Extending Your Mainframe for More Business Value

Affordable Business Growth
with System z
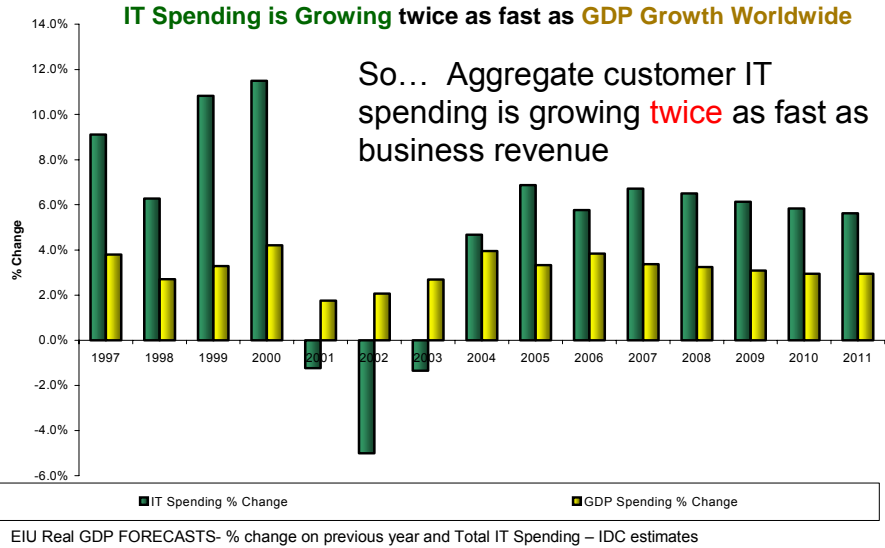

Quiz

How fast are IT costs growing?

A: Slower than business revenue growth

B: About equal to business revenue growth

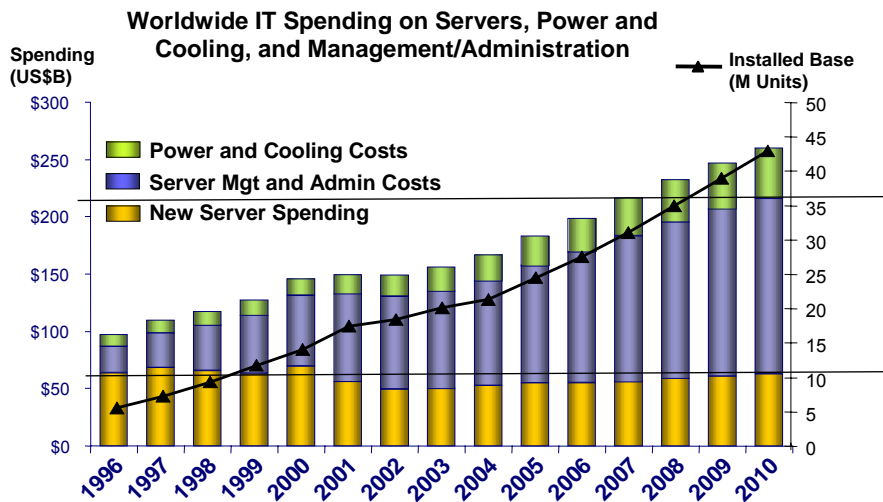C: Faster than business revenue growth

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

% Change

- IT Spending % Change
- GDP Spending % Change

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

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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

1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010

00 - Affordable Business Growth with System z v5.2.ppt

Source: IDC, 2006
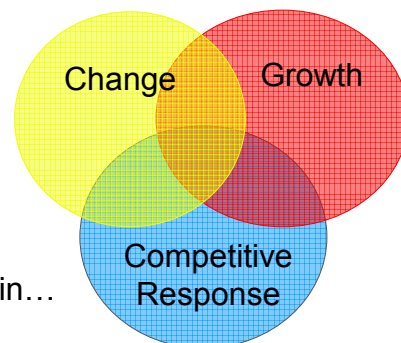
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Two Challenges

