

The Role of the Mainframe in Tomorrow's Enterprise

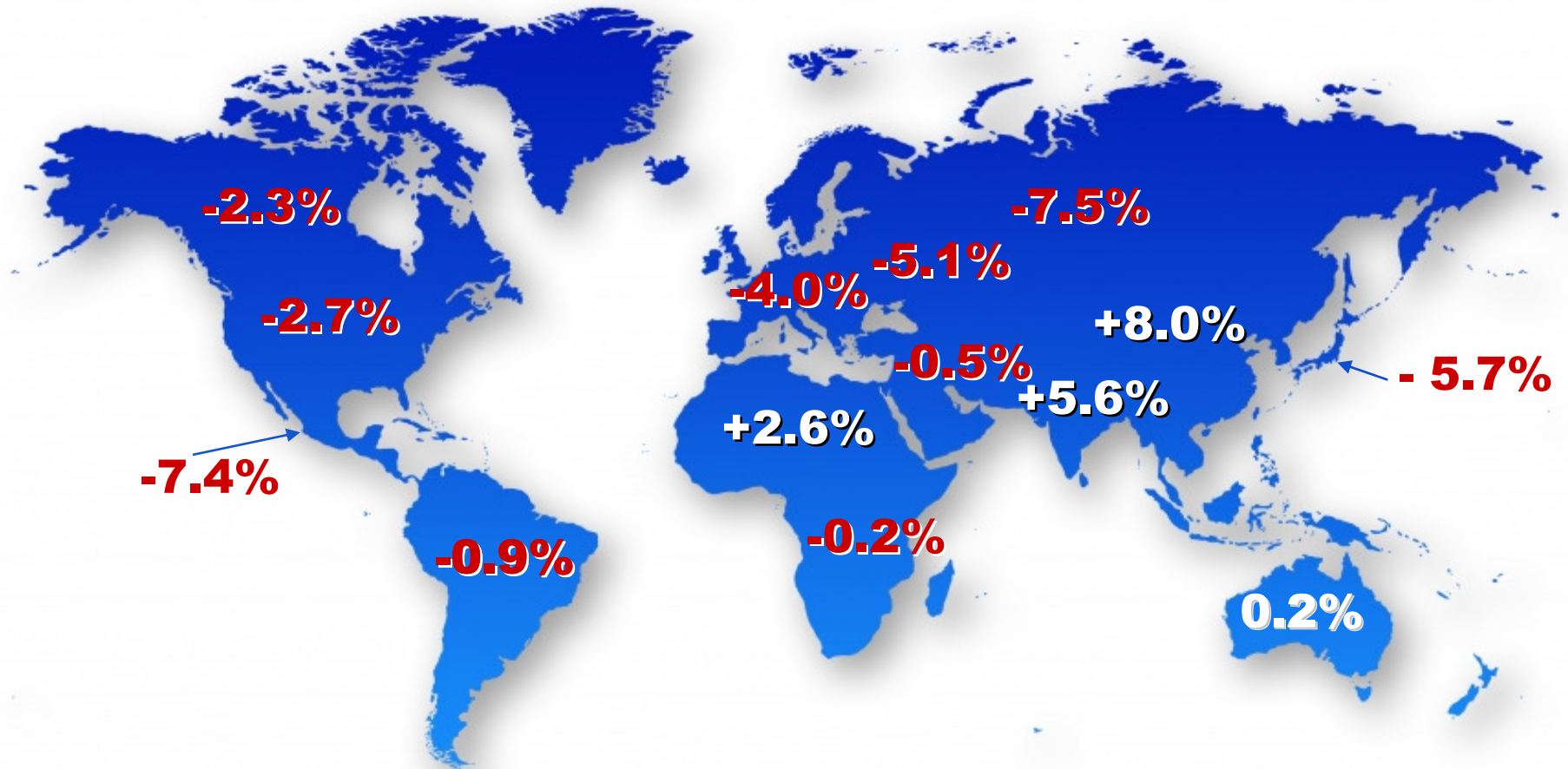
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2009: The "Worst Case Scenario" Arrived..

