



IBM PureData Systems

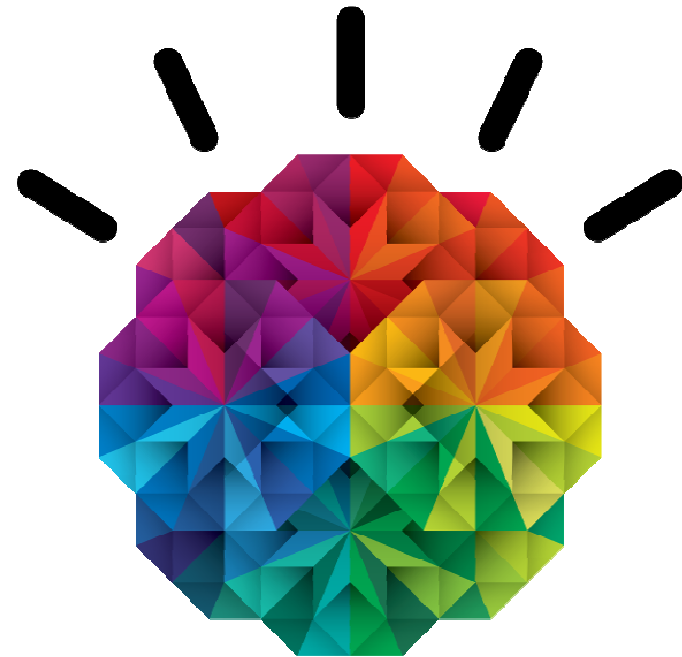
*Meeting data challenges with
simplicity, speed & lower cost*

Manny Arino, Especialista Worldwide en
Sistemas Integrados Expertos, IBM

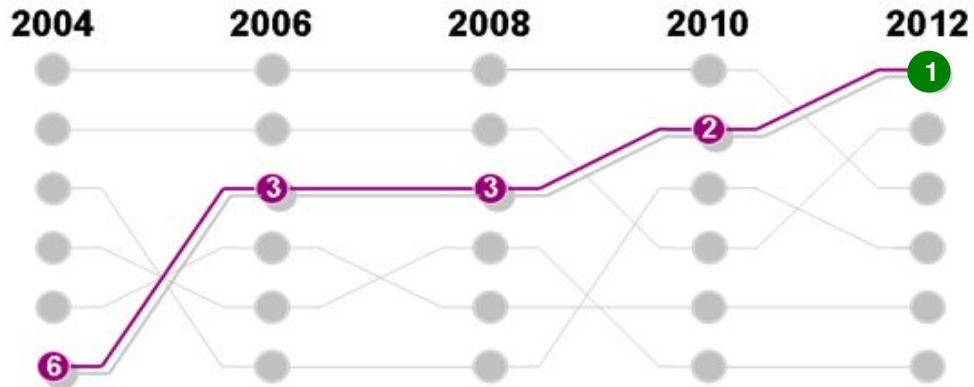


Agenda

- **Why PureData Systems?**
- PureData System for Transactions Overview



Technology is the leading force for impacting business



Factors impacting organizations:

1. Technology factors
2. People skills
3. Market factors
4. Macro-economic factors
5. Regulatory concerns
6. Globalization

