution***
- ***Enabling Collaboration***
  - ***Federated information across the enterprise and/or with partners***

Yamanouchi Pharmaceutical Co., Ltd

Research and Development

Challenge

Increase the speed of analysis processing for *in silico* drug discovery

Solution

Virtualize a large number of office PCs by using the Grid Middleware. This provides a distributed high-speed , large volume processing system for the drug discovery research system.

- ✓**H/W : IBM xSeries Linux Cluster, ThinkPad®**
- ✓**Grid Middleware : Platform ActiveCluster**
- ✓**Application : *in-silico* screening**

Yamanouchi

Technology Benefits:

- Shorten the process time from 3-4 weeks to 3-4 days

Business Benefits:

- **Expedite the research into drug discovery**
- **Improve TCO by utilizing existing IT resources.**

"The IBM Grid Computing implementation, based on existing IT resources, allows us to accelerate our research in the drug discovery process through large scale analysis."

Masaya Orita, Ph.D.
Institute for Drug Discovery Research
Yamanouchi Pharmaceutical Co., Ltd

How Do I Identify a Grid Opportunity?

"Grid helped us replace Sun and deploy a Linux-based BladeCenter at my account. Before this the customer would not consider replacing their Sun system with Linux. ”

Scott Phifer, eSM, Americas

Grid has great synergy with our other strategic efforts!

- **Grid architecture often accompanies a move to Linux and/or scale-out (aka Blades) architecture.**
- **Grid offerings aligned to specific industry pain points.**
- **Grid is becoming a required part of many Deep Computing opportunities.**
- **Grid fully extends our virtualization strategy to the open systems environment.**
- **SGB integrated offerings have “grid inside”.**
- **Designed to demonstrate IBM leadership in the Systems marketplace.**

OME Project (Outils Métiers pour l'Emboutissage)

Enterprise Optimization

Challenge: ASP for Metal Stamping

CETIM, GIMEF, 16 manufacturers and the French Ministry of Finance and Industry are collaborating on an OME project to develop a software Web workshop for metal stamping tools

CETIM clients utilize the ASP, which hosts the application, for simulations of metal stamping. The flexible on demand infrastructure has to provide variable levels of service that could be billed based on usage

Solution

The IBM Grid solution includes

- IBM eServer® x325 running Linux
- GridXpert Synergy™
- ESI PAM-STAMP

OME

cetim

Technology Benefits

- **OME's clients will get access to an integrated technological environment**
  - Enabling on demand application
  - Via a fully secured Web interface

Business Benefits

- **Reduced development costs and lead times for OME clients**
- **A project closely coupled with Cetim's core mission of companies innovation support**

"Working with IBM and GridXpert in implementing a grid means that we'll be able to offer our clients a flexible, on demand, environment for running simulations so that they can make use of the infrastructure when they need it and only get billed for what they use"
– Claude Bouhêlier, OME project coordinator, Cetim

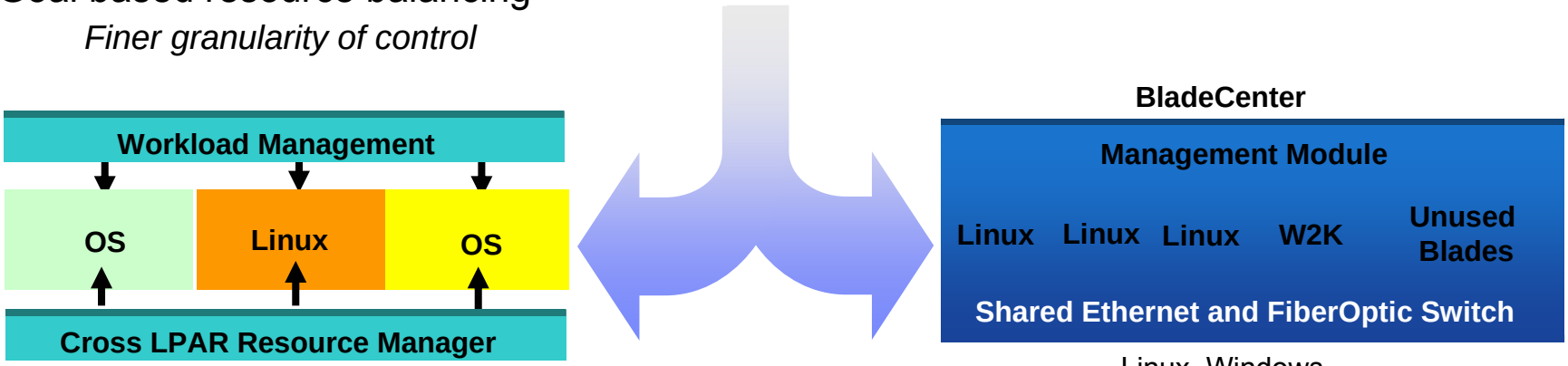
eServer & Grid Value Proposition

"They are now in production and have said that their costs will be 60% lower, performance is 50% faster, and they are now deciding what additional applications should move to Linux. Grid has been a game changer! " Scott Phifer, eSM, Americas

- **Balanced performance leadership and choice in operating environments**
- **Application flexibility, while continuing to be a leader in overall support of open standards.**
- **Common technology support for Grid such as LPARs, workload manager, clustering and capacity upgrade on demand.**
- **Leader in providing self-managing systems and extending business policy based workload management capabilities across server line.**

Goal based resource balancing

Finer granularity of control



zSeries Intelligent Resource Director

Linux, Windows, …

Standby Capacity on Demand

Heterogeneous Workload Management

MAGNA STEYR

Engineering and Design

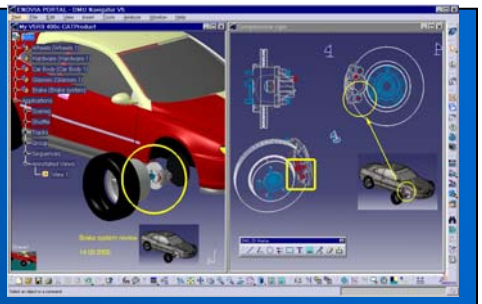
Challenge:

- **Too much time required to effectively run clash tests between complex sub-assemblies which impacts quality of the end product and getting the product to market on time.**

- **Too much administrative time required from design engineers**

Solution:

Grid enabled clash environment running Platform Computing as Grid Middleware provider w/ Dassault Systemes CATIA & ENOVIA DMU applications providing clash detection analysis

