PureSystems

Changing the economics
and experience of IT

IBM

IBM PureData System for Transactions

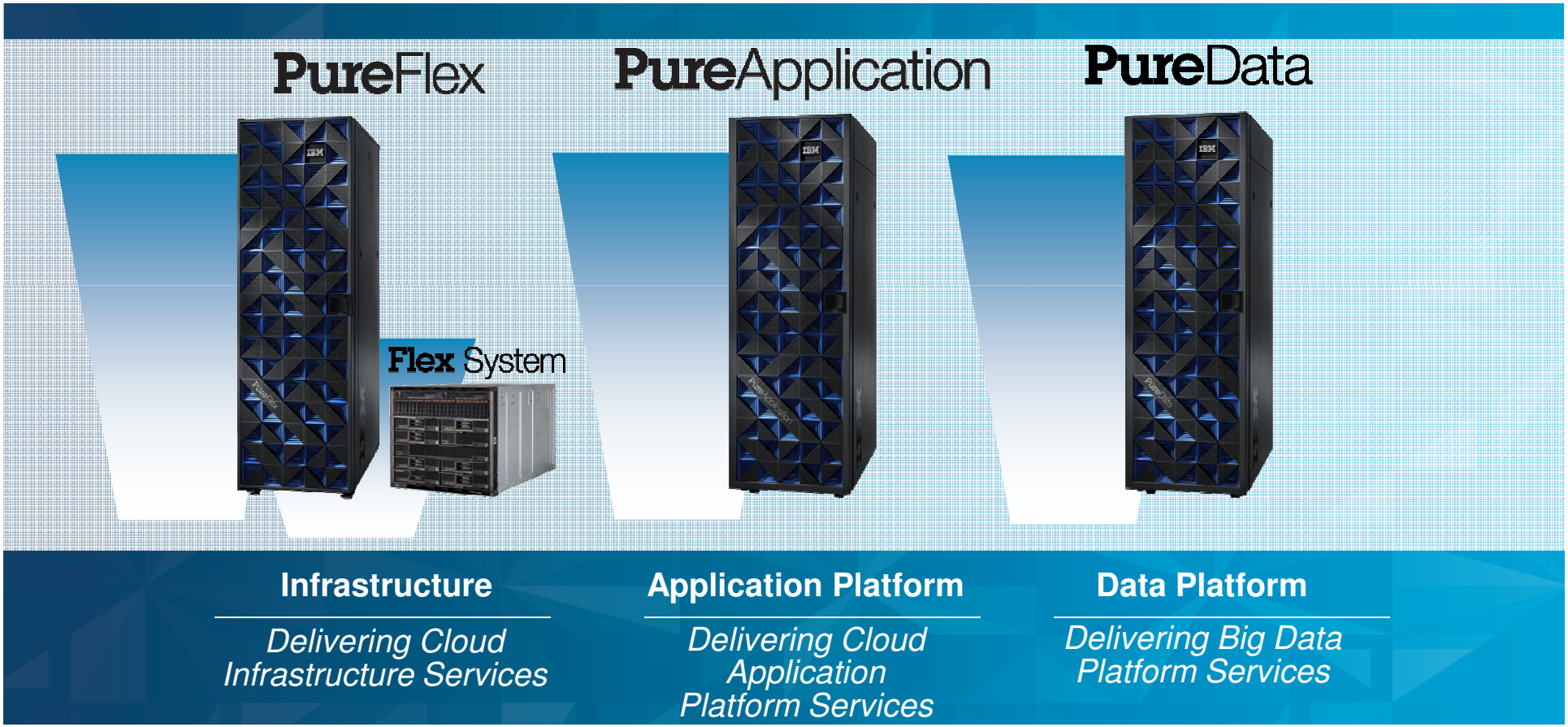
Highly available and scalable database appliance

Meeting big data challenges with simplicity, speed & lower cost

Boris Bialek - IBM

It really is that simple …

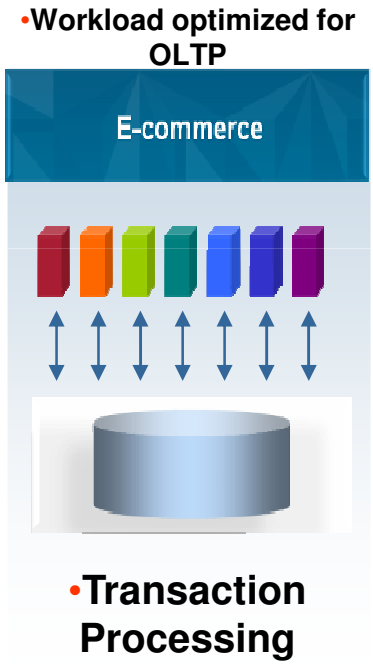
The IBM PureSystems family of expert integrated systems