Source: IBM CEO Study 2012

Speed Value

90%

view cloud as critical to their plans



Extended Reach

1 Billion

Smartphones and 1.2 billion mobile employees by 2014

Responsiveness

20B+

Intelligent business assets

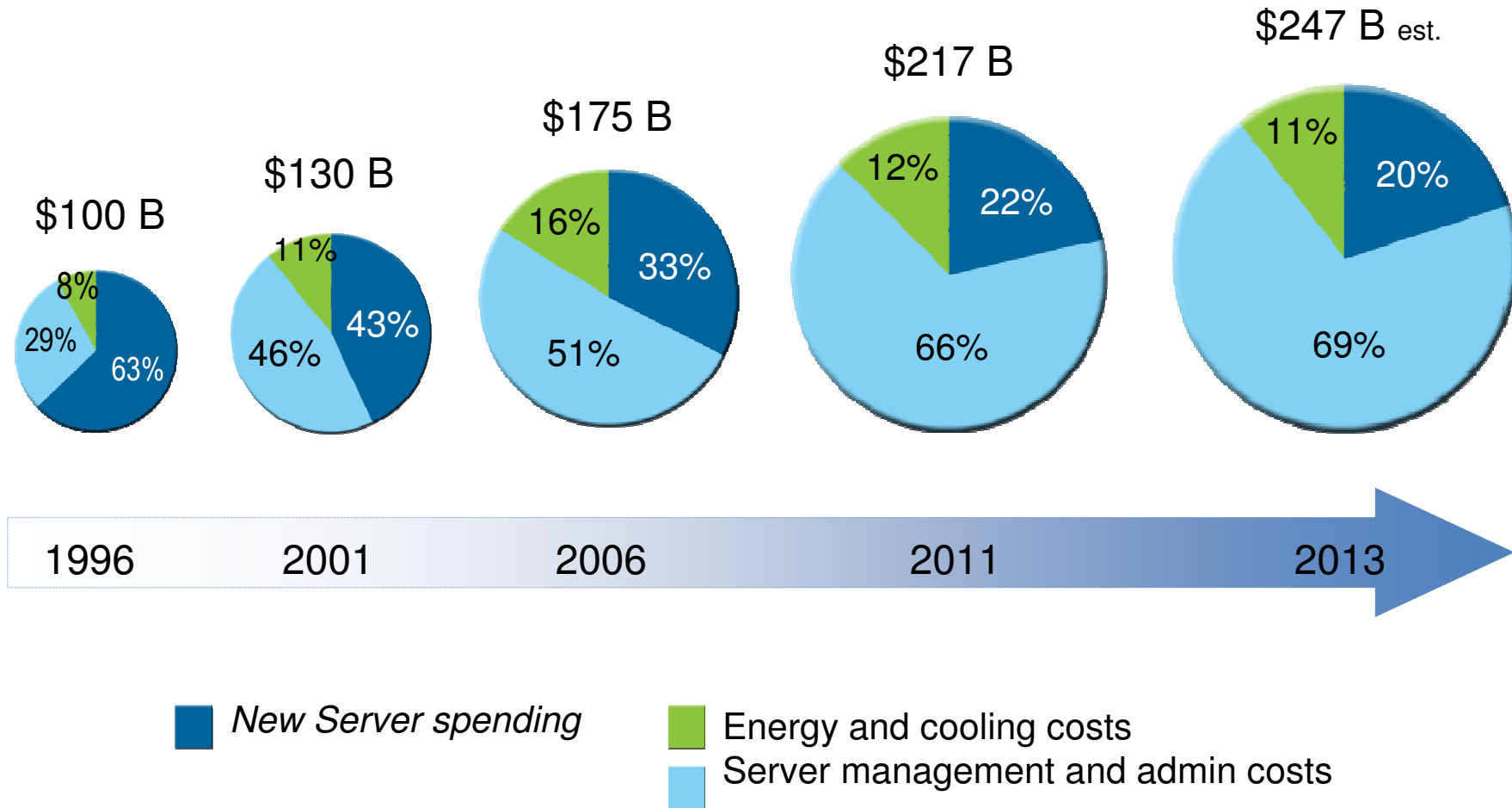


New Insights

2.7zB

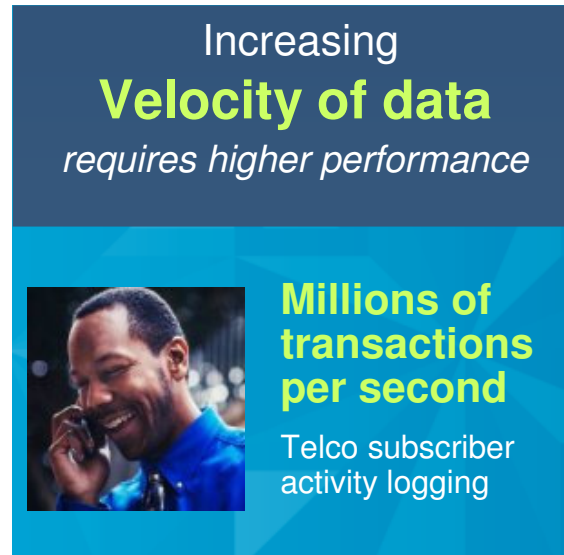
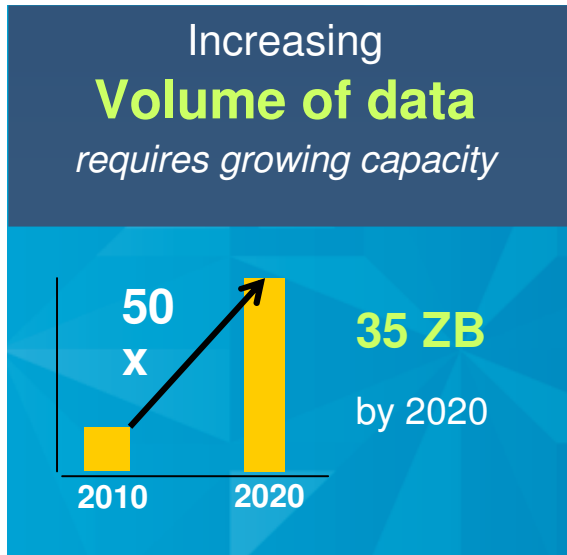
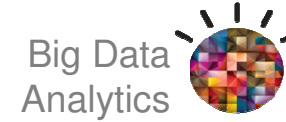
of digital content in 2012, up 50% from 2011

At the same time, server deployment and admin costs are skyrocketing



Source: IDC, 2012

And big data is causing unprecedented information management challenges



A smarter approach to meeting data challenges is required to:
Reduce complexity ■ **Accelerate time to value** ■ **Improve IT economics**

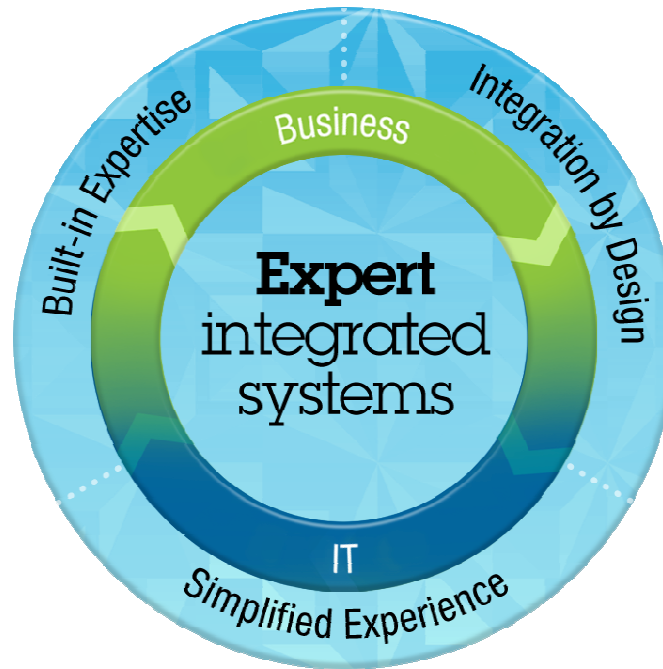
In April, IBM announced a new family of expert integrated systems:

PureSystems

Systems with integrated expertise and built for cloud

Built-in Expertise

Capturing and automating what experts do – from the infrastructure patterns to the application patterns



Integration by Design

Deeply integrating and tuning hardware and software – in a ready-to-go workload optimized system

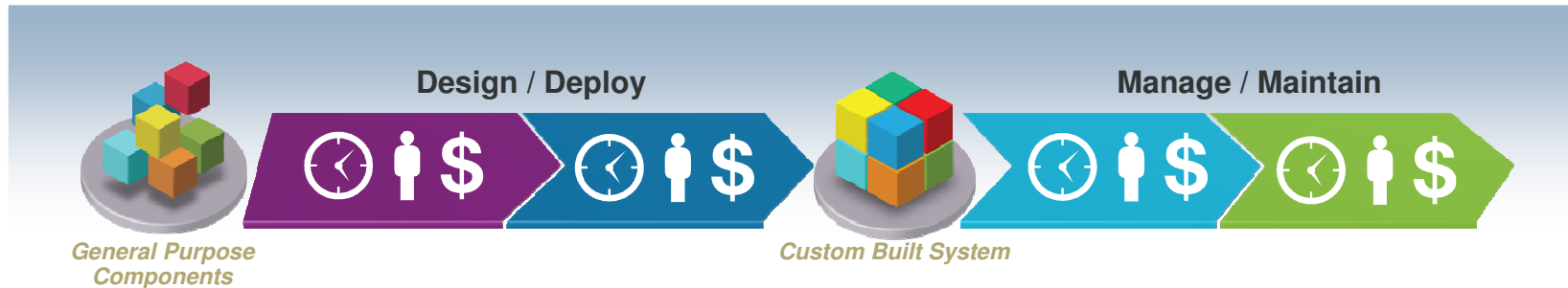
Simplified Experience

Making every part of the IT lifecycle easier - with integrated management of the entire system and a broad open ecosystem of optimized solutions

IBM PureSystems

Greater simplicity, speed & lower cost throughout the system lifecycle

Today's problem: *time and effort is spent tuning general purpose components*



The PureSystems solution: *simplify the entire IT project lifecycle*



Example: Global Bank Saves £1.9M

- Application migration costs reduced by £800K
- Systems admin costs reduced by £670K
- Provisioning/patching costs reduced by £500K