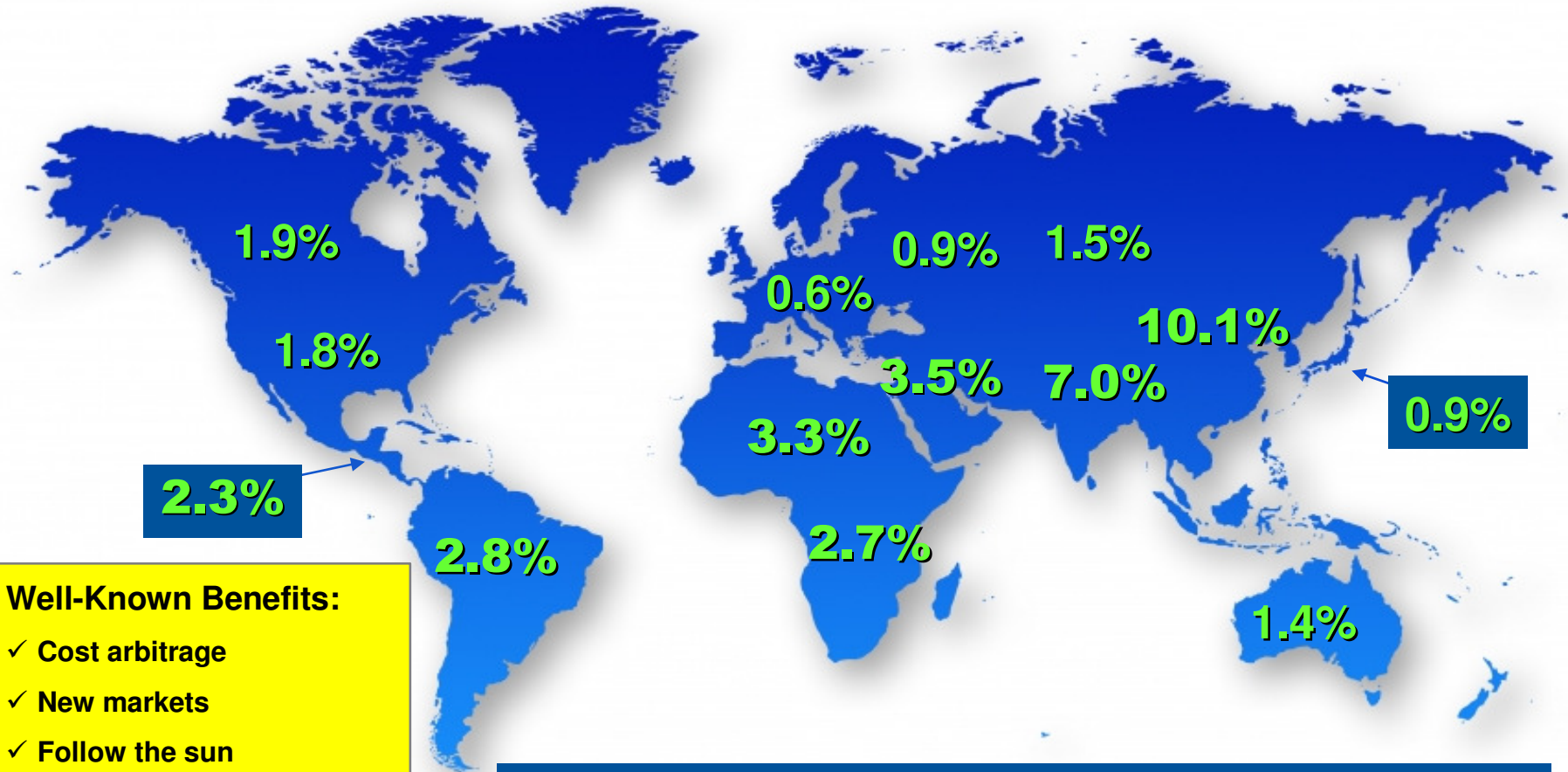
Selected Regional and National Annual (Real) GDP Growth Forecasts



2009 World GDP Growth Rate = -2.3%

2010: A Return to Growth Is Forecast, With Emerging Markets in the Lead Once Again

(Selected 2010 Regional and National Annual Real GDP Growth Forecasts % Over Previous Year)

