# Extending Your Mainframe for More Business Value

Affordable Business Growth
with System z

# Quiz

## How fast are IT costs growing?

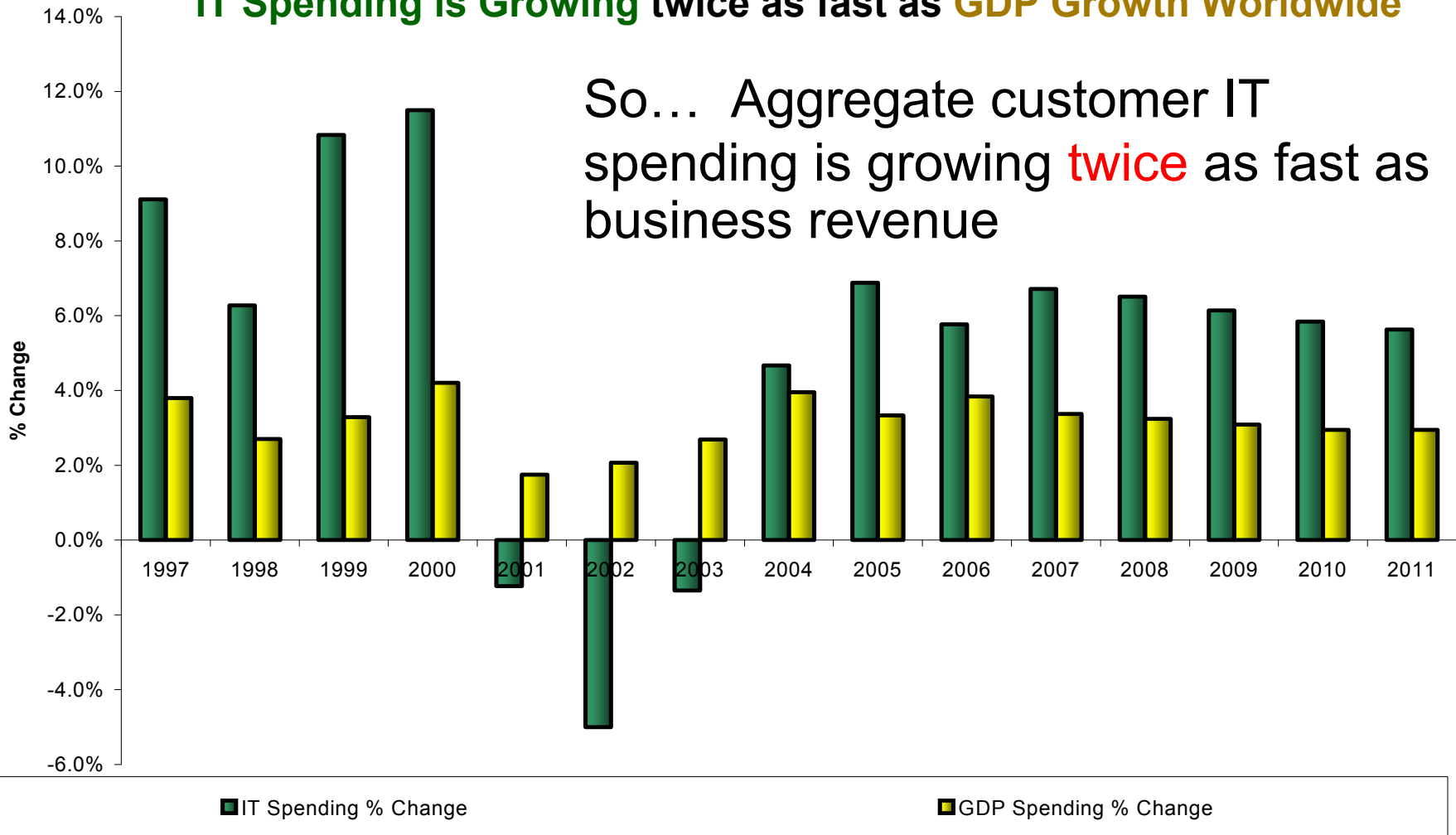A: Slower than business revenue growth

B: About equal to business revenue growth

C: Faster than business revenue growth
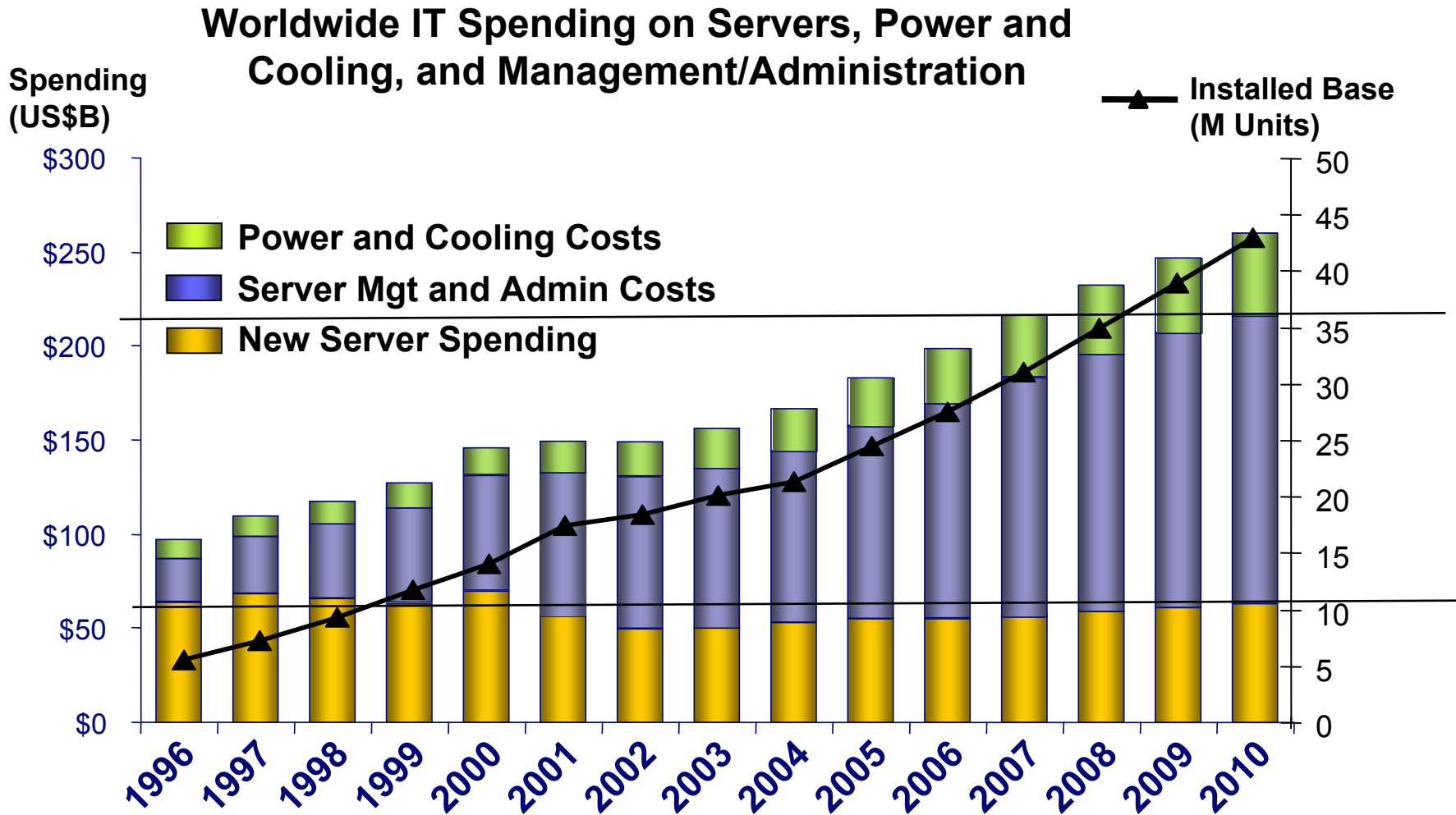
# Top Down Analysis: IT Spending Growth

**IT Spending is Growing** twice as fast as **GDP Growth Worldwide**

So… Aggregate customer IT spending is growing twice as fast as business revenue



EIU Real GDP FORECASTS- % change on previous year and Total IT Spending – IDC estimates

# Rising Operational Costs For Distributed Servers Are a Contributing Factor



**Worldwide IT Spending on Servers, Power and Cooling, and Management/Administration**

Spending (US$B)

