October 2012 Oracle User Group
Engineered Systems – Winning the XLOB Battle for IT
Michael Bürger – Engineered Systems Sales South East Europe

Agenda

- **The Business Need by Analysts**
- **Overview Engineered Systems**
- **The Business Value Created By IT**
- **Conclusions and Next Steps**

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The Business Need

The Common Business Problems Today
There is a market for Exadata

- **Data explosion**

  - how to manage more data with same headcount?

- **Maintenance**

  - how to automate freezing of more for new projects?

- **IT cost pressure**

  - budgets are flat or down, where to save something?

- **Performance**

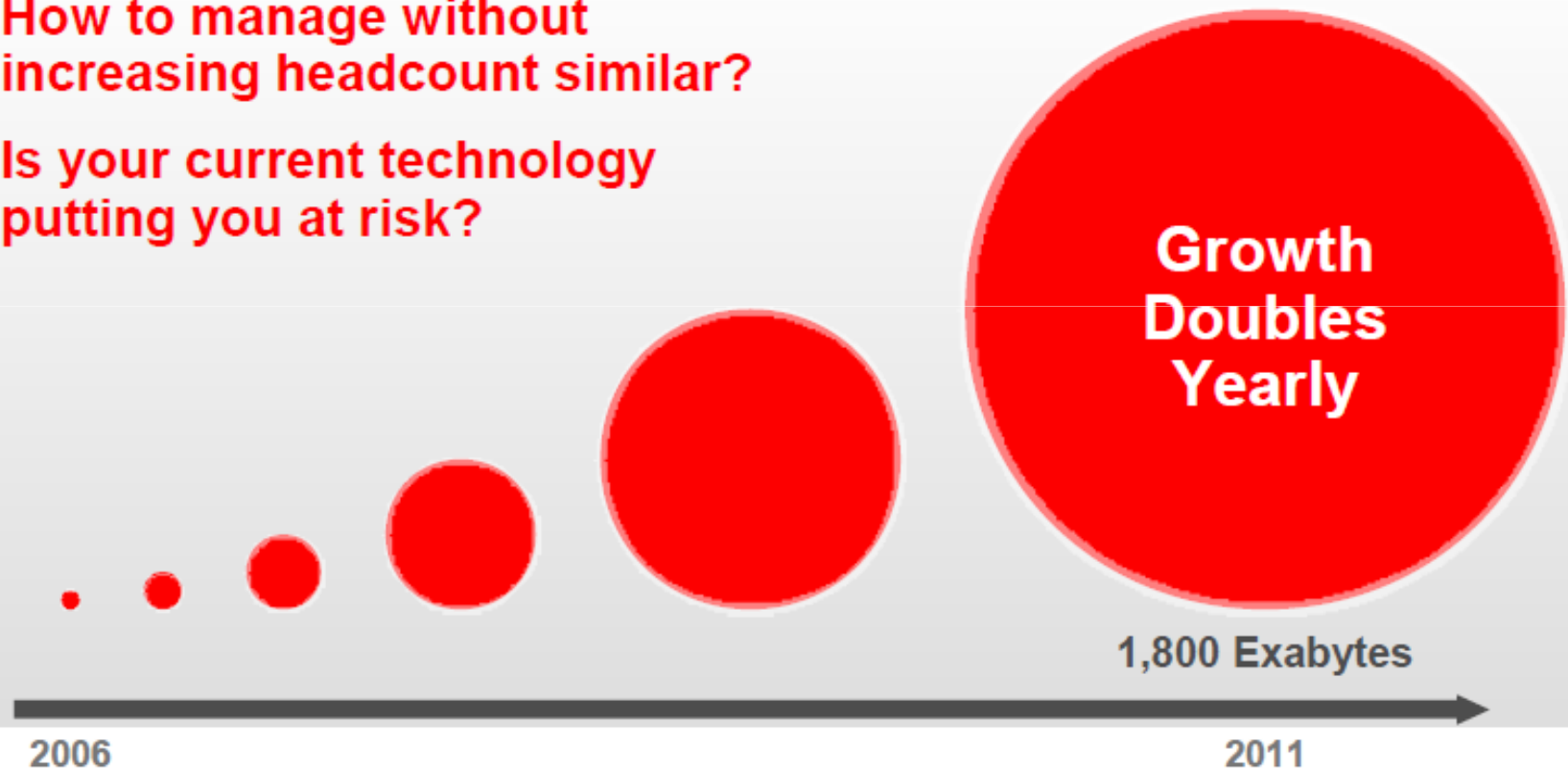 - business user XLOB satisfaction before and after migrations?

- **Other?**

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More data than ever…

Tripling in size every two years!

How to manage without increasing headcount similar?
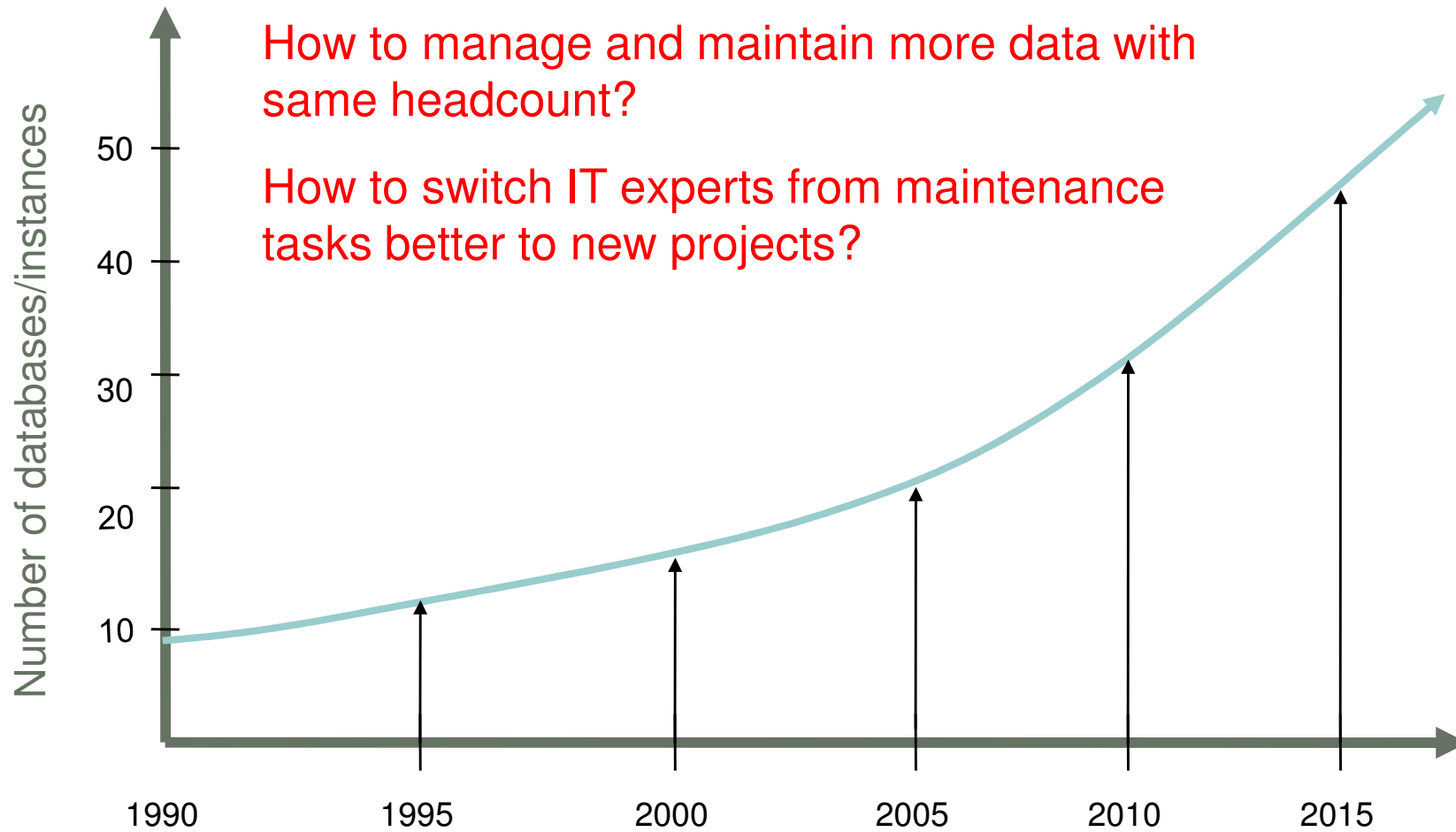
Is your current technology putting you at risk?

Growth Doubles Yearly

1,800 Exabytes

2006 ——————————————→ 2011

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Data source: IDC, 2008

Database-to-DBA ratio is increasing: 1990-2015

How to manage and maintain more data with same headcount?

How to switch IT experts from maintenance tasks better to new projects?