IBM PureSystems Family

How much flexibility, integration and workload optimization does the client want **out of the box?**

PureFlex

Infrastructure

Integrated and optimized infrastructure with flexibility

Runs your choice of applications and middleware



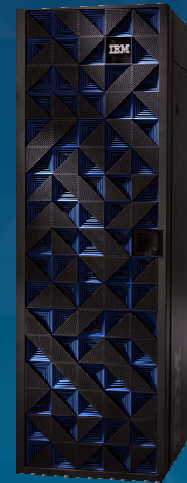
- Delivering IT infrastructure services

PureApplication

Application Platform

Integrated and optimized application platform

Built on IBM middleware to accelerate deployment of your choice of applications



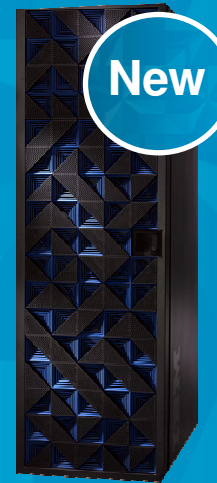
- Delivering application platform services

PureData

Data Platform

Integrated and optimized data platform

Delivers high performance data services to transactional and analytics applications



- New PureSystem with models optimized exclusively for data workloads

IBM PureData System: Optimized exclusively for data services

Optimized for data services:

- Transactional
- Analytics

Expert integrated:

- Data platform
- Infrastructure
- Unified platform management
- Built-in expertise

PureData



Data Platform

Delivering Data Services

Workload optimized performance


Data load ready in hours

Integrated management

Single point of support

Automated maintenance in hours, not days

Different types of workloads require different data services

 E-commerce	 Customer Analysis	 Real Time Fraud Detection
Transaction Processing Random reads & random updates	Reporting and Analytics Sequential reads & sequential data loads	Operational Analytics Random and sequential reads & data loads + continuous ingest
		
Scalable Transactional Database	Analytics Data Warehouse	Operational Data Warehouse
Random reads & random updates	Sequential reads & sequential data loads	Random and sequential reads & data loads + continuous ingest
Many transactions with narrow data scope accessing the same database	Analytics with broad data scope, split into many parts across data partitions to run in parallel	Analytics split into many parts and narrow scope operations, all running in parallel
Shared access to all data	Partitioned data access	Partitioned data access

Different data workloads have different characteristics

Meeting Big Data Challenges – Fast and Easy!



PureData *System for Transactions*

Database services that handle large volumes of transactions with high availability, scalability and integrity

PureData *System for Analytics*

*powered by
Netezza technology*

Data Warehouse services for complex analytics and reporting on data up to petabyte scale - with minimal administration

PureData *System for Operational Analytics*

Operational Warehouse services for continuous ingest of operational data, complex analytics, and a large volume of concurrent operational queries

IBM PureData System is unique

Different models pre-optimized exclusively for different data workloads saving clients time, effort and cost to tune on their own



PureData System for Transactions

- Pattern based **database deployment in minutes, not hours**¹
- Handles **more than 100 databases on 1 system**²

PureData System for Analytics

*powered by
Netezza technology*

- **10-100x faster** than traditional custom systems⁴
- **20x greater concurrency and throughput** for tactical queries than previous Netezza technology⁵

PureData System for Operational Analytics

- **Continuous ingest** of operation data
- Designed to handle **1000+ concurrent operational queries**³
- **Up to 10x storage savings** with active compression⁶

¹ Based on IBM internal tests and system design for normal operation under expected typical workload. Individual results may vary.

² Based on one large configuration

³ Based on IBM internal tests of prior generation system, and on system design for normal operations under expected typical workload. Individual results may vary.

⁴ Based on IBM customers' reported results. "Traditional custom systems" refers to systems that are not professionally pre-built, pre-tested and optimized. Individual results may vary.

⁵ Based on IBM internal performance benchmarking

⁶ Based on client testing in the DB2 10 Early Access Program

IBM PureData System for Transactions highlights

Optimized exclusively for transactional data workloads

PureData
System for
Transactions
*Delivering data services
for transactions*



Speed

- Industry leading DB2 performance
- Database node recovery in seconds¹

Simplicity

- Database deployment in minutes, not hours¹
- Capable of running multiple database software versions
- Handles more than 100 databases on 1 system²
- No planned downtime for firmware / OS upgrades¹

Scalability

- Scaling up to 30x³
- Designed to expand from small to medium & medium to large configuration with no planned system downtime required

Smart

- Supports Oracle Database apps with minimal change; supports DB2 applications unchanged
- Clients have experienced cases of 10x storage space savings via Adaptive Compression⁴

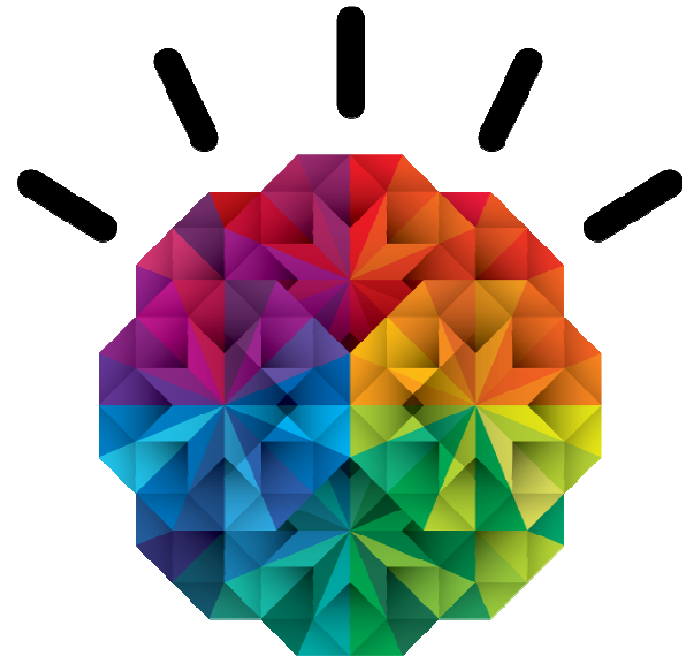
Footnotes:

1. Based on IBM internal tests and system design for normal operation under expected typical workload. Individual results may vary.
2. Based on one large configuration.
3. Based on the designed minimum and maximum processor and memory resources required for a single database.
4. Based on client testing in the DB2 10 Early Access Program.



