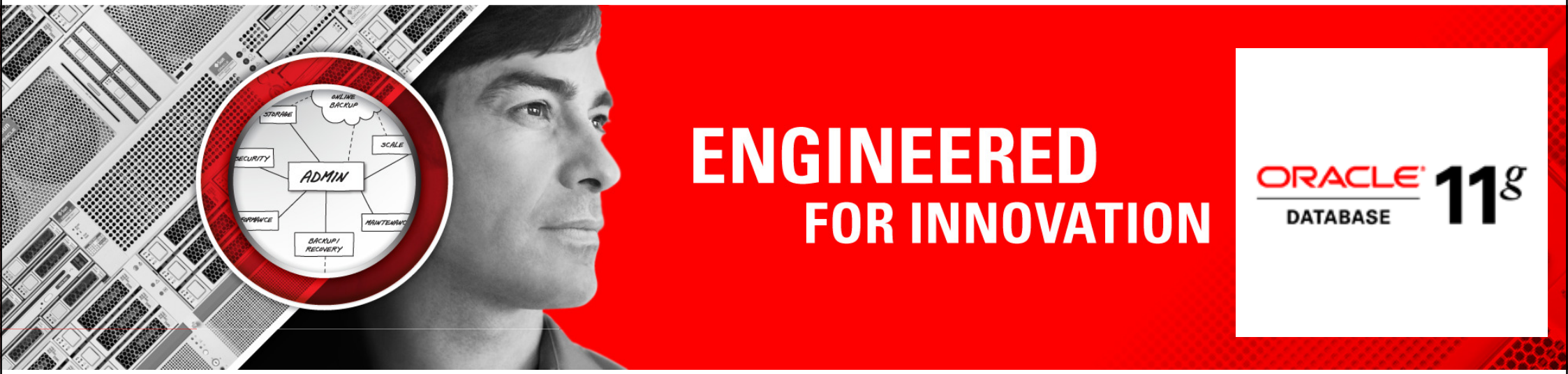
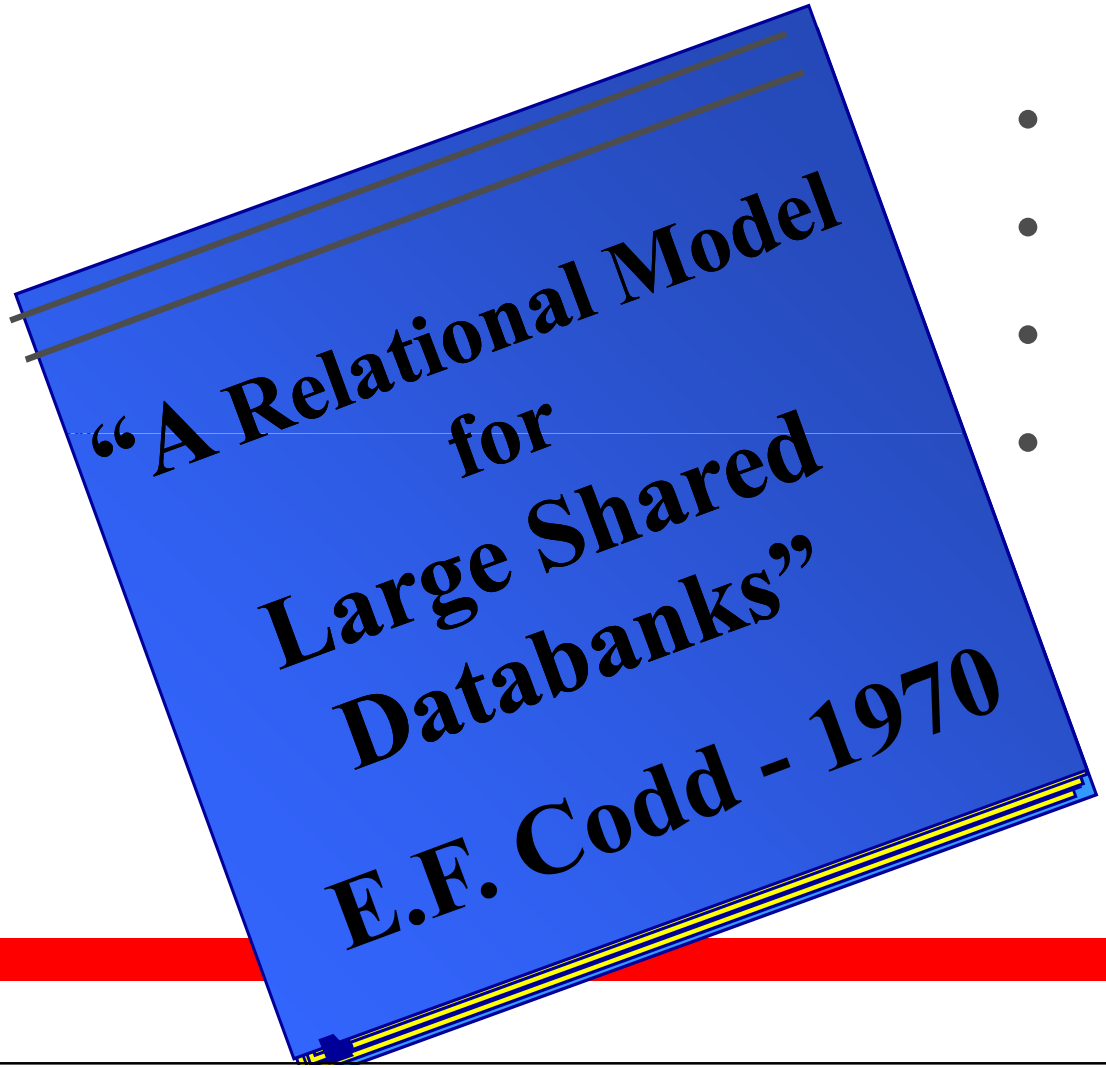


ORACLE®

Oracle - Engineered for Innovation

Thomas Kyte
http://asktom.oracle.com

The Beginning...



- Data Model with Structure
- Data Independent of Code
- Set-oriented
- 1977 the work begins

GPS
1978

First RDBMS: Version 2

June 1979

- FIRST Commercial SQL RDBMS
- Impressive First SQL
  - Joins, Subqueries
  - Outer Joins, Connect By
- A Simple Server
  - No transactions, ‘Limited’ Reliability
- Portability from the Start
  - Written in Fortran
  - But multi-platform – PDP11, Dec VAX

IBM PC – 1981

IBM model number 5150, introduced on August 12, 1981.