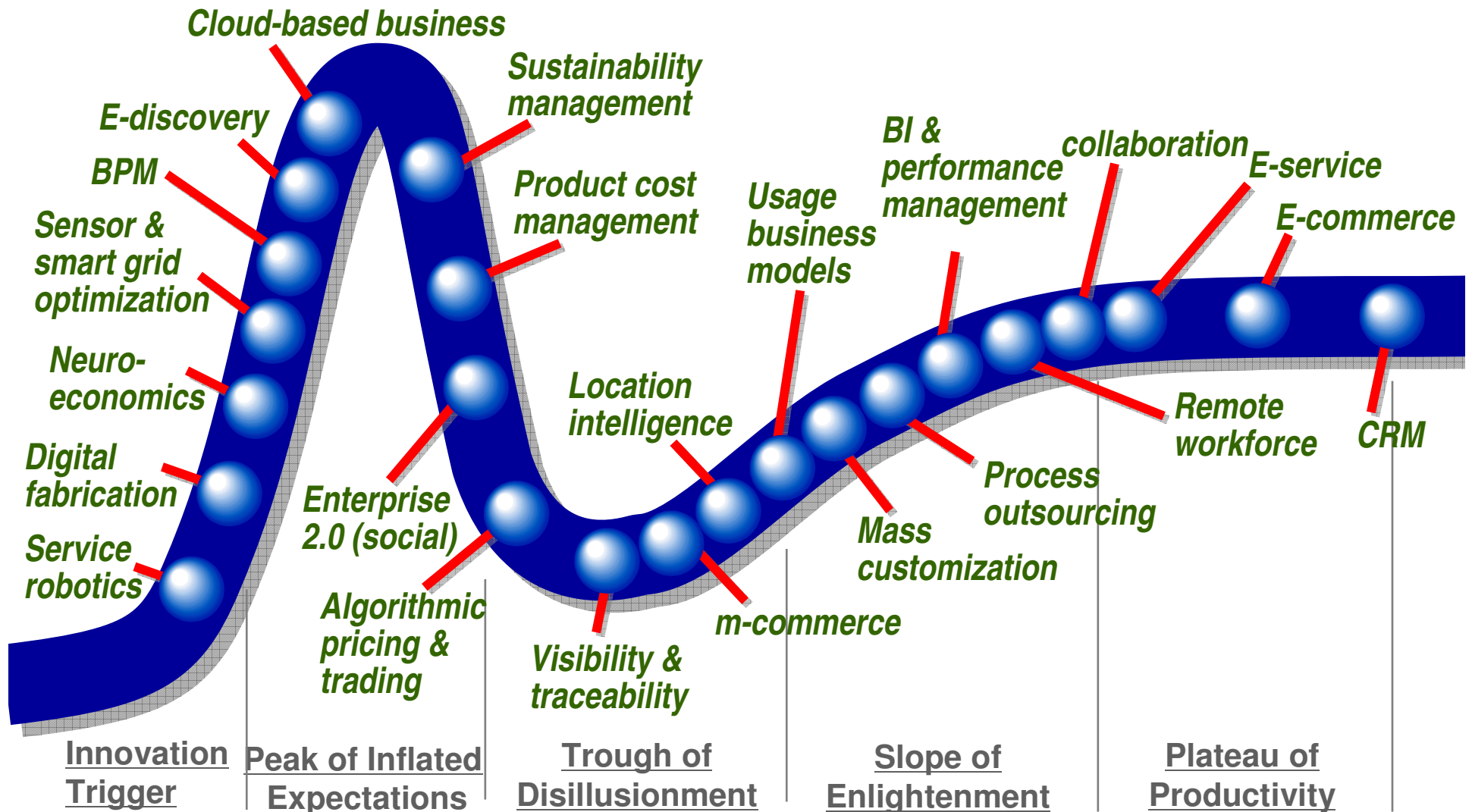


Well-Known Benefits:

- ✓ Cost arbitrage
- ✓ New markets
- ✓ Follow the sun
- ✓ Bottom of pyramid
- ✓ Constraint Innovation

2010 World GDP Growth Rate = +2.4%

A New Demand for Creative Business Change Will Cause a Fresh Look at the "IT Value Pipeline"



Cloud Computing: How Ready are You?

