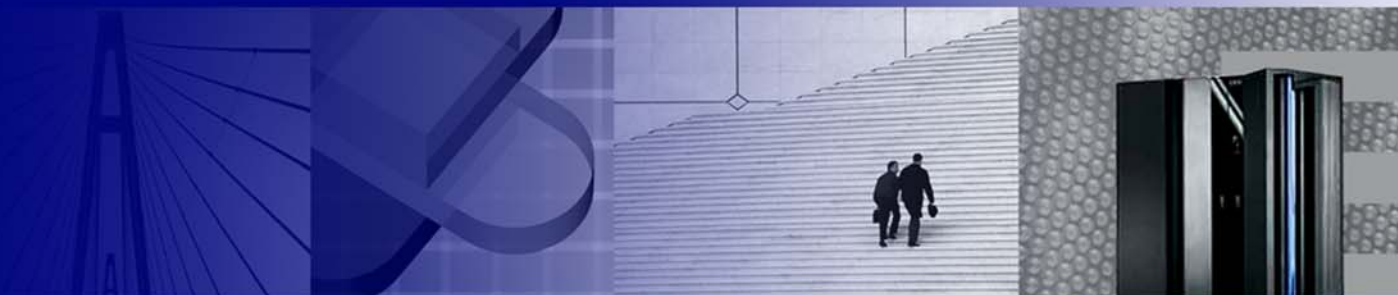




# System z Technology Update



Mark Anzani  
VP, System z Hardware Products



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# A New Era for Business

24 x 7

Global

Highly  
networked



Do you suffer from  
these symptoms?

Increasing  
complexity

Rising costs

Security threats



## Mainframe: *Better for business*

- Security
- Reliability
- Automation
- Economy of scale



# Today's mainframe

## *Four Enterprise-wide Roles of the Mainframe*

- Enterprise business resilience manager
- Enterprise security manager
- Enterprise workload manager
- Enterprise hub for data & SOA

*If data is the life blood of the business . . .*

*then your data server is the heart of your SOA*

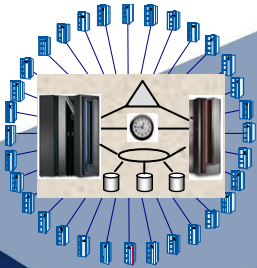


# Mainframe Innovation: Specialty Engines

Building on a strong track record of technology innovation with specialty engines –