Internet (as we know it) – 1983

The first TCP/IP-based wide-area network was operational by January 1, 1983 when all hosts on the ARPANET were switched over from the older NCP protocols.

Portability: Version 3
March 1983

- New Implementation Designed for Portability
  - Written in ‘C’
  - Single Source
- Architectural Changes
  - Transactions, multi-versioning, no read consistency
  - AI/BI files
- Oracle Corporation – name established

25 years of cell phone service

GOING WIRELESS | First cell phone call at Soldier Field in October '83

October 13, 2008

BY BRAD SPIRRISON AND SANDRA GUY
brad@midwestbusiness.com sguy@suntimes.com

Who would have thought 25 years ago that Americans would walk around like the Borg from "Star Trek," seemingly wired in to their cell phones around the clock?

The inventors of the cell phone certainly didn't.

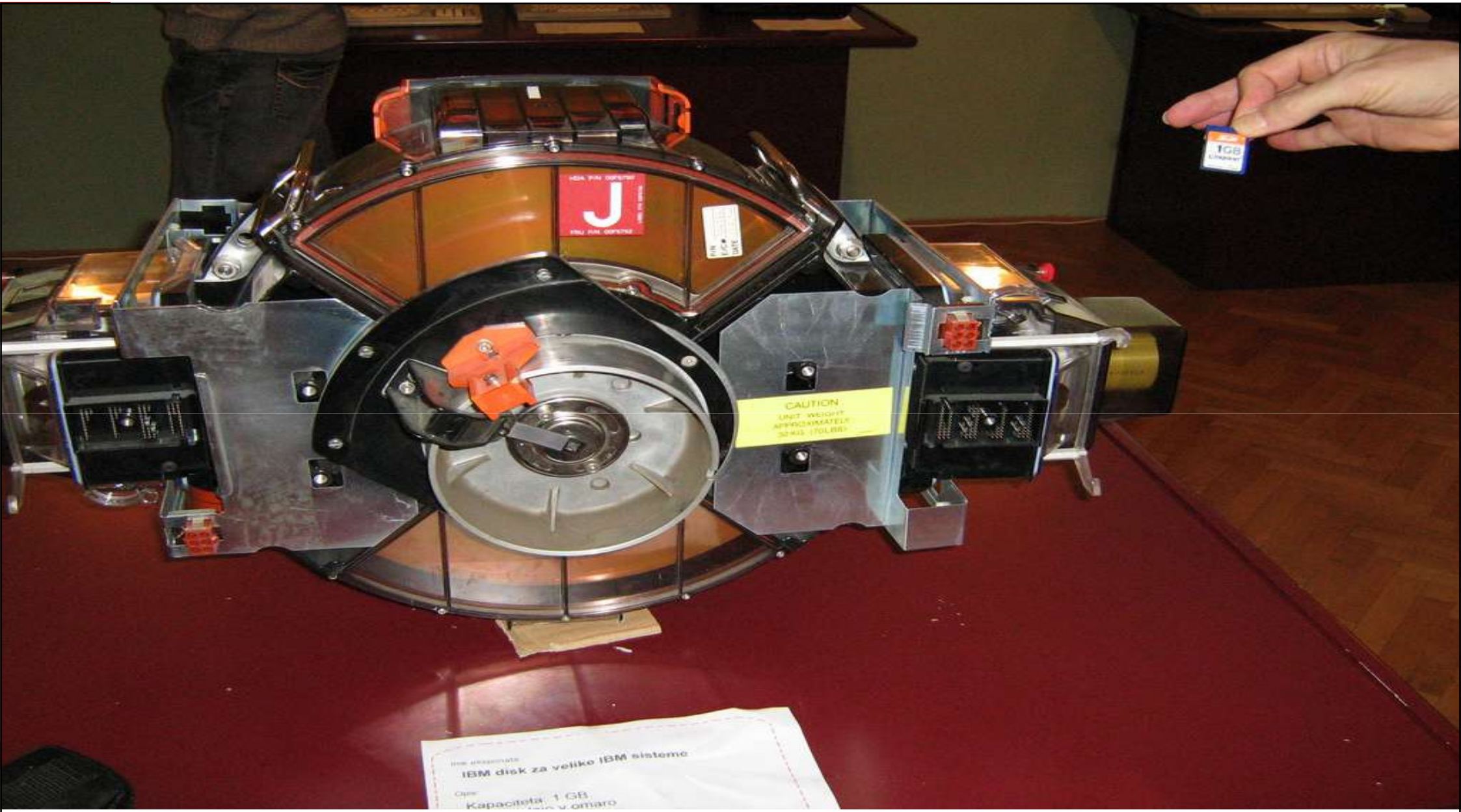
» Click to enlarge image

The Motorola DynaTAC 8000X cost $3,995, was 13 inches long, and weighed 1.75 pounds.
(Courtesy)

Today marks the 25th anniversary of the first commercial wireless call. It happened Oct. 13, 1983, at Soldier Field, where Ameritech Mobile, now part of Verizon Wireless, made the call from a Motorola DynaTAC 8000X known as the "brick" phone. The phone cost $3,995, was 13 inches long, and weighed 1.75 pounds.

Paul Gudonis, who was vice president of marketing for Ameritech Mobile Communications and who organized the launch, said 20 customers of the

Done


J
CAUTION
1GB
IBM disk za veliko IBM sistemo
Kapaciteta: 1 GB

Cooperative Server: Version 5
April 1985

- *My* First Oracle Experience
  - 1st Client/Server
  - Cooperative Server
    - Distributed Processing
    - Parallel Server
  - Portability
    - V5 was first to go beyond 640K memory on PCs
    - Single-user for Macintosh o/s
  - **SQL_TRACE**
    - select trace('sql',1),1 from dual;

Transaction Processing: Version 6

July 1988

- New Architecture
  - *Performance (first SMP)*
  - Availability
  - TPO
  - PL/SQL
- V6 Lays *Architectural* Groundwork for the Future
  - This was a rewrite of the entire database fundamentally

