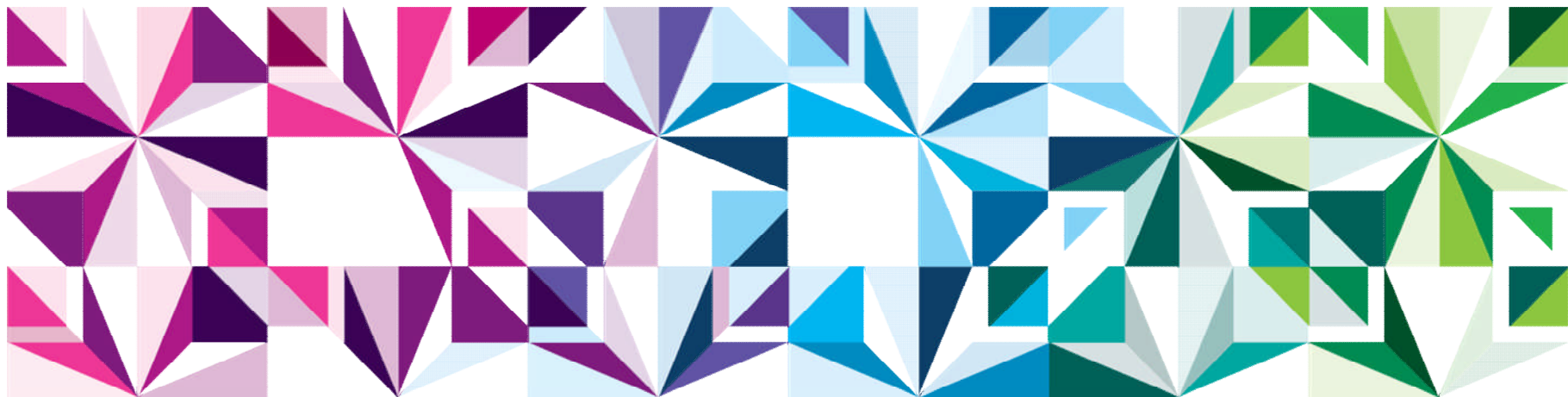


IBM PureData System for Transactions

Meeting data challenges with simplicity, speed & lower cost



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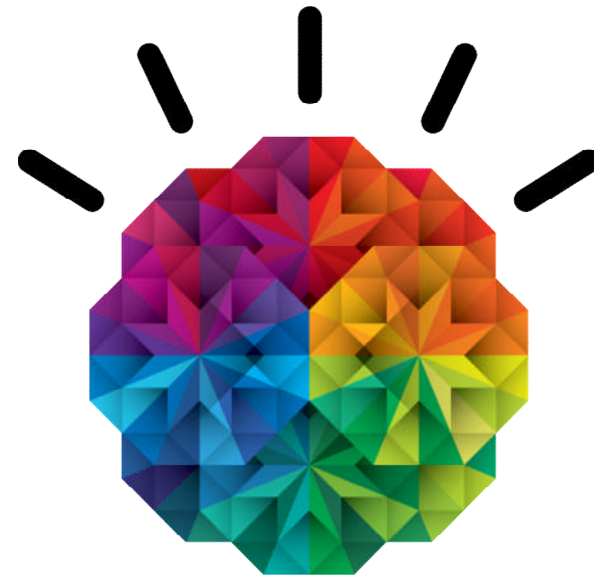
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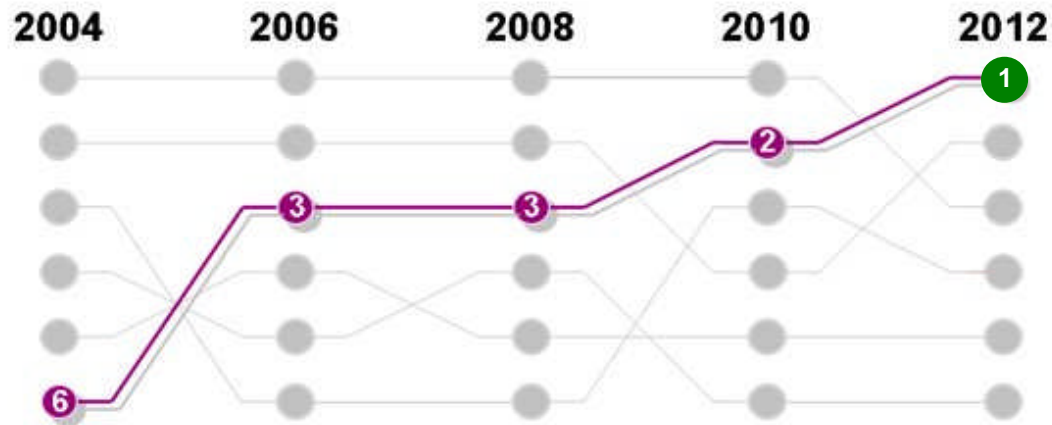
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Agenda

