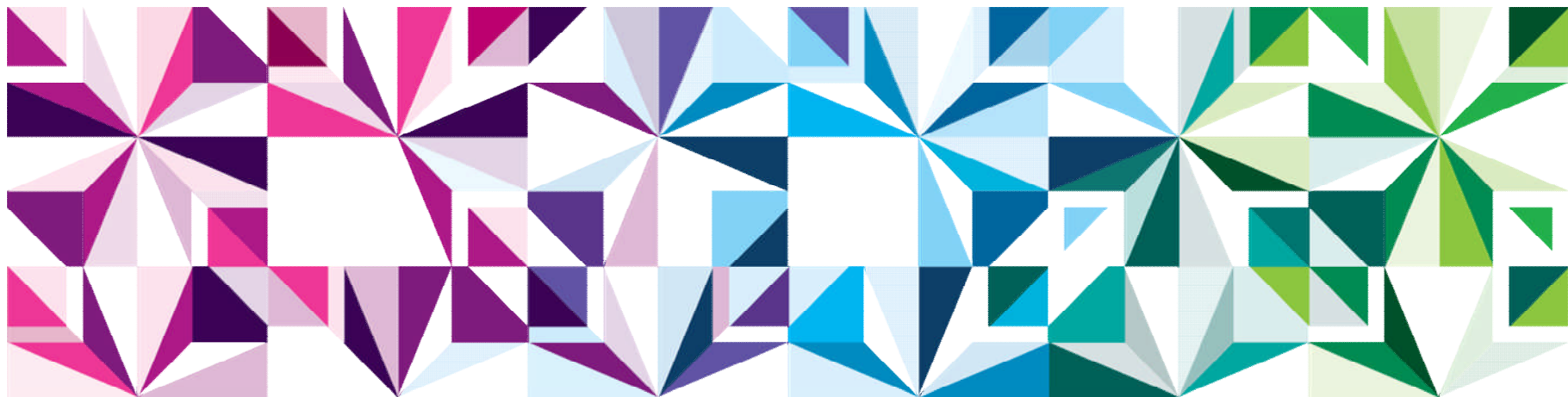


# IBM PureData System for Transactions

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



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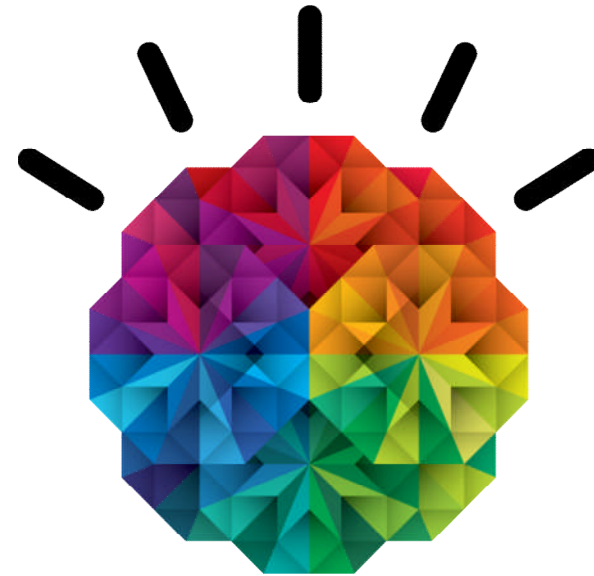
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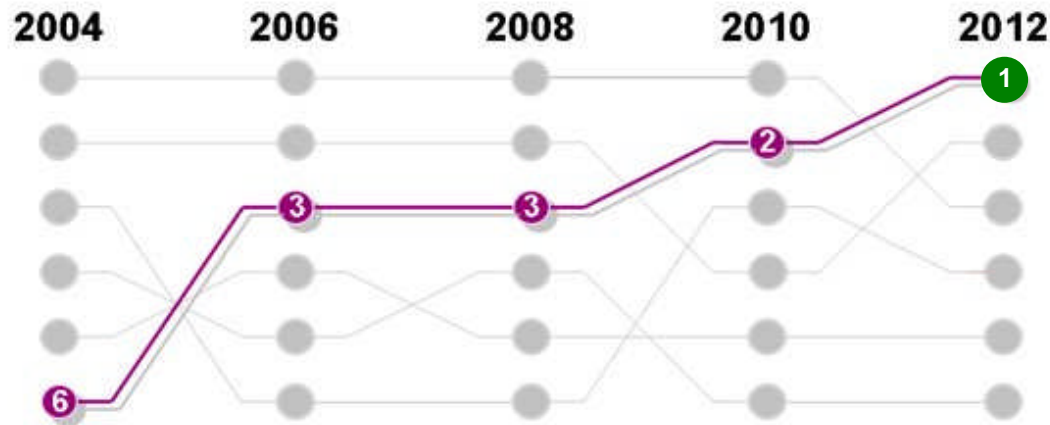
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## Agenda

- Why PureData System for Transactions?
- PureData System for Transactions Overview
- Our PureExperience invitation to you



