



zEnterprise – The Ideal Platform For Smarter Computing

Smarter Computing With zEnterprise


Smarter Planet Solutions Increase Demands On IT




1.2 trillion GB exist in the digital universe

- **50%** YTY growth
- **25%** of data is unique
75% is a copy

32.6M servers worldwide

- 
- **85%** idle computer capacity
 - **15%** of servers run 24/7 without being actively used on a daily basis



Data centers have **doubled** their energy use in the past five years

- **18%** increase in data center energy costs projected



Between 2000 and 2010 ...

- servers grew **6x**
- storage grew **69x**

Virtual machines growing **42% per year**



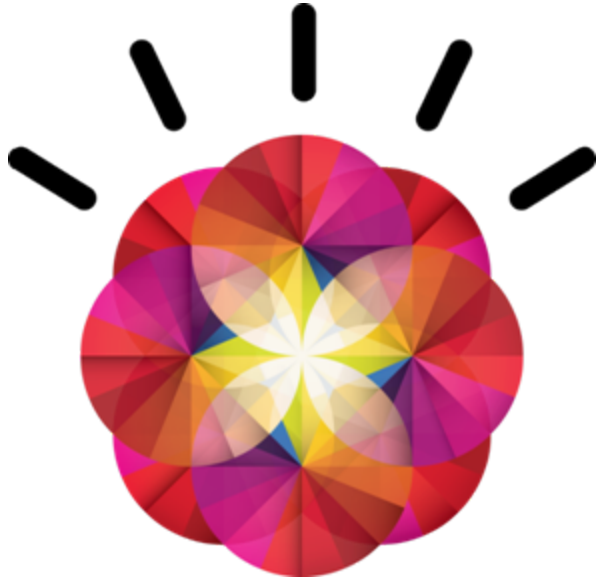
But IT budgets are growing less than 0.8% per year

Resulting Sprawl Drives Unsustainable Costs

**Cost to Manage Growth
of Inventory Consumes
IT Budget**



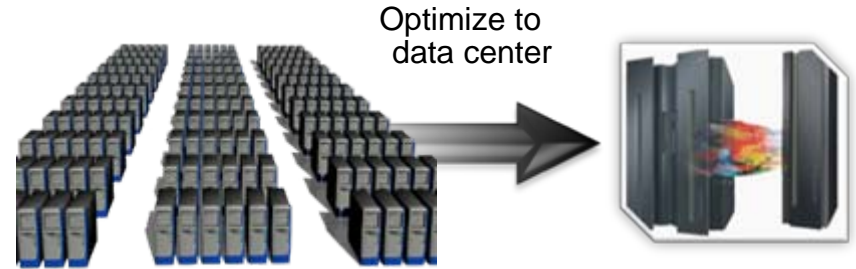
Smarter Computing ...



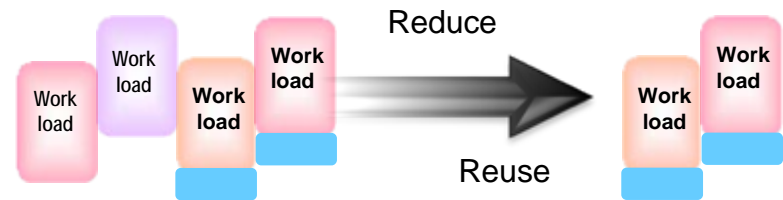
Strategies to manage increasing demand for IT services in an environment of flat IT budgets – by achieving breakthrough reductions in cost

Smarter Computing Strategies To Reduce Costs And Improve Value

Consolidate Infrastructure



Eliminate Redundant Software



Improve Service Delivery

Integrated Service Management



Visibility



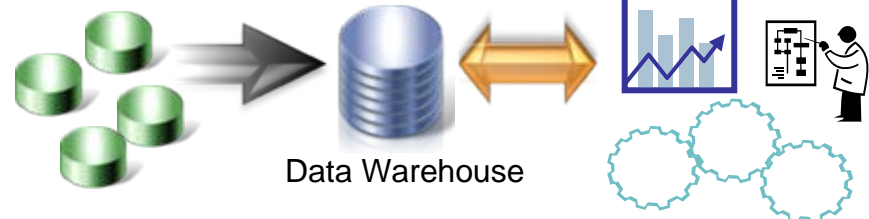
Control



Automation



Leverage Data to Optimize Business



The IBM zEnterprise System Is The Ideal Platform For Smarter Computing

- World's first multi-architecture virtualization platform
- Workloads deployed on optimal platforms
- Unified system management
- Broad support for private clouds
- Superior platform for business analytics



zEnterprise – Optimized to deliver the lowest cost per workload

Consolidate Infrastructure With zEnterprise

Consolidate Servers

- Server virtualization and consolidation
- z/OS, Linux on System z, AIX on Power, Linux and Windows on Intel
- Best fit to workload

