

IBM Power Systems™

# IBM i

Designed for Business



**Power is performance redefined**

Deliver services faster, with higher quality  
and superior economics

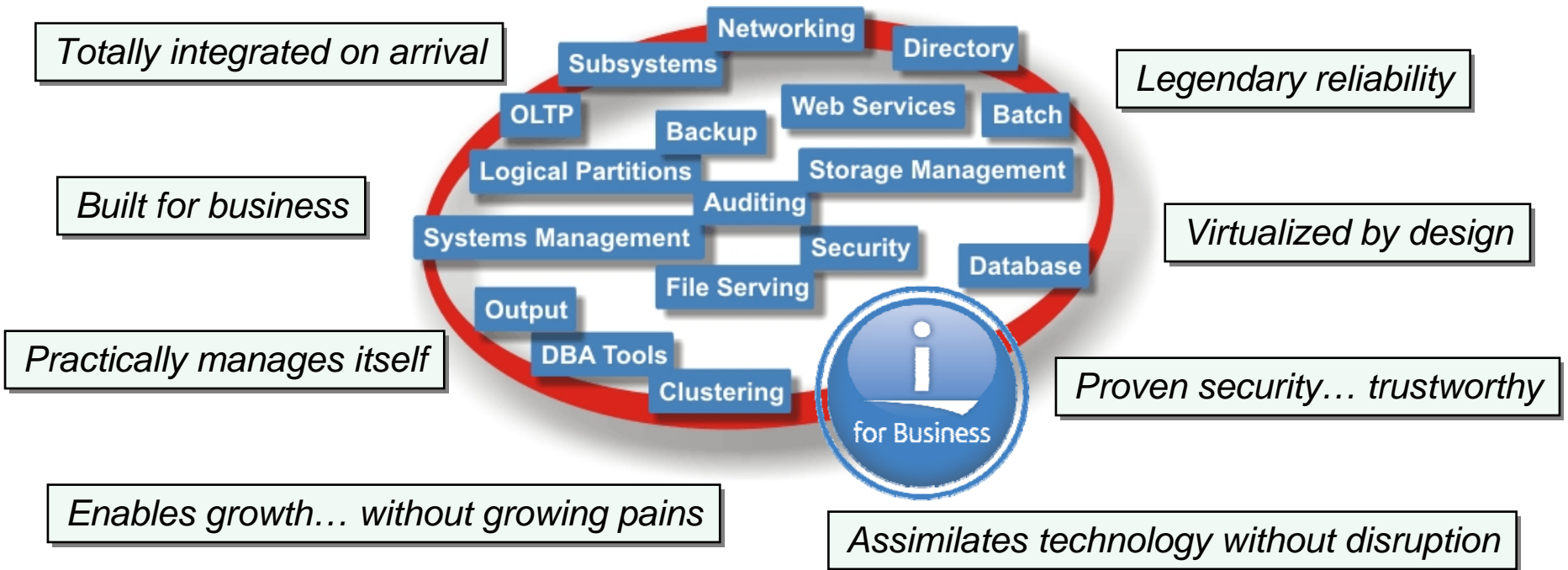
# IBM Power Systems Portfolio



Power is performance redefined

# IBM i – Not Just An Operating System, But So Much More

Why clients value IBM i...



Comprehensive, efficient and cost-effective... optimized for business

## The IBM i Business

***More clients run IBM i than any other IBM system platform***

- **100,000's of systems in 100,000+ enterprises**
- **115+ countries**
  - 40 language translations
  - 51 national language versions
- **Cross industry**



*Wholesale Distribution      Computer Services*

*Finance      Retail      Insurance*

*Consumer Package Goods      Travel & Transportation*

*Agribusiness      Automotive      Construction*

*Manufacturing      Lodging      Healthcare*

*Education      Associations      Local Government*

*Legal Services      Accounting Services*



## IBM i – Powerful Solutions for Mid-market Companies



*“We are happy to be able to provide our customers with the most powerful and reliable systems available.”*

- **EASI – IBM Premier Business Partner**
  - Headquartered in Belgium, also active in Luxembourg and France
  - Providing business solutions and services for mid-market companies since 1999
- **Over 700 clients across multiple industries**
- **Efficient, fully integrated business solutions for IBM i**
- **IBM Lotus Notes/Domino specialty**

- **Why mid-market clients value IBM i?**
  - Very efficient IT infrastructure
  - Extremely scalable
  - Virus-resistant architecture
  - Flexible
  - Fast to implement
  - Excellent ROI
- **Focus is on business innovation, not on managing the data center**

*“IBM's Power Systems ‘entry’ range perfectly suits the needs of our customers. Thanks to the new POWER7 technology, the performance of our customers’ Lotus/Domino applications becomes even better!”*

Jean-Michel Block, Director

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## IBM i – Maximize business benefits while minimizing IT costs



*“Our SMB clients get good value for the money and Pantheon can concentrate on its strongest added value: our ability to understand the business needs of our clients.”*

- **Pantheon Automation**
  - Web-based solutions for wholesale distribution and production companies
  - ERP, CRM, WMS, Document Management, e-Commerce
- **Serving Belgium and the Netherlands**

- **Meeting the needs of small to mid-sized businesses**
  - From <50 employees up to 500
  - IBM i Solution Editions: deploy in-house
  - Hosting option: cloud delivery
- **Robust, fully integrated solutions**
  - Reliable, flexible platform at minimal cost
  - Focus on satisfying business needs

*“For more than 25 years Pantheon and its clients have been dedicated to IBM i for its reliability and its flexibility.”*

Erik Versloot, Managing Director

# IBM i – Thousands of Leading Industry Solutions



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## Why i?

*Setting a higher standard for business computing*

- **Business computing is its purpose**
  - Conceived for business
  - Designed for business
  - Functionally integrated for business
- **It is the paragon for integration**
  - Embodied in its design
  - Measurable in its value
  - Unequaled in the industry
- **It is trusted**
  - Exhibits data and operational integrity
  - Is reliable, dependable and stable
  - Is less vulnerable to malware
- **It is price and cost competitive for the purpose it serves**



**Power is performance redefined**

## Myth: IBM i is a “Legacy” Operating System

Fact: Every Server OS is a “Legacy” OS

- **Solaris turns 30 this year**
  - **HP/UX turns 30 in 2013**
  - **AIX is 26 this year**
  - **Linux is 21 this year**
  - **Windows Server variants are nearly 20**
- } What are their roots?

- 
- **IBM i turns 24 this year... its roots and its purpose are in business computing**
    - Time-tested
    - Stable
    - Scalable
    - Comprehensive
    - Well understood
    - Predictable



# IBM i – Its Design Reflects Its Purpose: Business Computing

When purpose is known,  
it is incorporated into design.

When purpose is not clear,  
accommodations are made.



Same application, different levels of risk, efficiency, security and stability

**Power is performance redefined**

# The Business Case for IBM i on IBM Power Systems



**“More than any other platform available today, IBM i and Power Systems offer users the benefits of advanced technology while minimizing costs, complexities and risks<sup>1</sup>.”**

1. ITG Management Brief: Value Proposition for IBM Power Systems Servers and IBM i - Minimizing Costs and Risks for Midsize Businesses; January 2011

## IBM i – Delivering Competitive Advantage



*“Its stability, TCO and speed of development convinced us we should not only maintain our mid-range environment, but expand it to keep it at the center of our operations for the long term. IBM i has enabled us to grow the scale of our environment, while at the same time become more nimble and resilient.”*

Ken Spangler, VP of IT

- **FedEx Ground**

- Nearly 3 million packages picked up daily
- 7 to 8 million packages in the delivery pipeline at any one time
- Average daily transactions exceed 1 billion

- **Systems provide package rating and invoicing; optimized delivery routing; and timely, accurate tracking data**

- **IBM i is the foundation of operations**

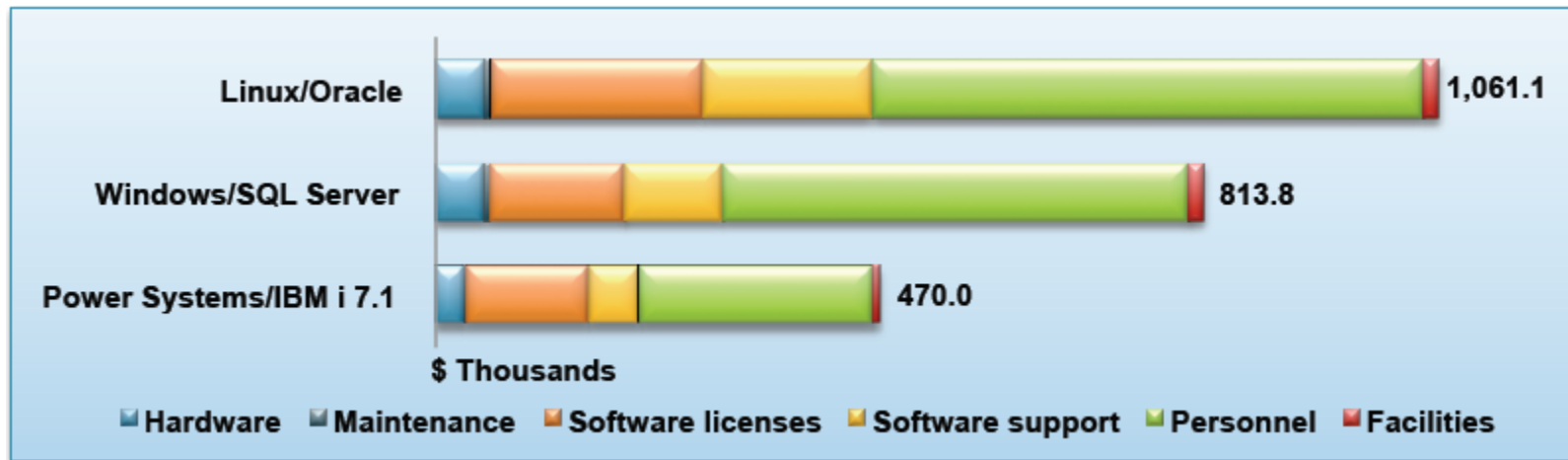
- Virtualization for flexible resource allocation and nimble growth in capacity
- High system availability to meet customer expectations for near-perfect reliability
- Rapid application development supports new function, faster

- **Low TCO helps keep overall cost structure down, improving competitiveness**

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## Lower Overall Three-year Costs

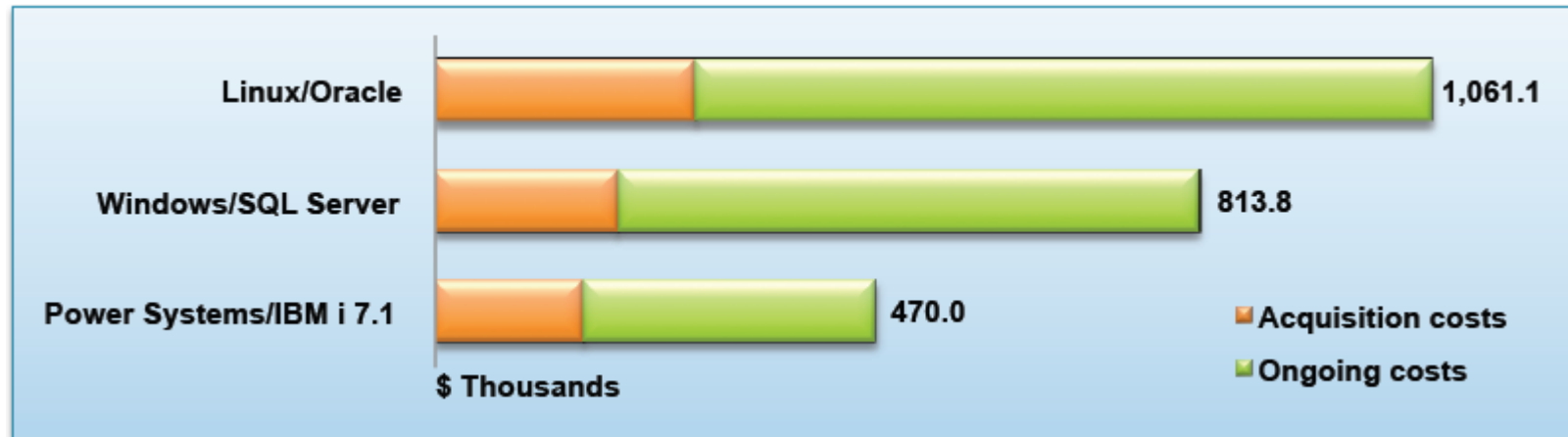
*An advantage sustained throughout the life of the platform*



**42% less** than x86, Microsoft Windows Server and Microsoft SQL Server

**56% less** than x86, Linux and Oracle DB

## Lower Acquisition and Ongoing Costs



- **Acquisition costs**
  - **18% less** than x86 servers with Windows Server and SQL Server databases
  - **43% less** than x86 servers with Linux and Oracle databases
- **Three-year ongoing costs – full time equivalent administrators**
  - **55% less** than Windows / SQL Server
  - **60% less** than Linux / Oracle

ITG Management Brief: Value Proposition for IBM Power Systems Servers and IBM i - Minimizing Costs and Risks for Midsize Businesses; January 2011



## Acquisition Costs – Consider All the Variables

Suppose you want to travel from California to New York... should you drive or fly?



... Will your decision criteria be limited to the cost of gas vs. the cost of an airplane ticket? *Of course not!*

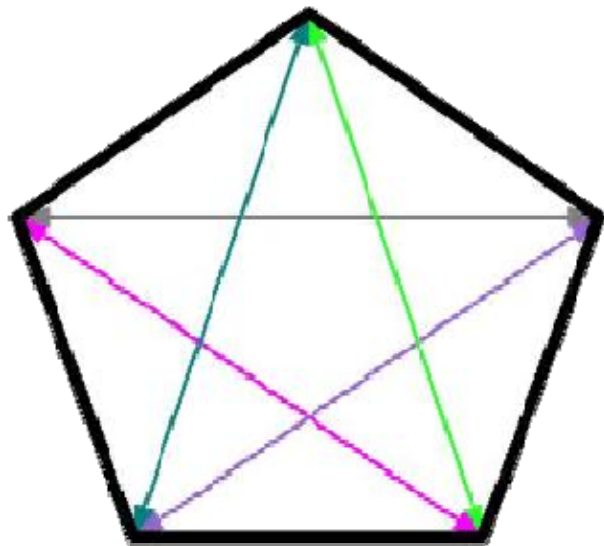
## Acquisition Costs – Consider All the Variables

- **Individually, x86 systems are less expensive than POWER7 systems**
- ***However ... there's more to the story ... the multiplier effect***
  - Multiplication of x86 servers to handle database, application and Web serving
  - Multiplication of x86 servers to support development, test and production instances
  - Multiplication of x86 servers inflates software licensing costs
  - Multiplication of x86 servers inflates support costs
- **Costs escalate further with high-end versions of software**
- **Costs escalate further when incorporating other necessities**
  - Tools for systems management, security and clustering
  - Client Access Licenses (CALs) for Windows servers
- **VMware, in practice, has been relegated to comparatively light-duty applications, limiting its effectiveness**

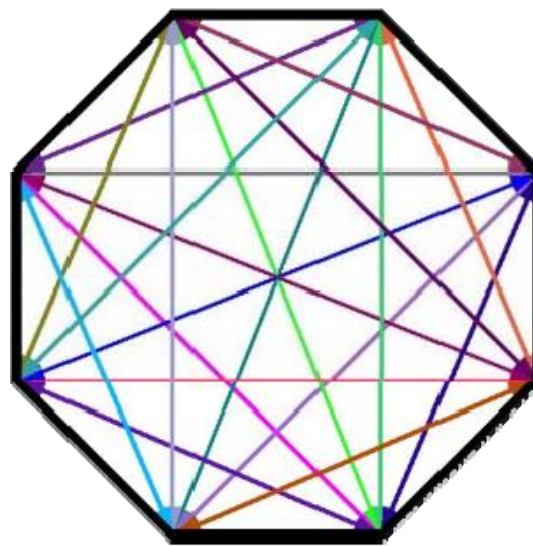


## The Multiplier Effect – Complexity Grows Geometrically

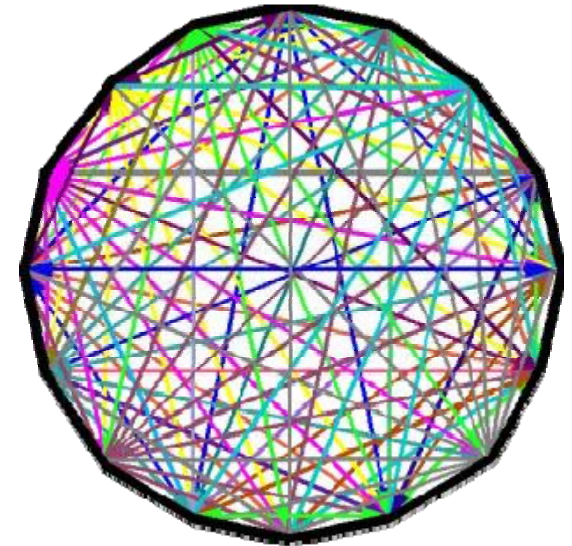
Change is inevitable due to shifting business requirements, new applications, etc.