Data systems need to be optimized for different data workloads

PureData for Transactions

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



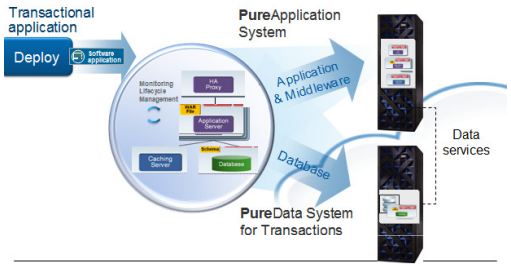
- *Simplified deployment of high availability*
- *Simplified deployment of multi-tenant databases*
- *Simplified deployment across systems (PureApplication)*
- *Simplified, integrated system management*
- *Simplified OS and firmware fixes*
- *Simplified capacity upgrades*

- *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

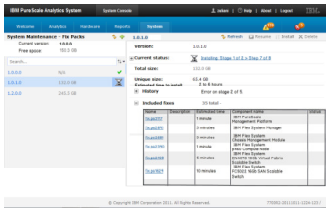
•**Simplified and Integrated System Management**

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

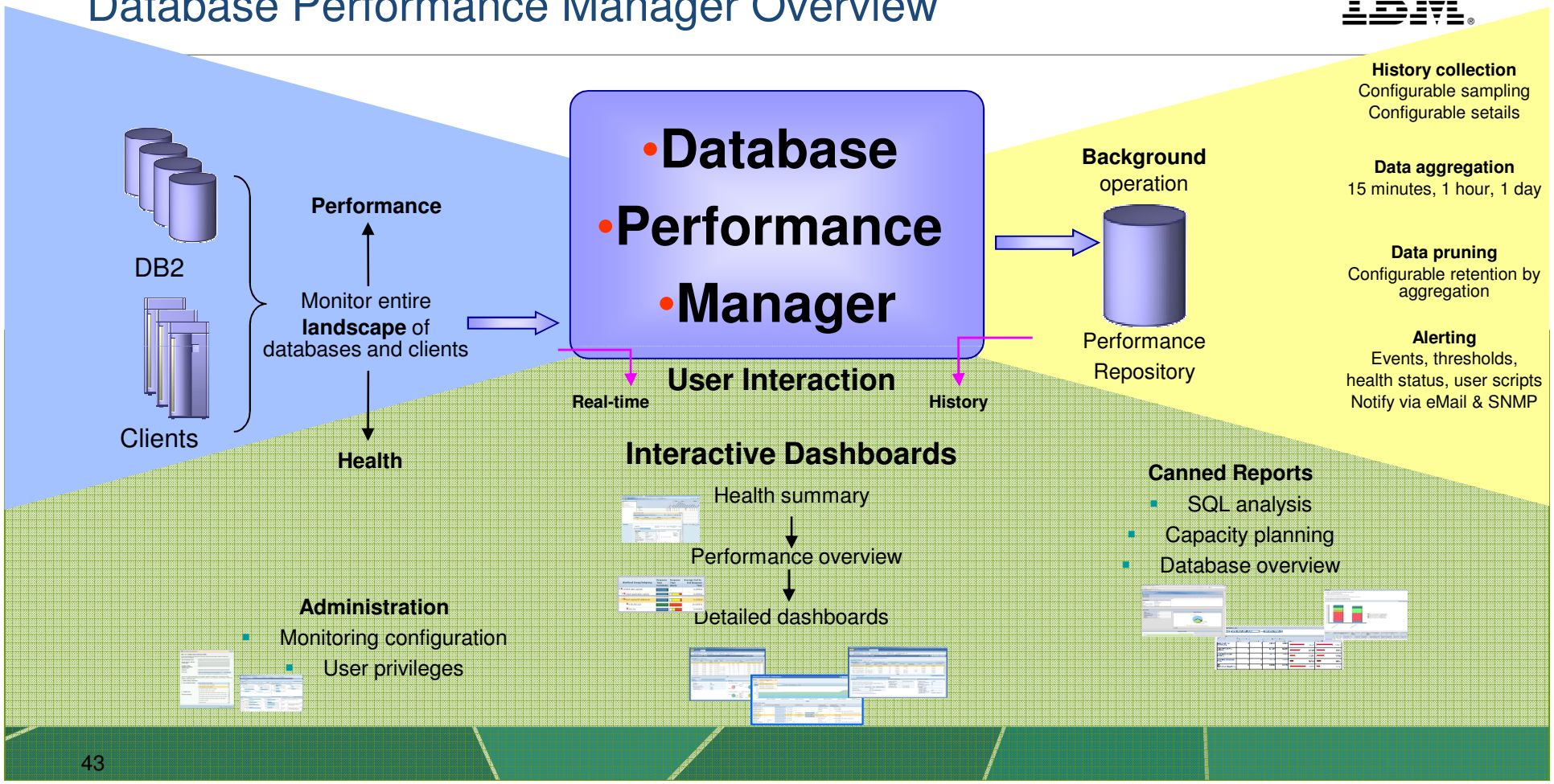
•**Simplified Maintenance with Pre-Integrated Fixes**