# 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

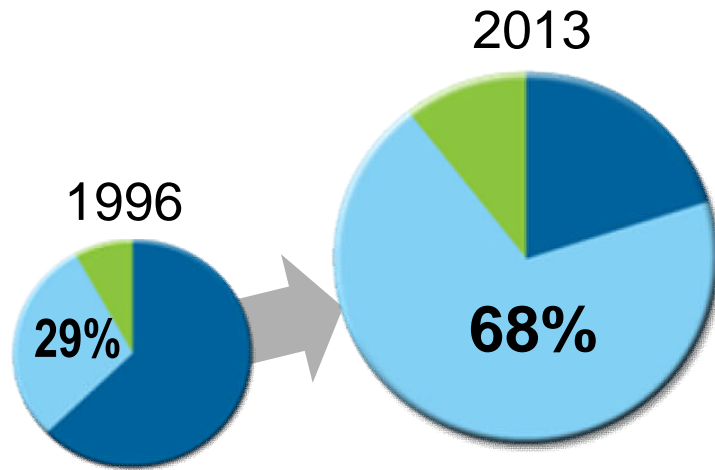


### New Insights

**2.7 ZB**

of digital content in 2012, up 50% from 2011

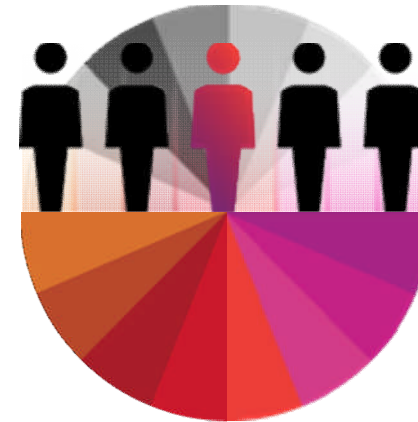
At the same time, server deployment and admin costs are skyrocketing



**68% of IT**

operating costs in 2013 will be for  
**management and administration**

\* IDC; Converged Systems: End-User Survey Results presentation;  
September 2012; Doc #236966

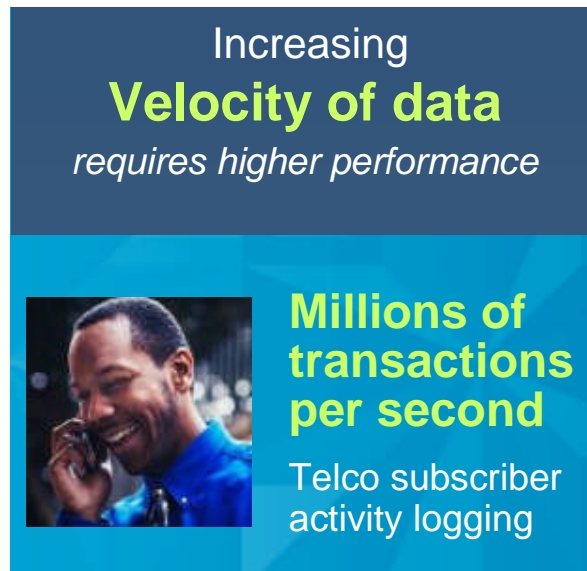
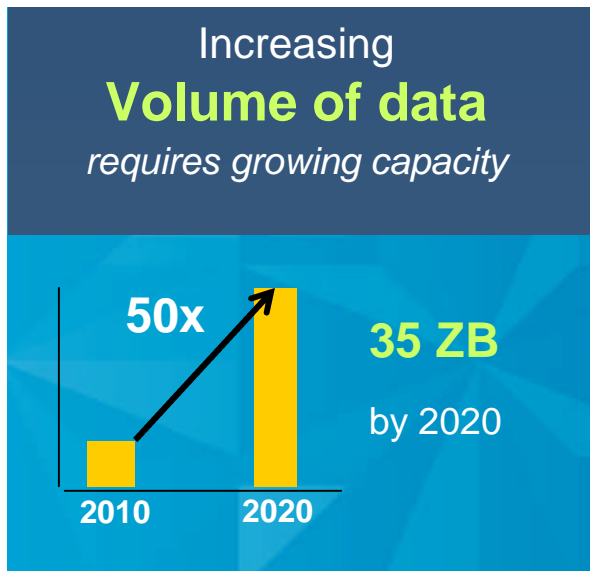


**Only 1 in 5**

organizations allocate more than  
**50% of IT budget to new projects**

\* 2012 IBM Global Data Center Study

# 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**

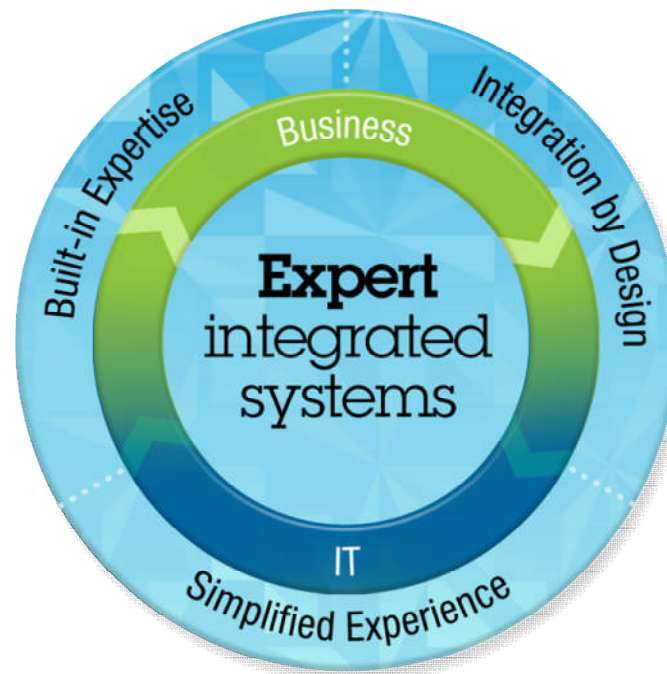
In April, IBM announced a new family of expert integrated systems:

