



PureSystems

Changing the economics
and experience of IT

IBM PureData System for Transactions

Highly available and scalable database appliance

Meeting big data challenges with simplicity, speed & lower cost

Boris Bialek - IBM

It really is that simple ...



The IBM PureSystems family of expert integrated systems



PureFlex



PureApplication



PureData



Infrastructure

*Delivering Cloud
Infrastructure Services*

Application Platform

*Delivering Cloud
Application
Platform Services*

Data Platform

*Delivering Big Data
Platform Services*

Data systems need to be optimized for different data workloads

 <p>Order Management</p>	 <p>Sales Analysis</p>	 <p>Real Time Fraud Detection</p>	 <p>Customer Analysis</p>
<p>Transaction Processing</p>	<p>Reporting and Analytics</p>	<p>Operational Analytics</p>	<p>Any Structure Analytics</p>
 <p>PureData System for Transactions</p>	 <p>PureData System for Analytics</p>	 <p>PureData System for Operational Analytics</p>	 <p>PureData System for Hadoop</p> <p>New</p>
 <p>Powered by Netezza Technology</p>			

PureData for Transactions

Out-of-the-box simplicity, performance, and continuous availability



- **Workload optimized for OLTP**



- **Transaction Processing**

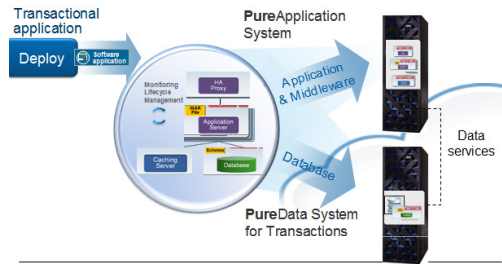
- *Simplified deployment of high availability*
- *Simplified deployment of multi-tenant databases*
- *Simplified deployment across systems (PureApplication)*
- *Simplified, integrated system management*
- *Simplified OS and firmware fixes*
- *Simplified capacity upgrades*
- *Handles 100+ high-performance databases on a system*
- *30x database resource scalability*
- *Database node recovery in seconds*
- *Automatic migration of hottest data into fastest storage*
- *10x storage savings with advanced compression*
- *Supports DB2 applications unchanged and*
- *Supports 98% of Oracle DB applications with minimal change*
- *77% better price/performance than Competitor*

Speed – Simplicity – Scalability - Smart



•Simplified deployment across PureSystems

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



•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

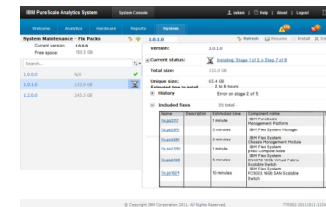


- **Single console to manage all resources and work running on the system**
 - Consistent IBM PureSystems console
- **Role-based security and tasks**
 - Management
 - Monitoring
 - Maintenance
- **Easy integration with broader enterprise monitoring tools and processes**