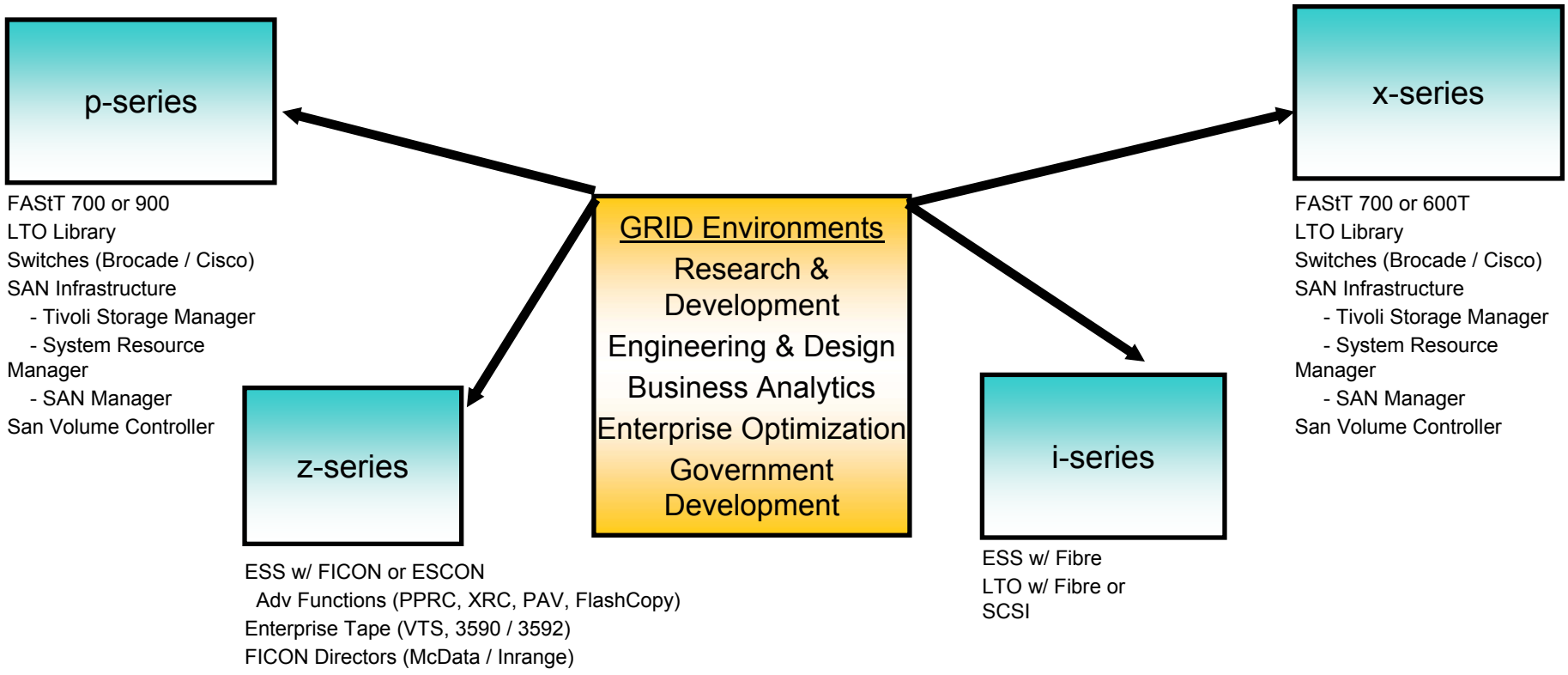


Benefits:

- **Significant performance improvement (72 hrs to 4 hrs)**
- **Risk and Error Reduction**
- **Cost Reduction**
  - **Increased accuracy of data improves quality and reduces late changes)**
- **Improved Time to Market**
  - **Faster evaluation of design alternatives**
  - **More accurate and timely product development**

"Grid technology from IBM and Platform Computing reduced the time required for our clash testing from 72 – 4 hours and contributed significantly to enhancing our design quality," said Dr. Heinz Mayer, MAGNA STEYR.

Total Storage and Grid



How can Grids benefit from TotalStorage?

TotalStorage for Disk, Tape, NAS, SAN, Virtualization, Storage Management Software, and Services from high end to entry level for reducing downtime with high availability solutions, providing customer choice through open standards, reducing complexity by deploying growing and maintaining infrastructures, enhancing productivity through automated solutions. In the era of reference data requirements, TotalStorage can assist our clients in managing their data requirements.

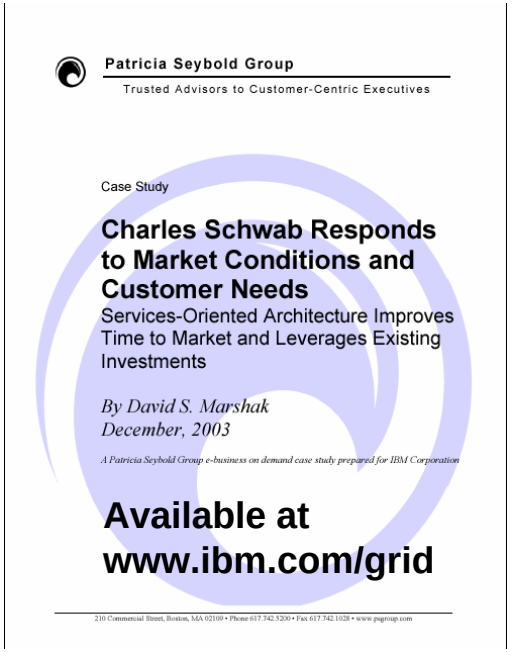
Charles Schwab

Business Analytics

"Grid helped us displace Sun and install the first ever x-series at Charles Schwab. We are now working with Schwab on storage virtualization, another outgrowth of this same On Demand project."
Steve Grove, Managing Director

- **Reduced the processing time on an existing wealth management application, from more than four minutes to fifteen seconds**
- **Will allow Charles Schwab to potentially increase customer satisfaction by responding to inquiries at a faster pace**
- **Planning to explore leveraging Grid computing into other key business areas**

charles SCHWAB



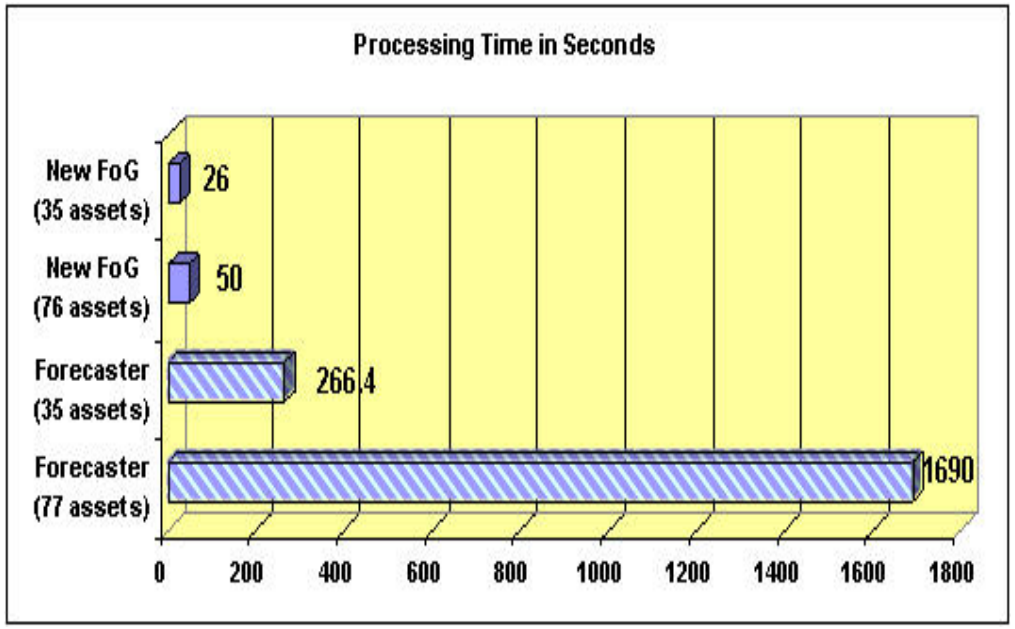
"We believe that Grid computing … has the potential to greatly improve our quality of service and be a truly disruptive technology."