# PureSystems

*Systems with integrated expertise and built for cloud*

## **Built-in Expertise**

*Capturing and automating what experts do*



## **Integration by Design**

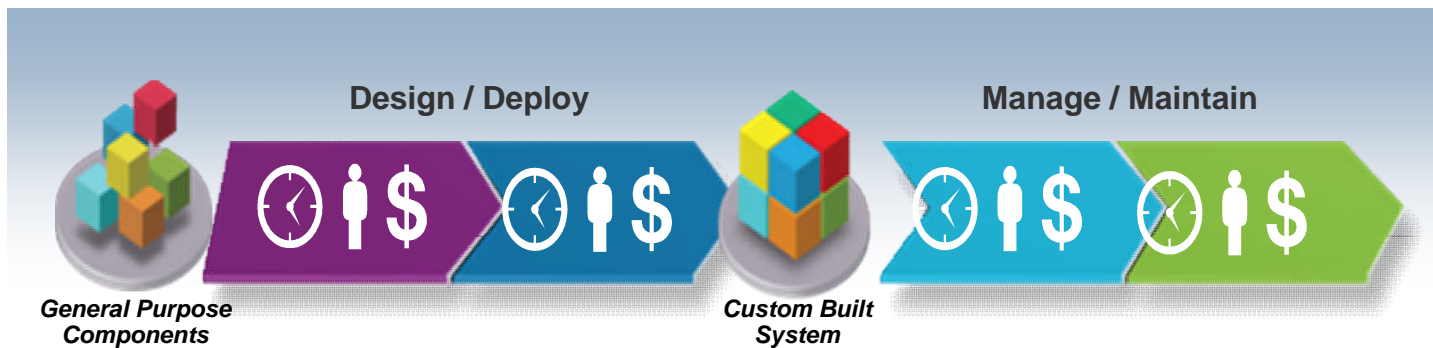
*Deeply integrating and tuning hardware and software*

## **Simplified Experience**

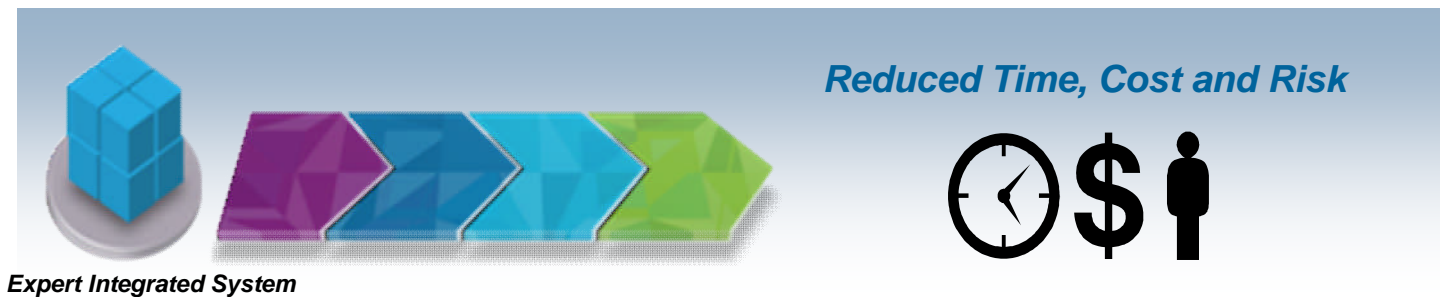
*Making every part of the IT lifecycle easier*

PureSystems deliver greater simplicity, speed & lower cost

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



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





## IBM PureSystems Family

How much flexibility, integration and workload optimization do you want **out of the box**?

<h3>PureFlex</h3> <p>Infrastructure</p> <p><i>Integrated and optimized infrastructure with flexibility</i></p> <p><i>Runs your choice of applications and middleware</i></p> <ul style="list-style-type: none"><li>• Delivering IT infrastructure services</li></ul>	<h3>PureApplication</h3> <p>Application Platform</p> <p><i>Integrated and optimized application platform</i></p> <p><i>Built on IBM middleware to accelerate deployment of your choice of applications</i></p> <ul style="list-style-type: none"><li>• Delivering application platform services</li></ul>	<h3>PureData</h3> <p>Data Platform</p> <p><i>Integrated and optimized data platform</i></p> <p><i>Delivers high performance data services to transactional and analytics applications</i></p> <p><b>New</b></p> <ul style="list-style-type: none"><li>• New PureSystem with models optimized exclusively for data workloads</li></ul>
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## 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

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

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<sup>1</sup>**
- **Handles more than 100 databases on 1 system<sup>2</sup>**

### **PureData** System for Analytics

*powered by  
Netezza technology*

- **10-100x faster than traditional custom systems<sup>4</sup>**
- **20x greater concurrency and throughput for tactical queries than previous Netezza technology<sup>5</sup>**

### **PureData** System for Operational Analytics

- **Continuous ingest of operation data**
- **Designed to handle 1000+ concurrent operational queries<sup>3</sup>**
- **Up to 10x storage savings with active compression<sup>6</sup>**

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

<sup>2</sup> Based on one large configuration

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

<sup>4</sup> 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.

<sup>5</sup> Based on IBM internal performance benchmarking

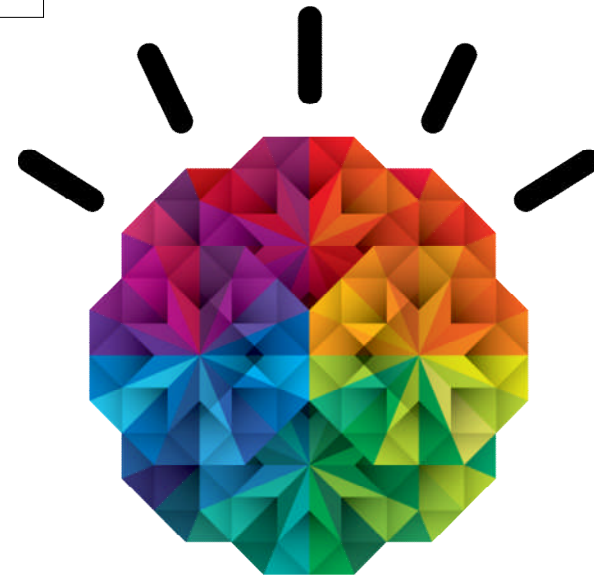
<sup>6</sup> Based on client testing in the DB2 10 Early Access Program

## Agenda

- Why PureData System for Transactions?

- PureData System for Transactions Overview

- Our PureExperience invitation to you



# 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 seconds<sup>1</sup>

## Simplicity

- Database deployment in minutes, not hours<sup>1</sup>
- Capable of running multiple database software versions
- Handles more than 100 databases on 1 system<sup>2</sup>
- No planned system downtime for firmware / OS upgrades<sup>1</sup>

## Scalability

- Scaling up to 30x<sup>3</sup>
- 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 Compression<sup>4</sup>

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.