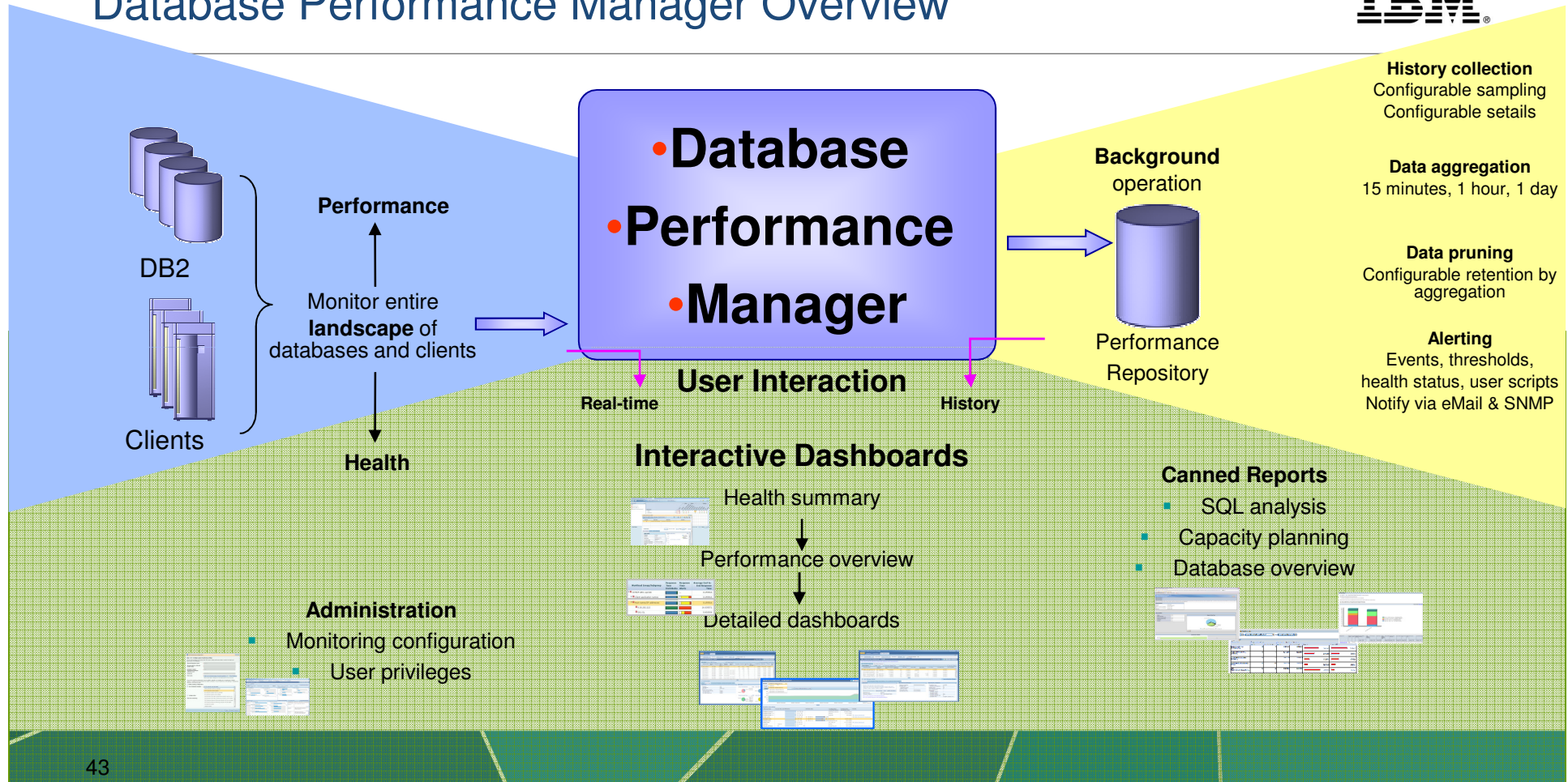
•Simplified Maintenance with Pre-Integrated Fixes

Reduce risk and eliminate manual errors when applying maintenance

- **All hardware firmware and OS software patches integrated and tested together at the factory**
- **Designed to allow hardware and OS maintenance with zero downtime**
- **Single entry point for support**
 - Integrated stack support



Database Performance Manager Overview





Simplified and low risk maintenance

Pre-integrated fixes improves productivity

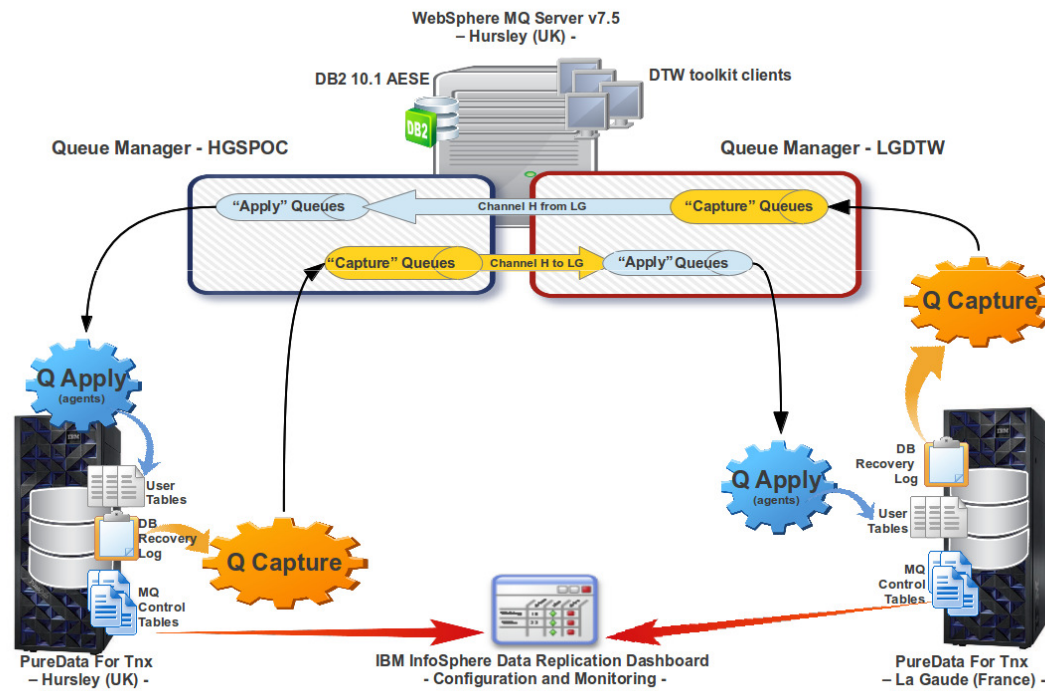
The screenshot displays the IBM PureScale Analytics System System Console. The main content area shows the 'System Maintenance - Fix Packs' section for version 1.0.1.0. It indicates the current status is 'Installing: Stage 1 of 2 > Step 7 of 8'. The total size of the pack is 132.0 GB, and the unique size is 65.4 GB. The estimated time to install is 2 to 6 hours. A history entry shows an error on stage 2 of 5. Below this, a table lists the included fixes:

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 are integrated and tested together
- Can apply hardware and OS maintenance with zero downtime
- Single line of support
- Integrated stack support

DR solution through QReplication

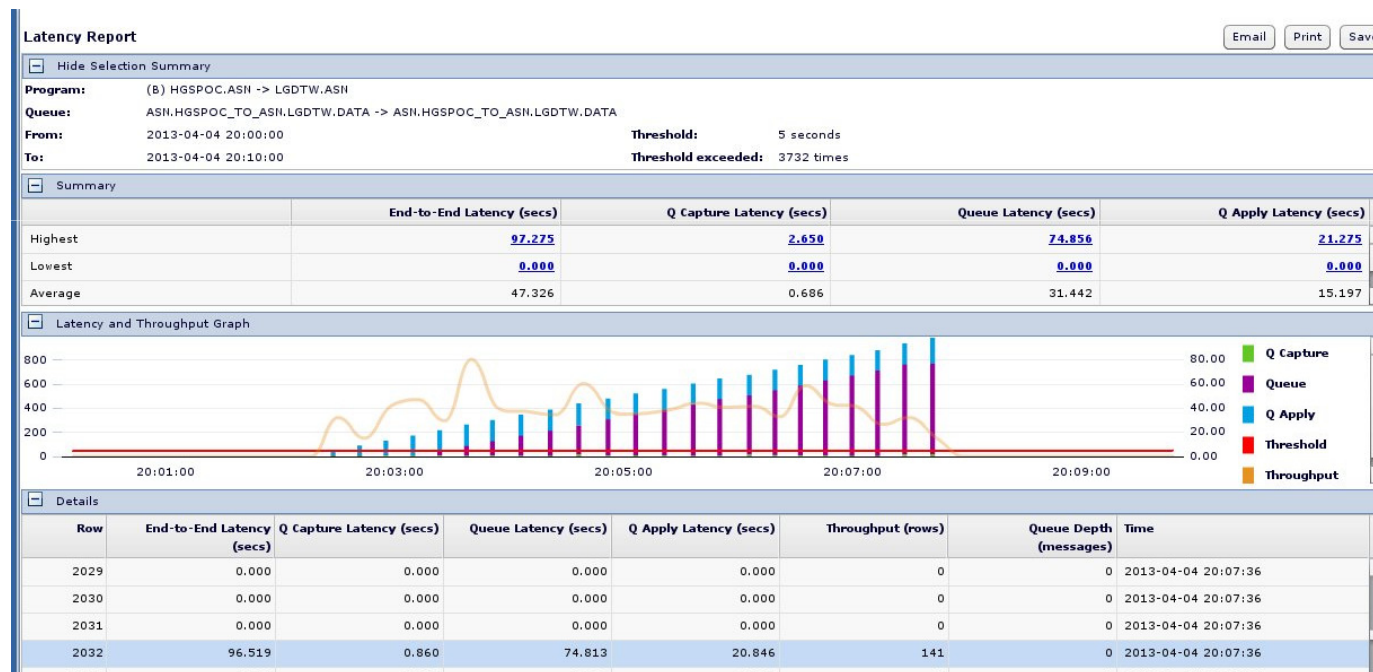




Q Replication Results

Network bandwidth: Single constraint to scale the workload

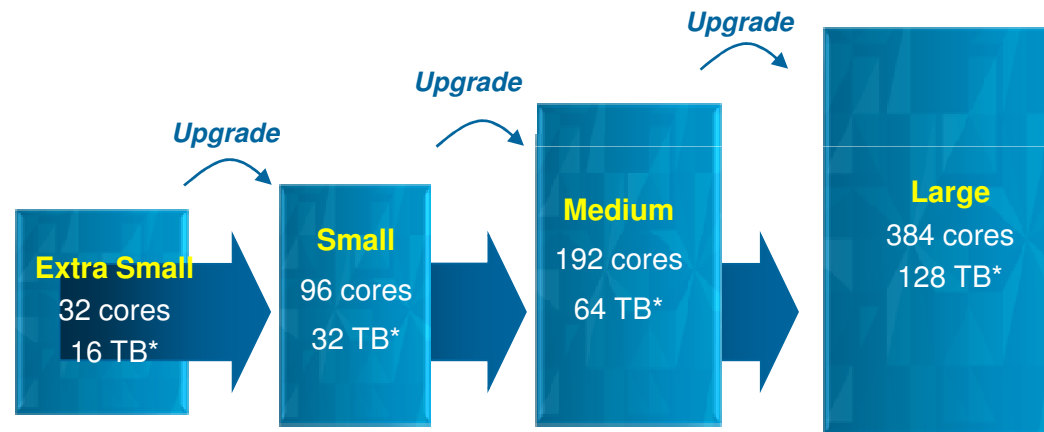
Test with 8 clients @ 1000 TPS / Queue Latency due to network link saturation