Agenda

- Why PureData System?
- **PureData System for Transactions Overview**



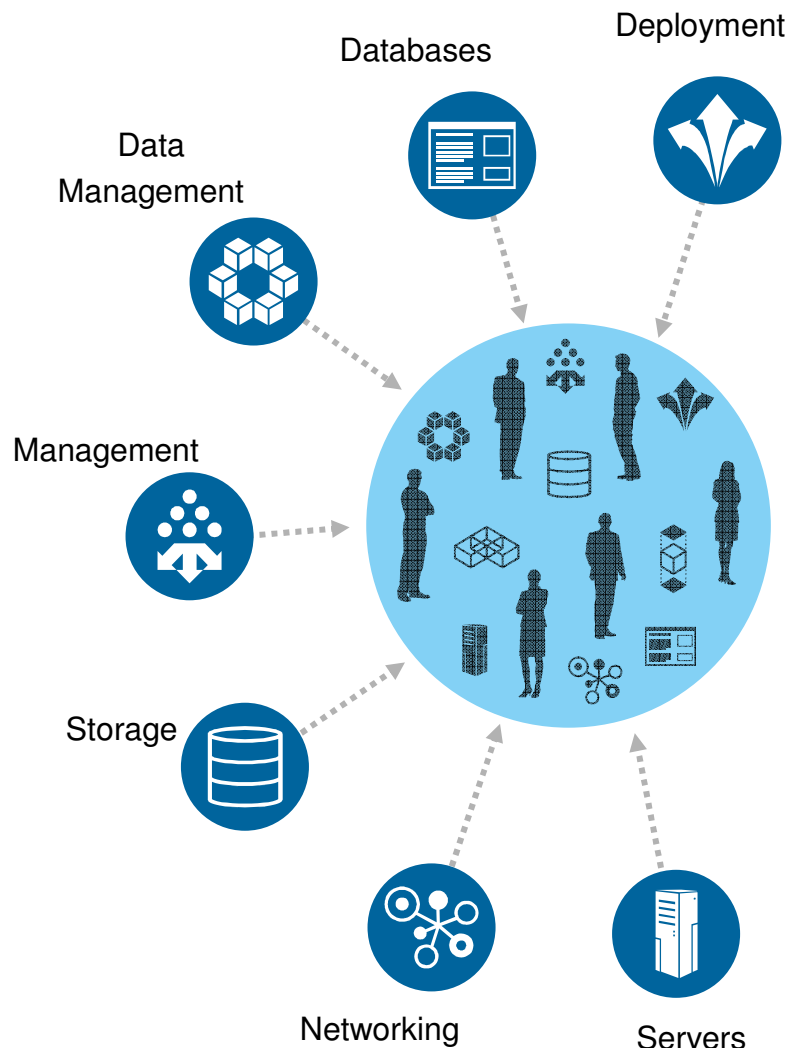


IBM PureData System for Transactions helps reduce downtime costs - *Downtime costs have grown 38% since 2010*

Yearly Cost Metric	Best-In-Class (Top 20%)	Industry Average (Middle 50%)	Laggards (Bottom 30%)
# of business interruption events	.3	2.3	4.4
Length of event (hours)	.1	1.0	9.0
Total disruption (hours)	.03	2.3	39.6
Average cost per hour of disruption	\$101,600	\$181,770	\$99,150
Total cost of business interruptions	\$ 3,048	\$418,071	\$3,926,340

'Datacenter Downtime – How much does it really cost?', Aberdeen Group, March 2012, 134 organizations

Reduce your system integration costs



Optimized solution stack

- Factory integrated and optimized
 - *Server, storage, networking and software*
- High data availability
 - *Automatic failure detection and online recovery*
- Solid State exploitation
 - *Automatic management of hot, warm and cold data for faster performance*
- Optimized database patterns
 - *Database patterns pre-tuned and pre-configured for performance*
- Integrated fixes
 - *Zero down time for system maintenance*

Reduce time, skill and effort required to deploy reliable and highly scalable systems

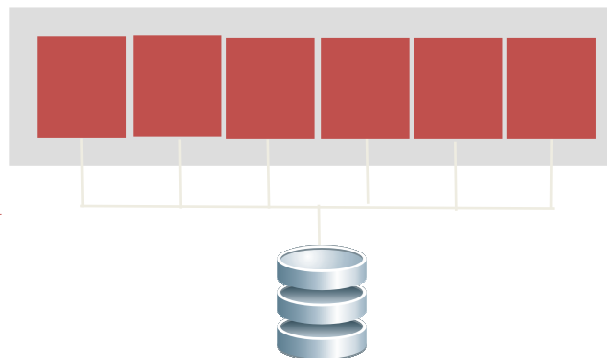
Uninterrupted access to data with consistent performance

Traditional systems - **build it yourself**

Over several days/weeks:

1. Define High Availability topology
2. Configure HW/SW/Network
3. Set up storage pools
4. Install multiple operating systems
5. Install database instances
6. Set up primary and secondary management systems
7. Set up database members
8. Set up backup processes
9. Test, tune, reconfigure...

6-node
database cluster instance



PureData System for Transactions - **built-in**

In minutes,

1. Just specify cluster name, description and topology pattern

Simple deployment of database cluster instances and databases using patterns

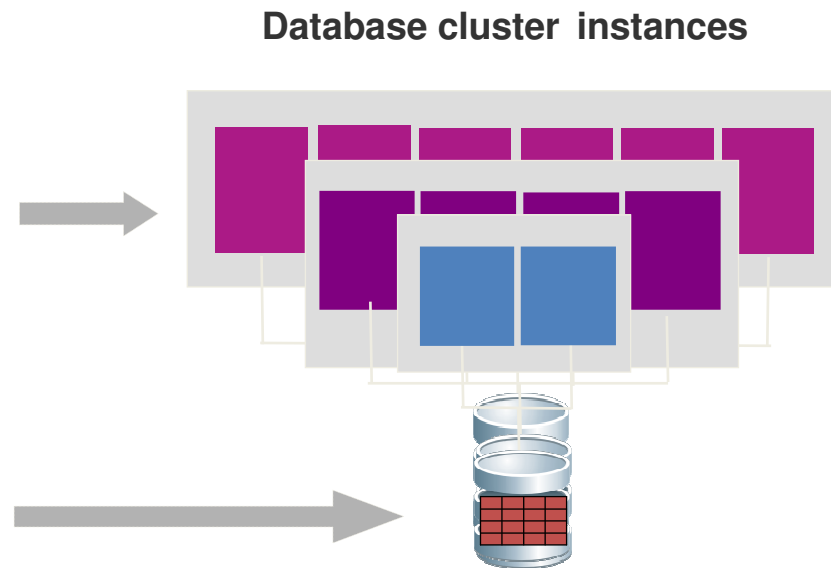
Deploy topology and databases in minutes using patterns

Topology patterns

Automatically creates, configures and deploys a DB2 pureScale™ database system with built-in redundancy and high performance

