#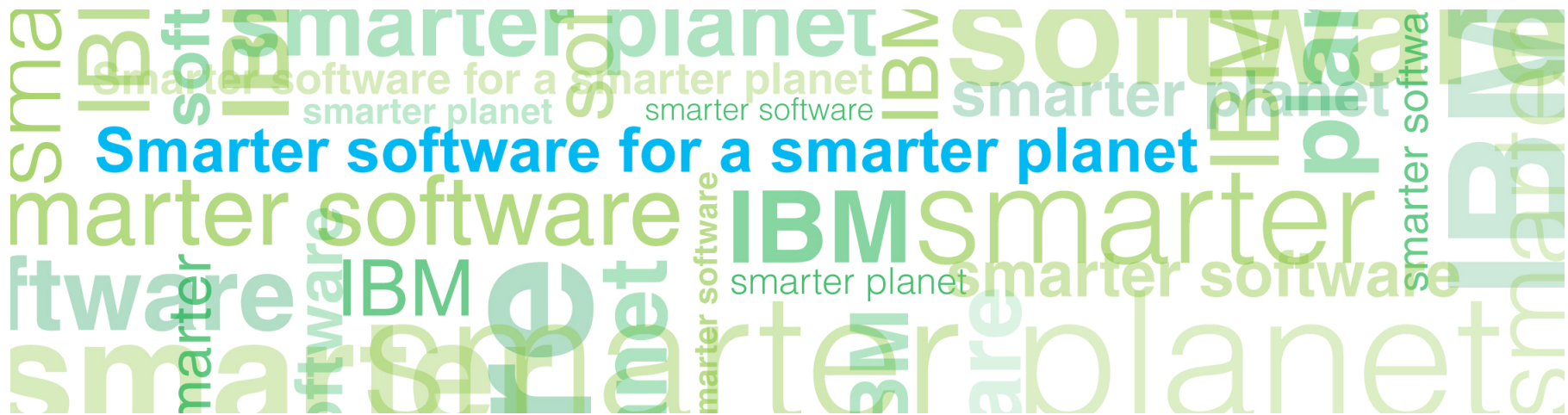 IBM Netezza – Datawarehouse solution and business analytics or why customers' complex problems should have a simple solution

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Appliances make it simple,

completely transforming the user experience.

- Dedicated device

- Optimized for purpose

- Complete solution

- Fast installation

- Very easy operation
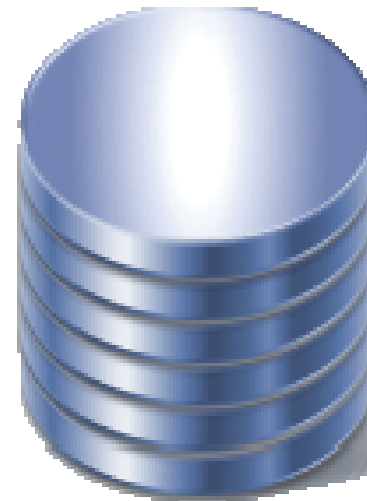
- Standard interfaces

- Low cost

agenda

1	**IBM Netezza Overview**
2	**IBM Netezza Customer Value and Differentiation**
3	**Inside the IBM Netezza Twinfin™ Appliance**
4	**IBM Netezza Sales Process and Opportunity Identification**
5	**IBM Netezza Customer Examples**
6	**IBM Netezza Advantage over Competition**

What is a Data Warehouse?

- A Data Warehouse is required to manage the data used for business analytics

- The Data Warehouse must be designed, configured and maintained to deliver required performance and levels of:

  - Data (Scale)

  - Users (Concurrency)

  - Queries (Complexity)

Transactional Workloads vs. Analytic Workloads
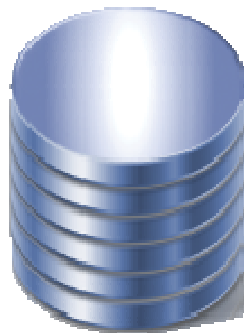## *Two VERY different requirements for storing and processing data*

