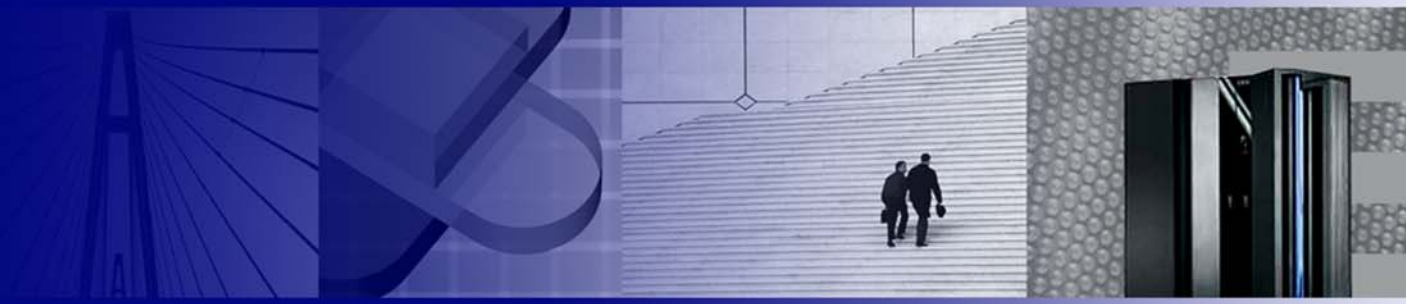
System z Technology Update



Mark Anzani
VP, System z Hardware Products

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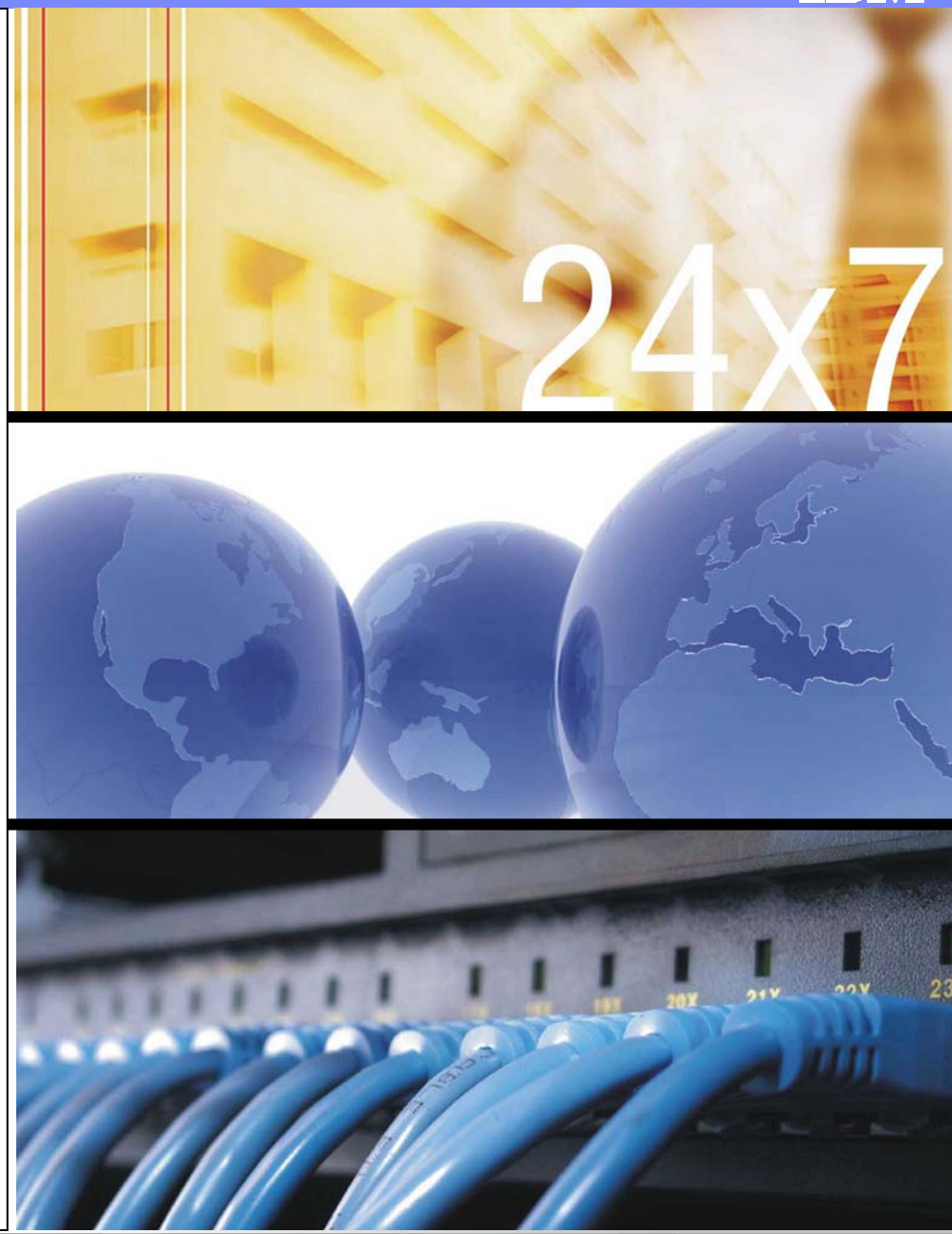
A New Era for Business

