IBM

Opening Doors to Open Source and On Demand

Sam Docknevich

Linux and Grid Services Executive, Americas

IBM Global Services

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Agenda

- **IBM Invests in Linux and Open Source**

- **What is the Value of Open Source?**

- **Moving to On Demand Business**

- **On Demand Business and Grid Computing**

- **The Right Time for On Demand and Open Source**

- **For More Information**

IBM invested early in Linux...
and continues to invest

IBM was the first major IT vendor to embrace Linux, making it an important corporate strategic imperative.

We've already dedicated $1 billion to Linux development and will invest more than $300 million in Linux services over the next three years.

# The IBM Open Source Differentiator: Technical expertise driving business value

- **IBM Linux Technology Center**
  - **350+ leading developers at vanguard of kernel maturation**
  - **Application development, Open Source IDE Framework, OSDL, Eclipse**

- **Linux Porting Centers, Linux Centers of Competence for Finance (NYC, London), Linux for Service Providers Lab, Global e-business Solutions Center, Linux Integration Centers**

- **Strategic alliances with Linux Distribution vendors**
  - **Red Hat, SuSE, United Linux**

- **Software, Hardware and Services Support**
  - **WebSphere, DB2, Lotus, Tivoli, Rational, all eServers, High Performance Computing, full services portfolio**

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IBM supports the Open Source Community

- **70+ active Open Source projects**

- **Over 500 engineers: "Making Linux better"**
- **Thousands of Linux-trained consultants/ architects**
- **IBM engineers leading enterprise Linux focus**

- **80% of IBM's contributions are accepted**

- **Deeply involved in V2.5 of Linux kernel development**
- **Defect support for a set of core Linux packages**

- **Led formation of Linux Test Project to validate reliability, robustness, and stability of Linux distributions**
- **Key participant and contributor to "Carrier Grade Linux" project**

IBM eats its own cooking

- **www.ibm.com runs on Linux**

- **IBM runs Linux on over 1,500 servers, supporting over 300,000 employees**

- **Deploying Linux to support Lotus Notes infrastructure saves IBM $10M each year**

- **IBM Global Services runs most file and print services now using Samba for 165,000 employees**

- **Over 14,000 IBM employees run a Linux Desktop supported by IBM**
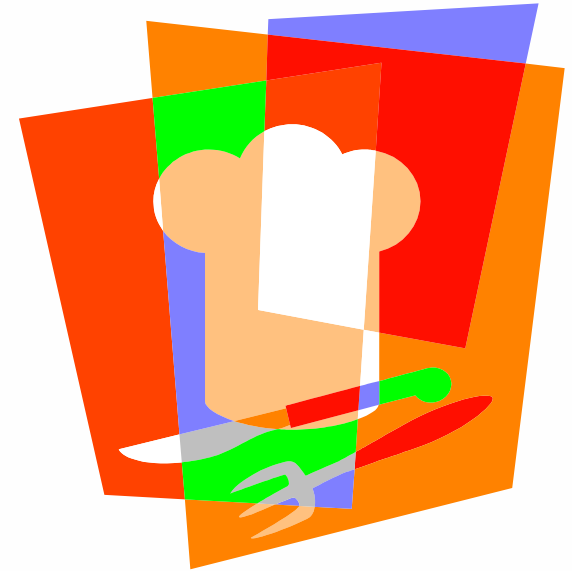
The Value of Open Source: "What If..."

Your bank could check credit, tax values and liens instantly and set up loan servicing through your processing partner, offering online billing and customer support ...

You could … cut mortgage processing time to minutes, not days – win new customers, enhance our competitive position, offer new services, open new markets, and save 50% of your costs.

The Value of Open Source: "What If..."

Your retail firm could keep inventory in the warehouse and deliver to the store exactly only what is needed for that day's sales...

You could... strip out inventory-carrying costs and be more competitive, leverage your assets over more customers, and reinvest the savings to drive new business opportunities.
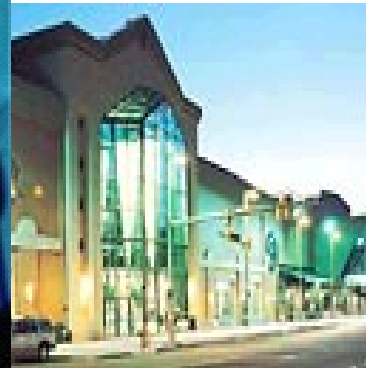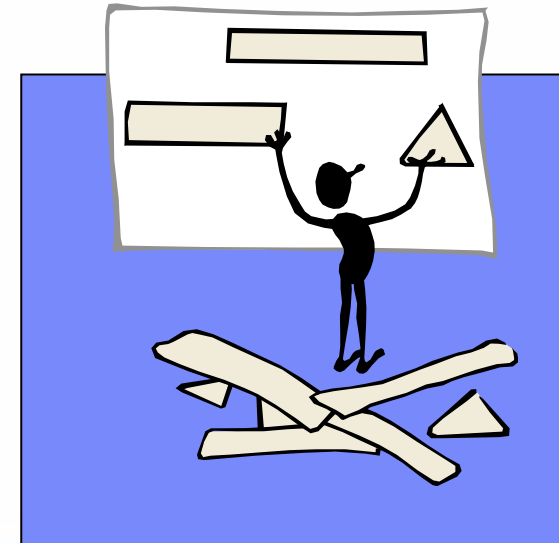
The Value of Open Source: "What If..."

Your pharmaceutical company could access "integrated patient data" in a secure, reliable real time mode, through in-home diagnostic, monitoring and communications technologies ...