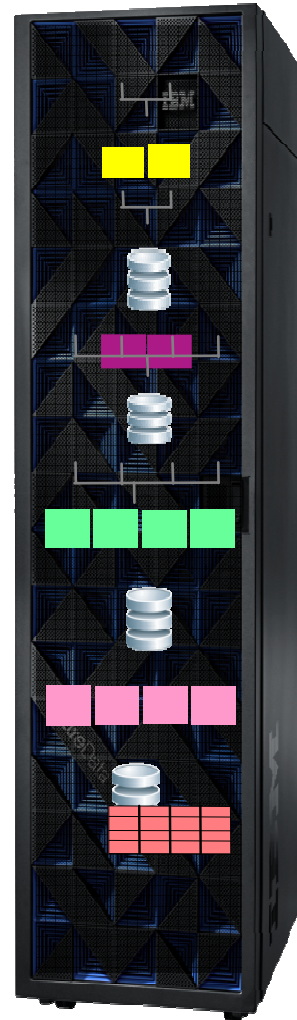
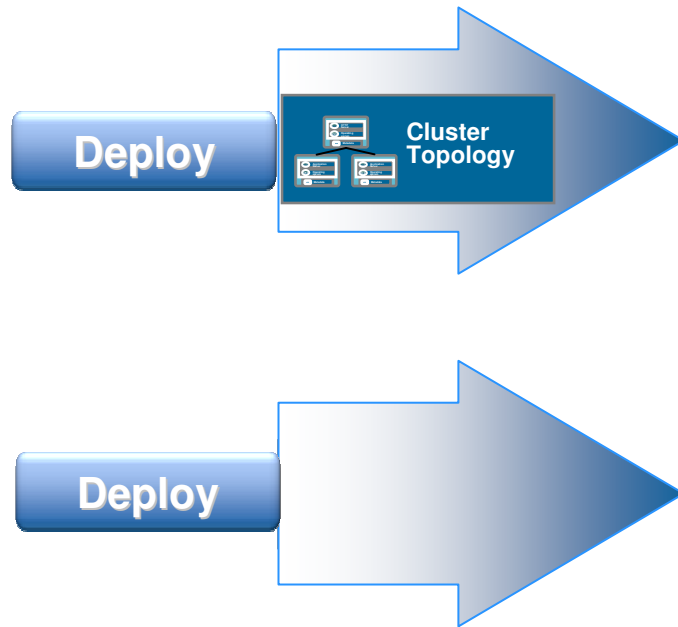
Database patterns

Automatically creates, configure and deploys IBM or client-specified databases optimized for transactional workloads



Pattern based Database Deployment

Captures your expertise in patterns for consistent, reliable deployment of critical databases as a service



Consolidate

100s of database servers to a single system for optimal resource efficiency and easier administration

Optimize

storage resources for up to 10x storage space savings

Innovate

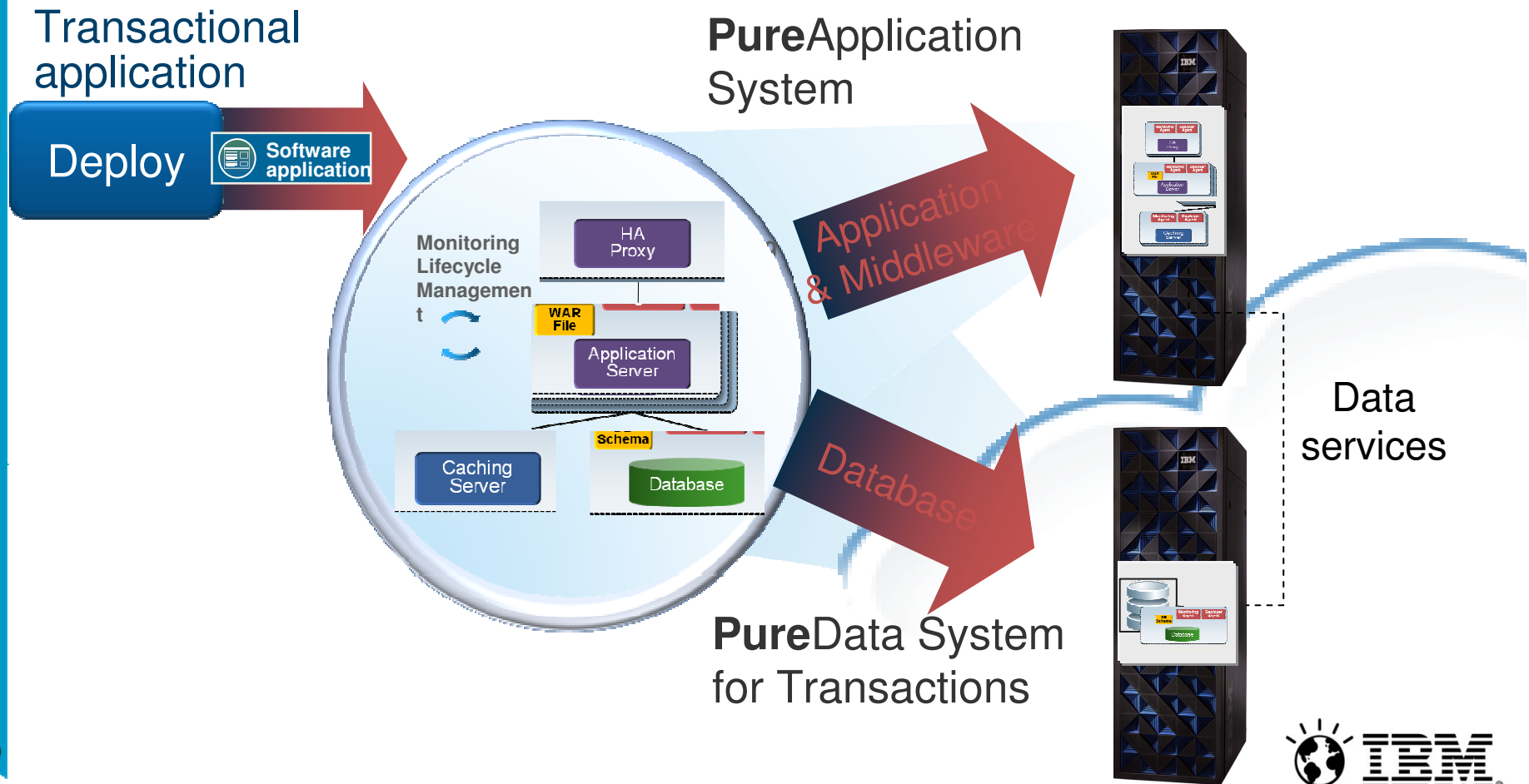
faster by deploying new databases in minutes