Installed Base (M Units)

- Power and Cooling Costs
- Server Mgt and Admin Costs
- New Server Spending

Years: 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010
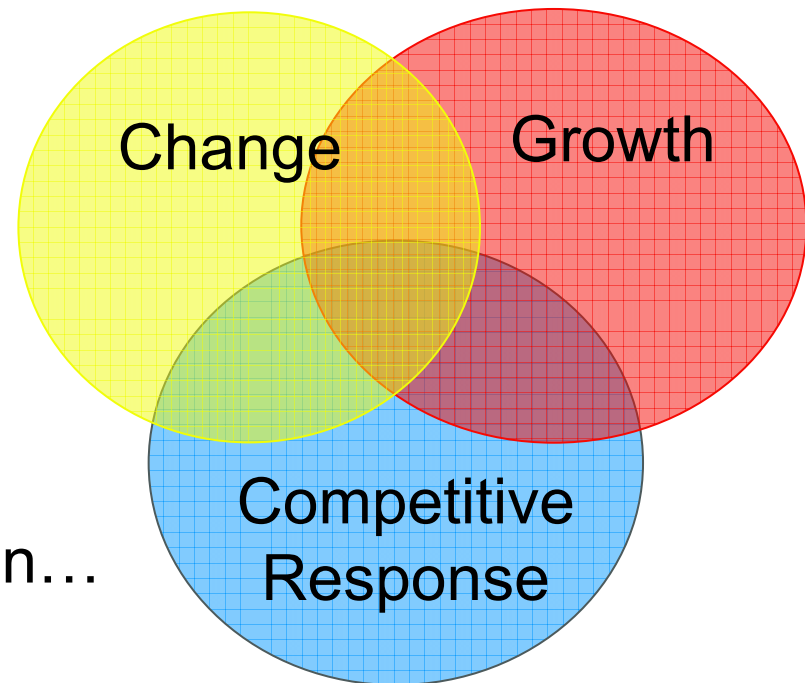
# Two Challenges

**How can we**

- **Extend business capability quickly?**

and

- **Prevent I/T expenses from growing faster than business revenue?**

# Extensibility, A Definition *from wikipedia*

- In software engineering, **extensibility** is a system design principle where the implementation takes into consideration future growth. It is a systemic measure of the ability to extend a system and the level of effort required to implement the extension.