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…

3

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

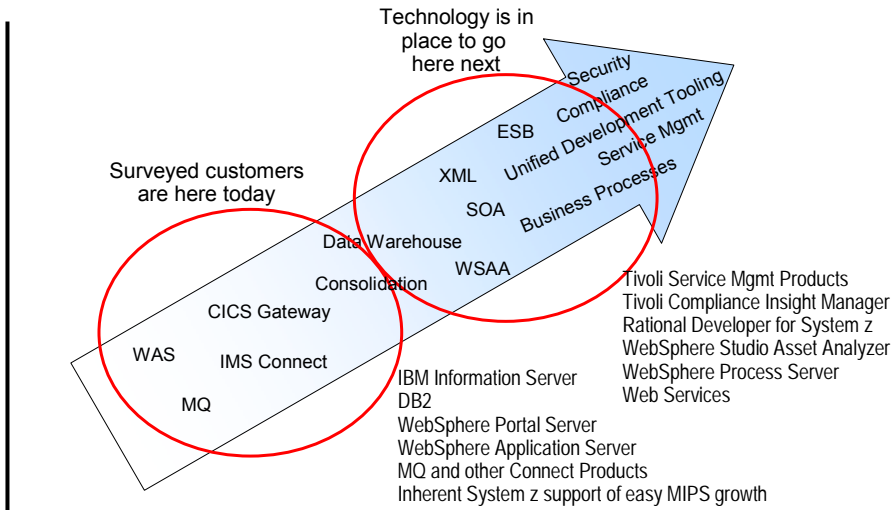Note: Automobile Manufacturer was a special case

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
Unified Development Tooling
ESB
Service Mgmt
XML
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 Data Security on the Mainframe**

- **Extend IT Service Management**

- **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
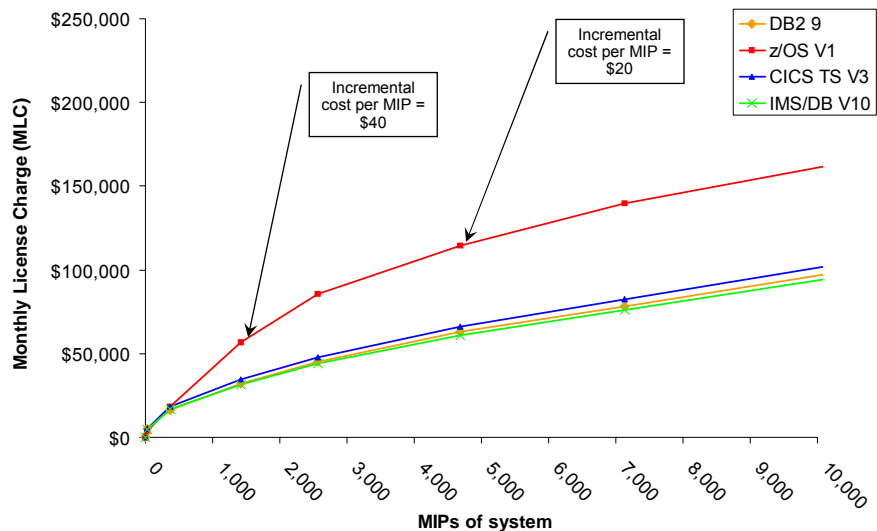 - ▶ Need to seamlessly scale up workload capacity

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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 Curves Favor Growth

Chart: Monthly License Charge (MLC) vs MIPs of system

Legend:
- DB2 9
- z/OS V1
- CICS TS V3
- IMS/DB V10

Y-axis: Monthly License Charge (MLC): $0, $50,000, $100,000, $150,000, $200,000, $250,000
X-axis: MIPs of system: 0, 1,000, 2,000, 3,000, 4,000, 5,000, 6,000, 7,000, 8,000, 9,000, 10,000

Incremental cost per MIP = $40

Incremental cost per MIP = $20

"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
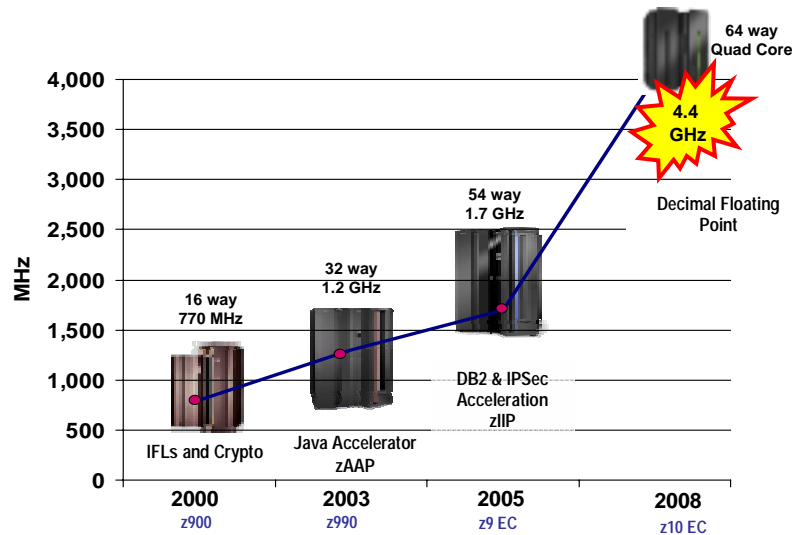 - No limit on the number of IFL's