24 x 7

Global

Highly networked

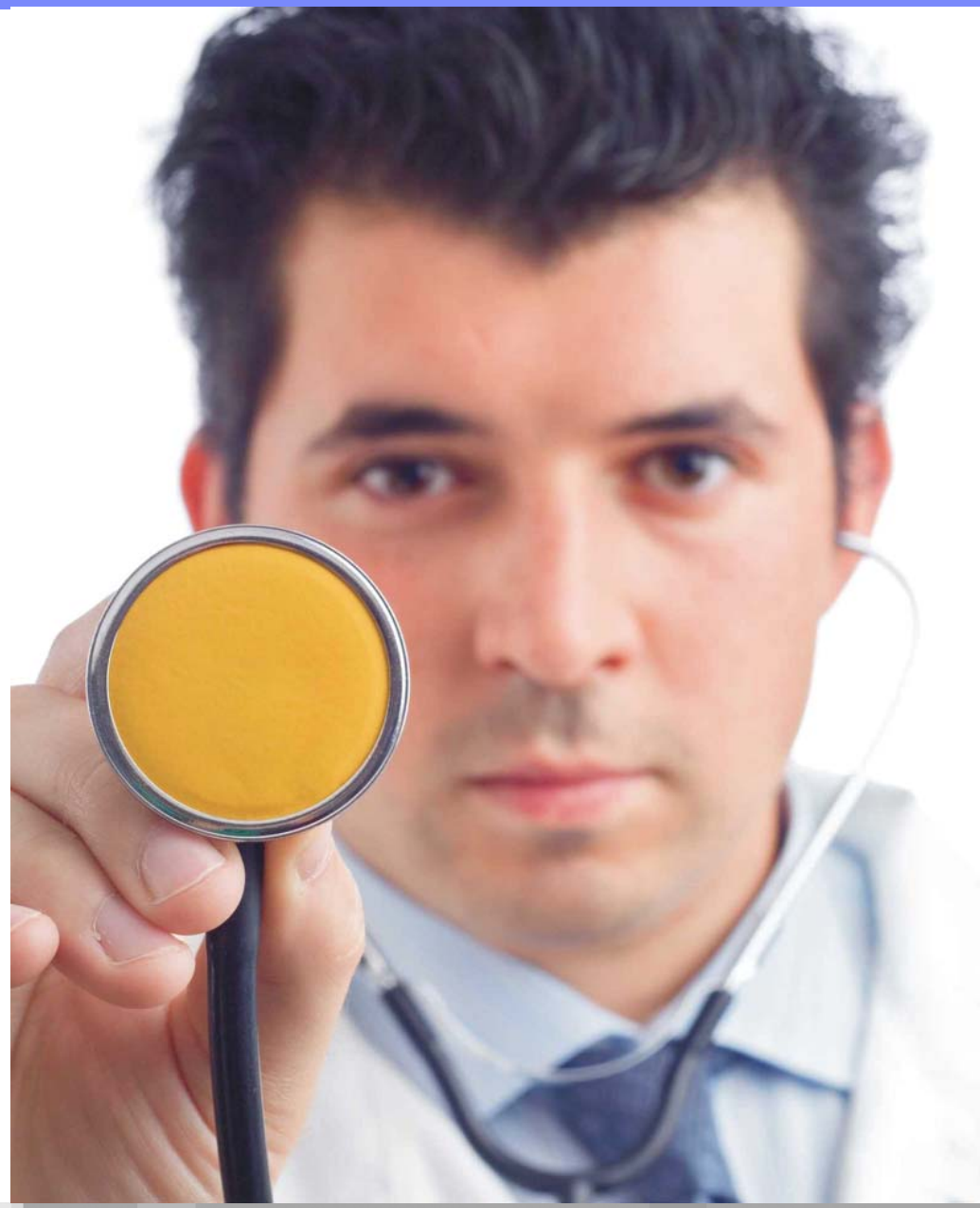


Do you suffer from these symptoms?

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

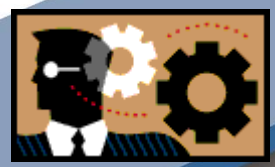
Mainframe Innovation: Specialty Engines

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

DB Compression, SORT, Encryption, Vector Facility

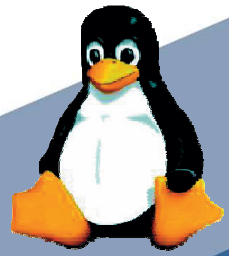
IBM System z9 Integrated Information Processor (IBM zIIP)

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



IBM System z Application Assist Processor (zAAP) 2004

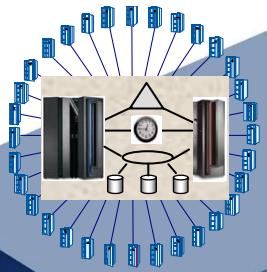
- **Increased support for Java™ workloads in mainframe solutions**