Accelerate

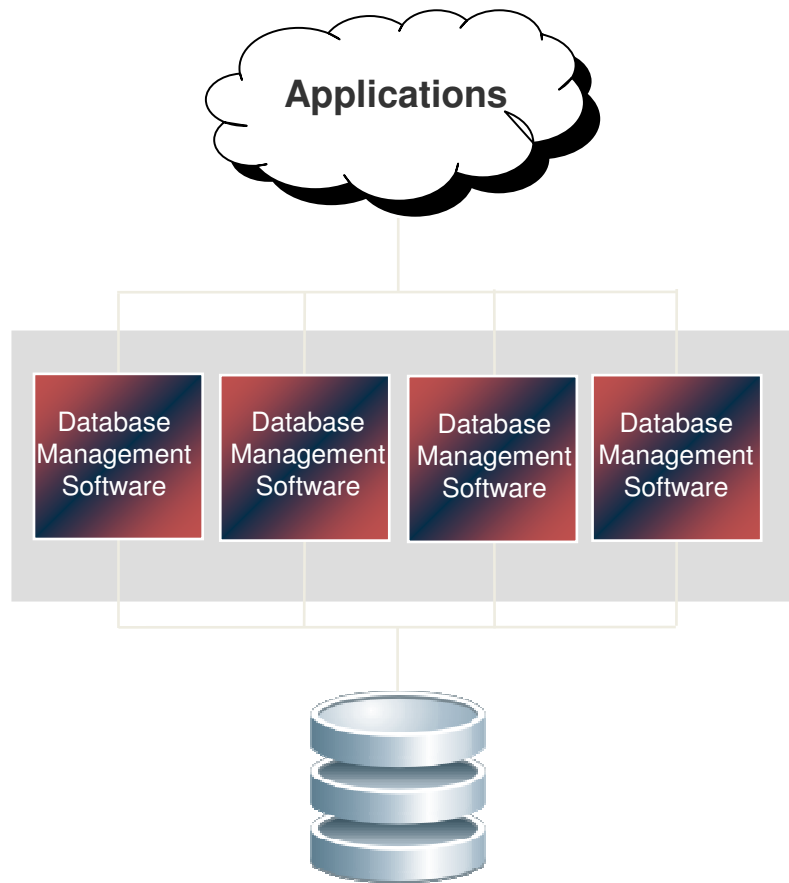
deployment of new database services in cloud environments using patterns of expertise

Deploying across PureSystems through a single pattern

An application pattern can automatically deploy a new database to the PureSparta System



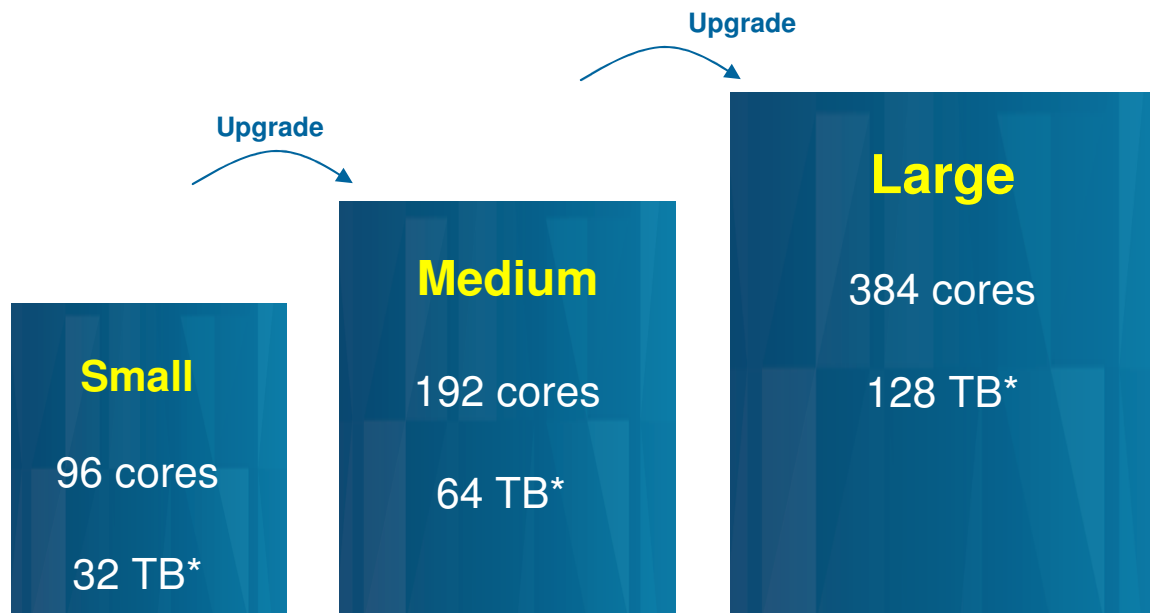
Simplified Application Development



- **Higher scalability** provided by adding more nodes with no application changes required
- **Dev/Test/Staging/Production database** repeatability through database patterns
- **Integrated data movement tools** to speed creation of test databases
- **Built-in Oracle compatibility** mode for minimal to no application changes
- **Higher utilization and lower costs** provided through shared resource management

Three configurations to choose from

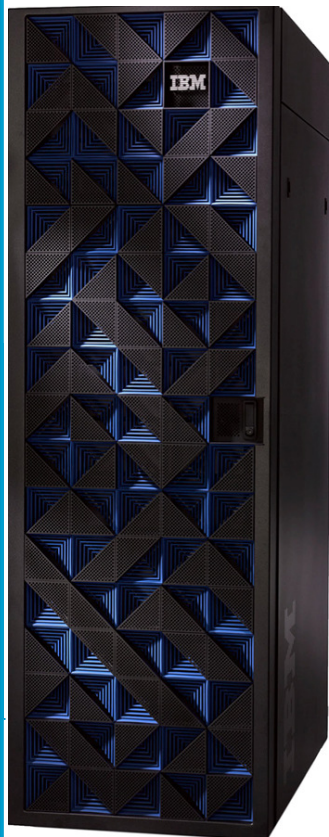
- Easy, non-disruptive upgrade to larger systems
- Run all existing DB2 applications unchanged
- Run Oracle database applications with minimal, and sometimes no change¹
- Provides higher levels of availability, performance and scalability without application change



¹ Based on internal DB2 10 tests and reported client experience from 28 Sep 2011 to 07 Mar 2012

* Raw storage capacity

Under the covers



External Network Connectivity

- Dual 10Gb Ethernet Switches



Storage System

- Storewize v7000 chassis and expansion units.
- Holds up to 192 disks
- 1:3 balanced SSD to HDD ratio



Balanced HDD & SSD storage

- 48-disk module (12 SSD + 36 HDD) to optimize for performance & cost.
- RAID 10 for extreme storage reliability
- Up to 9.5 TB SSD and 64 TB HDD



Flex System Chassis

- Up to 2 per rack
- Up to 14 compute nodes each
- Fully redundant Network (En) and Storage (SAN) connectivity



Flex System™ Compute Node

- Up to 24 per rack



PureSystem™ Manager

- 2 per rack for redundancy
- Integrate management for all system resources



Free your database experts from routine administration tasks

Self-balancing Data access requests automatically load balanced for optimal performance