## IBM PureData System for Transactions helps reduce downtime costs

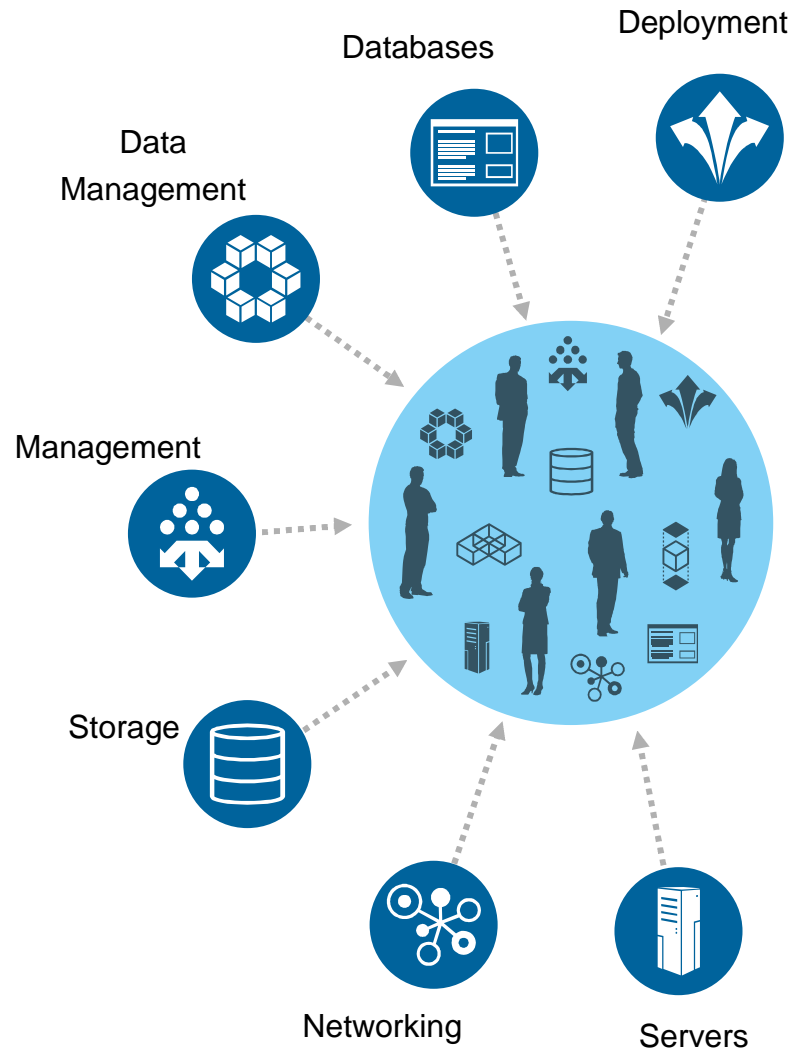
*Downtime costs have grown 38% since 2010*

<b>Yearly Cost Metric</b>	<b>Best-In-Class (Top 20%)</b>	<b>Industry Average (Middle 50%)</b>	<b>Laggards (Bottom 30%)</b>
# 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*

## Simplified deployment with high availability

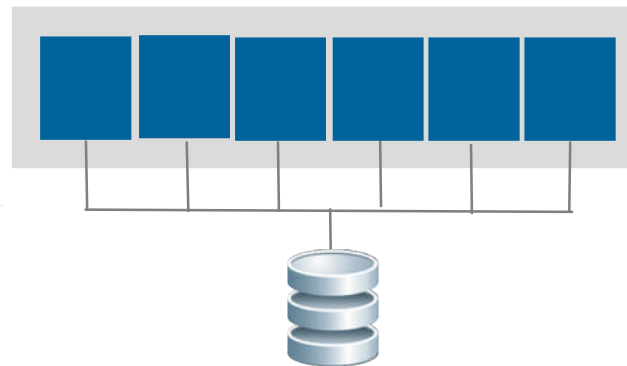
*Uninterrupted access to data with consistent performance*

### 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,**

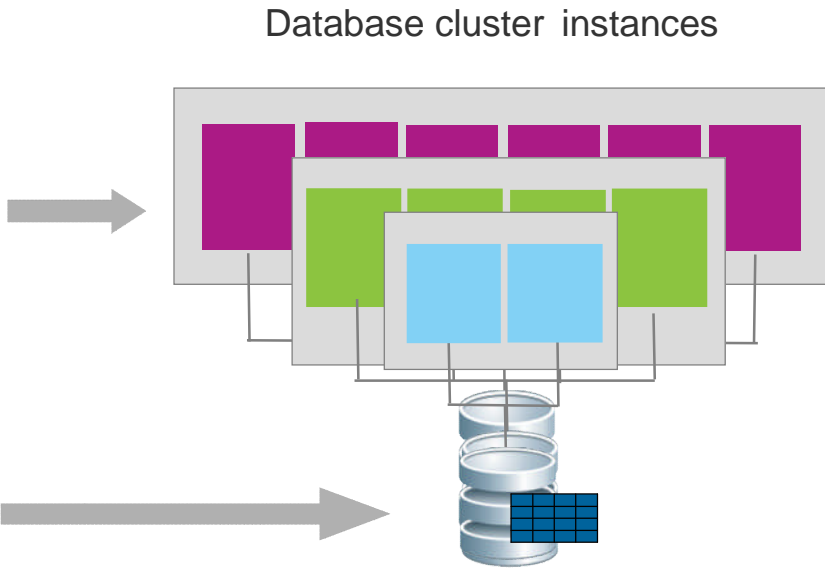
1. Just specify cluster name, description and topology pattern