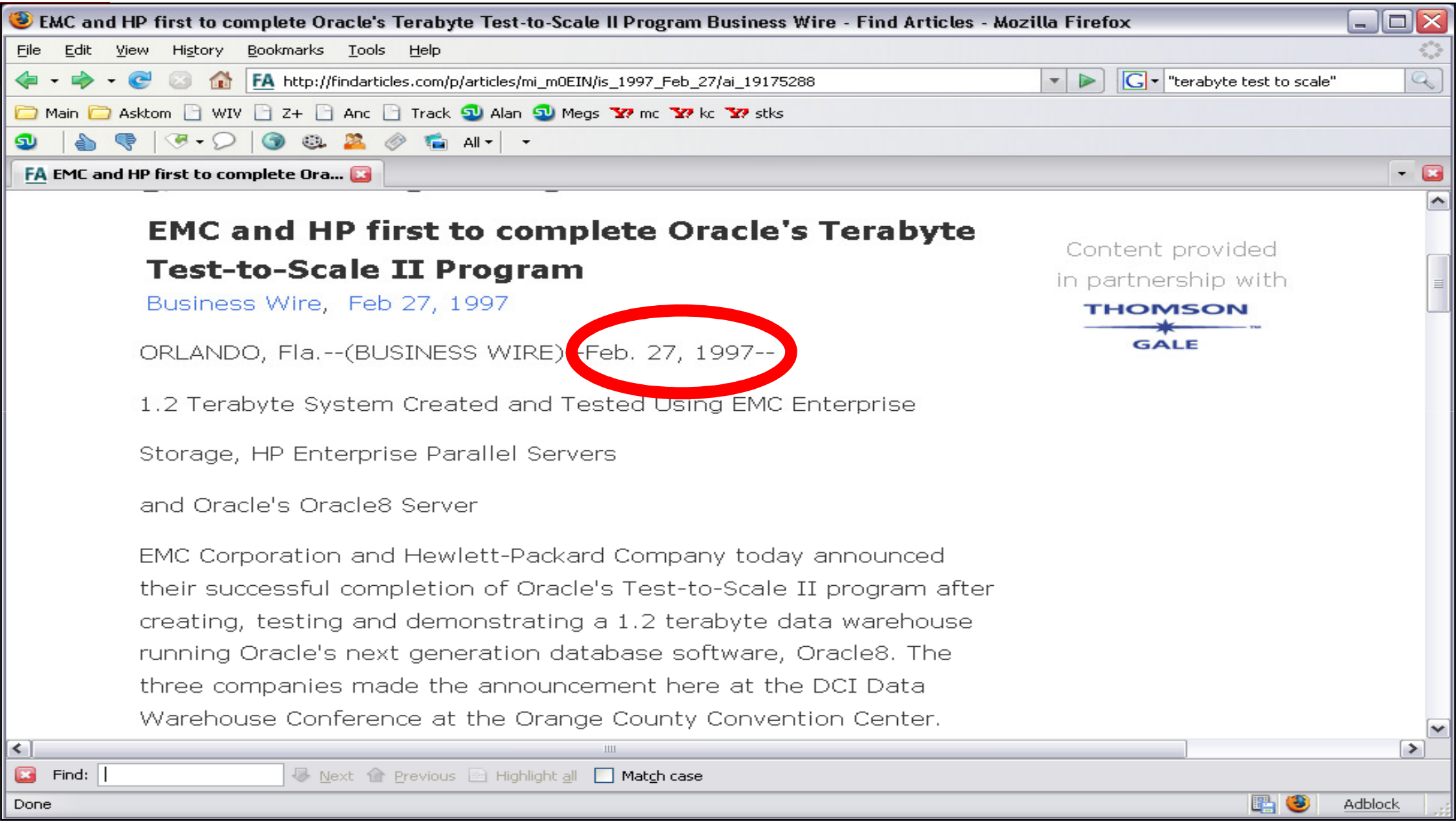
World Wide Web – 1990'ish

The World Wide Web was created in 1989 by British scientist Tim Berners-Lee, working at the European Organization for Nuclear Research (CERN) in Geneva, Switzerland, and released in 1992.

Oracle7.3

February 1996

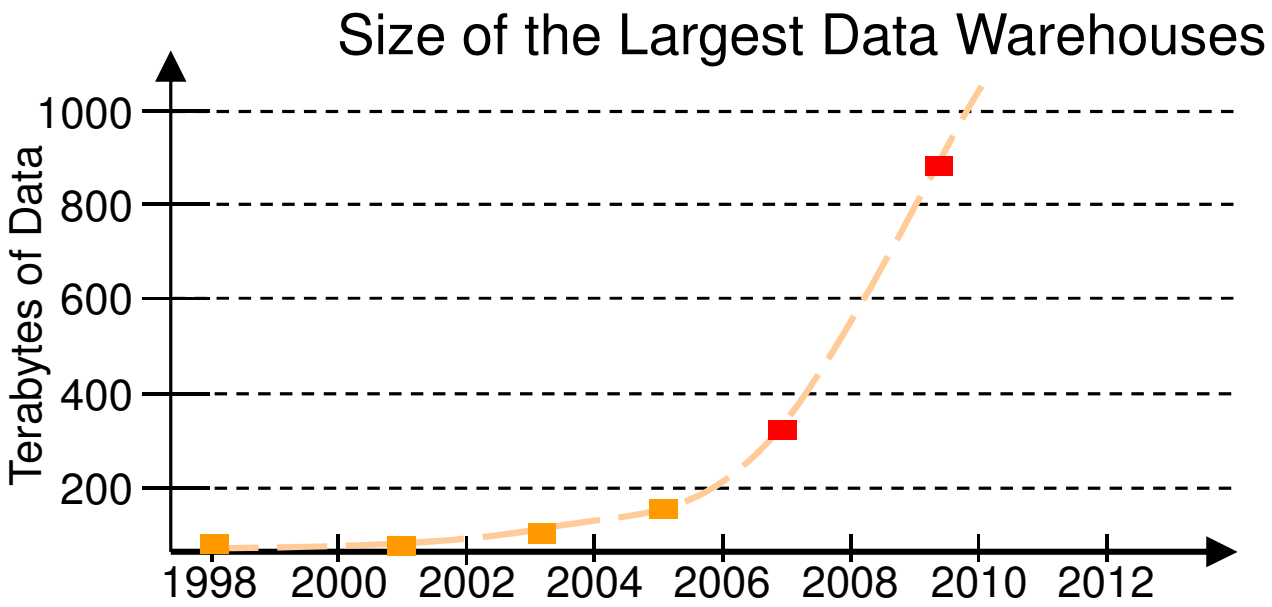
- Partitioned Views
- Bitmapped Indexes
- Asynchronous read ahead for table scans
- Standby Database
- Deferred transaction recovery on instance startup
- Updatable Join View
- SQLDBA no longer shipped.
- Index rebuilds
- DBV introduced
- Context Option
- PL/SQL - UTL_FILE
- Spatial Data Option
- Tablespaces changes - Coalesce, Temporary Permanent,
- Trigger compilation, debug
- Unlimited extents on STORAGE clause.
- Some init.ora parameters modifiable - TIMED_STATISTICS
- HASH Joins, Antijoins
- Histograms
- Oracle Trace
- Advanced Replication Object Groups