Change

Growth

Competitive Response

System z Has Extensibility built in…

# Mainframe Extension Is a Winning Strategy

- **Extension delivers new business capability *faster***
  - Building on the investments in I/T, data center and people skills

- **Extension is a key cost-containment strategy**
  - IT costs growing twice as fast as business revenue due to business imperatives and distributed deployments

- **Mainframe extension can help reduce IT spending growth from <u>twice</u> business revenue growth to <u>equal or less</u> business revenue growth**

# A Growing Mainframe Customer is a Business to be Emulated

- A survey of 585 large or growing IBM mainframe customers:

  - ▶ Average business revenue growth **12.1%**
  - ▶ Average profit growth 21.9%
  - ▶ Average MIPS growth 24.3%
  - ▶ Average mainframe HW and SW spending growth **6.4%**

- These customers are extending their existing mainframes to deliver new business capability while constraining IT spending growth to **half** of business revenue growth

# Mainframe Extension Solutions Achieve the Lowest Cost of Acquisition

| Scenarios | Cost of Distributed vs. z | | Distributed Cost Ratio |
|---|---|---|---|
| **Mainframe Extension** | | | |
| – Automobile Manufacturer | $21.0M vs | $0.8M | **26.0x** |
| – WebSphere Case Study | $5.3M vs | $3.0M | **1.8x** |
| – Major Retailer | $8.3M vs | $7.0M | **1.2x** |
| – SAP Database Server | $4.5M vs | $2.3M | **2.0x** |
| – Data Warehouse | $10.4M vs | $3.7M | **2.8x** |
| | | | |
| **Linux Consolidation** | | | |
| – IBM IGS | $901.9M vs | $521.2M | **1.7x** |
| – Brokerage Firm (Power) | $12.7M vs | $7.8M | **1.6x** |
| – Brokerage Firm (Floor) | $25.5M vs | $10.7M | **2.4x** |
| – Major Bank | $46.9M vs | $19.9M | **2.4x** |

**2.0X**

Note: Automobile Manufacturer was a special case

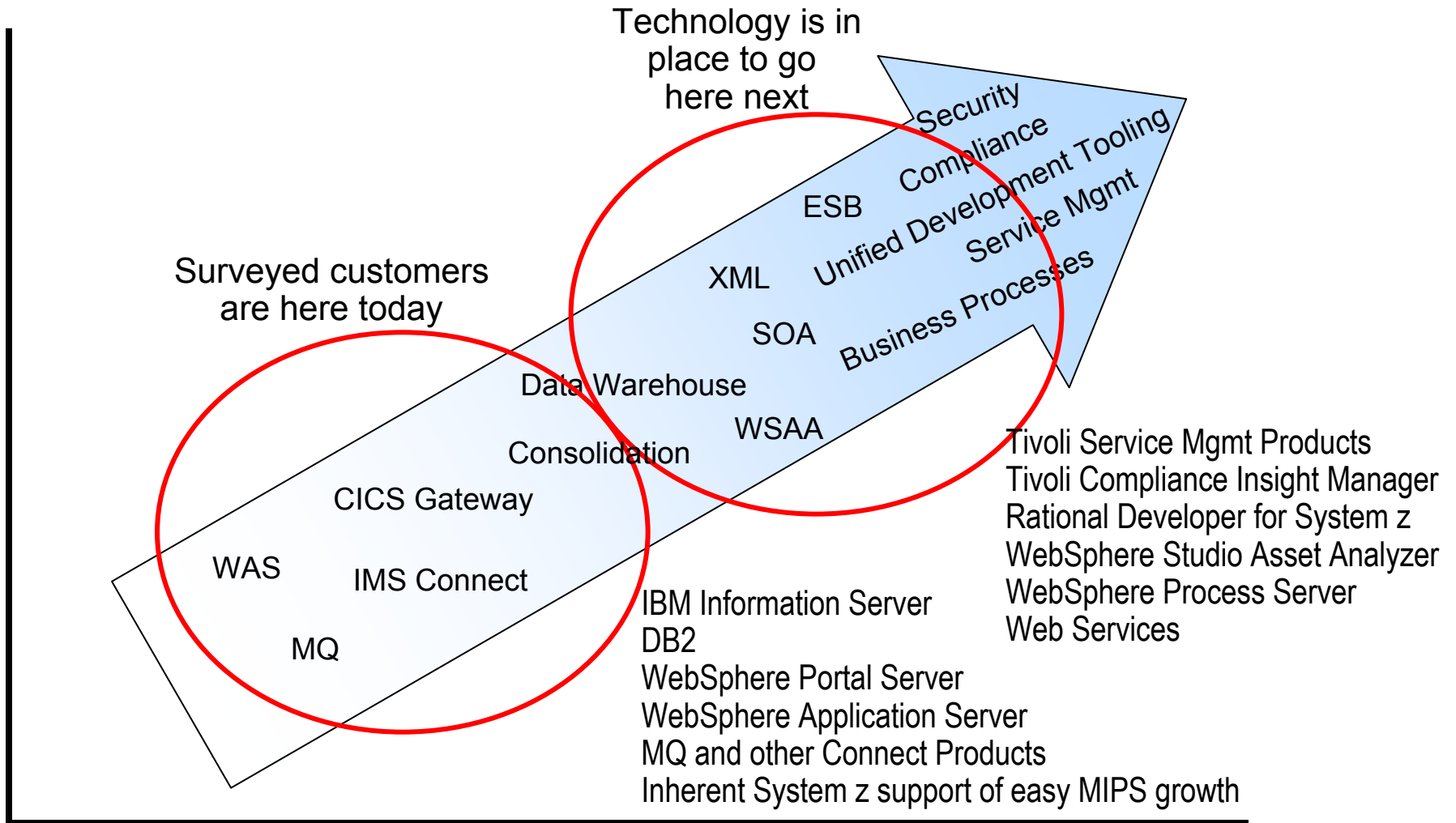# Global Fortune 500 Industries Control IT Cost Growth by Extending Mainframe Systems