Consolidate and Optimize Storage

- Storage virtualization and consolidation
- Consolidated Storage Management
- Automated Tiering
- Automated Data Migration
- Policy-based Management



zEnterprise

Hybrid workload
consolidation



DS8000

Virtualized
storage
Easy Tier

Smarter Computing With zEnterprise Delivers Breakthrough Economics

Platforms Optimized For
Different Workloads



Best fit for workload

Consistent Structured
Management



Lowest labor costs

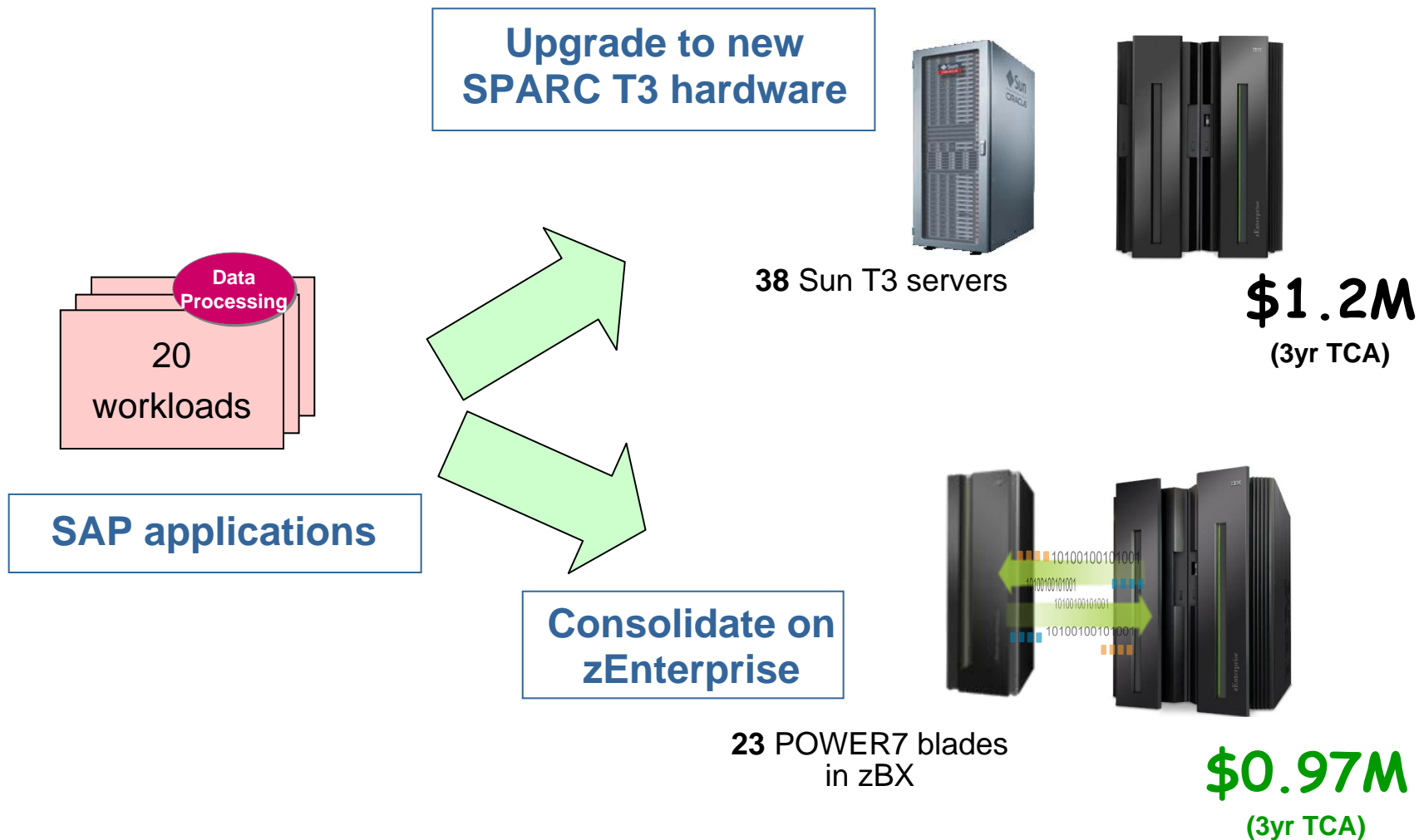
**Lowest Cost Of
Acquisition Per
Workload**