Integrated Facility for Linux (IFL) 2001

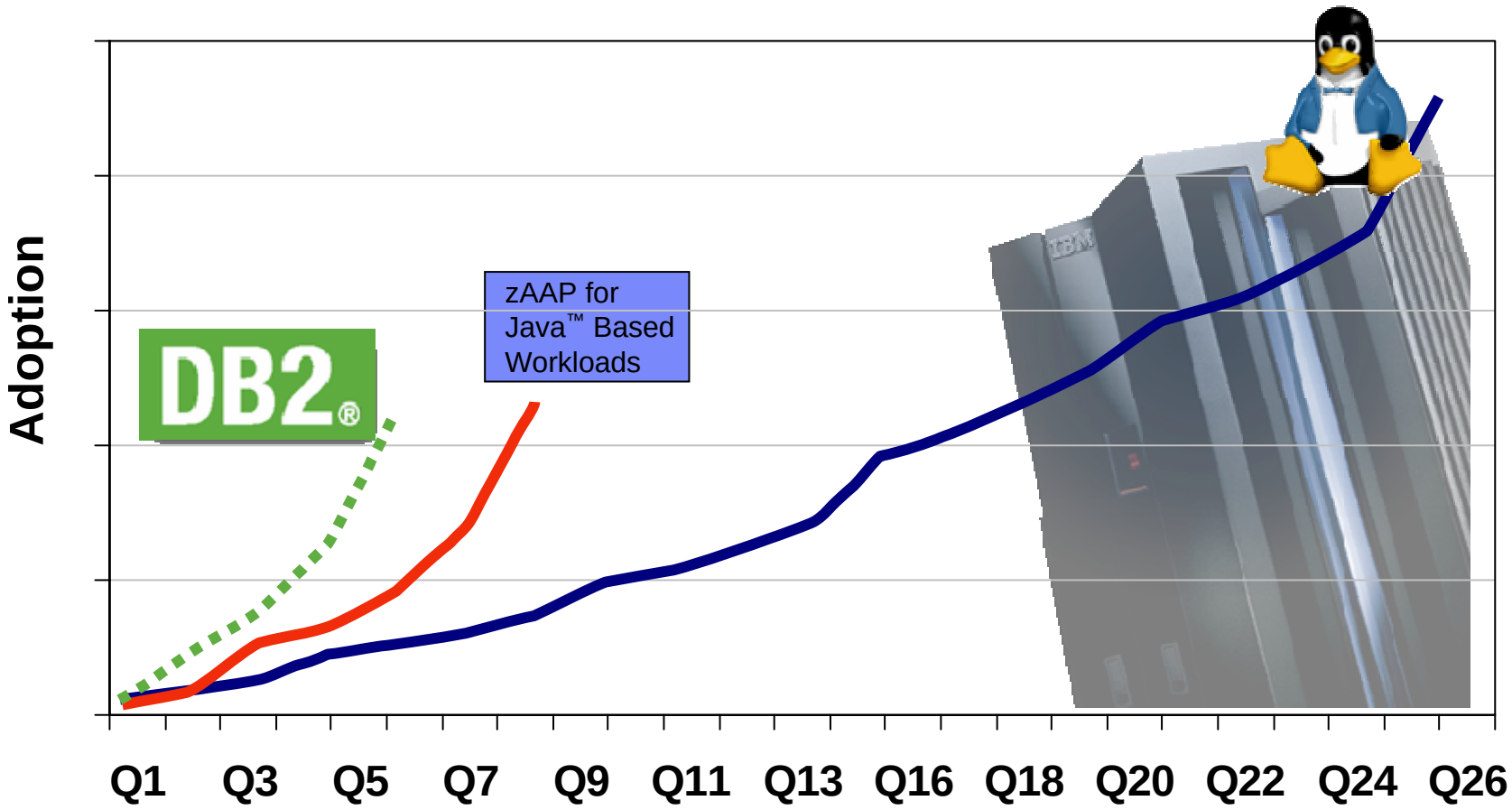
- **Support for new workloads and open standards**