Number of databases/instances

50

40

30

20

10

1990   1995   2000   2005   2010   2015

Source: Forrester Consulting 2010

Higher **costs** than ever…

IT budgets are flat or down…

…but Data Centre costs, which are 25% of total IT budget, are increasing at 20% per year…

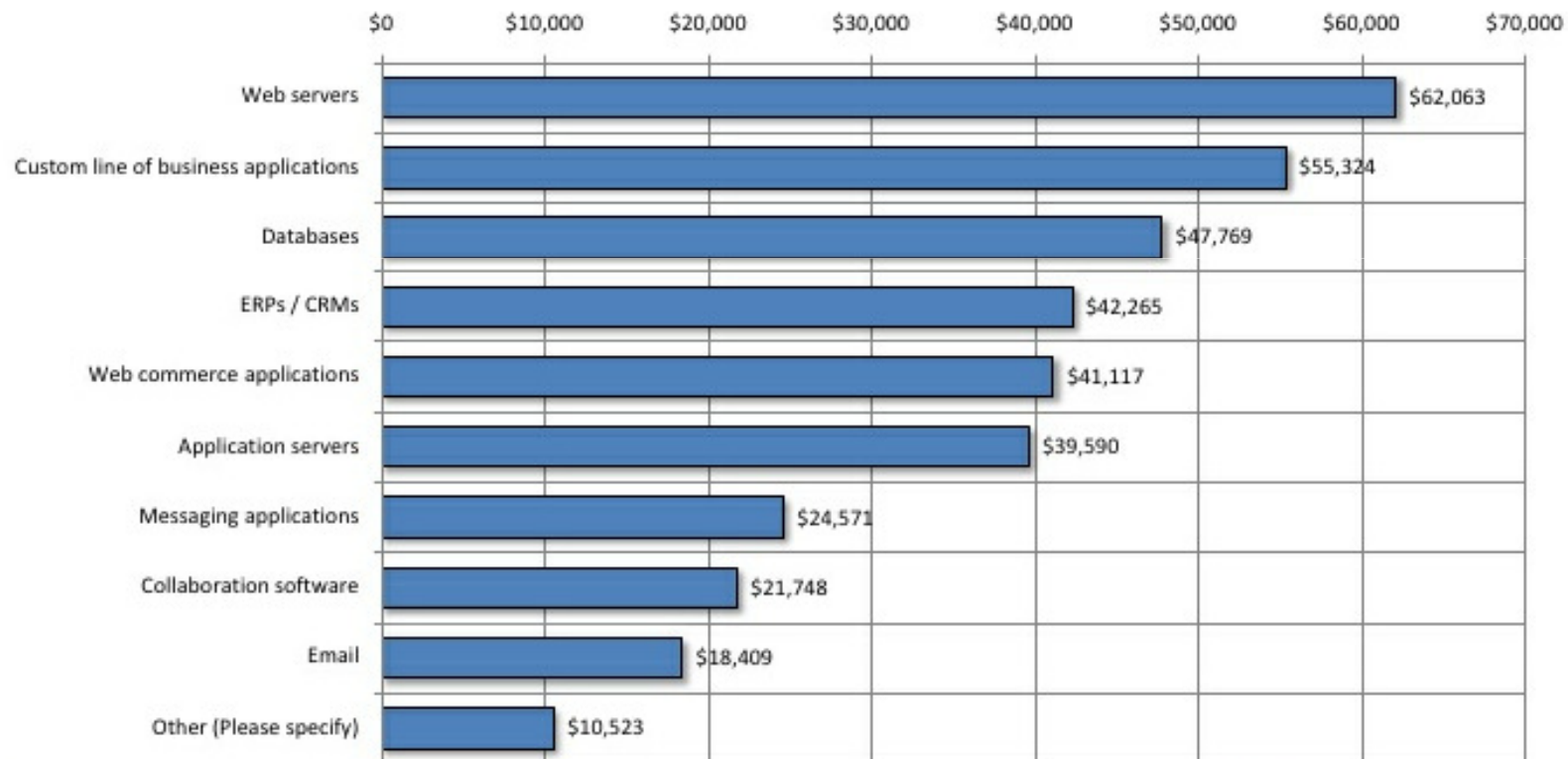**…and service execution is below par.**

- **40% growth in transaction volume**

- **Massive growth in volume of data**

- **Increasing power and cooling costs**

- **Difficulty in deploying new apps and unpredictable workloads**

- **Focused cost reduction push across all expense items**

CIO's Face a Challenging Context
Can we be successful without transformation?

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Source: McKinsey & Company

Cost Of Downtime

Q14: What would you estimate is the cost of an hour of downtime for each of the following in your organization?
(Means shown)

Category	Cost
Web servers	$62,063
Custom line of business applications	$55,324
Databases	$47,769
ERPs / CRMs	$42,265
Web commerce applications	$41,117
Application servers	$39,590
Messaging applications	$24,571
Collaboration software	$21,748
Email	$18,409
Other (Please specify)	$10,523

Source: Symantec 2010 Disaster Recovery Study

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The XLOB Battle a Challenge for IT?

|	
DWH and BI Management in Sales, Controlling, Board Members	• Need the batch report daily not weekly, how to run it in in much less than 16 hours without impacting the daily on-line window? • We are loosing market share, how can we get much more detailed ad-hoc queries daily but without impacting application user performance? Resource Manager
Application Users Sales, Production,	• How can we ensure the next version upgrade can be switched on without project delay and provide much more than 20-30% performance gain on always higher availability?
CFO and CEO	• Why we need to fund such big machines as the peaks are just 3 days monthly? • How we can consolidate something as the overall IT costs are too high and we need to bring more projects to the street by unfreezing our best experts rather than logging in our key resources in maintenance and integration tasks?

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How to solve the business problem today?

- As usual via more storage?

- Via more servers or new one's to be announced?

- Via more room space?

- Via more power supply costs?

- Via new IT stuff or outsourcing?

Traditional approaches doesn't solve the problem. The business challenges today requires a new way of thinking.

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1886 - 2011 what's the difference?
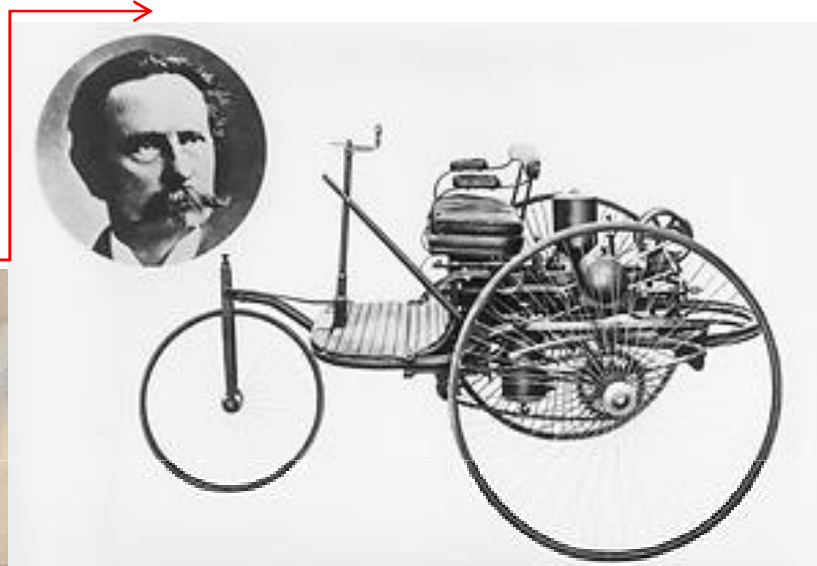
The German Kaiser Wilhelm I: "I believe in the horse, there is nothing else replacing it for years!

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Exadata is transformational
Providing a step change to the business

Business Performance (vertical axis)

Time (horizontal axis)
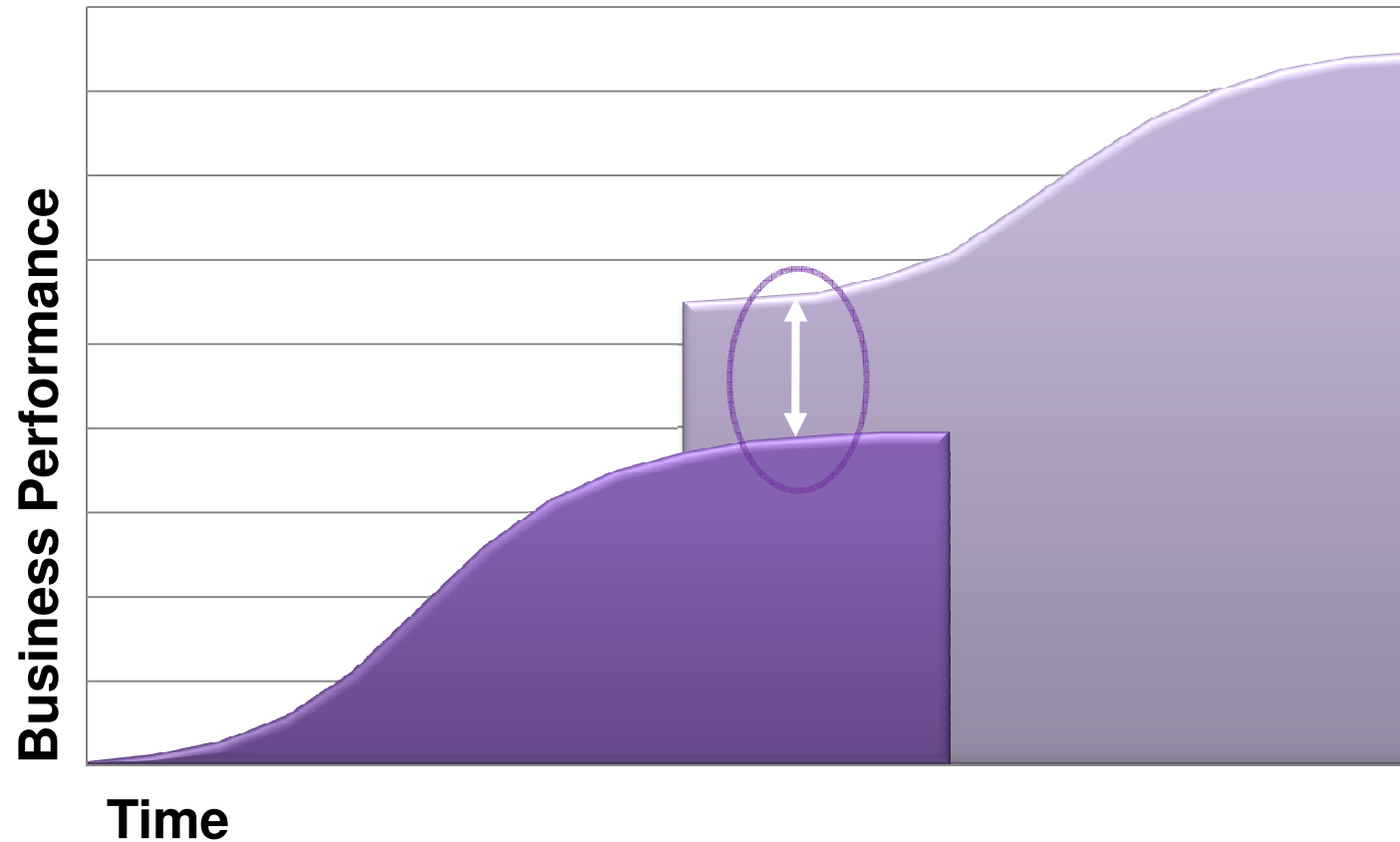
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Oracle on Oracle

This is how we procure systems today!