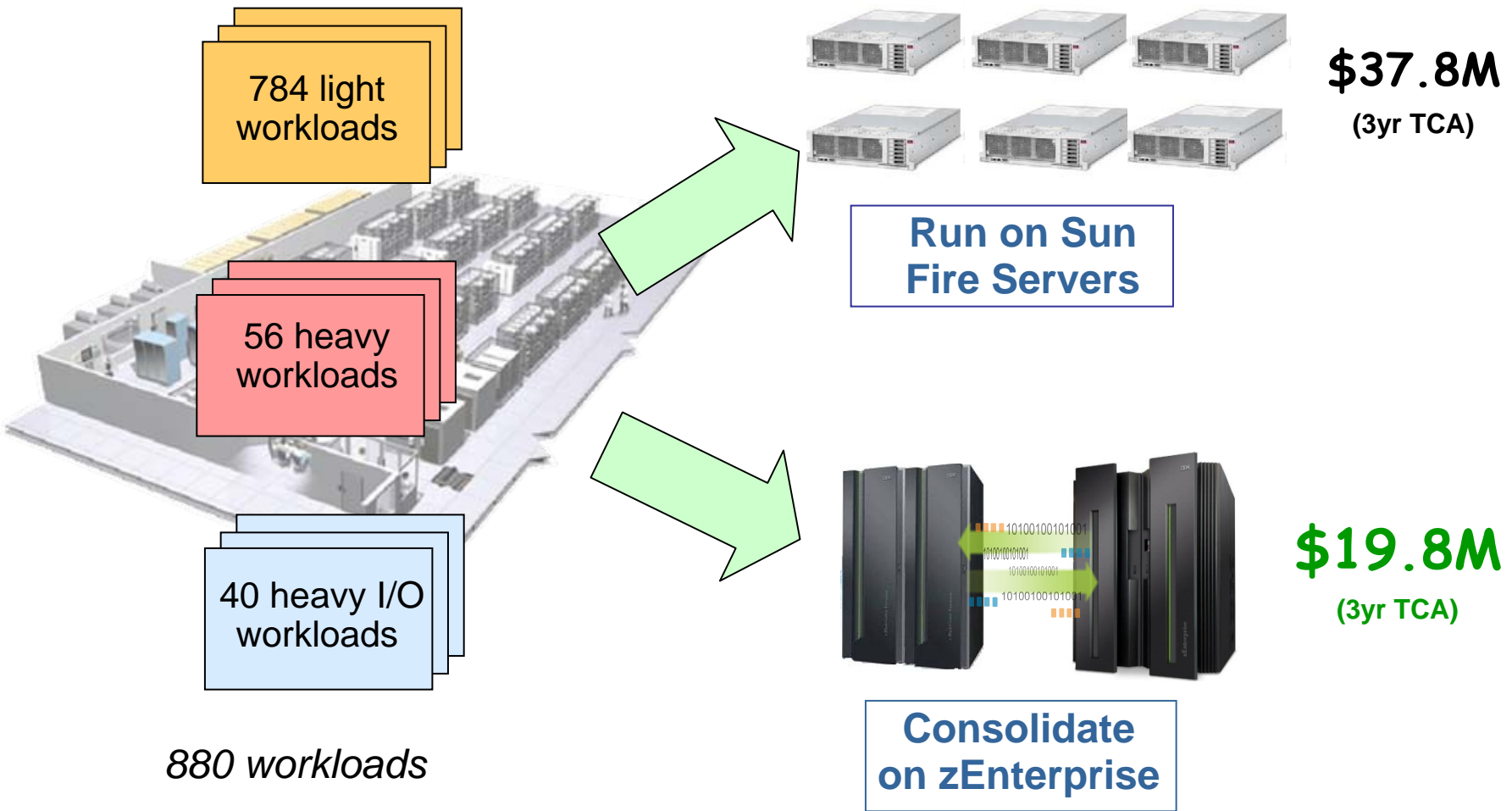
**Lowest Cost Of
Operation Per
Workload**