- **Centralized data sharing across mainframes**



Internal Coupling Facility (ICF) 1997

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

Nationwide On Your Side™

FARMERS Gets you back where you belong®

worldspan

First National Bank Omaha

BELARUSBANK JOINT-STOCK SAVINGS BANK

CAIXA

MUFG Bank of Tokyo-Mitsubishi UFJ

1830

eci ECI TELECOM

BALDOR MOTORS • DRIVES • GENERATORS

神州数码 Digital China

NEXXAR GROUP

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**

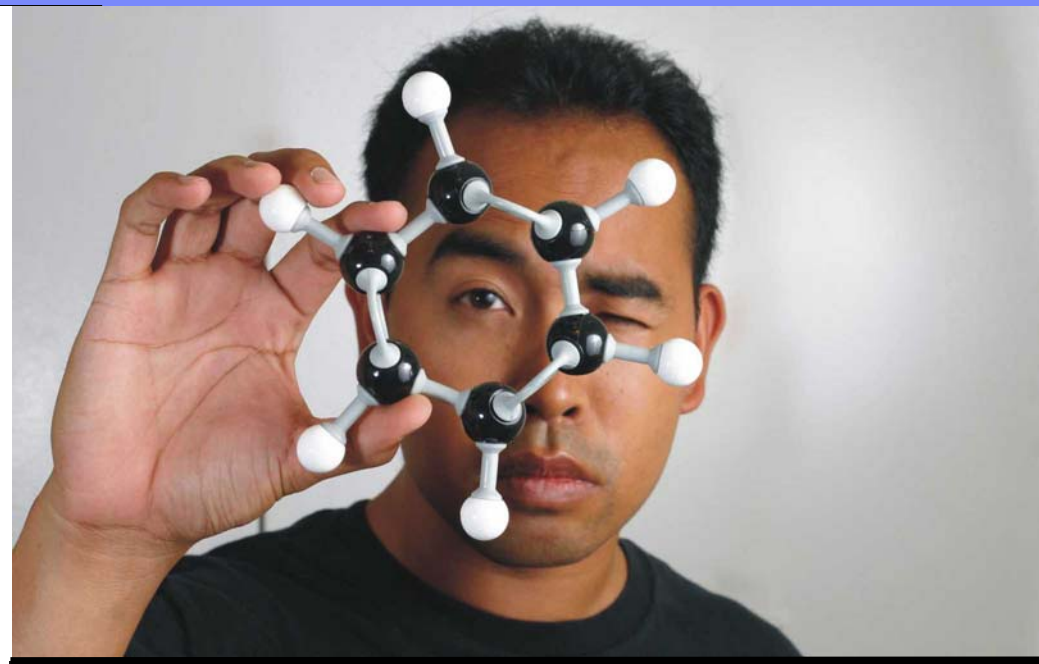