Public usage, michael.buerger@oracle.com

.. and then put them together!

Public usage, michael.buerger@oracle.com

Typical Technical Architecture
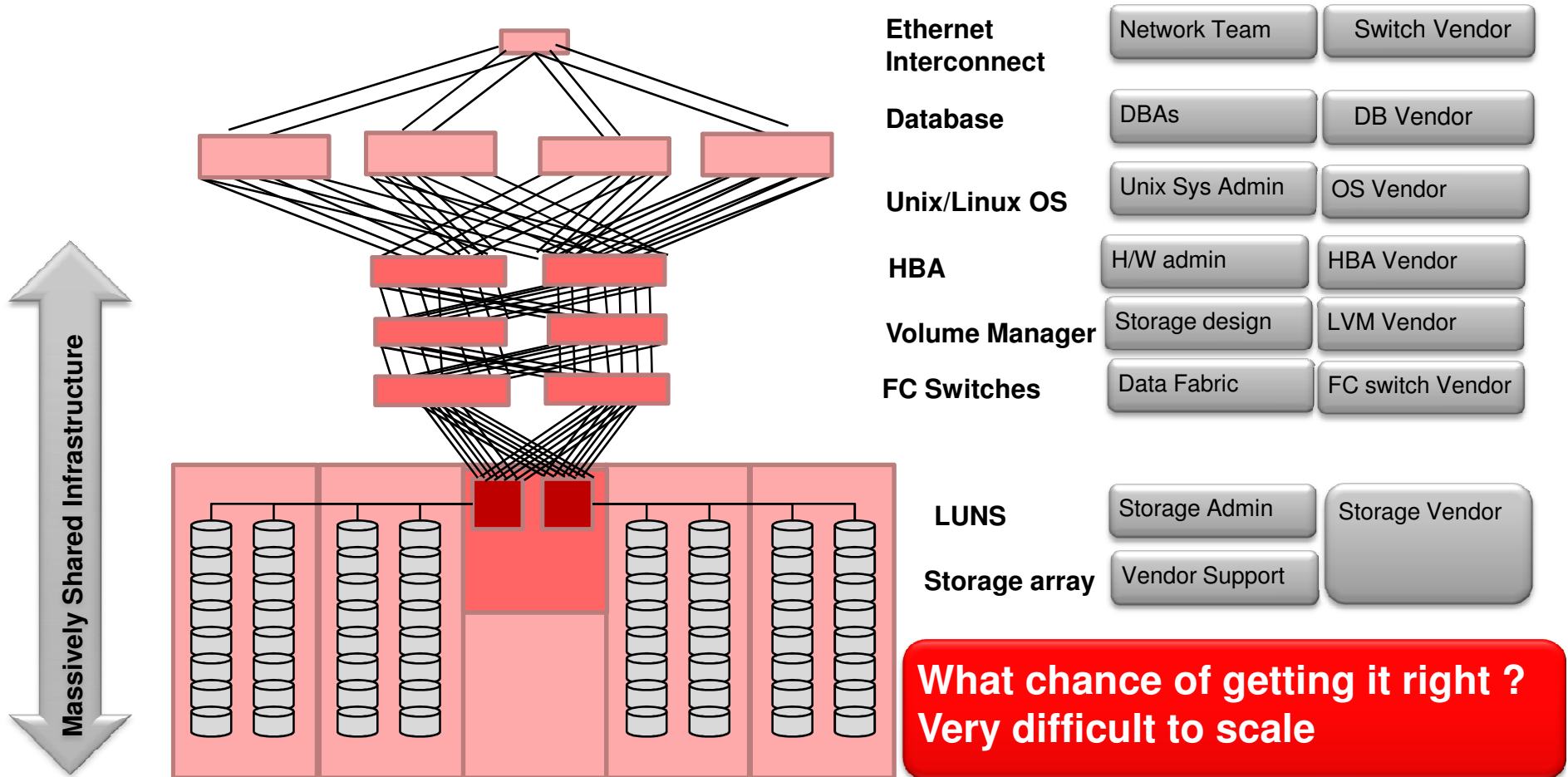## 7 Racks, 128 connections, 7 teams, 7 vendors, to achieve 6 GB/s

Massively Shared Infrastructure

Ethernet Interconnect	Network Team	Switch Vendor
Database	DBAs	DB Vendor
Unix/Linux OS	Unix Sys Admin	OS Vendor
HBA	H/W admin	HBA Vendor
Volume Manager	Storage design	LVM Vendor
FC Switches	Data Fabric	FC switch Vendor
LUNS	Storage Admin	Storage Vendor
Storage array	Vendor Support	

What chance of getting it right ?
Very difficult to scale

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Oracle Exadata Database Machine
Simplified Technical Architecture - Half-Rack, still 12.5 GB/s

Database Servers

DBAs

Oracle

Infiniband Switches

Exadata Storage
Servers
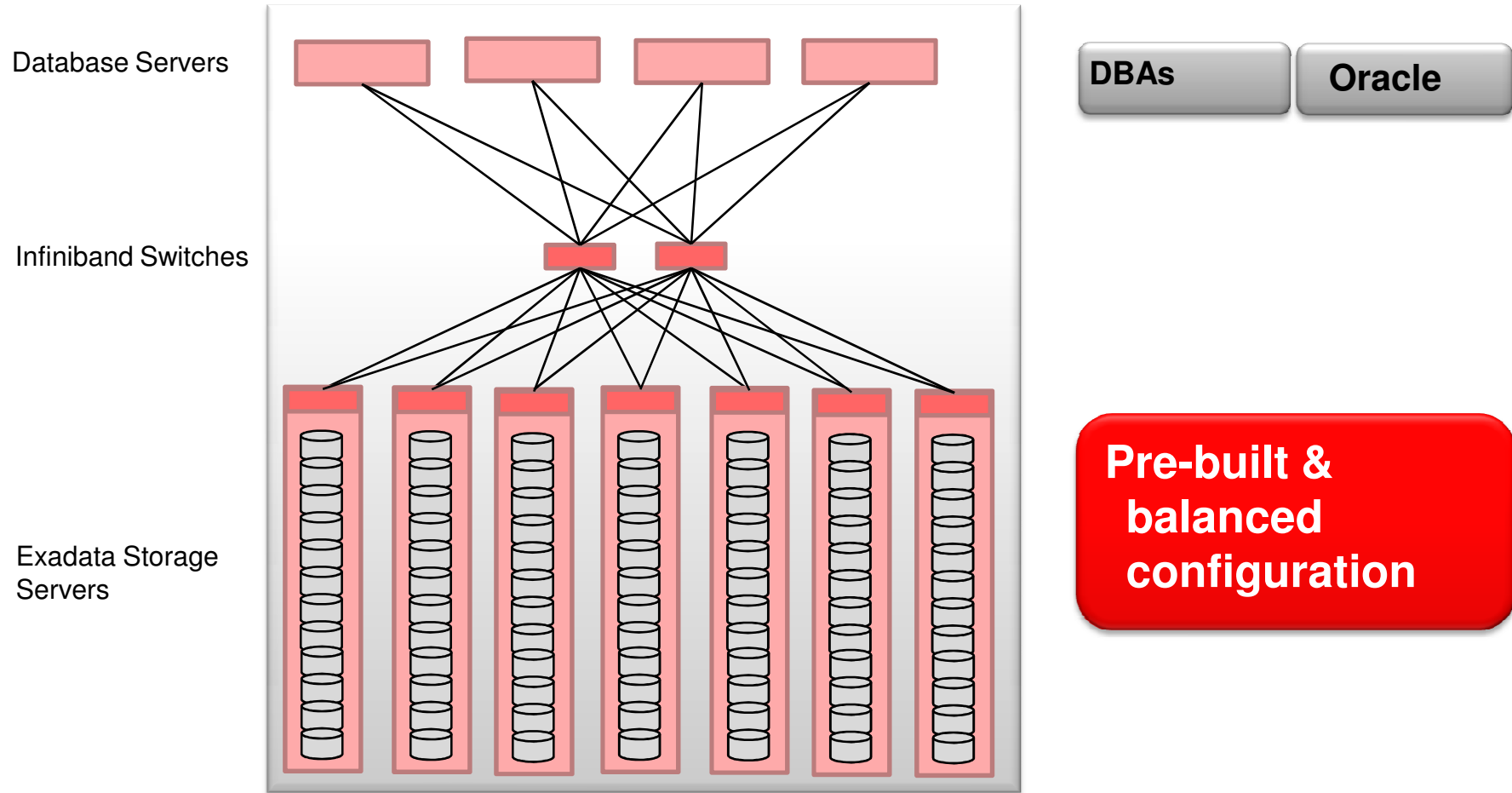
**Pre-built &
balanced
configuration**

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Query Throughput Advantage
Flash + disk bandwith, 75 Giga Bytes/second

