Lowering Data Management Software and Hardware Costs

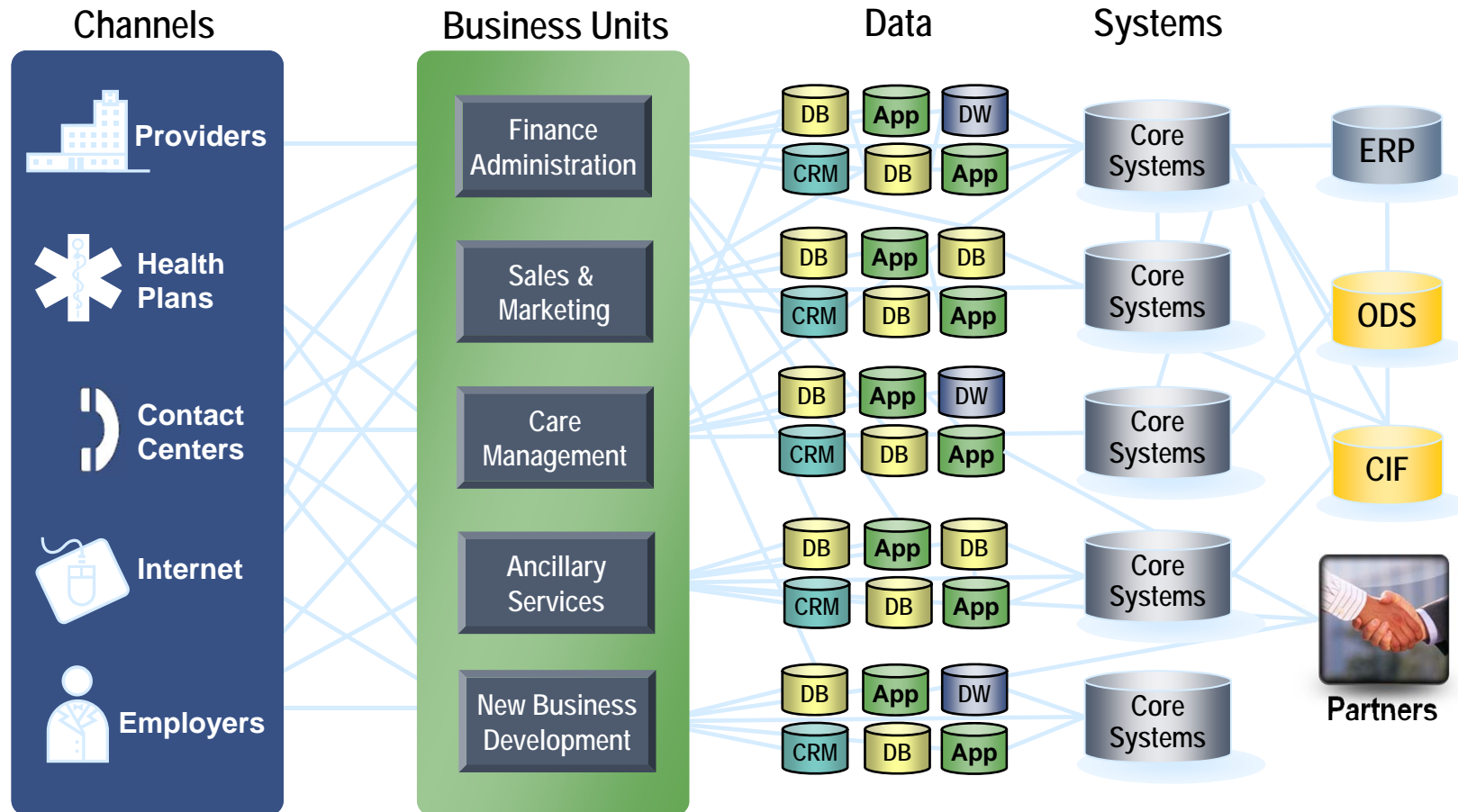**IBMDiscoveryDays2011**
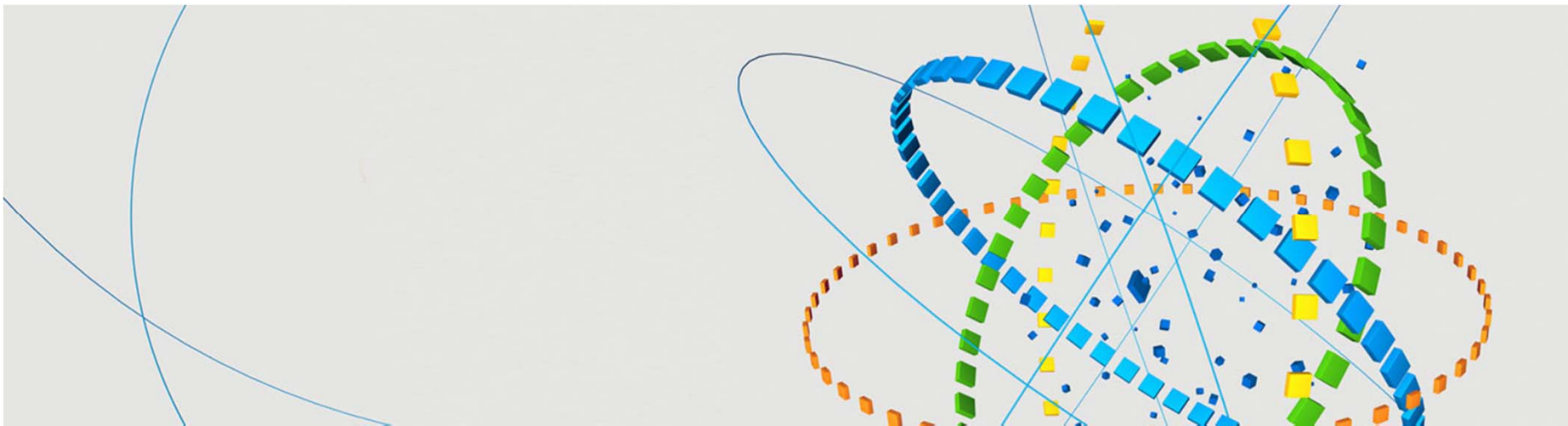
Complexity of Enterprise Environments Continues to Grow
Managing data is a challenge