You could ... move more of your business to the creation of customized medicines for smaller patient populations, rather than on expensive, high-stakes "blockbuster drugs", make better business decisions, increase speed to market, and establish market leadership.
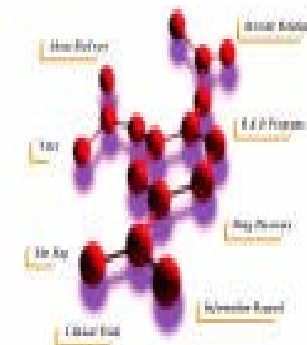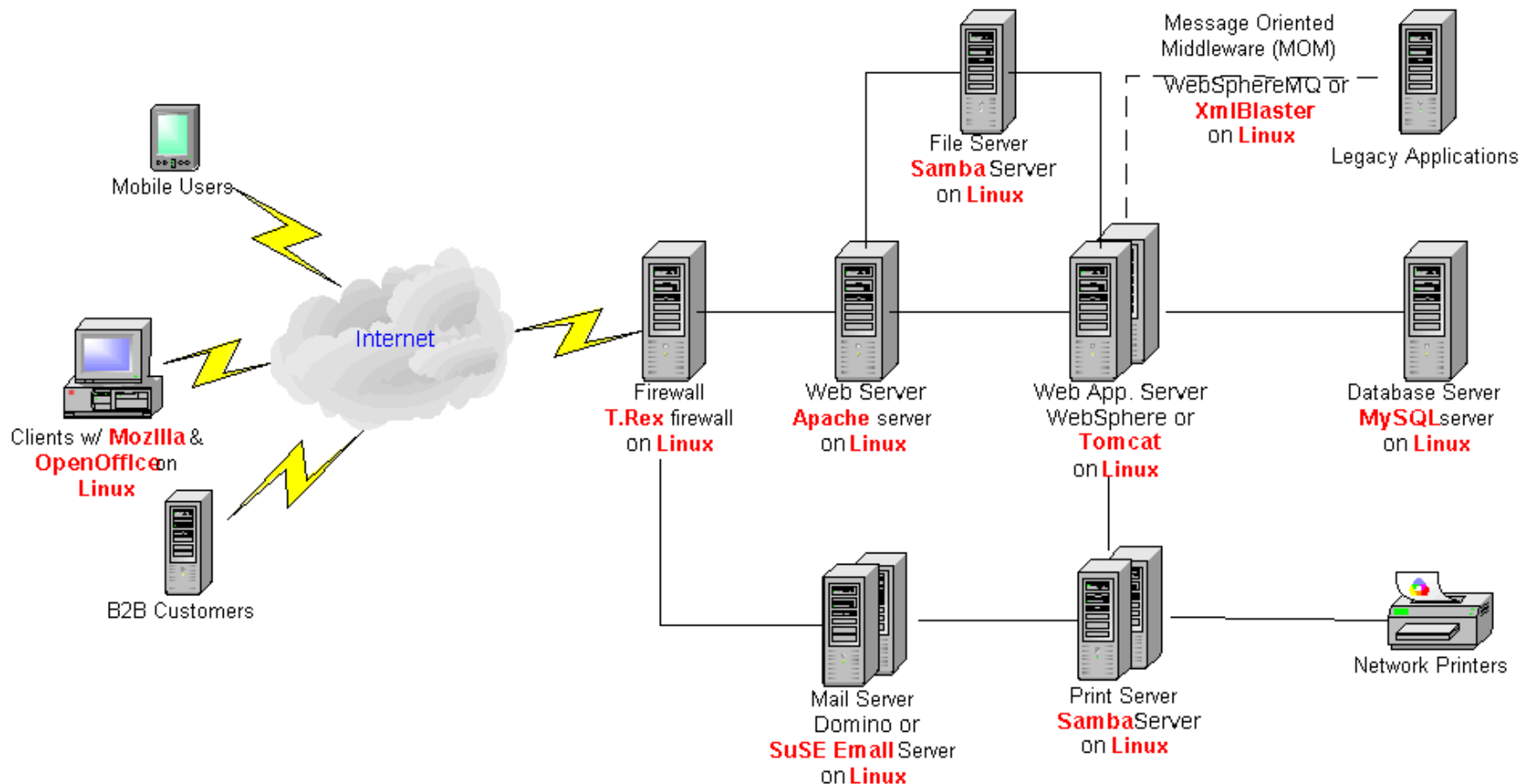
Linux: Not just another operating system

- **Cost efficiency**
  - Delivers strong price performance value
  - For large deployments, the license savings are huge
- **Complete Control**
  - Implement enhancements as and when you want it, not dependence on proprietary vendors
  - Customize software to suit your business needs
- **Robust Solutions**
  - OSS products undergo the scrutiny of users worldwide
  - Reinvest the savings on license and infrastructure costs
- **Easy Integration**
  - OSS usually adhere to open standards
  - OSS is not an exclusive option and can co-exist with other products.
- **Widely Available Resources**
  - Availability of source, documentation and communities reduces the ramp-up time
  - Straight forward transition from Unix environments

Linux and OSS: Sample Deployment

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Linux: The Next Step to On Demand

e-business on Demand

On Demand

Distributed Computing: *The Grid*

Enterprise Integration

Open Standards: *Linux, SOAP, HTML*

Information: *World Wide Web*

Access

Communications: *e-mail*

e-business

Networking: *TCP/IP*
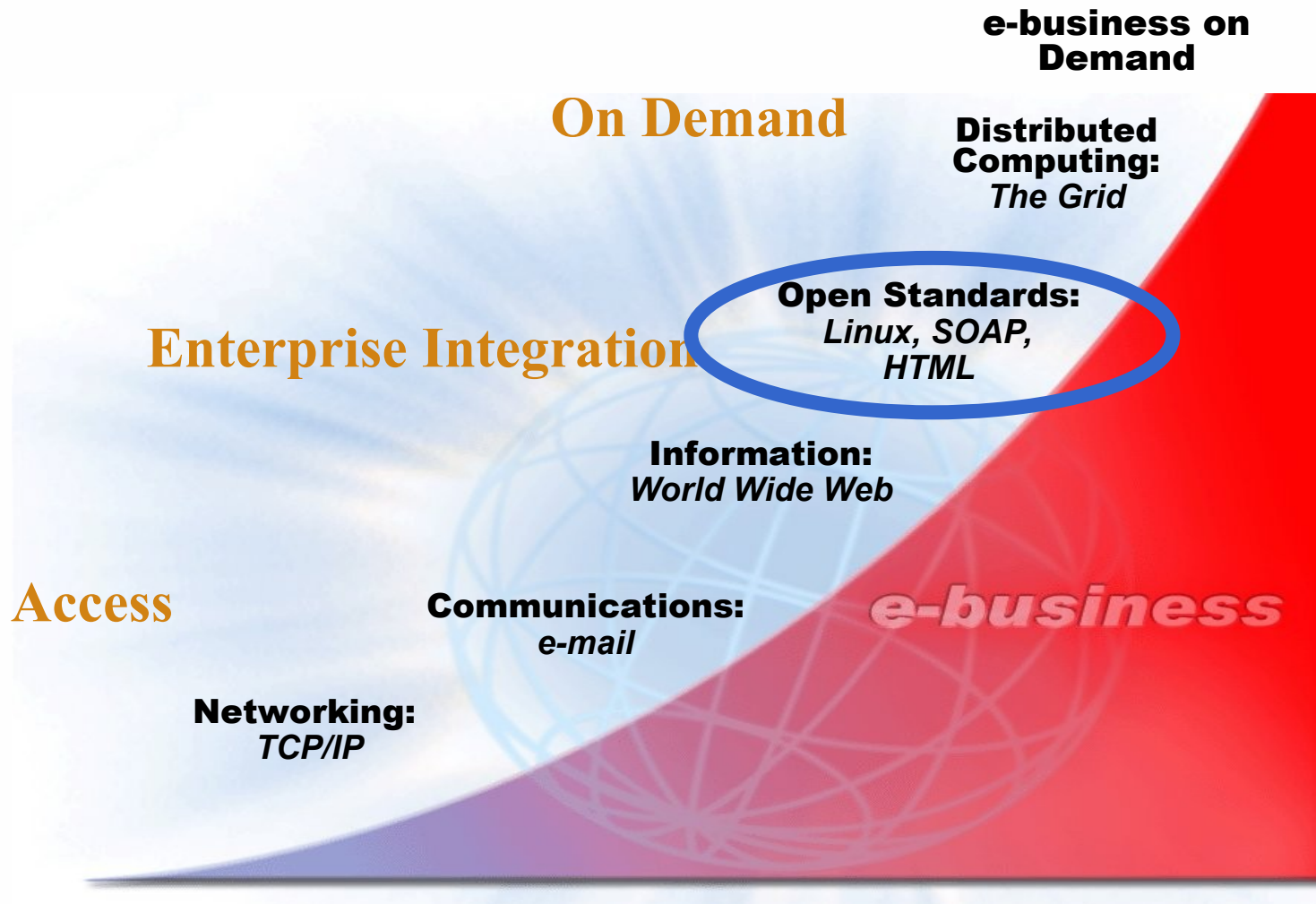
Internet Evolution – Phases of e-business adoption

Change is constant and accelerating...