Customer

Business Transaction

Transactional Database

Transaction

Simple Query

2011 Sales

```
Item:'Shoes'
Cost:'$34'
Cust:'James'
```

Item	Cost	Cust
Shoes	$34	James

Business Analyst

Data Warehouse

BI Reports & Dashboards

Complex Query

SALES
2010
2009
2008
2007

```
Sales & Profit for
Shoes & Belts
Year >= 2005
```

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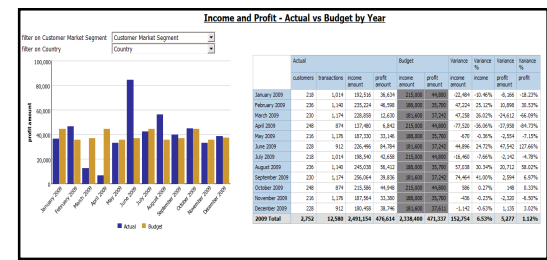
IBM Netezza is part of IBM Information Management
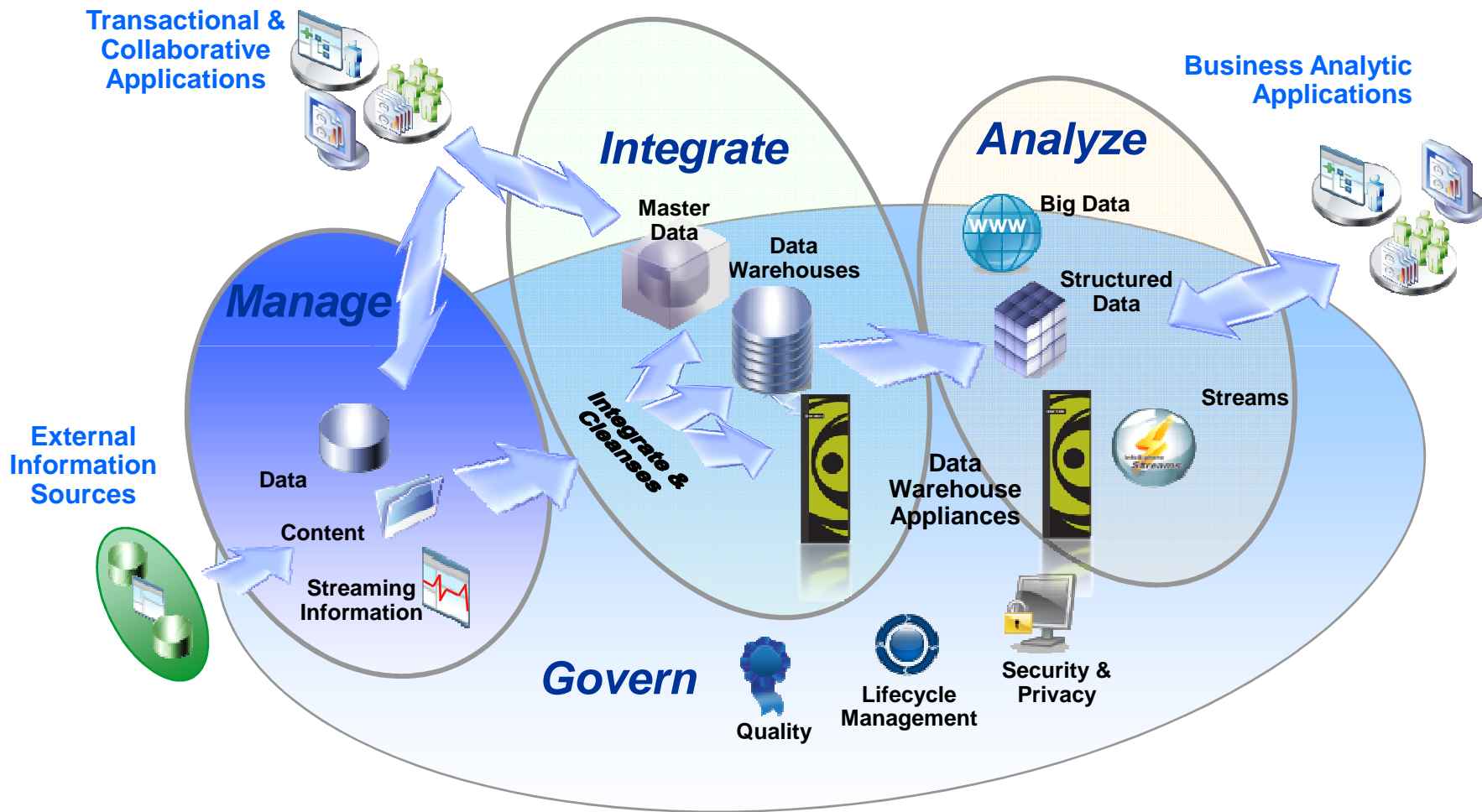
Transactional & Collaborative Applications

Business Analytic Applications

Integrate

Analyze

Manage

Master Data

Big Data

Data Warehouses

Structured Data

External Information Sources

Data

Integrate & Cleanses

Streams

Content

Data Warehouse Appliances

Streaming Information

Govern

Quality

Lifecycle Management

Security & Privacy

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agenda

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days for a single query

constant tuning

Nearly 70% *of data warehouses*
experience performance-constrained issues
of various types.

- Gartner 2010 Magic
Quadrant

specialized resources required

months to deploy

Traditional data warehouses
## are just too complex

They are based on databases optimized for transaction processing— **NOT** to meet the demands of advanced analytics on big data.