Common strategies for addressing growing data management costs

1. **Leverage Consolidation**

2. **Improve Database Performance & utilization**

3. **Improve IT staff productivity**

Cost Efficiency

1. Leverage Consolidation

Consolidation Options from IBM - *Sized to Fit, not "one size fits all"*

Custom Software, Hardware & Services

- IBM DB2, IBM Informix
- IBM InfoSphere
- IBM Cognos, IBM SPSS
- IBM Power, x and z Systems

Flexible Integrated Systems

- IBM Smart Analytics System
- IBM pureScale Application System

Simplify - Accelerate Value - Reduce Cost

Netezza Appliances

- IBM Netezza *TwinFin*
- IBM Netezza *Skimmer*

Flexibility   *The right mix of flexibility and simplicity*   **Simplicity**

The IBM Advantage
– *Migration Technology*

Oracle databases

DB2 databases

Sybase databases

Consolidated DB2 Database

IBM has reduced the cost, risk and time of database migration
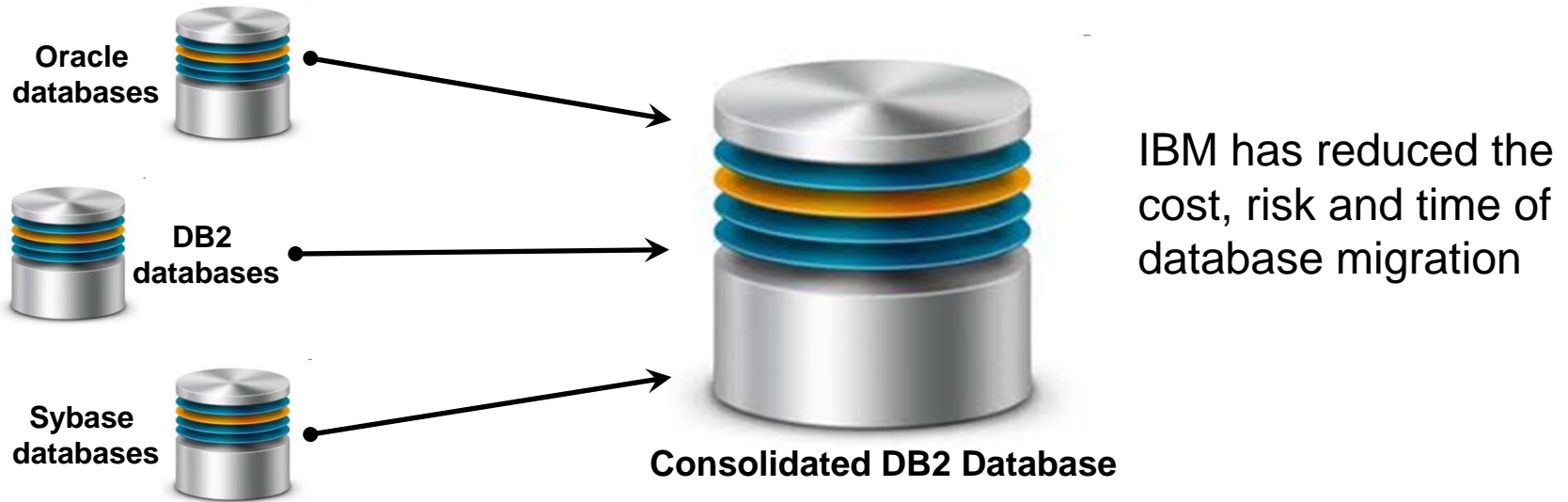
2,700

Customers switched to IBM in the last 4 years

2,100

Successful migration factory consolidations and migrations

DB2 offers Breakthrough SQL Compatibility Technology

IBM has developed database migration technologies with strategic partners to deliver ground-breaking solutions to port applications built for Oracle and Sybase databases

✓ Faster, easier migration from Oracle database and Sybase ASE

✓ Lower Training Costs
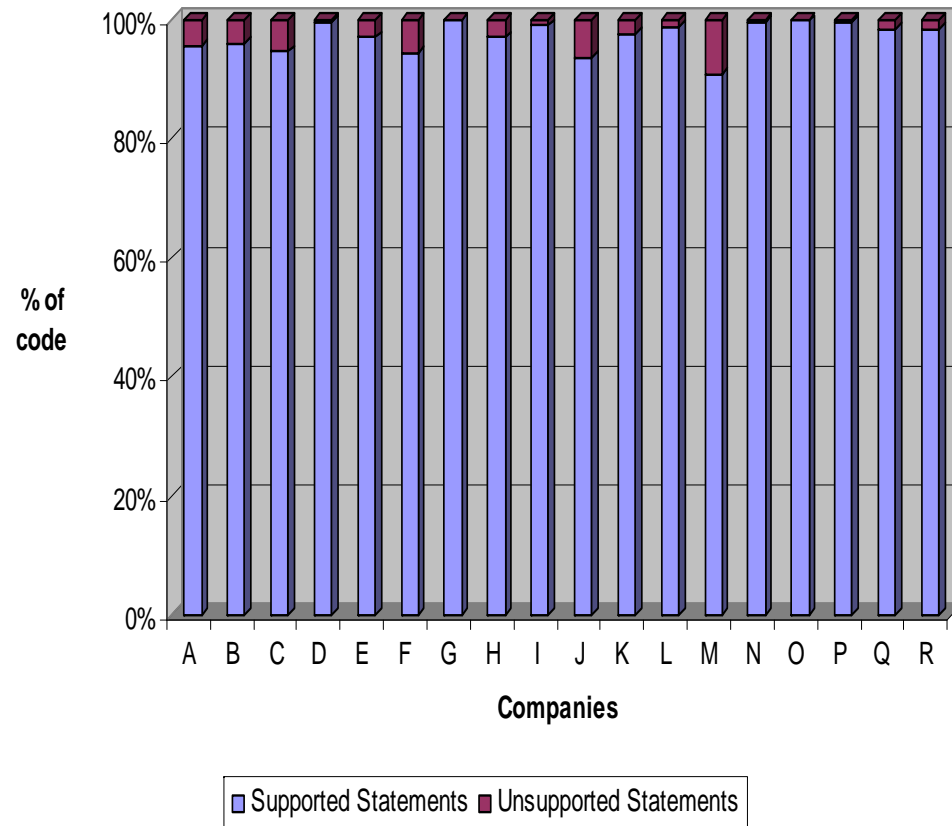
✓ No Application Rewrites