- 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

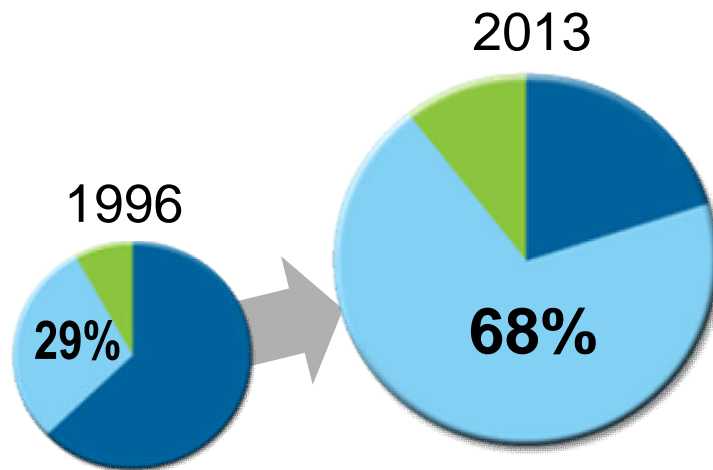


New Insights

2.7zB

of digital content in 2012, up 50% from 2011

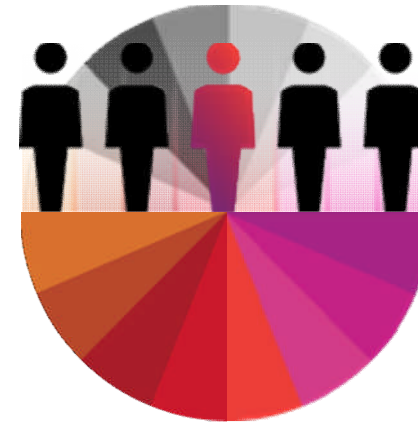
At the same time, server deployment and admin costs are skyrocketing



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

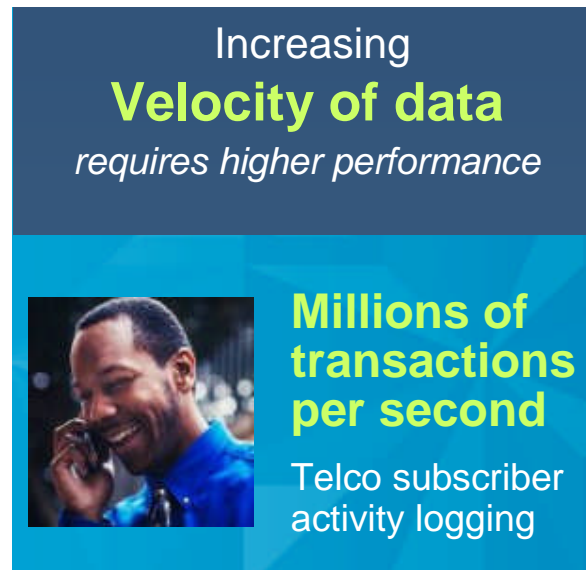
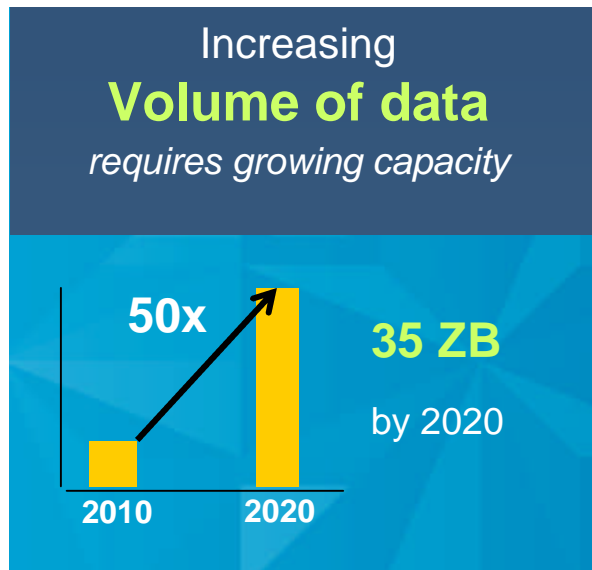
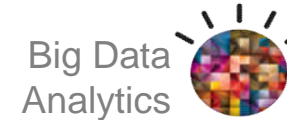


Only 1 in 5

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**

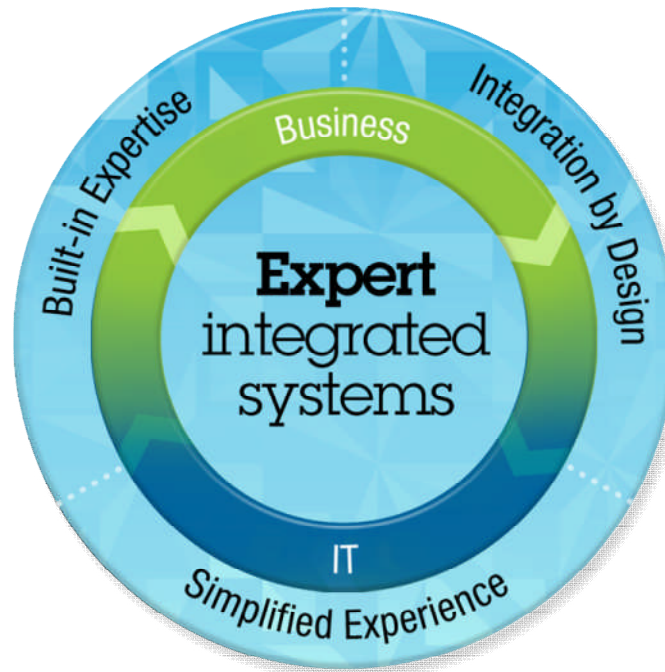
In April, IBM announced a new family of expert integrated systems:

PureSystems

Systems with integrated expertise and built for cloud

Built-in Expertise

*Capturing and automating
what experts do*



Integration by Design

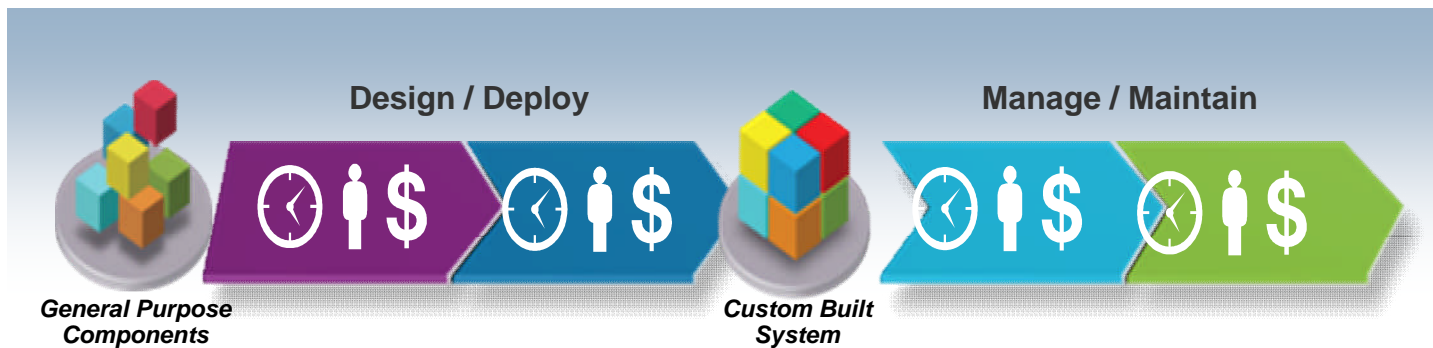
*Deeply integrating and
tuning hardware and
software*

Simplified Experience

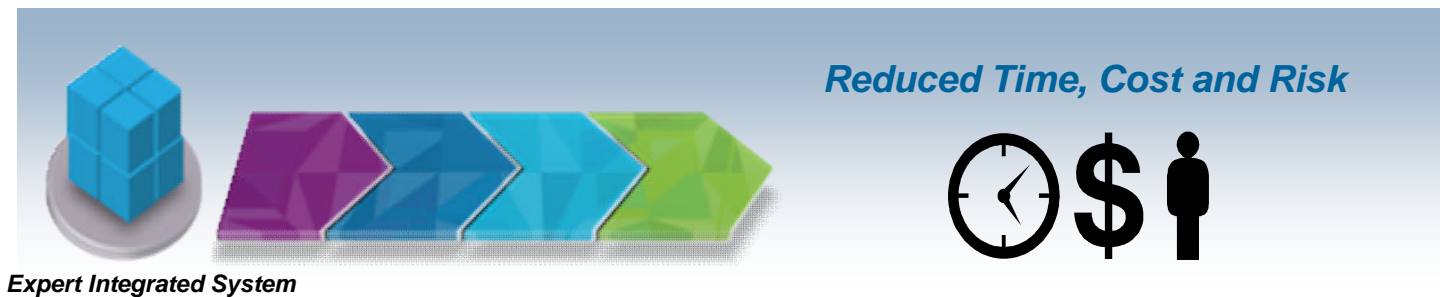
Making every part of the IT lifecycle easier

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**?

<h2>PureFlex</h2> <h3>Infrastructure</h3> <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">• Delivering IT infrastructure services	<h2>PureApplication</h2> <h3>Application Platform</h3> <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">• Delivering application platform services	<h2>PureData</h2> <h3>Data Platform</h3> <p><i>Integrated and optimized data platform</i></p>  <p><i>Delivers high performance data services to transactional and analytics applications</i></p> <ul style="list-style-type: none">• 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
<p>Transaction Processing</p> <p>Random reads & random updates</p>	<p>Reporting and Analytics</p> <p>Sequential reads & sequential data loads</p>	<p>Operational Analytics</p> <p>Random and sequential reads & data loads + continuous ingest</p>
 <p>Scalable Transactional Database</p>	 <p>Analytics Data Warehouse</p>	 <p>Operational Data Warehouse</p>
<p>Random reads & random updates</p>	<p>Sequential reads & sequential data loads</p>	<p>Random and sequential reads & 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 hours¹**
- **Handles more than 100 databases on 1 system²**

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 queries³**
- **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

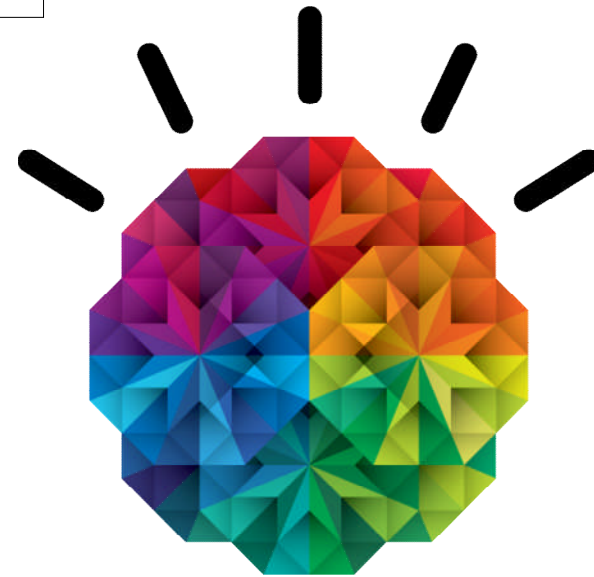
⁶ Based on client testing in the DB2 10 Early Access Program

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 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 system 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.