EMC and HP first to complete Oracle's Terabyte Test-to-Scale II Program Business Wire - Find Articles - Mozilla Firefox
File Edit View History Bookmarks Tools Help
http://findarticles.com/p/articles/mi_m0EIN/is_1997_Feb_27/ai_19175288
"terabyte test to scale"
Main Asktom WIV Z+ Anc Track Alan Megs mc kc stks
All
EMC and HP first to complete Ora...
EMC and HP first to complete Oracle's Terabyte Test-to-Scale II Program
Business Wire, Feb 27, 1997
Content provided in partnership with
THOMSON GALE
ORLANDO, Fla.--(BUSINESS WIRE)--Feb. 27, 1997--
1.2 Terabyte System Created and Tested Using EMC Enterprise
Storage, HP Enterprise Parallel Servers
and Oracle's Oracle8 Server
EMC Corporation and Hewlett-Packard Company today announced their successful completion of Oracle's Test-to-Scale II program after creating, testing and demonstrating a 1.2 terabyte data warehouse running Oracle's next generation database software, Oracle8. The three companies made the announcement here at the DCI Data Warehouse Conference at the Orange County Convention Center.
Find: Next Previous Highlight all Match case
Done
Adblock

Annual Decline	Cost For 1 GigaByte	Cost For 1 TeraByte = 1,000 GigaBytes (US Dollars) (Storage for 2,000 Scanned File Cabinets) (Holding 20 Million Scanned Letter Size Pages)				
45%	1,000 MBytes (US Dollars) (Storage for 2 Scanned File Cabinets)	Non-FC/SCSI PC Disk No Online Redundancy	Non-FC/SCSI PC Disk Software RAID Redundancy	SAN FC Disk FC Fabric Hardware RAID	SCSI/FC SAN/PC Name Brand Fault Awareness Hardware RAID	Mainframe
Year		1 X	2 X	4 X	8 X	12 X
1992	1,000.00	1,000,000.00	2,000,000.00	4,000,000.00	8,000,000.00	12,000,000.00
1993	550.00	550,000.00	1,100,000.00	2,200,000.00	4,400,000.00	6,600,000.00
1994	302.50	302,500.00	605,000.00	1,210,000.00	2,420,000.00	3,630,000.00
1995	166.38	166,375.00	332,750.00	665,500.00	1,331,000.00	1,996,500.00
1996	91.51	91,506.25	183,012.50	366,025.00	732,050.00	1,098,075.00
1997	50.33	50,328.44	100,656.88	201,313.75	402,627.50	603,941.25
1998	27.68	27,680.64	55,361.28	110,722.56	221,445.13	332,167.69
1999	15.22	15,224.35	30,448.70	60,897.41	121,794.82	182,692.23
2000	8.37	8,373.39	16,746.79	33,493.58	66,987.15	100,480.73
2001	4.61	4,605.37	9,210.73	18,421.47	36,842.93	55,264.40
2002	2.53	2,532.95	5,065.90	10,131.81	20,263.61	30,395.42
2003	1.39	1,393.12	2,786.25	5,572.49	11,144.99	16,717.48
2004	0.77	766.22	1,532.44	3,064.87	6,129.74	9,194.61
2005	0.42	421.42	842.84	1,685.68	3,371.36	5,057.04
2006	0.23	231.78	463.56	927.12	1,854.25	2,781.37
2007	0.13	127.48	254.96	509.92	1,019.84	1,529.75
2008	0.07	70.11	140.23	280.45	560.91	841.36
2009	0.04	38.56	77.13	154.25	308.50	462.75
2010	0.02	21.21	42.42	84.84	169.68	254.51

Data Warehouses Growing Rapidly

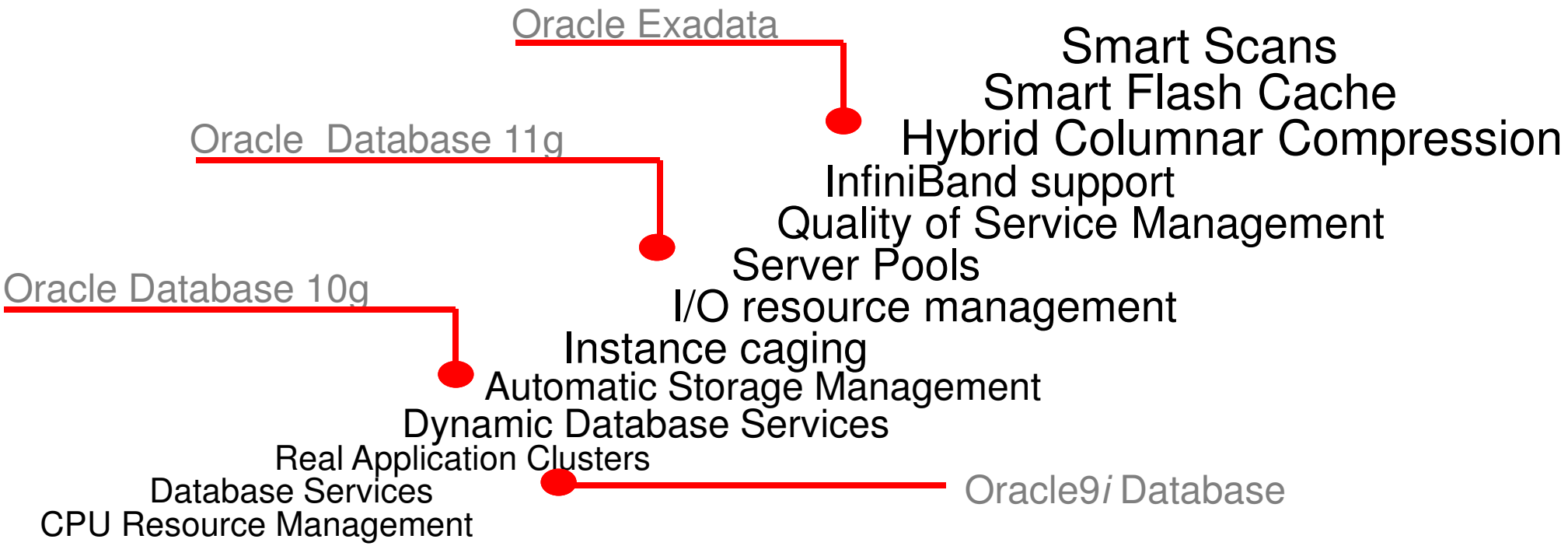
Tripling In Size Every Two Years



Source: Winter TopTen Survey, Winter Corporation, Waltham MA, 2008.