✓ Better Performance

> *"The migration went without a hitch, thanks to the teamwork between IBM and Edwards and to the reliability of the DB2 database platform*
>
> -- Mike Donnelly

6

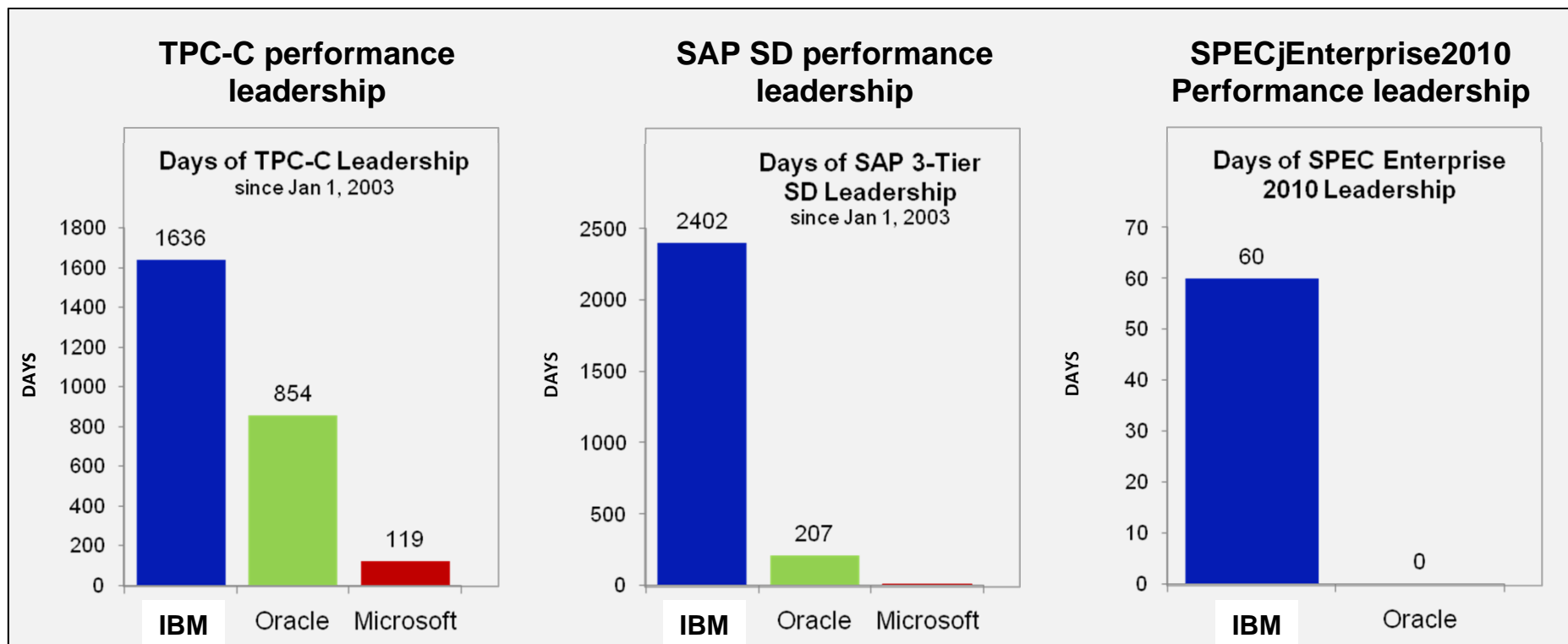# Lab Tests Show 98% Compatibility with Oracle PL/SQL Statements

- **Internal IBM Study**

- **Variety of participants**
  - Different industries
  - Different solutions
  - Different app sizes
  - Different countries

- **PL/SQL supported**
  - >750,000 lines of code
  - Average of *98%*

% of code

100%

80%

60%

40%

20%

0%

A B C D E F G H I J K L M N O P Q R

Companies

☐ Supported Statements ☐ Unsupported Statements

> *The compatibility level that DB2 9.7 achieved is amazing.*
>
> -- Masahiko Kudo, Works Applications, Japan

2. Improve Database Performance and Utilization

- IBM offers reliable, highly available solutions for 99.999% up time and enterprise growth
- IBM leads in numbers of days of leadership across major industry benchmark results