Simplified scalability



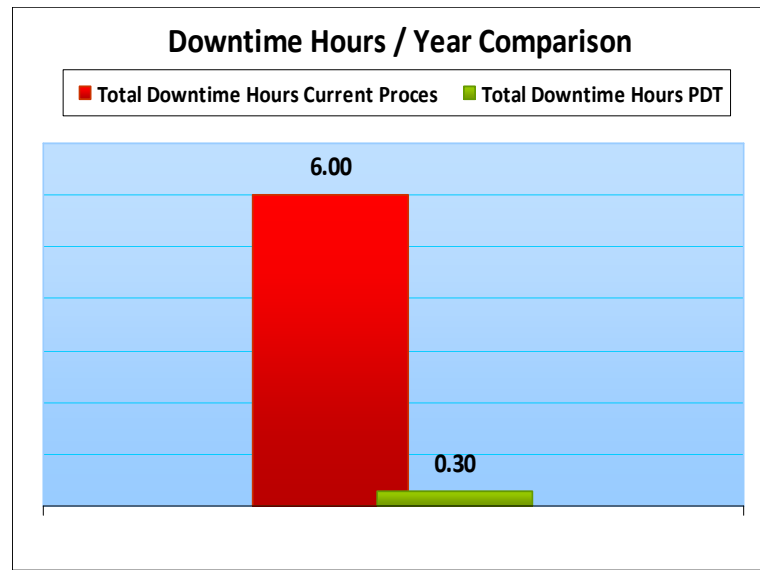
No downtime to upgrade to a larger configuration





Why PureData System for Transactions

*Designed to be up
“always on”*



Sample savings. Actual results will vary.

High Availability / Scalability

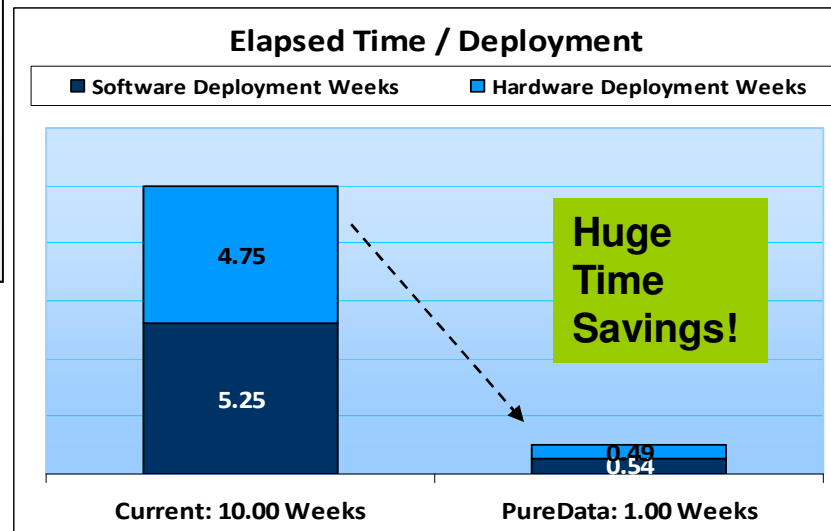
- Improve uptime and reduce downtime costs
- Simplified disaster recovery
- Scale out to handle growing data