•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

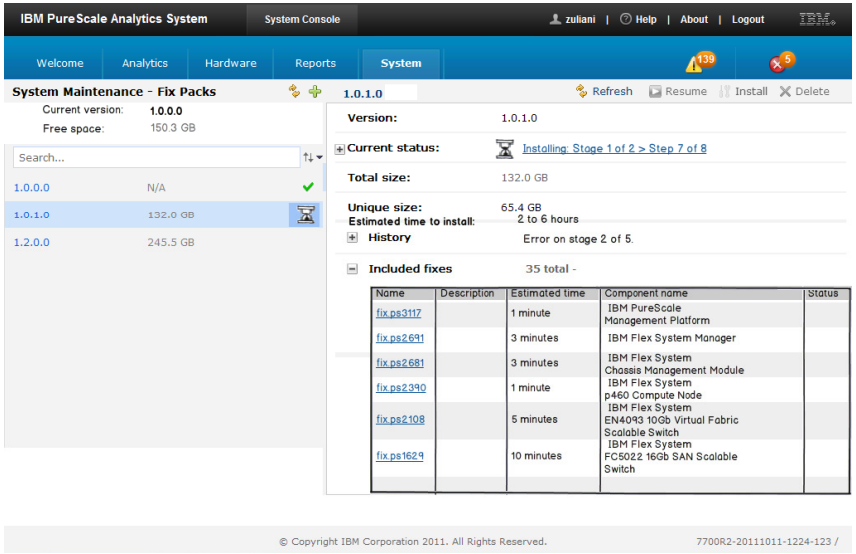


Database Performance Manager Overview



Simplified and low risk maintenance

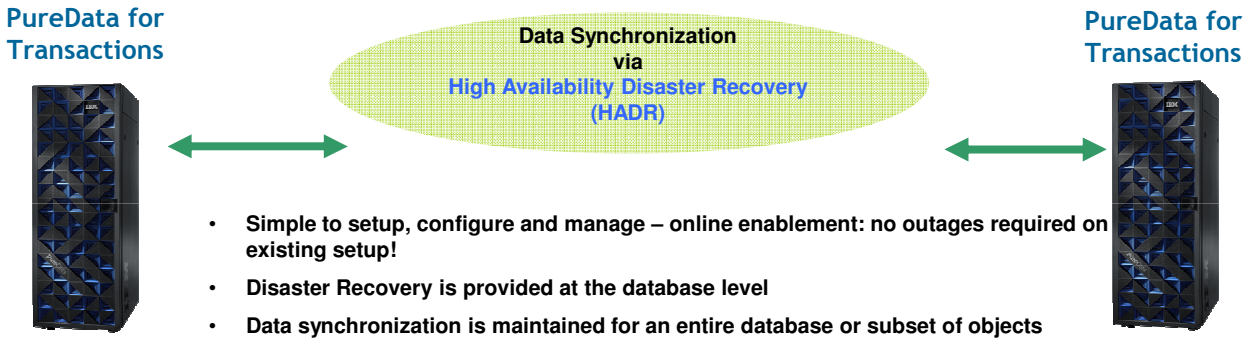
*Pre-integrated fixes **improves productivity***



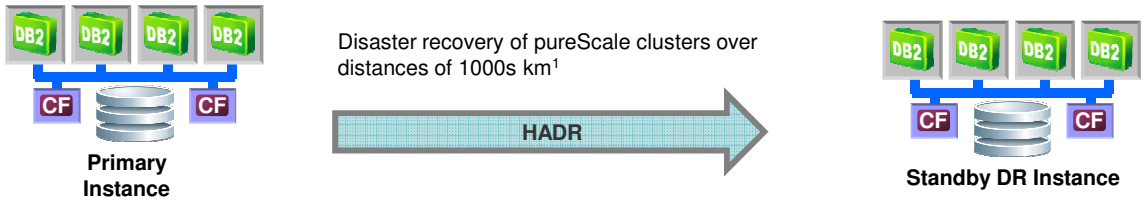
- All hardware firmware and OS software patches are integrated and tested together
- Can apply hardware and OS maintenance with zero downtime
- Single line of support
- Integrated stack support