TPC-C performance leadership

Days of TPC-C Leadership since Jan 1, 2003

	Days
IBM	1636
Oracle	854
Microsoft	119

SAP SD performance leadership

Days of SAP 3-Tier SD Leadership since Jan 1, 2003

	Days
IBM	2402
Oracle	207
Microsoft	

SPECjEnterprise2010 Performance leadership

Days of SPEC Enterprise 2010 Leadership
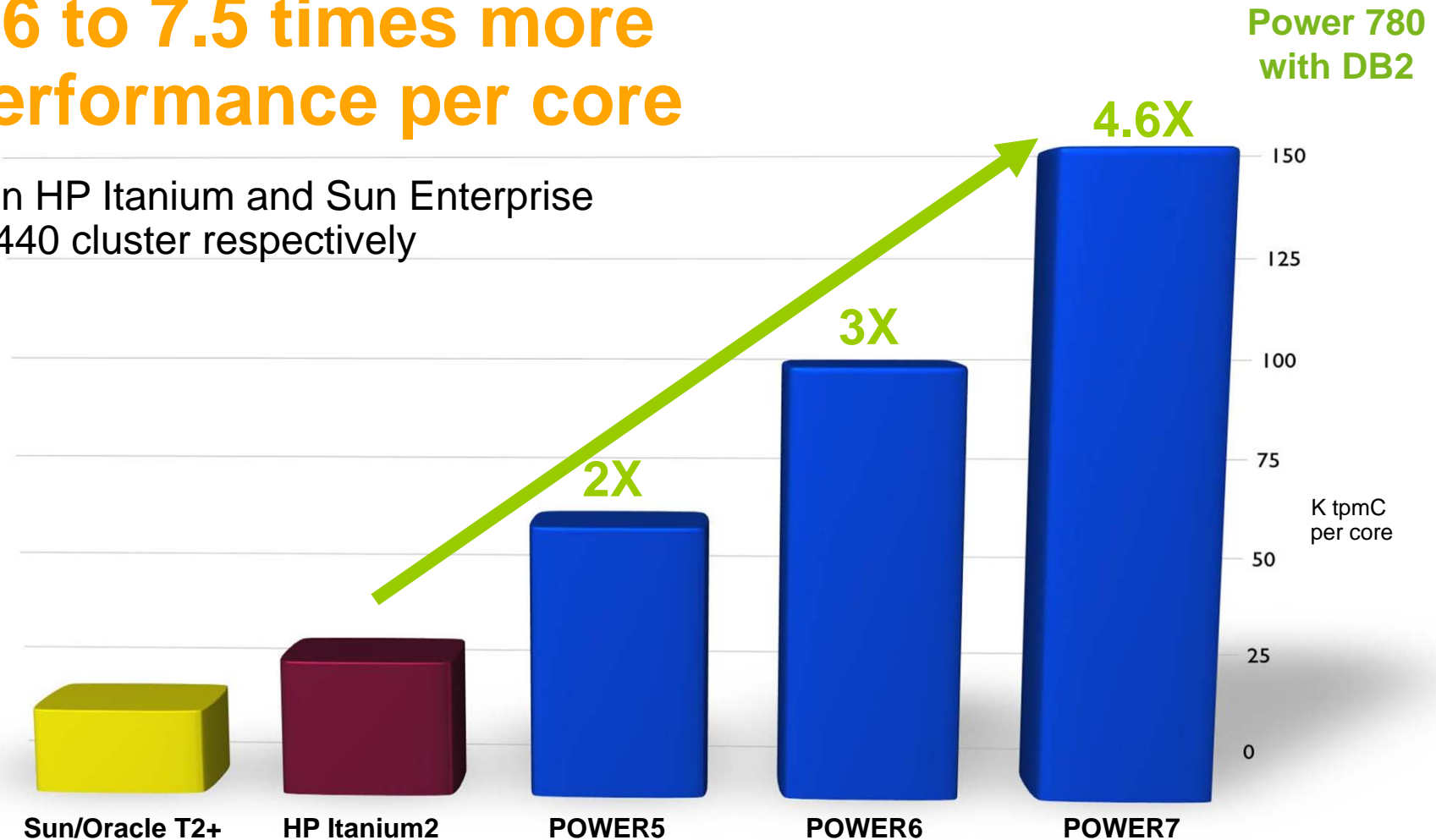
	Days
IBM	60
Oracle	0

Source: IBM-maintained records of performance benchmark leadership. TPC-C and SAP 3-Tier SD leadership days are up to and including 22 Feb 2010. SPECjEnterprise2010 up to 05 Mar 2010.

More TPC-C performance per core than any system in the industry

4.6 to 7.5 times more performance per core

Power 780 with DB2

than HP Itanium and Sun Enterprise T5440 cluster respectively

4.6X

3X

2X

	150
	125
	100
	75
	K tpmC per core
	50
	25
	0

Sun/Oracle T2+   **HP Itanium2**   **POWER5**   **POWER6**   **POWER7**

Best results listed for IBM POWER, HP, and Sun/Oracle systems over 1M tpmC.
Source: http://www.tpc.org as of 4/1/10. See Power 780 benchmark details for specific results.
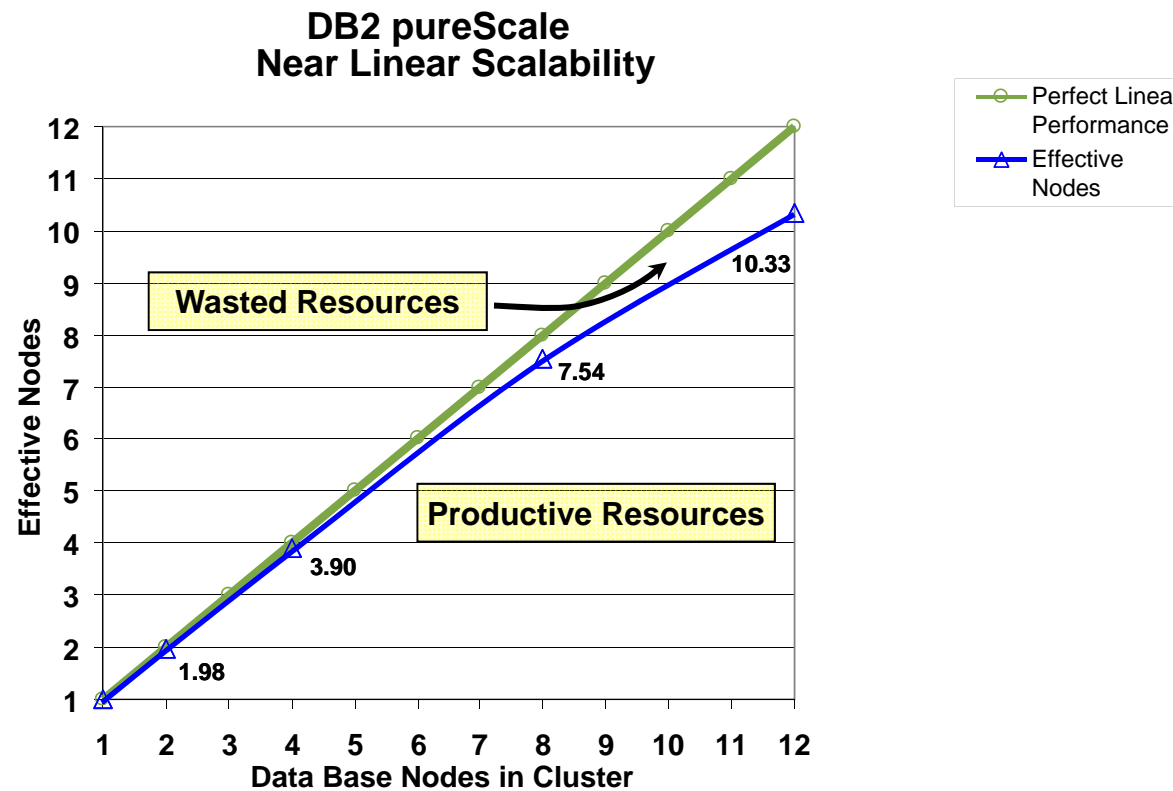
Why DB2 pureScale is better than Oracle RAC