| | Average Revenue ($m) | Average Profit ($m) | Average MIPS | Average Rev Growth(%) | Average Profit Growth (%) | Average MIPS Growth (%) | Average z cost growth (%) |
|---|---|---|---|---|---|---|---|
| Top WW F500 Banks (59 out of 60) | $47,930 | $5,463 | 46,431 | 22% | 21% | 19% | -1% |
| Top WW F500 Insurance Companies (18/20) | $73,444 | $4,916 | 23,933 | 3% | 34% | 20% | 3% |
| Top WW F500 Healthcare companies (7/9) | $34,940 | $1,535 | 24,792 | 23% | 9% | 32% | 18% |
| Top WW F500 Retailers (7/9) | $66,611 | $2,336 | 18,839 | 11% | 8% | 25% | -1% |
| WW top 585 z customers | $36,207 | $2,939 | 15,146 | 12.1% | 21.9% | 24.3% | 6.4% |

# State of Mainframe Customers

- Impressive numbers from an IBM survey of top mainframe customers
  - ▶ 59 out of top 59 global 500 banks
  - ▶ 18 out of top 20 global 500 insurance companies
  - ▶ 7 out of top 9 global healthcare companies
  - ▶ 7 out of top 9 global retailers
  - ▶ All top US life, property, and casualty insurance companies in 2007 Fortune 500

  - ▶ Average mainframe capacity 15,000 MIPS and growing
  - ▶ Revenue is growing twice as fast as mainframe costs
    - – Compared with "IT Spending is Growing twice as fast as GDP Growth Worldwide"

# Technologies Are in Place for Mainframe Extension Solutions

Technology is in place to go here next

Surveyed customers are here today

Security
Compliance
ESB
Unified Development Tooling
XML
Service Mgmt
SOA
Business Processes
Data Warehouse
WSAA
Consolidation
CICS Gateway
WAS
IMS Connect
MQ

Tivoli Service Mgmt Products
Tivoli Compliance Insight Manager
Rational Developer for System z
WebSphere Studio Asset Analyzer
WebSphere Process Server
Web Services

IBM Information Server
DB2
WebSphere Portal Server
WebSphere Application Server
MQ and other Connect Products
Inherent System z support of easy MIPS growth

