System z – A Smart System For A Smarter Planet

Megatrends And System z

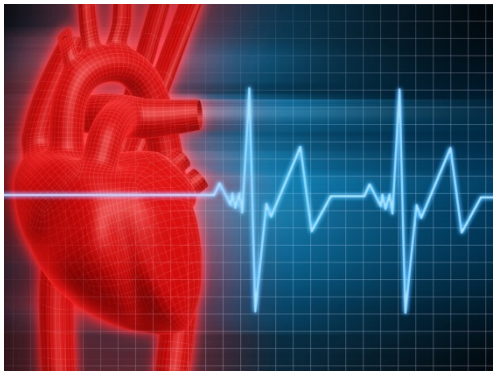
Smarter Planet Transformation Examples

Smart grid

Reduce transmission costs

Risk management

Minimize exposure to losses



Healthcare delivery

Cost efficiency /

Fewer mistakes

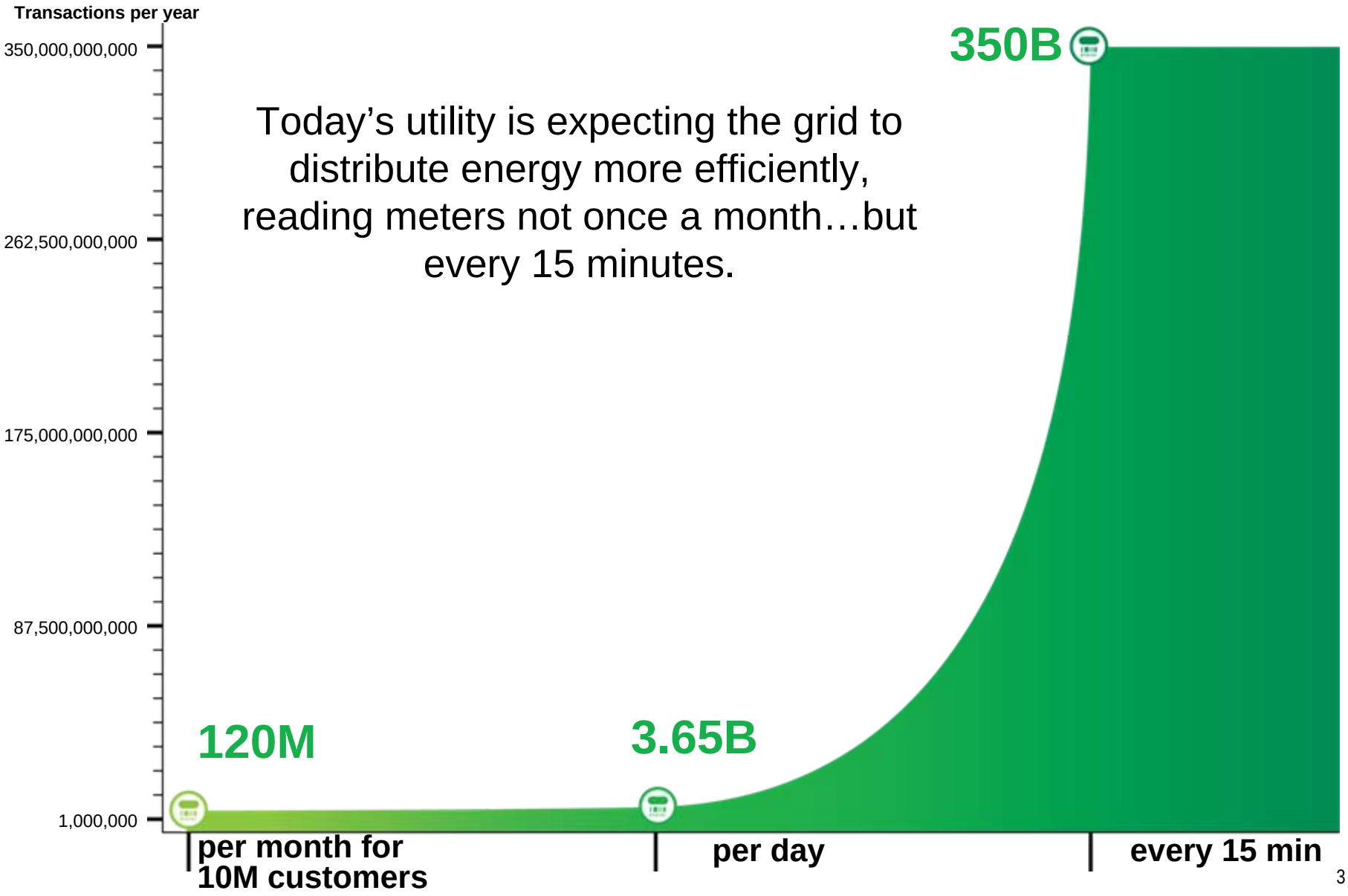
Citizen-centered

Citizen satisfaction

Smart food

Reduce spoilage

Smart Grids


Transactions per year
350,000,000,000
262,500,000,000
175,000,000,000
87,500,000,000
1,000,000
Today's utility is expecting the grid to distribute energy more efficiently, reading meters not once a month…but every 15 minutes.
350B
120M
3.65B
per month for 10M customers
per day
every 15 min