Throughput efficiency declines as you add nodes to Oracle RAC

- Higher levels of scalability and superior availability

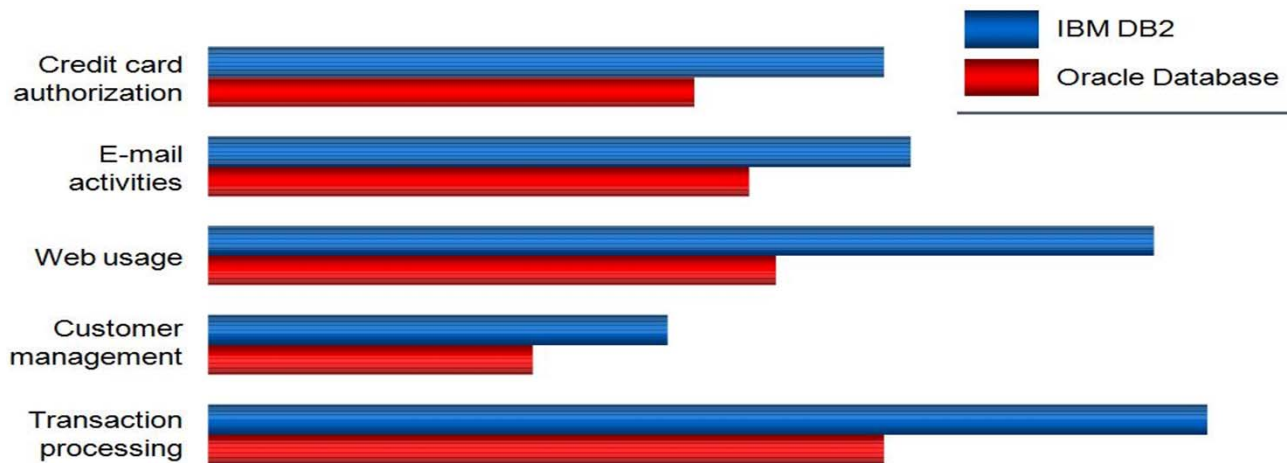- Better concurrency during regular operations and on failure

**Oracle RAC
Poor Scalability**

Chart Y-axis: **Effective Nodes** (1 to 12)
Chart X-axis: **Data Base Nodes in Cluster** (1 to 12)

Legend:
- Perfect Linear Performance
- Effective Nodes

Wasted Resources

Productive Resources

1.69

2.44

Source: Oracle RAC characteristics as published in Dell test results.

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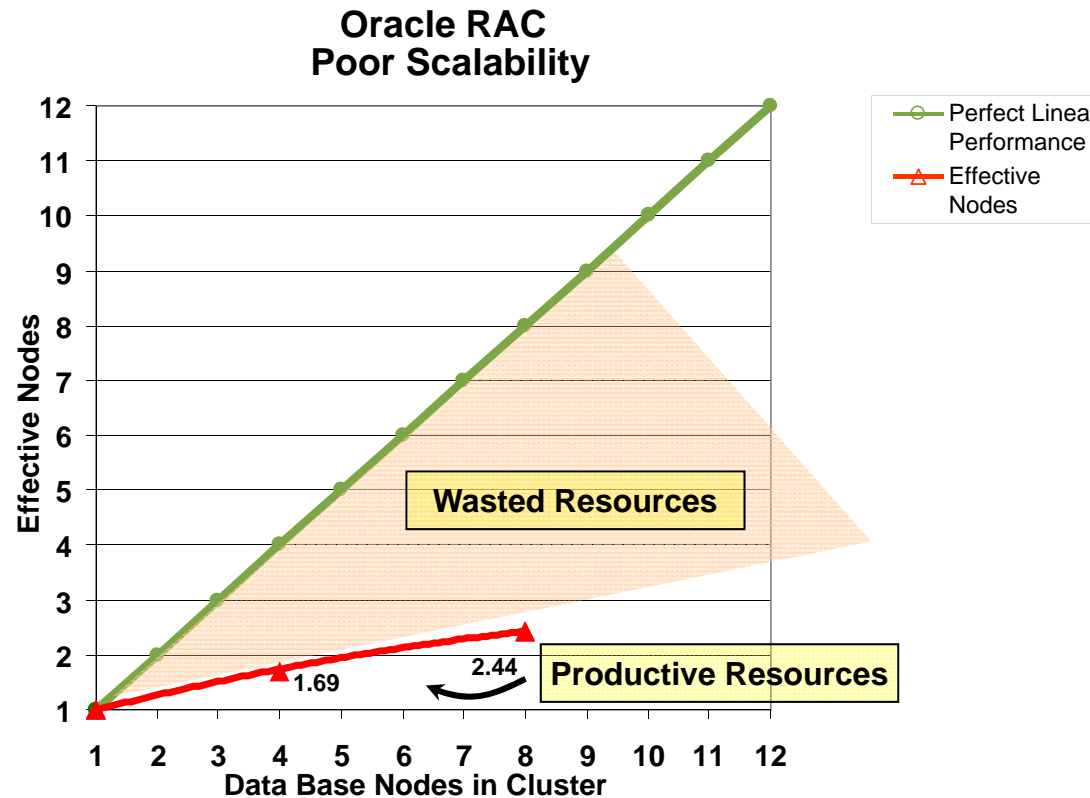
Why DB2 pureScale is better than Oracle RAC