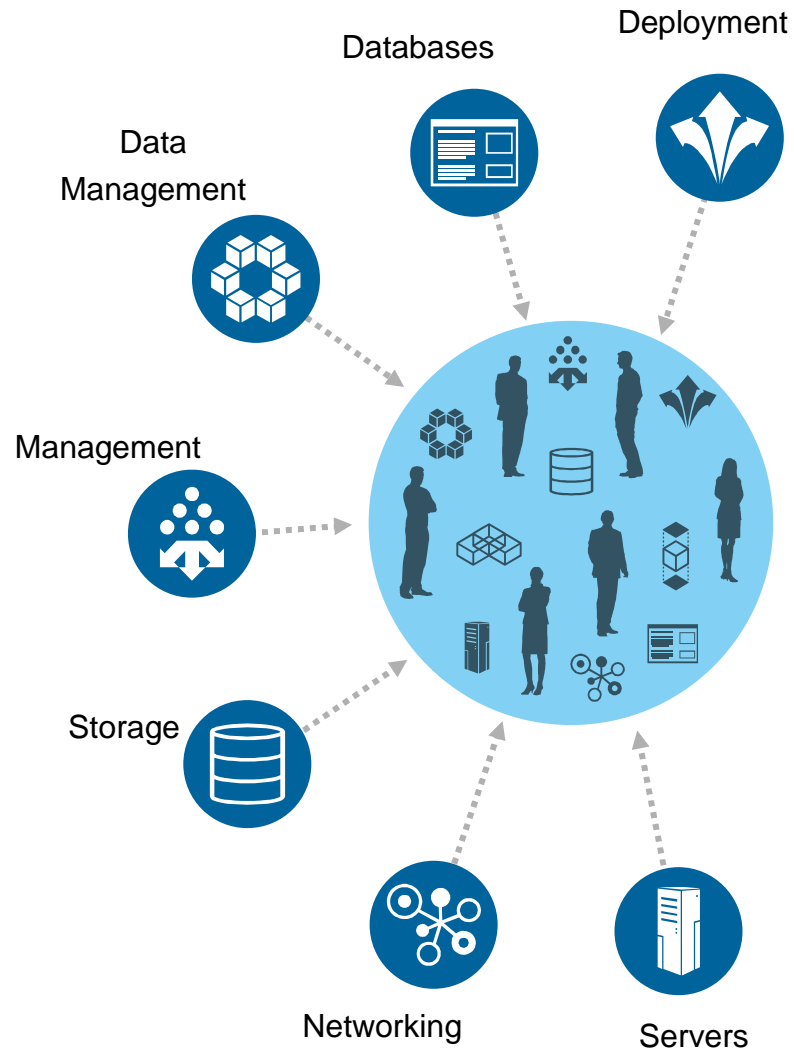
IBM PureData System for Transactions helps reduce downtime costs

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*

Simplified deployment with high availability

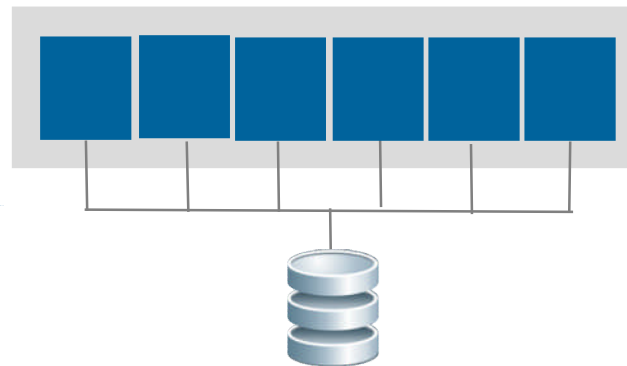
Uninterrupted access to data with consistent performance

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,

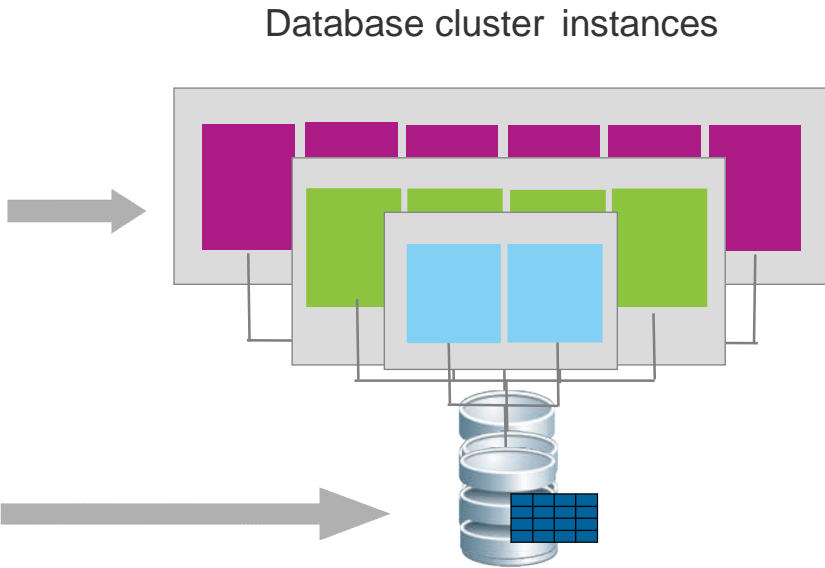
1. Just specify cluster name, description and topology pattern