**DB Compression, SORT, Encryption, Vector Facility**

- Centralized data sharing across mainframes



**Internal Coupling Facility (ICF) 1997**



**Integrated Facility for Linux (IFL) 2001**

- Support for new workloads and open standards



**IBM System z Application Assist Processor (zAAP) 2004**

- Increased support for Java™ workloads in mainframe solutions

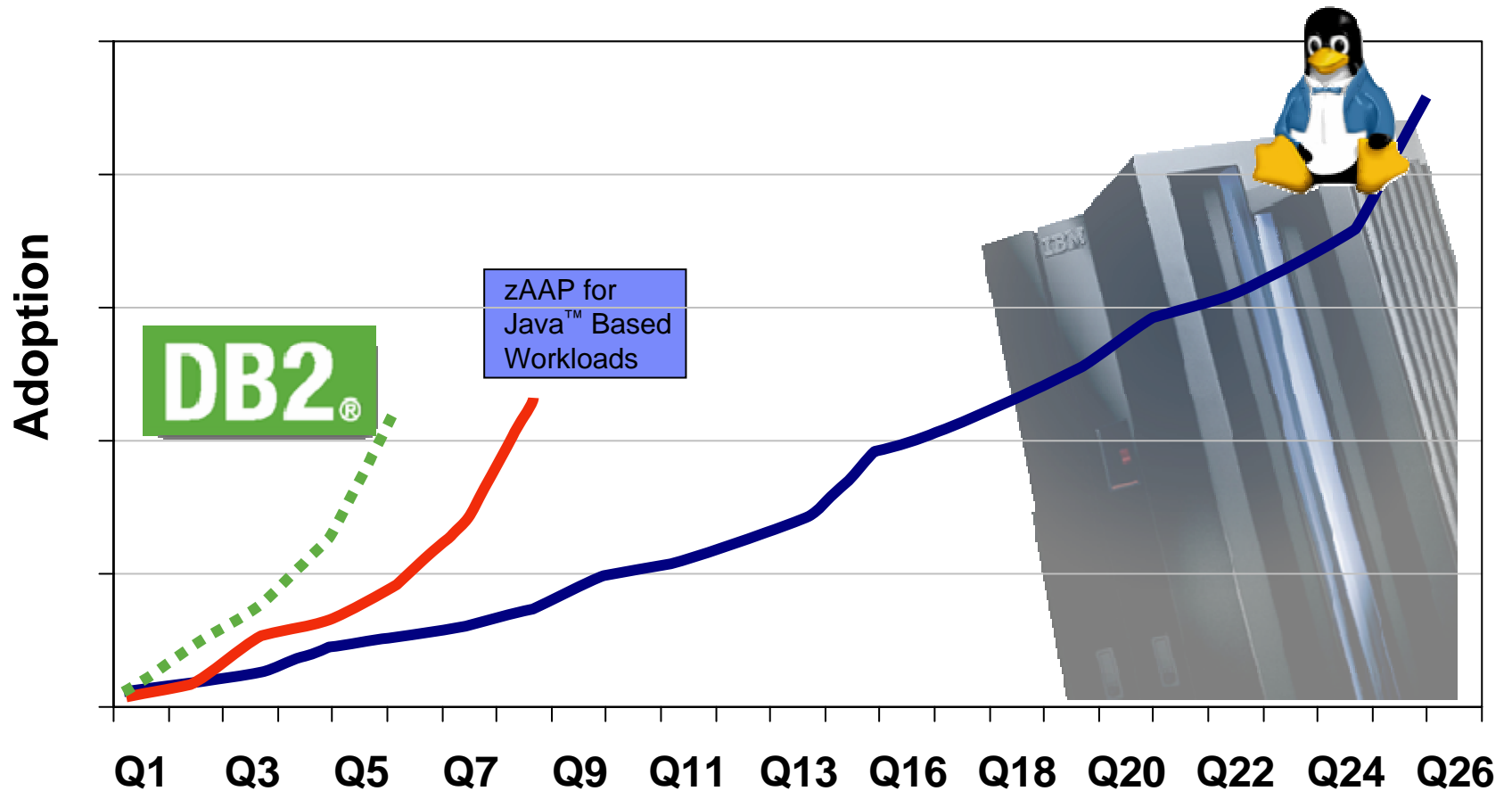


**IBM System z9 Integrated Information Processor (IBM zIIP)**

- Designed to help improve resource optimization for eligible data workloads within the enterprise



# Dynamic Growth in New Workloads



Source: IBM internal data



# Customer's are voting with their wallets

## 4Q06 results

- MIPS Growth +6% YTY
- Worldwide External Revenue +5% YTY

## ■ 2006 full year results

- Worldwide external revenue\* +8% YTY
- MIPS Growth +11% YTY
- Specialty Engine Capacity Growth +35% YTY
- Number of Specialty Engines Grew +20% YTY



# 2006 Major Milestones



Top 25 Banks in the World

10 Million MIPS Installed

Record Year for Specialty Engines

First Online Game Client:  
Hoplon Infotainment

\$1 Billion in Revenue from SIs



# New Customers



Announced recently...

*“Sparkassen Informatik Signs Strategic Five-Year Contract with IBM”*



- € 700 million continued investment in the mainframe
- 82.8 million customer accounts
- 30 billion transactions per year
- Enterprise-class SOA
- Performance and cost structure
- Flexibility for growth

Sparkassen Informatik | 

## Key Drivers

Innovation explosion

Server Consolidation

India, China

Control



IBM

IBM

System z9

Mainframe Security

# Integrated Security

ID Management

EAL5

Encryption Facility

Key  
Management



# Hoplon Infotainment



**HOPLON**  
 Infotainment





# Nexxar



- ✓ Highly available and manageable
- ✓ Security, reliability, scalability and flexibility
- ✓ Support growth by acquisition business
- ✓ Server consolidation on Business Class
- ✓ Expects to reduce labor costs for IT support by 75%