Productivity   Governance   Economy   Capital and Asset Utilization

Security   Pricing   Customer
Threats   Pressures   Preferences

business

on demand business

technology

Open Movement   Commoditization

Autonomic Computing   Grids   Web Services

Clusters   Blades   Virtualization   Standards

And companies are increasingly facing challenging and changing environments

Budget Pressures
- Worldwide economic slowdown causing revenue shortfall
- Significant action required to balance budgets
- Need to fund invest and development of competitive business initiatives

Increased Collaboration
- Global economy requires increased internal and external collaboration
- Cross-organization integration to increase service delivery efficiency

Safety, Privacy, Security
- Must balance conflicting demands for safety and privacy
- Funding required for new security initiatives

Operational Support & Value
- Enhanced operational readiness & support for quick response/deployment
- Interoperability among business units, vendors, and partners
- Implement better accountability for IT spending in support of the business

Customer & Business Expectations
- Customers expect responsive and available businesses
- Increasing number of customers prefer web access to systems and information
- Limited tolerance for outages and poor performance

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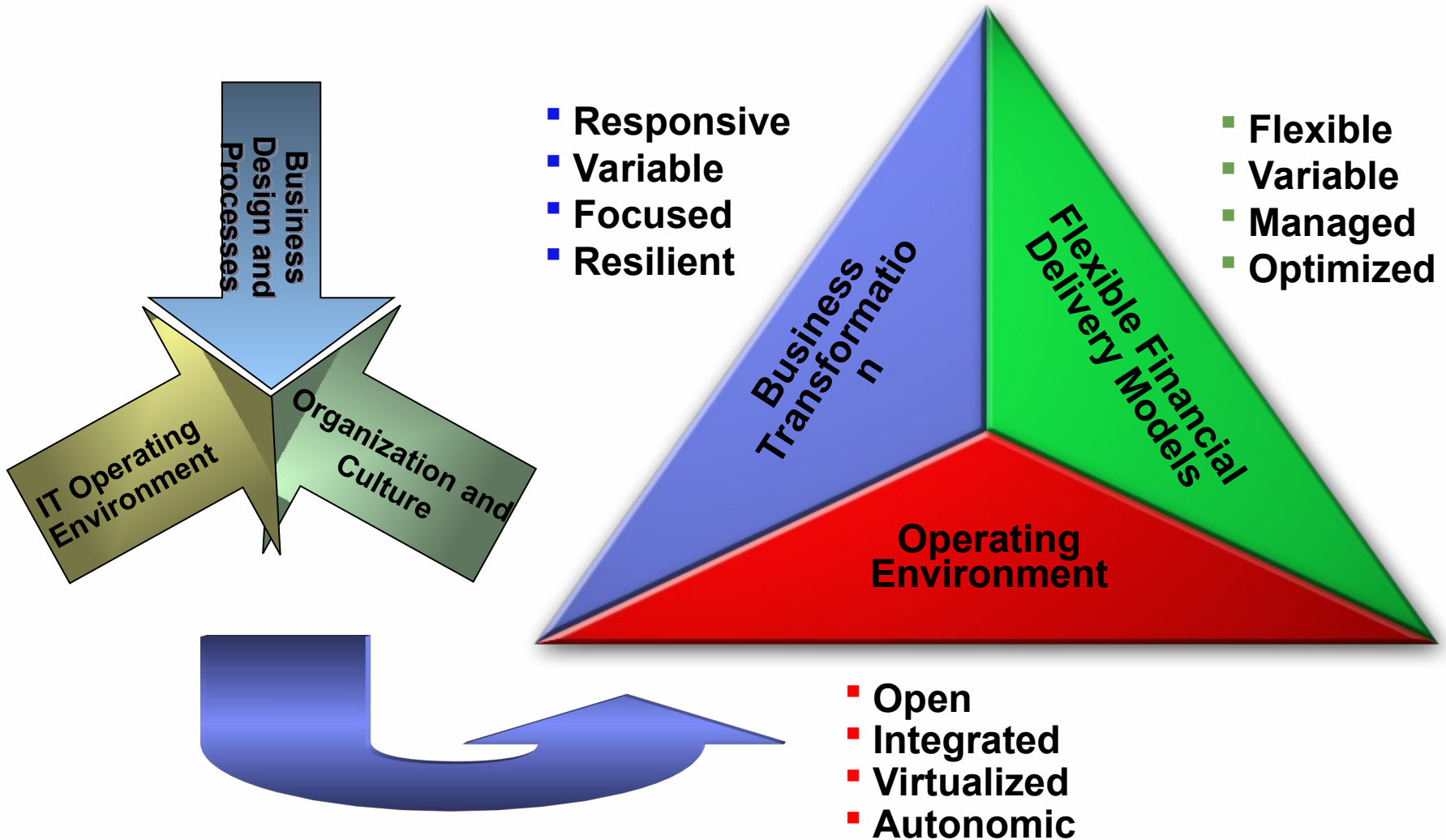# So what is the key imperative to meet these challenges?

Transformation to an On Demand Business

e Business on Demand

An enterprise whose **business processes** - **integrated end-to-end** across the company and with key partners, suppliers and customers - can **respond with speed** to any **customer demand**, **market opportunity** or **external threat**.

Three Elements: On Demand Business

Business Design and Processes

IT Operating Environment

Organization and Culture

- Responsive
- Variable
- Focused
- Resilient

Business Transformation

Flexible Financial Delivery Models

- Flexible
- Variable
- Managed
- Optimized

Operating Environment

- Open
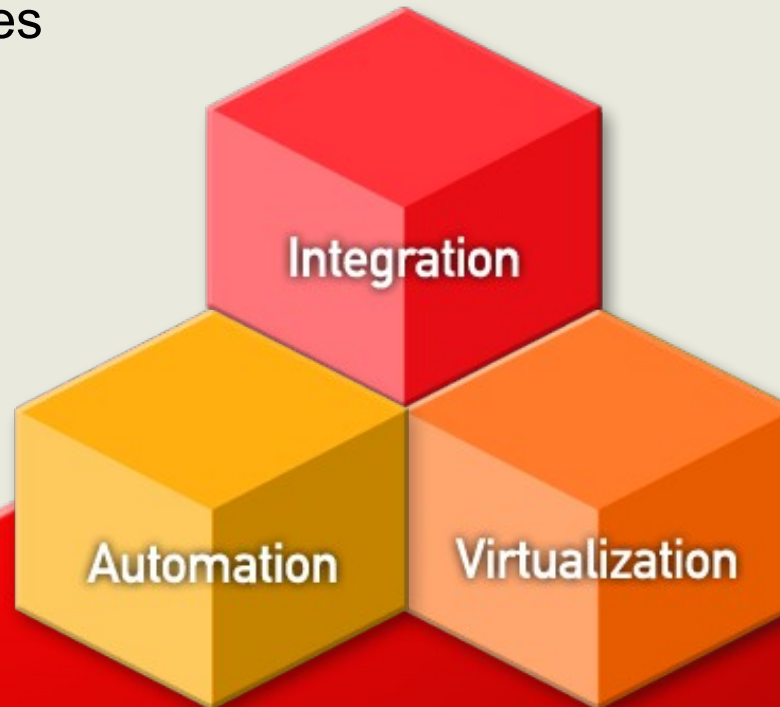- Integrated
- Virtualized
- Autonomic