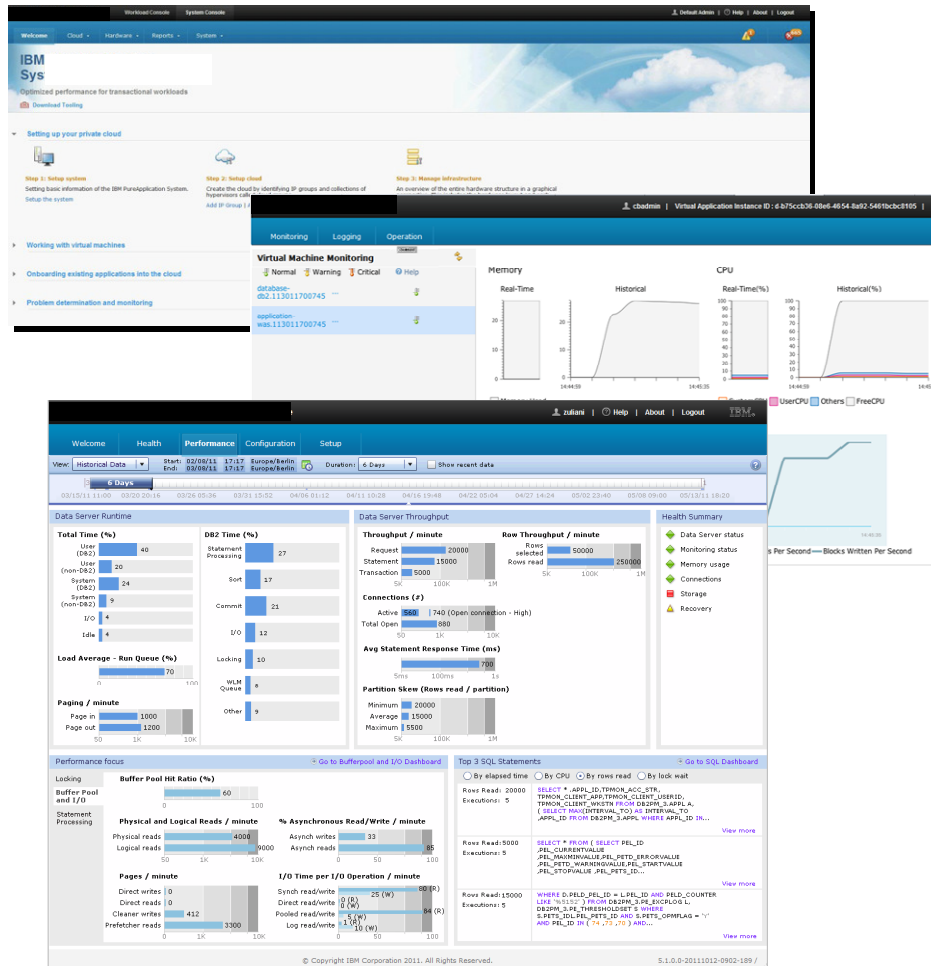
Self-tuning Memory management dynamically balances resources

Self-optimizing Best data placement and access automatically selected based on usage statistics for optimal performance

Self-monitoring Based on thresholds and alerts, system will monitor and automatically make changes as needed to improve performance

Self-healing Failed database nodes are isolated and recovered automatically

Simple system administration



- Single console to manage all resources and work running on the system
- Role-based security and tasks
 - management
 - monitoring
 - maintenance
- Easy integration with broader enterprise monitoring tools and processes
- Consistent IBM PureSystems console