--Oren Leiman, Managing Director, Charles Schwab

Charles Schwab - Performance Benchmark Results

Building a new, shared compute infrastructure

Old Application on Sun Environment



New Application on IBM Grid

Forecaster Solaris Run	Dec. 10th New FoG Run	% Reduction in Response Time vs. Forecaster Solaris*
76/77 asset portfolio (Very Complex)		
1690 sec.	**50 sec.**	97%
35 asset portfolio (Complex)		
266.4 sec.**	**26 sec.**	90%

The Solaris Performance Run for a single user job, 76/77 asset portfolio, is showing a whopping 97% cut in processing time –over 27 minutes saved

*Calculation: (50 sec./ 1690 sec. -1)*100 = -97%; (26 sec./ 266.4 sec. -1)*100 = -90%

**266.4 sec. result was scaled to 25K computational paths

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Demonstration Scenario

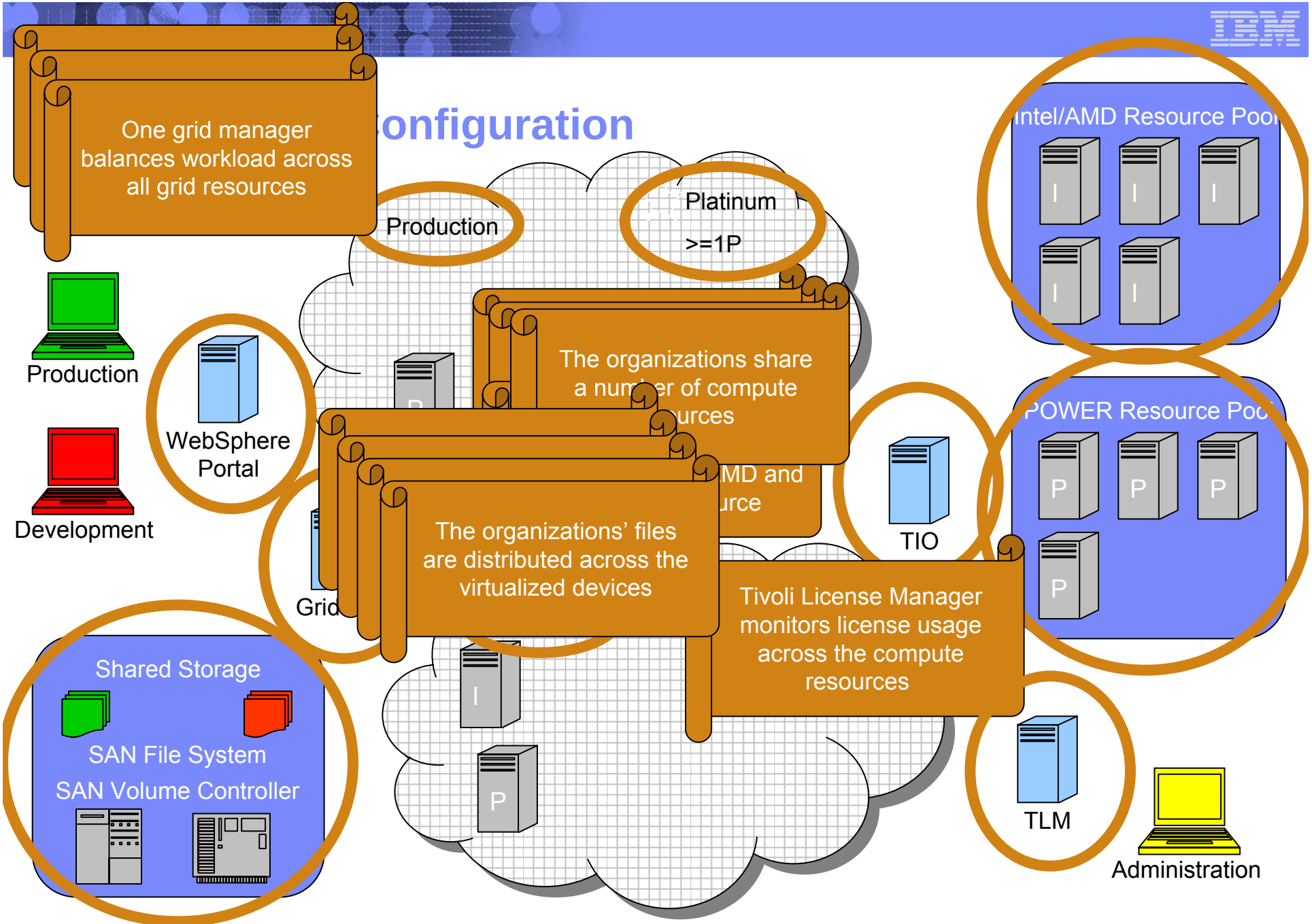
Before

- **An enterprise has two organizations, Production and Development**
- **Each organization has their own private compute and storage resources**