Query Throughput
Gigabytes per Second

2.5	5-6	9	11	?	10	11	25	50
IBM XIV	NetApp 6080	IBM DS8700	Hitachi USP V	EMC VMAX	Netezza TwinFin	Teradata 2580	Exadata Disk	Exadata Flash
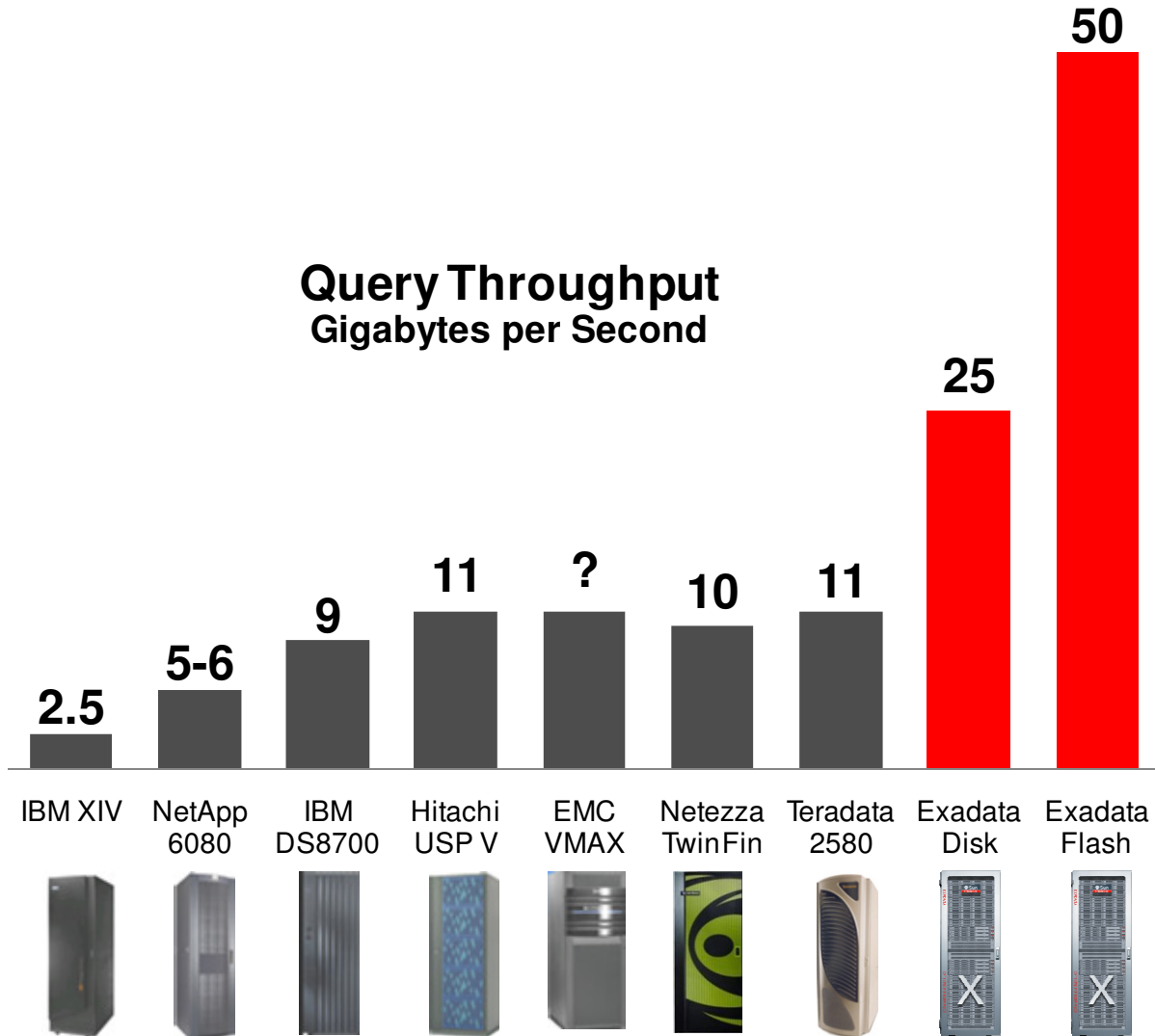
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Complete Family of Database Machines

Flexible choice, add as you grow

Oracle Exadata X3-2   Oracle Exadata X3-8

Eightel

Quarter, Half

Full, Multi-Rack

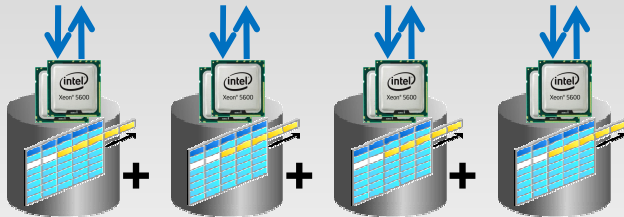**Full-Rack**

Multi-Rack

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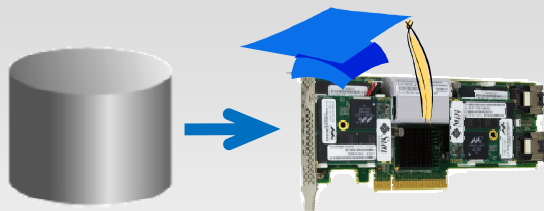# Exadata Innovations
Exadata Storage Server Software

- Intelligent storage
  - Smart Scan query offload
  - Scale-out storage

- **Smart Flash Cache**
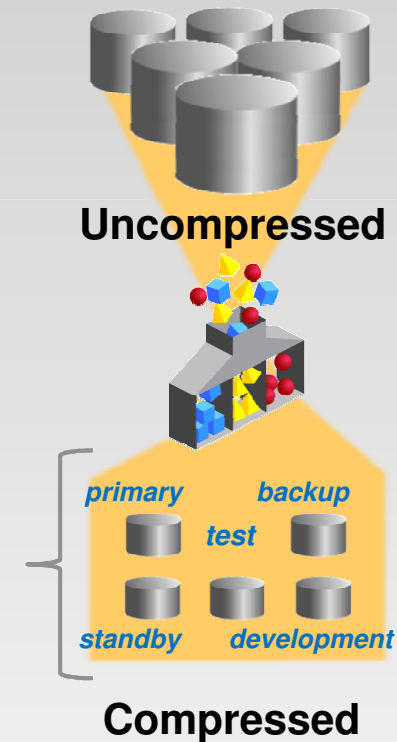 - Accelerates random I/O up to 30x
  - Doubles data scan rate

- **Hybrid Columnar Compression**
  - 10x compression for warehouses
  - 15x compression for archives

Data remains compressed for scans and in Flash

Uncompressed

Benefits Multiply

primary   *backup*

test

standby   *development*

Compressed

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The business case…

Revenue from Infrastructure Underlying Oracle Database Instances by Technology – Traditional Database Model vs. Oracle Exadata Database Machine

US$ in millions, unless otherwise stated

	Traditional Database Model	Oracle Exadata Database Machine	$ Difference	% Difference
Server	$4,670	$4,670	-	0%
Storage	$4,770	$2,359	(2,411)	-51%
Storage Software	$859	$2,745	1,886	220%
Networking	$946	$-	(946)	-100%
HBAs	$308	$-	(308)	-100%
Total	**$11,553**	**$9,775**	**(1,779)**	**-15%**

Source: IDC, Gartner, Credit Suisse.

Performance up 10 times

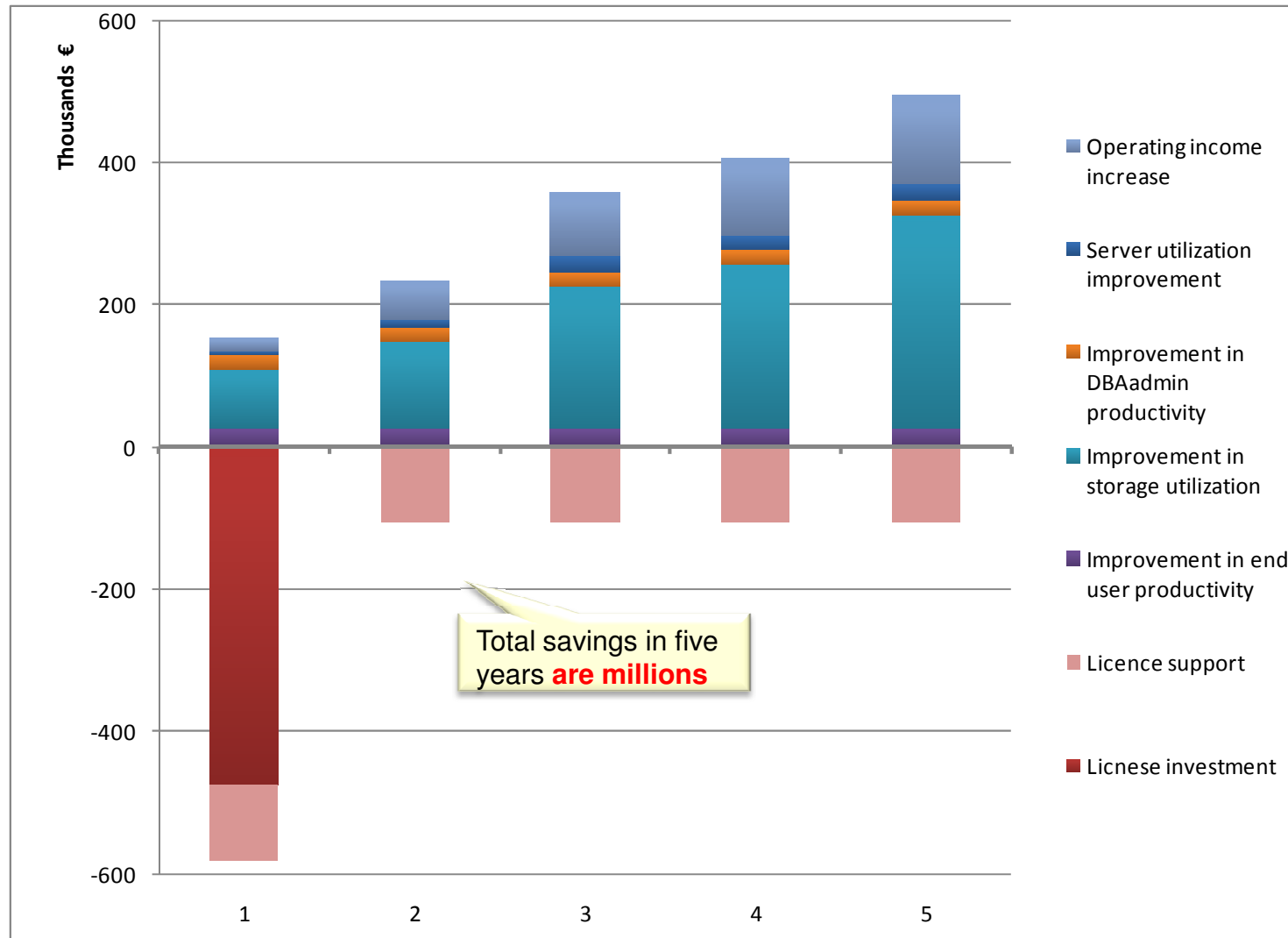CapEx less 15%

OpEx less 10% annually or more

- Server and Storage
- Networking
- Floor space, Power Supply
- Database maintenance