- Too complex an infrastructure
- Too complicated to deploy
- Too much tuning required

- Too inefficient at analytics
- Too many people needed to maintain
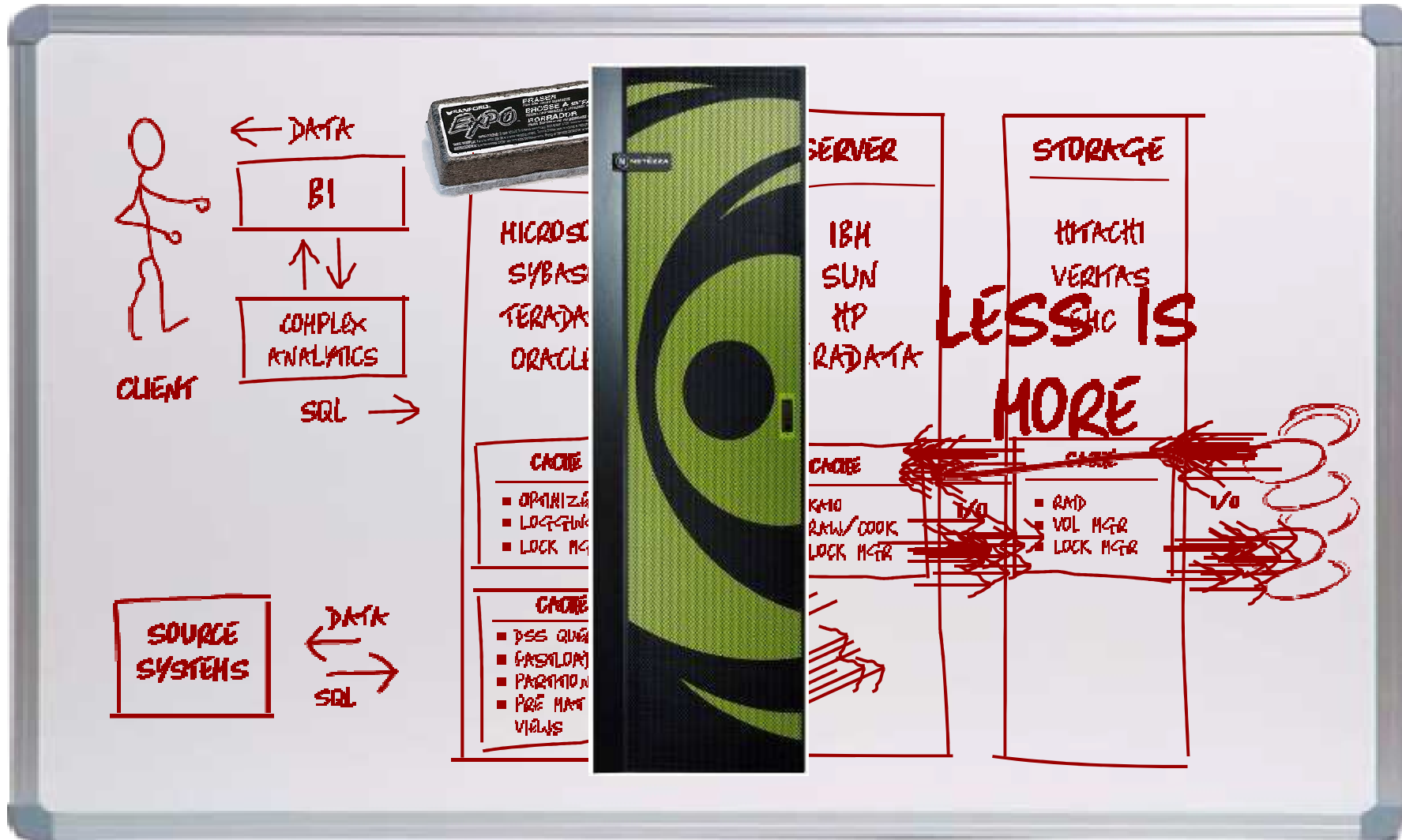- Too costly to operate