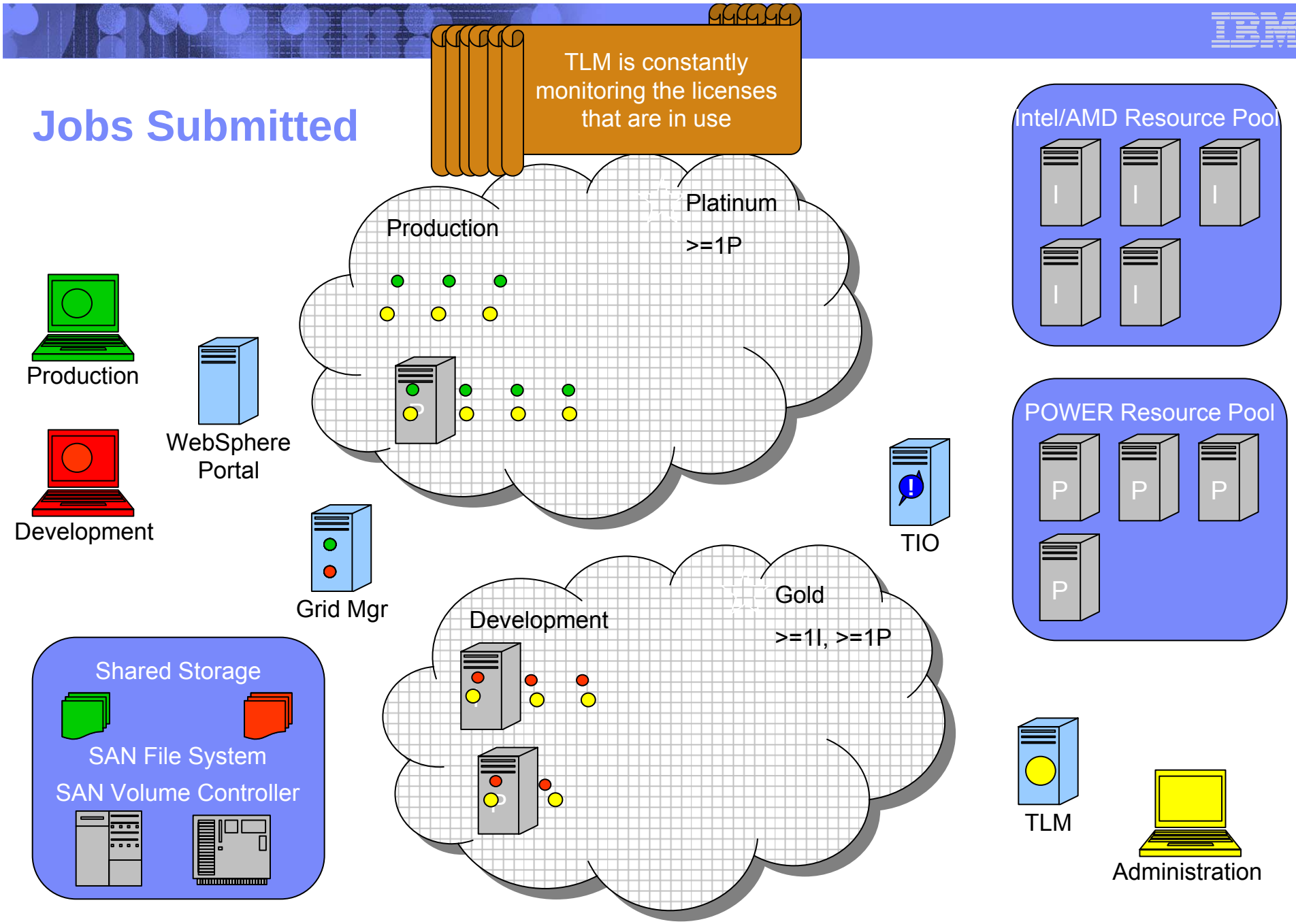
After Enterprise Optimization Grid

- **Production and Development have agreed to run their applications in a shared environment**
- **Each organization shares many of their previously private resources into a common pool**
- **Priorities and policies control the allocation of resources**
- **Resources are automatically configured based on specific jobs**

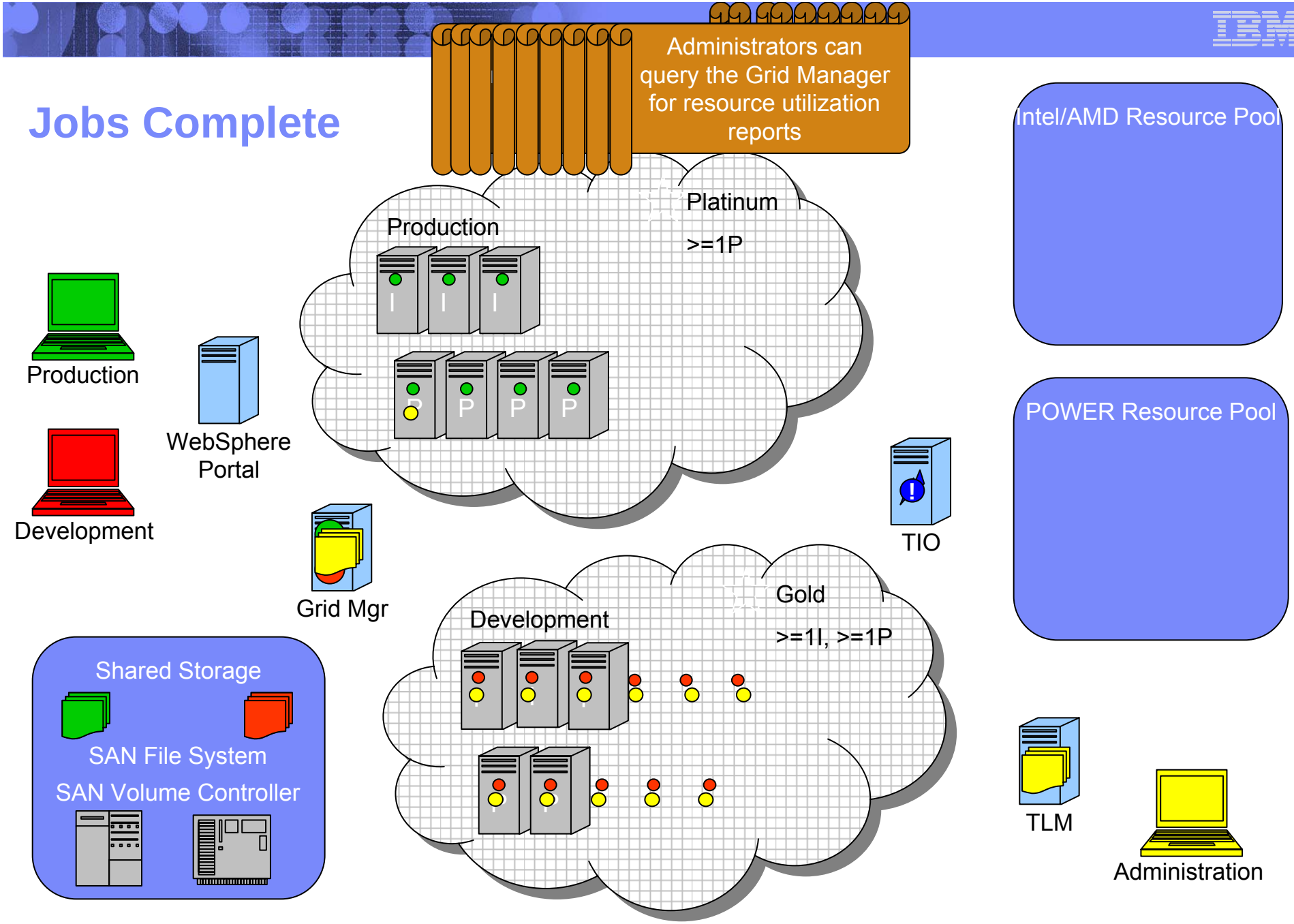
onfiguration



Jobs Submitted



Jobs Complete



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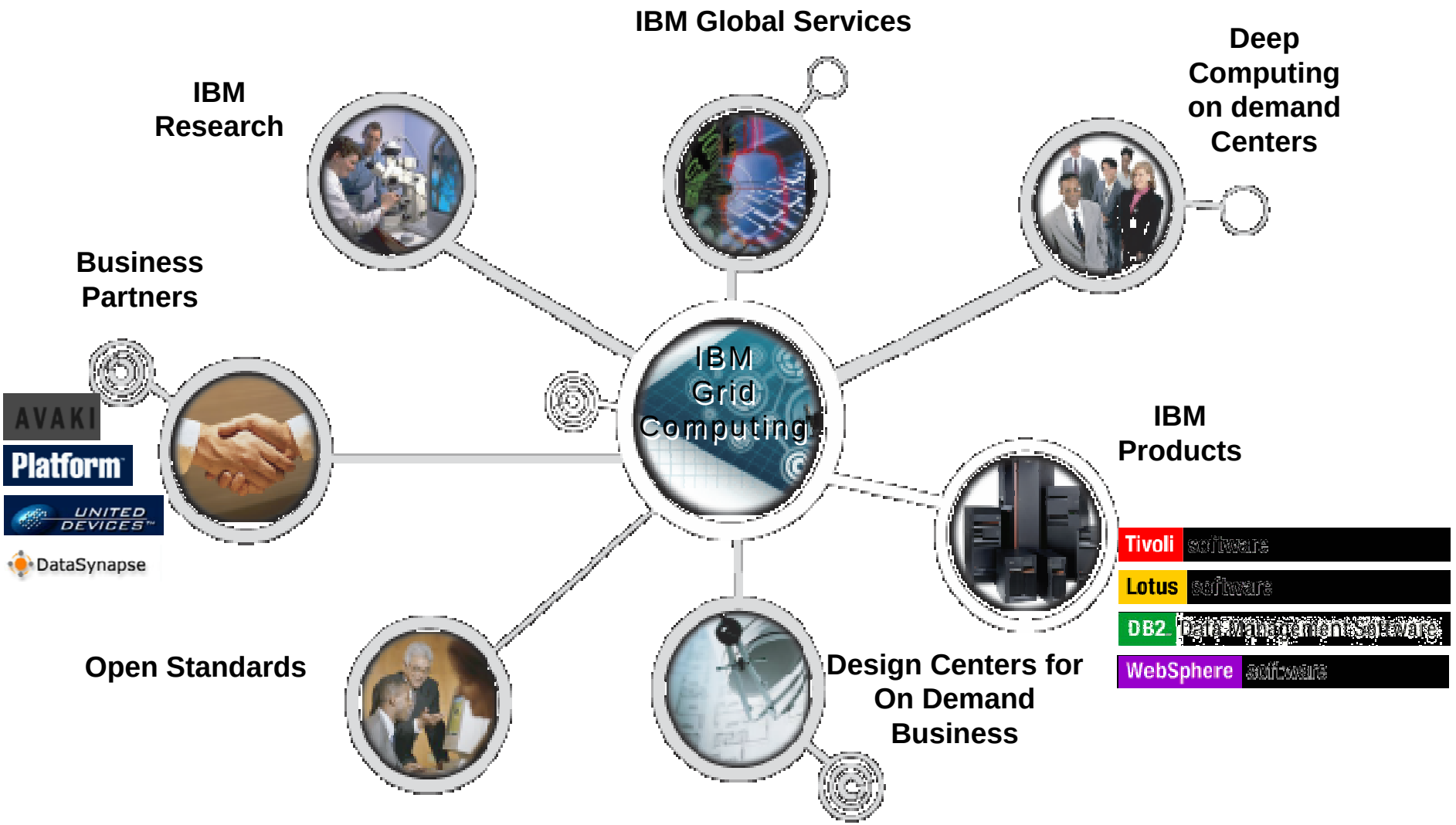
Grid helps you sell more stuff by…