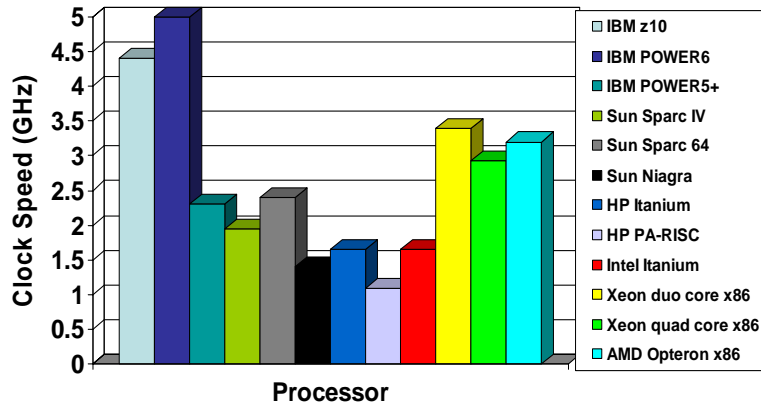## Which Workloads Can Benefit From Specialty Processors?

- 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

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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

IFLs and Crypto

Java Accelerator zAAP

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

2000	2003	2005	2008
z900	z990	z9 EC	z10 EC

IBM z10 and POWER6 Lead the Competition

Fastest Available Processor Technology

Clock Speed (GHz) — vertical axis: 0, 0.5, 1, 1.5, 2, 2.5, 3, 3.5, 4, 4.5, 5

Legend:
- IBM z10
- IBM POWER6
- IBM POWER5+
- Sun Sparc IV
- Sun Sparc 64
- Sun Niagra
- HP Itanium
- HP PA-RISC
- Intel Itanium
- Xeon duo core x86
- Xeon quad core x86
- AMD Opteron x86

Processor

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.
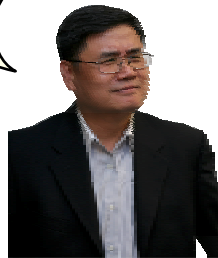
Service Oriented Finance
CEO

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

But we've invested a lot of money in our current IT infrastructure.

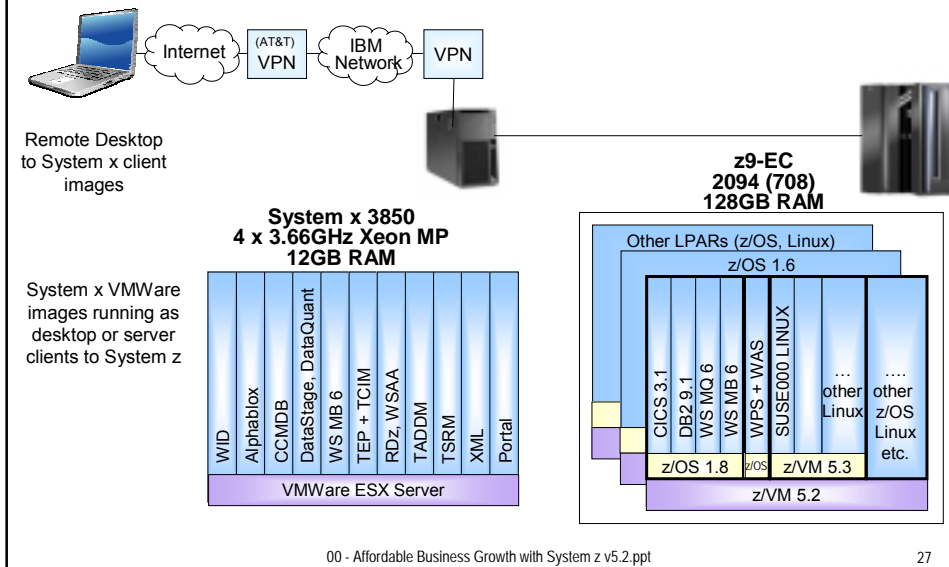**Service Oriented Finance
CIO**

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

Internet — (AT&T) VPN — IBM Network — VPN

z9-EC
2094 (708)
128GB RAM

Other LPARs (z/OS, Linux)
z/OS 1.6

WID, Alphablox, CCMDB, DataStage, DataQuant, WS MB 6, TEP + TCIM, RDz, WSAA, TADDM, TSRM, XML, Portal

VMWare ESX Server

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 Connectivity With a Mainframe Communications 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