Too long to get answers

Traditional Data Warehouse Complexity
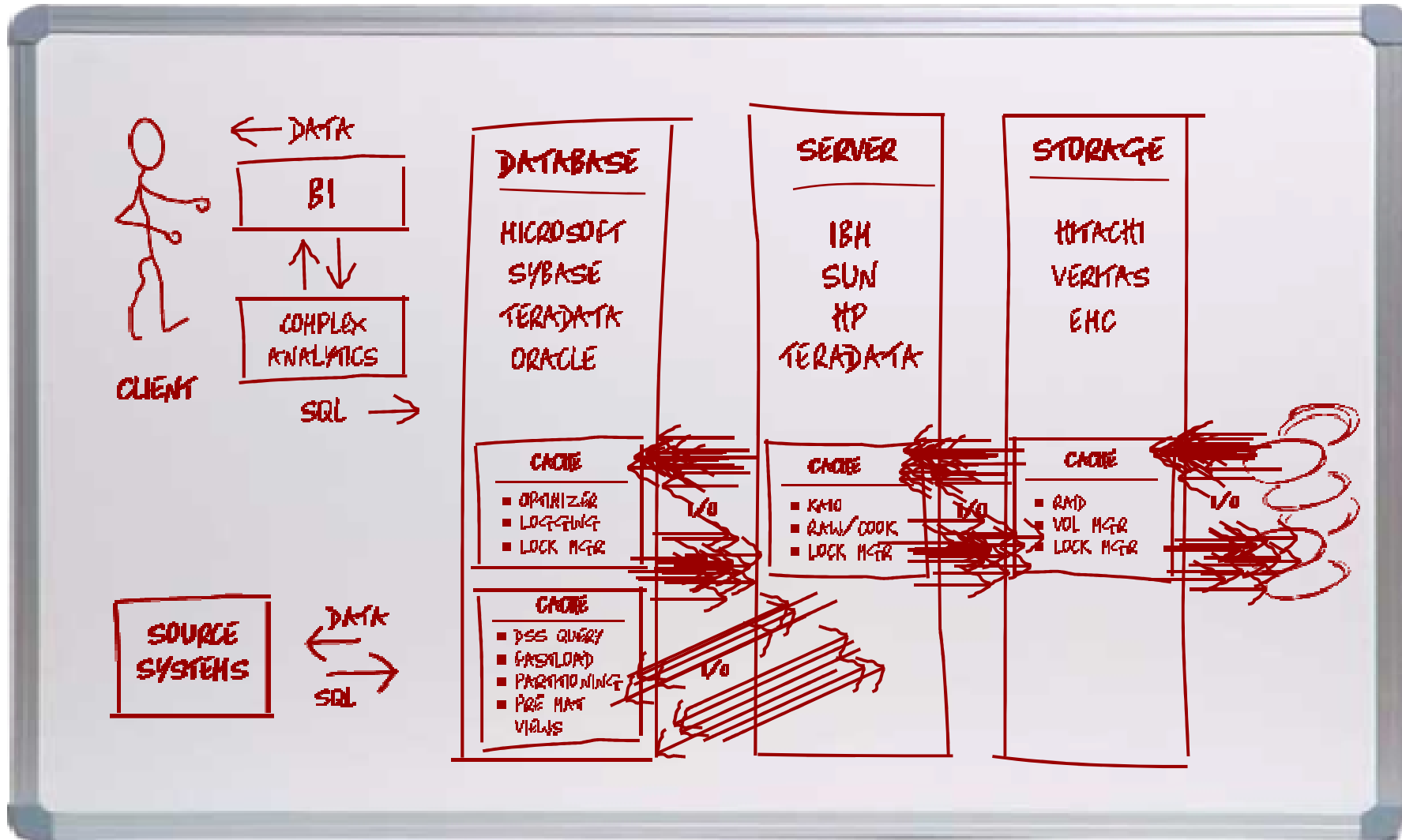
Data Warehousing – Simplified

Data Warehouse Appliance

LOAD – ETL/ELT

Data In

ANALYTICS

Data Out

OLE DB
JDBC
ODBC
SQL

agenda

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The Netezza TwinFin™ Appliance

Disk Enclosures

Slice of User Data
Swap and Mirror partitions
High speed data streaming

SMP Hosts

SQL Compiler
Query Plan
Optimize
Admin

Snippet Blades™ (S-Blades™)

Processor & streaming DB logic

High-performance database engine streaming joins, aggregations, sorts, etc.