## Simplified deployment of multiple databases

*Deploy topology and databases in minutes using patterns*

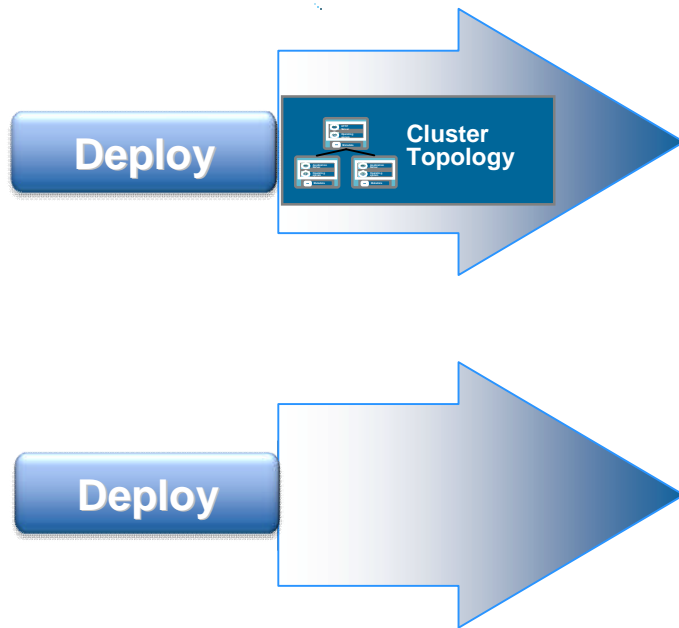
**Topology patterns**  
Automatically creates, configures and deploys a DB2 pureScale™ database system with built-in redundancy and high performance

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



# Simplified, 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

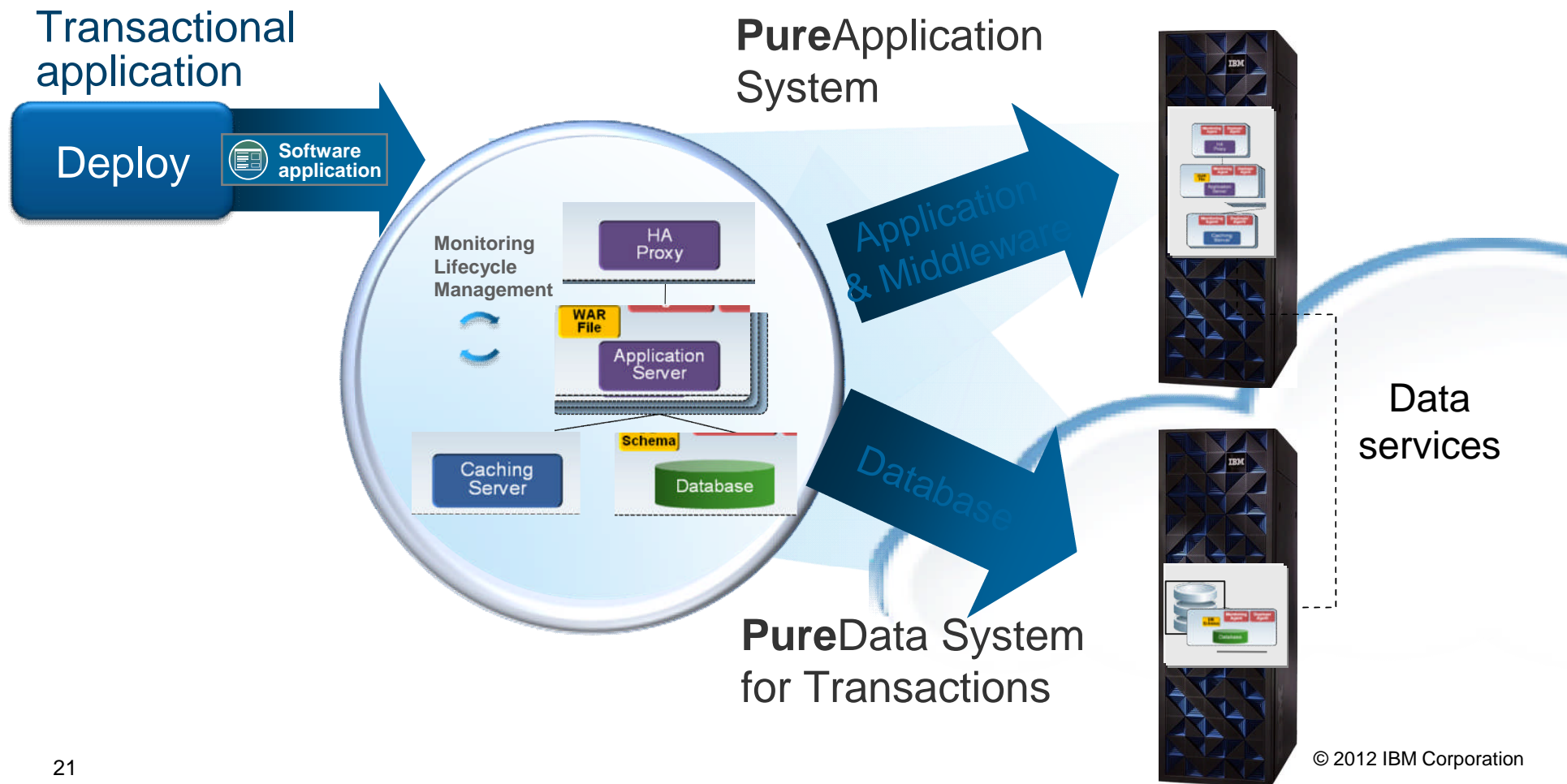
faster by deploying new databases in minutes