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The On Demand Operating Environment supports the Business Transformation

Business Transformation

- Align IT processes with business priorities

- Enable business flexibility and responsiveness

Integration

Automation   Virtualization
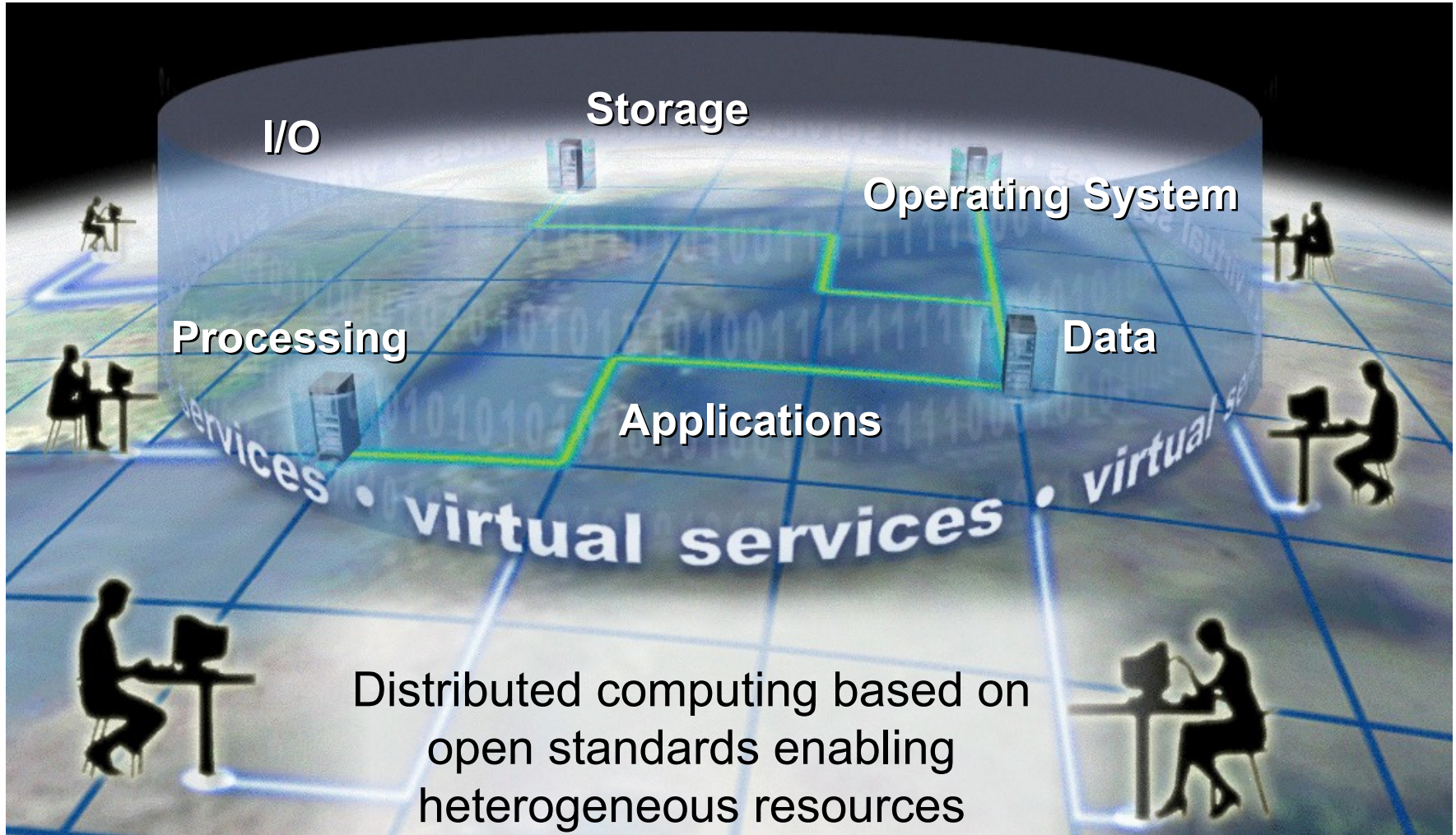
- Reduce cost

- Improve asset utilization

- Address new business opportunities

On Demand Operating Environment

On Demand Operating Environment: Open standards and Integrated processes

Open Standards-based

Integration

Integration: People – Process – Information

"Anywhere, any time, from any device"

Collaboration

Transactional Processes

Information Management

Application Development, Deployment & Maintenance

Automation

Business Objectives and Policies

Policy-based Orchestration

Availability

Security

Optimization

Provisioning

Virtualization

Virtualization Engine

Servers

Storage

Distributed Systems

Network

Grid

Making the Move to Grid Computing

Storage

I/O

Operating System

Processing

Data

Applications

virtual services • virtual services • virtual services

Distributed computing based on open standards enabling heterogeneous resources

Grid Computing: Ready for Implementation

- **Services-oriented architectural approach using open standards**

- **Enables devices to be virtually shared/managed/accessed**

- **Seamless and uninterrupted access to resources**

- **Resource virtualization results in true business On Demand**

- **Helps promote the efficient technology resource utilization**

- **Fosters the creation of cost-effective, resilient and adaptable IT infrastructures**

Grid: Providing real business value TODAY

"With Grid computing we can integrate data on a single customer from dozens, if not hundreds, of applications and platforms. That will allow Schwab to offer better integrated, more targeted service and product offerings to our customers…"
EVP, Schwab Technology Services

"Grid will optimize the number of applications I can run on my servers and allow me to reduce my licensing, server, and maintenance costs, translating into at least $1M savings." CIO, Engineering Professional Services