Architectural Efficiency

Basic Components

16 GB DRAM

SAS Expander Module

Dual-Core FPGA 125 MHz
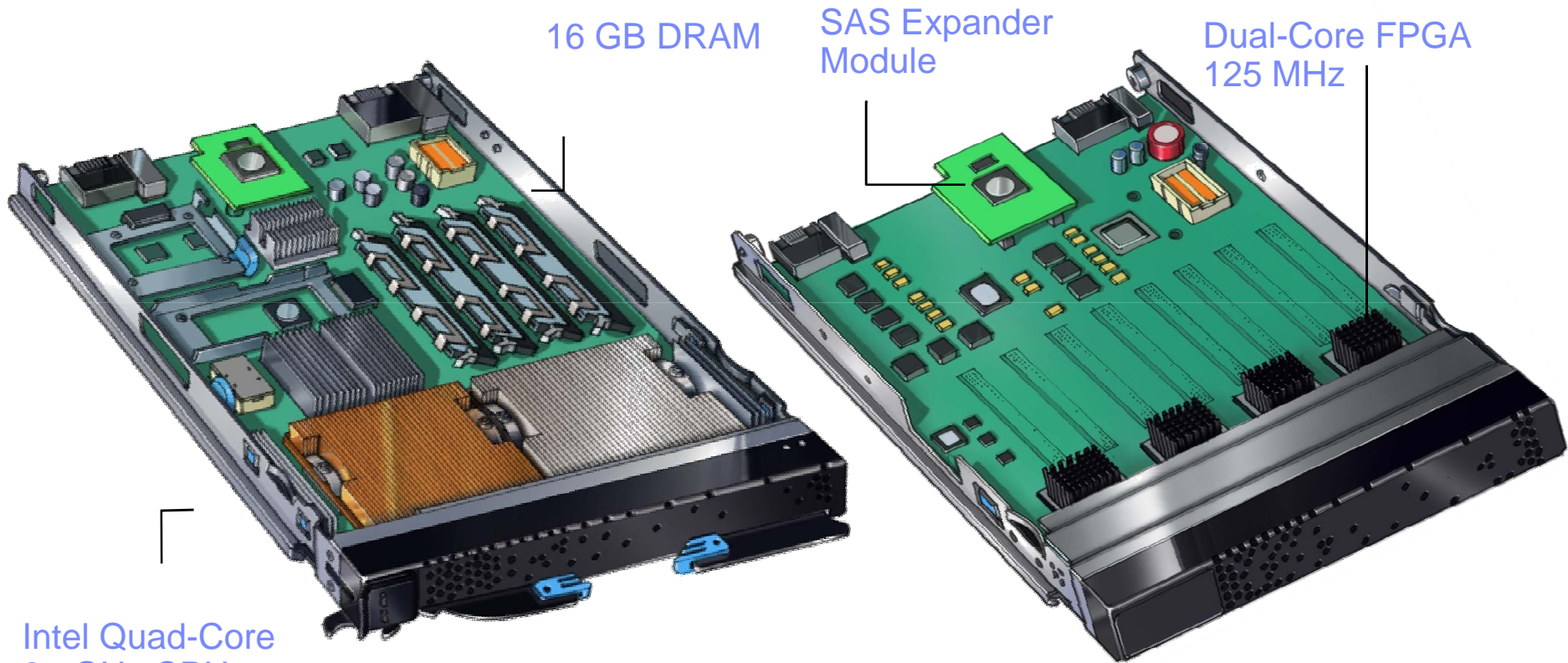
Intel Quad-Core 2+ GHz CPU

IBM BladeCenter Server

Netezza DB Accelerator

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Architectural Efficiency

Asymmetric Massively Parallel Processing™

Client

SOLARIS	AIX
TRU64	HP-UX
WINDOWS	LINUX

Source Systems

| ETL Server |
| DBA CLI |
| 3rd Party Apps |
| High Performance Loader |

High-Speed Loader/Unloader

SQL

Netezza Data Warehouse Appliance

SQL Compiler

Query Plan

Optimize

Admin

SQL

Front End

Snippets

Execution Engine

DBOS

SMP Host

Network Fabric

1

2

3

920

S-Blade
Processor
streaming DB logic

S-Blade
Processor
streaming DB logic

S-Blade
Processor
streaming DB logic

High-Performance Database Engine
Streaming joins, aggregations, sorts

S-Blade
Processor
streaming DB

Massively Parallel Intelligent Storage

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Netezza Simplicity & Ramifications on TCO
Telecom Retailer and Service Provider

Telecom Call Detail Record FACT *(6 billion rows)*	Oracle Object Count*	Netezza Object Count
Tables	1	1
Indexes	12	
Table Partitions	47	
Index Partitions	564	
Table Partitions tablespaces	47	
Index Partitions tablespaces	47	
Table Data Files	170	
Index Data Files	122	
TOTAL	1,010	1

"Look at all the weeks/months worth of effort, DBA design and maintenance that we don't have with Netezza."

*: Oracle data does not account for ADDITIONAL effort required in configuring and engineering the file system design to accommodate this index management scheme.

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Performance Tuning Dramatically Simplified

- NO dbspace/tablespace sizing and configuration

- NO redo/physical log sizing and configuration

- NO journaling/logical log sizing and configuration

- NO page/block sizing and configuration for tables

- NO extent sizing and configuration for tables

- NO temp space allocation and monitoring

- NO RAID level decisions for dbspaces

- NO logical volume creations of files

- NO integration of OS kernel recommendations

- NO maintenance of OS recommended patch levels

- NO JAD sessions to configure host/network/storage

- NO software to install

- ONE simple partitioning strategy: HASH

Benefits

Instead of spending time and effort on tedious DBA tasks, use the time for higher BUSINESS VALUE tasks:

- Bring on new applications and groups
- Quickly build out new data marts
- Provide more functionality to your end users

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Appliance family

Skimmer	**TwinFin**	**Cruiser**
Development & Test System	Data Warehouse High-Performance Analytics	Queryable Archiving Backup/DR
1 TB to 10 TB	1 TB to 1.5 PB	100 TB to 10 PB