## Accelerate

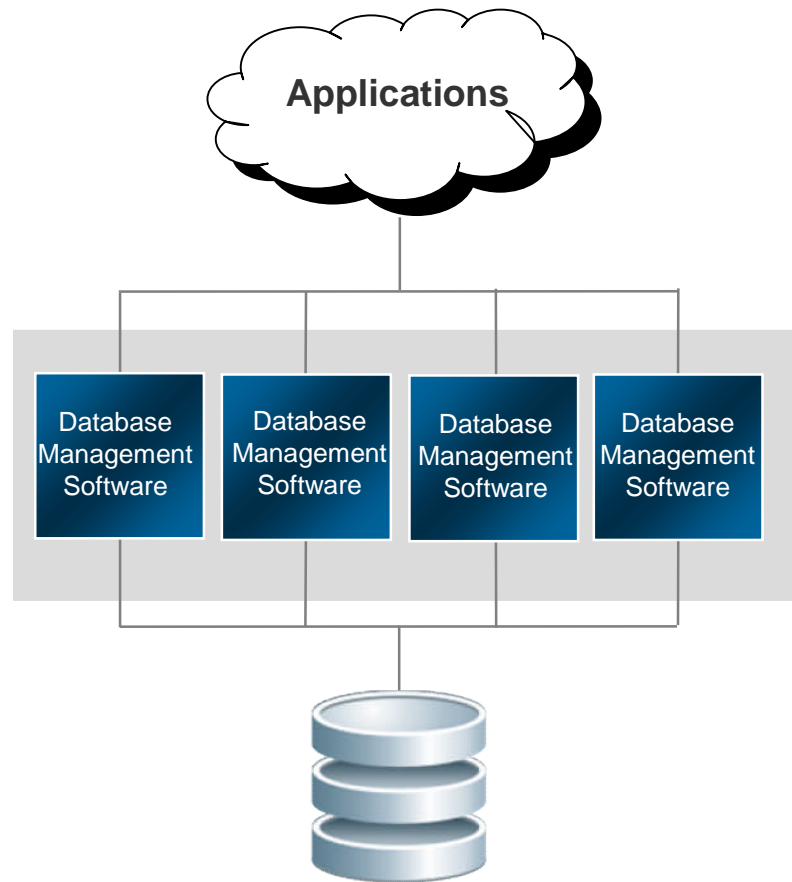
deployment of new database services in cloud environments using patterns of expertise

## Simplified deployment across PureSystems

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



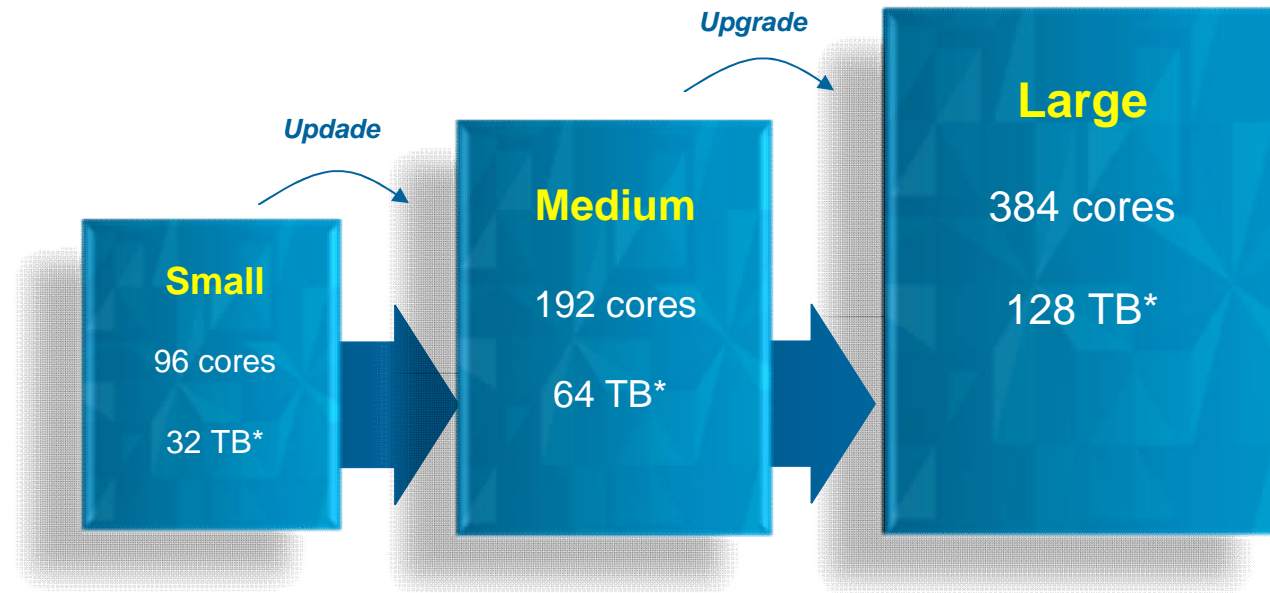
## Simplified Application Development



- **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

## Simplified capacity upgrades

- Each configuration arrives with
  - High capacity, high scale computing
  - Integrated solid data and disk storage
  - High speed networking
  - Scalable database management
  - Integrated systems management
- Easy, non-disruptive upgrade to larger systems