"Grid allowed us to marry these technologies (Linux, Mainframe and Blades) in a cooperative model that delivers significant business benefit for Hewitt and our customers."
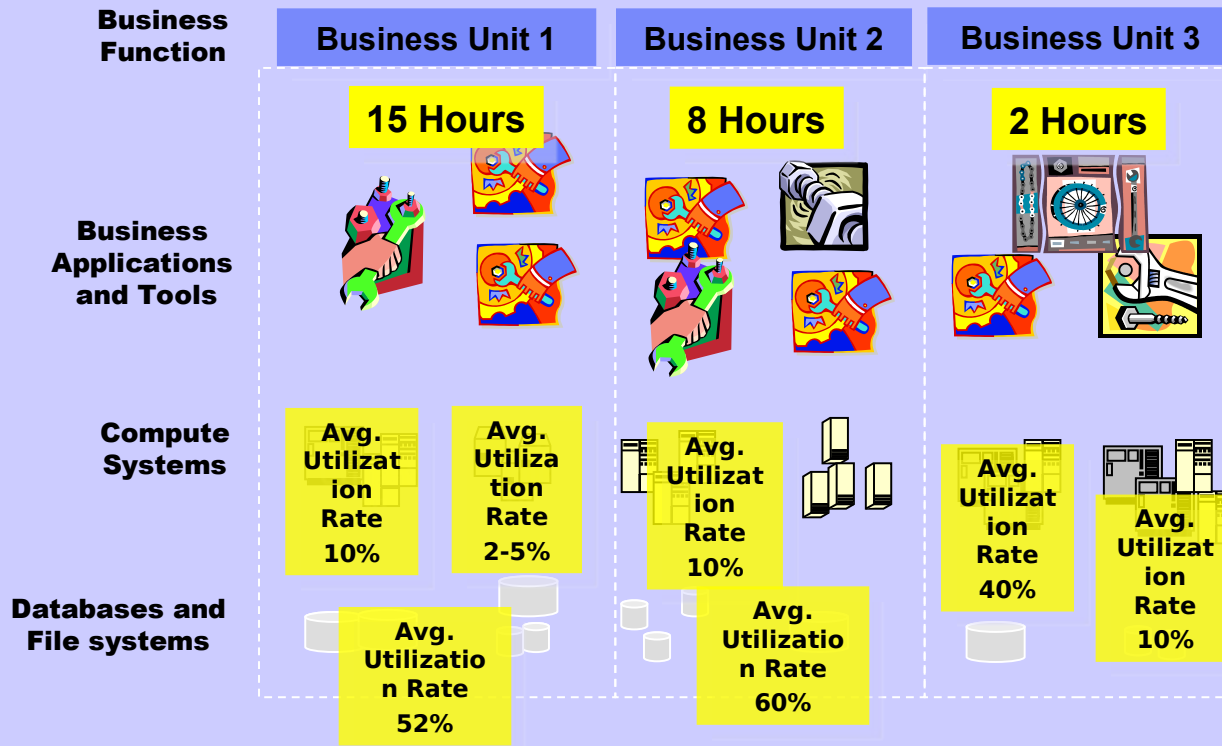CIO, Hewitt Associates

"Our corporate CIO has been involved to spread Grid to other divisions that have similar compute-intensive simulation environments."
LOB IT, Aerospace

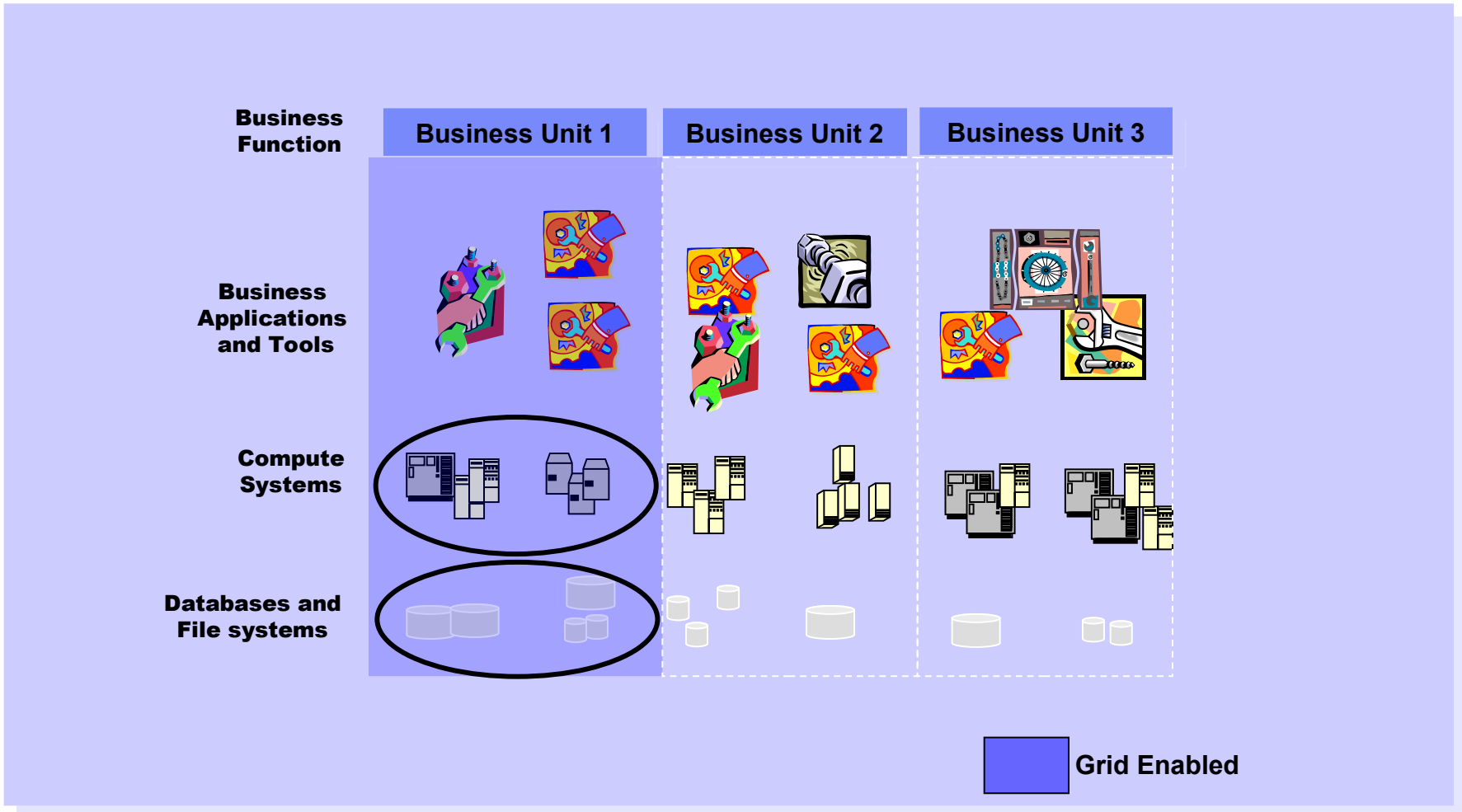*"Grid is about cutting administrative and support costs and enabling a shared IT infrastructure."*
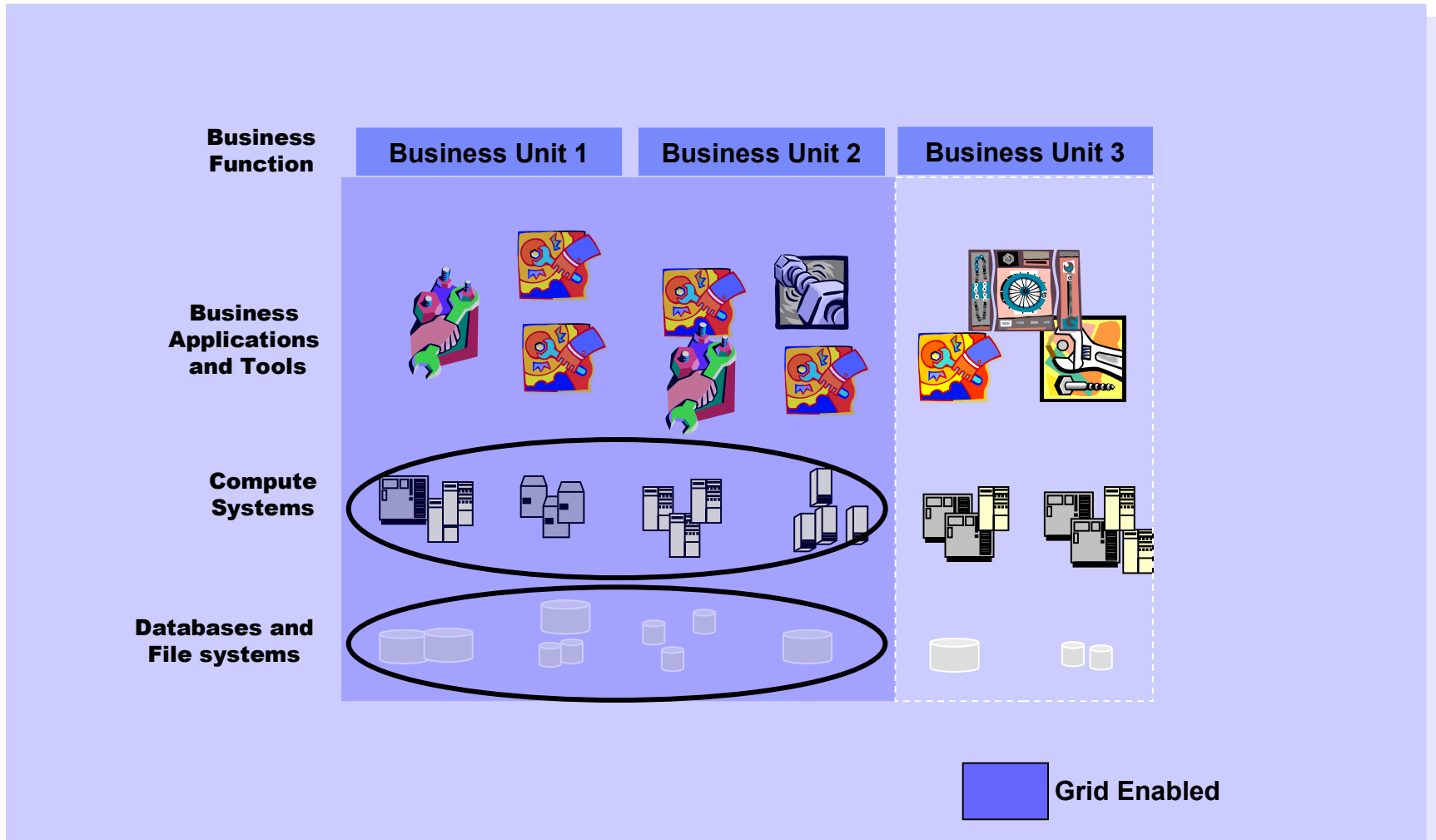CIO, Financial Services