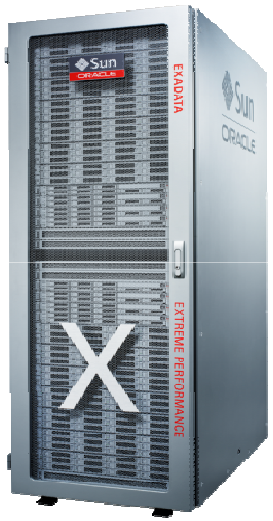
Enabling the Private Database Cloud

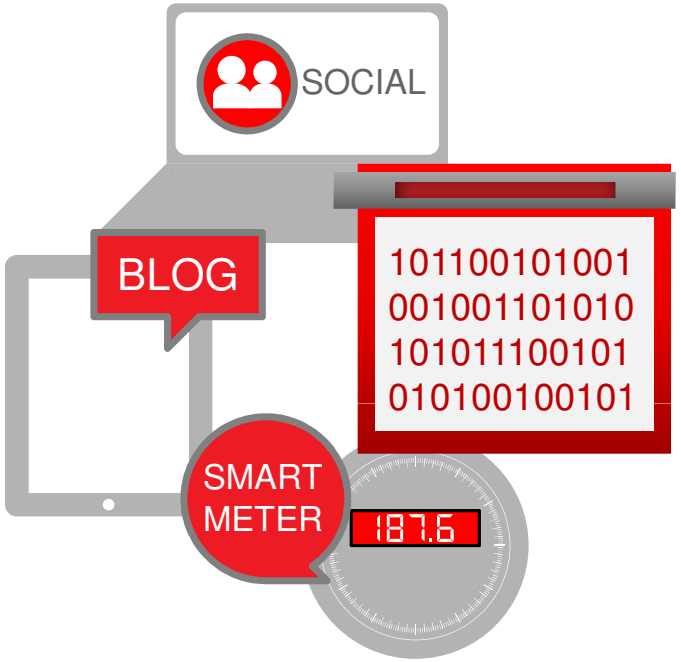
Years of continuous Oracle innovation



Three Major Database Focus Areas

Engineered for Innovation





CLOUD COMPUTING
PRIVATE AND PUBLIC

ENGINEERED SYSTEMS

BIG DATA

Building Managed Server and Storage Pools

Real Application Clusters

Enterprise Manager

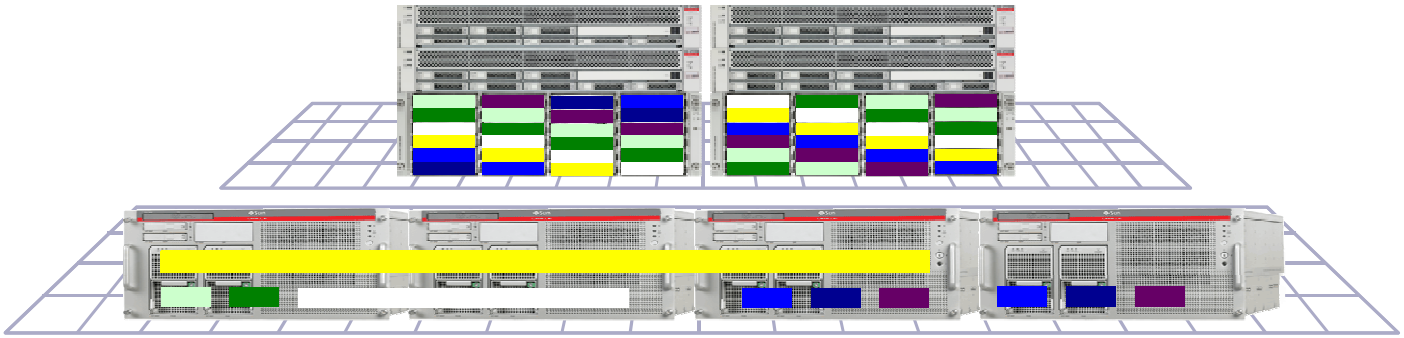
Automatic Storage Management

Real Application Clusters

In-Memory Database Cache

Service Level Management

Resource Manager and Instance Caging



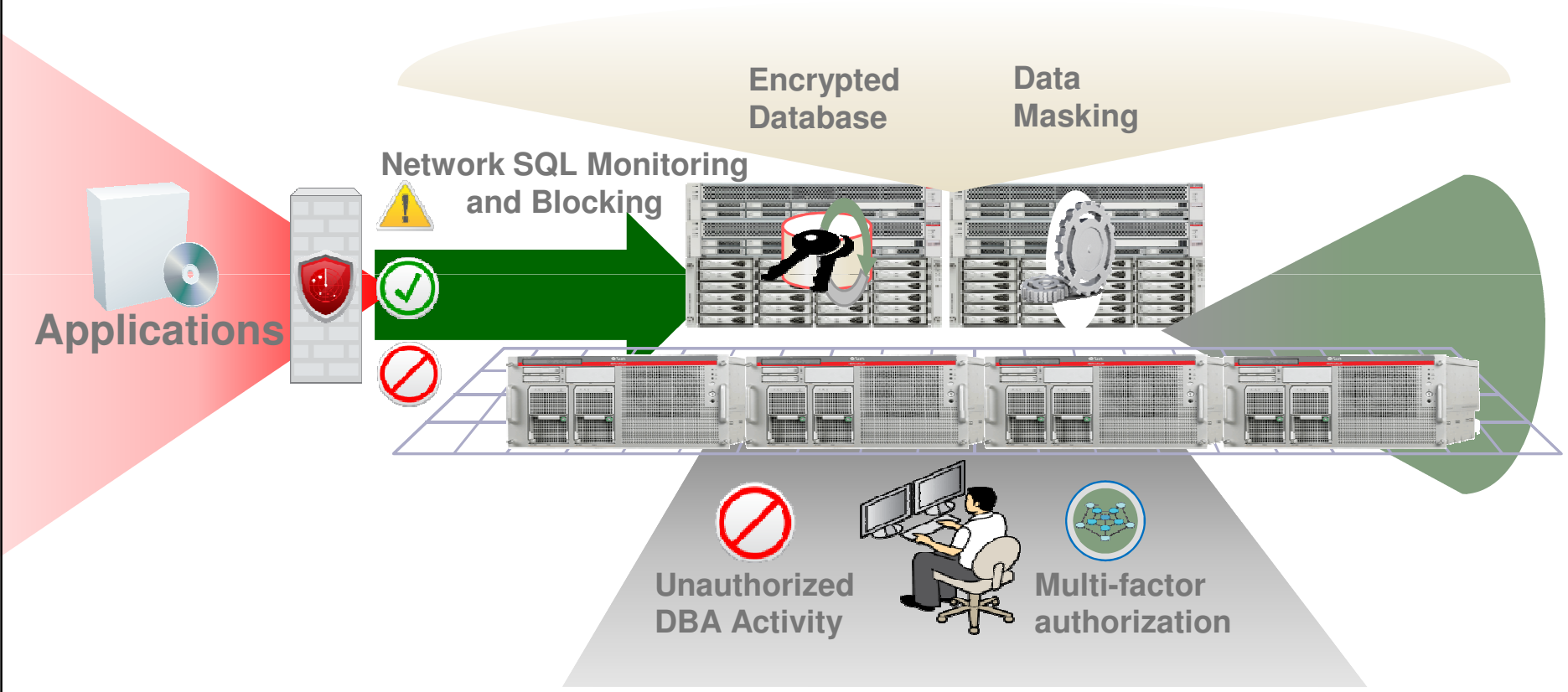
Resource Manager allocates CPU and Memory