SMART METER TEXAS™

Welcome , [redacted]
Log Out

Home | My Account | Usage | Help | Notices

y Smart Meters
eport Request Status

Usage/ My Smart Meters-Usage Report

My Smart Meters - Usage Report

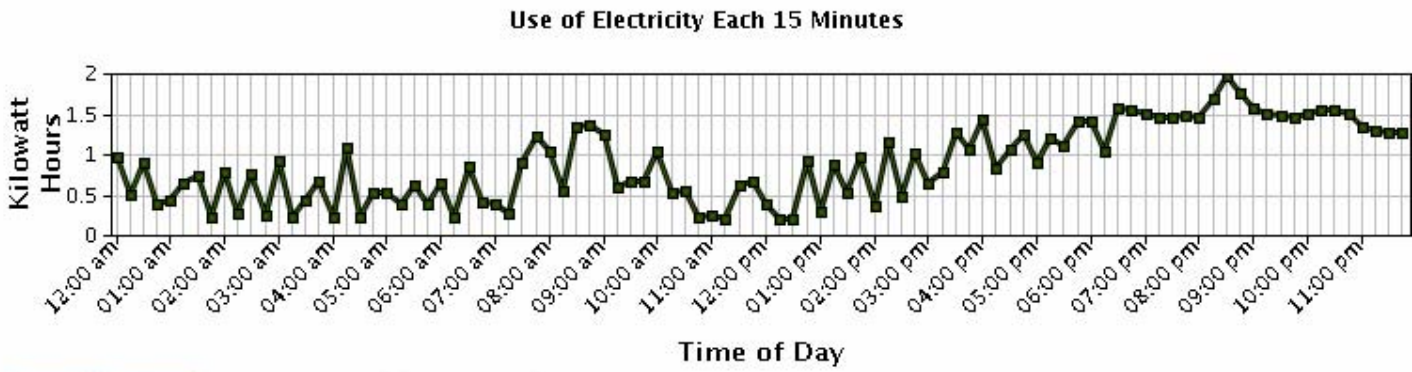
Description:
Address: [redacted],
999 ,TX

ESI ID: [redacted]
Meter Number: [redacted]
Meter Multiplier: 1

Report Option

Report Type: Daily Usage (15 min intervals)
Start Date: 04/30/2010 End Date: 04/30/2010 Update Report

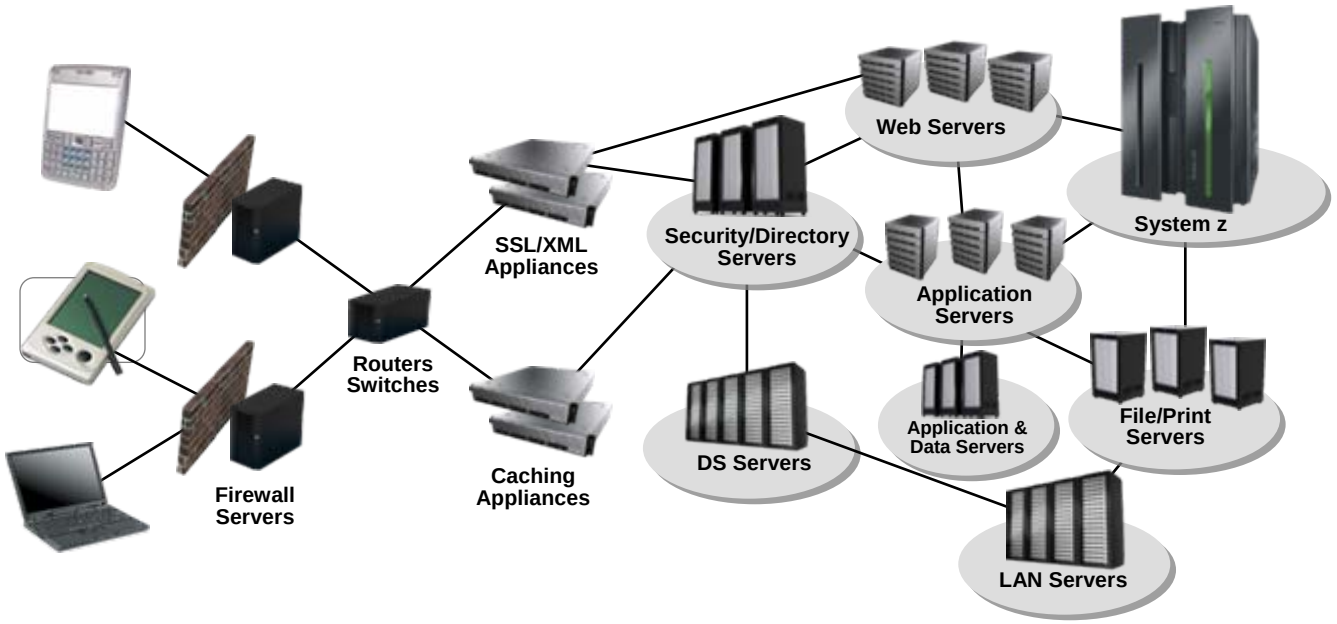
Daily Usage (each 15 minutes) - Kilowatt Hours for 04/30/2010



Print | Export | < Previous Day | Next Day >

Start Time	End Time	Usage(kWh)	Act./Est.
12:00 am	12:15 am	0.991	A

Smarter Planet Solutions Have Broader Span



- Cost effective solutions will be achieved by integrating, extending, and redeploying existing applications
- Different application workloads may have different characteristics and requirements
- Fit for purpose deployment will minimize overall cost