Simplified deployment of multiple databases

Deploy topology and databases in minutes using patterns

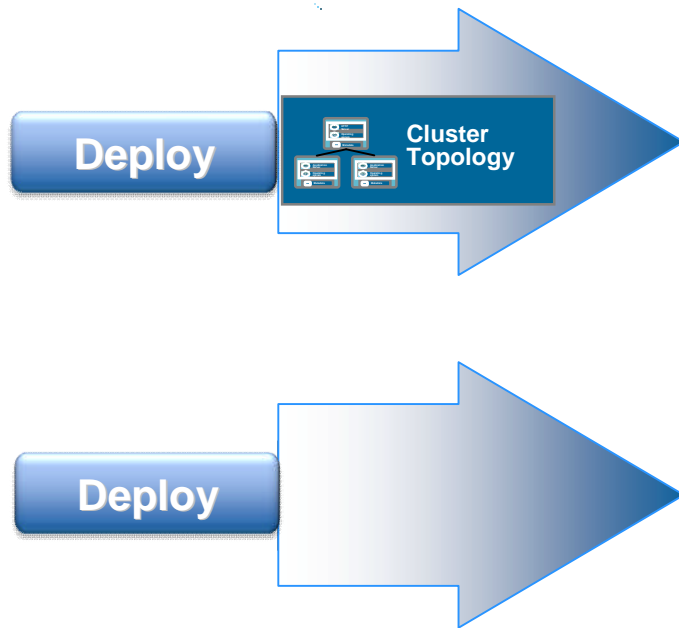
Topology patterns
Automatically creates, configures and deploys a DB2 pureScale™ database system with built-in redundancy and high performance

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

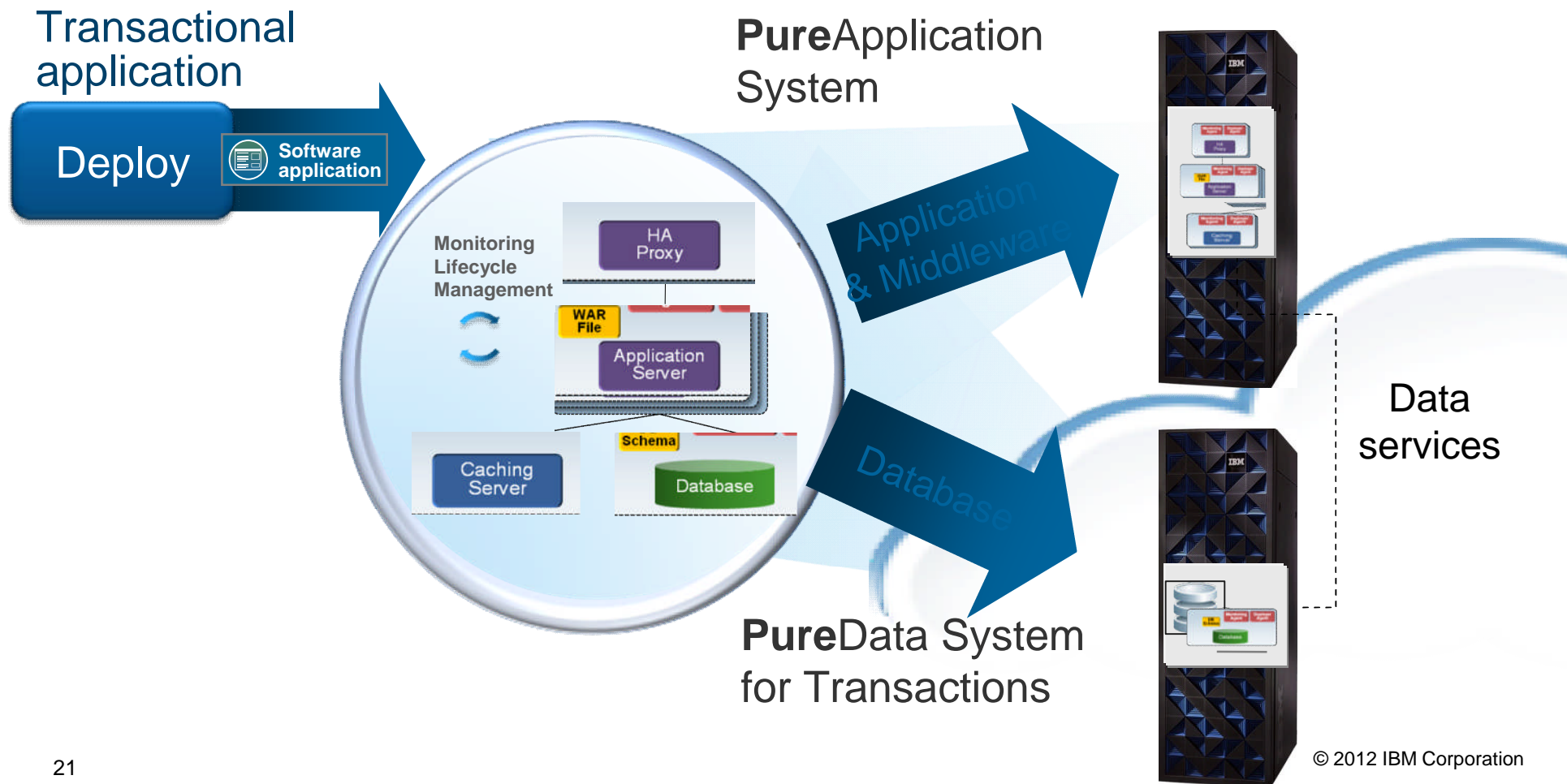
faster by deploying new databases in minutes