# Mainframe Extension Solutions Help Deliver New Business Capability Faster

- **Organic Growth – Easy Growth of Existing Workload**

- **Extend Access Channels with SOA**

- **New Data Workloads on System z**

- **Deliver Business Insight with a Data Warehouse on System z**

- **Extend Connectivity with a Mainframe Communications Backbone**

- **Consolidate Workloads to Reduce Costs**

- **Extend IT Service Management**

- **Extend Data Security on the Mainframe**

- **Extend Development Team Productivity**

**Today we'll take a closer look at these extension solutions and the mainframe technologies behind them…**
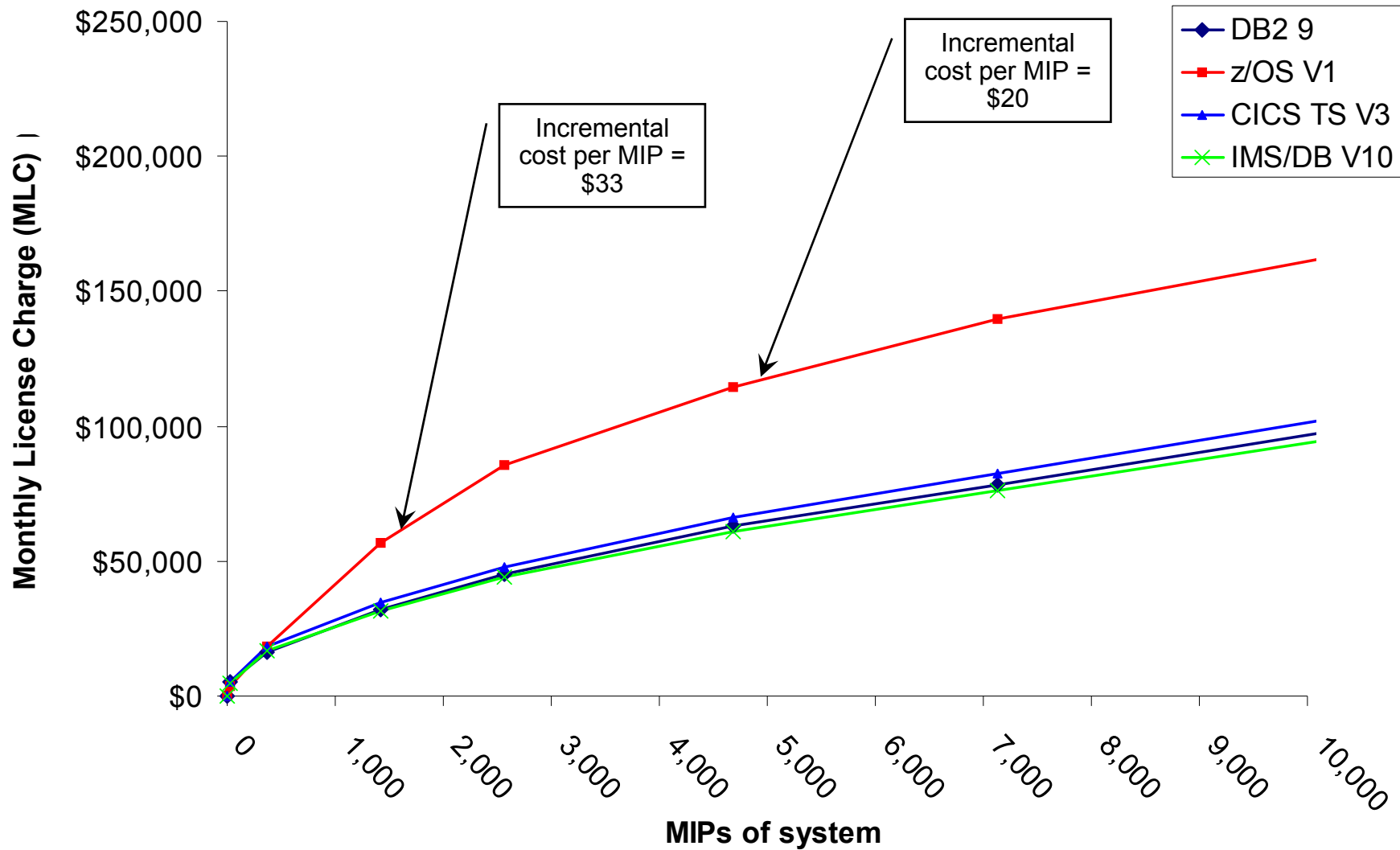
# Mainframe Extension Solution – Organic Growth

- **Easy Growth of Existing Workload**

- **Large enterprises grow at 10%+ annually**
  - ▶ Top 25 Industry Leading Companies in the Fortune Global 500 grew 13% annually from 2005 to 2007
  - ▶ Top 59 Global Banks grew 22% annually in 2006

- **Key growth areas**
  - ▶ Expansion in geography and channels
  - ▶ Expansion in market segments
  - ▶ Mergers and acquisitions

- **Growing pains and requirements**
  - ▶ Business growth drives transaction growth
  - ▶ Need to seamlessly scale up workload capacity

# Easy Organic Growth on the Mainframe

- System z designed to scale easily
  - ▶ Non-disruptive capacity on demand
  - ▶ System automatically uses new processor, memory, and storage capacity

- The cost of running incremental workload on the mainframe goes down as the total workload grows
  - ▶ Mainframe design and IBM pricing policies favor the addition of more workload
  - ▶ Special hardware pricing for qualified types of organic growth
  - ▶ Lower software costs per transaction as workload grows
  - ▶ Labor costs hold steady as workload grows

- **Customers have learned that organic growth on the mainframe can be the most cost efficient choice**

# Software Pricing Favors Organic Growth

# "Specialty Engines" Reduce Cost for New Workloads

- **Special assist processors for System z**
  - For Java workloads (zAAP)
  - For selected DB2 workloads (zIIP)
  - For Linux workloads (IFL)

- **Attractive pricing**
  - $125K for a 920 MIP processor
  - No charge for IBM software running on zAAP/zIIP
  - IBM software running on IFL costs 120 PVU's
  - Free upgrade to next generation!