Different Workload Characteristics

- Light processing
- I/O bandwidth
- Low quality of service requirements

- Heavy processing intensity

- Heavy processing
- Heavy I/O
- High quality of service requirements

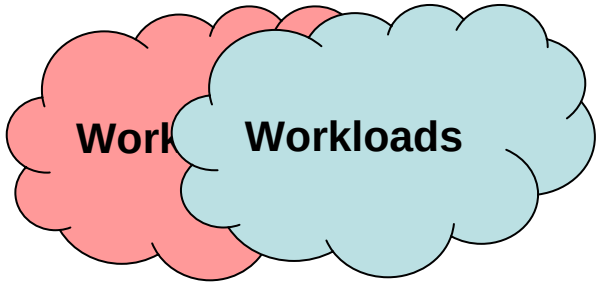
Servers Optimized For Different Workloads

Intel

Linux

Windows

- Fast processing threads
- Commodity I/O and qualities of service



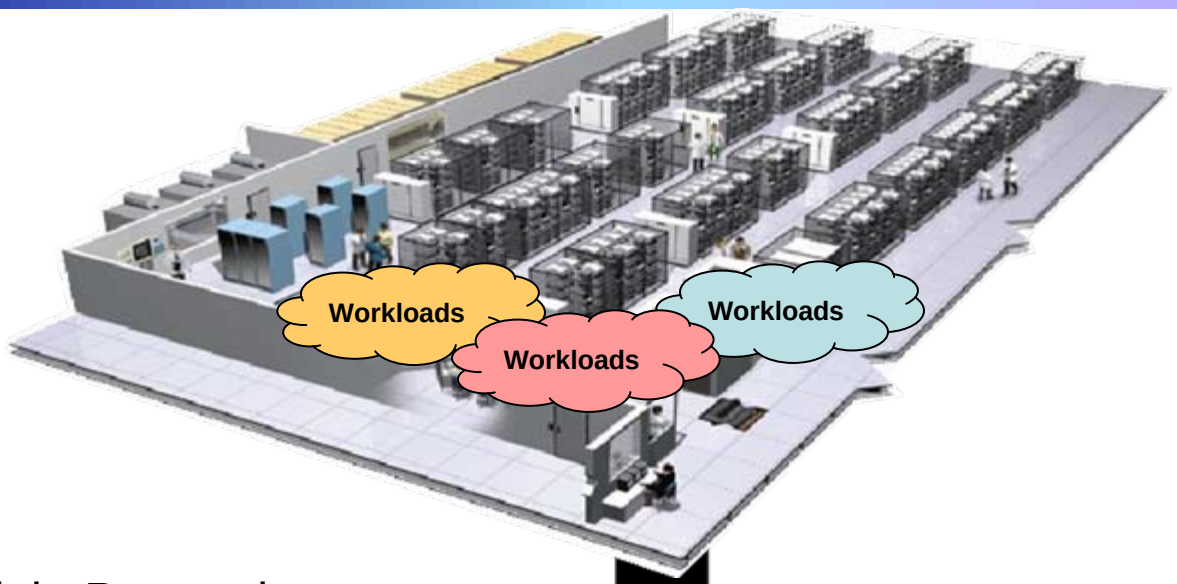
IBM System z

z/OS

Linux

- Heavy transaction processing scale via sysplex
- Dedicated I/O Sub System
- Superior quality of service

Which Workload Runs Best Where?



Light Processing
Minimize cost of acquisition

Heavy Processing
Heavy I/O
Quality of Service

Intel

Fit for Purpose

IBM System z

Heavy Processing Workloads

Heavy I/O Workloads Quality of Service

Let's look at the unique fit for purpose features of System z for these workloads.

System z Fit For Purpose

Workload Requirements	System z Capabilities
Heavy Processing	■ 4.4 GHz clock speed ■ Parallel sysplex architecture ■ Transaction processing middleware optimized to exploit sysplex
Heavy I/O	■ Dedicated I/O subsystem ■ High bandwidth storage subsystems
Superior Qualities of Service	■ Designed for reliability, availability and service ability ■ Sysplex failover, storage hyper swap, systematic site failover
Minimizes Cost per Workload	■ Scale and workload management enables consolidation at high levels of utilization ■ Promotional pricing

Reliability Is Paramount

August 3, 2009 1:37 PM PDT

PayPal suffers from e-commerce outage

by Stephen Shankland

Font size Print E-mail Share 10 comments

PayPal suffered a global outage and slow performance Monday, but eBay said its online payment system is mostly back in working order.

"About an hour ago, PayPal started experiencing site issues that affected the ability to send and receive money. We have all hands on deck to get this fixed," said PayPal spokesman Anuj Nayar in a blog post about noon PDT. "We're really sorry for the inconvenience."