5 nodes  
20 connections



8 nodes  
56 connections



16 nodes  
240 connections

In a “single application per server” model, challenges mount exponentially

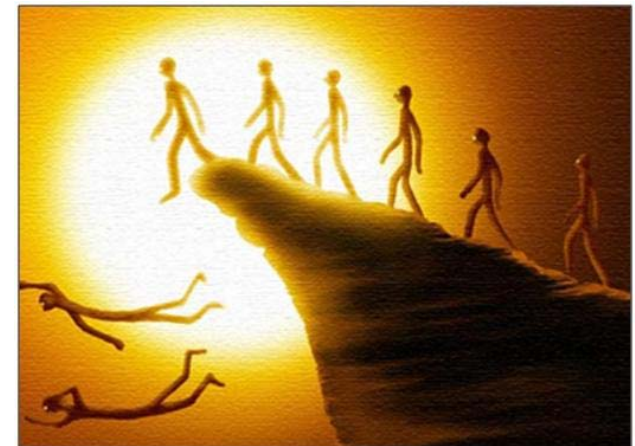
- Increasing risk to reliability, availability, stability... therefore to business
- Escalating costs to monitor, manage and maintain

## Information Cascade – a.k.a. “Following the Herd”

*A phenomenon that's all too common with technology*

One possible explanation for why server sprawl continues unabated

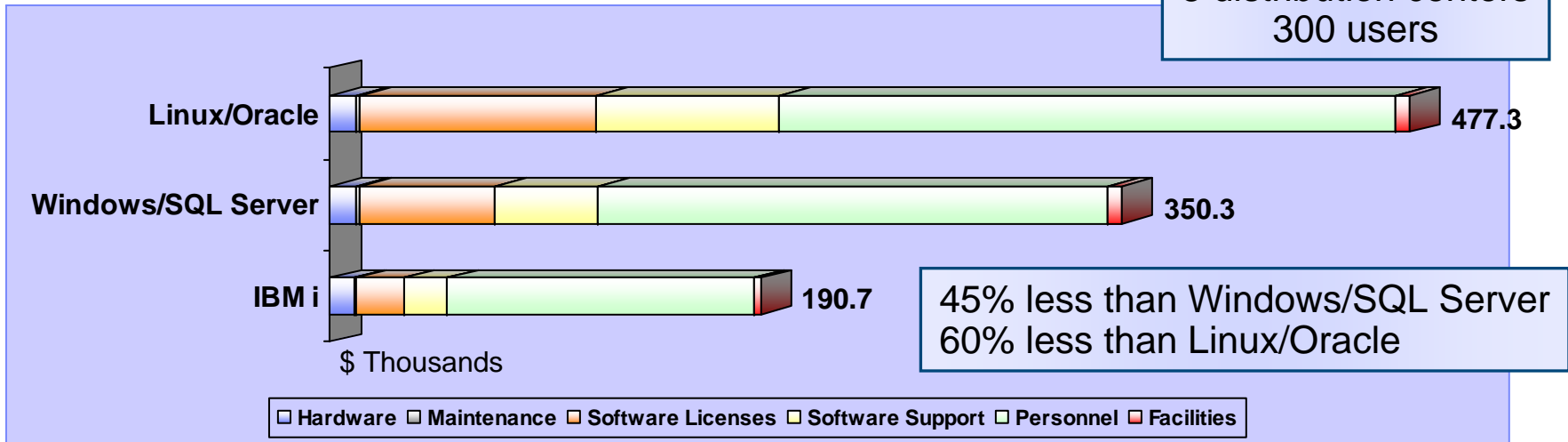
- **People observe the actions of others...**
- **Then make the same choice...**
- **And believe their choice to be rational, because it is usually sensible to do what other people are doing**
  
- **However, information cascades can sometimes lead to arbitrary, or even erroneous decisions**
  - Popularity of choice outweighs one's own judgment
  - One observes the decisions, not the information, of others
  - One concludes that “It's more likely I'm wrong than all of those other people are wrong, so I'll do as they do”



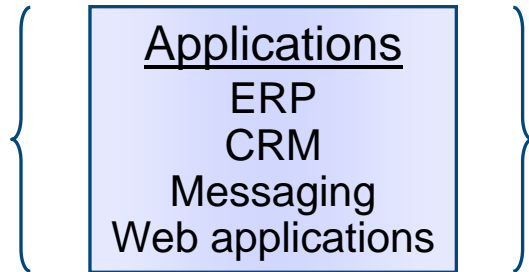
# Same Destination ... Different Journey

Wholesale distributor company profile

500 employees  
\$400 million sales  
3 distribution centers  
300 users



## x86 infrastructure



## IBM i infrastructure

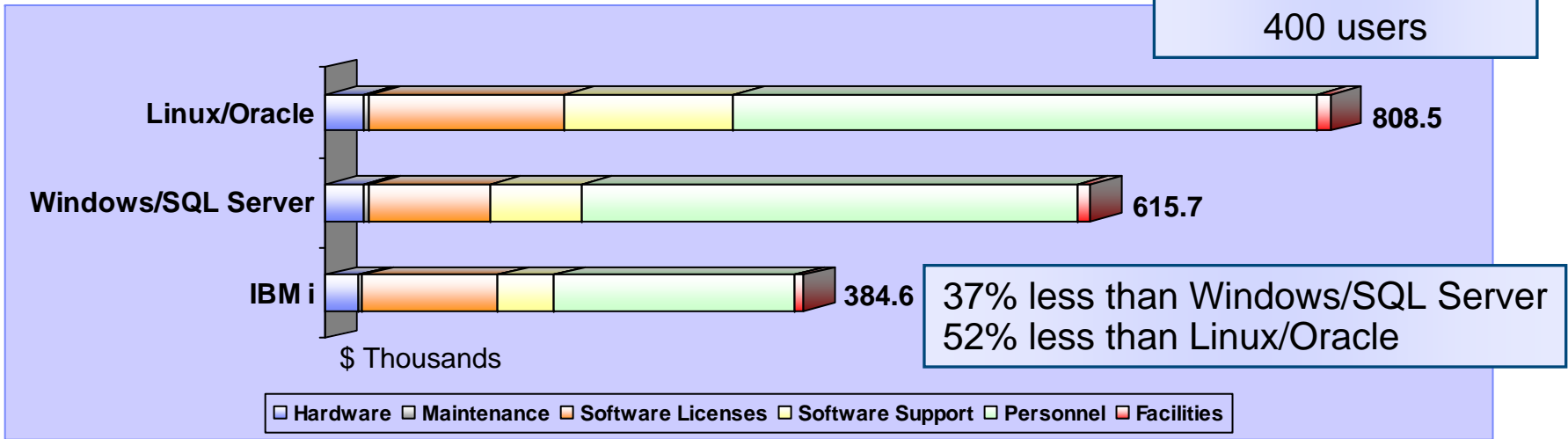




# Same Destination ... Different Journey

*Specialty retailer company profile*

1,500 employees  
 \$200 million+ sales  
 250 stores  
 2 distribution centers  
 400 users



## x86 infrastructure



## Applications

- Core retail
- Merchandising
- Supply chain
- Finance
- HR
- Web & wireless

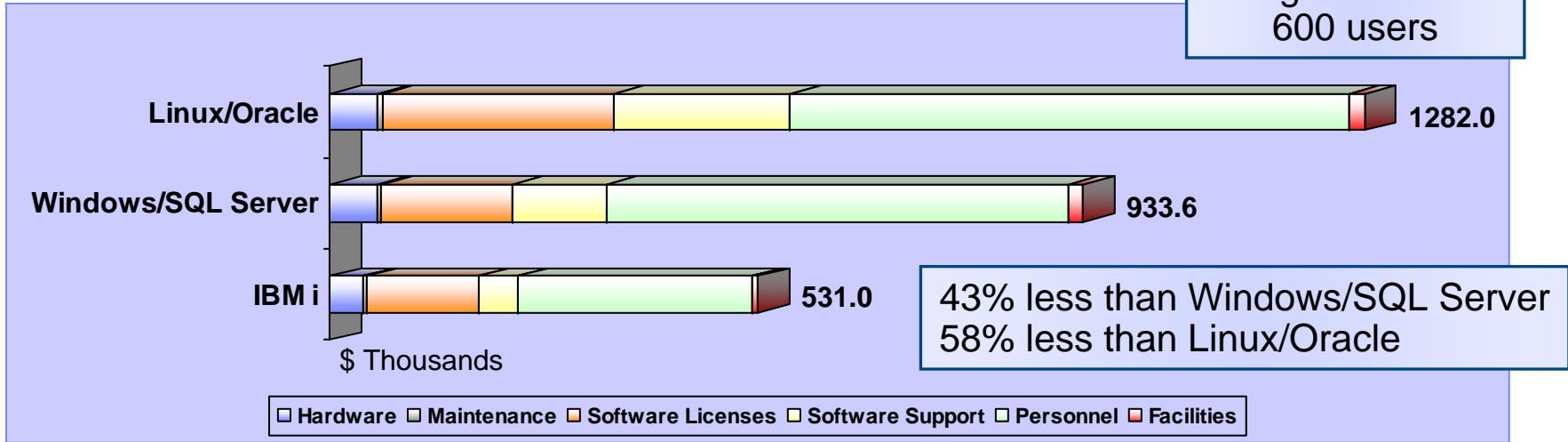
## IBM i infrastructure



# Same Destination ... Different Journey

*Manufacturing company profile*

2,500 employees  
\$500 million sales  
5 mfg/dist centers  
600 users



## x86 infrastructure



Applications  
ERP  
CRM  
Supply chain  
Business Intelligence  
E-commerce

## IBM i infrastructure



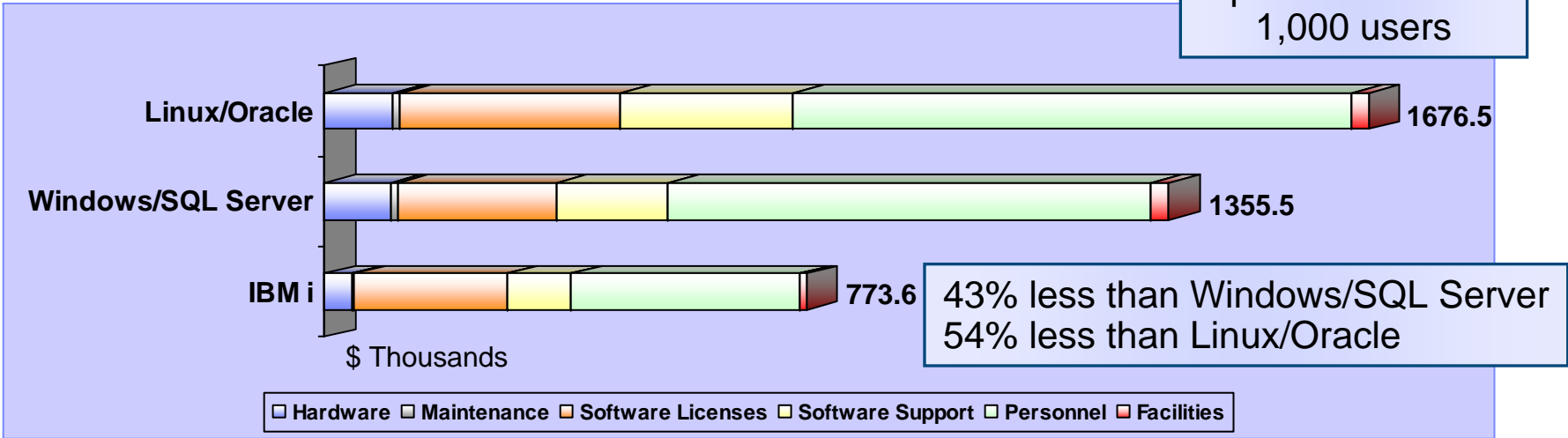
ITG Management Brief: Value Proposition for IBM Power Systems Servers and IBM i - Minimizing Costs and Risks for Midsize Businesses; January 2011

**Power is performance redefined**

# Same Destination ... Different Journey

*Agribusiness company profile*

4,500 employees  
 \$1.3 billion sales  
 8 prod/dist centers  
 1,000 users



## x86 infrastructure



Applications  
 ERP  
 Procurement / EDI  
 Business Intelligence  
 E-commerce  
 Compliance  
 Departmental

## IBM i infrastructure



ITG Management Brief: Value Proposition for IBM Power Systems Servers and IBM i - Minimizing Costs and Risks for Midsize Businesses; January 2011

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## IBM i – Maximize business benefits while minimizing IT costs



*“For the same price as the proposed Intel architecture, we purchased a single, more powerful and scalable Power Systems server, with all the characteristic advantages of IBM i: legendary reliability, high resilience against viruses, and the built-in IBM DB2 database.”*

Lutz Ilgner, CEO

- **German engine distributor with subsidiaries in Bavaria and Switzerland**
- **SAP Business All-in-One solution**
- **Business growth drove the need to upgrade from SAP Business One to SAP Business All-in-One**
- **Chose IBM i platform over Windows**
  - Fewer servers (1 vs. many)
  - Simpler implementation (80% faster)
  - Less ongoing maintenance and expense
  - Better availability
- **Focus shifted from IT to core business**

## Is IBM i Price and Cost Competitive?

- **A mountain of evidence says “yes!”**
  - Consultant reports
  - Technology briefs
  - White papers
  - Case studies
  - References
- **Researched, reported, updated and refreshed routinely for more than 20 years**
- **For business computing, no platform has proven more suitable**





## IBM i – Value that Stands the Test of Time



*“Our choice of the IBM i and Power Systems infrastructure for our SAP application environment has met the needs of our business and delivered a rapid return on investment. Every time we have reassessed our IT architecture, IBM i has made a stronger business case than any other platform.”*

Dennis Lewis, CIO

- 7-Eleven is the market leader in convenience retailing in Australia, operating over 650 stores
- SAP ERP 6.0 and SAP NetWeaver 7.0 business application platform
- **Superb reliability (down < 2 hours/year)**
- **Integrated DB2**
- **Easier to manage, ongoing TCO savings**
- **Sophisticated integration with Microsoft Windows Server**
  - Simpler disk management
  - Better reliability and availability of Windows applications, easier recovery
- **Immense scalability**

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# The Technology Behind the Business Case

*Distinguishing IBM i from everything else*



**“More than any other platform in existence today, POWER7-based systems and IBM i 7.1 are designed to minimize complexities<sup>1</sup>.”**

1. ITG Management Brief: Value Proposition for IBM Power Systems Servers and IBM i - Minimizing Costs and Risks for Midsize Businesses; January 2011

IBM Power Systems™

# Total Integration



## Power is performance redefined

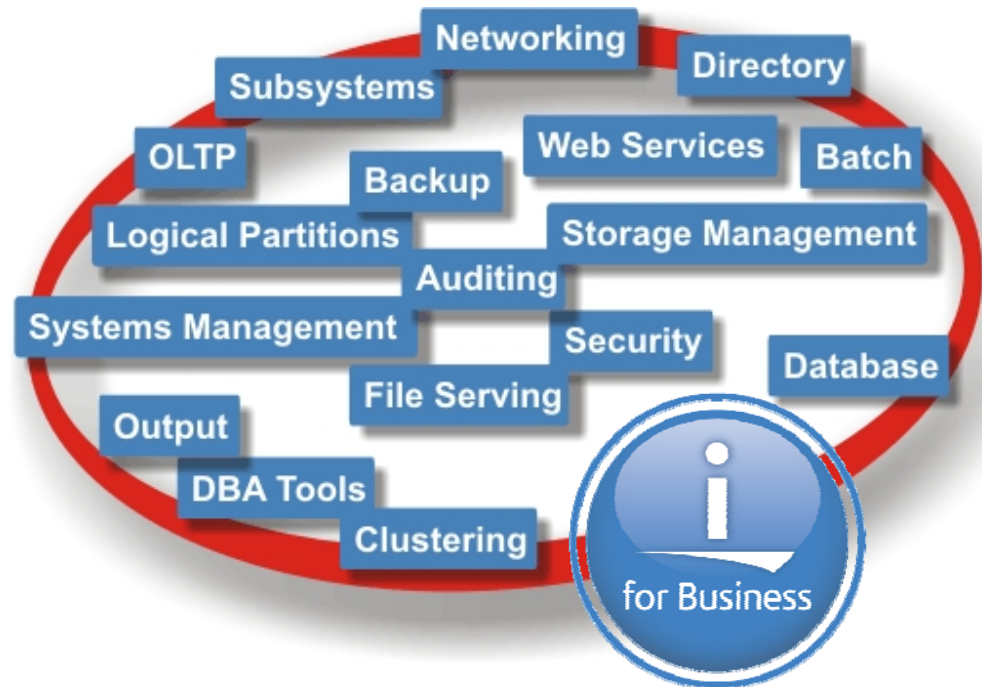
Deliver services faster, with higher quality  
and superior economics

## Integration – Real, Serious Integration

*As contrasted with the simple pre-packaging of shrink-wrapped components*

### More ...

- ... comprehensively designed
- ... built-in functionality
- ... thoroughly tested
- ... easily managed
- ... platform stability
- ... IT staff productivity
- ... ROI



The IBM i operating environment includes operating system and middleware components that are designed, developed, built, tested, delivered and supported as one



# Integration = Faster Time to Value

When you order a piece of carrot cake, what do you expect?



Recipe & ingredients



Integration

Why should you expect any less from your IT than you do from your bakery?



# Integration = Faster Time to Value

When you shop for a new home, what do you buy?



Plans & raw materials

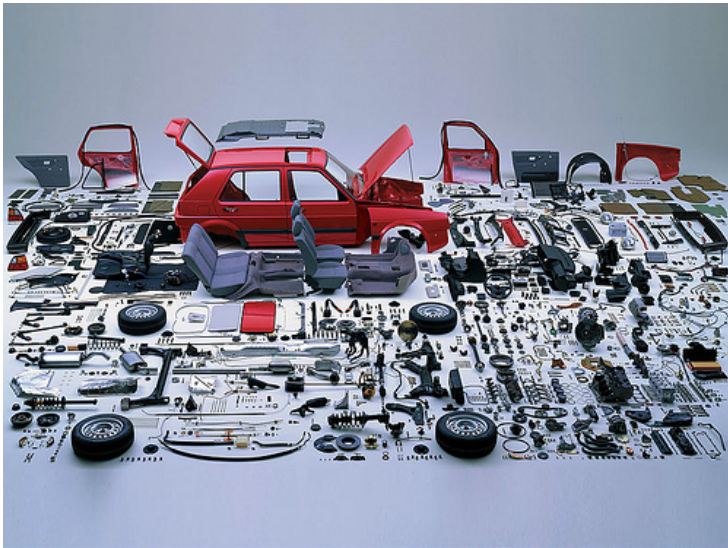


Integration

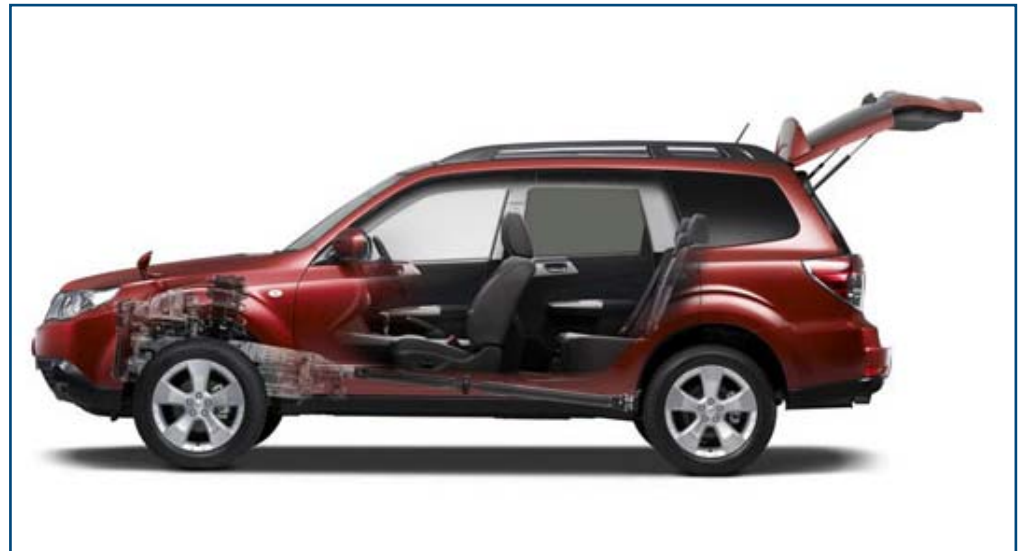
Why should you expect any less from your IT than you do from your realtor?

# Integration = Faster Time to Value

When it's time for a new car, what do you look for?



Piece parts



Integration

Why should you expect any less from your IT than you do from your car dealer?

# Integration = Faster Time to Value

When you deploy a new solution, where do you begin?