Lowest Cost Per Workload

Consolidate Hybrid SAP Workloads On zEnterprise And Save 20% Over Three Years



Consolidate Standalone Workloads On zEnterprise And Save 48% Over Three Years



Server configurations are based on consolidation ratios derived from IBM internal studies. Prices are in US currency, prices will vary by country

Eliminate Redundant Software And Optimize On zEnterprise

Find and Remove Redundant Assets

- Discover existing assets and map their dependencies
- Consolidate multiple instances of same application systems

Avoid Recreating Non-reusable Assets

- Identify componentized software as services
- Categorize and pool services
- Implement a reusable, services-based architecture

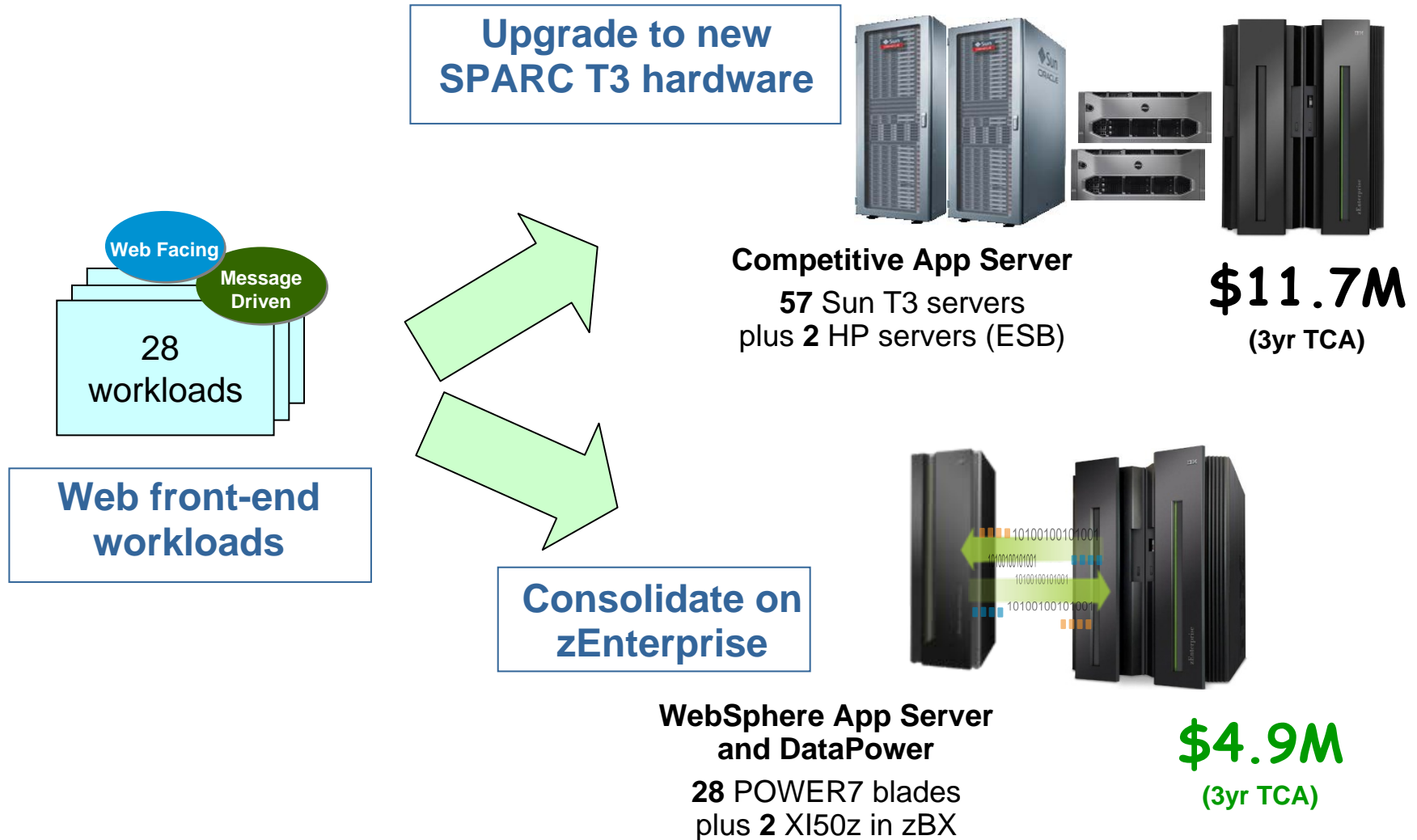
Tivoli

**Application
Dependency
Discovery
Manager**



IBM WebSphere
SOA
Web Services

zEnterprise Can Save Money When Deploying SOA



Use zEnterprise To Improve Service Delivery And Adopt Cloud Computing

Transform to Private Cloud Delivery Model

- Self-service automated provisioning and workload scheduling
- Elastic capability to expand
- Pay-as-you-go