IBM Netezza TwinFin Appliance Scalability
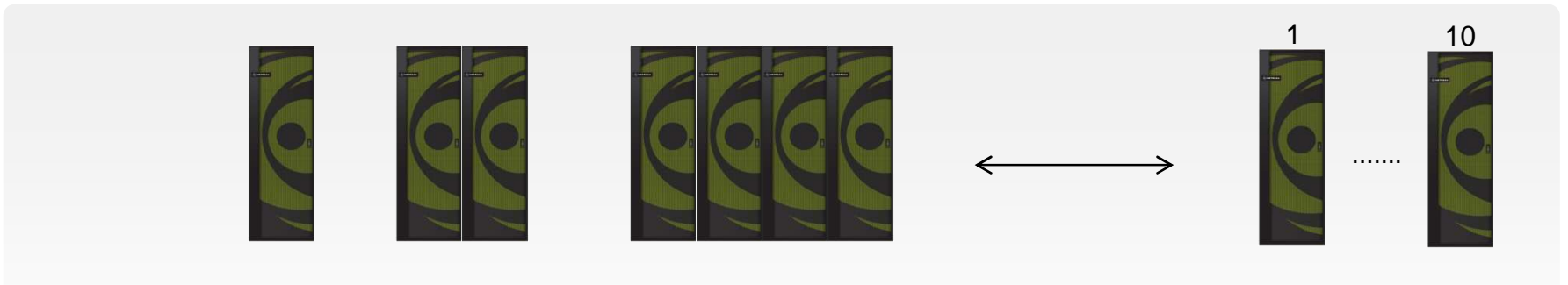
	TF3	TF6	TF12	TF18	TF24	TF36	TF48	TF72	TF96	TF120
Cabinets	1/4	1/2	1	1.5	2	3	4	6	8	10
Processing Units	24	48	96	144	192	288	384	576	768	960
Capacity (TB)	8	16	32	48	64	96	128	192	256	320
Effective Capacity (TB)*	32	64	128	192	256	384	512	768	1024	1280

Predictable, Linear Scalability throughout entire family

Capacity = User Data space
Effective Capacity = User Data Space with compression

*: 4X compression assumed

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Next Topic

Opportunity Qualifiers

Line of Business

- I can't analyze **ALL my data** – I have to sample or summarize
- I have a report that takes **three days** to run
- I have to "**dumb down**" the problem to fit the data warehouse
- My analyses are conducted on **stale and outdated** data
- I need to **involve IT** for every new report or query

IT

- I cannot keep up with **growing data, users** and applications
- We **regularly miss SLAs** for data freshness/availability
- Ad-hoc and analytic **queries take too long** or just not possible
- I have a **backlog of pending applications** projects
- I need to do more with less

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Meaningful Proof Of Concept in 2 Weeks

- Customer's data onsite

- "Real production" workload and concurrency

- **Full access** and ad-hoc testing

- Out-of-the box performance with **minimal tuning**

- Integration with 3rd party BI, ETL, Backup, etc. tools

- **No risk to customer**

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A true appliance drives

speed that transforms the business

"
nielsen

…when something took 24 hours I could only do so much with it, but when something takes 10 seconds, I may be able to completely rethink the business…
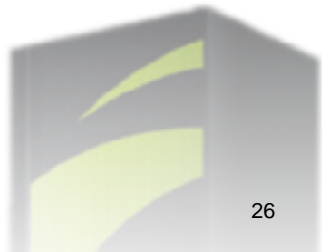"

- SVP Application Development,
Nielsen

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A true appliance drives
lower cost of ownership

iBasis
a KPN company

"Our data warehouse team consists of one to   two employees that we need once every three months, to do small changes for release verifications."

- Mark Saponar, CIO, iBasis, a KPN Affiliate

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A true appliance drives

much easier and faster deployment

eHarmony

" They shipped us a box, we put it into our data center and plugged into our network. Within 24 hours we were up and running. I'm not exaggerating, it was that easy. "

\- Joseph Essas, Vice President of Technology, eHarmony

Telco Success: Subscriber Data Mgmt

TIME WARNER CABLE
THE POWER OF YOU™

Problem

3-8 hour data loads per division & slow queries prevent iterative analysis needed for marketing campaign & customer migration analysis

Effect

Trouble improving customer churn and enhancing marketing cross-sell/up-sell campaigns

Implementation Scope

Customer Value Creation (CVC) + Openet Subscriber Data Mgmt databases powered by Netezza

20TB (growing to 200+ TB)

40 DBAs on Oracle; 3 DBAs on Netezza

Improvement Metrics

18 hour batch reporting reduced to 55 minutes

Data loads across all divisions take 45 minutes

Collect & analyze TV tuning events, VOD/PPV usage, ad insertion & programming data with offline data