Components

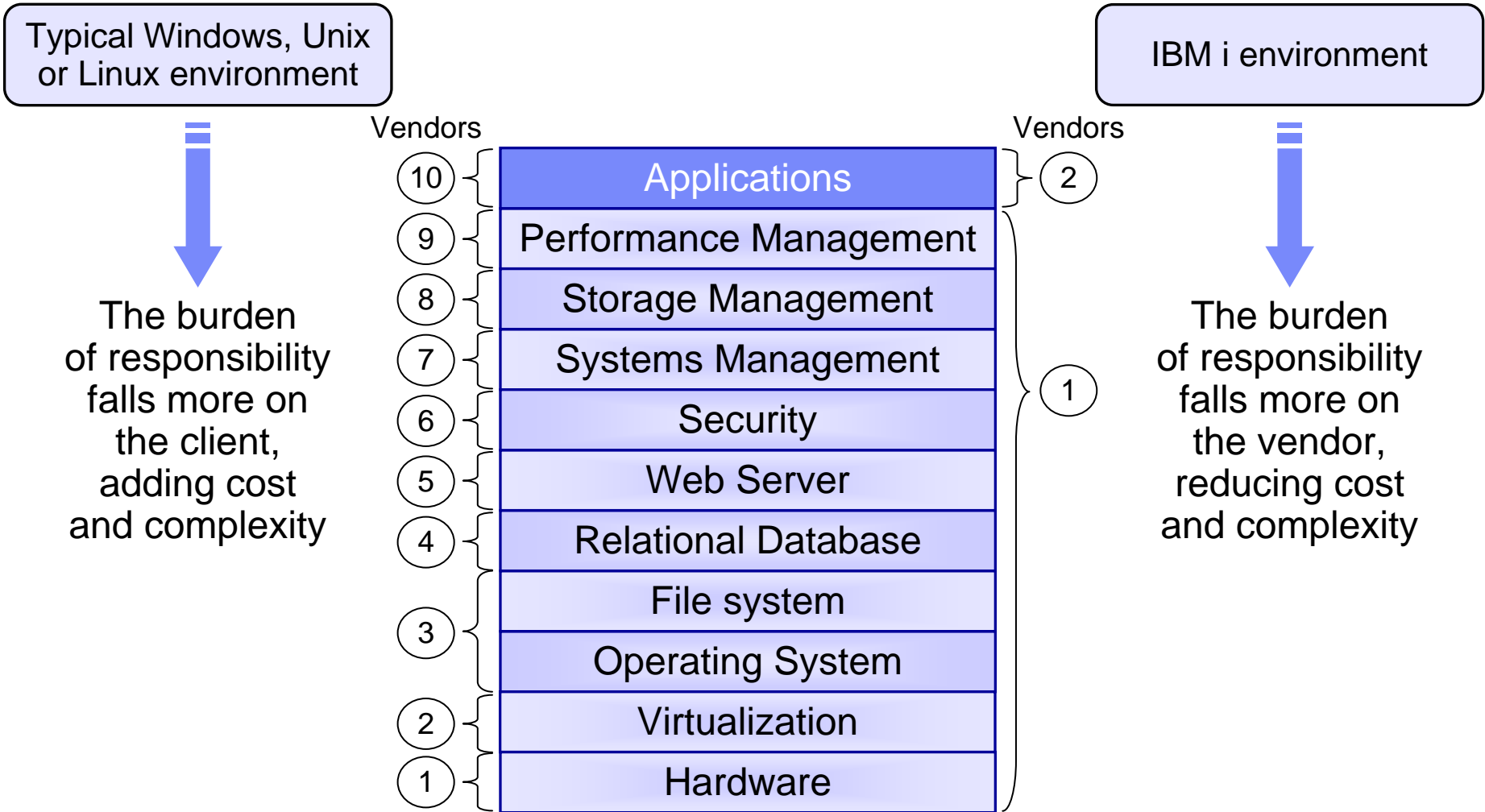


Integration

Why should you expect any less than total integration from your IT vendor?

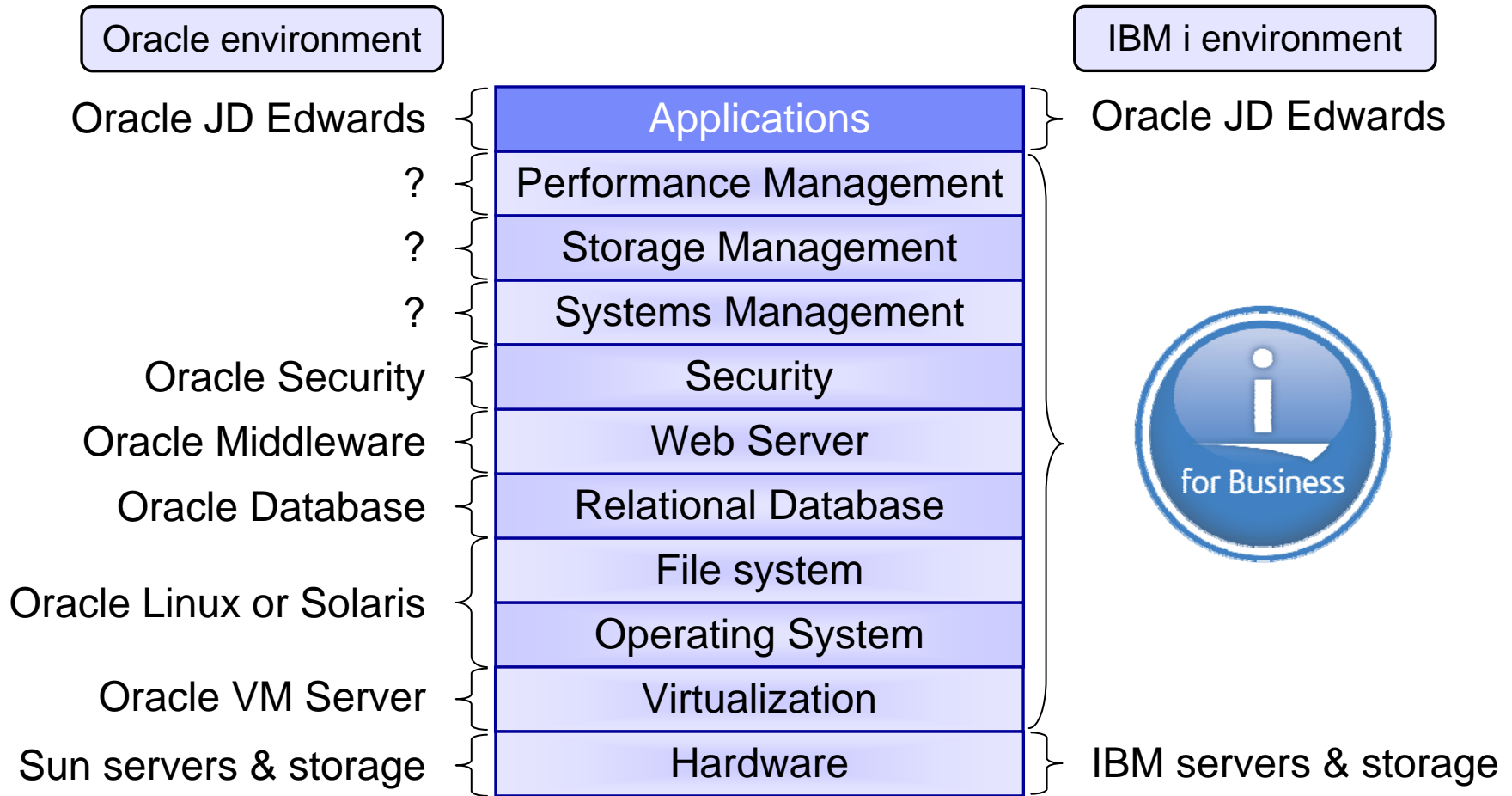
# The Solution Stack – Who's Responsibility Is It?

*Installation, integration, test, change management, support ...*



# Is the Oracle Stack Truly Integrated?

*How much of it is designed, integrated, tested and supported as one?*



Integration by acquisition... not even close to integration by design



# True Integration Occurs Earlier in the Development Process

*Separately ordered components might work together, but that doesn't mean they're integrated*

## The Oracle Stack



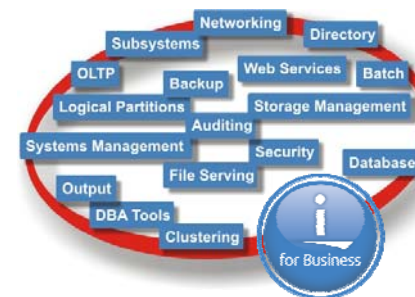
Integration by patchwork

- Oracle OS
- + Oracle VM Server
- + Oracle DB
- + Oracle Middleware
- + Oracle Security
- + more....

## The IBM i Environment



Integration by design



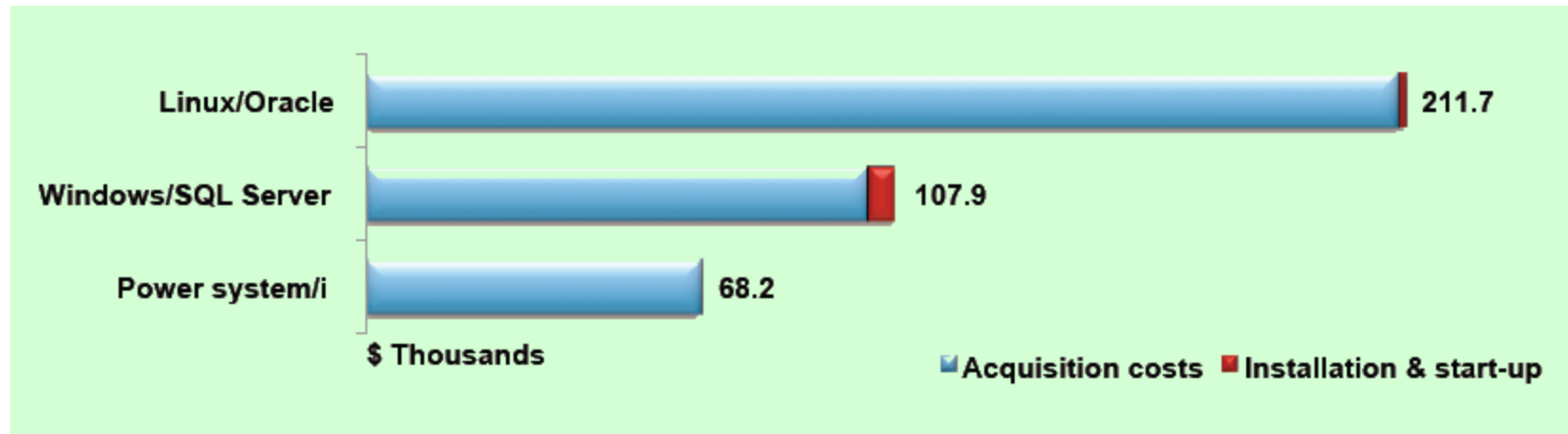
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# Platform Choice Matters

*IBM i Solution Editions simplify and reduce costs for installation and start-up*

Average initial costs for JD Edwards EnterpriseOne deployment



IBM i is...

- 37% less than Windows servers with SQL Server DB
- 68% less than x86 Linux servers with Oracle DB

*(Average costs are derived from configurations supporting 50, 150 and 500 users)*

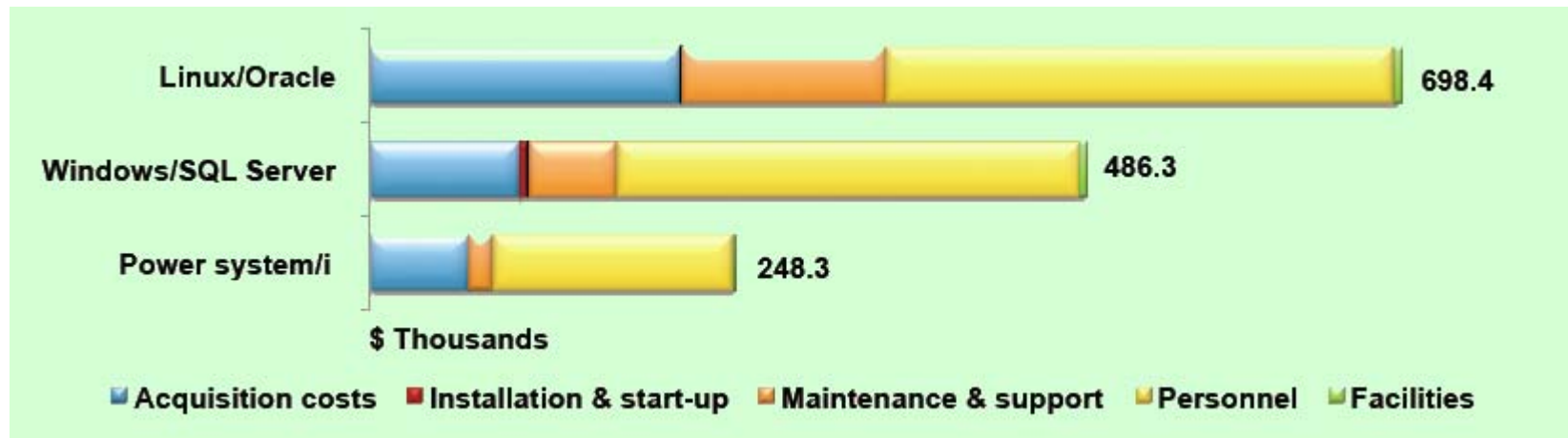
IBM i Solution Edition for JD Edwards: Value Proposition for EnterpriseOne Deployment – ITG Status Report, August 2010

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## Platform Choice Matters

*Lower overall 3-year costs reflect the underlying strengths of the IBM i platform*

### Average 3-year IT costs for JD Edwards EnterpriseOne deployment



IBM i is...

- 49% less than Windows servers with SQL Server DB
- 64% less than x86 Linux servers with Oracle DB

*(Average costs are derived from configurations supporting 50, 150 and 500 users)*

IBM i Solution Edition for JD Edwards: Value Proposition for EnterpriseOne Deployment – ITG Status Report, August 2010

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## ITG Status Report – Key Observations

*IBM i and Power Systems combine to reduce cost and risk*

### Regarding personnel:

*Staffing levels for equivalent E1 environments are routinely two to three times lower (for IBM i) than for Windows and Linux servers.*

*Because of the highly integrated IBM i design, dedicated DBAs are not required in most midsize installations.*

### Regarding availability risks:

*Experience among E1 users has shown that Power systems with i availability levels are typically higher – by wide margins – than for Windows and Linux servers.*

### Regarding security and malware risks:

*In this area, differences between IBM i, Windows and Linux environments are not merely significant – they are dramatic. IBM i is one of the most secure operating systems in existence. Security violations are rare, and malware incidents are virtually unknown.*

## IBM i – Platform Choice Matters



*“IT costs were escalating... We wanted to repair the poor perception of IT held by the rest of the company, and ensure that it made the life of our workforce easier, rather than representing a daily annoyance.”*  
David Booth, CIO

- **The leading provider of mining, heavy construction, industrial, piling and pipeline services in Canada**
- **JD Edwards EnterpriseOne solution**

- **Platform instability was a serious issue with Microsoft servers and database**
  - Users dissatisfied with IT
  - Costs escalated
  - Business growth hampered
- **IBM i provided the resolution**
  - Eliminated recurring outages
  - Improved performance and responsiveness
  - Reduced IT costs 52% year over year
  - Restored faith in IT
- **Focus on new opportunities, growth**

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IBM Power Systems™

# Object-based Architecture

Integrity by design



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## IBM i – an Object-based Architecture

*A design decision which brings data security and operational integrity to the platform*

- **There are 100's of unique object types**
- **Every object has two inseparable parts**
  - Object attributes
    - Type (e.g. program, file, command)
    - Behavior (operational characteristics)
    - Access authority
  - Object contents
- **Object attributes are governed by the OS**
  - Predictable behavior - always
  - Appropriate authority easily managed
  - Thorough auditing/tracking built in
- **Natural defense against the malware that plagues other operating systems**

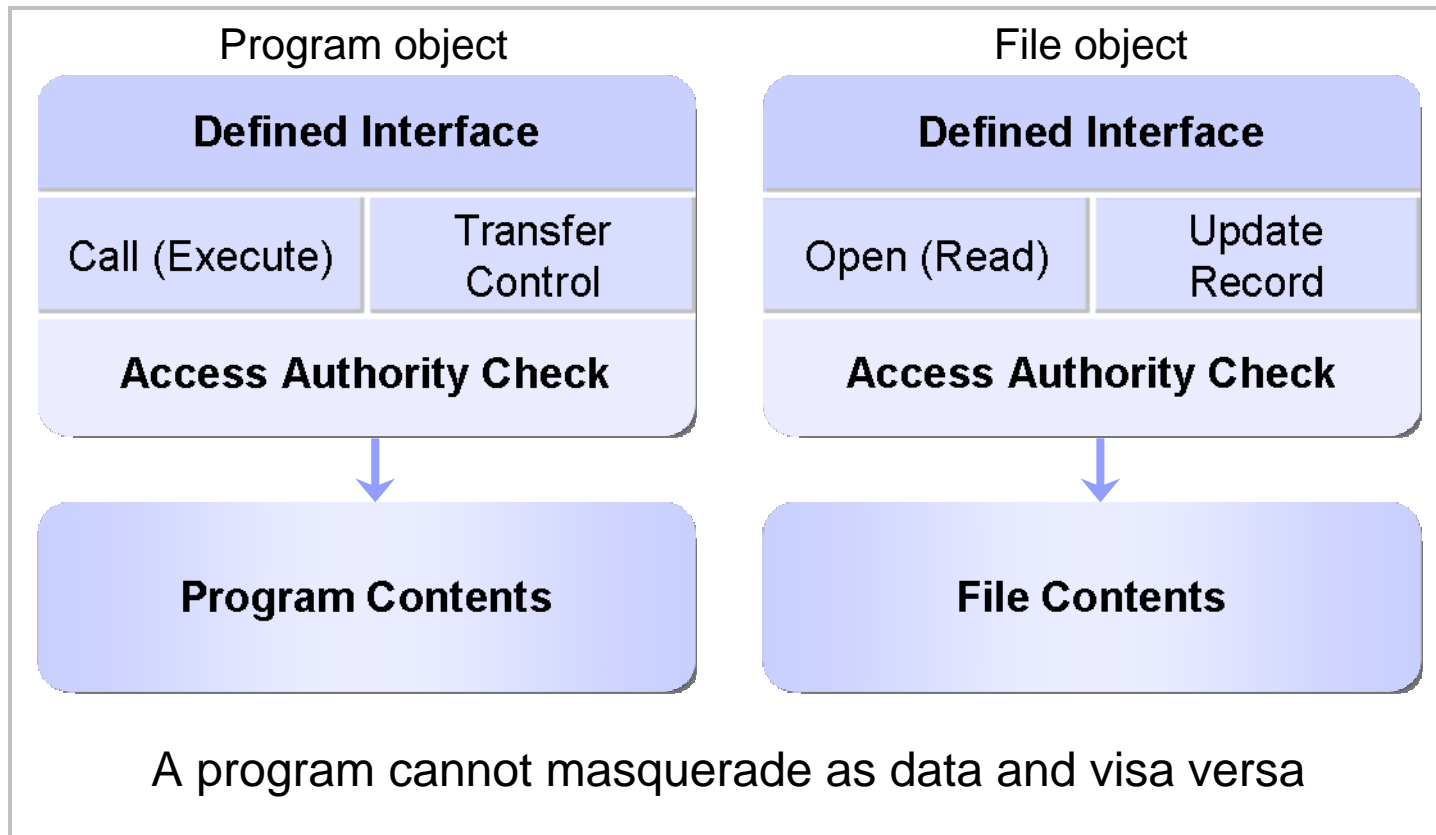


Much like DNA governs the development of all living things, each IBM i object contains instructions which govern how it functions in the system.