Near-linear scale-out efficiency of DB2 pureScale

**DB2 pureScale
Near Linear Scalability**

Legend:
- Perfect Linear Performance
- Effective Nodes

Wasted Resources

Productive Resources

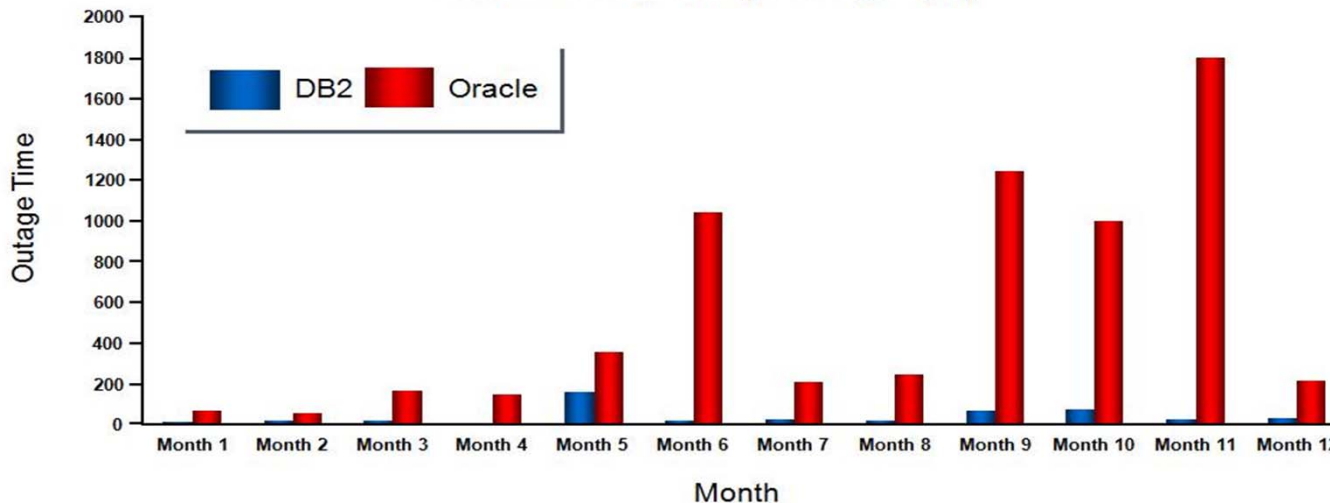Data points: 1.98, 3.90, 7.54, 10.33

Y-axis: Effective Nodes

X-axis: Data Base Nodes in Cluster

DB2 leads industry performance and reliability on production systems
- *Solitaire Whitepaper*

Transactions per second on IBM System p

Normalized Monthly Outages (all)

Source: Solitaire Whitepaper: DB2 Performance on IBM System p® and System x®

3. Improve IT Staff Productivity

Easy of use: DB2 vs. Oracle Database complexity analysis

- DB2 holds a significant advantage in all of the six common DBA activities
- DB2 complexity advantage translates into higher DBA productivity

Complexity analysis summary

Source: Triton Consulting

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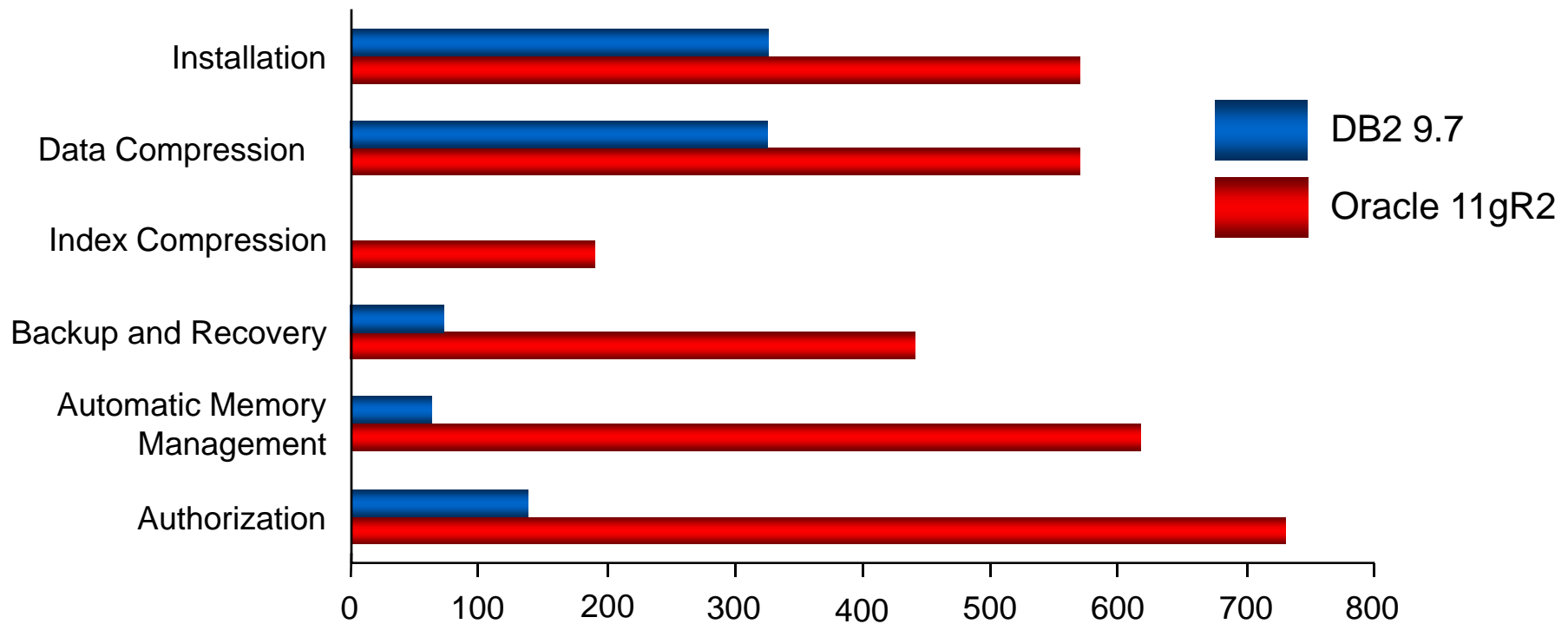
Organizations need a strategy to manage application data
From requirements to retirement

- Developing models and code to store and access enterprise data including the configuration of data for test environments
- Employ effective test data management practices to build and test applications
- Optimizing performance through identification of bottlenecks and building the right strategy for managing applications and data growth
- Implementing a consistent process for retiring or consolidating applications