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Source: Credit Suisse 2011

... customer example for the business case

Source: Oracle Ex-cite customer workshop

Engineered Systems

Analyst Info on RDBMS Market

IDC: RDBMS*						
	Rev. 2010 ($USM)	Rev. 2011 ($USM)	Growth 2010	Growth 2011	Share 2010	Share 2011
Oracle	10,114	12,119	13.0%	19.8%	44.7%	46.6%
IBM	4,662	5,132	5.0%	10.1%	20.6%	19.7%
Microsoft	4,599	4,984	12.4%	8.4%	20.3%	19.2%
SAP	697	1,004	2.8%	44.0%	3.1%	3.9%
Teradata	789	899	19.5%	13.9%	3.5%	3.5%
Fujitsu	237	264	-2.7%	11.4%	1.0%	1.0%
Progress	216	222	9.8%	2.6%	1.0%	0.9%
Total	22,603	26,004	10.3%	15.1%		

Source: IDC WW Software Market Forecaster 2012," May 15 2012

- **Oracle market share up from 44,7% to 46,6%**
- IBM, by contrast, saw its share decrease from 20.6% to 19.7%.
- Microsoft's share declined from 20.3% to 19.2%.

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How to migrate to 11gR2?

- **Migration effort depends on the source**
- **9i, 10g to 11g better with EM RAT**
- **In hours or days with O2O**
- **In minutes with triple O (Oracle to Oracle Online) with Oracle Golden Gate**
- **Tool based migration from any third party database source with Ispirer**

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New 11g Database Options

Reduced Exadata delivery time creates DBO revenue opportunity

Faster hardware based encryption plus won time for DB Vault

Enterprise Manager 12c with capacity planning, chargeback. RAT includes SPA and real workload testing for 11g migration.

Active Data Guard, Activation of back-up site for reporting. Advanced Compression for massive storage cost savings.

11gR2 Exadata, managing more data volume on less costs. 10x DWH and 2x OLTP improvement based on unique Exadata Storage Server Software. Delivered in weeks not months.

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Engineered Systems
One Sentence Description of Each System

ENGINEERED SYSTEMS			
SPARC SuperCluster	**Exadata**	**Exalogic**	**Exalytics**
Engineered clustered system for general purpose computing. Designed for **enterprise consolidation** of Oracle and third-party applications and database environments	**Extreme performance database** system for consolidation, data warehouse, OLTP, and mixed workloads	**Extreme performance** optimized for **Oracle Apps, Oracle FMW**, can run 3rd party apps	**Extreme performing** in-memory and middle tier **analytics** platform
Oracle Database Appliance		**Big Data Appliance**	
Complete, affordable HA **database system** for the mid-market, **optimized for ease of use**		Expandable Hadoop and NoSQL based system, **optimized for** acquiring, organizing, and analyzing **low density and unstructured data.**	

GENERAL COMPUTE SERVERS			
X Series	**Midrange M Series**	**High End M Series**	**T4 Series**
General purpose compute x86-based alternative for running Oracle VM and the Oracle stack	**Midrange, highly available, and scalable** SPARC server for database and general purpose applications	**High end, mission critical. and scalable** SPARC server for large single instance database and general purpose applications	Scalable SPARC performance server for **both multi- and single threaded applications**, including database, and general purpose applications

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Utilities

Oracle Exalytics In-Memory Machine

"We realized a five-fold improvement in database query performance with Oracle Exalytics. Interactively data is available for 360° view from highest to detailed level. We save time and energy as time consuming Excel download is obsolete. With Oracle Exalytics, we will be able to deliver data faster and give users an improved experience in terms of the interactive visualization. I am excited about the potential for Oracle Exalytics to take business intelligence at Key Energy Services to the next level." – **John Hood, Vice President and Chief Information Officer, Key Energy Services, USA**
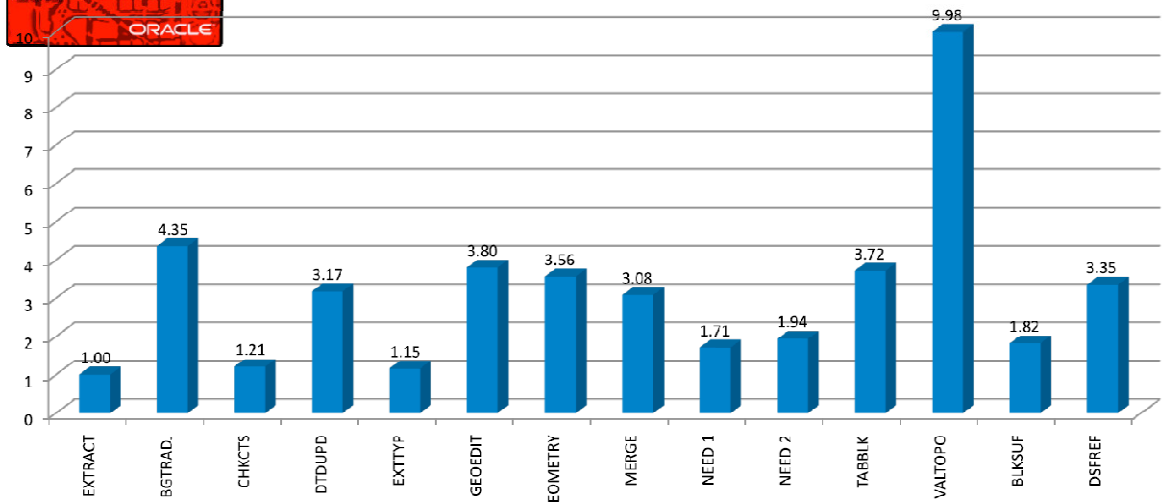
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http://www.oracle.com/us/corporate/customers/customersearch/key-energy-services-1-exalytics-sl-1508274.html

Public Sector

Oracle Exadata Database Machine

Oracle Spatial

"With Exadata versus competetive platforms, our Oracle Spatial based solution runs 3x faster. For example 98% of refresh completed in 6 days versus 3 weeks." - Atri Kalluri
Assistant Division Chief Spatial Management

Oracle Spatial User Conference 2012

Benefits Realized so far

| Category	Value
EXTRACT	1.00
BGTRAD.	4.35
CHKCT5	1.21
DTDUPD	3.17
EXTTYP	1.15
GEOEDIT	3.80
EOMETRY	3.56
MERGE	3.08
NEED 1	1.71
NEED 2	1.94
TABBLK	3.72
VALTOPO	9.98
BLKSUF	1.82
DSFREF	3.35

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High Technology

Oracle Exadata Database Machine

Oracle Exalogic Elastic Cloud

"**Exalogic exceeded our expectations by 3-22x in both response time and total throughput, compared to our Java EE Application** formerly deployed on IBM WebSphere **with IBM MQ Series Messaging on IBM p570. We migrated the Application to Oracle WebLogic with its embedded Messaging System.** "

- vs Current
- vs Expected
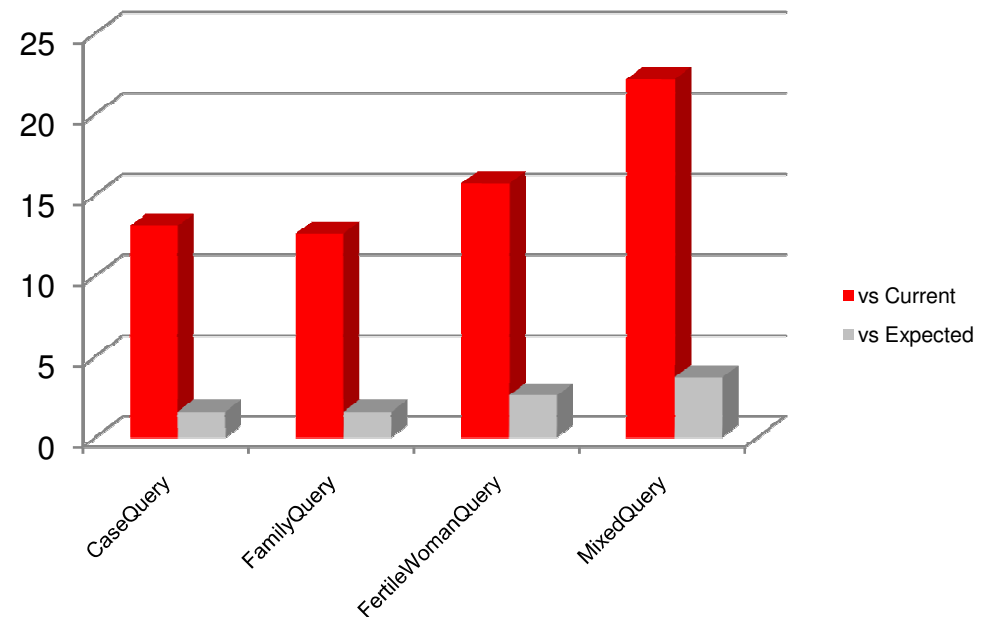
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Cloud Service Provider in China replaced IBM with Oracle Engineered Systems