# IBM i Object-based Architecture

*Object attributes (behavior, authority) enforced before contents are accessed*



# Do You Know What You're Putting in YOUR System?

*IBM i objects have more integrity than content defined by file extensions*

## IBM i

<b>Nutrition Facts</b>	Amount/serving	%DV*	Amount/serving	%DV*
Serv. Size 1 cup (249g)	<b>Total Fat</b> 12g	<b>18%</b>	<b>Sodium</b> 940mg	<b>39%</b>
Servings About 2	Sat. Fat 6g	<b>30%</b>	<b>Total Carb.</b> 24g	<b>8%</b>
<b>Calories</b> 250	Polyunsat. Fat 1.5g		Dietary Fiber 1g	<b>4%</b>
Fat Cal. 110	Monounsat. Fat 2.5g		Sugars 1g	
*Percent Daily Values (DV) are based on a 2,000 calorie diet.	<b>Cholest.</b> 60mg	<b>20%</b>	<b>Protein</b> 10g	<b>20%</b>
	Vitamin A 0% • Vitamin C 0% • Calcium 6% • Iron 8%			

**INGREDIENTS:** WATER, CHICKEN STOCK, ENRICHED PASTA (SEMOLINA WHEAT FLOUR, EGG WHITE SOLIDS, NIACIN, IRON, THIAMINE MONONITRATE [VITAMIN B1], RIBOFLAVIN [VITAMIN B2] AND FOLIC ACID), CREAM (DERIVED FROM MILK), CHICKEN, CONTAINS LESS THAN 2% OF: CHEESES (GRANULAR, PARMESAN AND ROMANO PASTE [PASTEURIZED COW'S MILK, CULTURES, SALT, ENZYMES], WATER, SALT, LACTIC ACID, CITRIC ACID AND DISODIUM PHOSPHATE), BUTTER (PASTEURIZED SWEET CREAM [DERIVED FROM MILK] AND SALT), MODIFIED CORN STARCH, SALT, WHOLE EGG SOLIDS, SUGAR, DATEM, RICE STARCH, GARLIC, SPICE, XANTHAN GUM, CHEESE FLAVOR (PARTIALLY HYDROGENATED SOYBEAN OIL, FLAVORINGS AND SMOKE FLAVORING), MUSTARD FLOUR, ISOLATED SOY PROTEIN AND SODIUM PHOSPHATE.

It is always what it says it is!

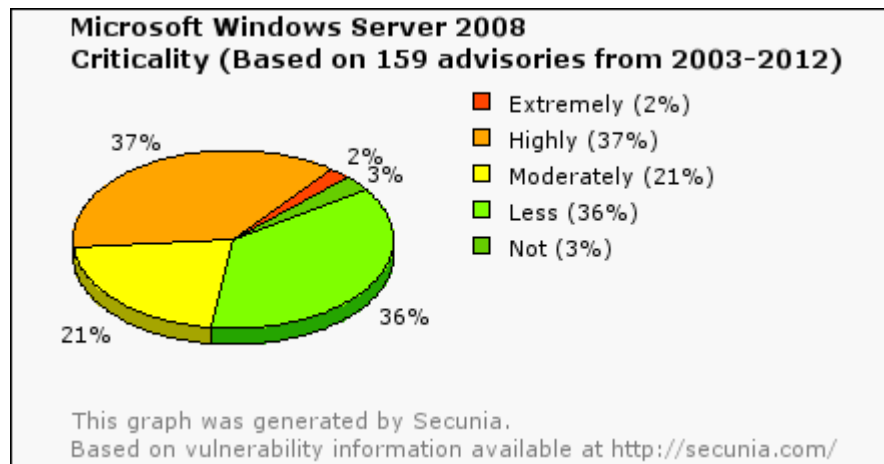
## Other operating systems



Is it always what it says it is?

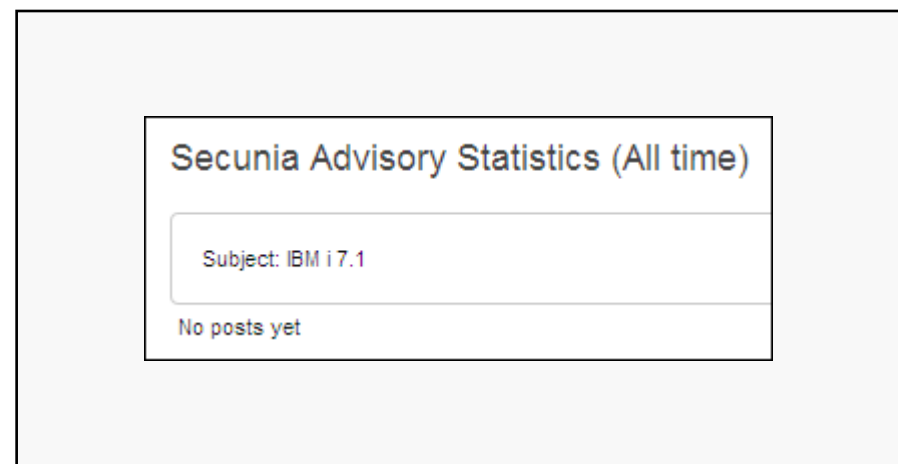
# IBM i Security – More Confidence, Less Cost

## Microsoft® Windows Server® 2008



- 159 advisories (all time)\*
- 39% highly/extremely critical
- 2% remain unpatched

## IBM i 7.1

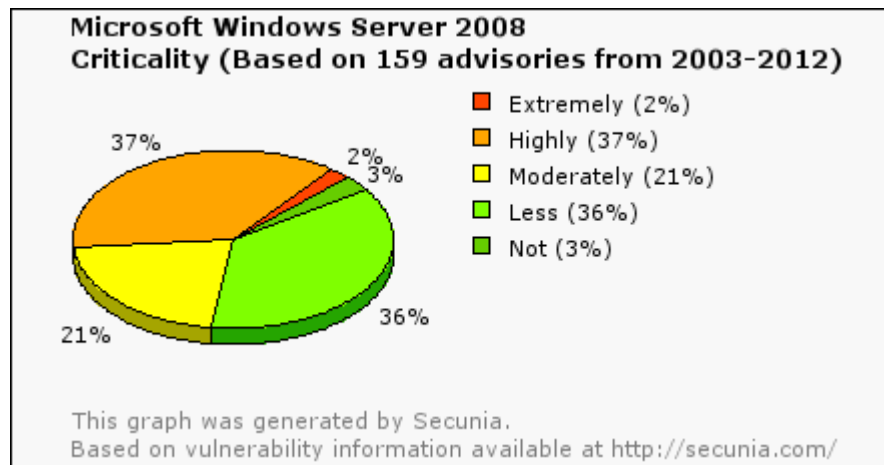


- No advisories (all time)

\* Vulnerabilities reported through Feb 15, 2012: <http://secunia.com/advisories/product/>

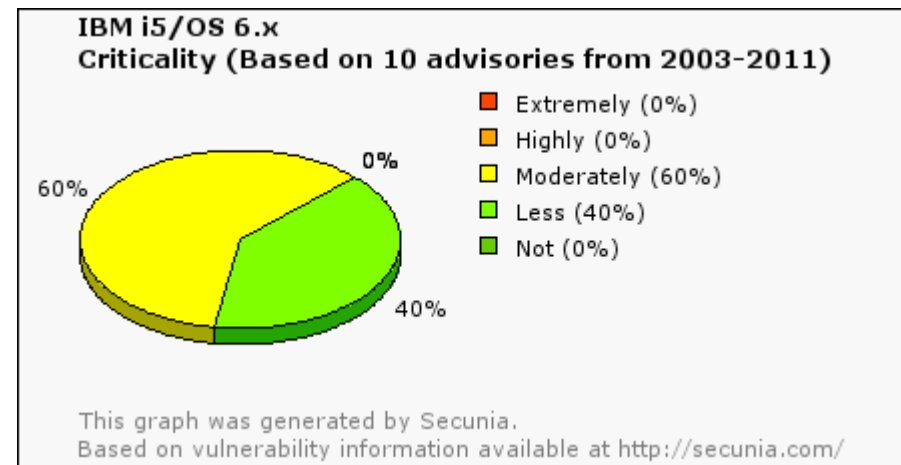
# IBM i Security – More Confidence, Less Cost

## Microsoft® Windows Server® 2008



- 159 advisories (all time)\*
- 39% highly/extremely critical
- 2% remain unpatched

## IBM i 6.1 *(no advisories for i 7.1)*

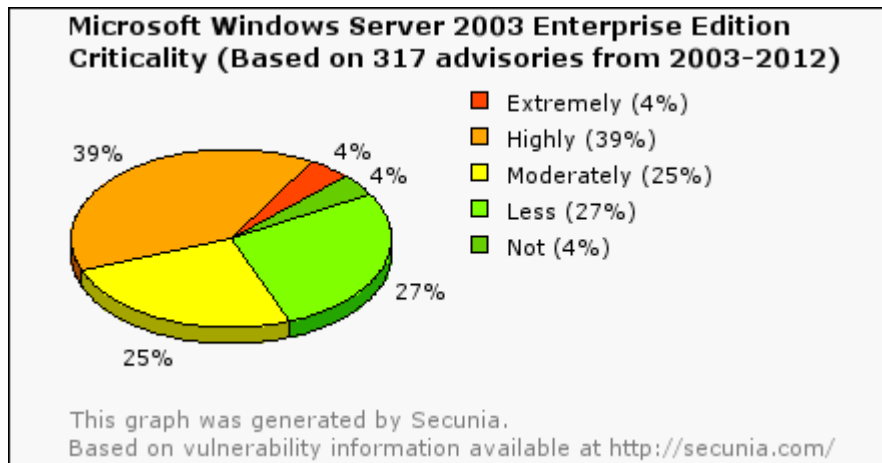


- 10 advisories (all time)\*
- None highly/extremely critical
- None remain unpatched

\* Vulnerabilities reported through Feb 15, 2012: <http://secunia.com/advisories/product/>

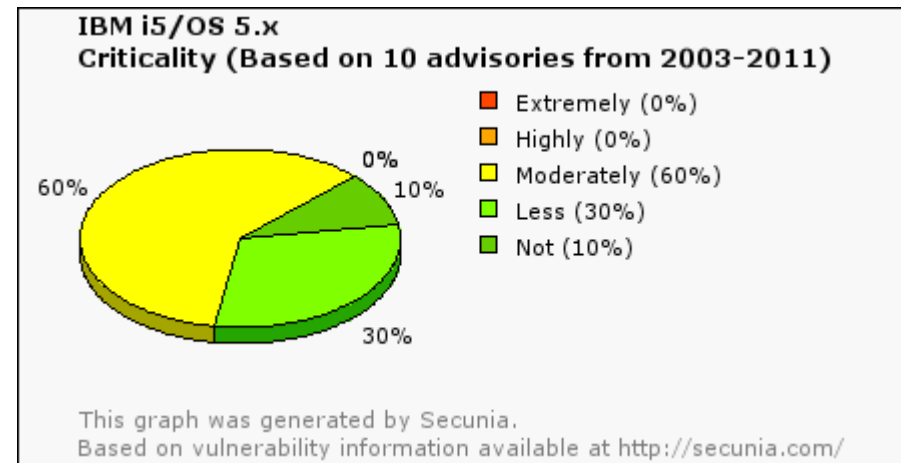
# IBM i Security – Historically Better

## Microsoft® Windows Server® 2003



- 317 advisories (all time)\*
- 43% highly/extremely critical
- 6% remain unpatched

## IBM i 5.x



- 10 advisories (all time)\*
- None highly/extremely critical
- None remain unpatched

\* Vulnerabilities reported through Feb 15, 2012: <http://secunia.com/advisories/product/>

IBM Power Systems™

## Single Level Storage

Integrated, automated storage management



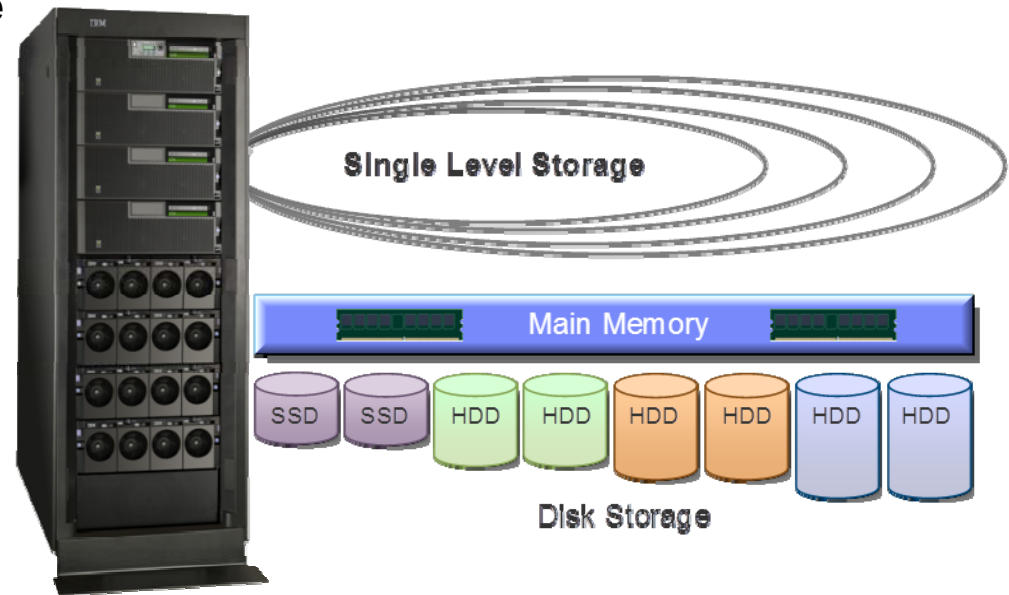
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and superior economics



## Single Level Storage = Built-in Storage Management

- In IBM i, all storage is viewed as one large, contiguous, addressable space
- Storage management is integrated
  - Object/data placement is balanced based on the performance, capacity and type of storage devices
  - Storage may be dynamically and automatically rebalanced based on usage patterns
  - Support for storage innovations, such as Solid State Drives, can be integrated into storage management algorithms quickly
- IBM i clients typically do not require storage administrators
- Automated storage management simplifies operations and reduces costs



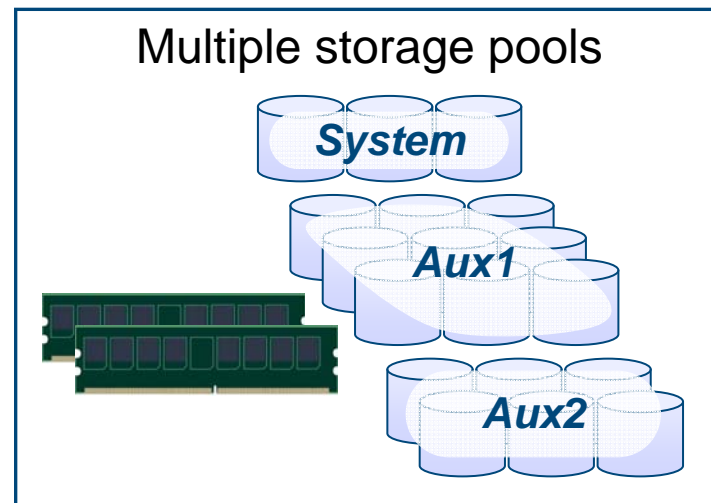
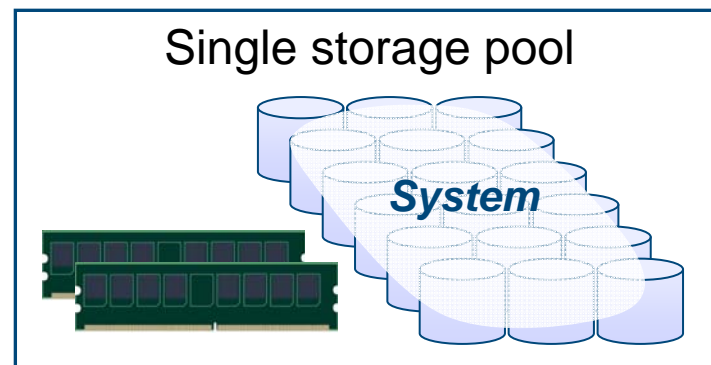
Objects are stored/retrieved by name without regard to physical location, minimizing the need for administrators to manage storage infrastructure.

# Single Level Storage – Configuration Flexibility

*Business requirements should determine storage requirements*

- **Flexible storage attachment**
  - Internal (SCSI-attached SAS drives)
  - External (SAN)
  - Virtual I/O Server
  
- **Storage devices may be grouped into a single pool or multiple pools**
  - Single pool is simplest, most automated
  - There are advantages to multiple pools
    - Program/data isolation (e.g. Company 1, Company 2) in a single system image
    - High availability solutions (PowerHA)
  - Integrated storage management operates on each pool

Automated storage management and configuration flexibility blend well in IBM i



# Integrated Storage Management

Leading support for leveraging Solid State Drives to improve application performance



*“By adding SSDs to SAS drives, the time required to run our end-of-month batch processing workload could be reduced by 40 percent.”*  
 - Associated Bank-Corp

- **A diversified bank holding company with HQ in Green Bay, Wisconsin**
  - More than 1 million customers
  - 300 banking offices in WI, MN and IL
- **Requirement to speed up I/O-intensive end-of-day and end-of-month processing workloads**

- **SSD support is built into IBM i**
  - Frequently accessed data – **auto move!**
  - High priority objects – **auto place!**
  - Easily place DB2 tables on SSDs
- **Moving eight DB2 tables to SSDs reduced runtime by 40%**