Why PureData System for Transactions

Database Appliance

- ❑ Reduce time, work effort, cost and risk to design, procure, integrate, and deploy data services
- ❑ Fast deployment of high availability clusters and databases

*Appliance simplicity;
up and running in hours*

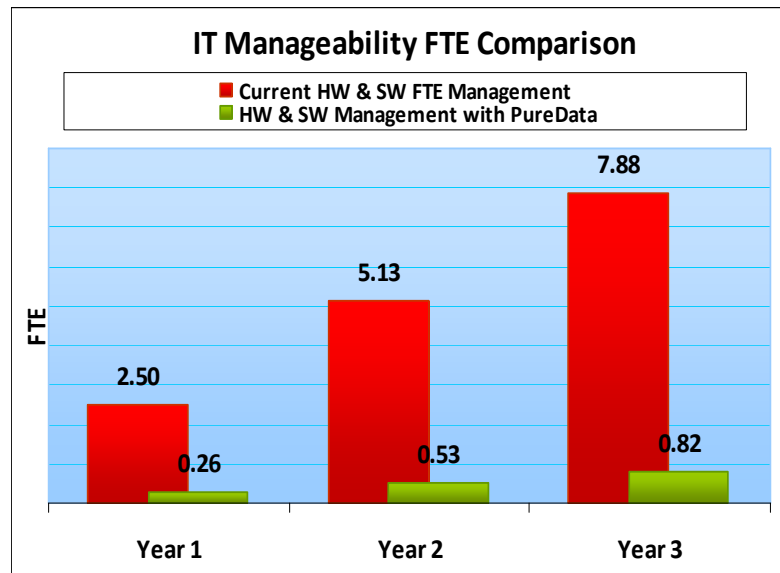


Sample savings. Actual results will vary.



Why PureData System for Transactions

Automates many administrator tasks



Sample savings. Actual results will vary.

IT Administrator Productivity

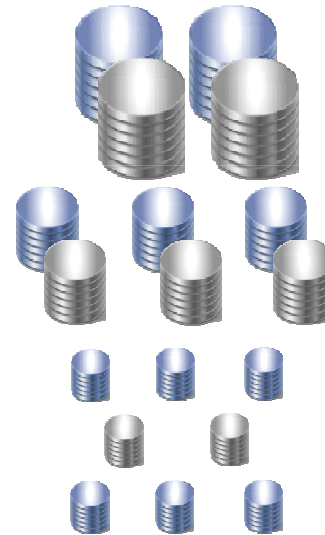
- Application transparency; no application changes
- Simplified management lowers IT staff time
- Leverage existing skills

Why PureData System for Transactions

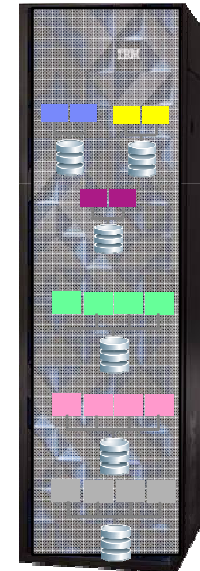
Infrastructure Efficiency

- Consolidate many databases onto a single system
- Reduce data center costs: space, power, cooling
- Reduce storage costs

Multiple silo'd highly available databases



IBM PureData System for Transactions



Clients who are meeting today's top challenges



Cloud based SaaS Provider

- Replacing Oracle RAC - estimated savings of \$2.6 M over 3 years
- Increased performance, higher utilization, reduced HW & SW costs
- Continuous availability, reduced downtime and increased revenue
- Reduced set-up, administration and maintenance effort