Exadata is the Architecture of the Future
Massively Parallel Grid

Best Platform Data Warehouse Migration

8i, 9i, 10g, 11gR1, Terradata, DB2, SQL, Sybase, BW

Get same reports faster, execute more reports

Best Platform for OLTP

EBS, Siebel, PeopleSoft, JDEdwards, iFlex, SAP, ISVs

Improve SLAs with business lines, reduce IT costs
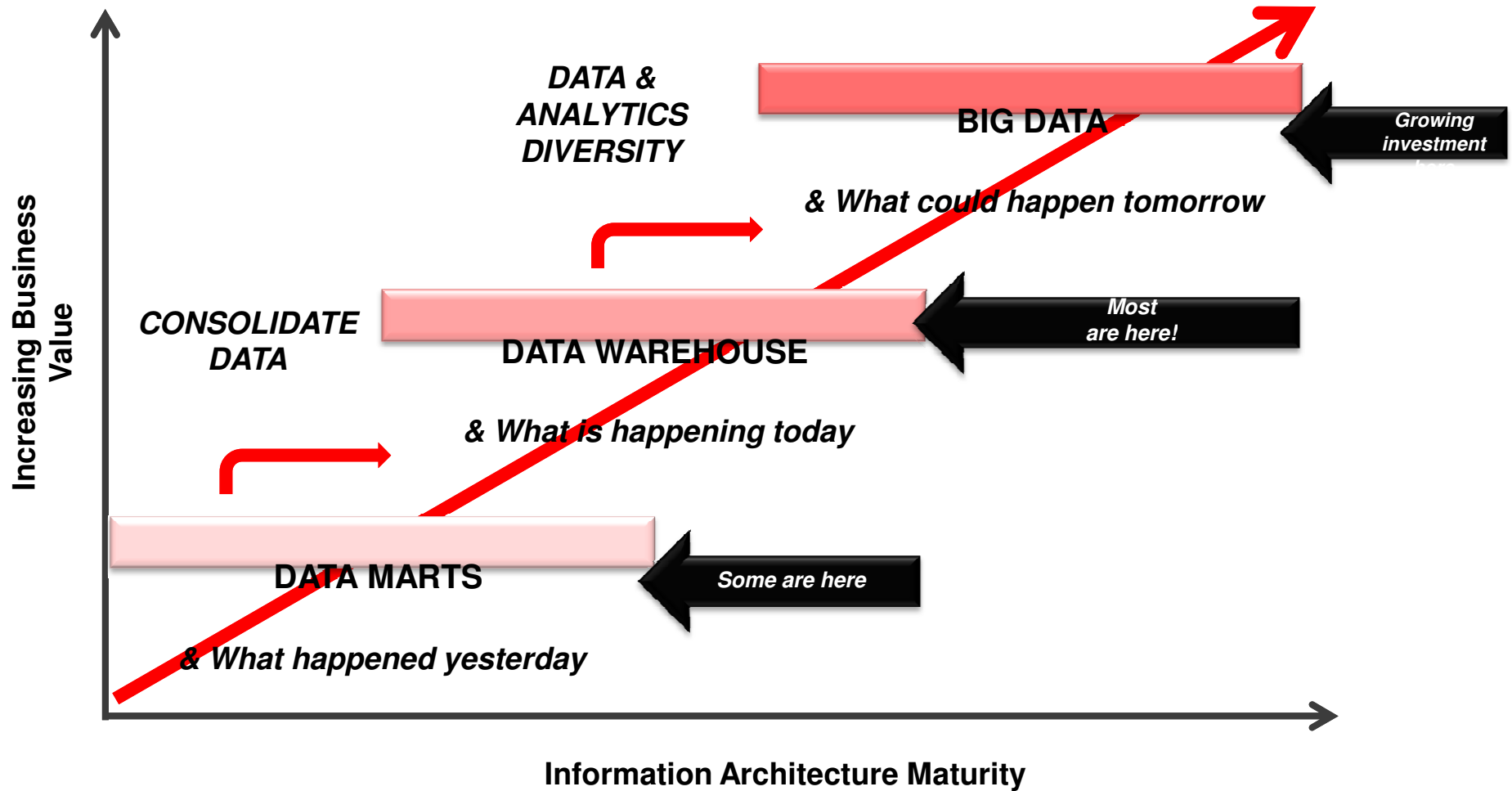
Best for Consolidation and Cloud

Enterprise Data Integration front, to middle to back office
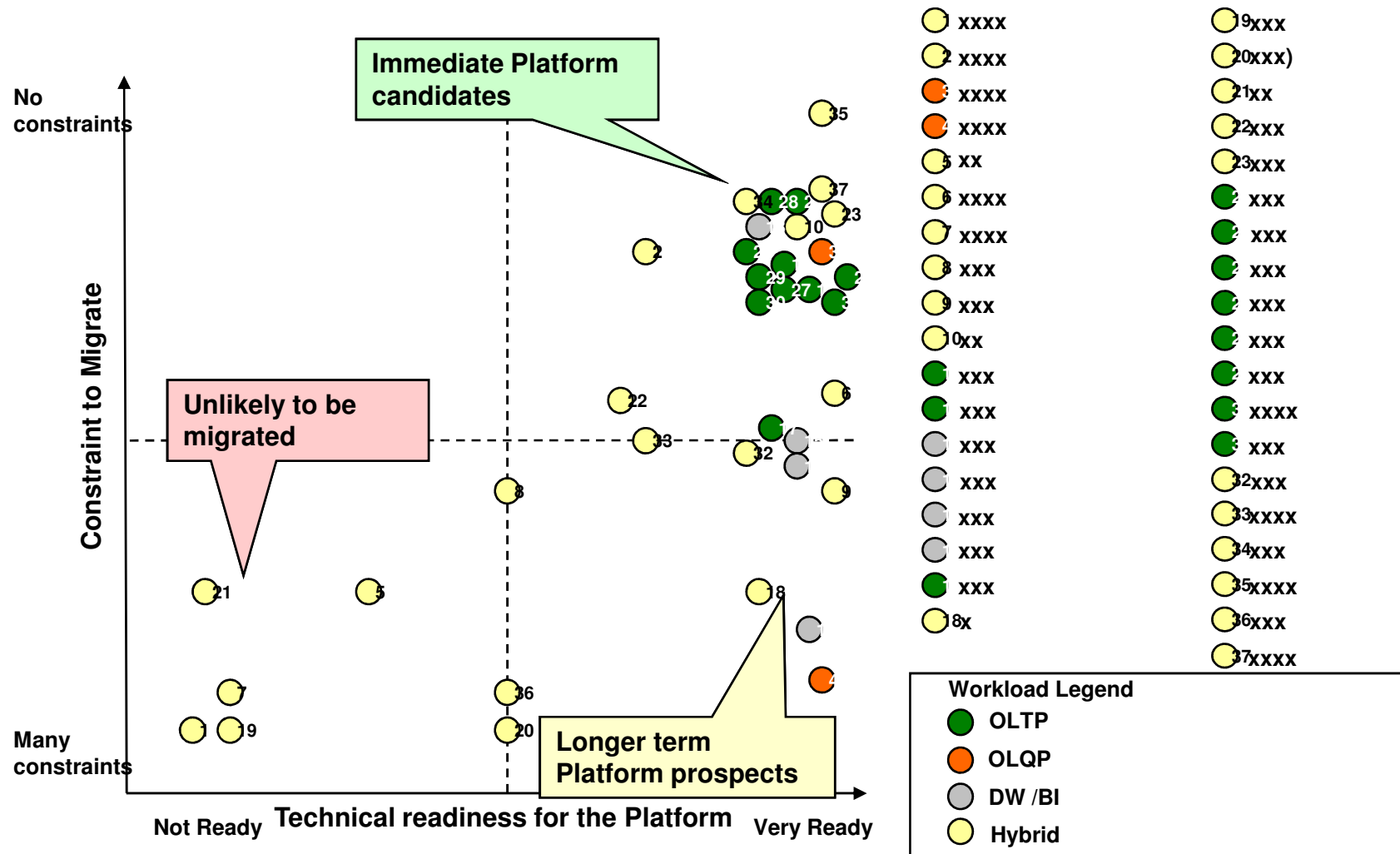
Make current budget available for new projects

EXADATA

EXTREME PERFORMANCE

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The Data Warehouse Evolution
What are Oracle's customers deploying today?

Increasing Business Value

DATA & ANALYTICS DIVERSITY

BIG DATA

Growing investment

& What could happen tomorrow

CONSOLIDATE DATA

DATA WAREHOUSE

Most are here!