- **Improving server and storage utilization by virtualizing those resources and then applying those resources against common problems**
- **Reducing application runtimes through grid enablement (e.g. job and task scheduling across distributed, heterogeneous resources)**
- **Creating high availability and improve uptime**
- **Highlighting competitive advantage of our hardware**

IBM's Breadth of Capabilities



Why sellers should be interested in selling Grid Computing

- Helps you sell more stuff by improving the price/performance of your stuff
- Opens doors to new clients
- Sales today lead to more sales tomorrow
- Quickly creates business and IT value for your clients
- Grid offerings are a competitive weapon
- Grid is always on demand

"Won't selling Grid solutions diminish my HW sales?"

- **Grid computing increases the need for new HW over time**
  - Encourages more complex IT operations
  - Creates a use for excess/unused capacity
  - Increase in complexity x multiple user groups = need for new purchases
  - Creates a need for Grid-enabled HW and SW
- **Be a thought leader – don't play catch-up**
  - It will be difficult to break-in once a non-IBM Grid solution is selected
- **Many Grid deployments accompany a shift from Unix to Linux**
- **Your customers are interested in Grid technologies**
  - If you don't speak to your customer, the competition will

Reasons Why Clients Should Choose IBM Grid Computing

- **IBM has implemented Grid computing 100's of customer organizations worldwide**
- **Clients can start small and grow with IBM's Industry-focused Grid offerings**
- **Analysts and Media continually cite IBM's Grid computing leadership**
- **IBM is working with the leading application ISVs, like SAS, Dassault, Cadence, Accelrys, Algorithmics, Chordiant, Murex, etc - Grid-enabling their applications via IBM technologies and workshops**
- **Expertise in scaling key grid technologies like: WebSphere, DB2,Tivoli, Platform, DataSynapse, Avaki, Globus, etc. -**
- **IBM's deep commitment to open standards (e.g. OGSA, LINUX, Web Services)**
- **IBM Business Consultants can help clients leverage grid technology to create business value**
- **IBM has trained grid computing technology experts in every major global market**
- **IBM world-class and worldwide support - Grid Briefing Centers, Grid Design Centers, Grid Integration Center, ISV Innovation Centers, etc.**
- **IBM is enabling many Business Partners to help take Grid to local markets**

As an STG seller, how can grid help me?

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   - Not only hardware, but software and services as well!

Where can I learn more about Grid?

1. **Grid Web site** www.ibm.com/grid
   - Articles, press releases, analyst reports
   - Web casts, brochures, solutions briefs
   - Customer success stories

2. **Grid w3 site** w3.grid.ibm.com
   - SGB Seller Playbook
   - Education / Classes, FAQ, Pocket Guide
   - Demos, videos, key grid contacts

3. ***NEW* SGB Seller Playbook**
   w3.grid.ibm.com
   - Includes Grid, VS, Deep and Linux
   - New and improved industry messages and customer materials
   - Seller resource guides, mapped to SSM steps
   - Qualification questions and next steps to take with your client

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Americas Geography Contacts

AP Geography Contacts

Worldwide Sales Organization

Education Resources – Classes / Workshops

- *Introduction Grid Computing (web lecture)*
- *Grid Computing Foundational Education*
- *Grid Architecture and Design*
- *Services Oriented Selling*
- *How to Perform a Grid Innovation Workshop*
- *How to Deploy Grid Value @ Work*
- *Globus Toolkit 3.0 Setup & Configuration*
- *75+ Grid University Lectures*
- *Industry Solution Education (12/04)*

Redbooks

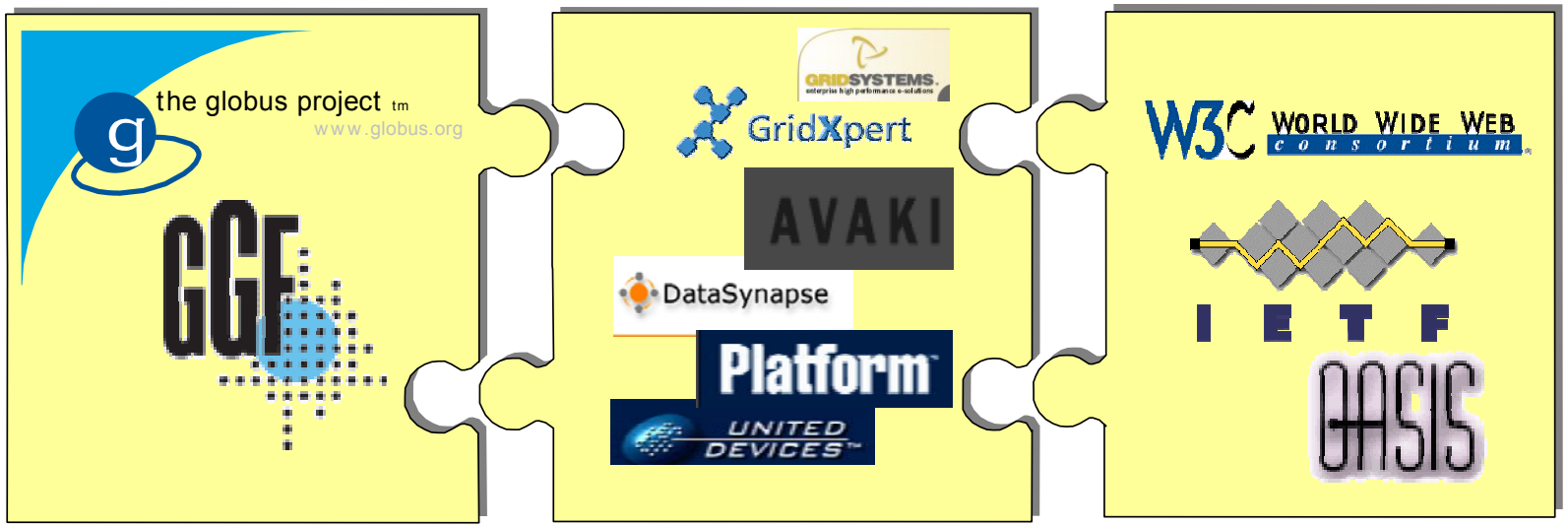
- *Fundamentals of Grid*
- *Introduction to an Information Infrastructure for Grid Computing*
- *Introduction to Grid Computing with Globus*
- *Grid Computing in Research and Education*
- *Grid Computing Products and Services*
- *Emerging Patterns in Grid Solutions*
- *Grid Services Programming and Application Enablement*
- *Configure Grid Security in the IBM Grid Toolbox using the Globus Certificate Service*
- *A CICS-to-Linux Grid Implementation*
- *The globus-makefile-header Command*
- *Using a callback mechanism with Globus*
- *Enabling Applications for Grid Computing with Globus*
- *Globus Toolkit 3.0 Quick Start*
- *Grid Computing with the IBM Grid Toolbox*