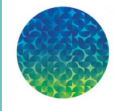
Asian Commercial Bank

- Support for ATM/mission critical apps for more than 350 branches
- Replaced Oracle Database for a more scalable and reliable database platform
- Supports 4000 bank users, 1500 txns/sec and growth to 1.5 TB



Chinese Regional Bank

- Simplified IT infrastructure for capturing, managing and applying a broad range of business data
- System fully loaded, tested and deployed in hours
- Database clusters developed in minutes



European Entertainment Services

- 100% reliability and DR over several thousand kilometers
- Scalable performance to react to events like championship games
- Ease of operations and lights out functionality



Case Study: U.S. based Cloud Solution Provider

Needs

- Oracle pricing continued to drive up costs
- The customer was experiencing outages with their existing database technology -> SLA with their clients at risk
- The throughput of old system was limited due to locking constraints and the inability to utilize the full system resources of the existing system
- High availability and scalability were high on the customer's "must have" list, Oracle RAC could not deliver
- The introduction of a pre-engineered pureScale environment satisfied the customer's objectives.
- The Oracle migration capabilities of DB2 10 provided a proven path to move from Oracle to DB2 with low risk and fast speed

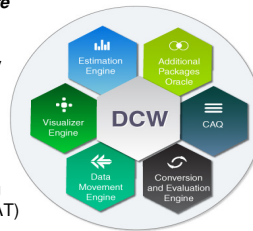
Delivery

- IBM performed a migration assessment of 2 applications / databases
- Successful migration of two business critical applications in ~ 10-12 business days each
- A POC was performed to demonstrate improved performance, higher throughput, better high availability and most important the actual code running
- In tests conducted, DB2 on PureData outperformed the legacy platform in processing of LOBs in every test case.
- In tests conducted, the customer's business critical application was able to scale higher than the legacy platform and achieved a ~30% higher transaction throughput and utilized resources more effectively.
- HADR solution via InfoSphere Q-Replication
- Encryption solution via IBM Business Partner – SafeNet

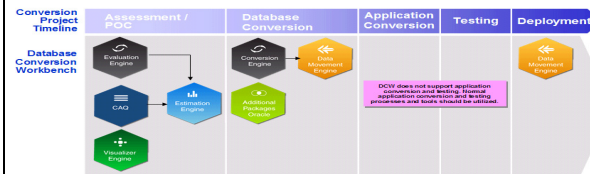
Oracle to DB2 Conversions

Low Risk, Proven Delivery

- **DB2 10 proven compatibility of 98% or more with Oracle**
- Database Conversion Workbench provides overview of conversion effort and compatibility
- Strong project management and quality assurance
- Skills transfer and DB2 ramp up
- Develop and build ongoing production environment
- IBM provides code conversion and unit testing
- You own the final testing of business logic (UAT) and deployment.
- Assisting staff during UAT and deployment from IBM optional



Project Plan, Scheduling, & Conversion



- Project planner feeds conversion packages based on defined priorities into conversion teams. Dedicated, named staff takes over package. Project Control Office team coordinates conversion and kick-off
- Database conversion and Application conversion
- Application Acceptance Test
- Preparation for roll out, build a go-live plan

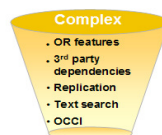
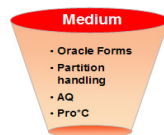
Application Buckets



Determining Factors
Number of issues listed below
Team skills

	%	DB2 10.1	Historic
Easy	50	1PW-1PM	1PM-6PM
Medium	35	1PM-1PY	6PM-4PY
Complex	15	>1PY	>5PY

Critical path
Dependencies of code



* Based on 2800+ conversion assessments

Skills & Best Practices

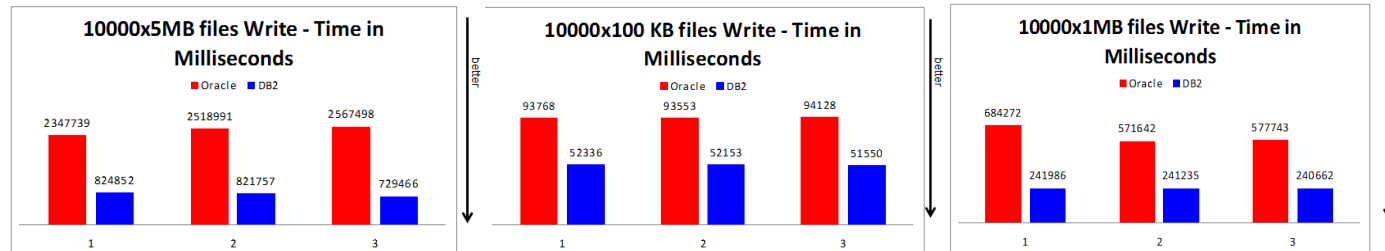
- DB2 and DB2 PureData bootcamps to address training needs
- These courses assure Oracle developers and DBA's that their skills are re-usable
- Access to DeveloperWorks – a web-based professional network and technical resource for developers and IT professionals providing access to How to Articles, Tutorials, etc
- Billable formal IBM Learning Services classes are also available