Result

Customer segmentation & product/feature adoption analytics enabled

360° near real time view of Sales & Marketing data

Real-time viewing metrics based on **actual viewership data**, not sampling

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Digital Media

ACXIOM Aol. bluekai CBS Interactive epsilon Kelley Blue Book THE TRUSTED RESOURCE kbb.com MediaMath nielsen

Financial Services

FICO EDS plc ICC KCB LOAN PERFORMANCE A Subsidiary of First American Real Estate Solutions M&I NYSE Euronext

92% referenceable

Government

Lawrence Livermore National Laboratory NEX NSF Pacific Northwest NATIONAL LABORATORY Sandia National Laboratories US Army Corps of Engineers®

Health & Life Sciences

BLUE CROSS MASSACHUSETTS 株式会社日本医療データセンター Japan Medical Data Center Marshfield Clinic PREMIER Shire AstraZeneca

67% repeat business

Retail / Consumer Products

Ahold burlington coat factory CATALINA MARKETING Guitar Center Neiman Marcus PACSUN ROSS DRESS FOR LESS SAPPORO Yum!

Telecom & Utilities

The Carphone Warehouse iBasis a KPN affiliate docomo orange Virgin media WIND XO Communications

Other

Con-way FREIGHT FOXWOODS RESORT·CASINO Marriott Midwest ISO Energizing the Heartland OLYMPUS Ryder

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Proof Of Concept: Query Performance
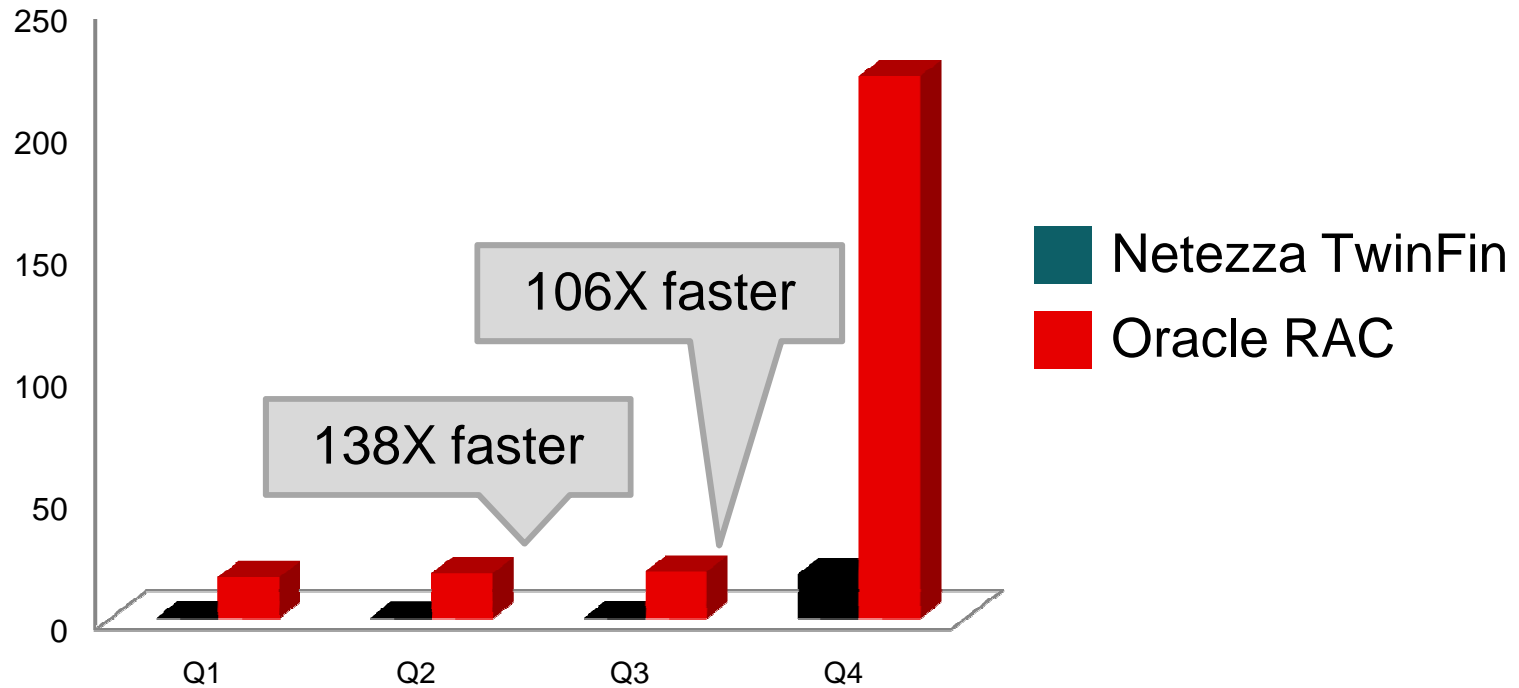
- POC for a leading direct marketing services company