Simplified disaster recovery

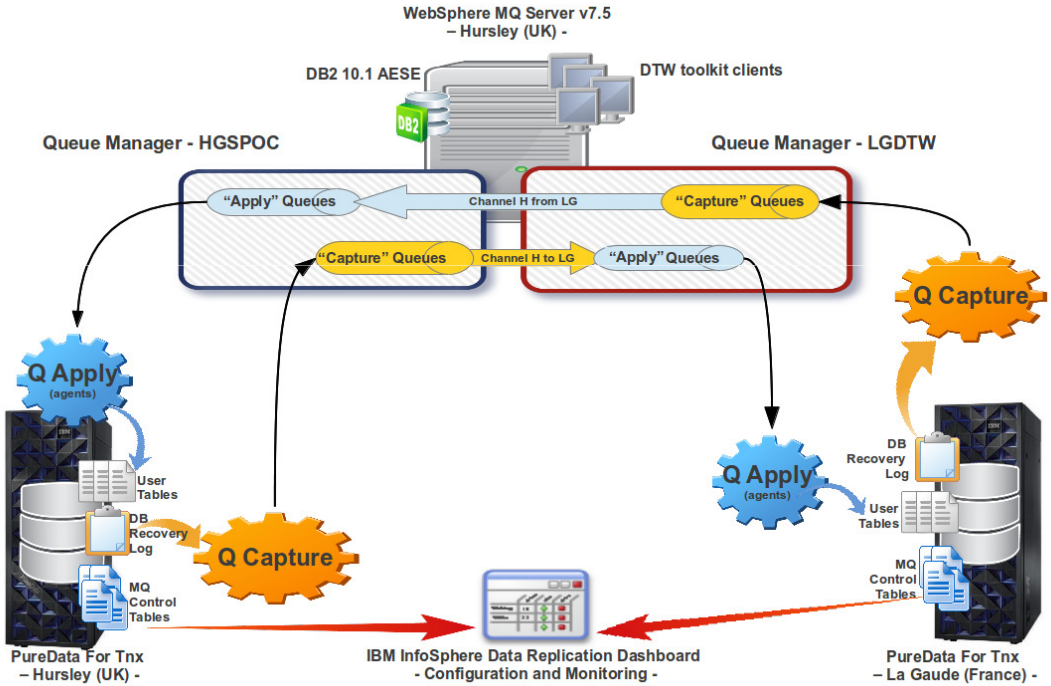
Reliable, fast and flexible synchronization



- **Simple to setup, configure and manage – online enablement: no outages required on existing setup!**
- **Disaster Recovery is provided at the database level**
- **Data synchronization is maintained for an entire database or subset of objects**



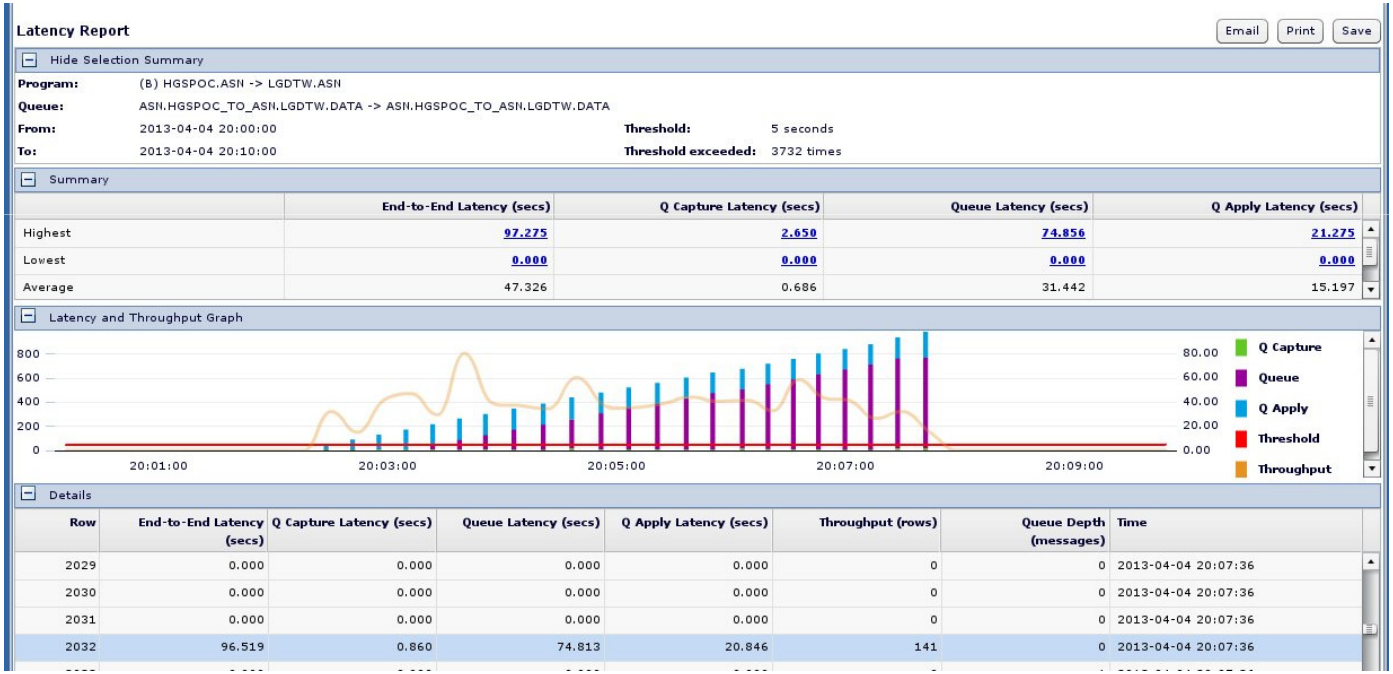
DR solution through QReplication



Q Replication Results

Network bandwidth: Single constraint to scale the workload

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



Latency Report

Email Print Save

Hide Selection Summary

Program:	(B) HGSPOC.ASN -> LGDTW.ASN		
Queue:	ASN.HGSPOC_TO_ASN.LGDTW.DATA -> ASN.HGSPOC_TO_ASN.LGDTW.DATA		
From:	2013-04-04 20:00:00	**Threshold:**	5 seconds
To:	2013-04-04 20:10:00	**Threshold exceeded:**	3732 times