& What is happening today

DATA MARTS

Some are here

& What happened yesterday

Information Architecture Maturity

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Approach: Candidate App Selection

No constraints

Immediate Platform candidates

Constraint to Migrate

Unlikely to be migrated

Many constraints

Longer term Platform prospects

Not Ready **Technical readiness for the Platform** **Very Ready**

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9xxx
20xxx)
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32xxx
33xxxx
34xxx
35xxxx
36xxx
37xxxx

Workload Legend
- 🟢 OLTP
- 🟠 OLQP
- ⚪ DW /BI
- 🟡 Hybrid

Applications are in various states of Platform 'readiness' – most remediation was minor Clusters of Oracle based applications ready for Platform migration were apparent
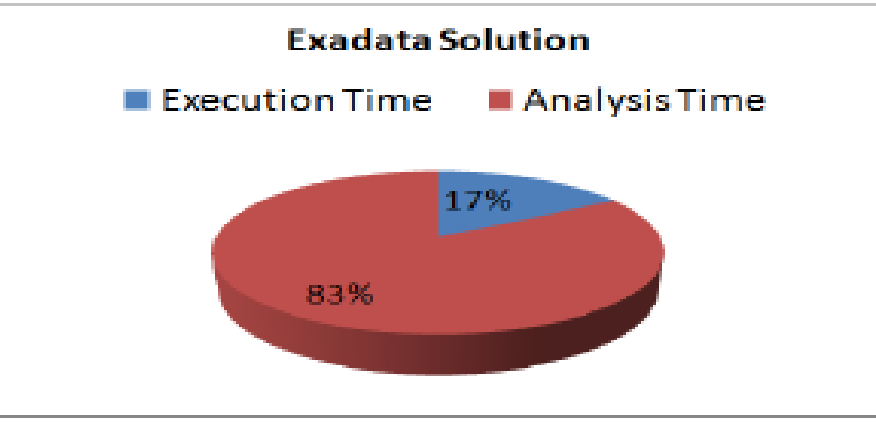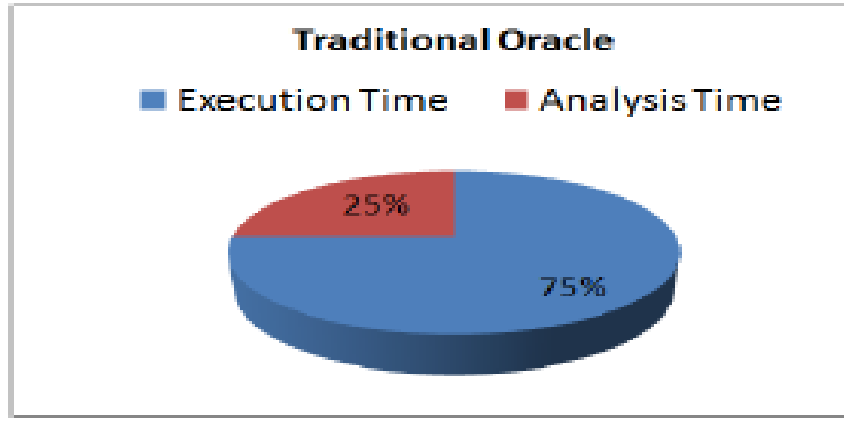
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Published ISVs Exa Ready
www.cvidya.com

cvidya
Revenue Intelligence

The Exadata Impact

Test area	Improvement Factor on ¼ Exadata V2-2
Data Transformation	5.4x
Data Loading	19.6x
CDR Reconcilication	6.5x
Query time	80s – 4s

Traditional Oracle
■ Execution Time ■ Analysis Time

25%
75%

Exadata Solution
■ Execution Time ■ Analysis Time

17%
83%

http://www.sdn.sap.com/irj/sdn/ora

This page is a screenshot of the SAP Community Network website showing the "SAP ON ORACLE" page, with a large yellow highlight reading "June 10, 2011" overlaid.

Oracle Stack Advantage with SAP
Oracle DB11gR2 is the version being maintained

	SAP
• 11.2 Certification	• Done
• Real Application Clusters	• Done
• Partitioning	• Done
• Compression	• Done
• Transparent Data Encryption	• Done
• Database Vault	• Done
• Management Packs	• Done
• Maximum Availability	• Done
• Data Guard	• Done
• Edition Based Redefinition	• Done

SAP with Advanced Compression
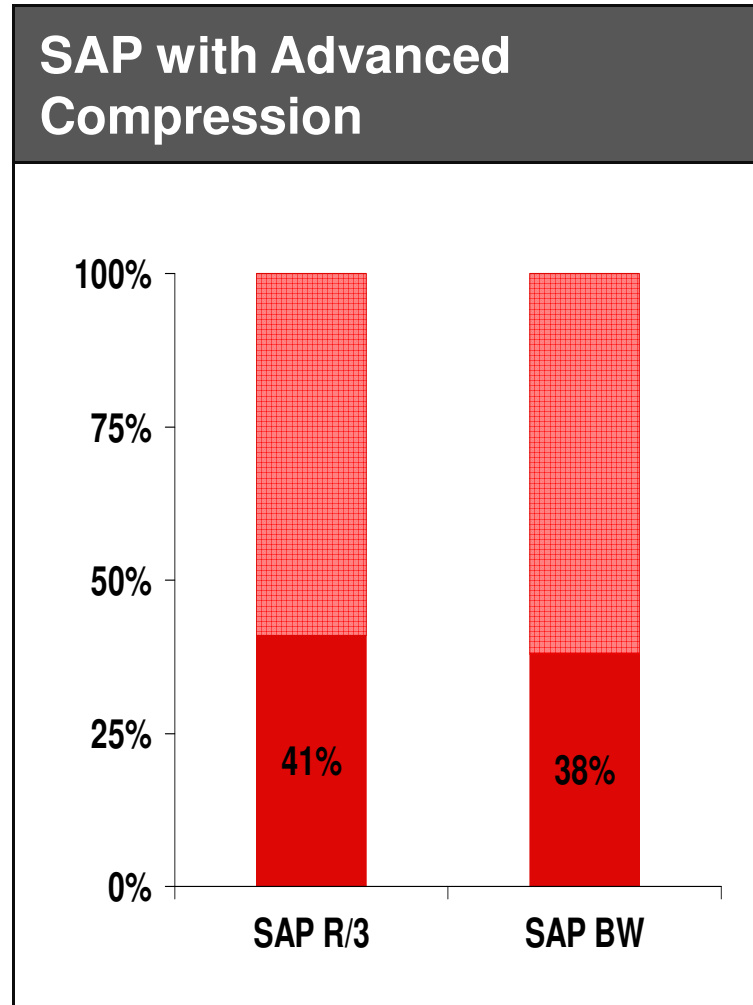
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Oracle Roadmap To Cloud Methodology Can Be Used To Guide The Main Steps Of Consolidation

Government Cloud could be "just" one step ahead

Our Recommendations Focus on the first three stages of the Roadmap for now

Cloud Computing

Provide a fully elastic basic infrastructure for scaling on-demand

Use fully automated ITIL based IT processes (incl. provision, patch, etc.)

Establish pay-per-use model (internal and external)

Establish unified security and risk policy (incl. automated role-based access)

Flexible assemblies for dynamic development and deployment of applications

Provide self-service portal for along full lifecycle

Allow integration of external cloud services and cloud brokering via common enterprise bus

Virtualization

Virtualize technical architecture, storage, servers, network, VTL.

Become location agnostic to leverage space and available capacity on-line

Auto-provision for predefined environments

Ensure security certifications for virtual environments

Use a unified management environment for applications, middleware, database, infrastructure based on SLAs.

Standardization

Standardize technical architecture, storage, servers, network

Standardize basic operating procedures

Application teams define requirements based on service levels, not functions

Harmonize OS, database, MW versions and vendors

Use advanced storage management, (e.g. data de-duping, in-memory storage for fast access)

Consolidation

Consolidate # of DC

Identify core technology, platform standards

Consolidate global contracts

Define SLA, build definitive services library

Co-locate of non-critical applications

Consolidate storage (use of partioning, compression, tiered storage)

A Methodology Based on Oracle Best Practices

Source: Oracle Analysis 2012 May

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Customer statements
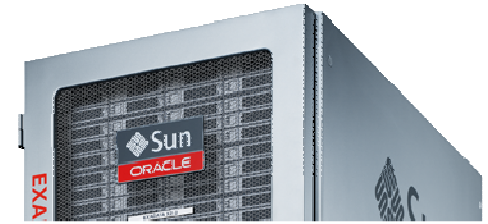
- **Telco**, Exadata improved our ETL processes significantly 72x
- **Banking**, Exadata improved Siebel CRM performance by eight times
- **Insurances**, Exadata changed the performance needed significantly
- **Retail**, Exadata allows us to create dynamic reports on the fly
- **Government**, with Exadata we escaped from legacy systems
- **Utilities**, With Exadata we improved DWH and OLTP including our back-up
- **Media**, with Exadata we process hundred of orders in EBS 24/7
- **Manufacturing**, We measured an incredible performance gain for SAP
- **Market Research**, Exadata allowed us to manage our growth
- **Consulting**, Migration to Exadata from multiple DBs to just one instance
- **Airline**, Exadata and OBIEE enhance business agility and competitiveness
- **Travel Transport**, Exadata fits OLTP and DWH, ad-hoc queries in seconds
- **Oil Gas**, Exadata provides significant cost savings for servers and storage
- **Professional Services,** Exadata is the smartest solution on the market

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Find Exadata References

- ## Banking
  Turkey Finansbank http://www.oracle.com/us/corporate/customers/finansbank-1-exadata-snapshot-345790.pdf
  Romania Banca Transilvania http://www.oracle.com/us/corporate/customers/banca-transilvania-snapshot-152771.pdf
  Germany Deutsche Bank http://www.oracle.com/us/corporate/customers/customersearch/deutsche-bank-1-exadata-snapshot-1562804.html
  France BNP http://www.oracle.com/us/corporate/customers/customersearch/bn-paribas-exadata-ss-406052.html
  Australia AFG http://www.oracle.com/us/corporate/customers/australian-finance-1-exadata-ss-366907.pdf
  Video example http://medianetwork.oracle.com/video/player/1264995401001