# of SAS Drives	# of SSDs	Batch Run Time
72	0	4:22
72	8	2:43
60	4	2:48

**Power is performance redefined**

IBM Power Systems™

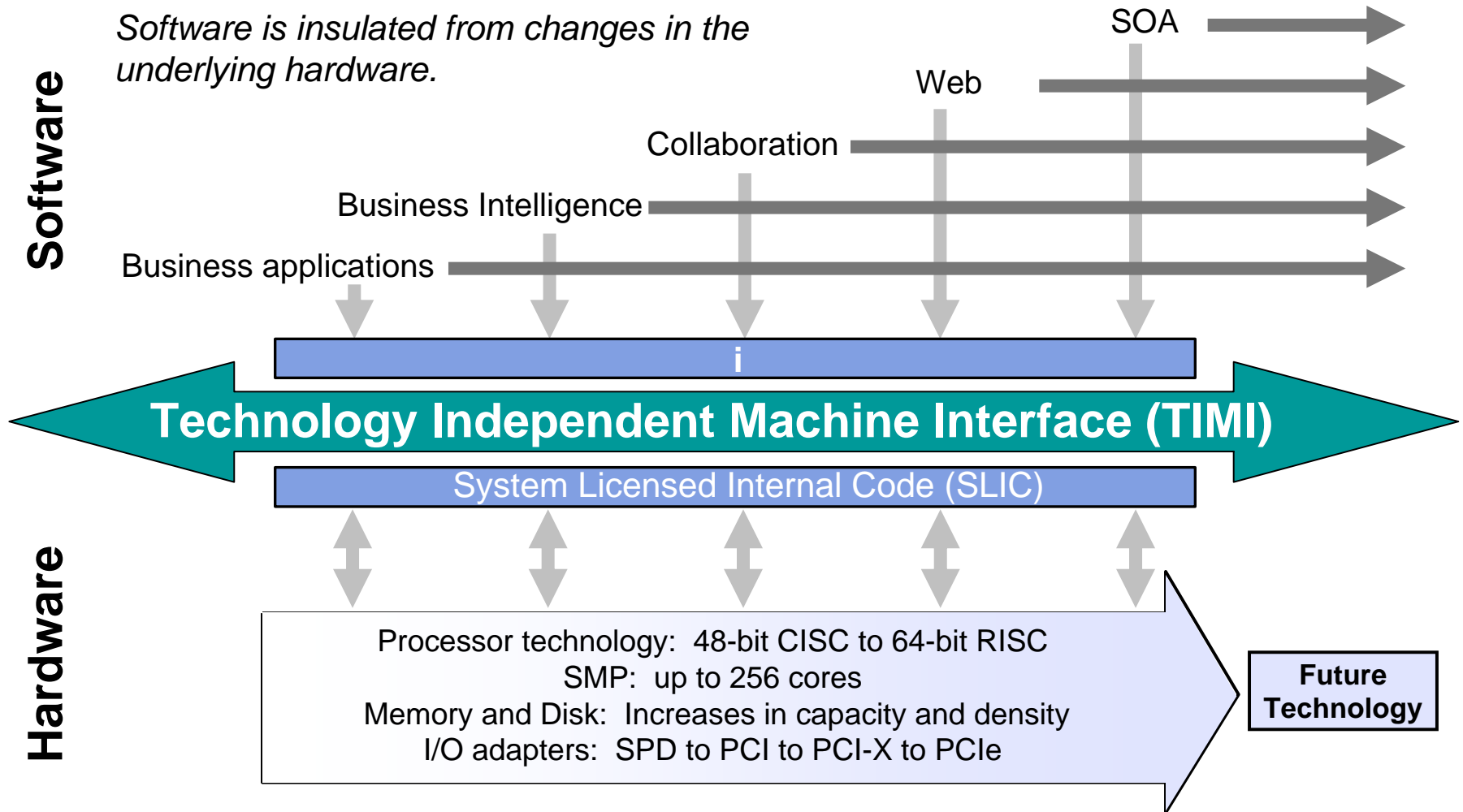
# Technology Independence



**Power is performance redefined**

Deliver services faster, with higher quality  
and superior economics

# IBM i Architecture – Responsive to Change



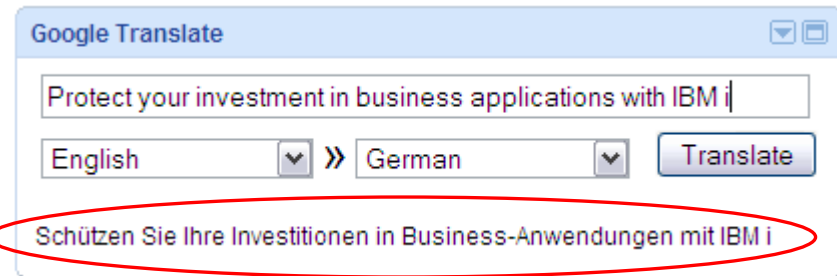
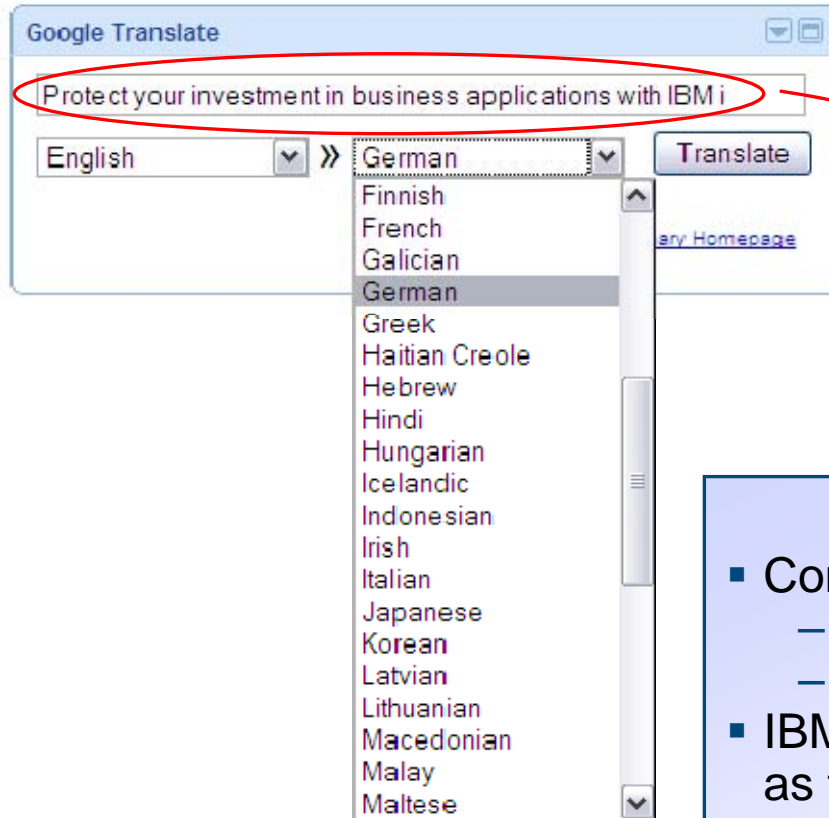
*Those who truly understand this don't want anything else.*

**Power is performance redefined**



# Change Need Not Be Disruptive

*Architecturally, IBM i is designed to anticipate and accommodate changing technology*

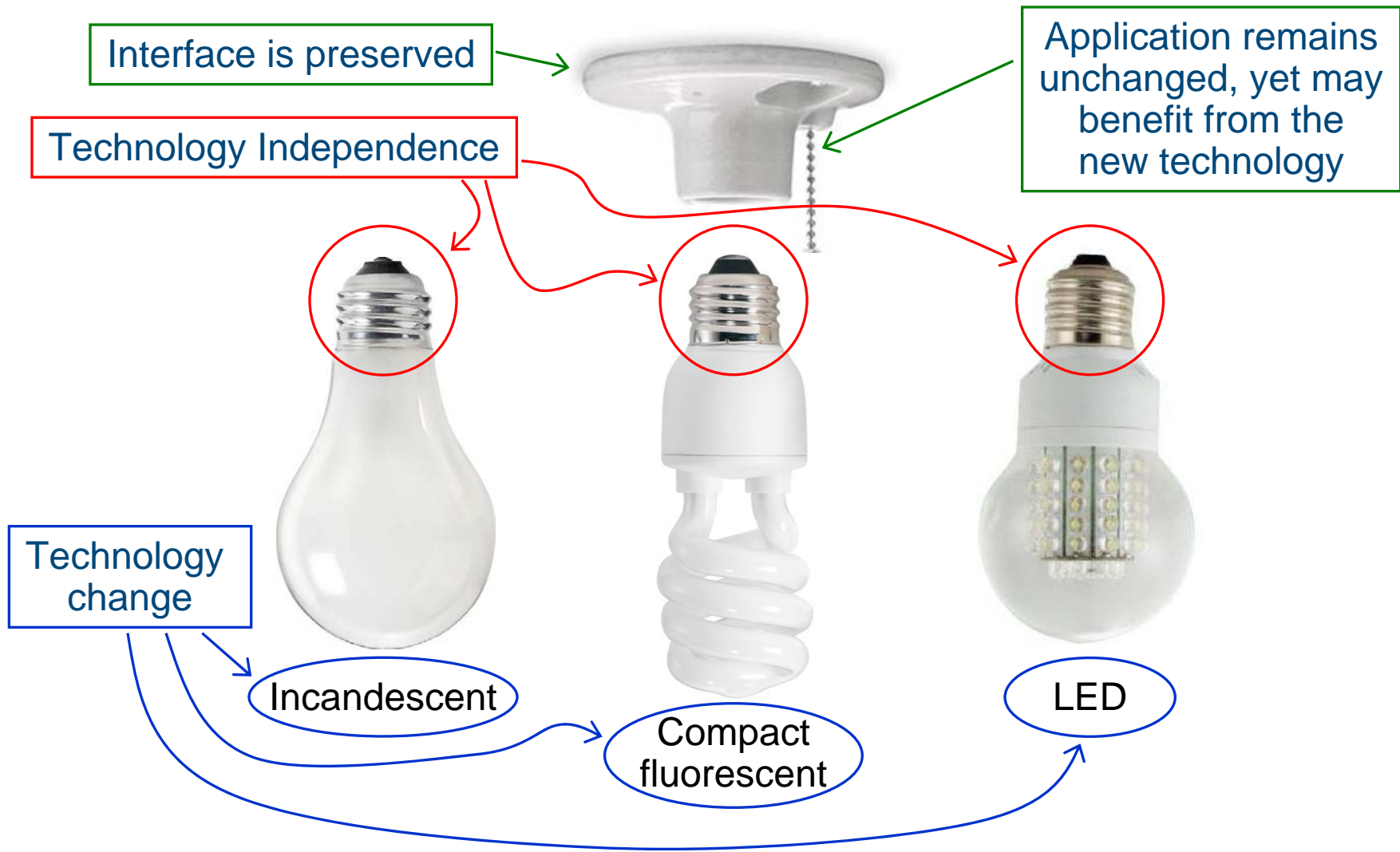


**Technology Independence**

- Conceptually like dynamic language translation
  - Record first in one language
  - Translate dynamically to target language
- IBM i application/OS interfaces are preserved as the underlying technologies change
  - Deploy on one technology generation
  - Run unchanged on the next
  - IBM i handles the hardware differences

# Change Need Not Be Disruptive

*No need to "rewire" applications to exploit new technology*



**Power is performance redefined**

IBM Power Systems™

## Virtualization – By Design



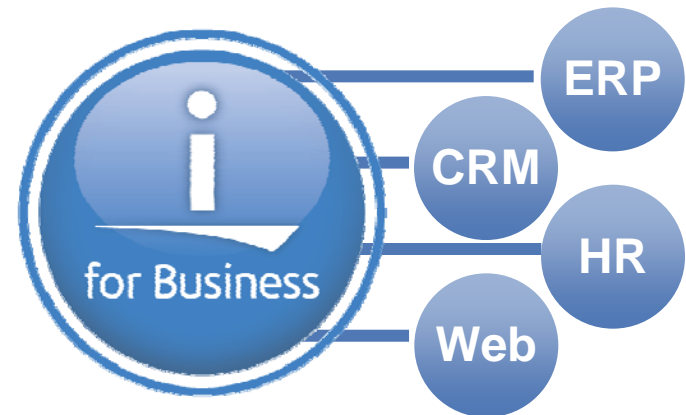
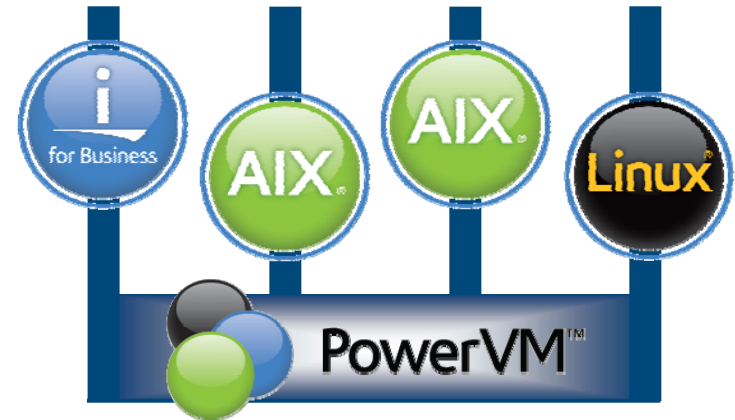
**Power is performance redefined**

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and superior economics

## How Do You Define Virtualization?

*Hint – With IBM i, it's about more than just virtual machines*

- **Typically, virtualization is associated with virtual machines**
  - PowerVM or VMware, for example
  - Multiple virtual machines on one physical server
  - System resources are allocated to meet the needs of each virtual machine environment
  - Consolidate servers, more fully utilize systems
  
- **IBM i has virtualization technology built in**
  - Subsystem architecture
  - Efficiently coordinates work and resources in a single system image
  - Promotes workload consolidation, which offers benefits beyond mere server consolidation
  - More fully utilizes a system, minimizing the requirement for virtual machines



# IBM i Work Management – Virtual by Design

*The system coordinates work and resources through subsystems*

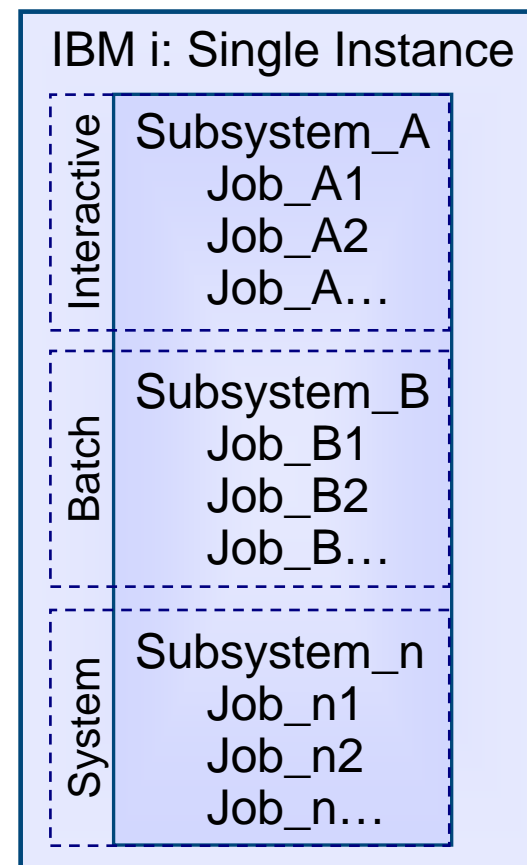


## ▪ Subsystems

- Pre-defined operating environments
  - Memory pools are allocated
  - Job/thread limits are defined
- Each operates independently
- Self-tuned and/or user-managed
- System-supplied and/or user-defined

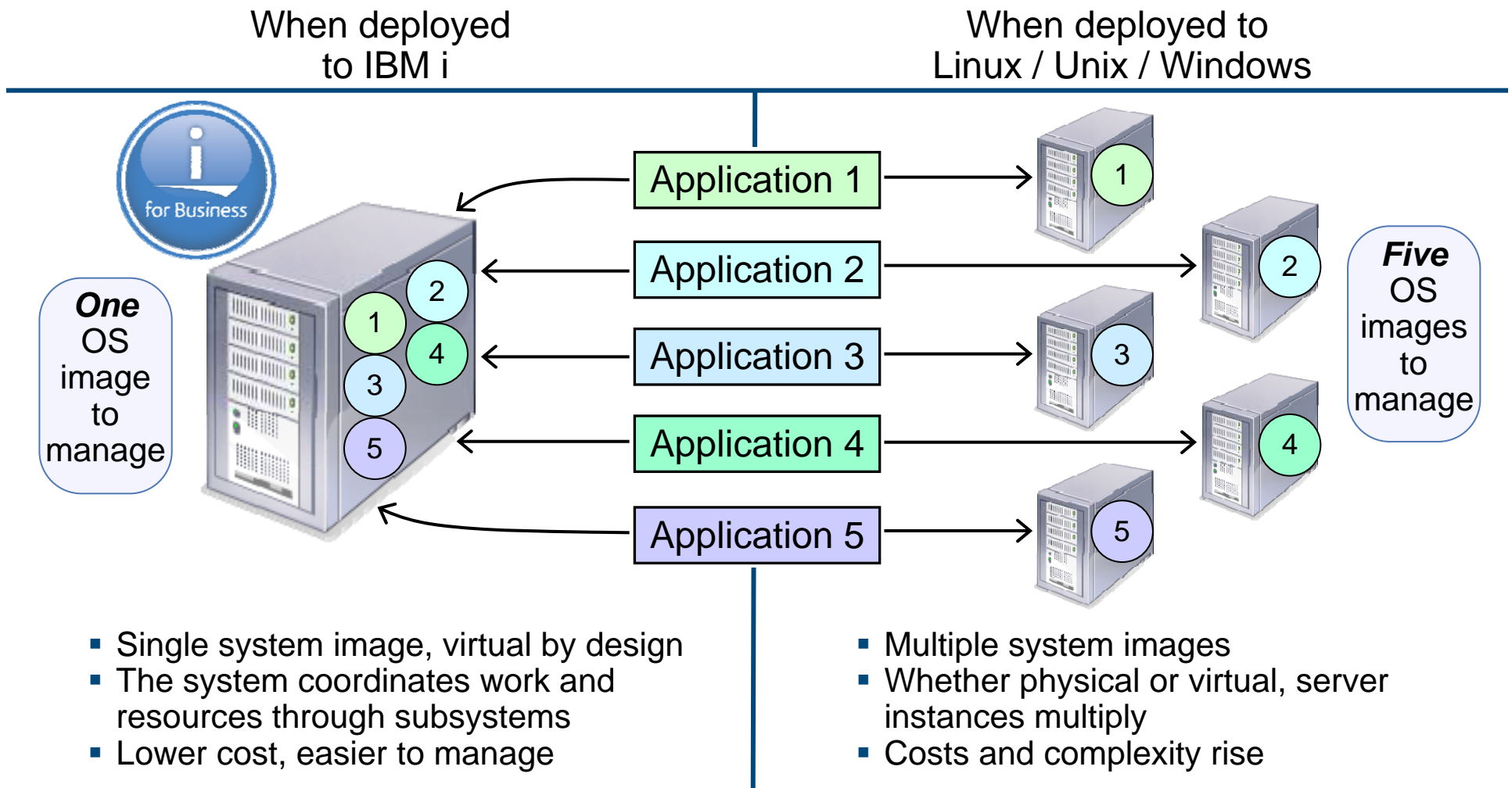
## ▪ Advantages over Linux / Unix / Windows

- Always there... not something to be added
- Better vertical scalability with less effort
- Higher system utilization by default
- Fewer system images to manage
- Less complexity
- Lower cost



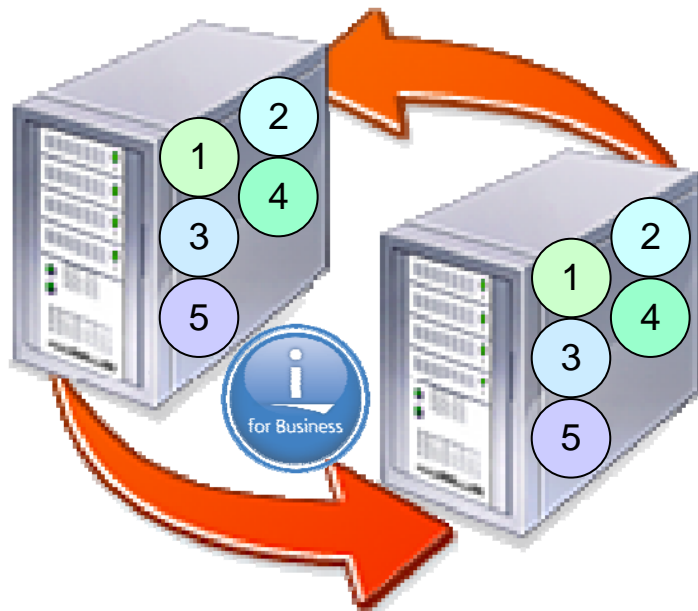


# Common Industry Practice for Adding Business Solutions



# The Potential Impact of Business Resiliency Solutions

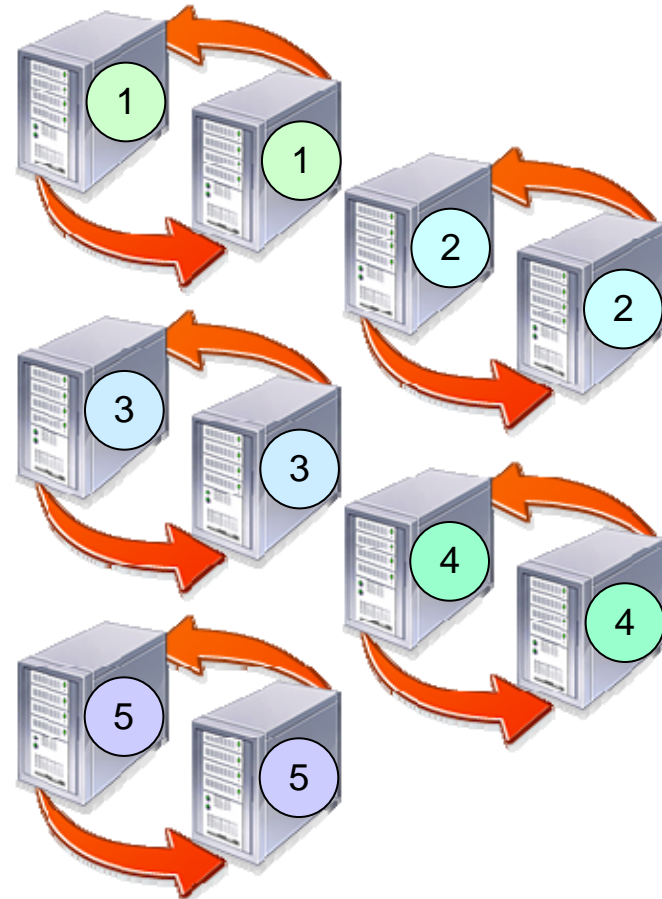
When deployed to IBM i



- It quickly becomes a numbers game
- If you can manage the numbers, you win the game