Summary

	End-to-End Latency (secs)	Q Capture Latency (secs)	Queue Latency (secs)	Q Apply Latency (secs)
Highest	97.275	2.650	74.856	21.275
Lowest	0.000	0.000	0.000	0.000
Average	47.326	0.686	31.442	15.197

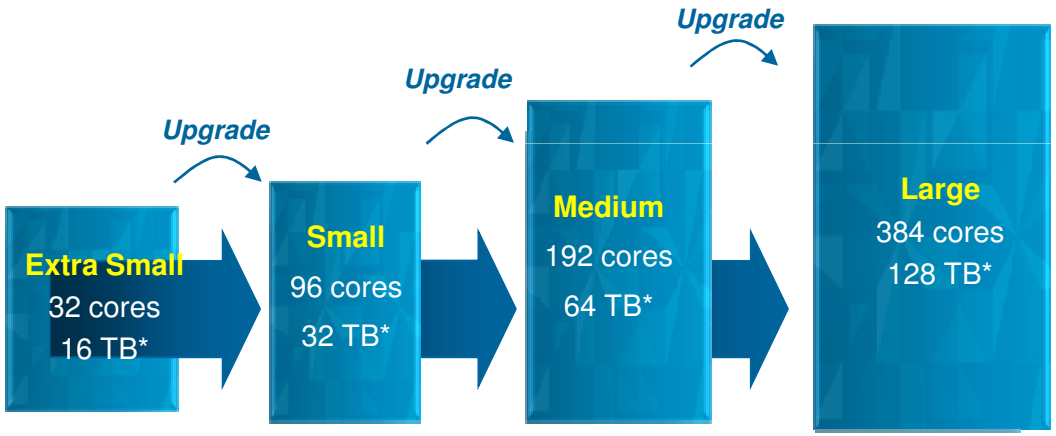
Latency and Throughput Graph

Details

Row	End-to-End Latency (secs)	Q Capture Latency (secs)	Queue Latency (secs)	Q Apply Latency (secs)	Throughput (rows)	Queue Depth (messages)	Time
2029	0.000	0.000	0.000	0.000	0	0	2013-04-04 20:07:36
2030	0.000	0.000	0.000	0.000	0	0	2013-04-04 20:07:36
2031	0.000	0.000	0.000	0.000	0	0	2013-04-04 20:07:36
2032	96.519	0.860	74.813	20.846	141	0	2013-04-04 20:07:36

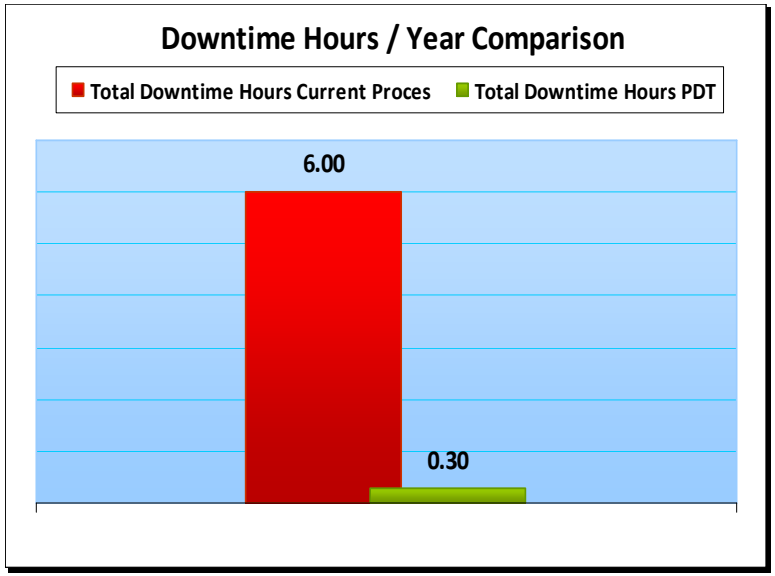
Simplified scalability

***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

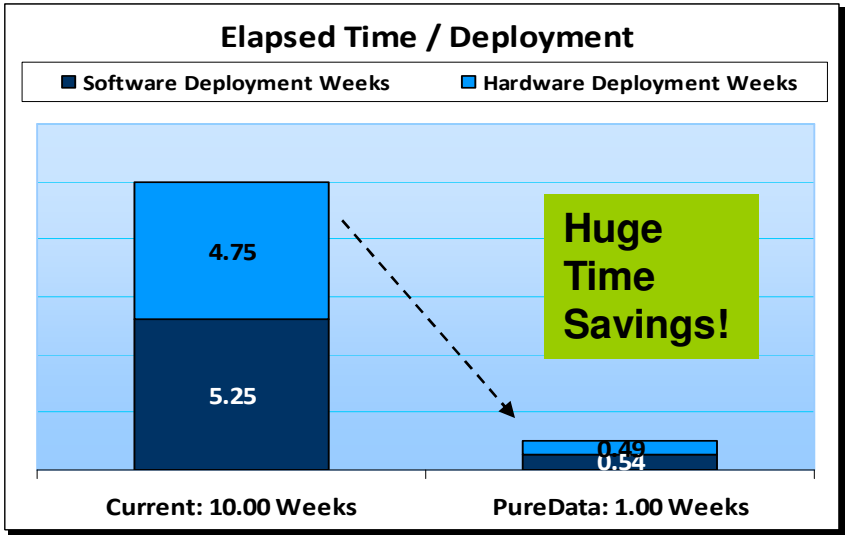
- ❑ Improve uptime and reduce downtime costs
- ❑ Simplified disaster recovery
- ❑ Scale out to handle growing data