- **Requirements**
  - Max number of zAAP =< number of general purpose processors
  - Max number of zIIP =< number of general purpose processors
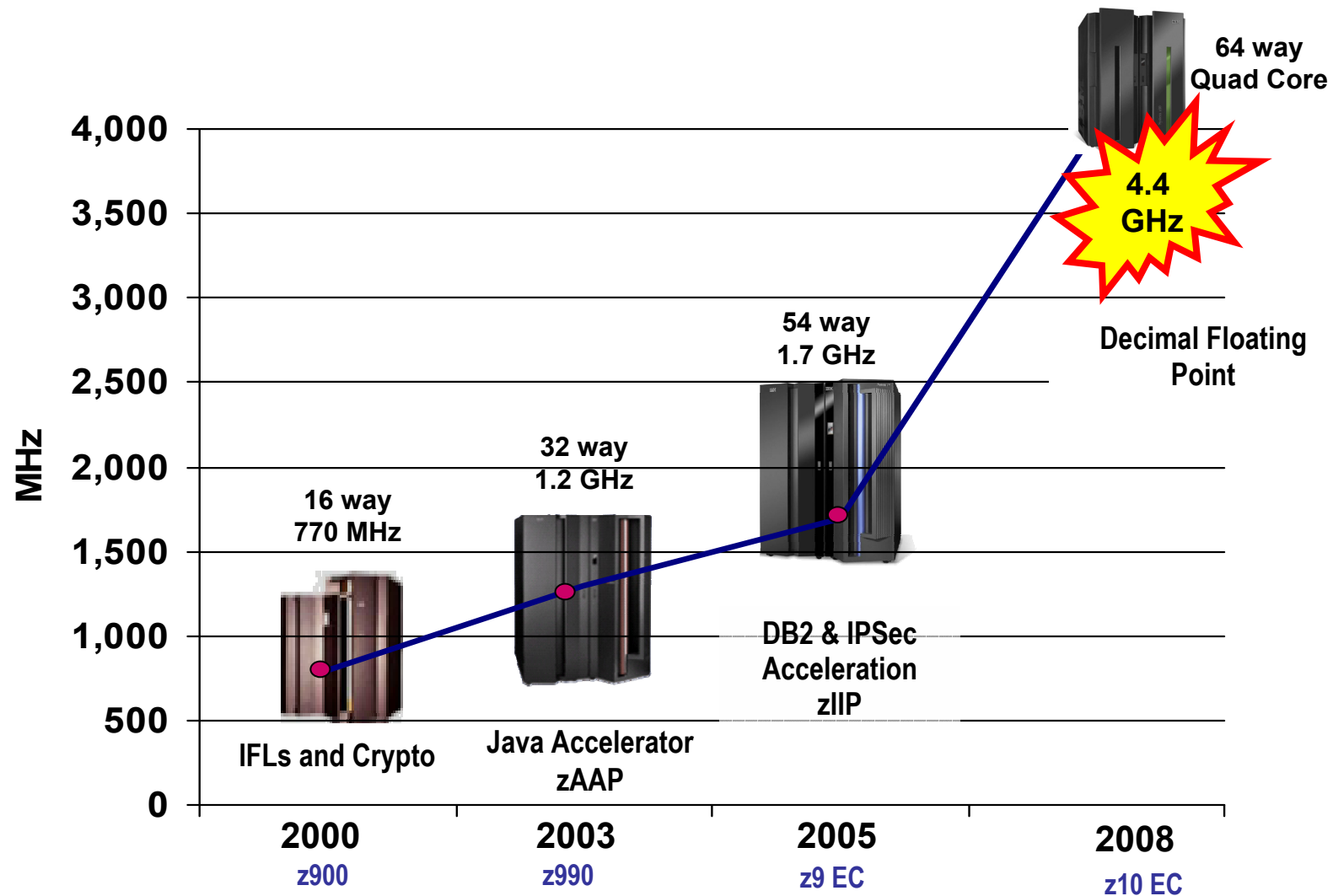  - No limit on the number of IFL's

# Which Workloads Can Benefit From Specialty Processors?

- What workloads can be run on a zAAP?
  - Java processing (**SOA scenarios**)
    - Up to 85%

- What workloads can be run on a zIIP?
  - Queries received via DRDA Remote Access Protocol (**Data base server** scenarios)
    - Up to 40%
  - Parallel queries (**Data Warehouse** scenario)
    - Up to 80%
  - Some of index maintenance utilities
  - IPSec and XML processing
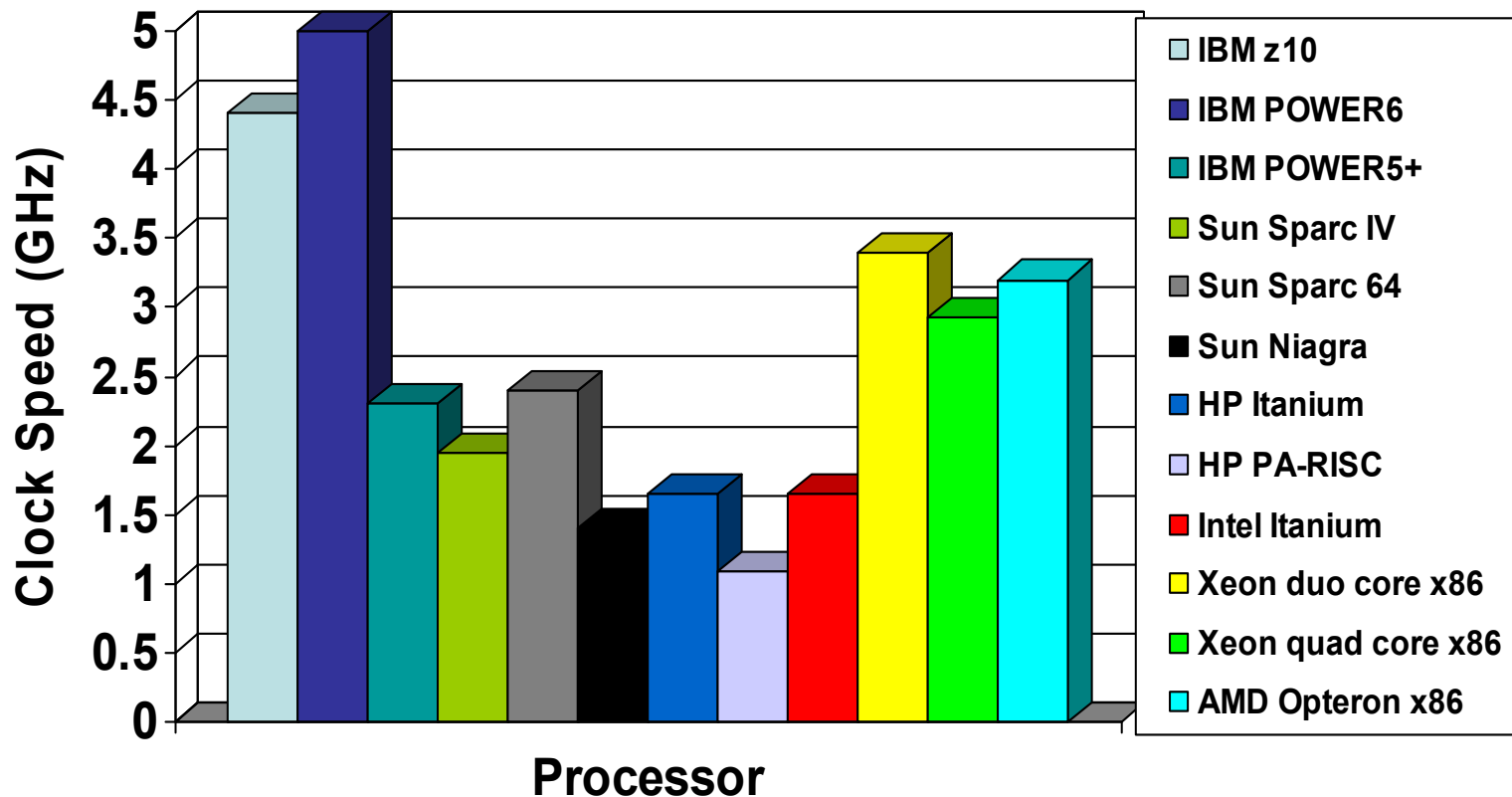    - Up to 71% (inbound) and 90% (outbound) for IPSec