Technology Glossary

- *Open Grid Services Architecture (OGSA)*
  - Open Standard for Grid Computing based on web services
  - Providing services for execution management, data services, core management services
- *Global Grid Forum (GGF)*
  - Technical forum and standards body
  - Current “steward” for OGSA
- *Globus Project*
  - Open source project implementing a grid toolkit (Globus Toolkit)
  - Implementing OGSA (GT3 -- GT4)
- *Web Services Resource Framework (WS-RF)*
  - An evolution / convergence of OGSI (part of OGSA) to pure web services
  - A collection of specifications supporting a “stateful” design pattern for web services

Glossary - The Path to Standardization

- **IBM working with Globus / GGF on OGSA**
- **Work within other standards bodies to define new or extend existing standards to support required distributed services**
- **Accelerate delivery through partners**



Glossary - Standards Bodies & Competencies

Organization for the Advancement of Structured Information Systems (OASIS)

Core competency: Base Web Services Standards

Distributed Management Task Force (DMTF)

Core competency: Resource modeling (CIM)

World-Wide Web Consortium (W3C)

Core competency: Base web infrastructure (HTTP, WSDL, etc.)

Global Grid Forum (GGF)

Core competency: Definition of services for managing virtualization and distribution of execution and data.

Glossary - What is WS-Resource Framework (WS-RF)

Why we developed WS-RF

To have an architecture that is more clearly aligned with the general evolution of Web services

To provide a collection of related specifications that can be used either individually or in combinations…

…. and will integrate more effectively with other Web services standards

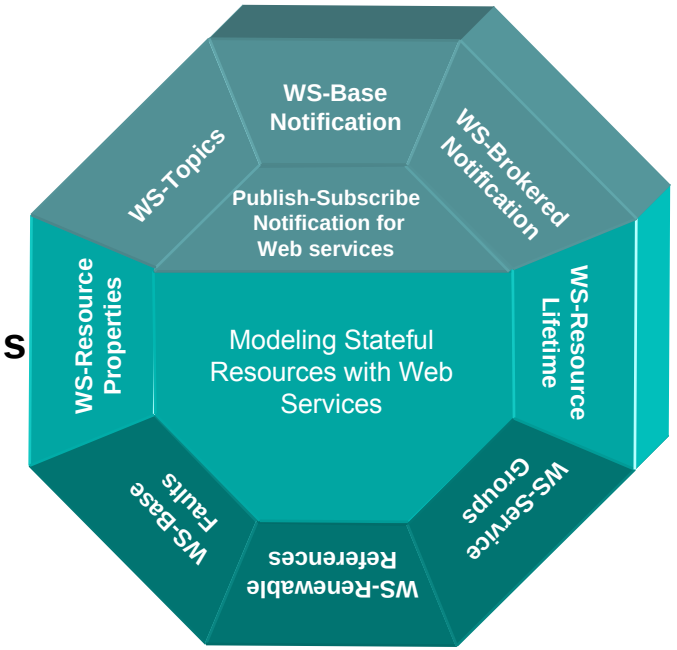
To more closely align with existing language and platform programming models and application development tools

What is WS-RF

A family of Web services specification proposals

Introduces a design pattern to specify how to use Web services to access "stateful" components

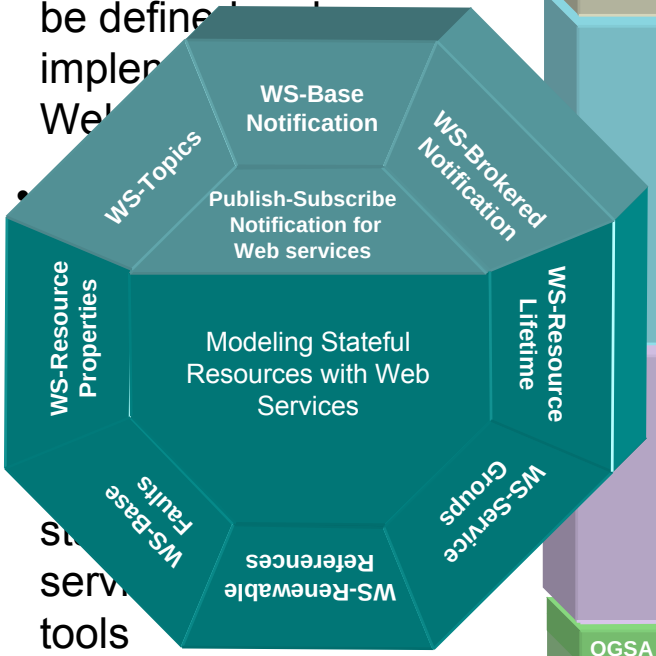
Introduce message based publish-subscribe to Web services