# 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



### Flex System Chassis

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



### 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™ Compute Node

- Up to 24 per rack



### PureSystem™ Manager

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



## Simplified database administration

### **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**

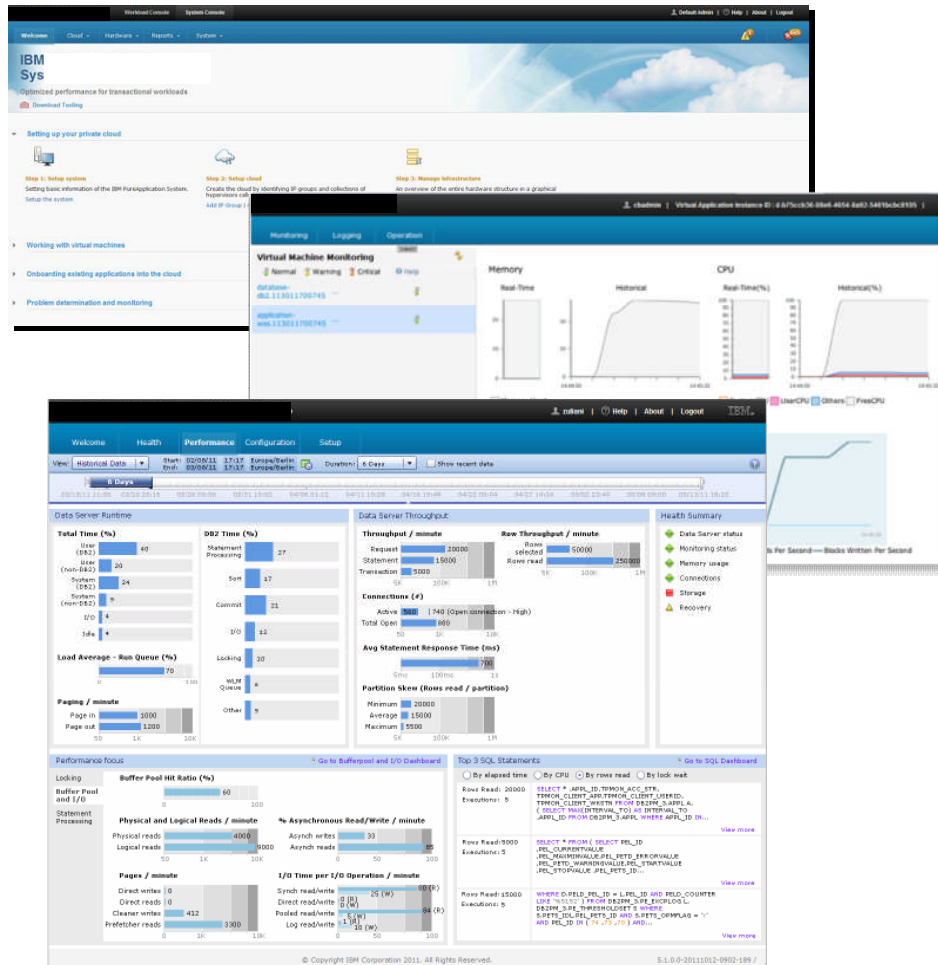
Based on thresholds and alerts, system will monitor and automatically make changes as needed to improve performance

---

### **Self-healing**

Failed database nodes are isolated and recovered automatically

# Simplified and integrated system management



- 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 -

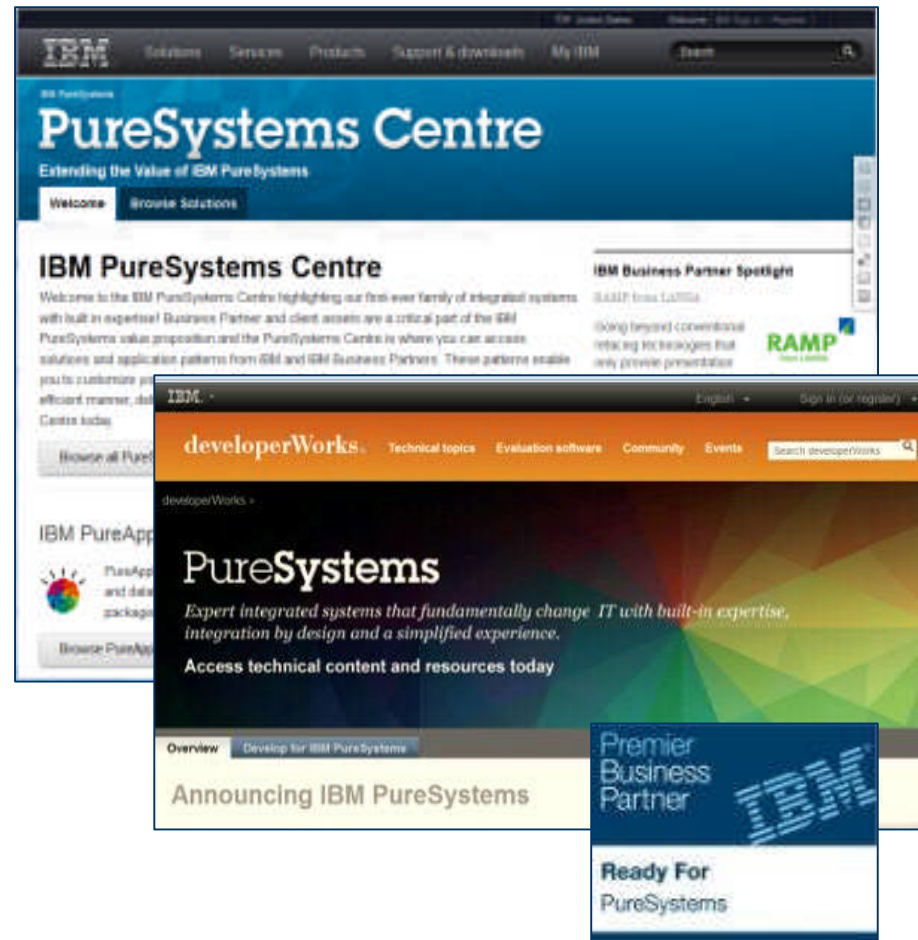
Name	Description	Estimated time	Component name	Status
<a href="#">fix_ps3117</a>		1 minute	IBM PureScale Management Platform	
<a href="#">fix_ps2691</a>		3 minutes	IBM Flex System Manager	
<a href="#">fix_ps2681</a>		3 minutes	IBM Flex System Chassis Management Module	
<a href="#">fix_ps2390</a>		1 minute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

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- 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