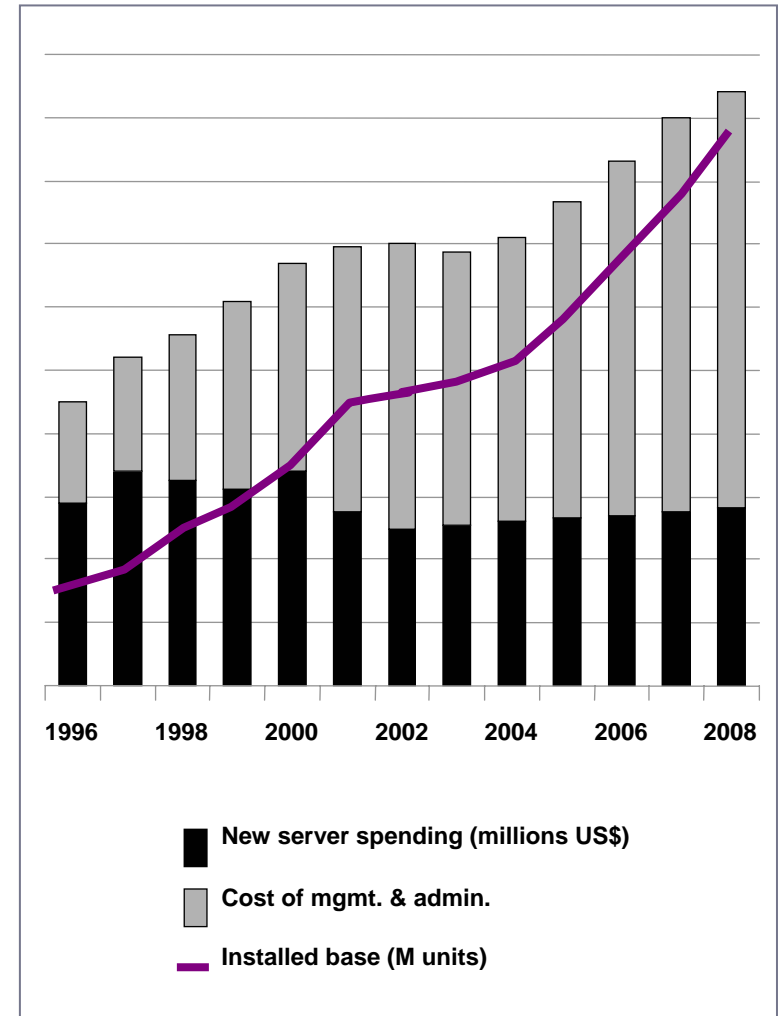
IBM System z9

# Mainframe Economics

01010101010101010101010101010101

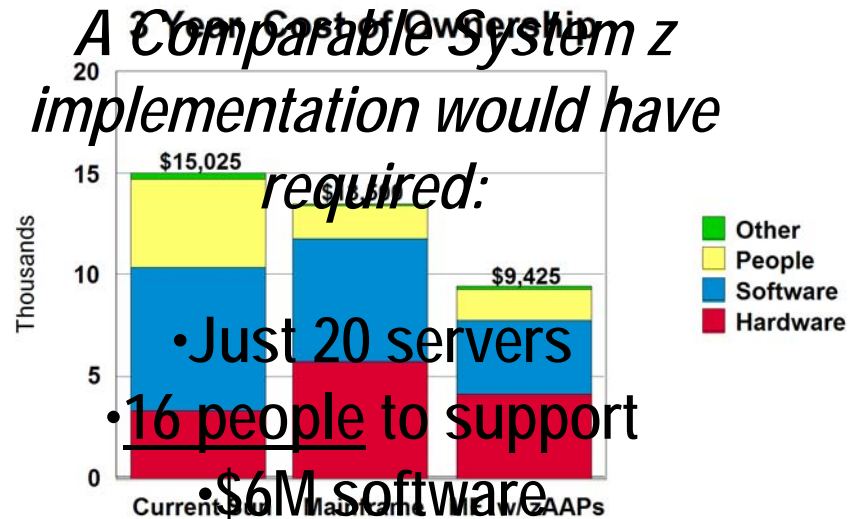
# IT Complexity Can Drive Many Hidden Costs

- Managing today's mixed IT platform environments can be complex and costly
  - ▶ Thousands of servers
  - ▶ Underutilized assets
  - ▶ Thousands of software licenses
  - ▶ Thousands of distributed control points
  - ▶ Ineffective costing methodologies
- **The Result**
  - ▶ Massive complexity
  - ▶ Spiraling people costs
  - ▶ Increased availability and downtime costs
  - ▶ Increased security breach costs
  - ▶ Sub-optimal investment choices