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

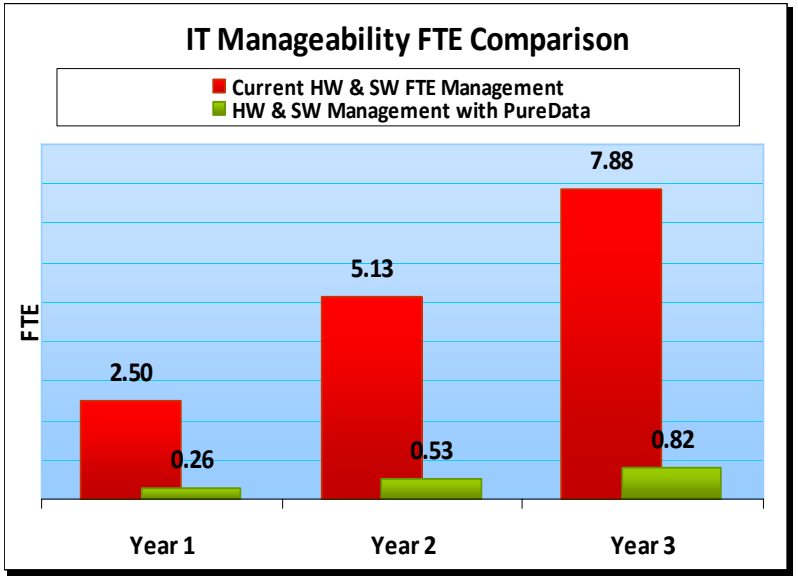
Appliance simplicity; up and running in hours



Sample savings. Actual results will vary.

Why PureData System for Transactions

Automates many administrator tasks



Sample savings. Actual results will vary.

IT Administrator Productivity

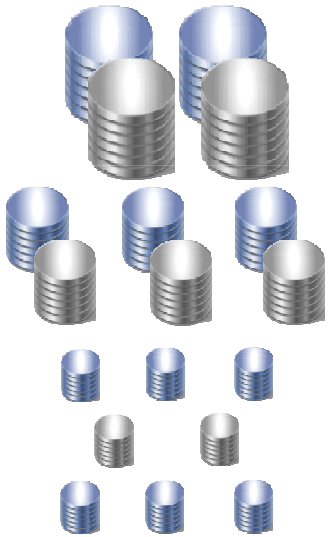
- Application transparency; no application changes
- Simplified management lowers IT staff time
- Leverage existing skills

Why PureData System for Transactions

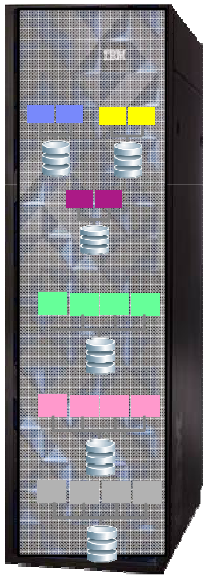
Infrastructure Efficiency

- **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

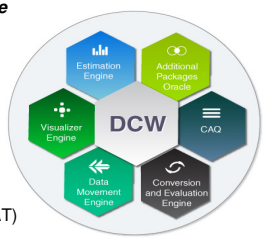
Delivery

- 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

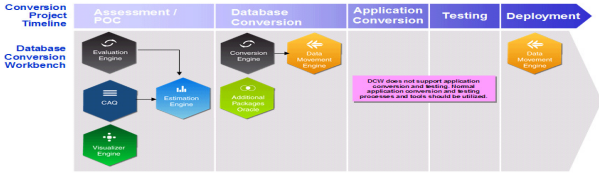
Oracle to DB2 Conversions

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



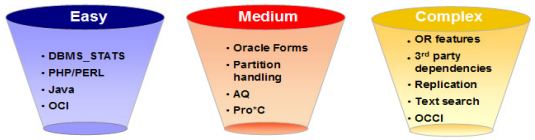
- Project planner feeds conversion packages based on defined priorities into conversion teams. Dedicated, named staff takes over package. Project Control Office team coordinates conversion and kick-off
- Database conversion and Application conversion
- Application Acceptance Test
- Preparation for roll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