- ## Telco
  Turkey Turkcell http://www.oracle.com/us/corporate/customers/turkcell-exadata-snapshot-189469.pdf
  Ukraine KievStar http://www.oracle.com/us/corporate/customers/customersearch/kyivstar-exadata-5-snapshot-1449395.html
  Germany Eplus http://www.oracle.com/us/corporate/customers/customersearch/eplus-mobilfunk-1-exadata-ss-1419460.html
  UK BT http://www.oracle.com/us/corporate/customers/customersearch/bt-1-university-snapshot-1624058.html
  Japan Softbank http://www.oracle.com/us/corporate/customers/softbank-mobile-corp-7-exadata-cs-214491.pdf
  Video example http://medianetwork.oracle.com/video/player/1158112694001

- ## Partners
  VAD FORS Russia http://www.oracle.com/us/corporate/customers/customersearch/fors-dev-center-1-exadata-ss-433986.html
  ISV ATS Saudi Arabia http://www.ats-ware.com/ExaOptimized/solutions.htm
  SI Romania System Integrator video example http://link.brightcove.com/services/player/bcpid62612523001?bctid=1432221234001

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The Business Value

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A Target Architecture That Fits Into The Concept And Ensures Business Continuity

Ensures business continuity

Has enough capacity to fulfill requirements

Keeps or improves security requirements

Simpler than today

Target Architecture

Uses the most up-to-date technology
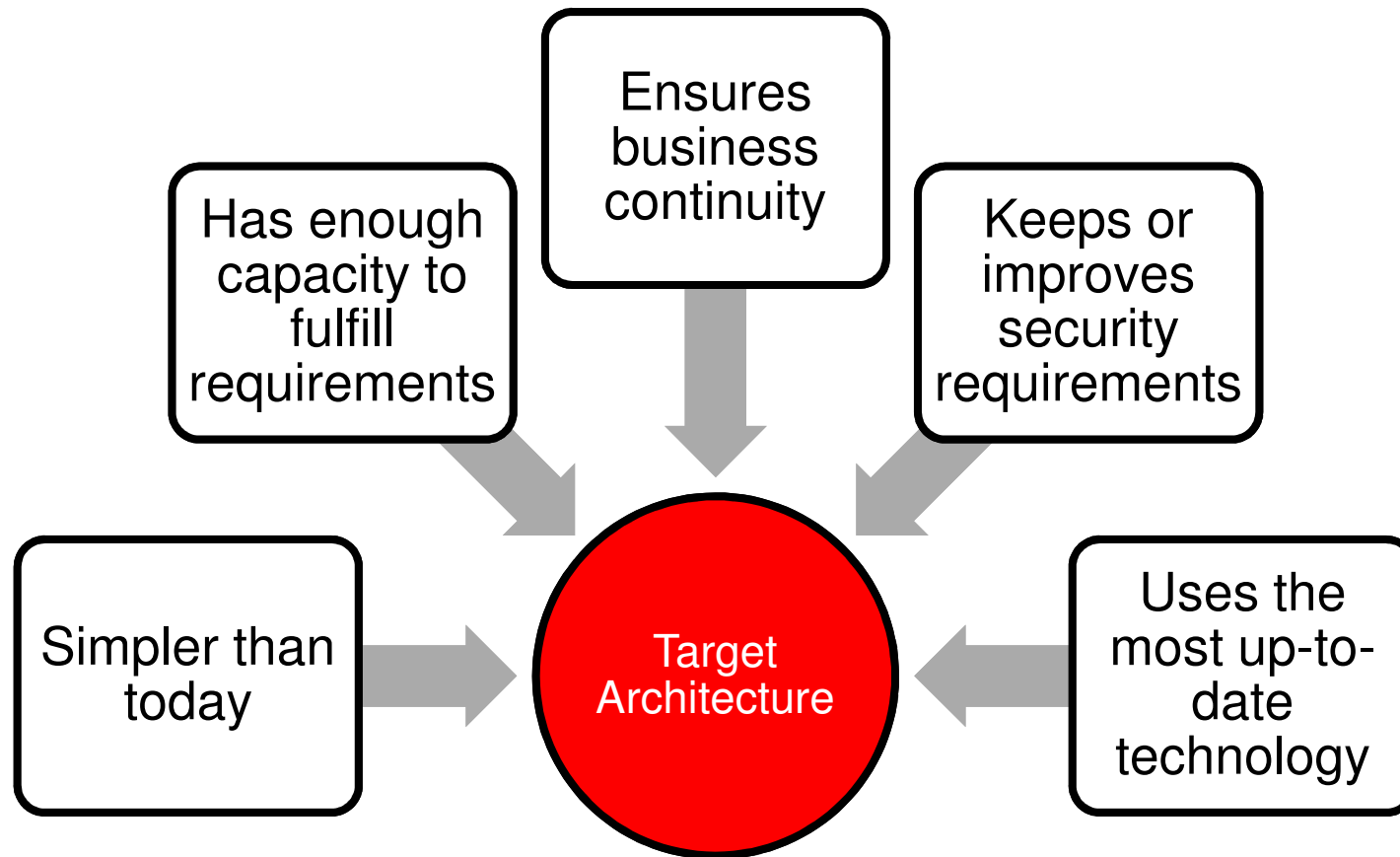
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Exadata is competitive...

- **much faster than IBM and HP**

- **less storage intensive than EMC**

- **Best platform for Oracle Databases**

- **Platinum Services 24x7 Included**
  http://www.oracle.com/us/support/premier/engineered-systems-solutions/platinum-services/overview/index.html

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References statements, Exadata is ...

- **enables more detailed analysis**

- **eliminates slow application response**

- **reduces CAPEX costs via consolidation and enables Cloud**

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Engineered Systems
ISV Value Proposition Oracle Exadata Database Machine

Value to the Customer

- Significant performance improvements for core business processes 2x or more

- Reduced implementation time with less system integration efforts from months down to <1 week

- Shortened preparation time on ISV release upgrades based on pre-integrated solution readiness

- Less budget on maintenance, more headcount time on new projects

- Better CAPEX and OPEX because of cost savings on server, storage, power supply and room space

Value to the Partner

- Increased solution competitiveness, more market share from competition

- Significantly reduced ISV application deployment time at new customers

- Increased readiness for existing customers migrating faster to latest release of ISV application leading into improved customer loyalty

- Less maintenance efforts as customers running a unified environment

- More margin based on overall TCO advantage minimizing discounting needs on software

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Engineered Systems
SI value Proposition Oracle Exadata Database Machine

Value to the Customer

Significant performance improvements for core business processes 10x

Reduced implementation time with less system integration efforts from months down to weeks or days

Shortened apps release upgrades on pre-integrated solution readiness

Less budget on maintenance, more headcount time on new projects

Better CAPEX and OPEX because of cost savings on server, storage, power supply and room space

Value to the Partner

Increased solution competitiveness, from <20% to >200% before/after, more market share from competition

Significantly more time for advanced implementation services such as DR, Security, Manageability

More references

More new projects

More margin on more software and more advanced services versus lower daily standard services rates

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Conclusions and Next Steps

Conclusions for Customers and Partners
Engineered Systems

- **Exadata is driving Engineered Systems**

- **Technical Workshops with Oracle**

- **References in all industries >200, 1b$ May 12**

- **Exadata ISV readiness and optimized**

- **More new projects faster delivered for customers with ISVs and SIs certified**

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Next Steps

Engineered Systems

- **Scope your first project on Oracle Workshop**
- **Identify a partner**
- **Fly-in or Drive-out for technology demonstration**
- **Call a reference**
- **Run the new project in weeks not months**
- **Meet your business department requirements sooner**

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Engineered Systems Competency Centers
One of your choice, demo (on-site or remotely), workshop, PoC and ISV testing

- **Big Data, Exalytics, Exalogic, Exadata, SuperCluster, OSC Reading**
  - http://my.oracle.com/site/emeasc/Solutions/oraclesolutioncentre/index.html
- **Exadata for SAP, Oracle Competency Center Walldorf**
  - http://sapcc.de.oracle.com/
- **Exalytics, Exalogic, Exadata, Arrow ECS, VAD, Krakow**
  - http://www.oracle.com/us/corporate/customers/customersearch/arrow-ecs-1-exadata-ss-431623.html
- **Exalogic, Exadata, Avnet, VAD, Brussels, Dubai, London**
- **Exadata, Sysman, System Integrator, Budapest**
  - http://www.oracle.com/us/corporate/customers/customersearch/sysman-informatik-co-1-exadata-ss-489194.html
- **Exadata, DBconcepts, System Integrator, Vienna**
  - http://www.oracle.com/us/corporate/customers/customersearch/dbconcepts-daten-1-exadata-ss-1663957.html
- **Exadata, Comparex, System Integrator, Vienna**
  - http://www.oracle.com/us/corporate/customers/customersearch/comparex-1-exadata-snapshot-1419921.html
- **Exadata, Omnilogic, VAD, Bucharest**
  - http://www.oracle.com/us/corporate/customers/customersearch/omnilogic-1-exadata-ss-1645625.html

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Oracle Exadata Database Machine

Oracle Exalogic Elastic Cloud

Oracle Exalytics

Big Data

Super Cluster

- **About OSC, Oracle's EMEA Technology Solution Center in Reading UK provides the capability to test Exadata, the most advanced technology in the area of data warehouse and OLTP. OSC provides the capability for partners and connected customers to verify the performance of the fastest hardware & software combined solution – towards real end customer's environments.**

- Demo, half day, enables demo with sample data for one or more customers, on-site in UK for a customer delegation or remotely connected at Oracle offices

- Workshops, full day, more in-depth demo for one or more customers

- Customer PoCs or Benchmarks, enables a one or multiple weeks engagement with customer data from 1 to 5 TB, for testing on Exadata that delivers the fastest possible performance for customers business

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Request a visit via Oracle http://my.oracle.com/site/emeasc/Solutions/oraclesolutioncentre/index.html

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michael.buerger@oracle.com