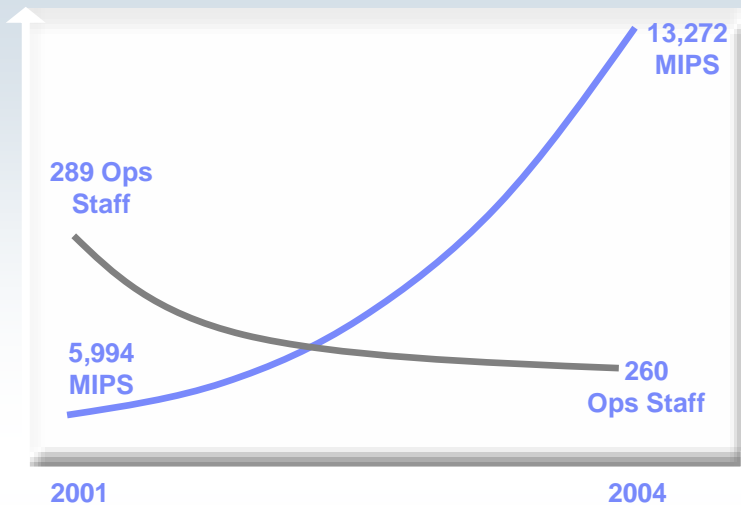
# TCO Drivers

- Customer thought they only had 24 UNIX servers
  - But these were just **PRODUCTION** servers
  - **49 additional servers** for Development, Test and Disaster Recovery
- **44 people** support servers and \$7M software
- Only approximately 20% utilization



They thought the Solaris environment was 20% of the cost of the mainframe ..... but in fact the System z TCO was 37% less

# System z9 – Managing growth and complexity



***Mainframe data center staffing levels have not significantly changed despite large increases in workload volumes.***

## Gartner

“Since we published our last high-level perspective of the ratio between MIPS and head count in 2001, the largest z/OS installations have more than doubled their ‘MIPS to head count’ ratio.”

*L. Mieritz, M. Willis-Fleming – Gartner, 2004*

## Arcati

**Predicted average cost per end user in 2010:**

- Mainframes           \$6,250
- Unix Minis           \$19,000
- PC Servers           \$24,000