When deployed to Linux / Unix / Windows

- Application 1
- Application 2
- Application 3
- Application 4
- Application 5



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## IBM i – Virtual by Design



*“We estimate that we will achieve cost reductions of approximately 40 percent, and the other Gemeentes should be making similar savings.”*  
 Wilko Fokke, Gemeente Noord-Beveland



- **Six Dutch municipalities cooperate to implement a shared services model**
  - IT centralized in Gemeente Goes
  - Collectively, some 1200 employees serving around 110,000 citizens
  - Education, health, police & social services
- **Originally, each managed its own IT**
  - Three ran SAP on Windows
  - Three on Linux or Unix
- **Today, all six operate independently on a single, shared platform**
- **Multiple servers consolidated to a single IBM i server**
  - One partition
  - Municipalities isolated in subsystems
- **IBM i provides operational advantages**
  - High utilization, around 90%
  - Stable operations
  - Very fast system response times
- **Lower maintenance, administration and software license costs**
- **Future growth without disruption**

Power is performance redefined

# Six Municipalities, One Partition, One Copy of IBM i

*The power and versatility of subsystems – operating independently, providing isolation*

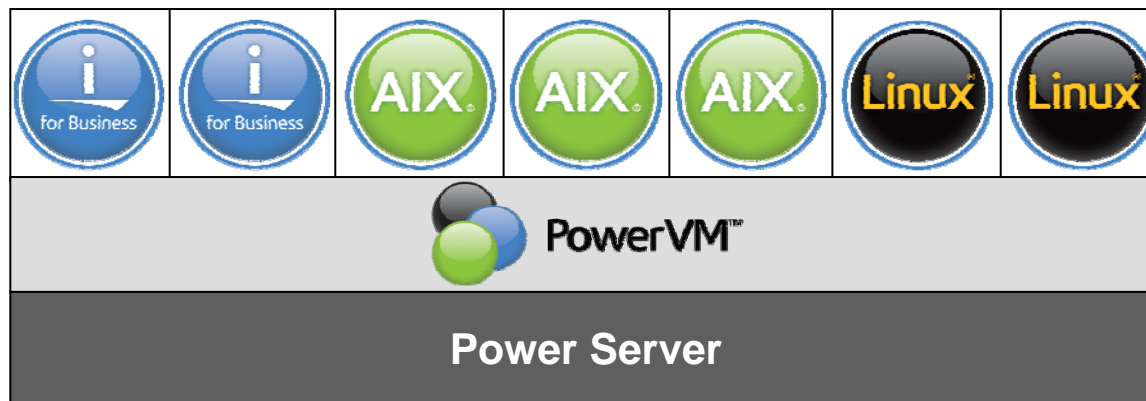


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# PowerVM – Virtualization Without Limits



<u>Feature</u>	<u>Benefit</u>
▪ Up to 10 virtual machines per core	→ Increase system utilization, reduce infrastructure costs
▪ IBM i, AIX & Linux side-by-side	→ Deploy business-driven solutions
▪ Automatic movement of processor and memory resources	→ Dynamically respond to changing business needs and workload demands
▪ Virtualize I/O	→ More flexibility, less cost for storage and network resources / administration





## PowerVM – Virtualization Without Limits



*“The new IBM infrastructure has given us the robustness and scalability that we needed to handle the massive shift in business focus and the rapid growth in user numbers. The more compact and efficient virtualized servers ... gave us plenty of data center capacity for future expansion.”*

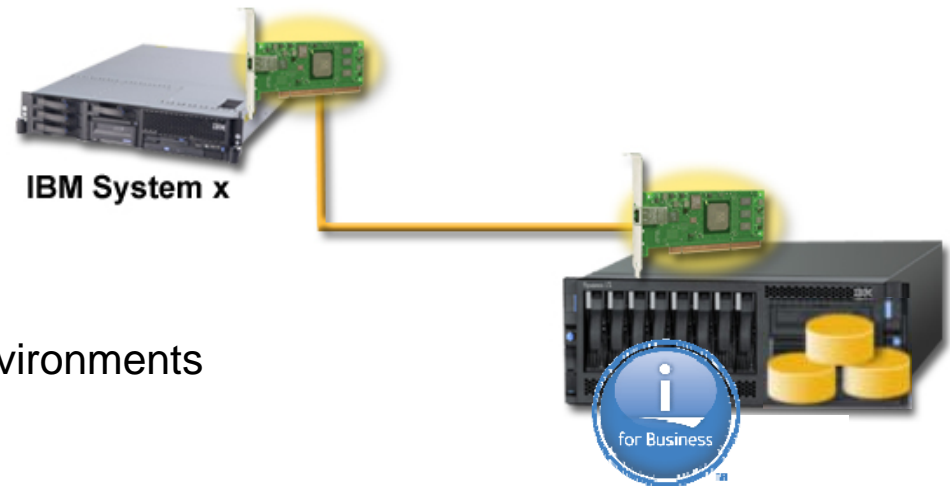
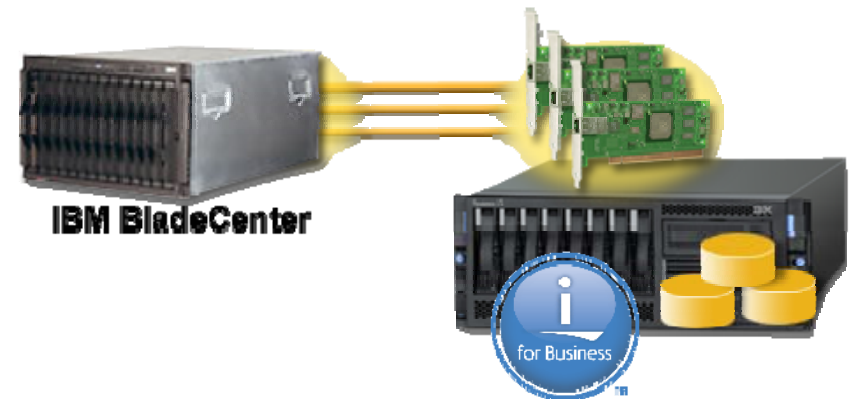
Brad Harvey, Infrastructure Manager

- **Co-Operative Bulk Handling Group Ltd. stores, markets and exports grain on behalf of its Western Australian clients**
  - 5,500 grower-shareholders
  - 10 million tons average annual grain harvest
  - 820 full time employees
- **Run both IBM i and AIX applications**
- **Competitive pressures (deregulation)**
- **Utilized PowerVM to consolidate separate IBM i and AIX environments**
  - Enabled 400% increase in volumes
  - Cut costs, reduced power and cooling
  - Centralized their backup process
  - Plenty of capacity for future expansion
- **Avoided a costly data center expansion**
- **More rapidly respond to business needs**

Power is performance redefined

## IBM i Integration with BladeCenter and System x

- **iSCSI connection between servers**
  - x86 servers with Windows or VMware
  - Power System with IBM i
  
- **IBM i provides...**
  - Virtual storage
  - Storage management
  - Virtual Ethernet
  - Server administration GUI
  
- **Client benefits**
  - Simplified, lower cost operations
    - Consolidated backup
    - Synchronized security
    - Streamlined communications
  - Improved reliability and uptime of x86 environments
  - Cost effective options for high availability



## Why IBM i Integration with BladeCenter and System x?

It's more rewarding than reading and cataloging articles like these!



Servers and Storage

Backdoor ways to reboot a Windows server

Network Administrator

Tips to tier storage without system-controlled storage tiering

IT Consultant

Pros and cons of working evenings and weekends

IBM Power Systems™

## A Fresh Look at IBM i



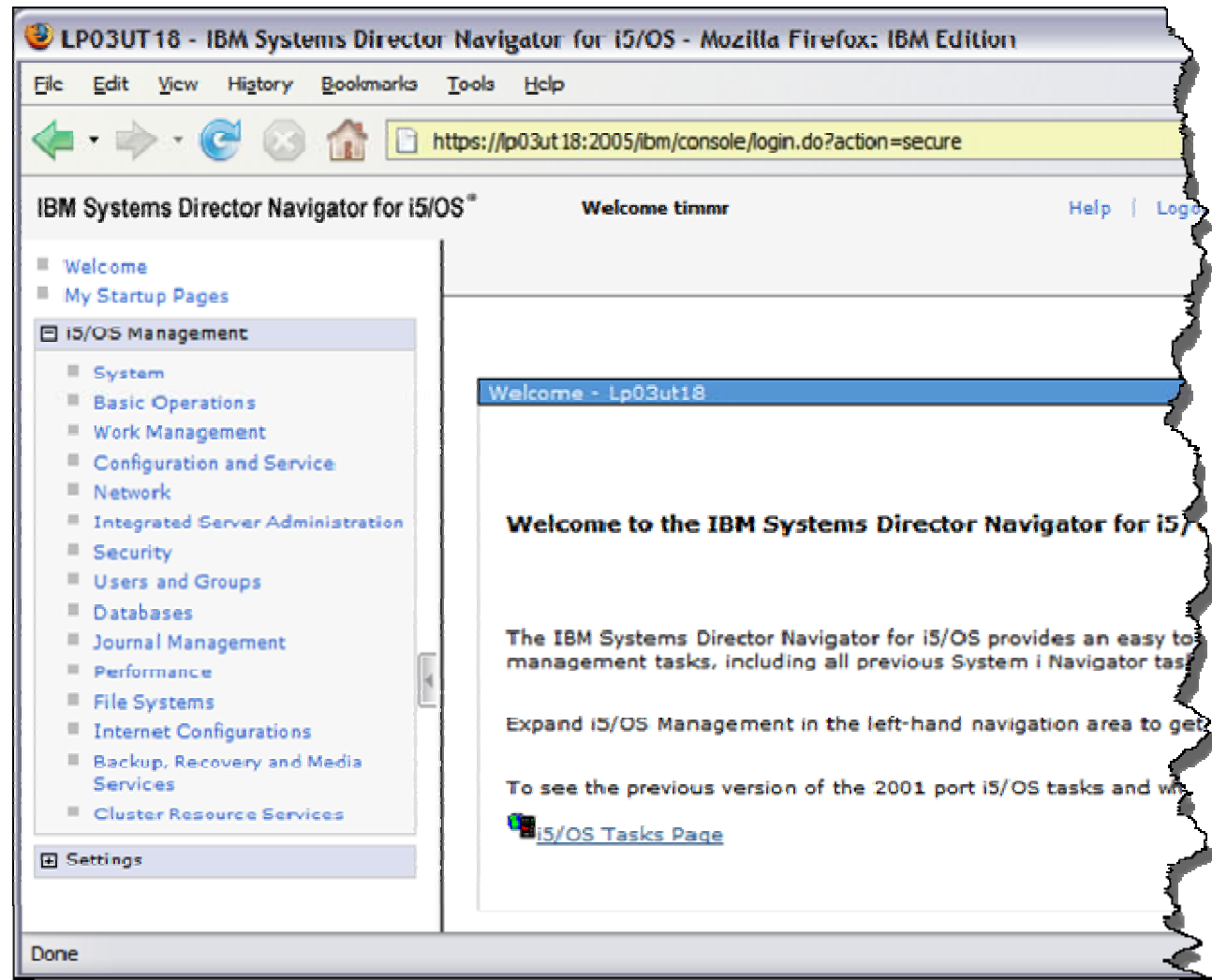
**Power is performance redefined**

Deliver services faster, with higher quality  
and superior economics

# Systems Director Navigator for IBM i

*Easily manage IBM i without having to purchase or install anything*

- **Robust, embedded Web console**
- **15 high level task categories provide the gateway to over 300 management tasks**
- **Manages a single, target IBM i system**
- **Plugs into IBM Systems Director for multi-system, heterogeneous, cross-platform management**





## DB2 for i and the DB2 Family

- **Three platform offerings**
  - DB2 for z/OS
  - DB2 for Linux/Unix/Windows (LUW)
  - IBM i, in which DB2 is fully integrated
- **Family compatibility is managed across offerings**
  - Information Management Architecture Board
  - SQL Language Council
- **Selectively share designs, algorithms and code**

Information Management



developerWorks®

DB2

SQL Reference  
for Cross-Platform Development

## DB2 for i – Integrated and optimized for business computing

*Efficiently and effectively manage a critical business asset - data*

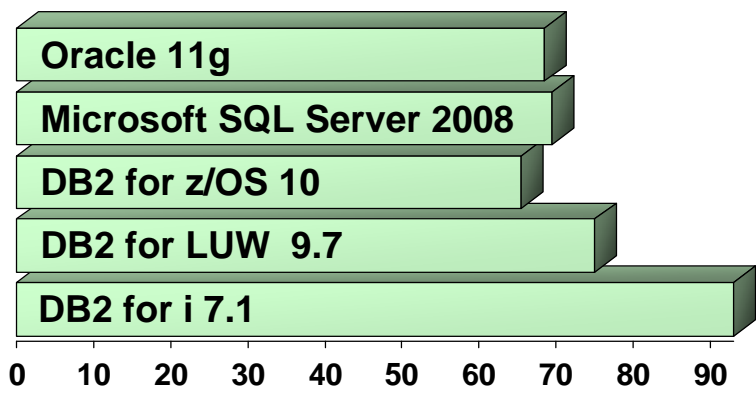
- **Integration yields operational advantages**
  - Easier to use
  - Easier to maintain
  - Autonomic
- **Open... for data access and interchange**
  - SQL compliant
  - XML integration
  - Easily accessible across applications/platforms
- **Protected with a trusted security model**
- **Advanced**
  - High performance transaction processing
  - Sophisticated enablers for Business Intelligence
  - Parallelism for near linear scalability
  - Adaptive query processing

### Information Management



# DB2 for i – Standards and Interoperability

ISO/ANSI SQL Standard – Core  
*Claims of minimum conformance*



- Core SQL contains 93 items
- 100% are implemented in DB2 for i

Access DB2 for i data from anywhere

Ways to Access DB2 for i	Typical application interfaces by platform			
	AIX	Linux	Windows	IBM i
DRDA	✓	✓	✓	✓
JDBC	✓	✓	✓	✓
ODBC		✓	✓	
.NET			✓	
OLE DB			✓	
DDM				✓
CLI				✓

In addition to SQL, there are interfaces for RPG, COBOL, C and C++

## Why Clients Value DB2 for i

*Total integration makes it easier to use and maintain, lowering the cost of operations*

- **It's always there**
  - The OS leverages the database
  - The database leverages the OS
- **There's nothing to install**
- **Many typical DBA tasks are fully automated**
  - Manage disk storage space allocation
  - Monitor table space allocations and extents
  - Review and balance indexes
  - Application rebinding
  - Maintain database integrity
  - Update database statistics
  - Synchronize OS and database security
  - Reload data following hardware/software upgrades

### Information Management



So... which came first?



Focus more on business innovation and growth, less on technology

## DB2 Integration Contributes to IT Efficiency



- **Independent electrical distributor**
  - 51 locations across the U.S. and Mexico
  - Supplies the construction, industrial and utility industries
  - Provides extensive logistics and supply chain management services
- **Runs ERP applications from SAP on Power Systems with IBM i**

- **Fully virtualized environment**
  - Optimal utilization of processors, memory
  - Rapidly provision new environments
  - Minimize hardware costs
- **Benefit from OS integration of DB2**
  - Limited need for database administration
  - IT costs kept low
- **Nearly 100% uptime**

*“Another advantage of Power Systems with IBM i is that DB2 is built into the operating system. The integration is so good that the machine practically runs itself.”*

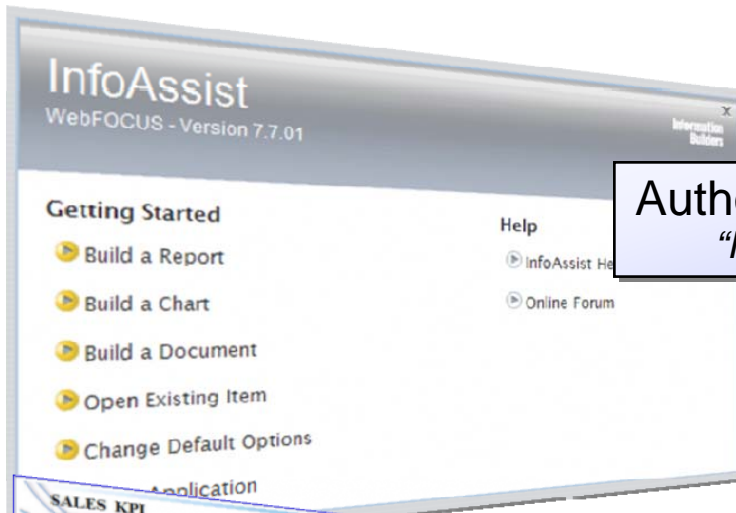
Greg Thrall, Senior VP for Operations and IT

**Power is performance redefined**

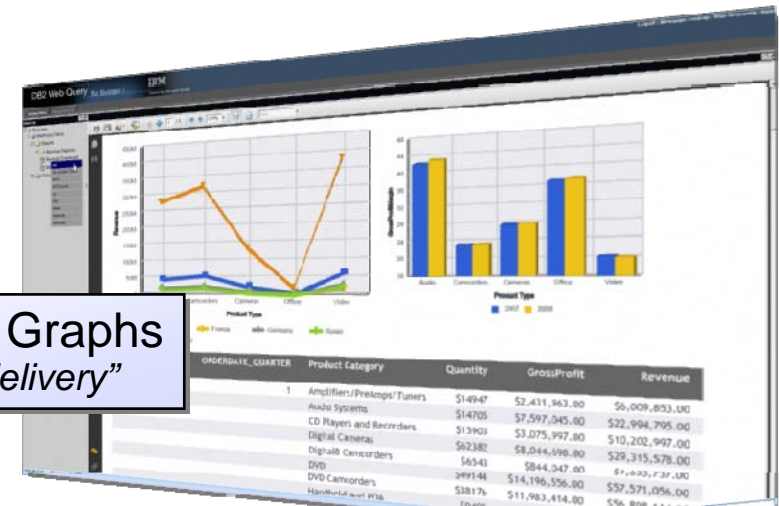


# DB2 Web Query – Intuitive, Insightful, Extensible

Fast, easy access to business information assets for query, reporting and analysis



Authoring Tool  
"Intuitive"