Key Drivers

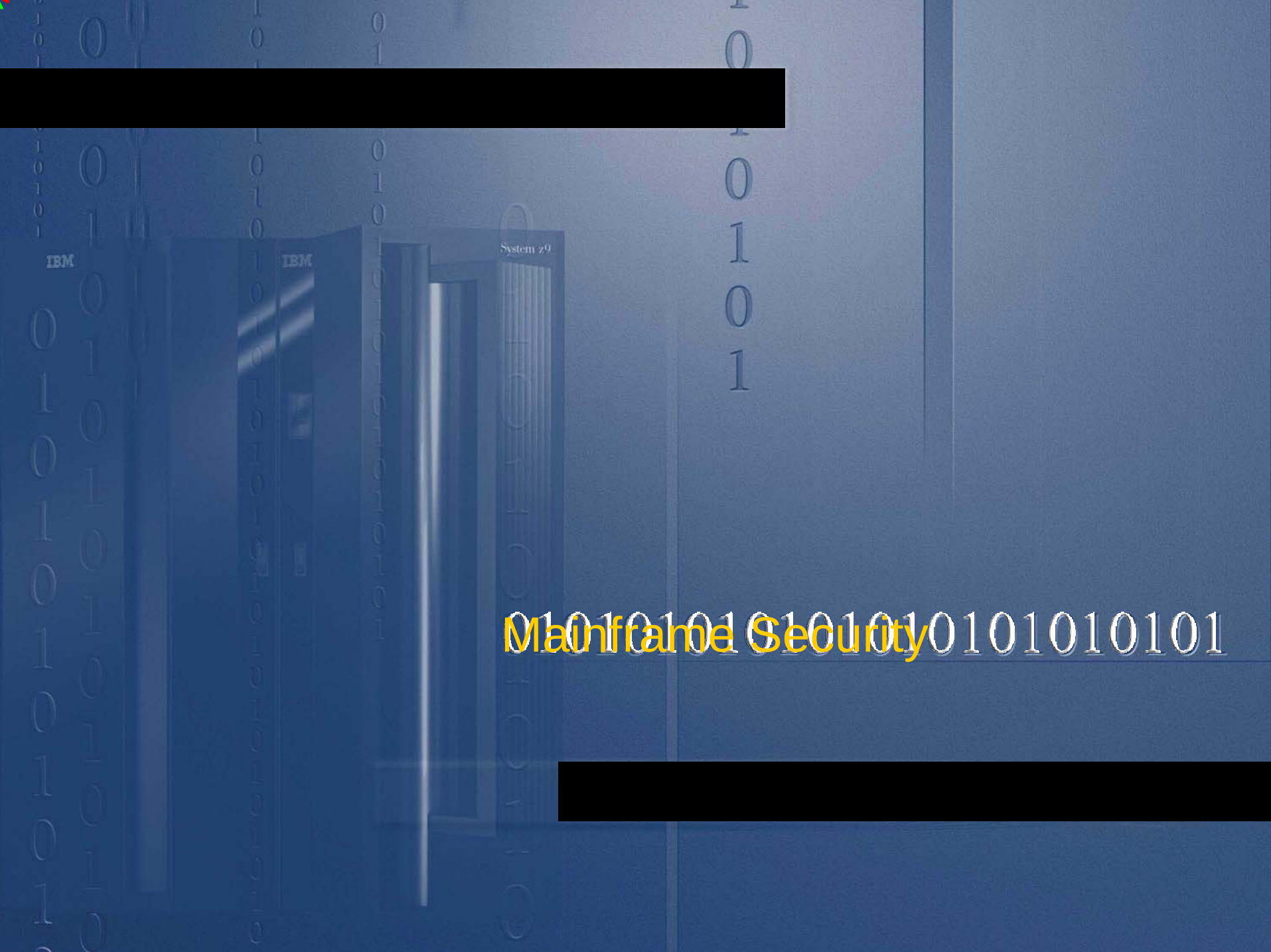
Innovation explosion

Server Consolidation

India, China

Control




IBM
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Mainframe Security

Integrated Security

ID Management

EAL5

Encryption Facility

Key Management

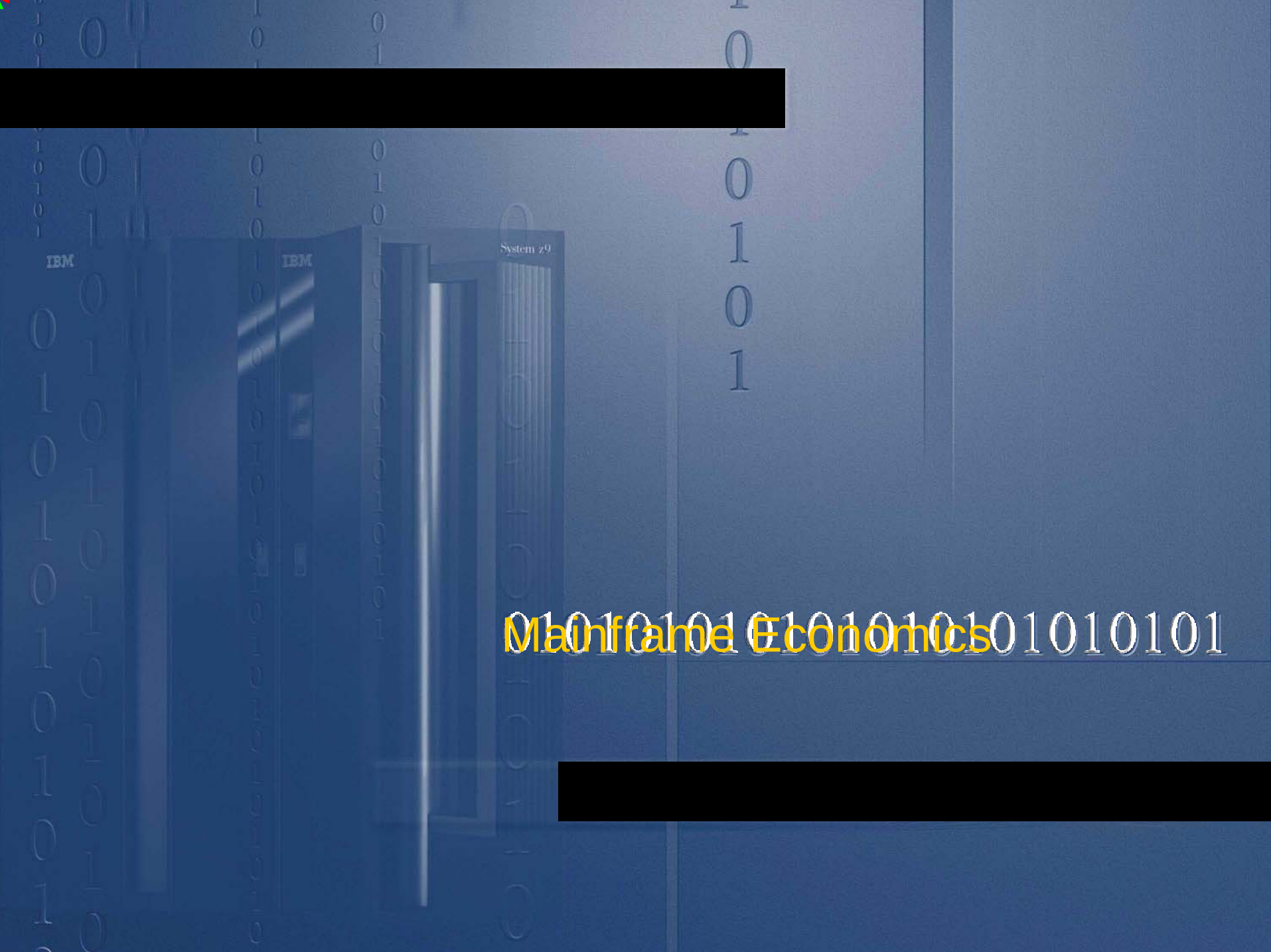
Hoplon Infotainment

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%

NEXXAR GROUP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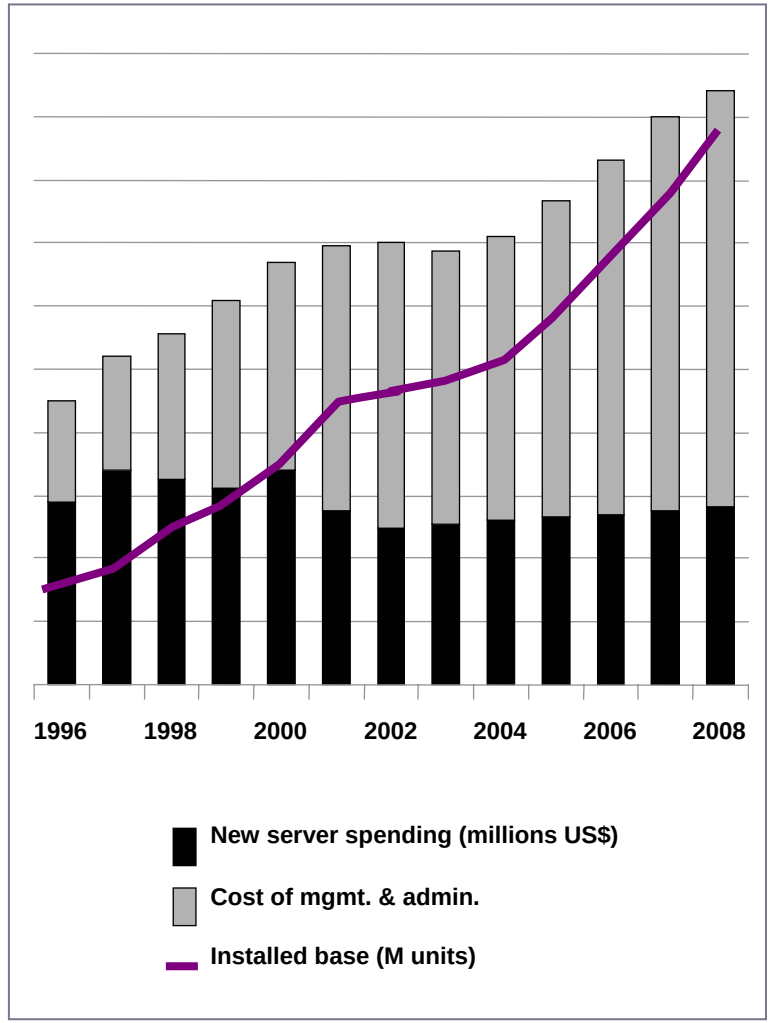
Mainframe Economics