Many business units don't share resources

Business Function	Business Unit 1	Business Unit 2	Business Unit 3
	15 Hours	**8 Hours**	**2 Hours**

Business Applications and Tools

Compute Systems

Avg. Utilization Rate 10%

Avg. Utilization Rate 2-5%

Avg. Utilization Rate 10%

Avg. Utilization Rate 40%

Avg. Utilization Rate 10%

Databases and File systems

Avg. Utilization Rate 52%

Avg. Utilization Rate 60%

Legacy Stovepipes

With Grid, first start sharing resources within a business unit...

Then shared services can be expanded...

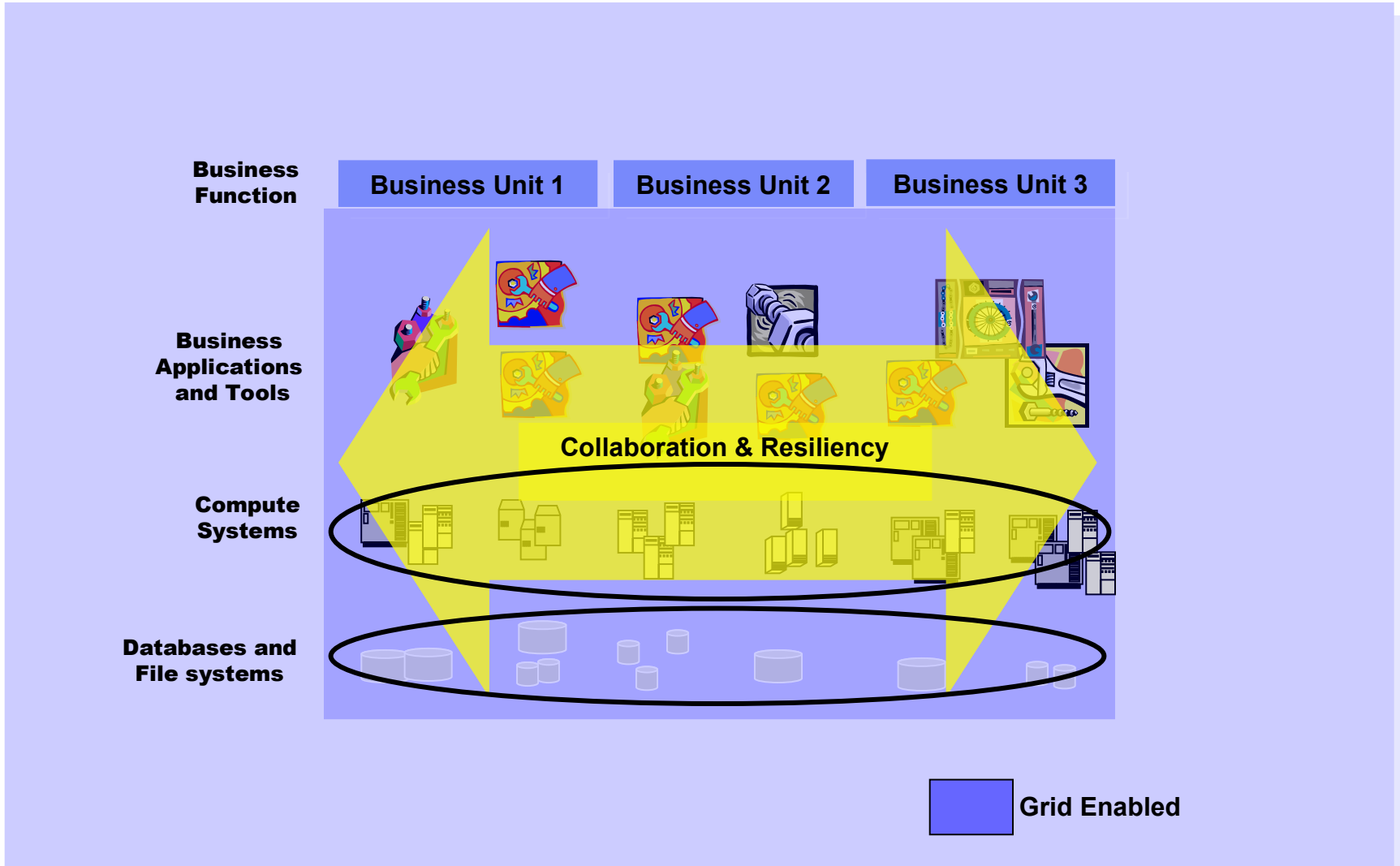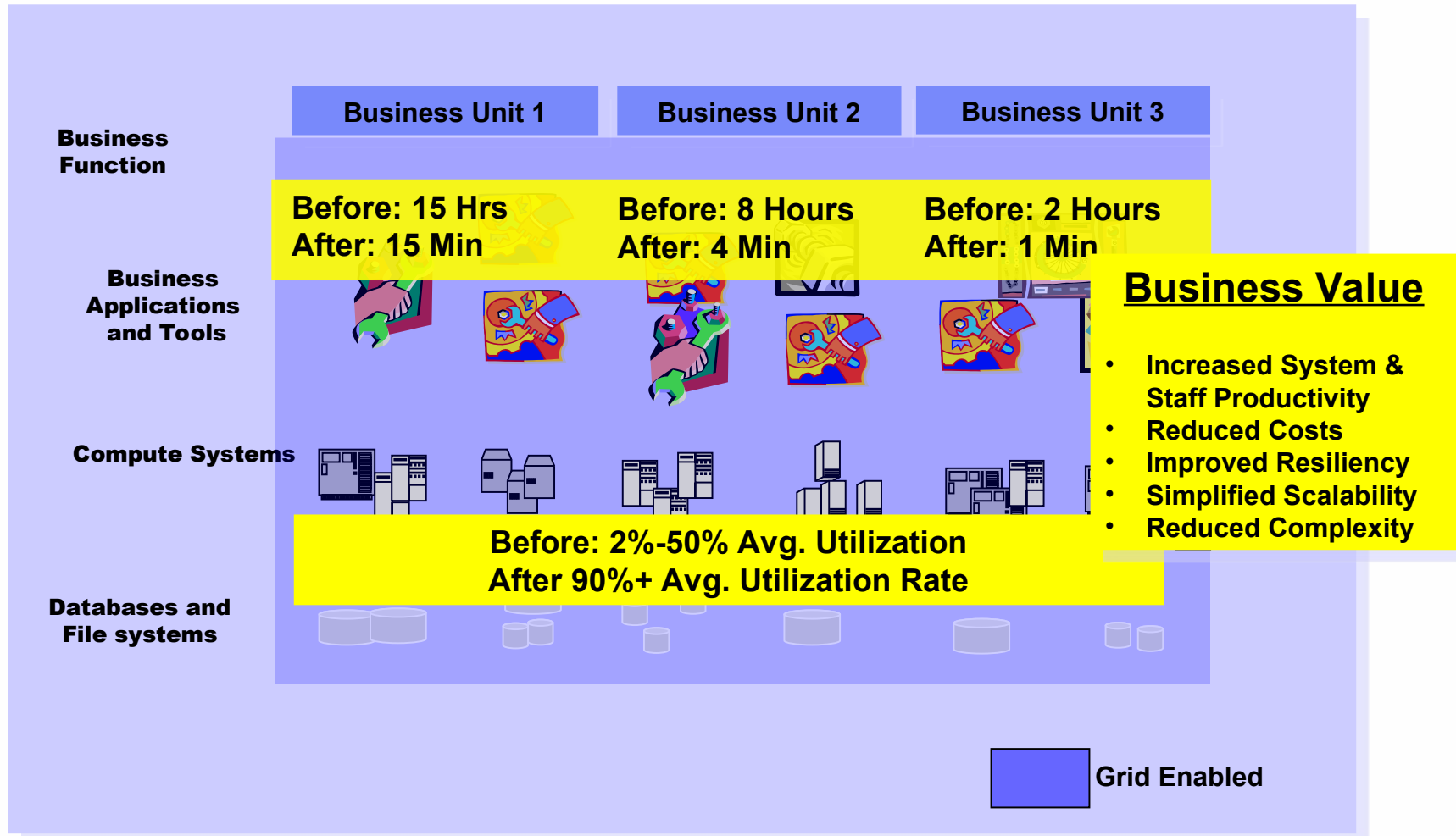| Business Function	Business Unit 1	Business Unit 2	Business Unit 3
Business Applications and Tools			
Compute Systems			
Databases and File systems			

Grid Enabled

Until the entire enterprise is Grid enabled!

Result: Increased productivity... lower costs... improved resiliency!

| | Business Unit 1 | Business Unit 2 | Business Unit 3 |

Business Function

Before: 15 Hrs
After: 15 Min