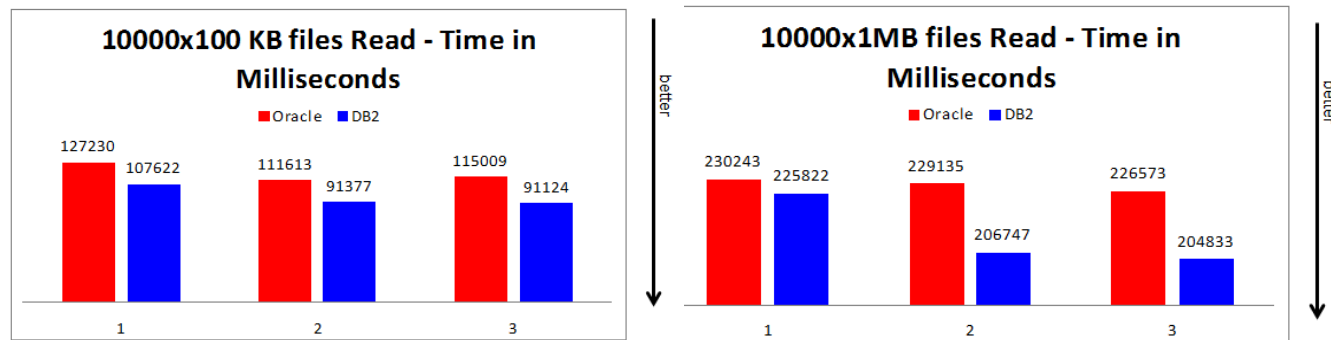


The actual benchmark results from the client Solution #1

LOB processing



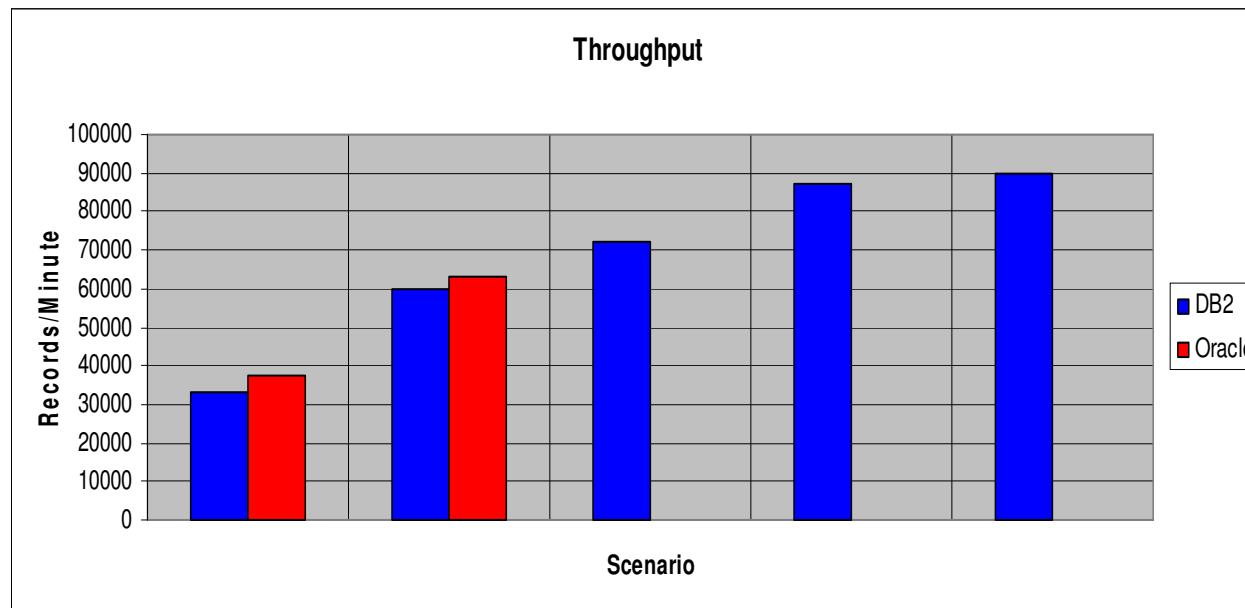
Intense Read processing





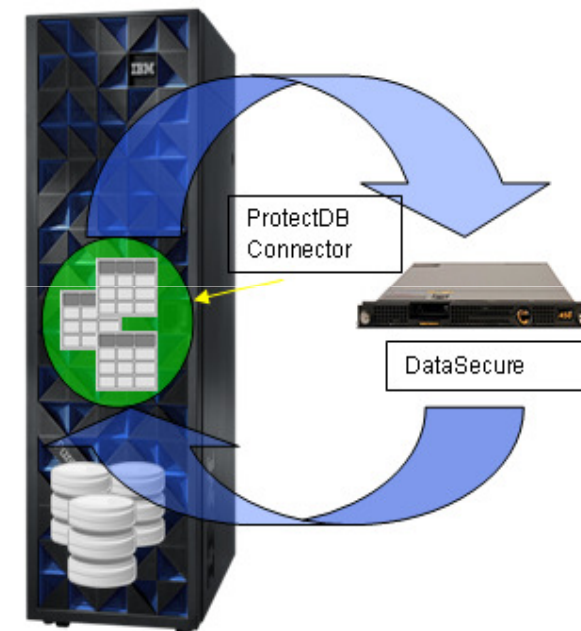
The termination of Oracle Solution#2 results

- Client's production environment incorporates executing application submission and application status simultaneously
- Typical (5:1) ratio of executing 5 application status transactions to 1 application submission transaction
- Oracle could not scale beyond 3 nodes even if code was highly optimized



SafeNet Key Benefits

- IBM PureData System For Transactions with SafeNet® ProtectDB® with DataSecure® Solution
 - Provides a perfect combination of highly available and scalable data services alongside providing highest level of security to sensitive enterprise data
 - No code change required
 - Easy to set up (Two simple commands)
 - Works seamlessly with databases created on IBM PureData System for Transactions
 - This customer used this solution for their other DBMS platforms



IBM GTS Assessment of PureData Potential Benefits over 5 years



Comparing **PureData for Transactions** vs BAU* for deploying & managing 90 transactional databases with Active-Active HA

Based on deep deployment tests on the live machine – this is not based on paper exercise...

21% lower Technology costs

server, storage, software

40-55% lower Labor costs

database, server, storage, network, infrastructure, user account management

74% lower Energy & Cooling costs