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**

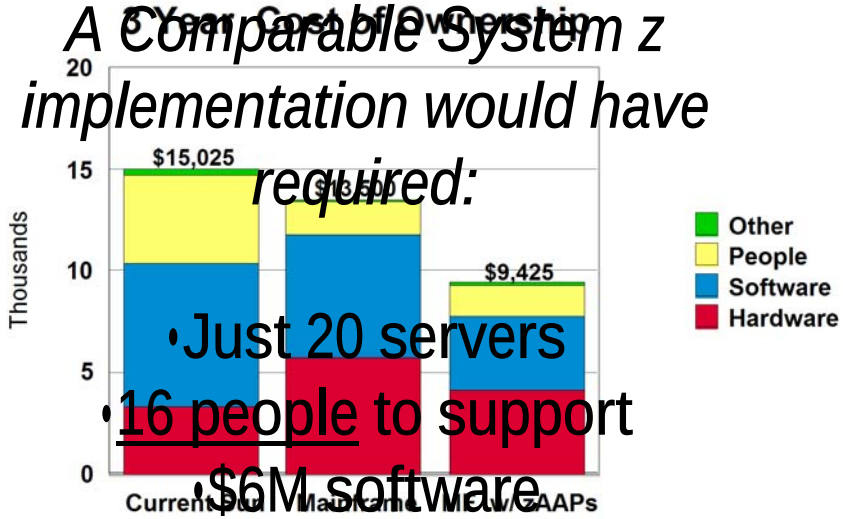


TCO Drivers

- 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

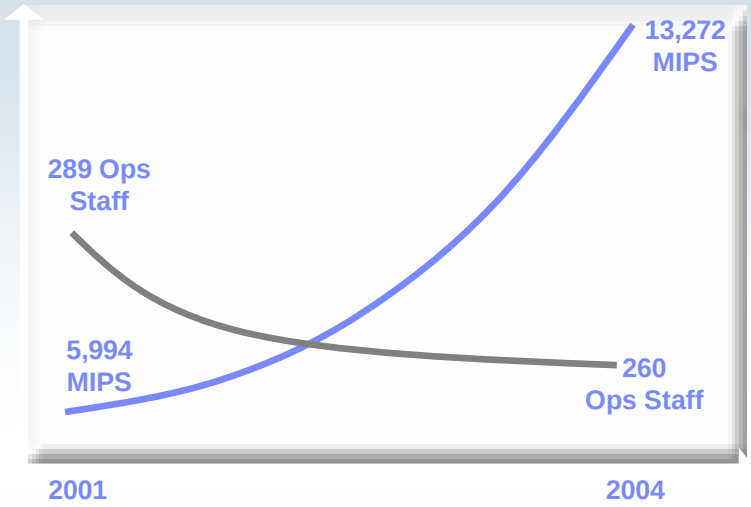
A Comparable System z implementation would have required:

- Just 20 servers
- 16 people to support
- $6M software



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 maintenace

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

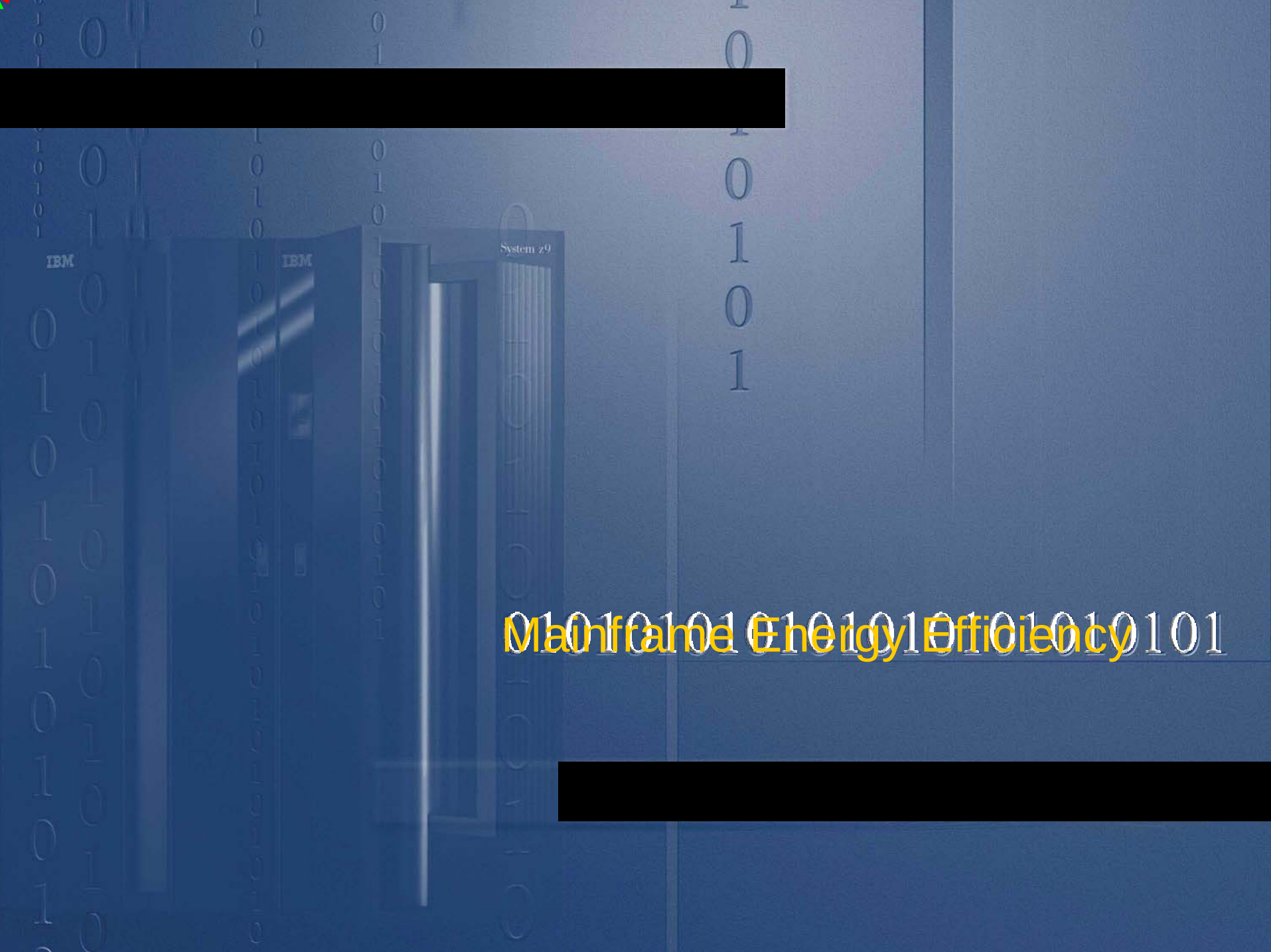
System z9 Business Class

Lowest entry price point ever for System z

Perfect fit for a growing business

Runs Java, Linux, DB2, WebSphere workloads

Shanghai


IBM
IBM
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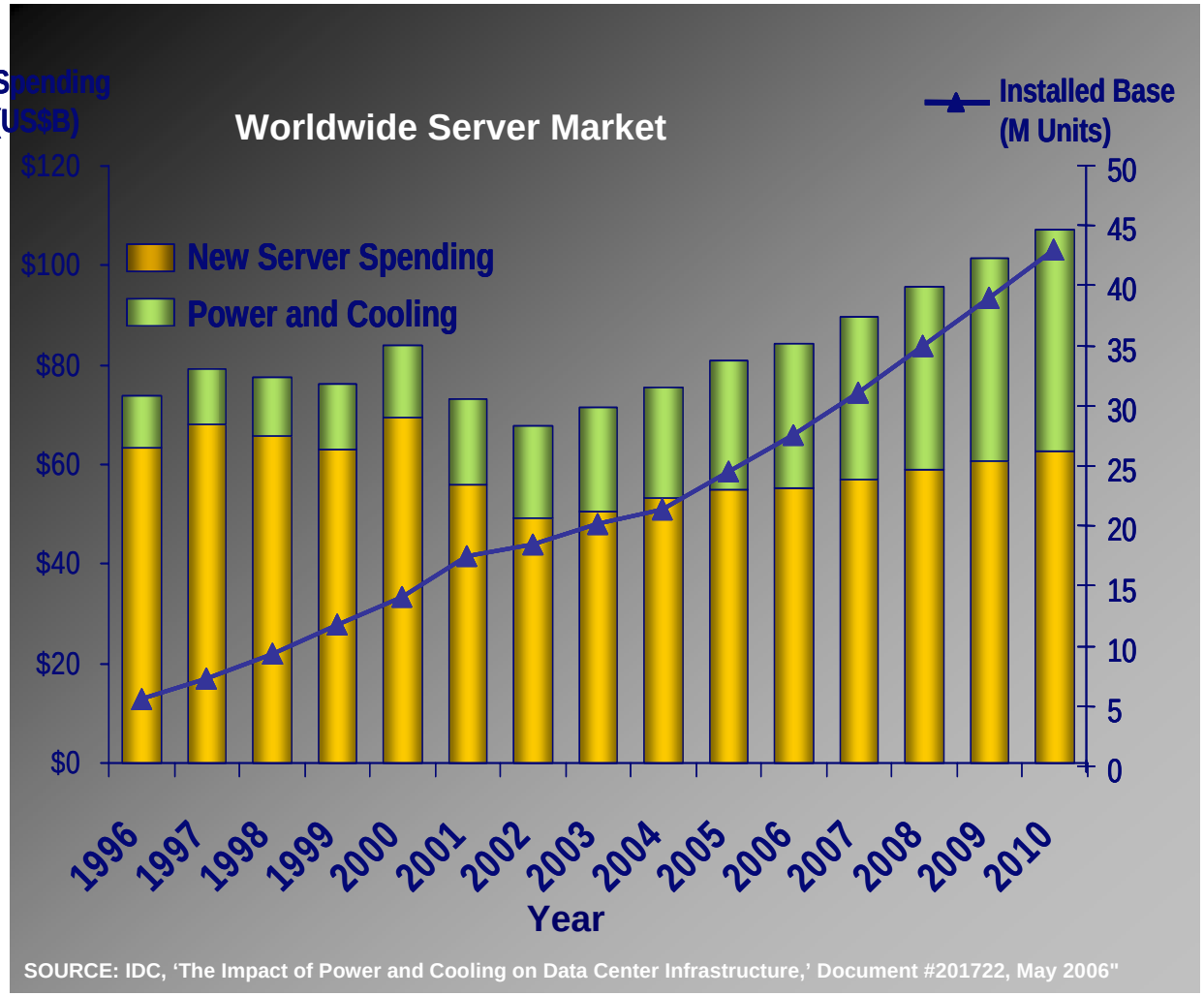
Mainframe Energy Efficiency