Integrate Service Management

- Visibility, control, automation
- Simplified, Web-based user interaction

Improve Labor Productivity and Flexibility

- Automatic, dynamic resource reallocation



zEnterprise
Unified Resource
Manager

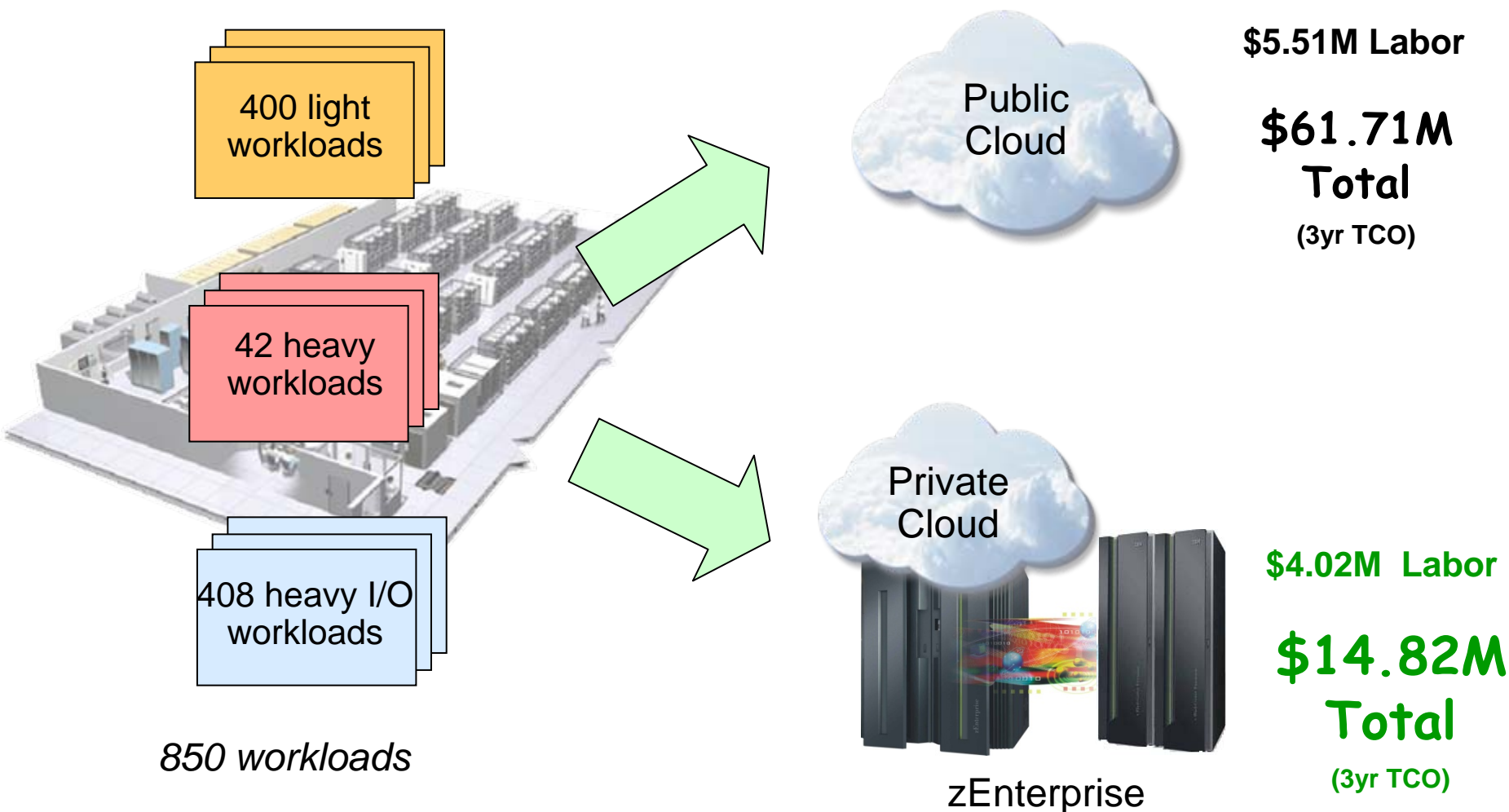


Integrated Service
Management



Private
Cloud

Deploying A Private Cloud On zEnterprise Is 4.7 Times Less Expensive



Use zEnterprise To Leverage Data And Optimize Business

Reduce Cost of Data Duplication

- Reduce database size via data compression