Application Buckets

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

Determining Factors
Number of issues listed below
Team skills

Critical path
Dependencies of code



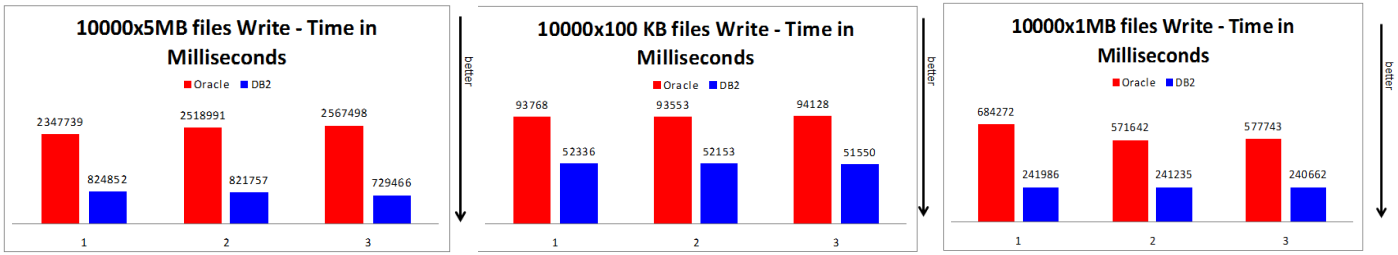
* Based on 2800+ conversion assessments

Skills & Best Practices

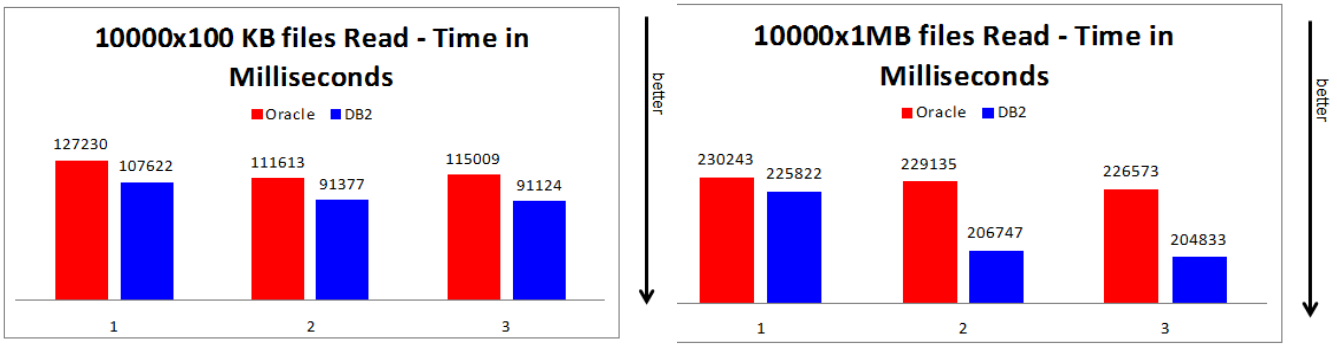
- DB2 and DB2 PureData bootcamps to address training needs
- These courses assure Oracle developers and DBA's that their skills are re-usable
- Access to DeveloperWorks – a web-based professional network and technical resource for developers and IT professionals providing access to How to Articles, Tutorials,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