PayPal

- One hour+ outage August 2009
- $2,000 lost per second
- $7.2M+ lost revenue

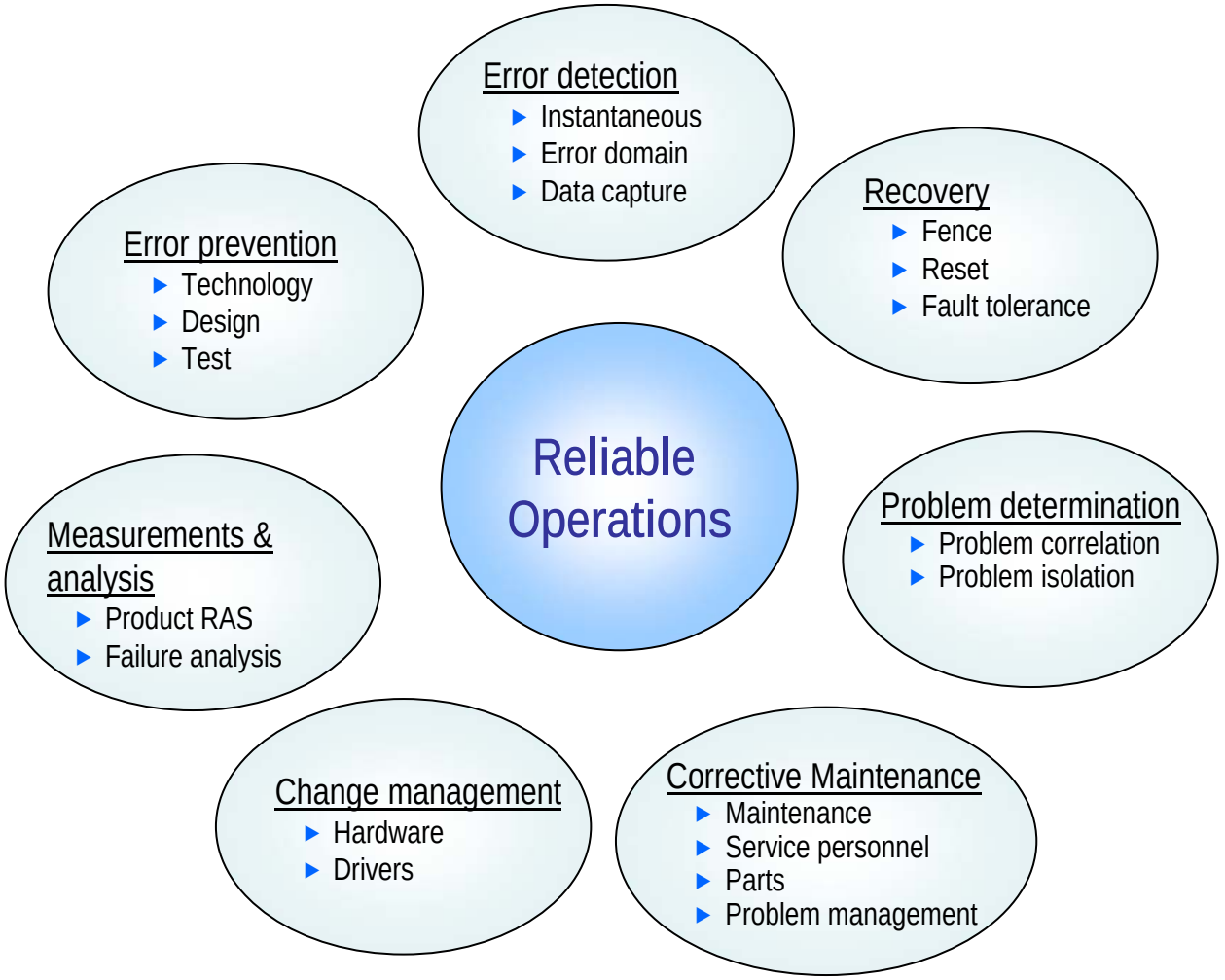
Financial Impact of Downtime Per Hour

Industry segment	*Cost*
Energy	$2.8M
Telecommunications	$2.1M
Manufacturing	$1.6M
Financial	$1.5M
Information Technology	$1.3M
Insurance	$1.2M
Retail	$1.1M
Pharmaceuticals	$1.1M
Banking	$1.0M
Consumer Products	$0.8M
Chemicals	$0.7M
Transportation	$0.7M

Sources: http://news.cnet.com/8301-1023_3-10302072-93.html; Robert Frances Group, 2005