Instance caging allocates cores per instance

Capacity-on-demand for elastic cloud computing

Complete Data Security

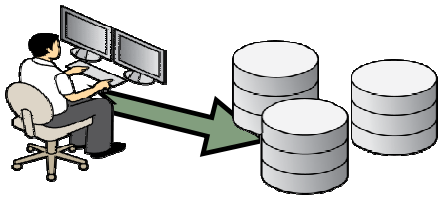
Firewall, Encryption, Separation of Duty and Monitoring



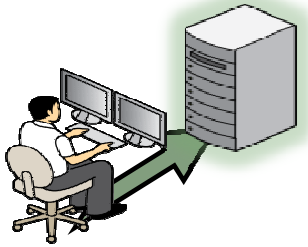
- Activity Audit
- Data Discovery
- Compliance Scan
- Vulnerability Scan
- Patch Automation

Provisioning Software to the Cloud

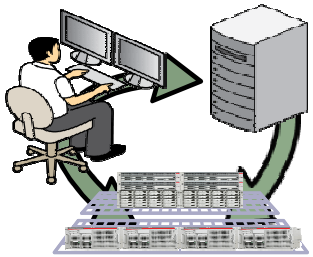
Lower complexity via Reference Configurations



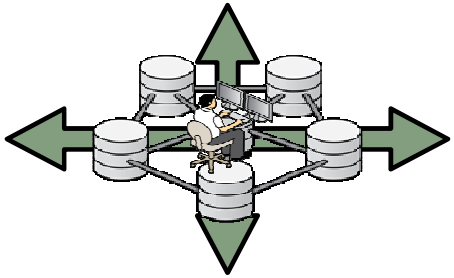
Create Reference Configuration



Stage as Gold Image



Provision Database on Cloud

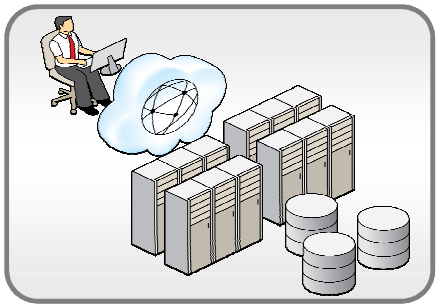


Manage Centrally

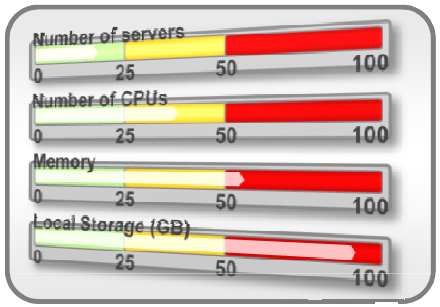
- Gold image reference configurations
- Standardized deployments via profiles
- Rapidly provision databases to the Cloud
- Monitor change centrally to ensure compliance

Metering and Chargeback

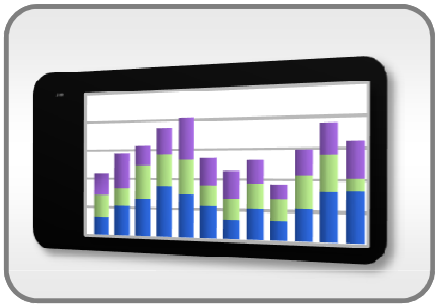
Enterprise Manager 12c



Discover & Plan



Track Usage



Charge User

- Resource usage metering
- Historical usage trends
- Cost allocation and charge plan evaluation
- Reporting for cloud self-service application