*Contact IBM for a complimentary assessment of business value and impact on **your** environment*

IBM Global Technology Services (GTS) is amongst the largest IT strategic outsourcing providers. GTS uses non-IBM and IBM technology. This GTS assessment compares a Build As Usual (BAU) environment for 90 Active-Active High Availability DB2 databases to using PureData for Transactions Large for the same number and profile of databases over a 5 year period. Comparisons are based on 26 tests of PureData over a three month period vs the standard technology, labor and energy & cooling costs for the BYO configuration. In both scenarios storage is assumed to grow 15% per year, with 500 concurrent users on average per database. Results will vary based on the specific client environment..



Next Steps – *How can we help you explore your options?*

Experience the PureData System

- Guided analysis of business value
- PureSystems Technology Demonstration
 - On-Site Trial & Support
 - No charge execution of on-site service engagement
 - Access to a technical advocate for usage questions and advice
- www.ibm.com/puredata



Questions?

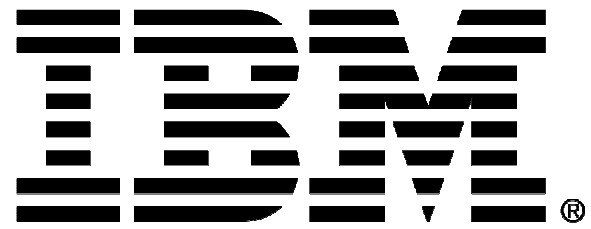
Thank you!!!

PureSystems

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- Speak with your IBM representative to find out how to meet your needs



- Simplified experience
- Built-in expertise
- Integration by design



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IBM GTS assessment of PureApplication System potential benefits over 5 years