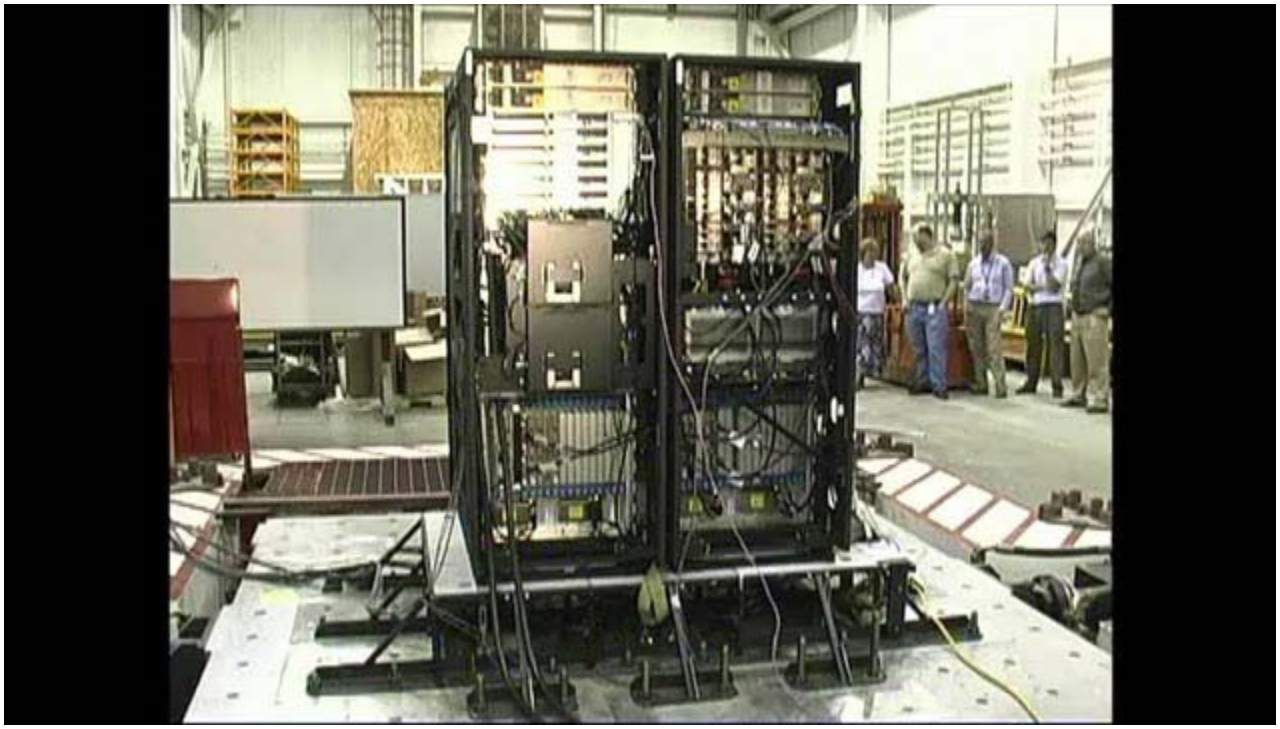
Availability Must Be Designed-in

Examples of hardware reliability and serviceability features

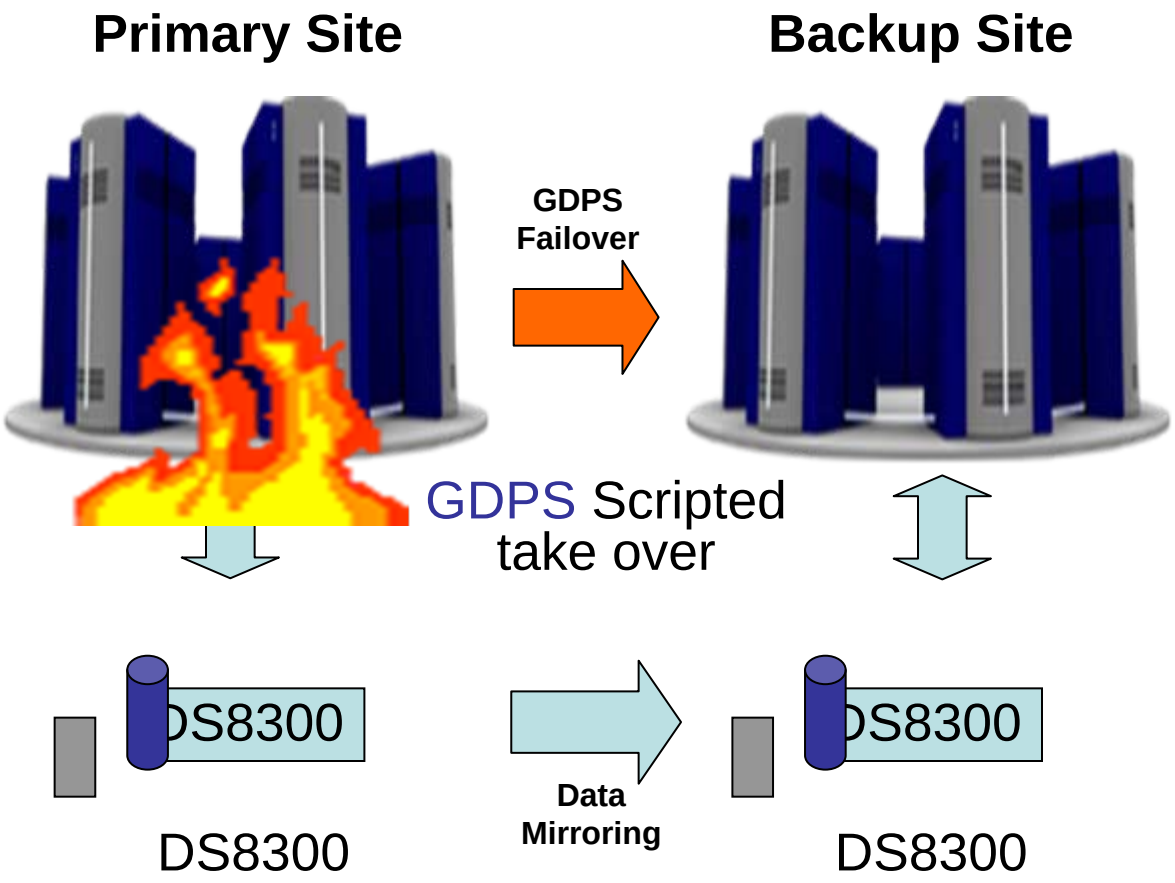


System z – Built To Last

- Hybrid cooling
- Redundant Power
- Thermal protection
- Resists earthquake damage



The Mainframe Keeps The Business Running Even In the Event Of Data Center Disaster



- Site Failover
  - Failover to secondary site in case of complete site failure
- Data Mirroring
  - Protect data in the event of a disk system failure