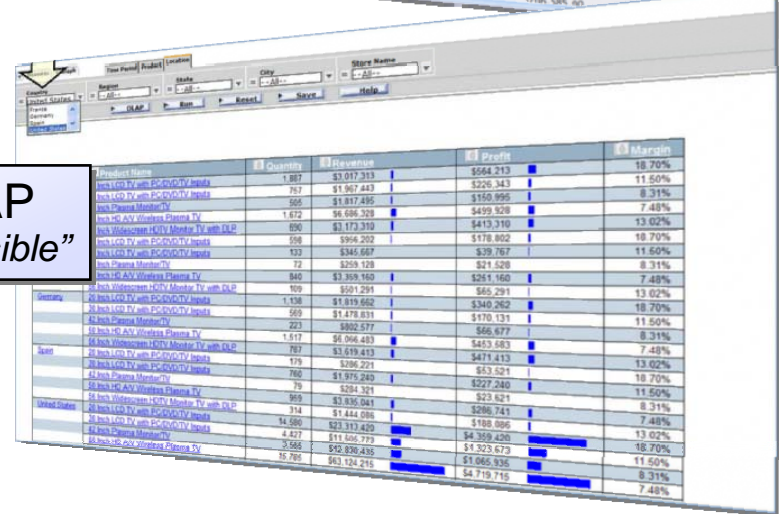


Reports & Graphs  
"Flexible delivery"



Dashboards  
"Insightful"

OLAP  
"Extensible"



## DB2 for i – A Workhorse for Data, Reporting and Analytics



*“When you look at what DB2 Web Query can do in presenting absolute and relative metrics visually, it’s a much more powerful presentation. And these metrics are affecting our departments’ decisions every day.”*

Tom Dunnigan, CIO

- **Originate & service post secondary educational loans in South Carolina**
  - Over \$7 billion in federal and private loans
  - More than 400,000 borrowers
- **IBM DB2 Web Query for i - Query/400 compatibility and rich new function**

- **Objectives**

- Improve ability to monitor goals against federal requirements
- Leverage existing data & reporting capability

- **Results**

- Users generate reports and obtain real-time feedback through easy-to-use dashboards
- Better maintain government compliance
- Improved query performance
- Enable IT personnel to focus on critical needs rather than ad hoc reporting requests
- Introduced new forecasting capabilities

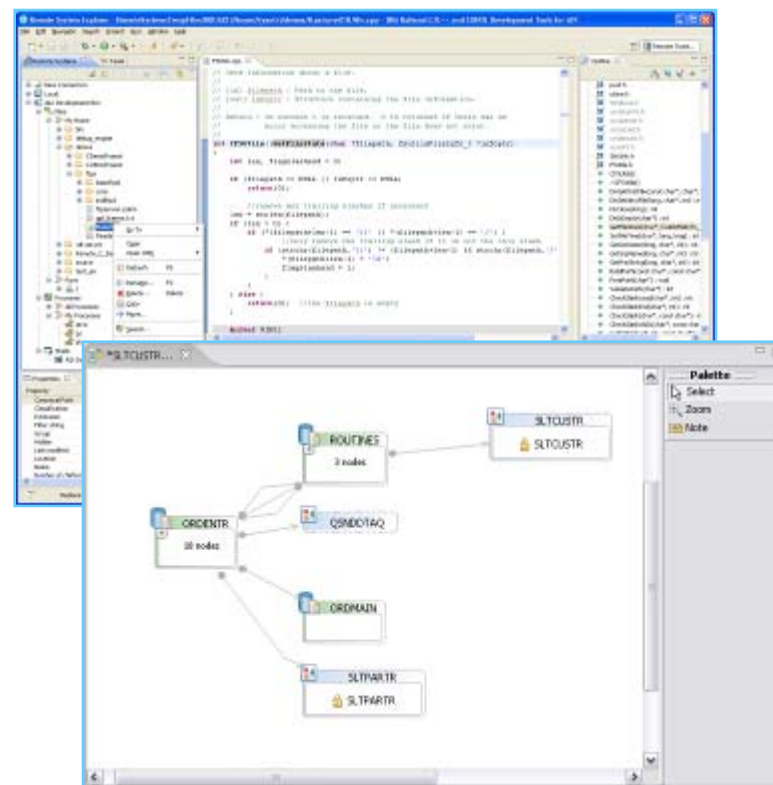
**Power is performance redefined**

# IBM Rational Developer for Power Systems

*Accelerate software innovation*

**Rational** software

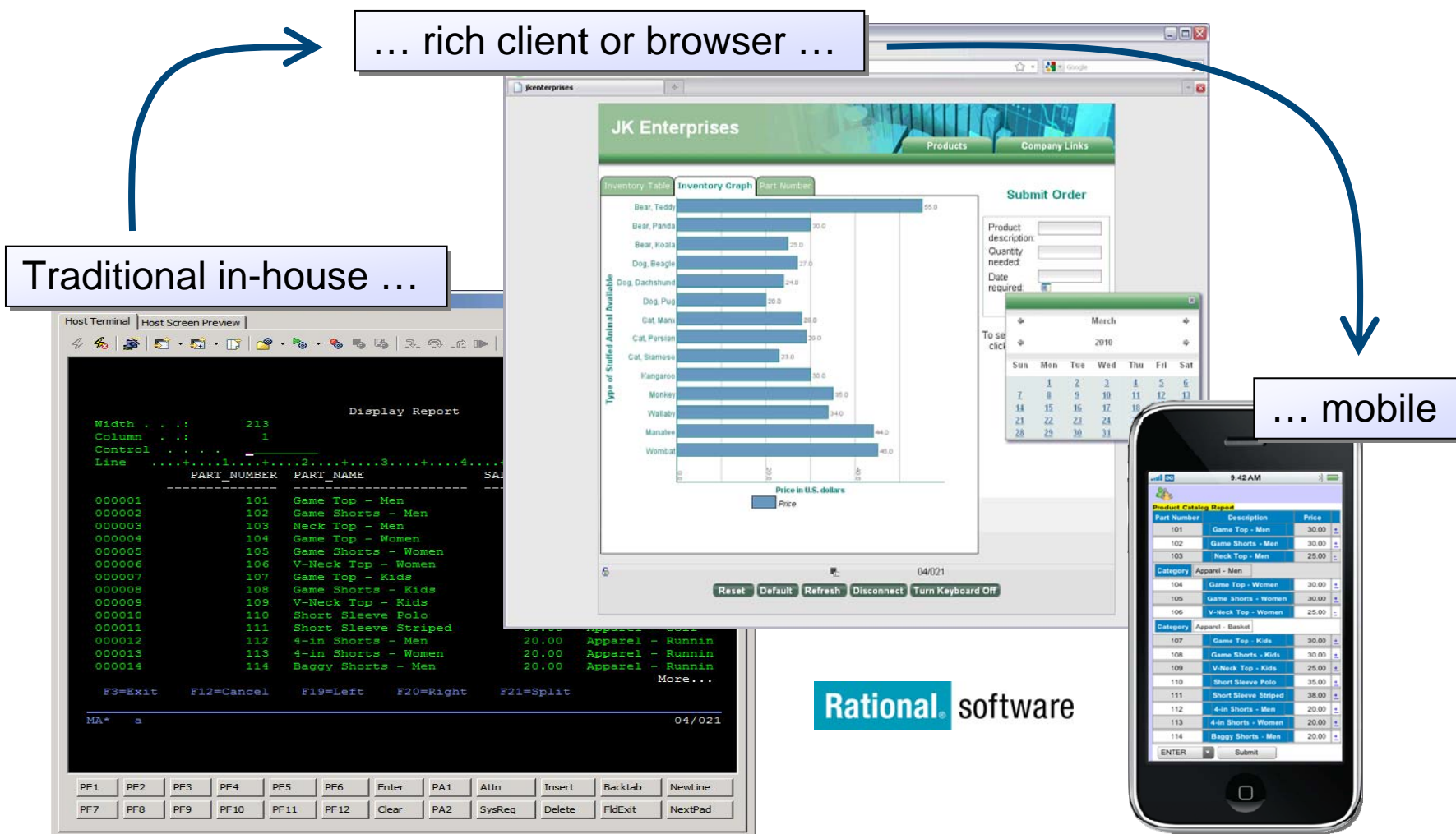
- **Extend, enhance and reuse IBM i application investments**
- **Familiar, Eclipse-based interface**
  - Rich source editing features
  - Visual design and analysis
  - Design, develop, test and deploy collaboratively
- **Easier and faster than traditional host-based tools**



**Power is performance redefined**

# Develop Traditional, Web, SOA and Web 2.0 Applications

*Low risk, high value and flexible – for sustained innovation in business*



**Rational** software

**Power is performance redefined**



## Modernize Apps, Protect Knowledge Assets



*“Because Rational Application Developer is based on Eclipse, the learning curve for new development resources is greatly reduced. ...Many are already familiar with the Eclipse environment.”*

Alan Jack, Director of Technology

- IBM Business Partner
- Experienced practitioners with Rational application lifecycle management tools
- Modernized the vehicle management system software for a leading European automaker

- Protected complex business rules by reusing, not replacing, legal and regulatory application logic
- Project completed in 3 months, at less than 20% the cost of rewrite/replace
- Visually configure and order vehicles for an improved customer experience

*“What matters is the customer experience, and we have helped bring the entire system out of the back office, much closer to the customer.”*

Anthony Chadwick, CEO

**Rational** software

Power is performance redefined



## i to i

*iPhone, iPad, (or any smartphone, tablet) to IBM i*

- **Executive dashboards (e.g. key metrics)**
- **Business reporting**
- **Lookup (e.g. item inquiry)**
- **Data entry (e.g. order entry)**
- **Geolocation (e.g. travel/logistics)**
- **Systems management**

Rational® software



Companies can mobilize around IBM i

# Test Drive the Rational Tools

Scripted, hands-on exercises available in a cloud-based sandbox

**Rational** software

The screenshot shows a web page titled "Enterprise Modernization Sandbox for Power Systems". On the left is a navigation menu with items like "SOA and web services", "New to SOA and web services", "Downloads & products", "Open source projects", "Standards", "Technical library", "Forums", and "Events". The main content area features a "NEW" badge and a section titled "Explore RPG and COBOL development" with a list of nine labs. Below this is a section for "Accelerate development of modern Web 2.0 and SOA applications for Power Systems" with five items. A sidebar on the left contains a list of "Exercise instructions (in pdf)" for the same two sections. Red circles and arrows highlight the lab lists and their corresponding sidebar entries.

**Enterprise Modernization Sandbox for Power Systems**

Do you need more time to learn about the new exercises available in the Enterprise Modernization Sandbox? [Click here](#) to learn more.

**Explore RPG and COBOL development**

- [Lab 01: Maintain an IBM i application](#)
- [Lab 02: Edit RPG applications](#)
- [Lab 03: Verify and compile RPG applications](#)
- [Lab 04: Debug IBM i programs](#)
- [Lab 05: the Use Screen Designer to generate source](#)
- [Lab 06: Use the Application Diagram Viewer](#)
- [Lab 07: Customize the Remote Systems Explorer](#)
- [Lab 08: Work with offline projects](#)
- [Lab 09: Work with Report Designer](#)

**Accelerate development of modern Web 2.0 and SOA applications for Power Systems**

- [Building a web service from an RPG program](#)
- [Service enable IBM i data](#)
- [Consume service in browser-based web applications](#)
- [Consume services in rich client applications](#)
- [Access DB2 UDB data in browser-based applications](#)

**Exercise instructions (in pdf)**

Explore RPG and COBOL development using modern tools

- [Lab 01: Maintain an IBM i application](#)
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- [Lab 03: Verify and compile RPG applications](#)
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- Improve developer productivity
- Attract and retain new talent

Power is performance redefined

## IBM i and Rational – Fast Path to Web Solutions



*“We can modernize their business applications piece by piece, deploy Web services, and keep them on a reliable, secure platform. That provides real value to our customers.”*

Rusty Gadberry, Founder, ADS



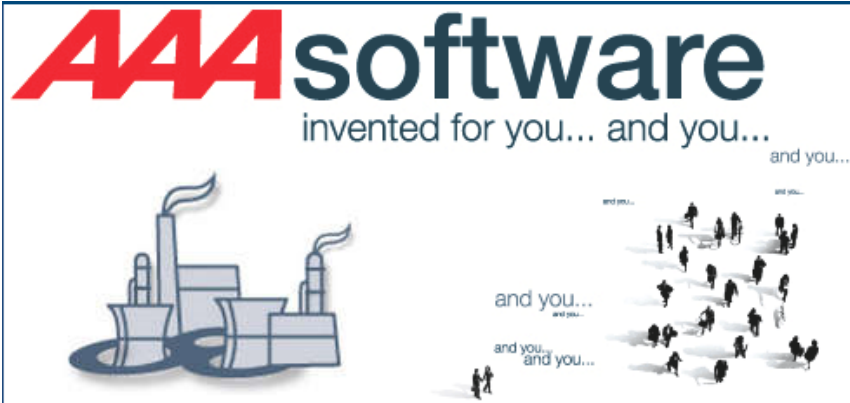
- **Arkansas Data Services**
- **Since 1980**
- **Provides medical office software and custom IT services for IBM i clients**
- **Used IBM Rational Business Developer to create Web interfaces for apps**

- **Create rich, intuitive Web interfaces**
- **Easily integrate disparate environments using Web Services**
- **Gain productivity with Rational tools**
  - Robust editors and visual designers
  - Integrated application server to speed the edit, debug, test and deploy cycles
- **Leverage IBM i platform strengths**

*“We did not have to change a single line of code in the existing system in order to use it in our Web-based application.”*

Dan Darnell, Consultant to ADS

## Customized, Affordable, Web-enabled Applications



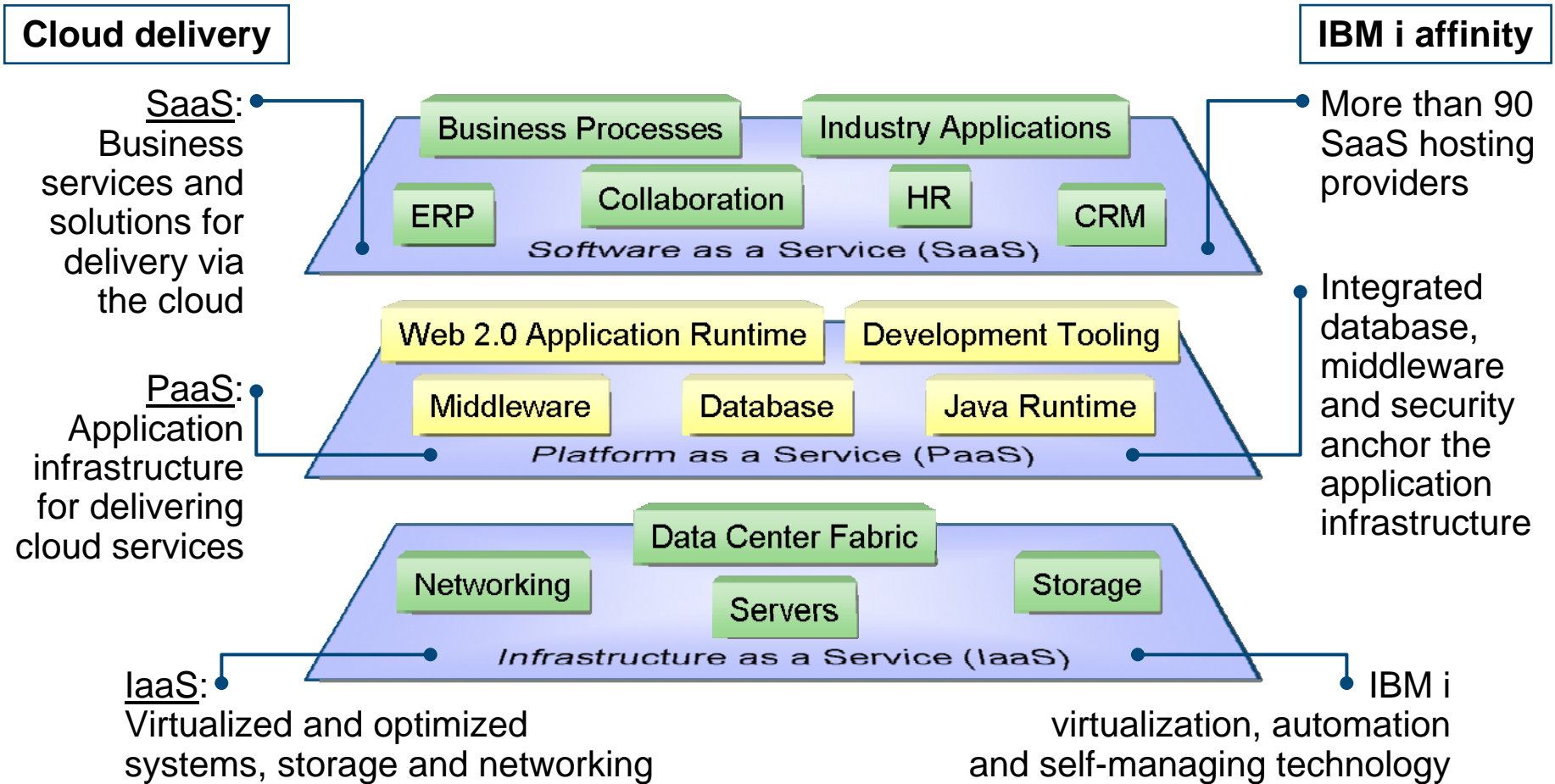
- Appligen assembles financial and administrative ERP software to client specifications
- Built for small and mid-sized businesses in the European market
- One-stop shop for Power i
- IBM Business Partner since 1984

*“Outstanding reliability and durability of investment are key to our Power i customers. They choose for ‘evolution not revolution.’*”

- **Software is built from reusable components coded in ILE RPG & Java**
- **Create custom solutions 70% faster**
- **Tailored applications can grow/change with the customer**
- **Graphical, secure, Web-based access provides role-based user experience**

*“AAA Financials, our Financial Management Information System, is also available in a private Power i cloud, accessible from anywhere in the world.”*  
Dafne Reymen, Managing Director

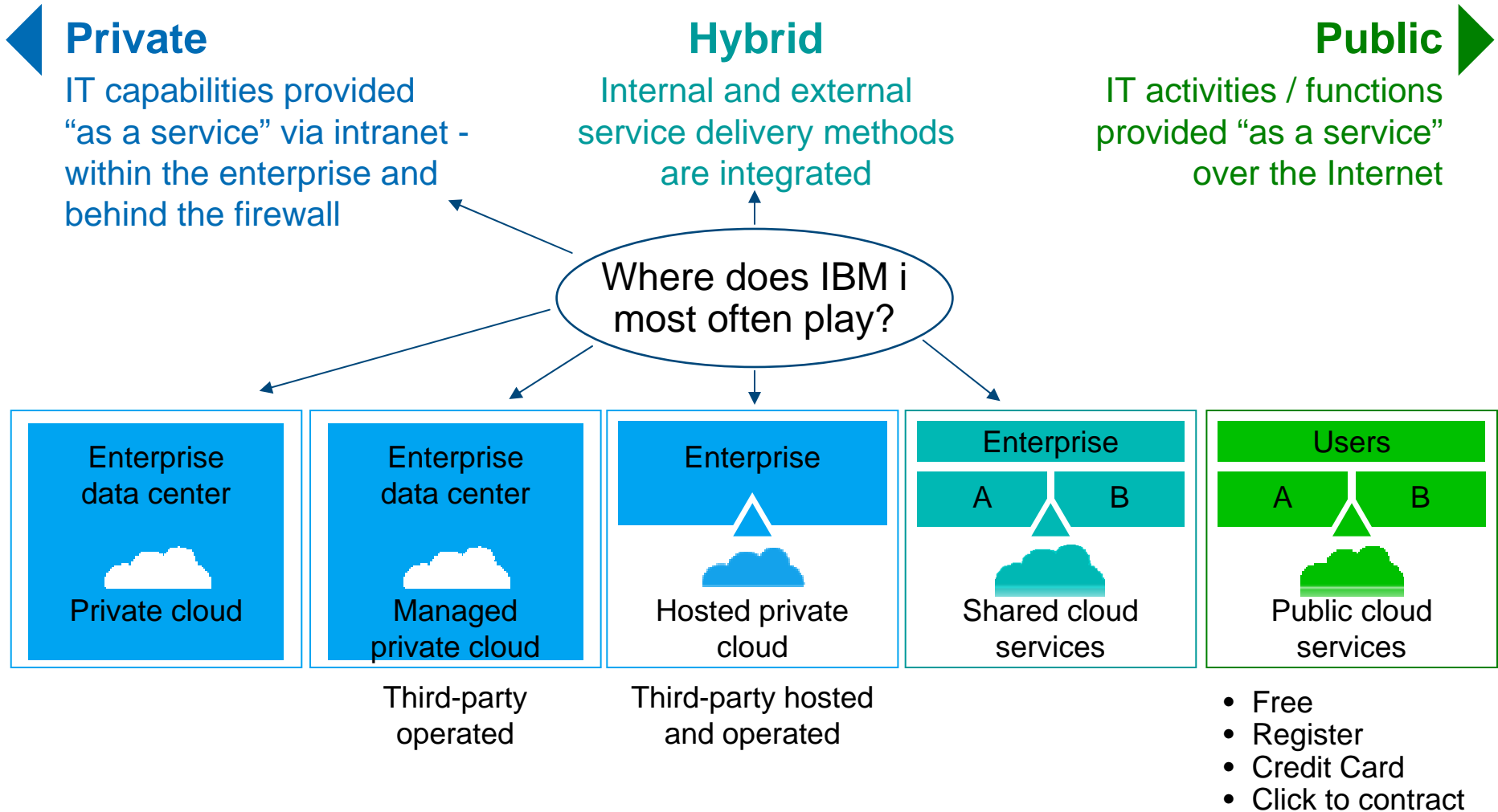
# IBM i – Closely Aligned with Cloud Delivery Services