The actual benchmark results from the client Solution #1

LOB processing

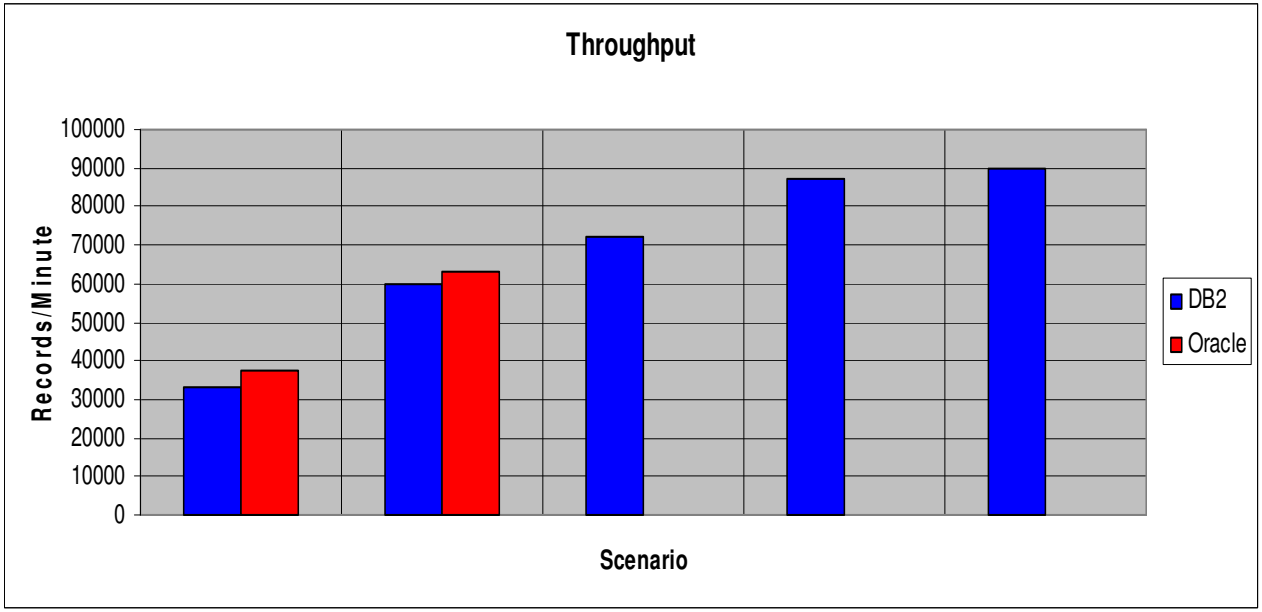


Intense Read processing



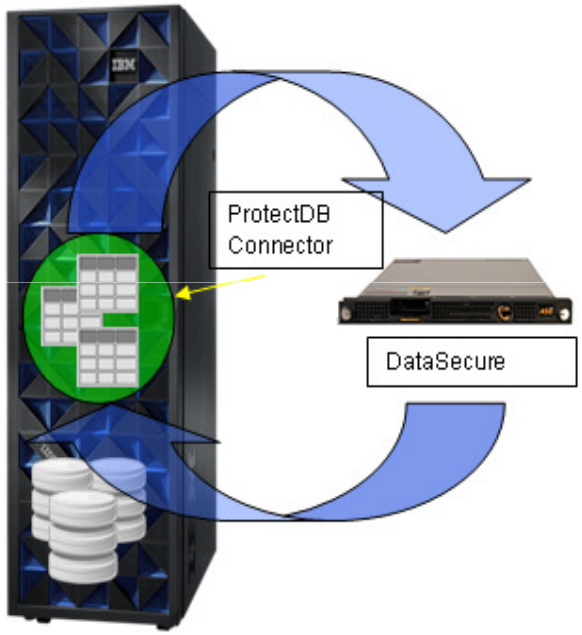
The termination of Oracle Solution#2 results

- 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?

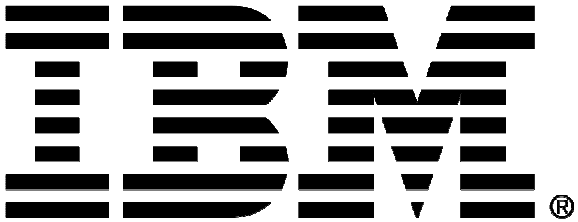
Thank you!!!

Next Steps

PureSystems

- For more information visit the PureSystems
  - Website: **ibm.com/puresystems**
  - YouTube Channel: **youtube.com/user/expertintegratedsys/featured**
- 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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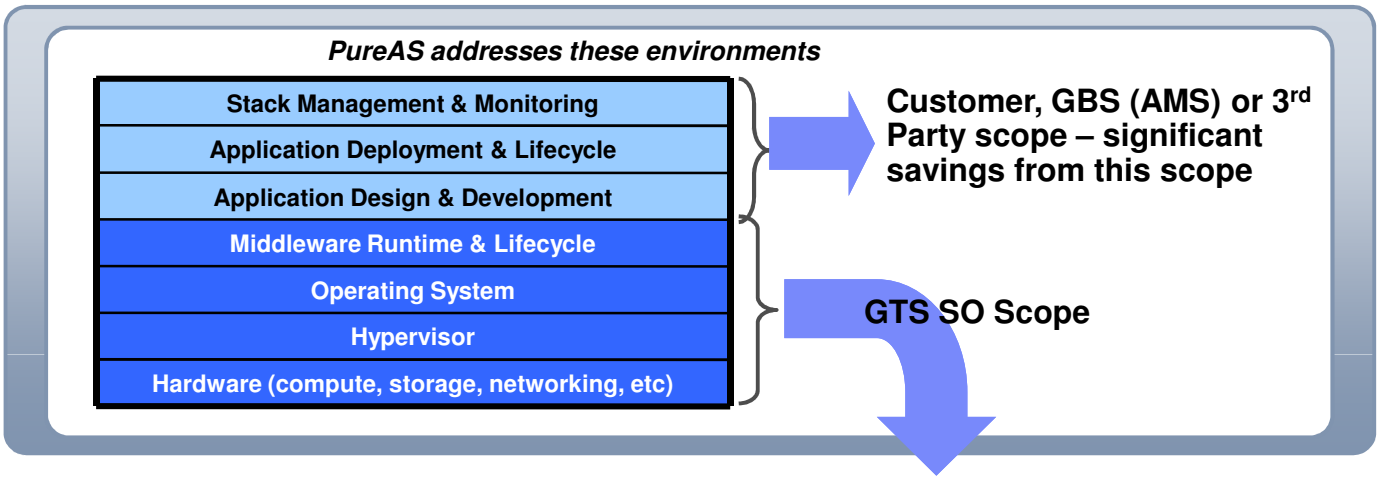
IBM GTS assessment of PureApplication System potential benefits over 5 years



15%-22% lower
Technology costs

server, storage, software

7-11% lower
Labor costs

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

Does not include Application Management Savings

38-47% lower
Energy & Cooling costs

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 500 Server environment.