- Reduce multiple copies via co-location

Extract Greater Value From Data

- Consolidate heterogeneous data sources into a data warehouse
- Apply intelligence and predictive analysis for greater business insight



**Data
Management**

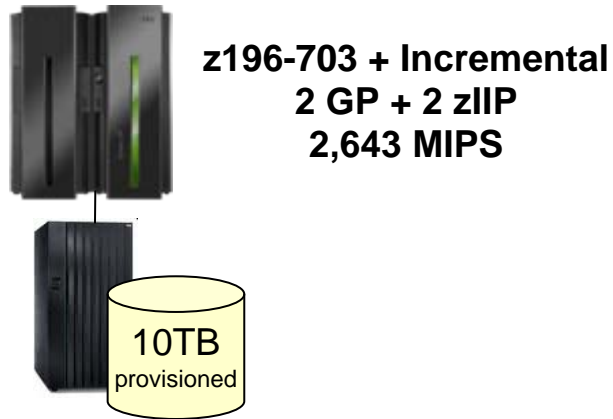
Data Warehouse

**Cognos
Business
Intelligence**

SPSS

Co-locate Data On zEnterprise And Save

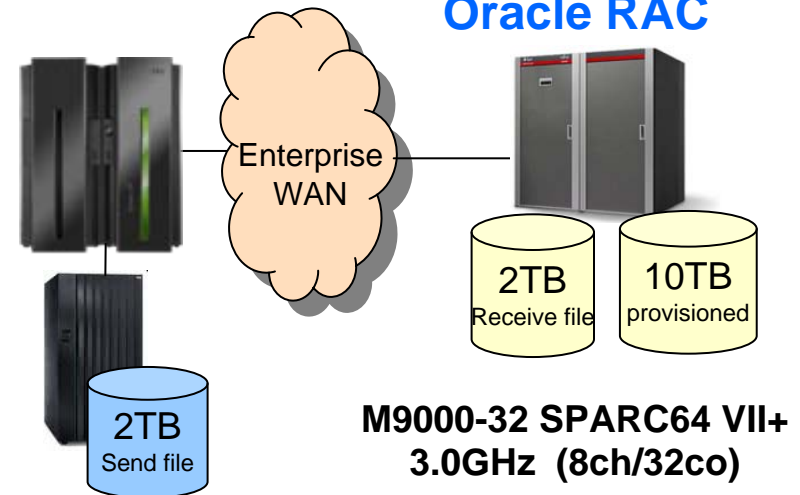
zEnterprise z196 DB2 on z/OS



Total (3yr TCA) **\$1.98M**

Hardware	\$352,405
Software	\$1,325,713
Storage	\$117,505
Storage Admin	\$180,630