System z Provides Comprehensive Security

Crypto Cards

Tamper proof process

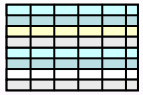
Tape encryption

TS1120
Archive Data

Key management

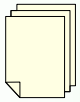
For offline storage

Multilevel security



Secured database access

System z SMF



Comprehensive logging

Consul Insight

Compliance reporting

Consul System z Tools

Audit monitoring and reporting

DB2 Audit Management Expert

Eliminate manual auditing process

Data Privacy

Compliance and Audit

Extended Enterprise

Tivoli Identity Manager

Provisioning of users & workflow

Tivoli Federated Identity Mgr

Authentication

Platform Infrastructure

Common Criteria Ratings

Support for standards

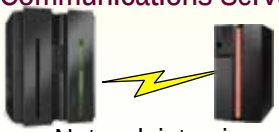
PKI services

Supports VPns etc

RACF

Provides audit, authorization, authentication and access

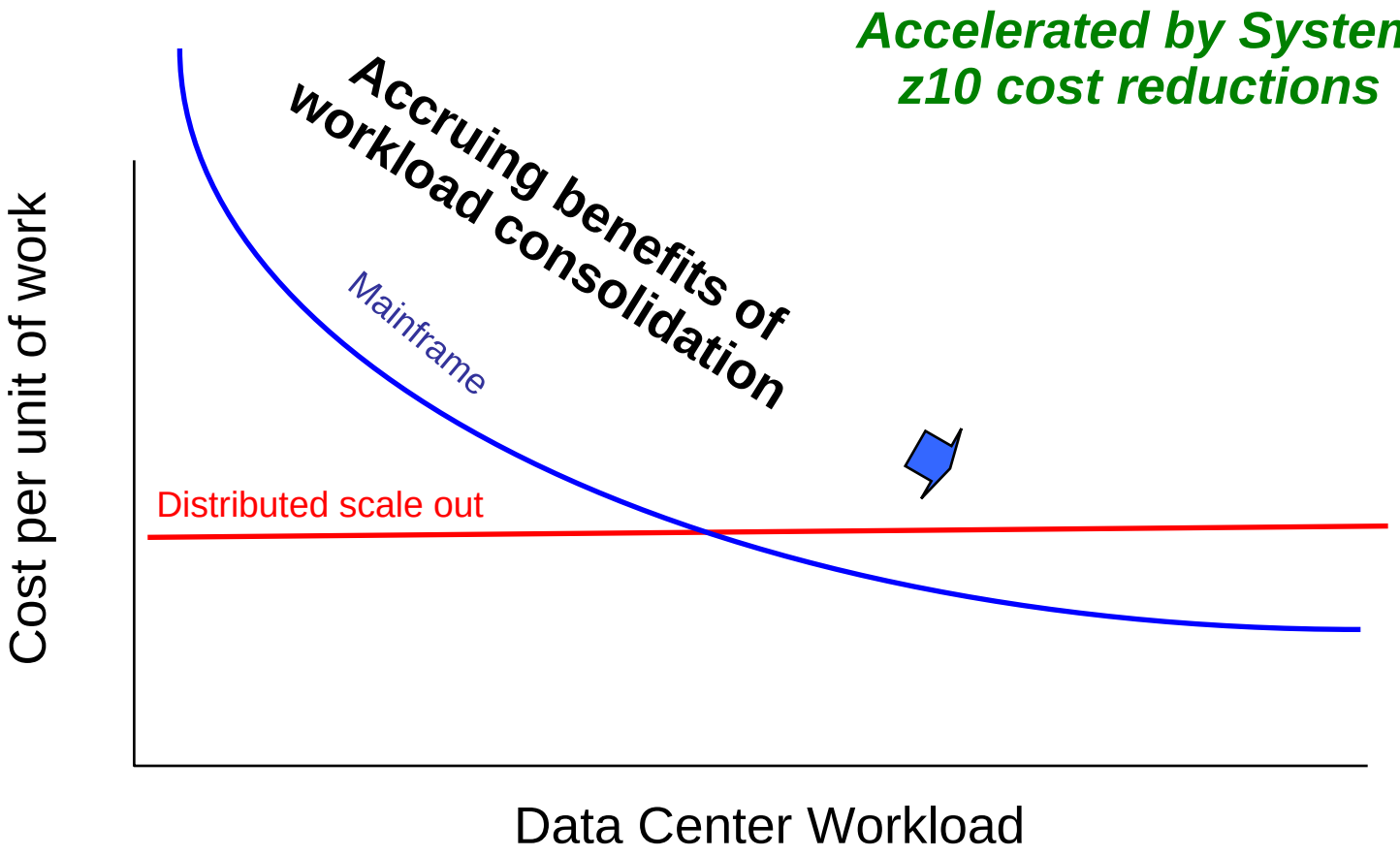
Communications Server



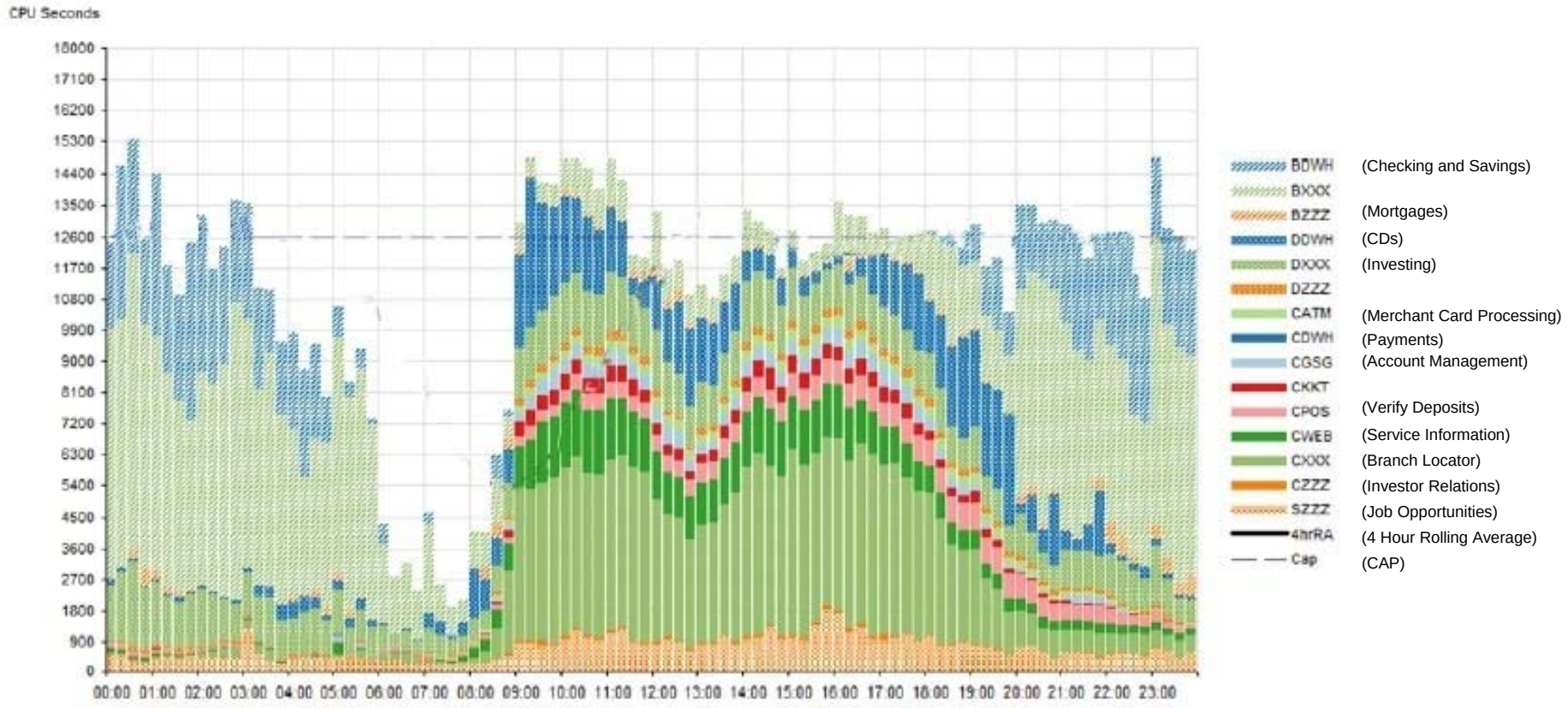
Network intrusion detection

Mainframe Economics

Mainframe Cost Per Unit of Work Goes Down as Workload Increases

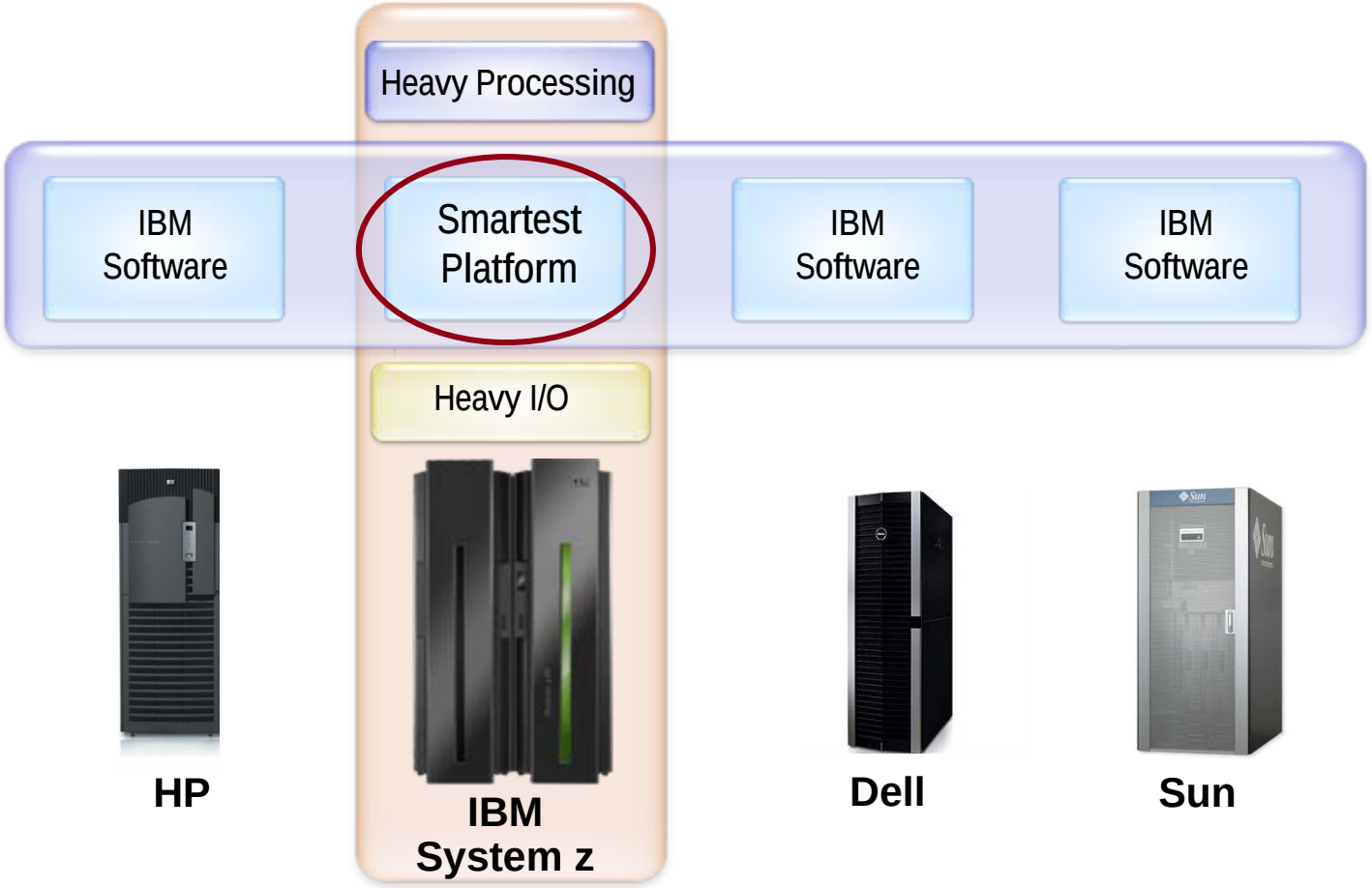


System z Workload Consolidation Achieves Competitive Costs Per Workload



System z Is Optimized For Heavy Processing And I/O Workloads

- ✓ **Processing Scale**
- ✓ **I/O Bandwidth**
- ✓ **Qualities of Service**



Introducing Service Oriented Finance

We're a traditional bank with branch offices throughout the country.