Simplified maintenance with pre-integrated fixes

Reduce risk and eliminate manual errors when applying maintenance

System Maintenance - Fix Packs

Current version: **1.0.0.0**
Free space: 150.3 GB

Version	Size	Status
1.0.0.0	N/A	✓
1.0.1.0	132.0 GB	⌚
1.2.0.0	245.5 GB	

1.0.1.0

Version: 1.0.1.0

Current status: **Installing, Stage 1 of 2 > Step 7 of 8**

Total size: 132.0 GB

Unique size: 65.4 GB

Estimated time to install: 2 to 6 hours

History: Error on stage 2 of 5

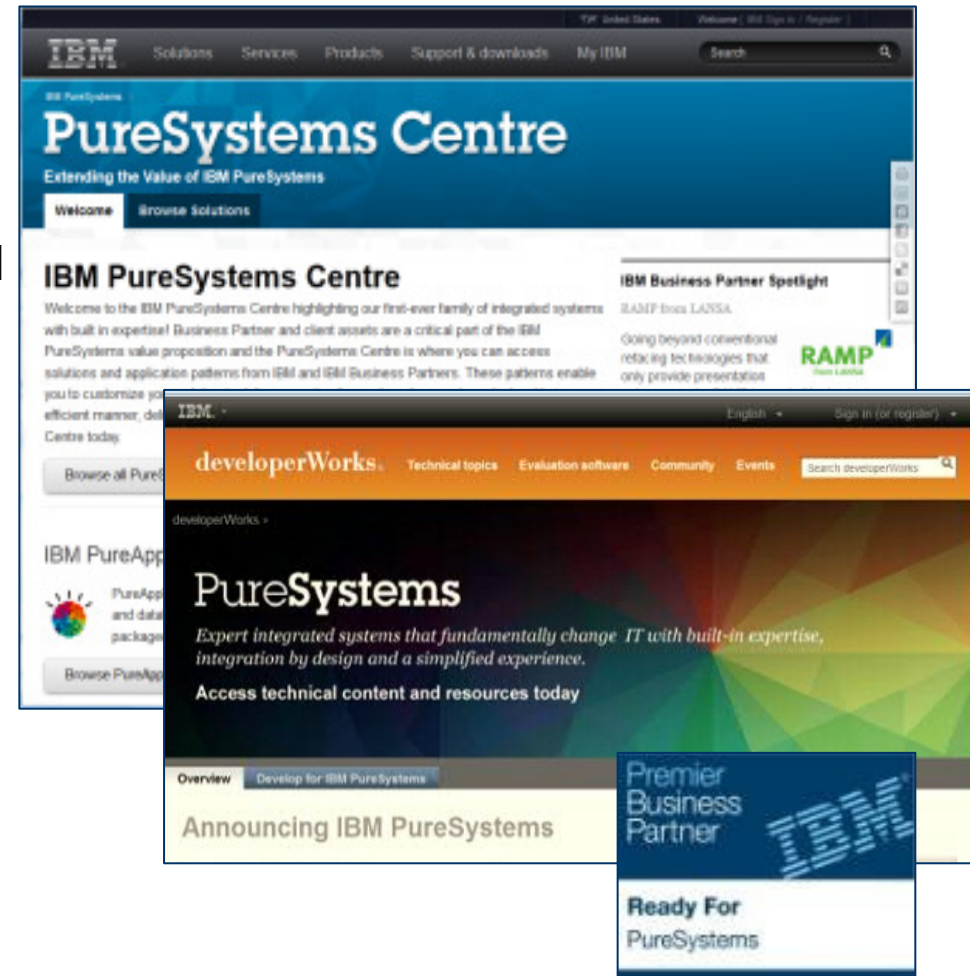
Included fixes: 35 total -

Name	Description	Estimated time	Component name	Status
fix_ps3117		1 minute	IBM PureScale Management Platform	
fix_ps2691		3 minutes	IBM Flex System Manager	
fix_ps2681		3 minutes	IBM Flex System Chassis Management Module	
fix_ps2390		1 minute	IBM Flex System p460 Compute Node	
fix_ps2108		5 minutes	IBM Flex System EN4093 10Gb Virtual Fabric Scalable Switch	
fix_ps1629		10 minutes	IBM Flex System FC5022 16Gb SAN Scalable Switch	

- All hardware firmware and OS software patches integrated and tested together at the factory
- Can apply hardware and OS maintenance with zero downtime
- Single line of support
 - Integrated stack support

IBM PureSystems Center

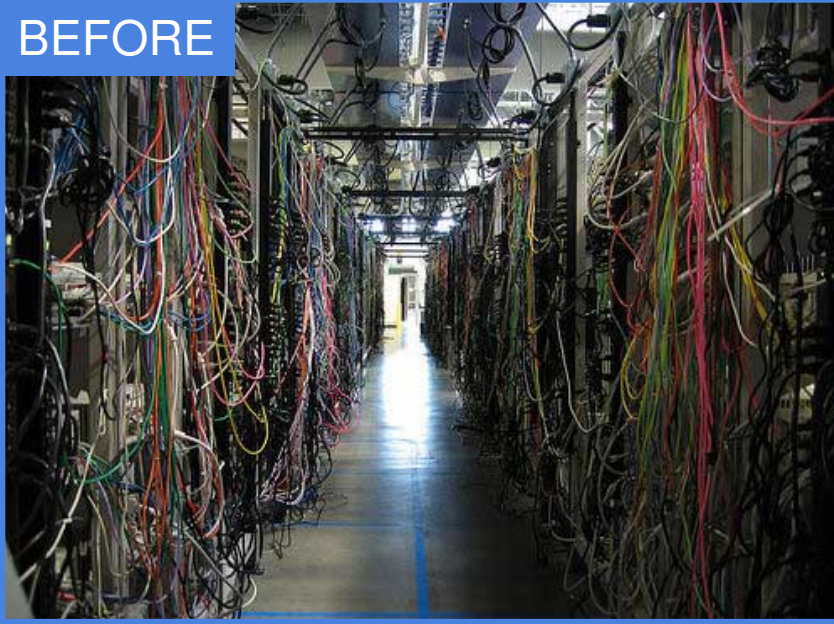
- Over 200 optimized solutions available from 170 partners for PureSystems*
- Over 60 partners committed to IBM PureData System
 - 31 new to PureSystems*
- Delivering solutions of all kinds across all industries including applications for
 - ERP
 - CRM
 - Project management
 - Payment processing
 - ...



* As of September 29, 2012

Before and after IBM PureSystems

BEFORE



- Siloed compute, storage, networking racks manually cabled together
- Under utilized - wastes energy & space
- Complex, siloed monitoring and operations
- Maintenance across 100s of independent components
- Slow to provision, configure, and change

AFTER



- Pre-integrated infrastructure (compute, storage, networking)
- High density - reduces energy and space costs
- Integrated monitoring and operations
- Simplified rack level maintenance
- Provisioned, configured, changed in minutes

Acquire IBM PureData System today! No upfront costs and defer payments for 90 days¹

IBM Global Financing makes it even simpler
with flexible financing options

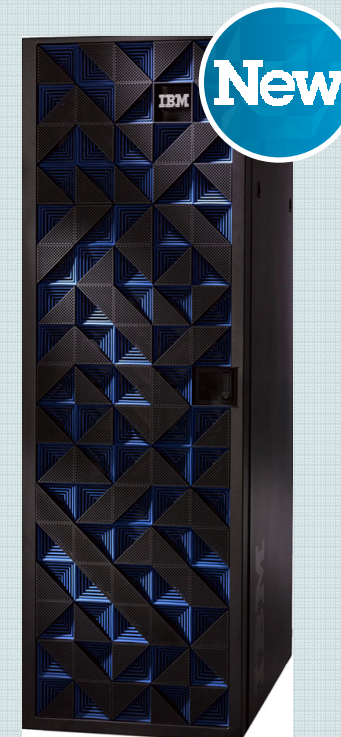
- Turn upfront costs into low monthly payments and conserve your cash for other strategic needs
- Accelerate PureSystems' cash flow breakeven point and better align cash outlays to anticipated benefits
- Drive your total cost of ownership up to 16% lower through fair market value leasing²
- Reduce risk of technology obsolescence and increase flexibility through our mid and end of lease options

WAP12382-USEN-00

IBM Global Financing offerings are provided through IBM Credit LLC in the United States and other IBM subsidiaries and divisions worldwide to qualified commercial and government clients. Rates and availability are based on a client's credit rating, financing terms, offering type, equipment and product type and options, and may vary by country. Non-hardware items must be one-time, non-recurring charges and are financed by means of loans. Other restrictions may apply. Rates and offerings are subject to change, extension or withdrawal without notice and may not be available in all countries.

1. 90 day deferral subject to client credit approval. Interest accrues during deferral period. Restrictions may apply. Contact IBM for more details.

2. Represents Net Present Value savings over a 36 month period for an IT infrastructure Fair Market Value lease, "best credit" customer. Current IBM Global Financing monthly rates for IBM hardware used to calculate PV savings.



For details visit:

ibm.com/financing/us/eis



PureData System for Transactions

A highly reliable and scalable transactional data system

Built-in Expertise

Integrated by Design

Simplified Experience



Consolidate

over 100 databases onto a single system for optimal resource efficiency and easier administration

Optimize

storage resources for up to 10X storage space savings¹ while providing up to high scalability

Innovate

faster by delivering new databases in minutes, reducing time to value by months

Accelerate

deployment of new database services in cloud environments by using patterns of expertise

¹ Using Adaptive storage compression, based on client testing in the DB2 10 Early Access Program.



Our PureExperience invitation to you

Let us prove it *at no charge*:

1. On-site installation of PureData System and guided demonstration of business value
2. No charge execution of a 10 day *PureStart* on-site service engagement
3. Continued use of the PureData System for 30 days, inclusive of *PureStart*
4. Access to a lab advocate for usage questions and advice
5. Single line of IBM support and maintenance





Thank you



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