Power is performance redefined



# The Spectrum of Deployment Options for Cloud Computing



Power is performance redefined

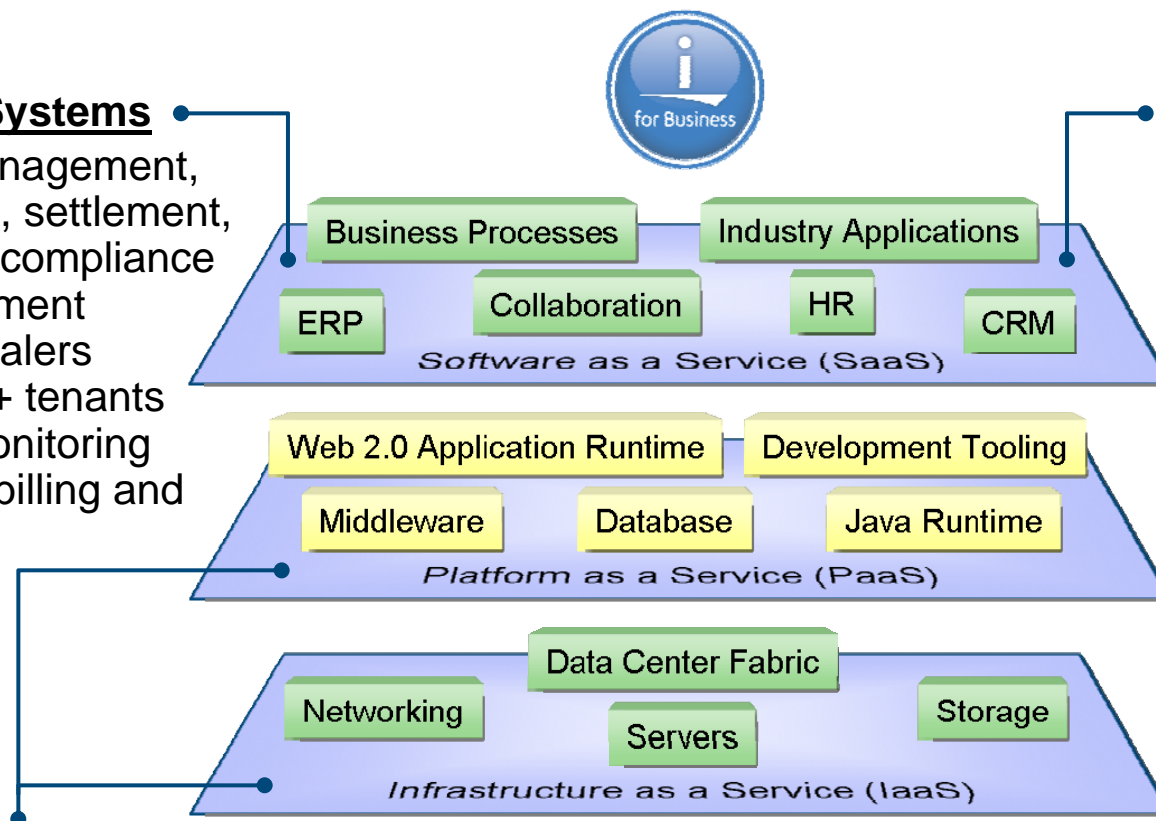
## i in the Sky – Cloud Case Studies

### Kingland Systems

- Order management, execution, settlement, and SEC compliance for investment broker-dealers
- Host 200+ tenants
- Usage monitoring supports billing and SLAs

### Convergys

- Customer care, order management, and billing for cable, broadband and satellite providers globally
- Secure access via VPN or dedicated point-to-point
- Billing based on resource usage and subscribers



### IBM Virtual Loaner Program

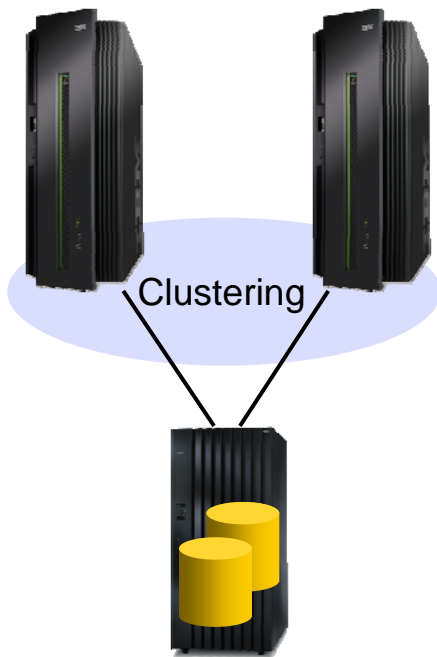
- Automatically provision IBM i virtual machine (LPAR) on demand
- Request IBM i 5.4, 6.1 or 7.1 deployed to POWER5, POWER6 or POWER7 hardware
- Used for short term development or testing

# PowerHA SystemMirror for i – Storage-based Clustering

*For when platform reliability alone is not sufficient*

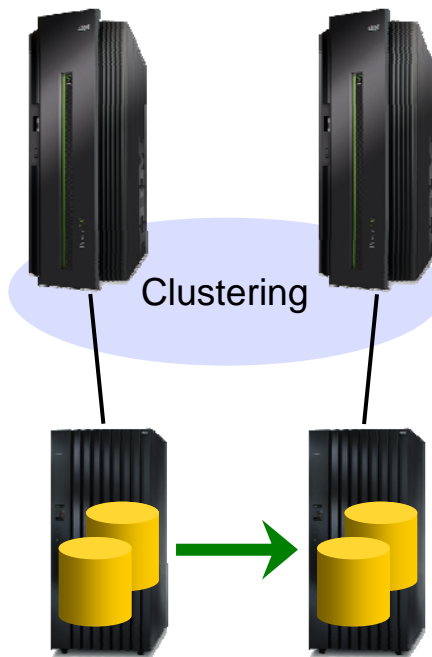


## Data Center



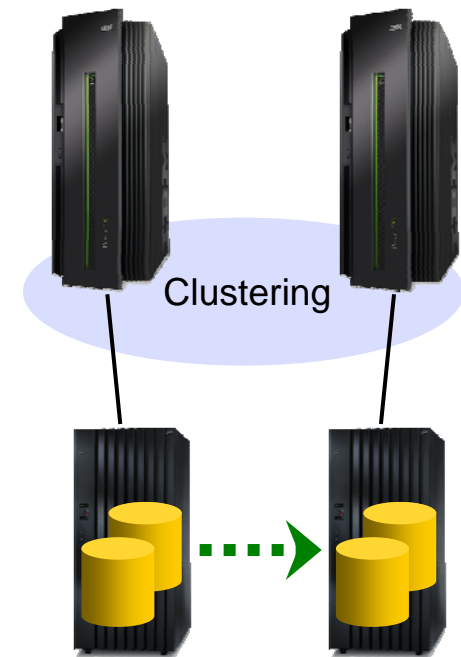
LUN level switching

## Multi-site: Campus/Metro Less than 25 mi (40 km)



Synchronous

## Multi-site: Regional



Asynchronous

Designed and intended for on-demand role swap operations

**Power is performance redefined**

## PowerHA – Insuring Against the Cost of Downtime



*“With PowerHA on IBM i, we’ve achieved 100 percent uptime availability that can scale with our environment as we grow – without adding the cost of extra staff to maintain it.”*

- **Provide solutions for U.S. heavy-duty trucking industry**
  - 18 retail locations across five states
  - 300+ employees, \$58 million sales
- **Critical business systems on IBM i**
  - Retail / mobile sales, order entry
  - Business Intelligence, powerful metrics
  - Inventory management

- **Projected cost of downtime: \$20,000/hr**
  - Lost sales, excess inventory
  - Damage to customer loyalty
- **PowerHA synchronous mirroring**
  - Available: 20 minute switch, no data loss
  - Trusted: automated test conducted weekly
  - Easy: 10 minutes/week to monitor/maintain

*“A text message is sent out to the IT team every Saturday morning when the switch is made, and a second text is sent in the afternoon once it switches back to our primary system. CATCO has a hands-off method of regularly testing availability using PowerHA for IBM i, and that’s invaluable.”*

Jim Horn, Consultant to CATCO

**Power is performance redefined**

## IBM i for Business Resiliency



*“The new IBM Power servers and upgraded IT environment give us the power, high availability, security and reliability we need while helping us reduce costs.”*

*Kerstin Resar-Hinders, IT manager*

- **The leading manufacturer of faucets, fittings and accessories in the Nordics**
- **600 employees, €100 million**

- **Power Systems and IBM i provide a smooth, reliable and secure environment while reducing energy consumption**
- **PowerHA SystemMirror for i enables high availability**
  - 100% redundant environment
  - No performance degradation
- **Allows the business to focus on innovation and process efficiency**

**Power is performance redefined**



# IBM i Strategy and Roadmap

Published February 1, 2011



## IBM i

*An executive guide to IBM's strategy and roadmap for its integrated operating environment for Power Systems*

You will find that our commitment to our IBM i clients, ISVs and business partners is solid and unchanged. With our clearly defined processor and software roadmap, we are making substantial investments in the future of IBM i as an important, strategic element in the IBM systems portfolio.

Colin Parris  
Vice President, IBM Power Systems



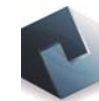
<http://www-03.ibm.com/systems/power/software/i/powerofi/index.html>

**Power is performance redefined**

## IBM i Solution Editions – Worldwide

*In partnership with industry-leading ISVs*

- Complete, integrated solutions for mid-sized businesses
- Rapid deployment
- Simplified, flexible and highly secure infrastructure for core business applications
- Minimize risk
- Maximize ROI



MAXAVA  
MAXIMUM AVAILABILITY



[ibm.com/systems/power/hardware/editions/solutions.html](http://ibm.com/systems/power/hardware/editions/solutions.html)

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# IBM i Solution Editions – North America

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# IBM i Solution Editions – Europe

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Desarrollo de Productos Informáticos S.A.



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# IBM i – Italian Smart Solutions

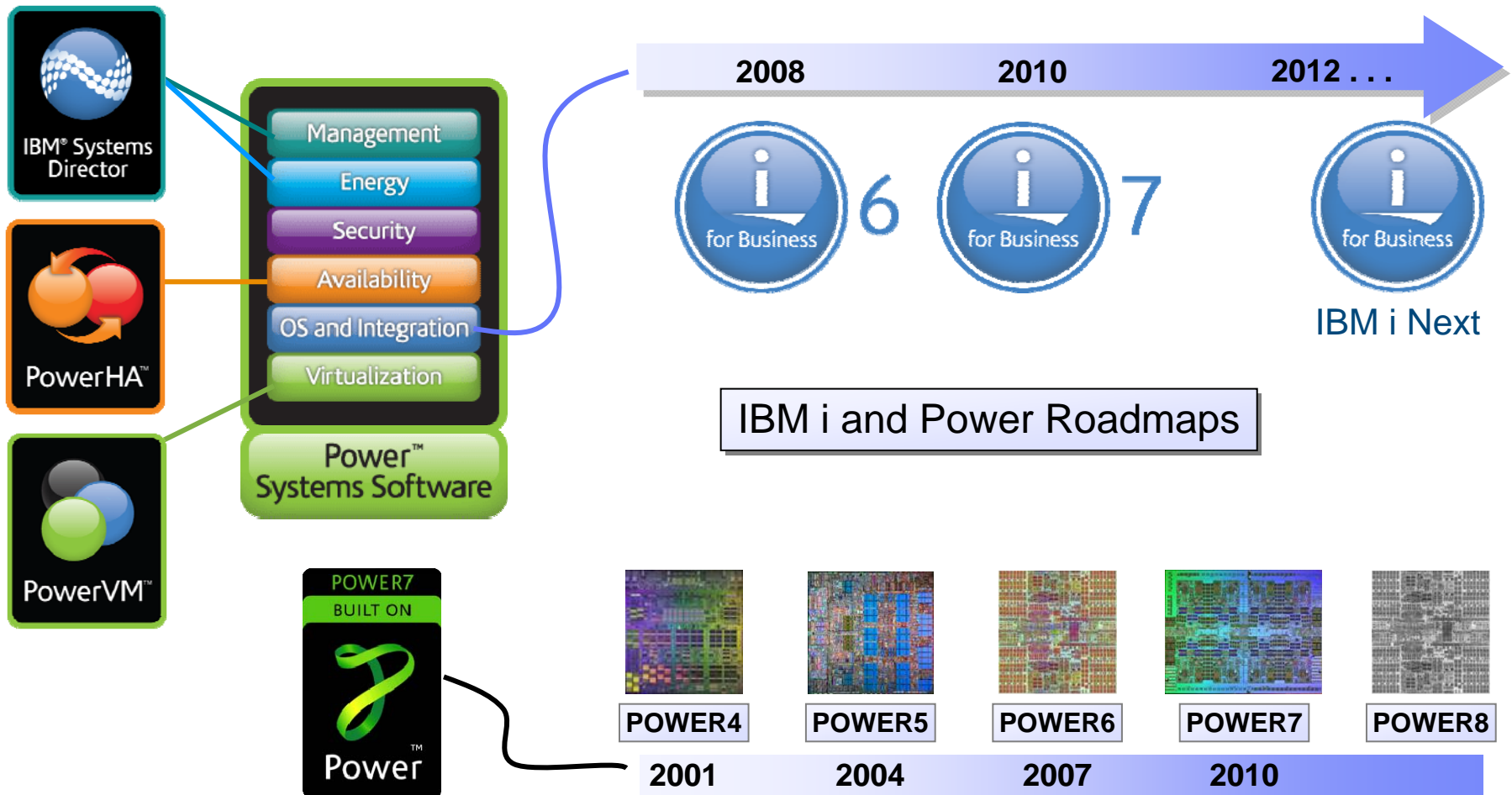
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# The Future of IBM i



Power is performance redefined

## Why i?

*Setting a higher standard for business computing*

- **Business computing is its purpose**
- **It is the paragon for integration**
- **It is trusted**
- **It is price and cost competitive for the purpose it serves**
- **It is well equipped to handle the fast pace of change in business and technology**



**Power is performance redefined**

## Information Sources

### Consultant Reports

- ITG Management Brief: Value Proposition for IBM Power Systems Servers and IBM i - Minimizing Costs and Risks for Midsize Businesses; January 2011
  - Executive summary: <http://www-03.ibm.com/systems/power/software/i/strategy.html>
  - Full report: Available on SSI and PartnerWorld
- ITG Status Report: Value Proposition for IBM i Solution Edition for JD Edwards for EnterpriseOne Deployment: <http://www-03.ibm.com/support/techdocs/atmastr.nsf/WebIndex/WP101732>

### Case Studies

- FedEx Ground: [http://www-01.ibm.com/software/success/cssdb.nsf/CS/JSTS-6ZJP8D?OpenDocument&Site=powersystems&cty=en\\_us](http://www-01.ibm.com/software/success/cssdb.nsf/CS/JSTS-6ZJP8D?OpenDocument&Site=powersystems&cty=en_us)
- Svendsen: <http://www-01.ibm.com/common/ssi/cgi-bin/ssialias?infotype=PM&subtype=AB&htmlfid=SPC03087DEEN>
- 7-Eleven: [http://www-01.ibm.com/software/success/cssdb.nsf/CS/STRD-7M9J7A?OpenDocument&Site=gicss67sap&cty=en\\_us](http://www-01.ibm.com/software/success/cssdb.nsf/CS/STRD-7M9J7A?OpenDocument&Site=gicss67sap&cty=en_us)
- North American Construction Group: <http://www-01.ibm.com/common/ssi/cgi-bin/ssialias?infotype=PM&subtype=AB&htmlfid=ISC03060CAEN>
- Associated Bank: [http://www-01.ibm.com/software/success/cssdb.nsf/cs/DLAS-7X9R7Y?OpenDocument&Site=eservermain&cty=en\\_us](http://www-01.ibm.com/software/success/cssdb.nsf/cs/DLAS-7X9R7Y?OpenDocument&Site=eservermain&cty=en_us)
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- CBH Group: <http://www-01.ibm.com/common/ssi/cgi-bin/ssialias?infotype=PM&subtype=AB&htmlfid=DIC03002USEN>
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- South Carolina Student Loan: [http://www-01.ibm.com/software/success/cssdb.nsf/CS/ARBN-7UEK94?OpenDocument&Site=default&cty=en\\_us](http://www-01.ibm.com/software/success/cssdb.nsf/CS/ARBN-7UEK94?OpenDocument&Site=default&cty=en_us)
- Oxford International: [http://www-01.ibm.com/software/success/cssdb.nsf/CS/JJAE-8GE7HU?OpenDocument&Site=default&cty=en\\_us](http://www-01.ibm.com/software/success/cssdb.nsf/CS/JJAE-8GE7HU?OpenDocument&Site=default&cty=en_us)
- CATCO Parts & Service: <http://www-01.ibm.com/common/ssi/cgi-bin/ssialias?infotype=PM&subtype=AB&htmlfid=POC03008USEN>
- Ostnor: [http://www-01.ibm.com/software/success/cssdb.nsf/CS/DLAS-7SAHAK?OpenDocument&Site=powersystems&cty=en\\_us](http://www-01.ibm.com/software/success/cssdb.nsf/CS/DLAS-7SAHAK?OpenDocument&Site=powersystems&cty=en_us)

### IBM sites

- IBM i Strategy and Roadmap: <http://www-03.ibm.com/systems/power/software/i/strategy.html>
- IBM i Solution Editions: <http://www-03.ibm.com/systems/power/hardware/editions/solutions.html>
- Enterprise Modernization Sandbox: [http://www.ibm.com/developerworks/downloads/emsandbox\\_power/index.html](http://www.ibm.com/developerworks/downloads/emsandbox_power/index.html)

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