Accelerate

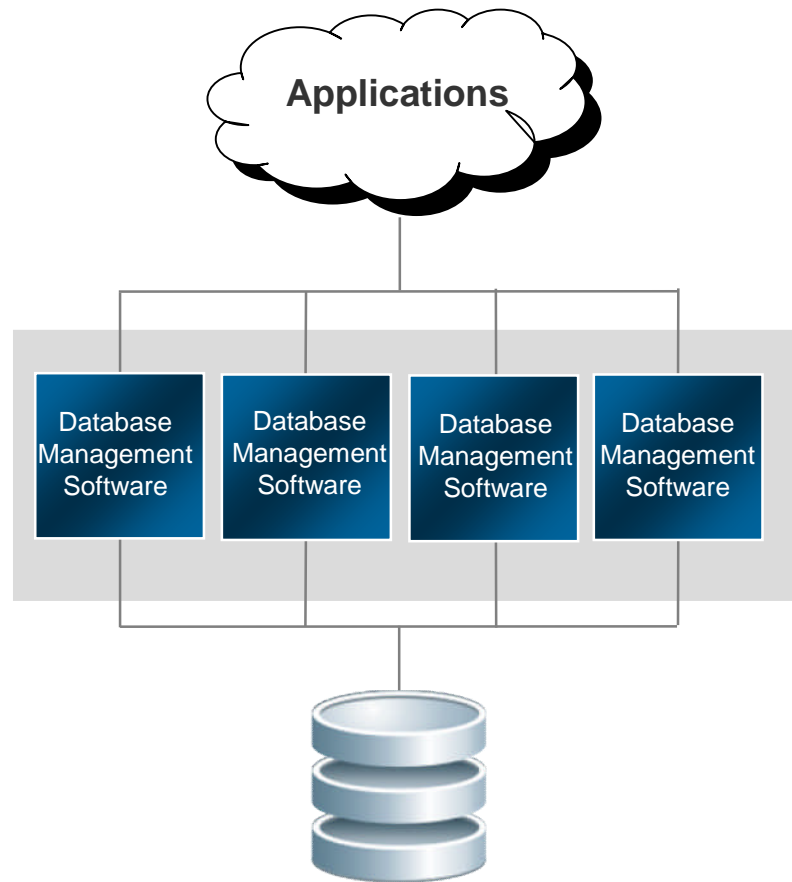
deployment of new database services in cloud environments using patterns of expertise