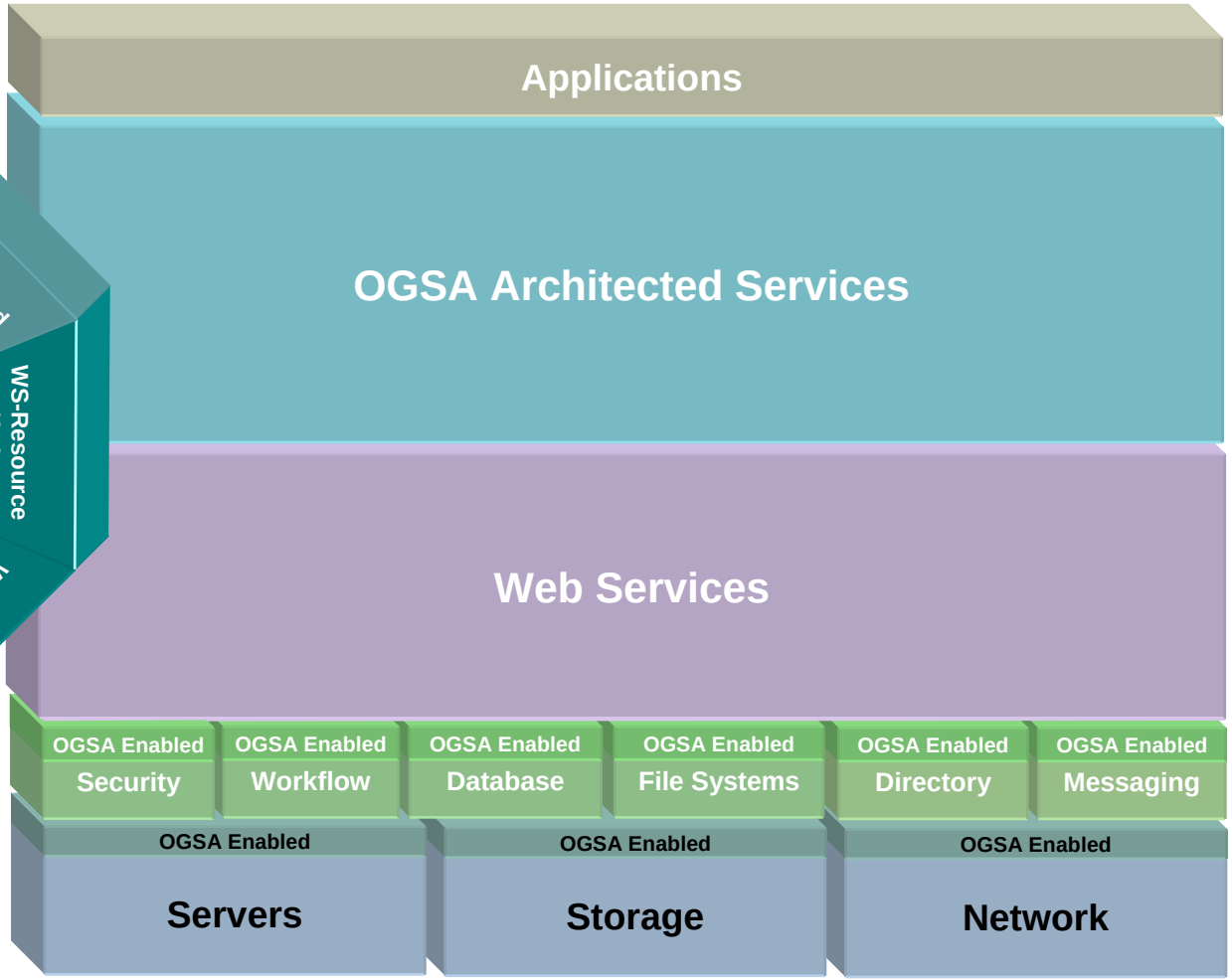


Glossary - How these proposals relate to OGSA

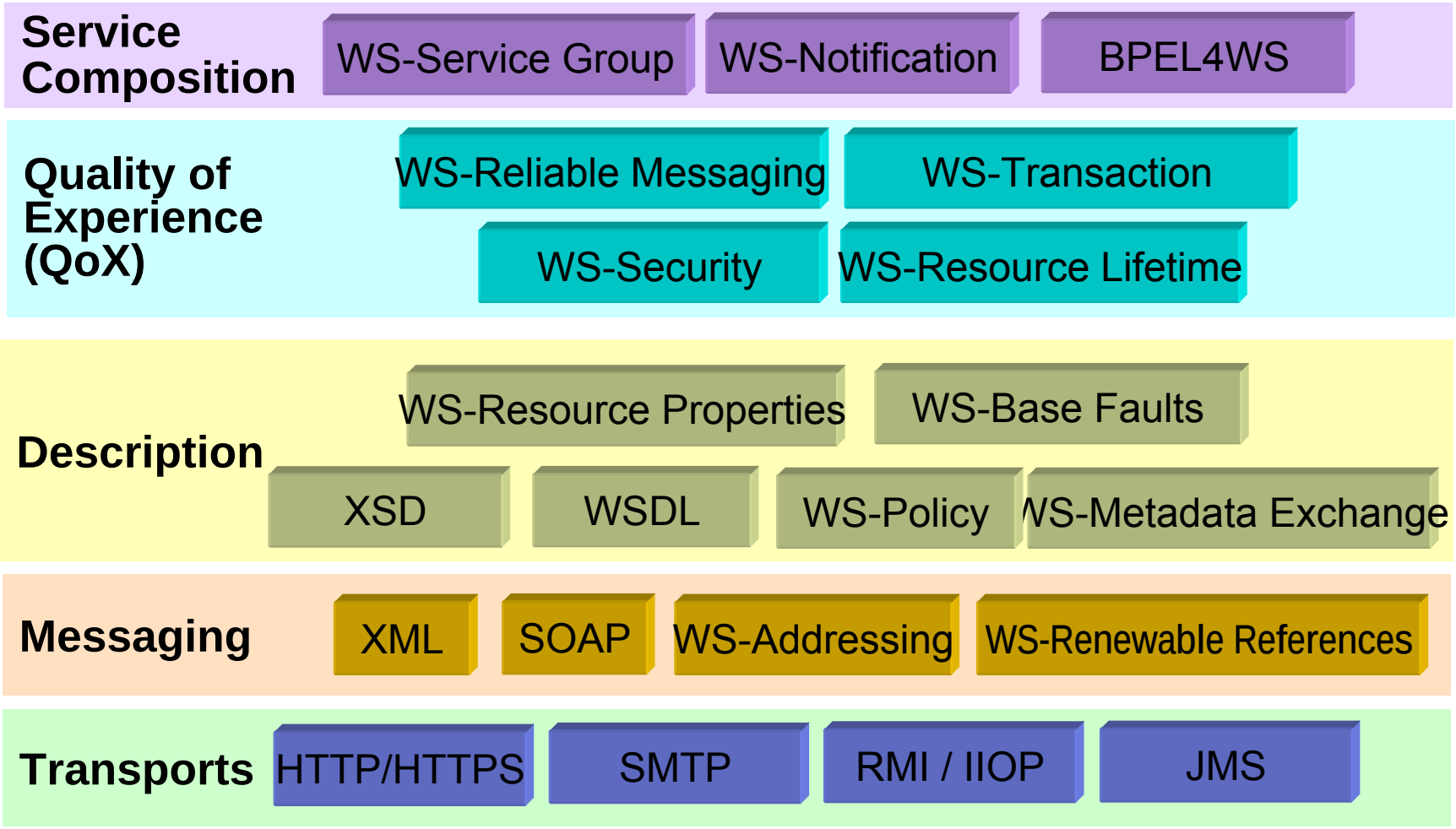
WS-Resource Framework & WS-Notification are an evolution of OGSI

- OGSA Services can be defin… implen… We…
- … st… serv… tools
- Grid applications will NOT require special Web services infrastructure





Glossary - Relationship to other Web services standards:



Glossary - WS-Resource Framework Capabilities

- Specifies how to use XML to describe and access a resource's properties
- Clarifies how stateful resources are addressed
- Defines how a resource is created and messages to destroy resources
- Provides a message subscription and notification mechanism for Web services
- Outlines how to organize groups of resources and services
- Adds a fault tolerance capability to WS-Addressing
- Defines a standard, extensible format for Web services error messages

Glossary - Services and Stateful Resources

- **“State” appears in almost all applications**
  - **Data in a purchase order**
  - **Current usage agreement for resources on a grid**
  - **Metrics associated with work load on a Web server**
- **There are many possible ways Web services might model, access and manage state**
  - **The WS-Resource framework proposes to standardize this capability for Web services**

Identifying & Qualifying the opportunity: Infrastructure

Pick the following that reflect your client needs:

- Improve Speed/Performance of Networks & Network applications
- Solutions for Compute and data requirements beyond existing capabilities
- Maximize utilization of existing distributed resources
- Use clusters to distribute a large number of users who use the same application.
- Use clusters to power a compute/data intensive application

If Yes To any of above

Infrastructure-specific questions:

- Is the infrastructure (in the area of interest) of the prospect heterogeneous and/or distributed?
- Is the customer aware of compute and storage utilization in the above mentioned resource pools?
- How is the prospect currently handling capacity planning?
- If the client's pain is an application(s) do they require increased resiliency and/or are they prone to failure?
- What type of network and/or does the customer have any capacity issues in their area of interest?