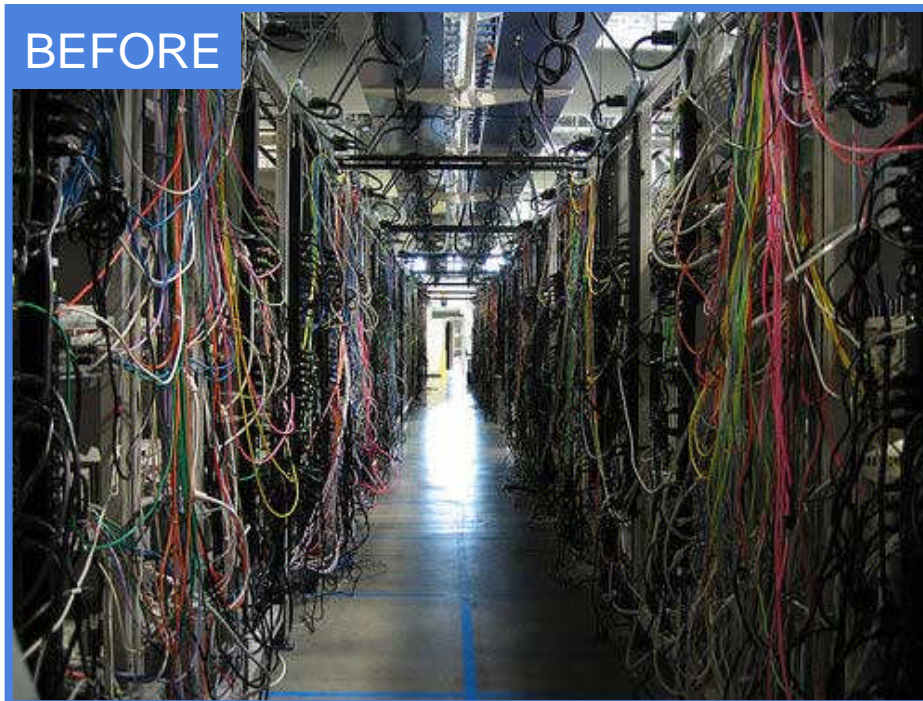
- Over 200 optimized solutions available from 170 partners for PureSystems\*
- Over 60 partners committed to IBM PureData System
  - 31 new to PureSystems\*
- Delivering solutions of all kinds across all industries including applications for
  - ERP
  - CRM
  - Project management
  - Payment processing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



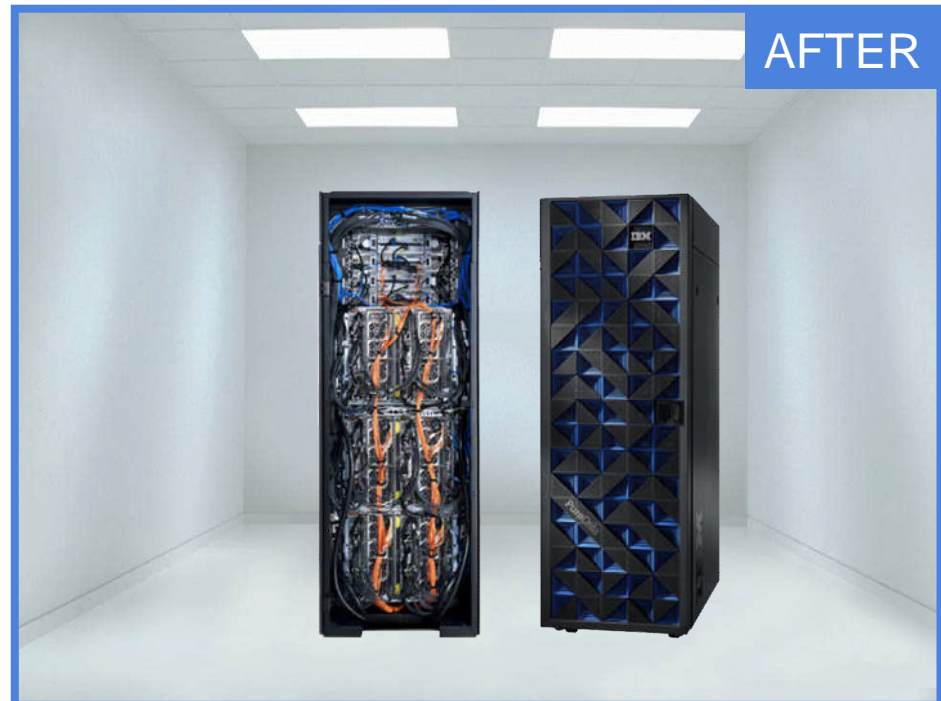
\* As of September 29, 2012



## Before and after IBM PureSystems



- 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



- 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 days<sup>1</sup>

### 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 leasing<sup>2</sup>
- Reduce risk of technology obsolescence and increase flexibility through our mid and end of lease options

WAP12382-USEN-00

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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](http://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 savings<sup>1</sup> while providing up to high scalability

### Innovate

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

### Accelerate

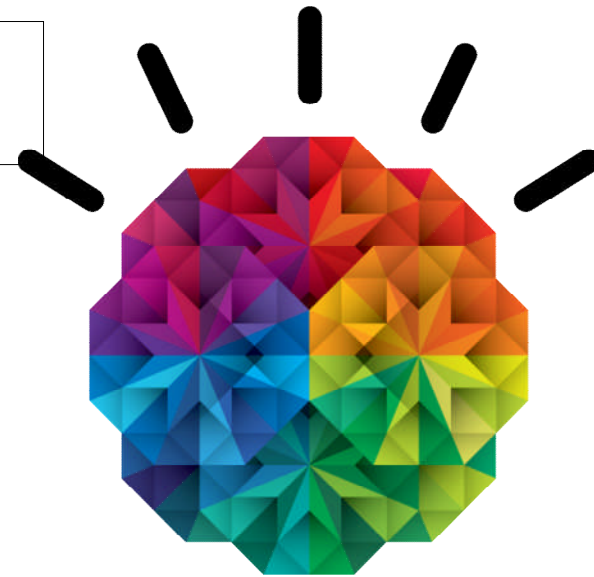
deployment of new database services in cloud environments by using patterns of expertise

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

## Agenda

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

- Our PureExperience invitation to you





## 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**