Simplified deployment across PureSystems

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



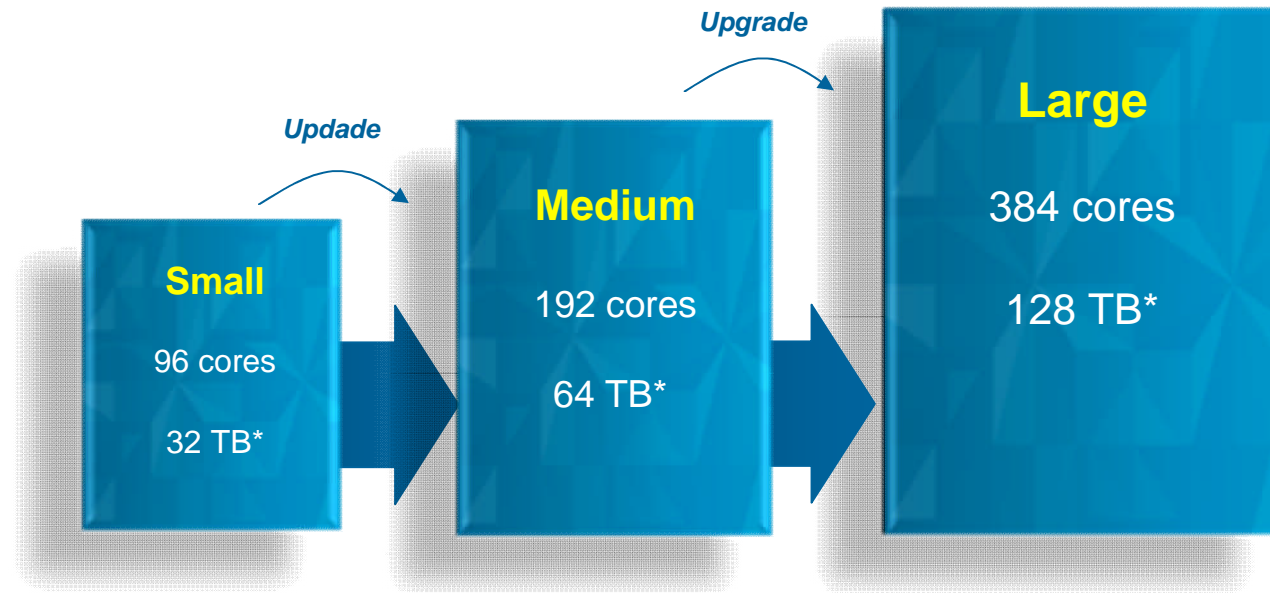
Simplified Application Development



- **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

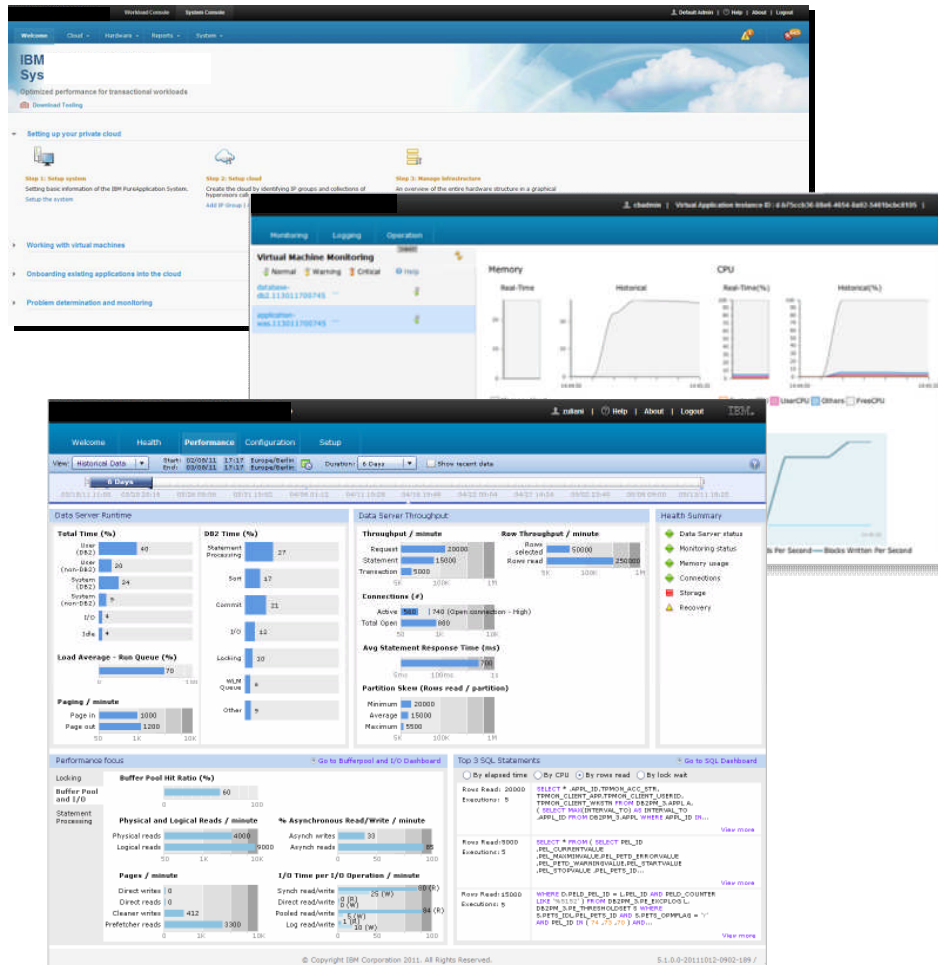
Self-monitoring

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 -

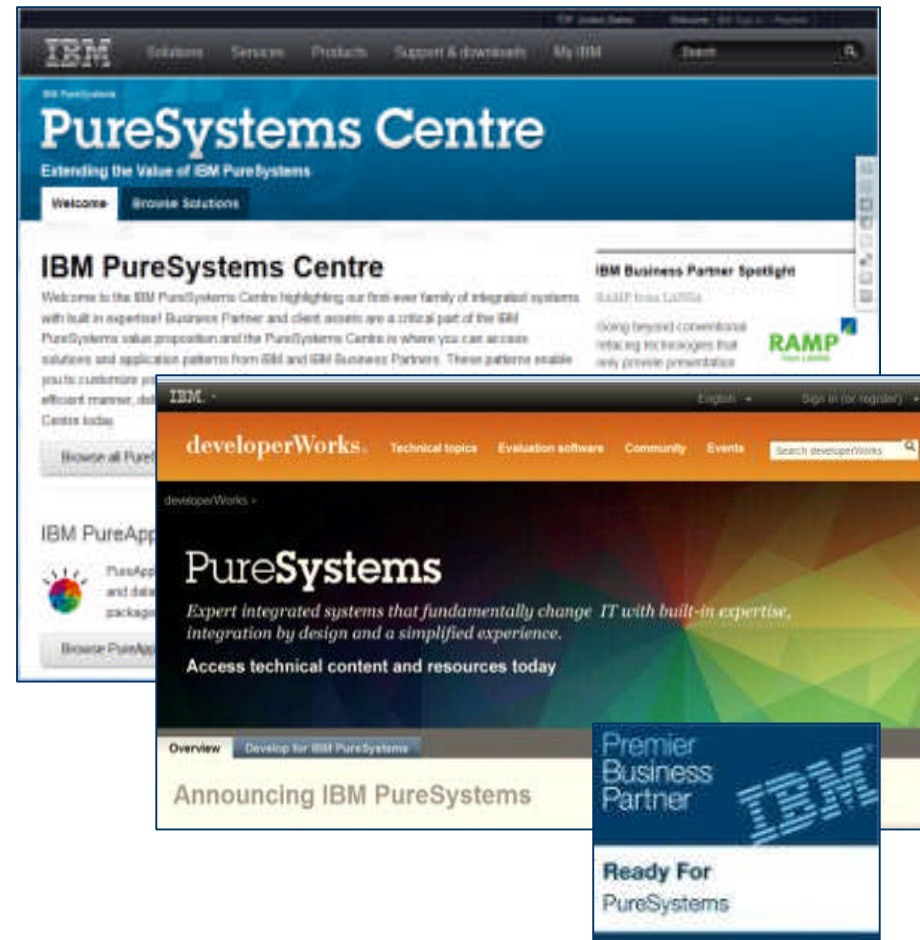
Name	Description	Estimated time	Component name	Status
fix_ps3117		1 minute	IBM PureScale Management Platform	
fix_ps2691		3 minutes	IBM Flex System Manager	
fix_ps2681		3 minutes	IBM Flex System Chassis Management Module	
fix_ps2390		1 minute	IBM Flex System p460 Compute Node	
fix_ps2108		5 minutes	IBM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

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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