Design & Develop

Build & Test

Deploy & Operate

Operate & Optimize

Consolidate & Retire
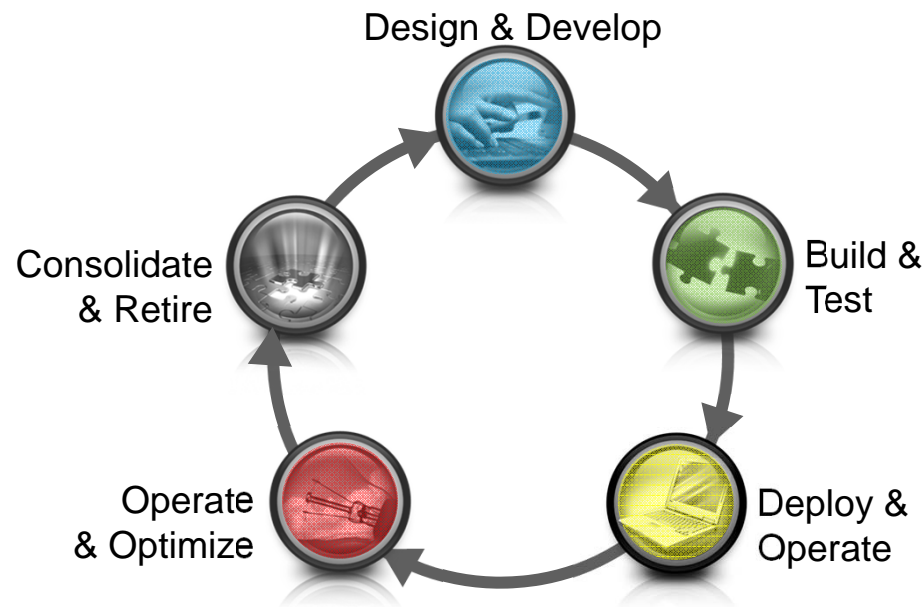
Common Tools To Manage All Databases
Control Costs, Improve Performance, Reduce Risks

Design & Develop

- **Simplify design, development & management of applications that require database access**
  - IBM InfoSphere Optim Development Studio
  - IBM InfoSphere Optim pureQuery Runtime

Build & Test

- **Create "right-size" production-like environments for application testing, while protecting sensitive information within**
  - IBM InfoSphere Optim Test Data Management Solution
  - IBM InfoSphere Optim Data Masking Solution

Operate & Optimize

- **Manage data growth & improve performance by intelligently archiving historical data**
  - IBM InfoSphere Optim Data Growth Solution

Consolidate & Retire

- **Retire redundant & legacy applications, while preserving access to the information for data retention compliance**
  - IBM InfoSphere Optim Solution for Application Retirement

Cost Efficiency: 3-Year TCO and initial investment comparison
Oracle Quarter Rack Exadata vs. Small pureScale Application System

3 Yr TCO Savings with IBM over Oracle = 71%
Investment Cost Savings with IBM over Oracle = 70%

Savings with IBM pureScale $2,330,378 or 70%   Savings with IBM pureScale $1,666,447 or 70%

Oracle Exadata: Quarter Rack	IBM pureScale Application System: Small
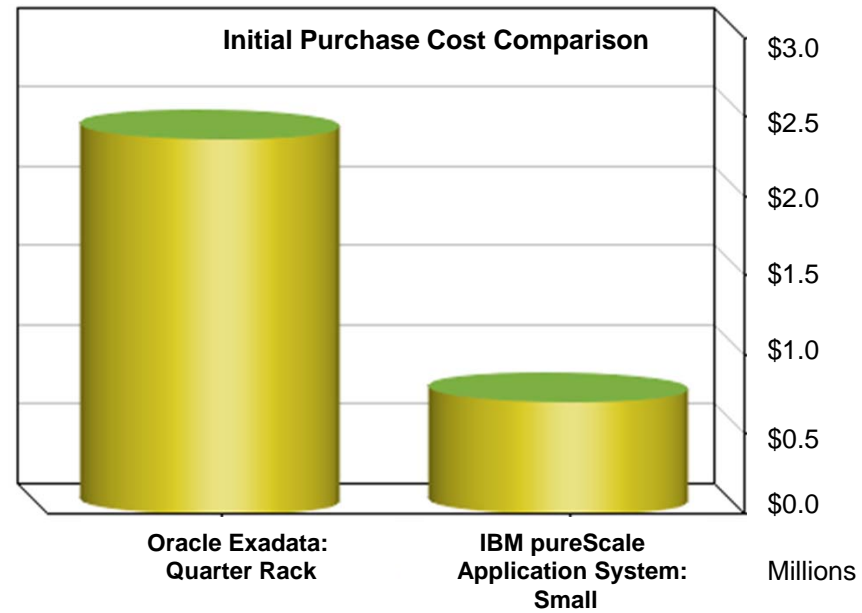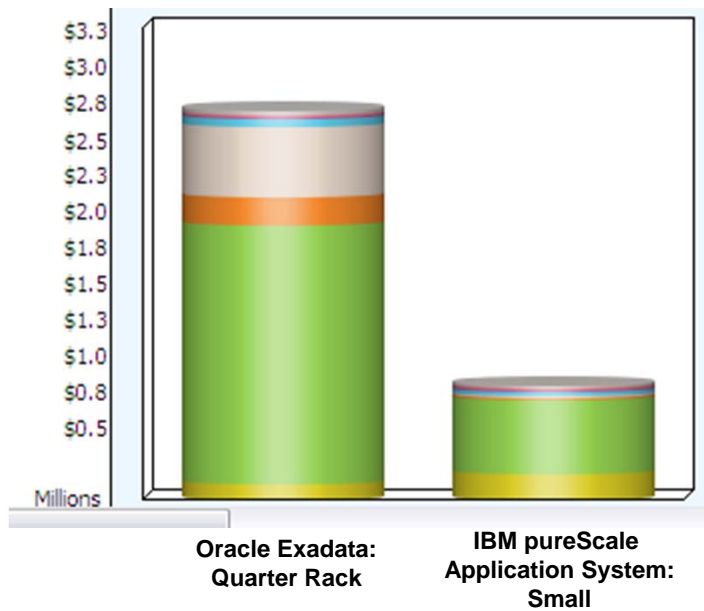
Legend (left chart): Database Server Hardware, Database Server Software, Disk Storage System, Storage Software, Network Equipment, Implementation Services, On-going Administration Labor, Environmental Impact

Initial Purchase Cost Comparison

Oracle Exadata: Quarter Rack	IBM pureScale Application System: Small

Legend (right chart): Initial Purchase Costs, Upgrade Costs

16

Cost Efficiency: DB2 costs less across the board

- ITG Report

Category	Oracle 11g scenarios	DB2 9.7 scenarios
Storage systems	4.32	2.58
Databases	3.14	2.10
Database servers	1.43	0.95
Personnel	1.34	0.95

Oracle 11g scenarios

DB2 9.7 scenarios

$ Millions

Source: ITG: Value Proposition for IBM DB2 9.7: Cost Savings Compared to Oracle 11g