Before: 8 Hours
After: 4 Min

Before: 2 Hours
After: 1 Min

Business Applications and Tools

Compute Systems

Before: 2%-50% Avg. Utilization
After 90%+ Avg. Utilization Rate

Databases and File systems

Business Value

- **Increased System & Staff Productivity**
- **Reduced Costs**
- **Improved Resiliency**
- **Simplified Scalability**
- **Reduced Complexity**

Grid Enabled

Grid can enable an On Demand Business

- Secure, integrate and access information across departments and business units

- Ensure that data is accessible on demand, especially for geographically distributed users

- Provide business leaders with the capability to dynamically create a virtual organization (VO), as needed

- Preempt business security threats

- Query non-standard data formats

- Access data across global networks

- Secure data outside firewalls
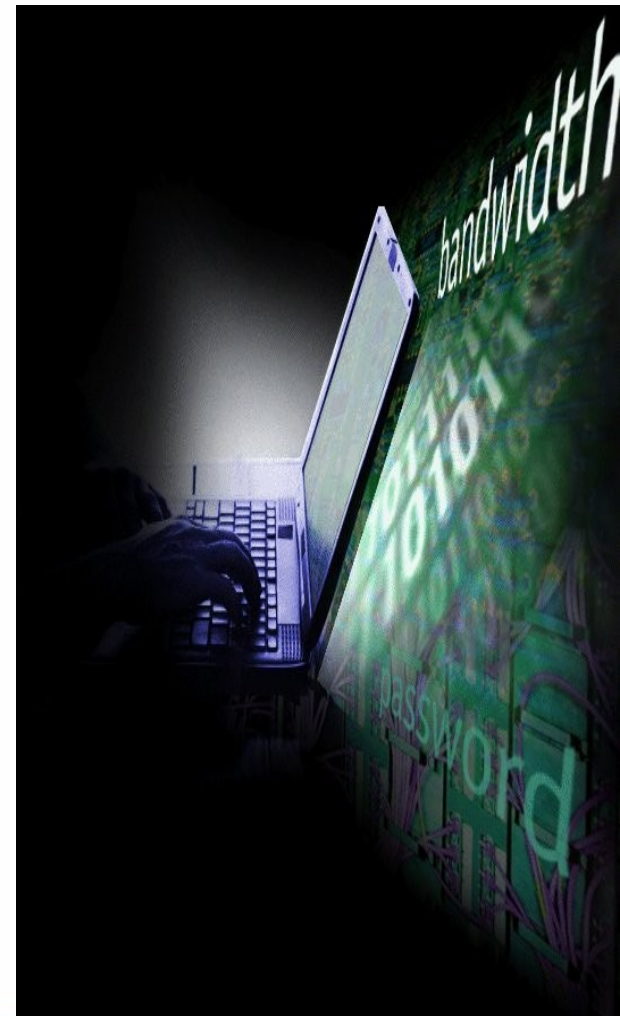
With Grid Computing, organizations can interconnect geographically dispersed, heterogeneous compute/data resources:

- Unleash idle capacity to accelerate business processes
- Enable new, more innovative and productive applications
- Empower employees to become more innovative and productive with the vast new resources they can tap
- Optimize and improve resiliency of IT infrastructure
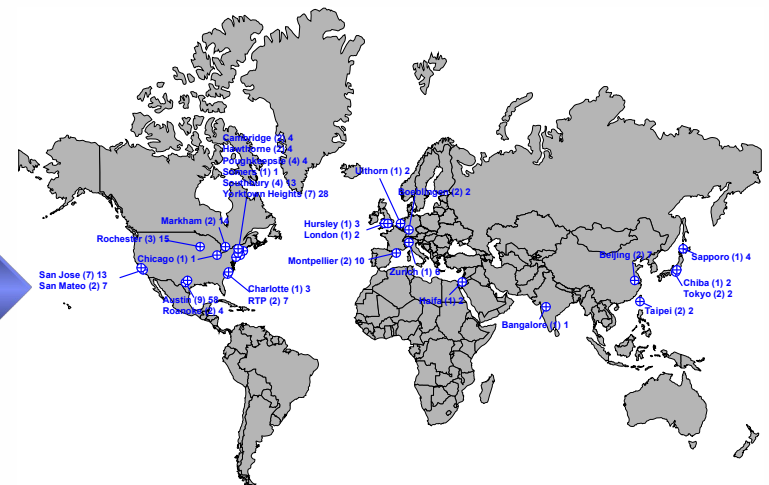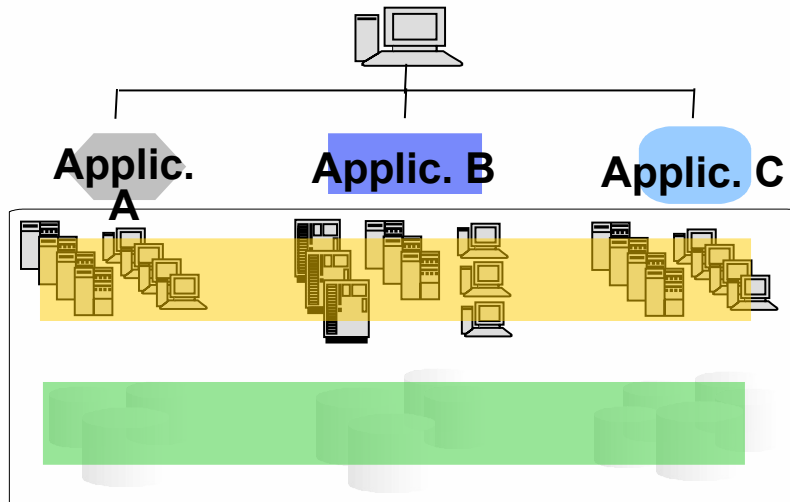
IBM Grid Computing solutions are built on IBM components and third-party products
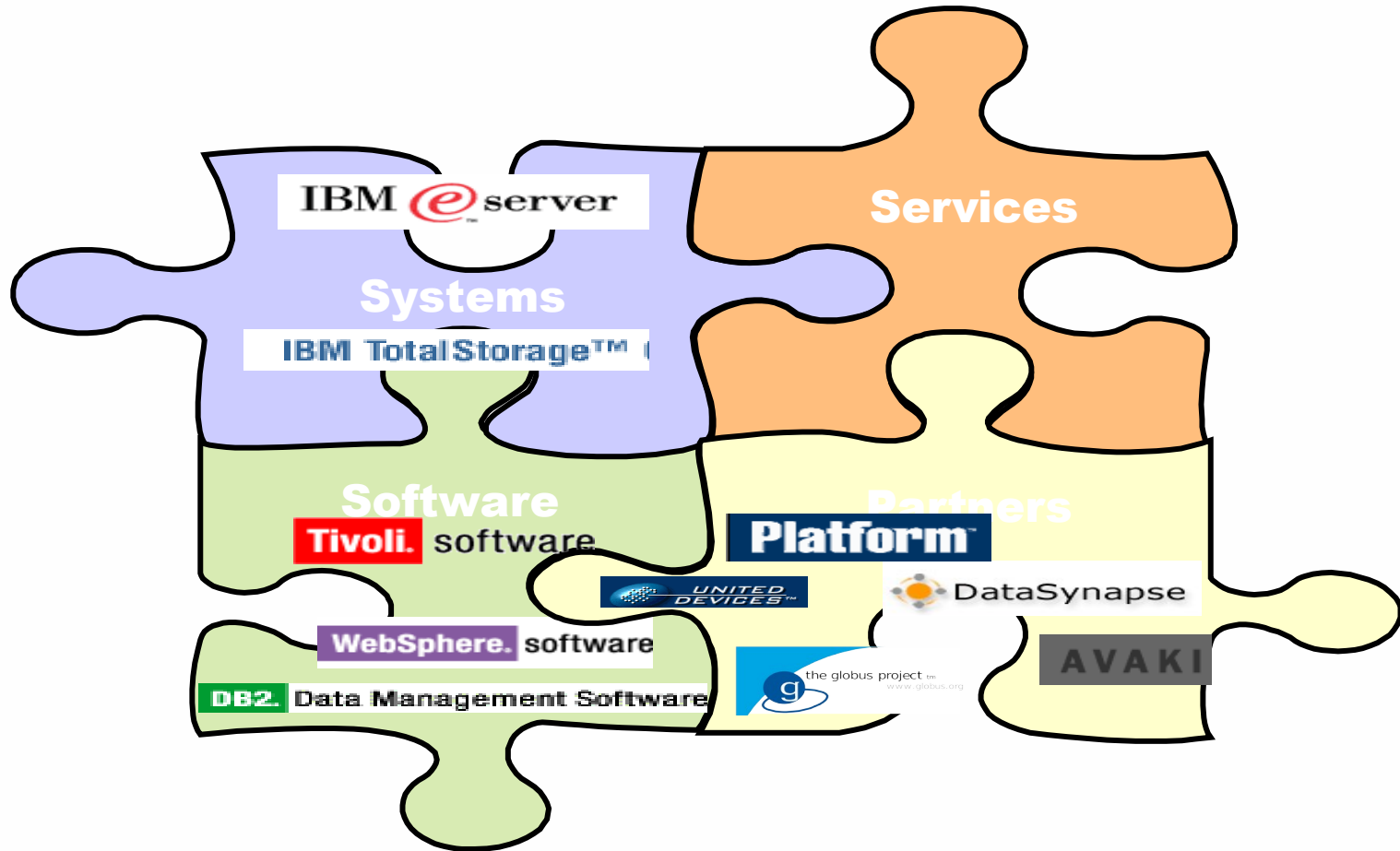
The time is NOW for On Demand, Open Source and Grid

- **What would the value to your organization be if you could:**

    - **Be responsive, almost intuitive to changes in demand, supply, competition**

    - **Use variable cost structures to reduce risk and do business at high levels of productivity, cost control**

    - **Stay focused on core competencies and differentiating assets**

    - **Be resilient, manage changes and threats with consistent availability and security**

Sam Docknevich
samd@us.ibm.com

www.ibm.com/grid