If Yes To any of above

Identifying & Qualifying the opportunity: Application

Is the customer's interested in:

- Significantly reduce the time it takes to run compute intense applications and/or processes?
- Significantly reduce the time it takes, and improve access to, data and data-intense applications/processes
- Improve employee and/or asset productivity?
- Reduce TCO (improve systems management and/or infrastructure utilization rates)?
- Improve scalability of current applications?
- Enable new, powerful applications?
- Better handle cyclical or unplanned spikes of load?
- Allow applications/users to exploit data distributed across the enterprise?

If Yes to any of the above

If the customer is already considering/ implementing Grid:

- Do they currently have any Grid/distributed computing implementations?
- Are they currently evaluating Grid solution/ISV providers and/or issued an RFI?
- Do they have a grid strategy?

Continue

Identifying & Qualifying the opportunity: Budget & Timing

As well as Budget, Authority & Timeframe:

- Does the client have a budget? If so, how much?
- Is the client the decision-maker? If not, does the project have an executive sponsor?
- What's the client's timeframe? If one year or under, continue…

If Yes Continue

If No, then capture customer info and ask for permission to market, so we can follow-up w/them when they have the above

If prospect is in IT, ask:

Are they considering:

- Virtualizing compute and/or data resources? What architecture/standards do they consider as important in achieving this?
- Shared use of IT resources across workgroups?
- Shared use of hardware and software across departments and/or with trusted partners/suppliers

Interest in e-business on demand:

- Was the customers route to grid via on demand (i.e. are they interested in grid as a step to building an on demand operating environment)?
- Is the customer interested in grid as a hosted utility as opposed to building a grid in their own environment?
- Does the prospect see grid as a component of their infrastructure virtualization strategy?

Zooming in on the prospects area of interest... A “yes” to the highlighted questions means the opportunity is likely to be application- centric

Is the customer’s interest in grid computing based on their desire to:

- Significantly reduce the time it takes to run compute intense applications and/or processes?
- Significantly reduce the time it takes, and improve access to, data and data-intense applications/processes
- Improve employee and/or asset productivity?
- Reduce TCO (improve systems management and/or infrastructure utilization rates)?
- Enable new, powerful applications?
- Create an environment for cross-organization collaboration?

If Yes to any of the Red Questions Continue to App-specific questions

If the opportunity appears application-centric, it's critical that you probe more deeply around the application, as this will help you quickly assess the "gridability" of the application(s)

- **What's the name of the application?**
- **Is it a custom/internally-developed application or packaged/industry application?**
  - **If Packaged**
    - **Check list of current ISV grid-enabled applications (create check list)…**
    - **If not on list ask/determine if:**
  - **If Proprietary:**
    - **Ask/determine:**

This will help determine timeframe, cost and impact…

•Does the application serve a distributed/ collaborative community?

•Can the tasks/jobs that the application performs run in parallel?

•Do the operations within the task have time and/or sequencing dependencies?

•Does the application require access to local and/or distributed data?

•Does the application do pattern matching?

•Are your applications computationally intensive?

•What is the application processing type (i.e. serial and/or batch)

• What are the bottlenecks in the existing use of the application (e.g. single processor performance, scalability, memory footprint, data output volume, pre/post processing)?

• Is the application used by a single line of business?

A “yes” to the highlighted qualification questions means the opportunity is likely to be information-centric.

Is the customer’s interest in grid computing based on their desire to:

- Significantly reduce the time it takes to run compute intense applications and/or processes?
- Significantly reduce the time it takes, and improve access to, data and data-intense applications/processes
- Improve employee and/or asset productivity?
- Reduce TCO (improve systems management and/or infrastructure utilization rates)?
- Enable new, powerful applications?
- Enable improved collaboration across workgroups?

If Yes to any of the Red Questions Continue to Information-specific questions

If the opportunity appears data-centric, it's critical that you probe more deeply around their data issues, as this will help you quickly assess the "gridability" of the data, databases, file systems and/or storage devices…

What characteristics does the data architecture show?

- Are the datasets geographically distributed?
- Do local users take copies of remote/distributed data? Is this automated or are they manually aggregating data?
- If they are caching data locally, do they have a problem with data synchronization or 'local' data getting stale?
- Are the datasets stored in heterogeneous data systems (e.g. file systems, relational/nonrelational dbs)? Is this a problem?
- Does the client have any existing data-virtualization technologies (e.g. Avaki or DB2 Information Integrator, ???)?
- Are the datasets large (>TBs)?
- Does the enterprise network support the transfer of the datasets in reasonable timescales (i.e. seconds/mins)?
- Are any of the datasets made available as web services or through web portals?
- Are there real-time requirements for any of the data-to-application data feeds?
- Do you need geographic mirroring of your data for high availability?
- Do you need to aggregate your data for large scale computations/or multiple data source computations?
- Do you have an SLA target for data access queries?
- Do you have high data authorization security requirements? (are there regulatory requirements)

Key Virtualization Solutions from IBM

	Virtualization Engine Solutions *"Manage one resource as if it's many"*	**Grid Computing Solutions** *"Manage many resources as if they are one."*
Definition	IBM Virtualization Engine Solutions are designed to help clients simplify the management of IT Components, Systems and Distributed Systems	IBM Grid Computing Solutions are designed to help clients harness distributed IT resources to: accelerate applications, improve collaboration and facilitate access to information
Key Solutions	▪ VE Suite for Storage - Volume and File Virtualization ▪ VE Systems Technology - Partitioning, Hypervisors, VIO, etc ▪ VE Suite for Servers - Provisioning, Enterprise-wide Workload Management, Single Systems Management UPDATE TO REFLECT NEW VE PACKAGING	▪ IBM Grid Industry Offerings (21) ▪ IBM Grid capabilities (e.g. Total Storage, Information Integrator, WebSphere XD, Orchestration and Provisioning, etc.) ▪ Business Partner Technologies (e.g. Platform Computing, DataSynapse, Avaki, United Devices) ▪ IBM Grid Toolbox and Globus Open Source SW ▪ Grid Value @ Work readiness assessment ▪ IBM Global Services Grid Architecture and Integration Services ▪ Deep Computing on Demand managed grid services. ▪ VE Solution(s)
Key Client Drivers	Need for IT Simplification and a desire to IT Efficiency in the Data Center	Need for improved application performance, collaboration and information access in a department or across the enterprise.
Primary Buyers	CIOs with an Enterprise IT, Systems-centric view	LOB IT and Business Executive with an Application-centric view

Virtualization Engine Solutions

IBM Virtualization Engine - Standard Edition

- Aimed at customers simplifying their systems (Stage 1 Virtualization)
- Objective of making it ubiquitous across the eServer family
- Delivered with each System, with the personality of that System but against a common value proposition (see back-up)
- Combination of the System Technology and a very light layer of cross systems tools
- Takes away the advantage HP gains by delivering SIM with its systems

IBM Virtualization Engine - Enterprise Edition

- Aimed at customers optimizing their multi-systems infrastructures (Stage 2 Virtualization)
- Objective to help deliver a common management capability across the Systems family
- Delivered as a single package (with additional function delivered as application extensions) with a common personality
- Product focused around eWLM, Provisioning, VE Console and Resource Mapping Services
- Designed to drive leadership in the Systems marketplace