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

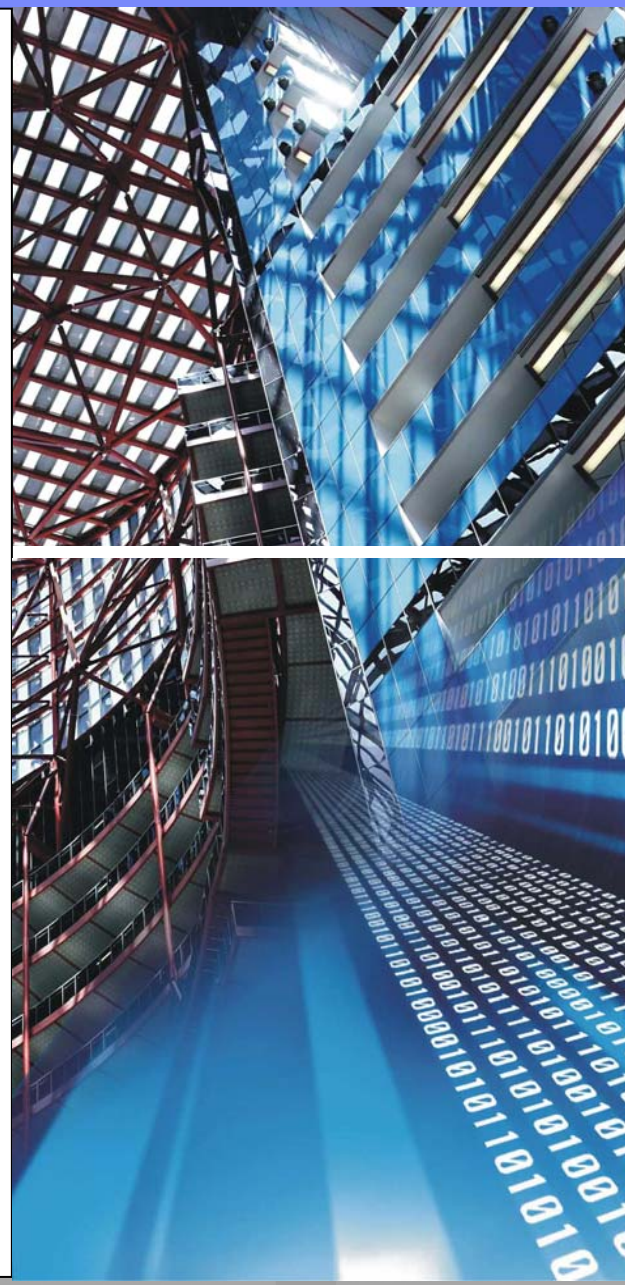
Designed for data serving and SOA

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

Customer councils

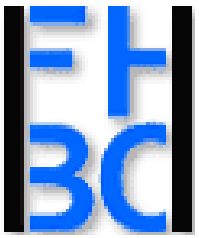
IBM Academic Initiative

- 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 Høgskolan (KTH)

Czech Technical University, Prague, Czech Republic

Tshwane University of Technology, South Africa

Politecnico Bari, Italy

University of Surry, Guildford, UK

Strategic Investment

System z9

- $1.2 billion
- 5,000 tech professionals

$40M SAP® ORACLE®

- Joint Initiative
- Expanded Technology

$100M simplification[1]

1. Planned investment

IBM WW Banking Center of Excellence Mission

Lead banking clients and ISVs worldwide in design, re-engineering, transformation and implementation of next generation core banking and payment systems

- Engage with major **clients** and core banking **ISVs**
- Be the **trusted intermediary**, matching banks & ISVs
- **Help lower the risk** of major back office projects

- Provide g**lobal** reach from a multi-site center to best match client needs
- Staff with performance/scalability banking **experts** across IBM
- Leverage WW cross brand **assets, infrastructure and skills**
- Utilize **reference architectures** to provide roadmaps for success

- Develop use cases for banking **value add** offerings
- Harden **assets**
- Develop **strategies** for success at the next level of rollout

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