Sun M9000 Oracle RAC



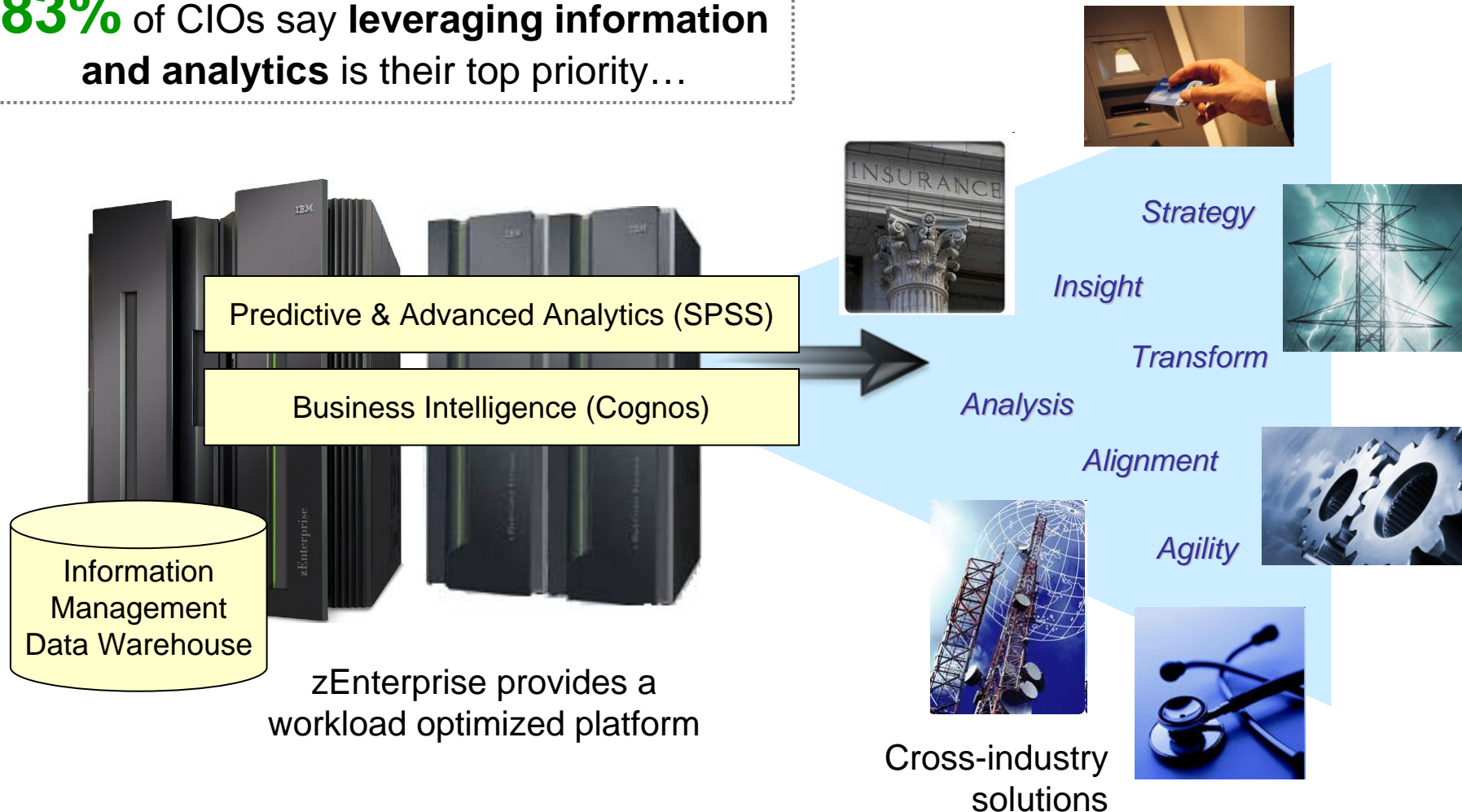
Total (3yr TCA) **\$11.65M**

Hardware	\$1,784,776
Software	\$2,522,720
Storage	\$184,320
FTP File Storage	\$62,116
Storage Admin	\$367,533
Transfer Cost	\$6,729,870

Equivalent Performance = 59,782 QpH
Source: IBM Internal Study. Results may vary based on
customer workload profiles/characteristics.

zEnterprise Is The Perfect Platform For Business And Predictive Analytics

83% of CIOs say **leveraging information and analytics** is their top priority...



zEnterprise provides a workload optimized platform

Cross-industry solutions

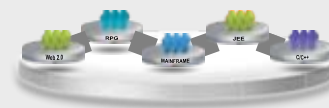
Extend Smarter Computing To Unified Development Teams