- What workloads can be run on an IFL?
  - 100% of **Linux** workloads
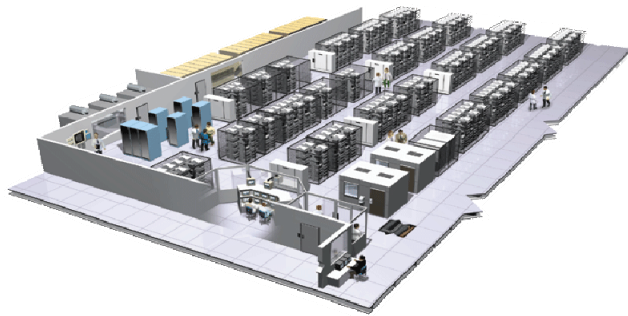
# z10 – Significant Performance Improvement

**64 way Quad Core**

**4.4 GHz**

**Decimal Floating Point**

**54 way 1.7 GHz**

**32 way 1.2 GHz**

**16 way 770 MHz**

**DB2 & IPSec Acceleration zIIP**

MHz axis: 4,000 / 3,500 / 3,000 / 2,500 / 2,000 / 1,500 / 1,000 / 500 / 0

**IFLs and Crypto**

**Java Accelerator zAAP**

| 2000 | 2003 | 2005 | 2008 |
|------|------|------|------|
| z900 | z990 | z9 EC | z10 EC |

# IBM z10 and POWER6 Lead the Competition

## Fastest Available Processor Technology

# An Inconvenient Truth!

## Equivalent $CO_2$ Emissions in one year



10,000 sq ft at 125 watts/ft$^2$ @ $0.09 per kwH

$985K per year

**11,498 tons of $CO_2$ per year**

= 368 Chevy Tahoes 

= 9,424 refrigerators 

= 10,549 round trips NY to LA 

= 78,753  75 watt light bulbs running 8 hrs/day

# Introducing Service Oriented Finance

We are a traditional bank with branch offices throughout the country.

Banking competitors and non-bank specialists are taking away our customers.

**Service Oriented Finance
CEO**

# Service Oriented Finance



Our customers demand greater choice, and personal security and control in their banking relationships.

We need a next generation banking system!
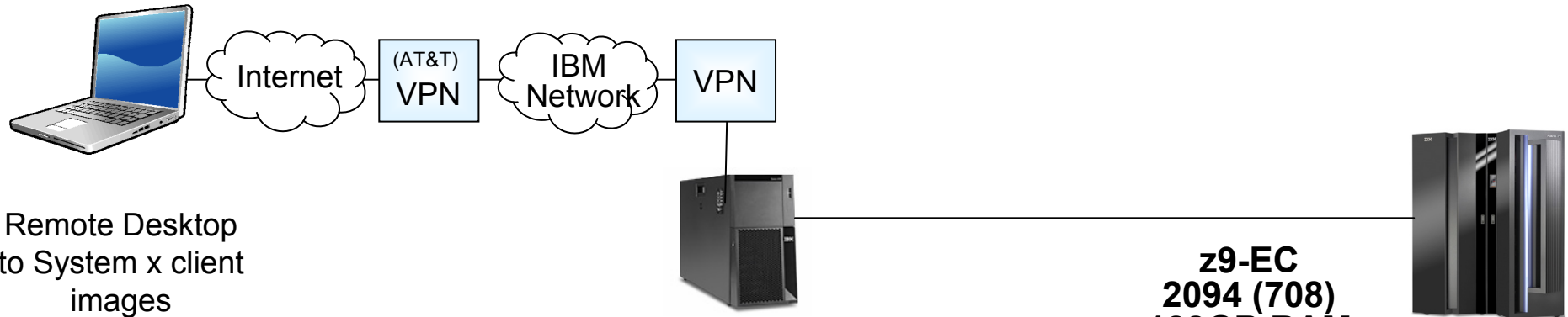
**Marketing**