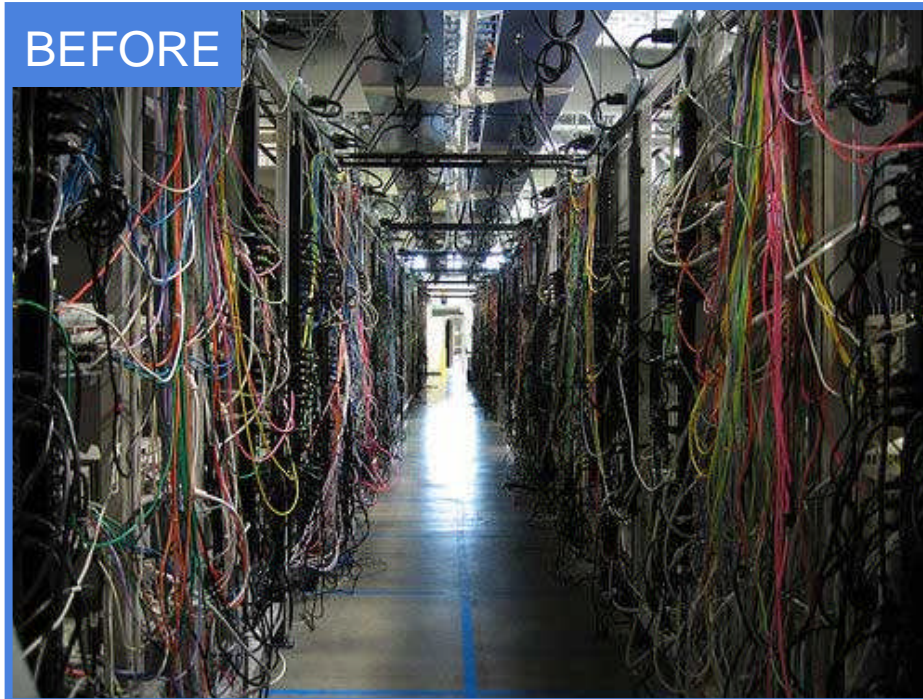
IBM PureSystems Center

- 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
 - ...

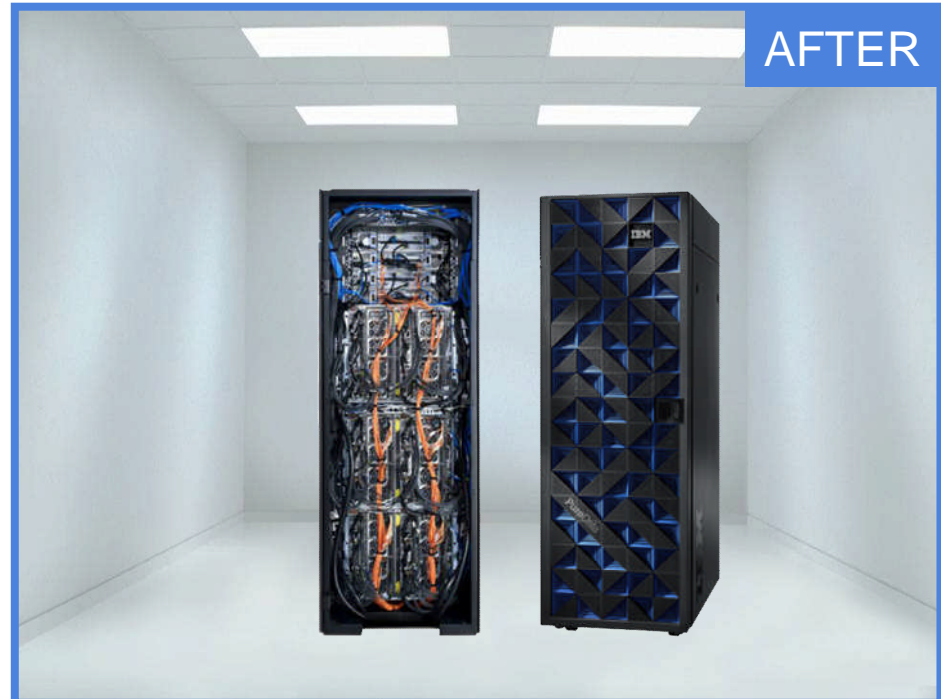


* As of September 29, 2012

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 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

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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

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

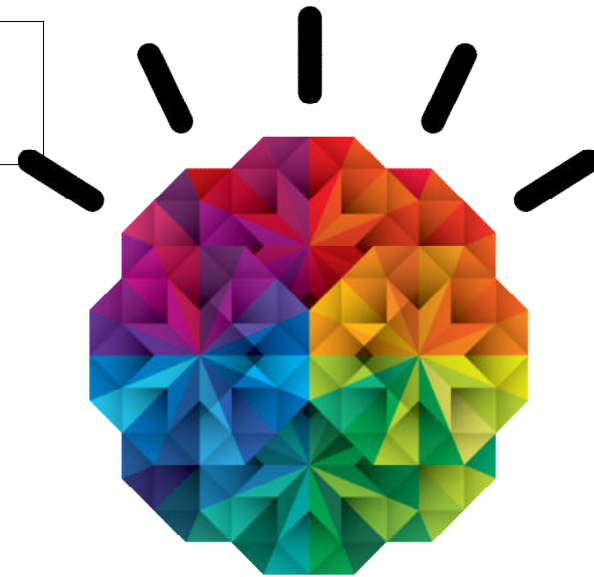
deployment of new database services in cloud environments by using patterns of expertise

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

Agenda

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

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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