Unified, collaborative work environment

- Break down cultural barriers across teams
- Share repository for development assets
- Continuous access for status and management

Share tools for all platforms

- One extensible platform supporting all development languages and environments
- End-to-end debugging capability
- Testing resources deployed only as needed to reduce costs



Rational software

**Rational
Team
Concert**

**Rational
Developer for
zEnterprise**

**Rational Asset
Analyzer**

IBM IT Transformation = Cost Savings

- Consolidated and virtualized over 3,900 server images onto 30 System z mainframes
- 80% less energy used
- 85% less floor space ...
16,500 sq. ft. reduction
- Cumulative benefit yield of ***\$4.1B over the last 5 yrs***



	1997	Today
Host Data Centers	155	7
Web Hosting Centers	80	5
Network	31	1
Applications	15,000	4,700

Smarter Computing ... With zEnterprise!

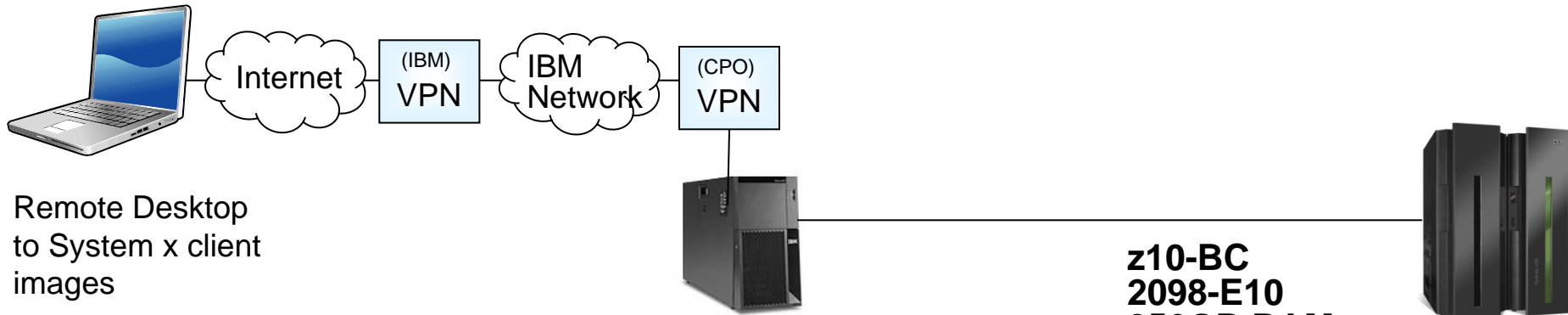
- Lowest cost per workload
- Ideal for pooling services
- Best for private cloud solutions
- Great for business analytics



Agenda

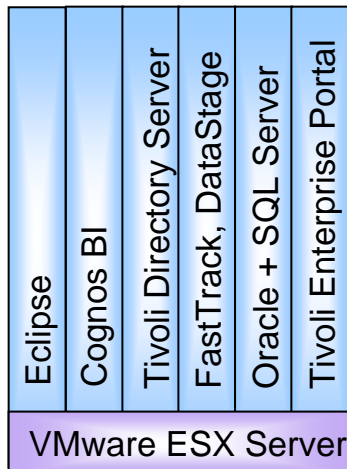
20 minutes	1 – Smarter Computing With zEnterprise
50 minutes	2 – A Closer Look At The Value Of zEnterprise
20 minutes	<i>Break</i>
50 minutes	3 – Consolidating Server Infrastructure With zEnterprise
35 minutes	4 – The Benefits Of Storage Consolidation
10 minutes	<i>Academic Initiative</i>
60 minutes	<i>Lunch</i>
35 minutes	5 – Eliminating Redundant Software
40 minutes	6 – Improving Service Delivery With Private Cloud Computing
20 minutes	<i>Break</i>
40 minutes	7 – Leveraging Data To Optimize Business
40 minutes	8 – Developing Hybrid Applications For zEnterprise

DEMO: Architecture



System x 3950
8 x 3.5GHz Xeon MP
64GB RAM

System x VMware images running as desktop or server clients to System z



z10-BC
2098-E10
256GB RAM