# Service Oriented Finance



**Service Oriented Finance
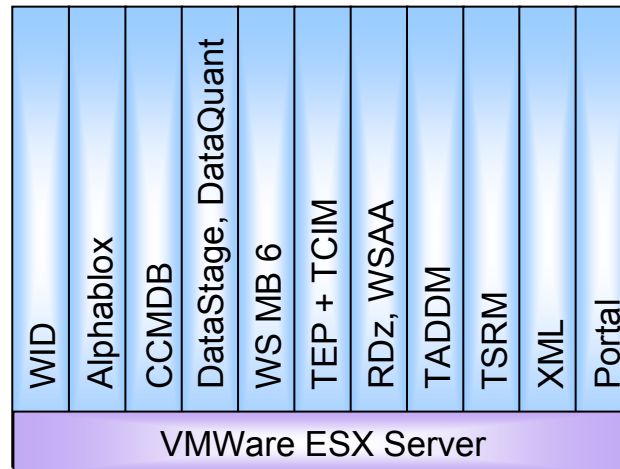CIO**

# The Value of Mainframe Computing

- Mainframe extension solutions meet customer requirements at lowest TCO

- SOA can help you reuse your existing mainframe investments

- Consolidation is a proven way to save money and simplify operations

- The mainframe delivers superior qualities of continuous operations, rapid scale up, and security

- Mainframe specialty processors and disaster recovery are a bargain

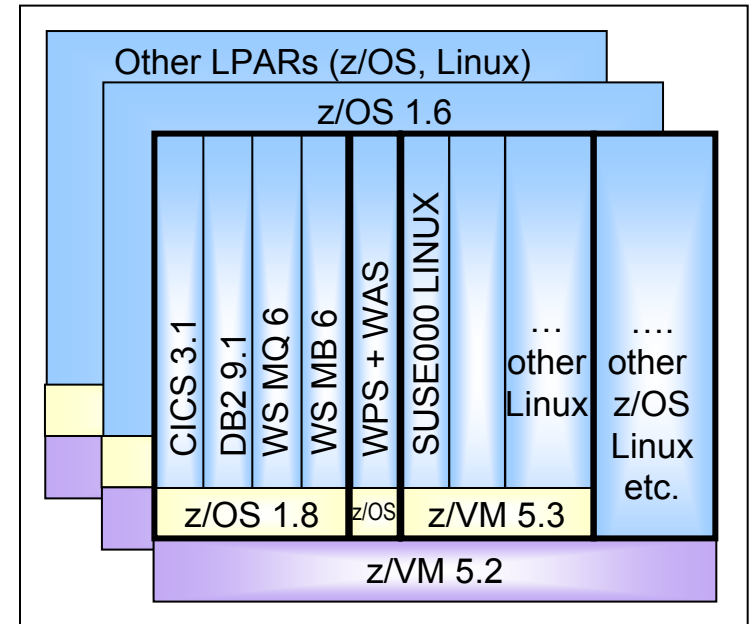- Mainframes have a much lower environmental impact

# DEMO: Architecture



Remote Desktop to System x client images

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

**System x 3850**
**4 x 3.66GHz Xeon MP**
**12GB RAM**

**z9-EC**
**2094 (708)**
**128GB RAM**

System x panels: WID | Alphablox | CCMDB | DataStage, DataQuant | WS MB 6 | TEP + TCIM | RDz, WSAA | TADDM | TSRM | XML | Portal

VMWare ESX Server

Other LPARs (z/OS, Linux)

z/OS 1.6

CICS 3.1 | DB2 9.1 | WS MQ 6 | WS MB 6 | WPS + WAS | SUSE000 LINUX | ... other Linux | .... other z/OS Linux etc.

z/OS 1.8    z/OS    z/VM 5.3

z/VM 5.2

# Our Agenda Today

| Agenda | |
|---|---|
| 30 minutes | Affordable Business Growth with System z |
| 45 minutes | Extend Access Channels with SOA |
| 45 minutes | New Data Workloads on System z |
| 15 minutes | *Break* |
| 45 minutes | Deliver Business Insight with a Data Warehouse on System z |
| 30 minutes | Extend System z as Your Universal Messaging Backbone |
| 60 minutes | *Lunch* |
| 45 minutes | Consolidate Workloads to Reduce Cost |
| 20 minutes | Extend Data Security on the Mainframe |
| 30 minutes | Extend IT Service Management |
| 15 minutes | *Break* |
| 45 minutes | Extend Development Team Productivity |
| 20 minutes | Extend Your Investment in System z |

# A Growing Community

- Over 4,000 applications – up 600 in 2007
- Over 1,200 Linux applications – up 260 in 2007
- Over 1,300 ISVs
- Academic Initiative – Over 400 schools, 40,000+ students