Optimized, Pre-Integrated Cloud Platform

Oracle Exadata Database Machine

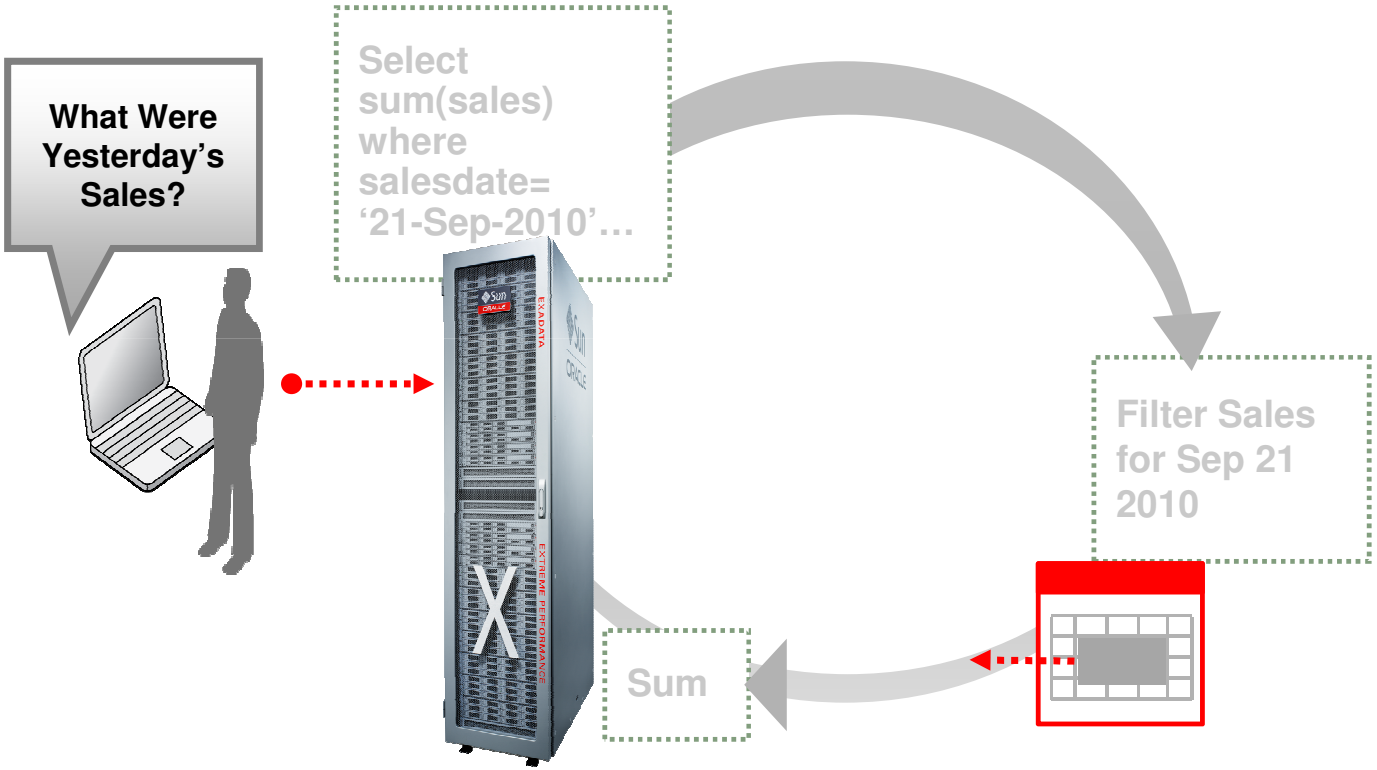
Database Server Pool
- Oracle Database 11g Release 2
- Oracle Real Application Clusters
- Automatic Storage Management

Storage Server Pool
- Up to 336 TB disk
- 5 TB flash storage
- Oracle Exadata Storage Software

InfiniBand Network
- 40 Gb/sec redundant switches

Improve Data Warehouse performance 10x

Exadata Smart Scans

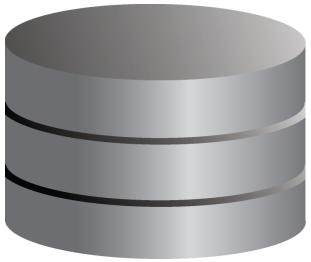


Data intensive processing runs in Exadata Storage Servers

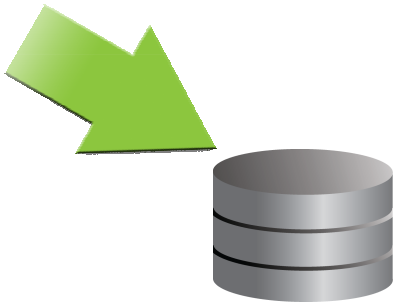
Rows and columns filtered as data streams from disks

Storage Optimization

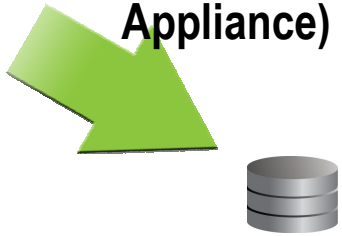
Next Generation Compression Technology



Up to
4X
OLTP
Compression



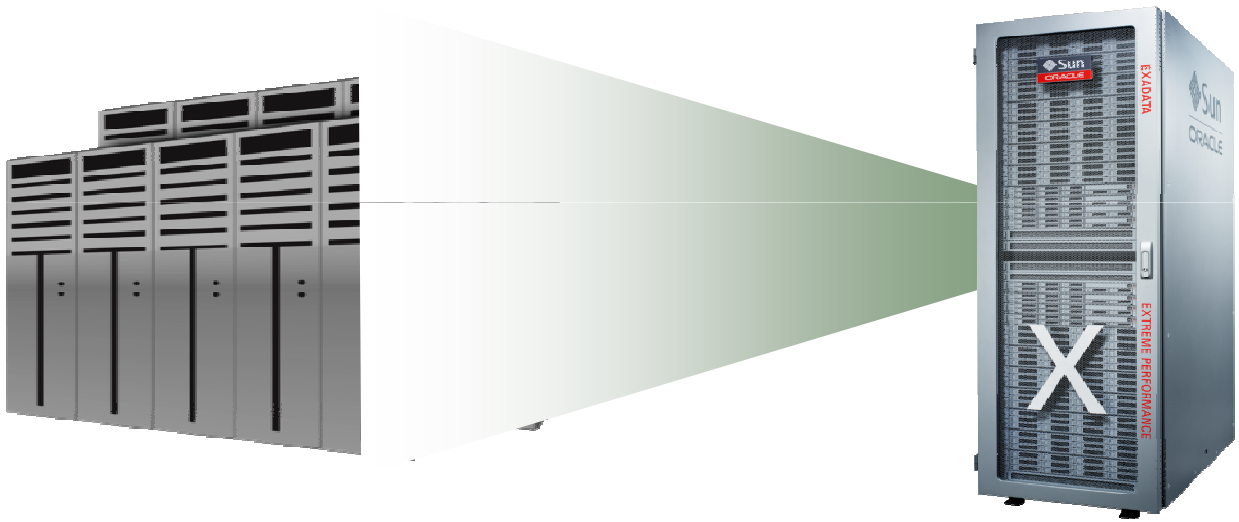
Up to
50X
Hybrid Columnar Compression (Exadata, Pillar Axion, Sun ZFS Storage Appliance)



- Increase compression as data ages
- Improve query performance for table scans
- Improve cache density for OLTP performance
- No changes to existing applications
- Cascade storage savings throughout data center