- Configuration: TwinFin vs. Oracle v10.2.3 RAC

- Results: TwinFin executes BI queries **89X faster than Oracle RAC**

Time to Deployment

Time to Deployment Comparison

- ☐ Final Testing & Production
- ■ Preparation & Initialization
- ▦ Planning & Installation

Traditional DW Approach

IBM Netezza Approach

Traditional Analytics Solution

Months

IBM Netezza TwinFin
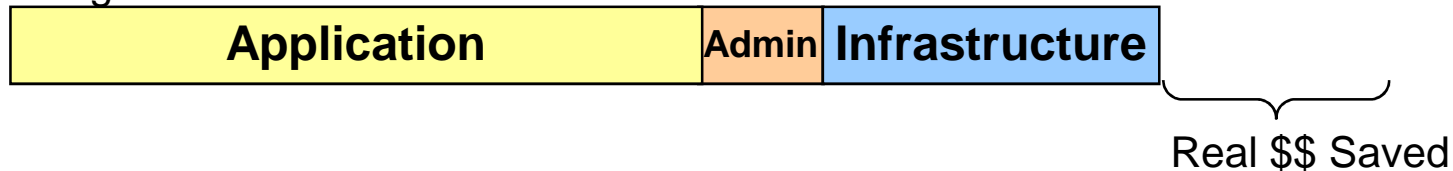

Days or Weeks
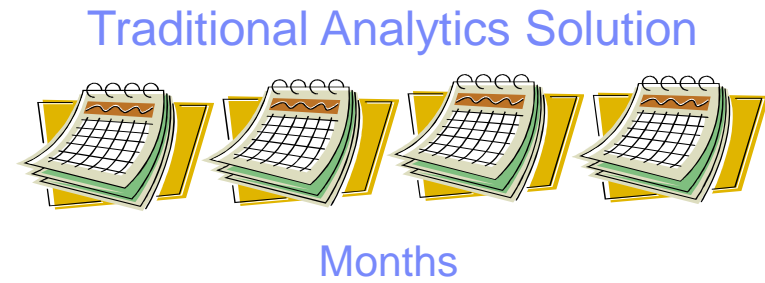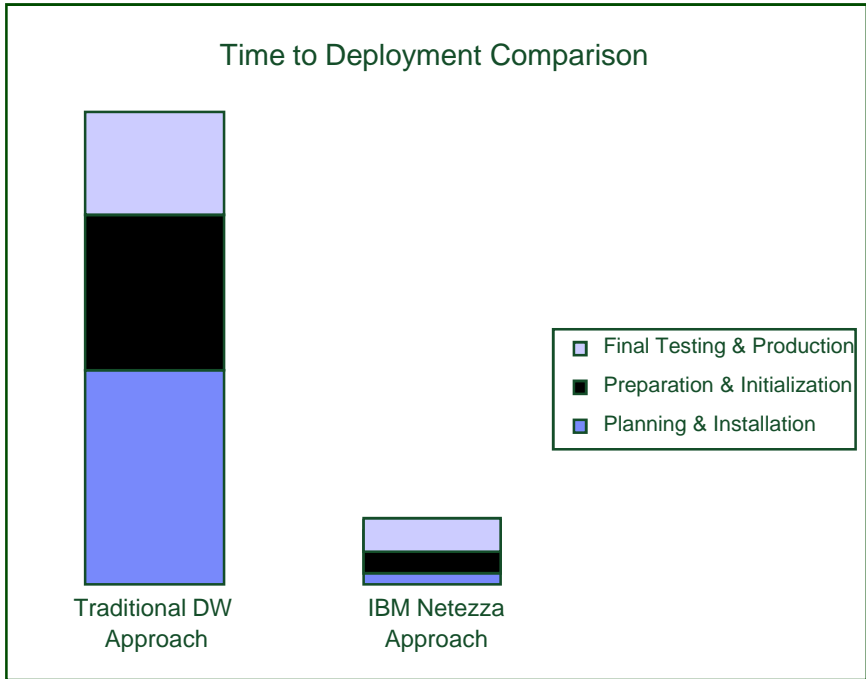
Netezza TwinFin appliance dramatically reduces all three phases of Data Warehousing deployment

Why IBM Netezza over Conventional DW?

Typical Budget Outlay for BI Project

Application	Administration	Infrastructure

Budget Allocation with IBM Netezza architecture

Application	Admin	Infrastructure

Real $$ Saved

- **Larger budget allocation for application & asset development**
  - Budget shift to strategic, value added activities
  - More visibility within the organization
  - Increased application services with better rates
  - Reduced low end IT oriented services

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What Netezza solution offers customers is more SSSS for less $$$$

- **Speed**: Price-performance leadership on the market

- **Scalability**: Solution from data mart level to enterprise-wide ones

- **Simplicity**: Rapid time to value & lowest TCO

- **Smarts**: High-performance advanced analytics

IBM

Thank You

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