This has been a difficult year. Survival is our a top priority.

We need to change the way we do business!

Service Oriented Finance CEO

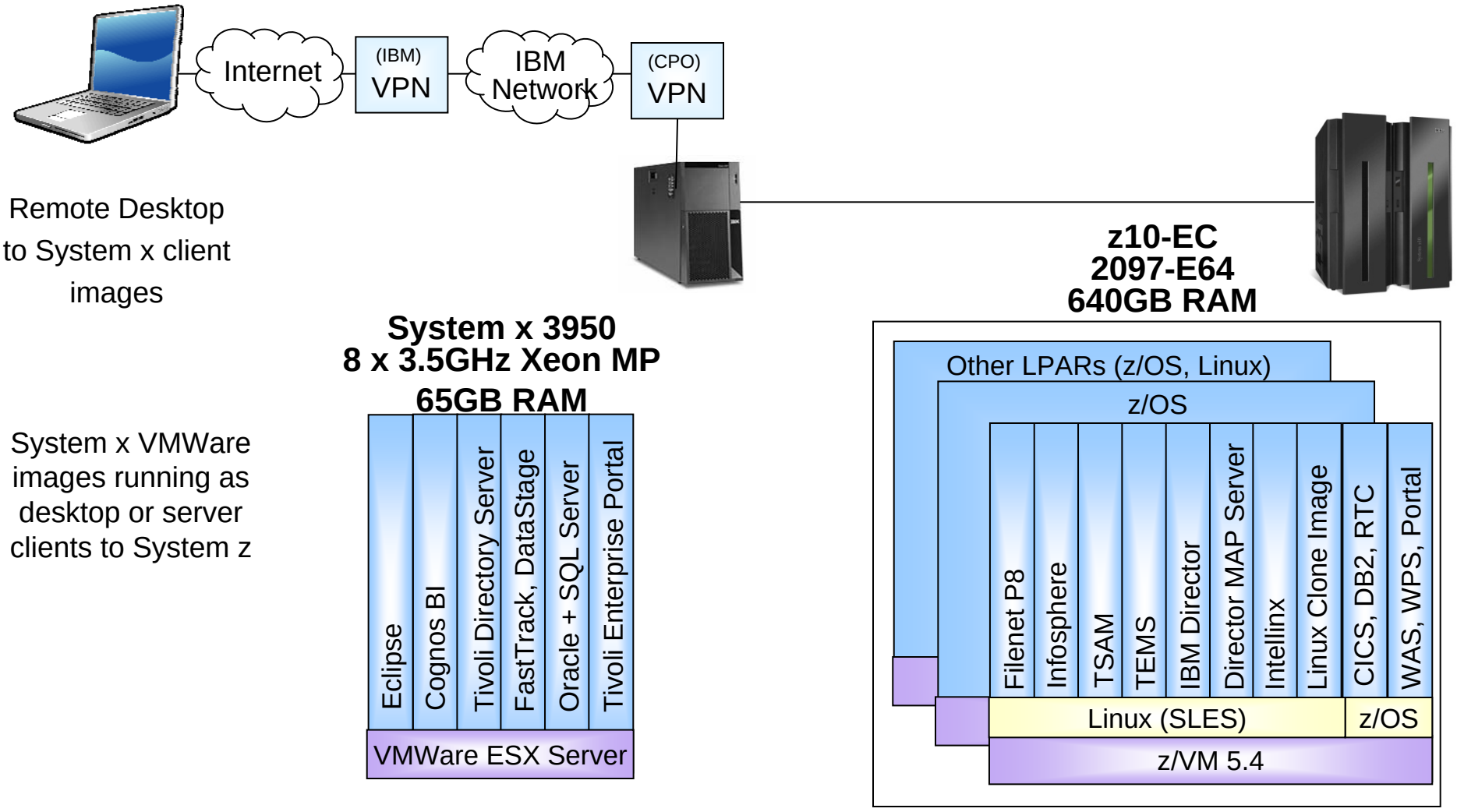
Introducing Service Oriented Finance

We had to cut staff.

How can we make changes to support our new business model?

Service Oriented Finance CIO

DEMO: Architecture



Our Agenda Today

10 Minutes	*Welcome by Regional Sales Exec*
30 Minutes	Megatrends And System z
45 Minutes	Deploying Web Applications
30 Minutes	Data Security And Protection
20 Minutes	***Break***
20 Minutes	Modern Data Serving
45 Minutes	Unify Mainframe and Distributed Development
60 Minutes	***Lunch***
25 Minutes	Modern Business Analytics
45 Minutes	Virtualization And Consolidation For The Enterprise
20 Minutes	***Break***
45 Minutes	Reduce Labor Costs With System z In A Dynamic Infrastructure
30 Minutes	What's Wrong With Offloading