Extreme Performance for OLTP

Exadata Smart Flash Cache



Full rack has 5 TB of Smart Flash Cache

Can process over 1 million IOs per second

Public Cloud

Oracle Public Cloud (cloud.oracle.com)

- Public Cloud
  - Self Service
  - Monthly Subscription
  - Simple Pricing
- Services
  - Application
  - Platform
- Platform Services
  - Java Cloud Service
  - Database Cloud Service

Database Applications in the Public Cloud

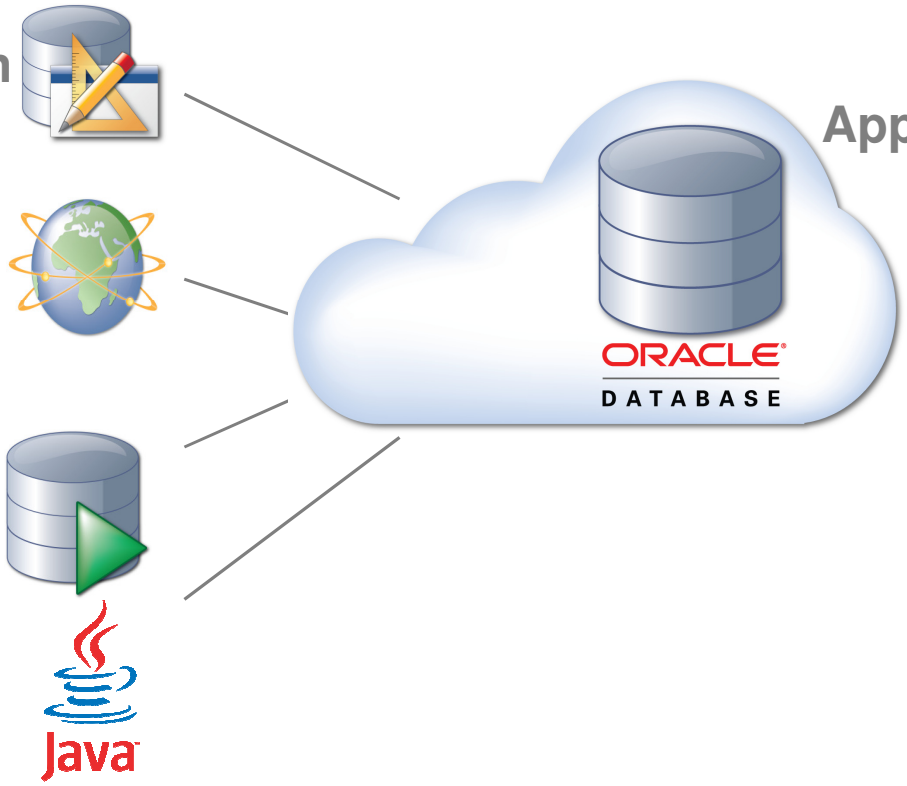
Database Cloud Access and Applications

Oracle Application Express

RESTful Web Services

SQL Developer

Oracle Java Cloud



Applications

Big Data Buzz

"Why big data is a big deal"

InfoWorld – 9/1/11

"The challenge–and opportunity–of big data"

McKinsey Quarterly—5/11

"Ten reasons why Big Data will change the travel industry"

Tnooz -8/15/11

"Keeping Afloat in a Sea of 'Big Data"

ITBusinessEdge – 9/6/11

"Getting a Handle on Big Data with Hadoop"

Businessweek-9/7/11

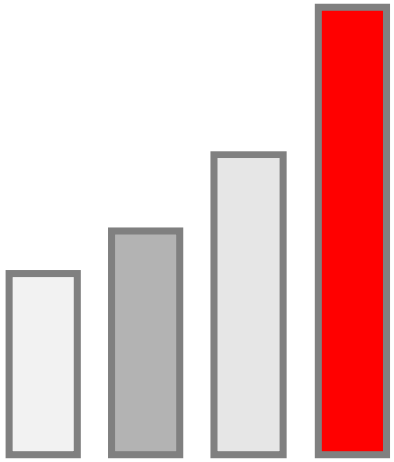
"The promise of Big Data"

Intelligent Utility-8/28/11

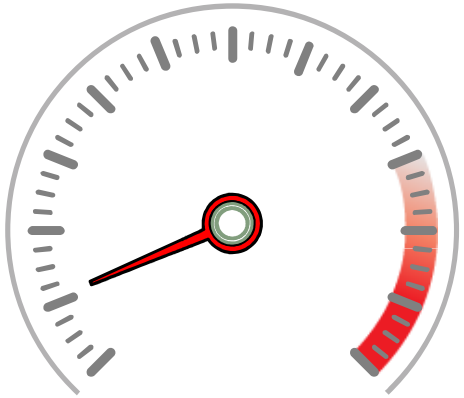
Big Data Use Cases

Today's Challenge	New Data	What's Possible
Healthcare Expensive office visits	Remote patient monitoring	Preventive care, reduced hospitalization
Manufacturing In-person support	Product sensors	Automated diagnosis, support
Location-Based Services Based on home zip code	Real time location data	Geo-advertising, traffic, local search
Public Sector Standardized services	Citizen surveys	Tailored services, cost reductions
Retail One size fits all marketing	Social media	Sentiment analysis segmentation

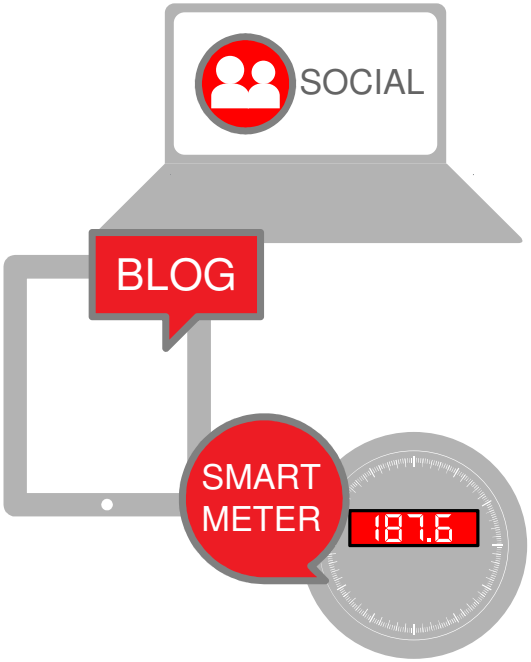
What Makes it Big Data?



VOLUME



VELOCITY



VARIETY

VALUE

Hardware and Software

ORACLE

Engineered to Work Together


ORACLE®