**5yr costs for hardware, software and maintenance**

*Arcati Research 2005 – The Dinosaur Myth 2004 Update*

## Breakthrough Economics

### **FNBO consolidated on a single IBM mainframe and IBM BladeCenter®**

- 30 UNIX® servers
- 500 Applications
- 560 Microsoft® Windows® servers

### **Results:**

- 70% improvement in hardware utilization
- Savings: \$2 million/yr average



First National Bank  
Omaha



# System z9 Business Class

**Lowest entry price point ever for  
System z**

**Perfect fit for a growing business**

**Runs Java, Linux, DB2, WebSphere  
workloads**

*Shanghai*



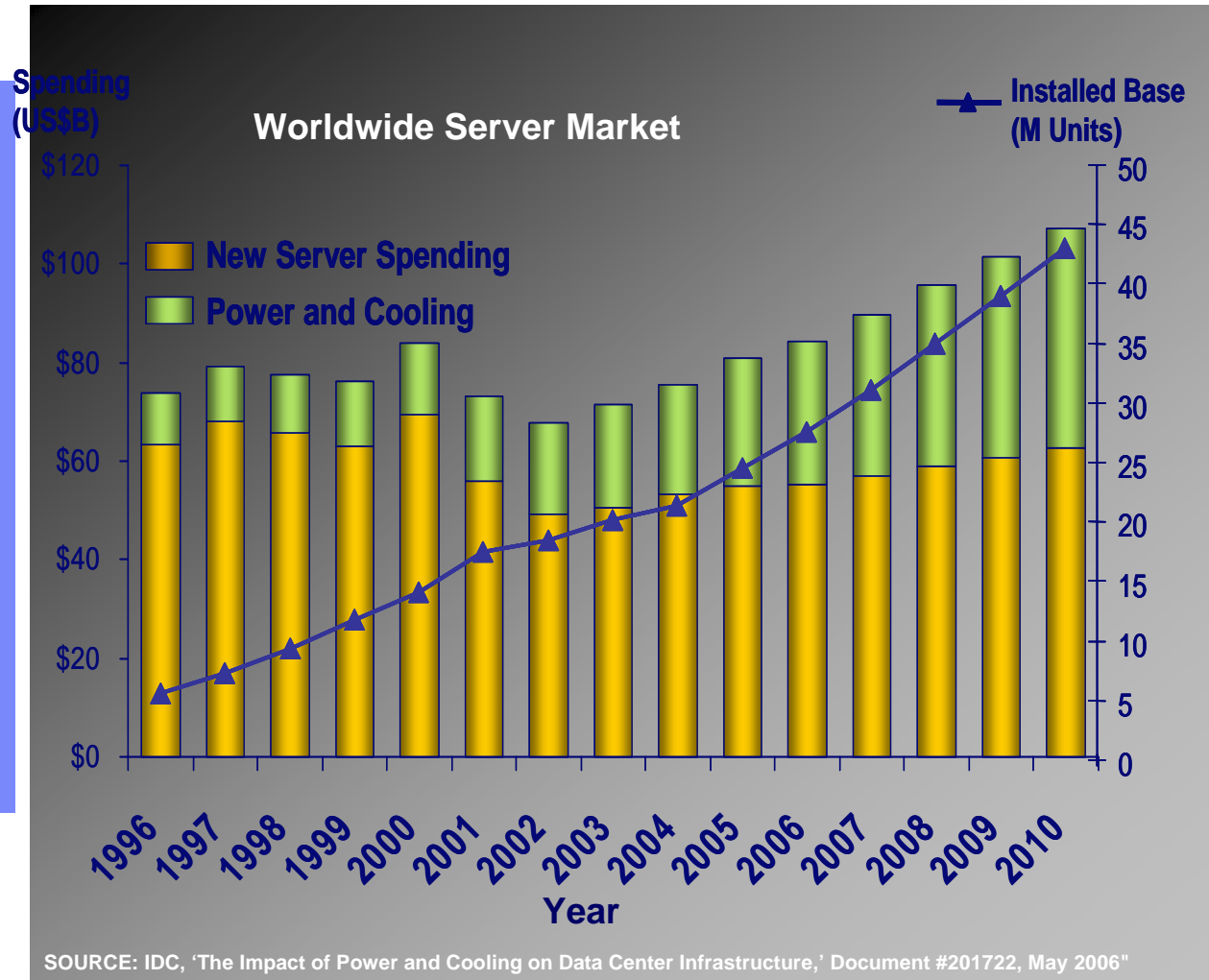


# The New Economics of IT

- Power/cooling spend may eventually exceed new server spending

**2000** – Raw processing “horsepower” is the primary goal, while the infrastructure to support it is assumed ready

**2006** – Raw processing “horsepower” is a given, but the infrastructure to support deployment is a limiting factor



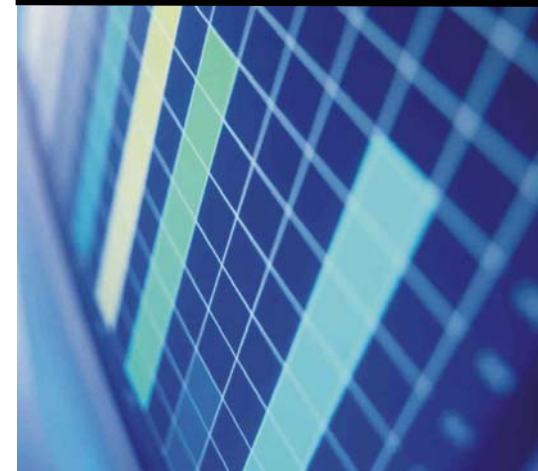
Nationwide to save \$15M with System z

## TCO: Expect \$15M savings over 3 years

- ▶ 80% reduction in data center floor space needs; power conservation
- ▶ 50% reduction in hardware & OS support efforts
- ▶ 70% average CPU utilization

## Dynamic allocation of compute power

- ▶ Capacity on demand
- ▶ Tested 22 times capacity for Super Bowl 2006 Ad blitz traffic



# Today's mainframe

*Designed for data serving and SOA*

Architecturally compatible

Operationally superior

*If data is the life blood of the business . . .*

*then your data server is the heart of your SOA*



# Mainframe Ecosystem

## IBM Academic Initiative

### Customer councils

- 294 colleges and universities
- 23,000 students educated already
- Student contests – 2,500 students/300 schools

### Partners

- 1,350 ISVs
- 1,500 mainframe partners



# Mainframe Academic Initiative



**Fachhochschule  
Bochum, Germany**



**ESIAL  
Nancy, France**



**Universidad Politécnica  
de Madrid (UPM), Spain**



**Kungliga Tekniska  
Högskolan (KTH)**



**Czech Technical  
University, Prague,  
Czech Republic**



**Tshwane University of  
Technology,  
South Africa**



**Politecnico  
Bari, Italy**



**University of Surrey,  
Guildford, UK**



# Strategic Investment

## System z9

- ▶ \$1.2 billion
- ▶ 5,000 tech professionals

\$40M 



- ▶ Joint Initiative
- ▶ Expanded Technology

\$100M simplification<sup>1</sup>

1. Planned investment



# Summary

- Today's Mainframe: The necessary characteristics for the needs of business
- New Workloads / Business Class
- Renewed Interest in the Mainframe
- Security, Economics, Power Efficiency
- Next Generation of Mainframe Eco-system