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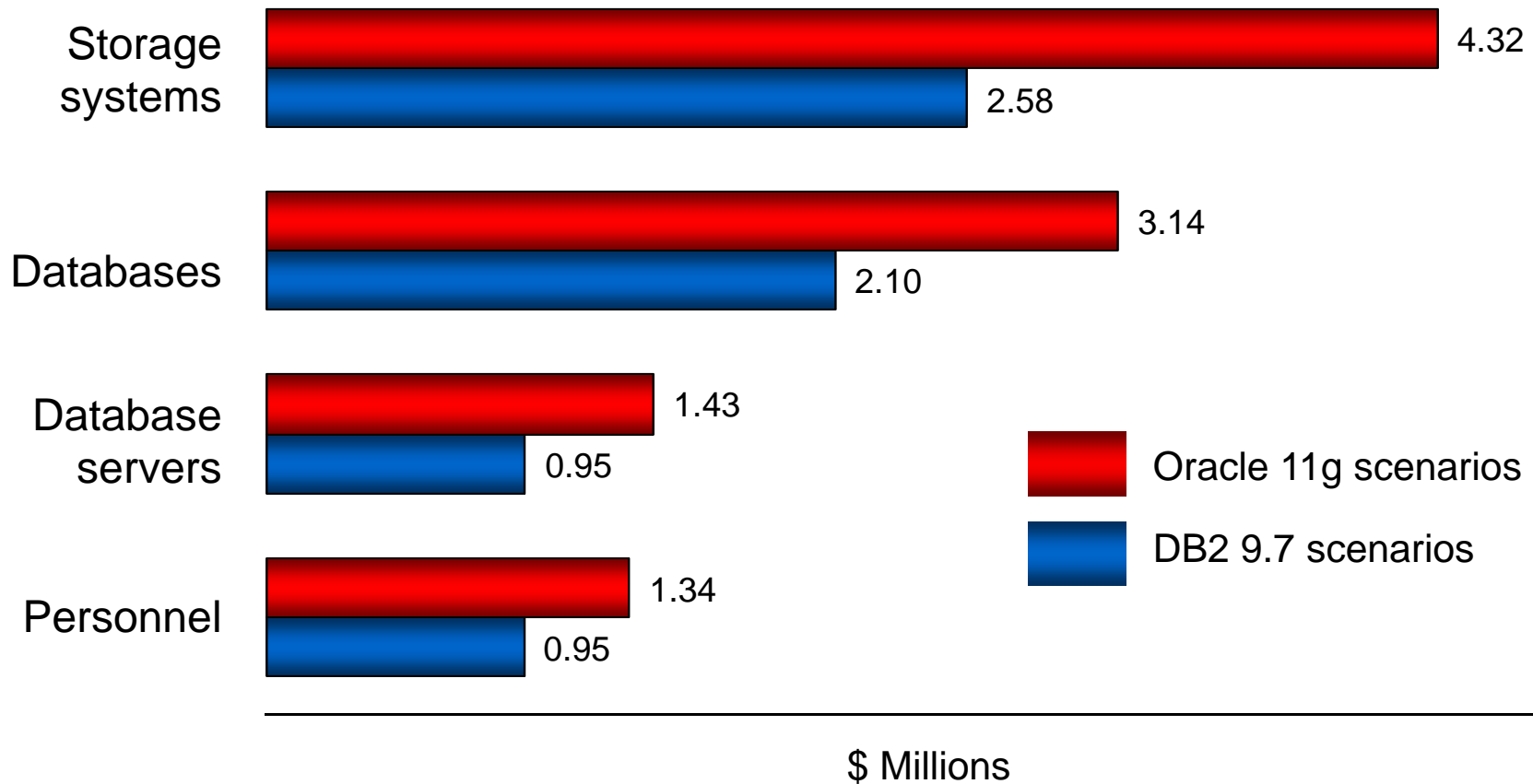
Summary

If You Need To…	IBM Can Help By…
■ Increase utilization of existing infrastructure	■ Consolidating your database environments and lowering license, support costs
■ Consolidate heterogeneous database environments	■ Increasing the performance and scalability of your applications
■ Get the most out of IT infrastructure	■ Migrating your applications, databases and warehouses quickly and with minimal risk
■ Lower license and support costs	

Take Action Now!

No-charge offers to help you get started:

- Smarter Systems Consolidation Evaluation

- The Server Makeover Analysis

- IBM Migration Workshops and Toolkit

- Database Migration Analysis

    - Tool analyses PL/SQL, indicating out-of-the-box compatibility

    - Compatibility levels are typically greater than **90%**

- For additional information including white papers and demos, please visit www.ibm.com/breakfree

Thank You!

ibm.com/smartersystems
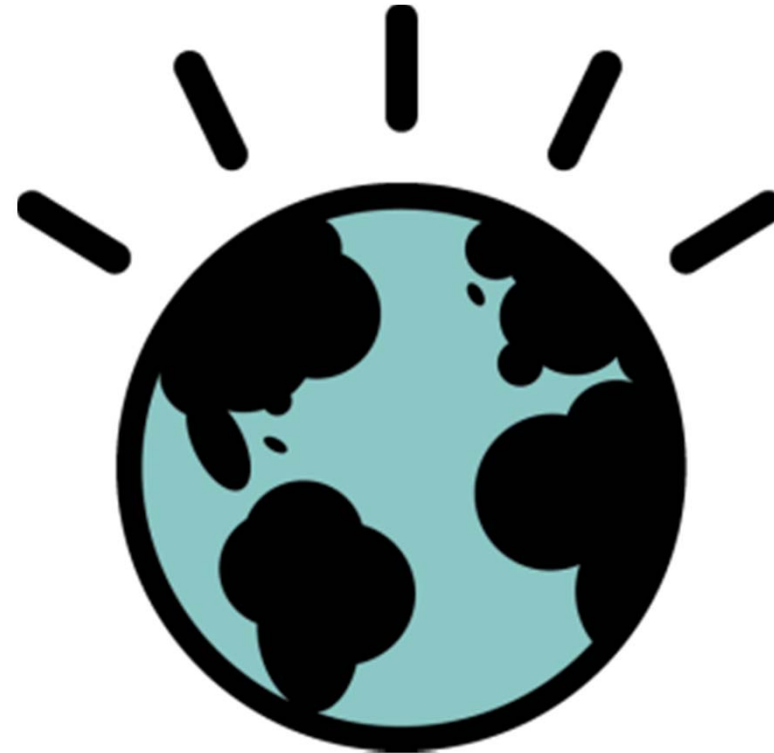
Simply put, IBM is making systems smarter.

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