Reasons for Public Cloud

- Scale on demand
- Increased agility and flexibility
- Pay per use
- Higher compute capacities
- Elasticity
- Time to market

Reasons for Private Cloud

- Low barrier to entry
- Elastic and Scalable
- Lower cost and pay per use
- Increased agility (to customers)
- Ease of sourcing migrations
- Many cloud benefits – reduced risk

Acquisition Model
Service

Business Model
Pay for usage

Access Model
Internet

Technical Model
**Scalable, elastic,
shareable**

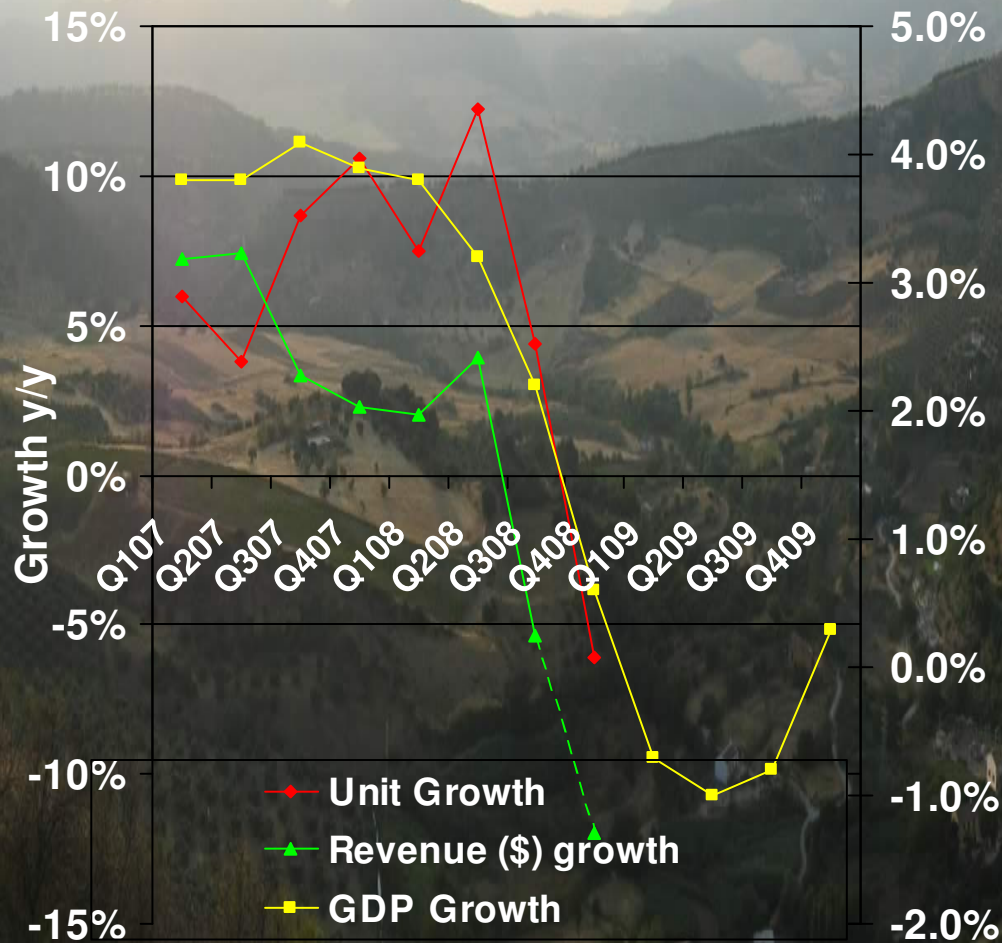
Cloud Computing:

A style of computing where massively scalable IT-enabled capabilities are delivered as a service to external customers using Internet technologies



Server Market is Weak Today, But Innovation Has Never Been Stronger

**GDP growth vs Server unit vs
Server revenue growth**



**Datacenter Infrastructure
is Evolving in Multiple
(& Often Conflicting)
Directions**

**"It is no longer possible
to change one thing in
my infrastructure —
multiple dominos fall
with each move..."**

***CIO — Fortune 500
Company***

Still Alive and Kicking



"The rumors of my death have been greatly exaggerated."

— Mark Twain

What Continues to Make the Mainframe Unique?

High Capacity

- + Processor
- + I/O bandwidth
- + Scalability

Reliability, Availability and Serviceability

- + Hardware
- + Software

Operational Disciplines

- + 24/7
- + Disaster recovery
- + Security
- + Backup recovery

Energy Efficiency Green Credentials

Mixed Workloads

Security

- + Hardware
- + Software
- + Integrity

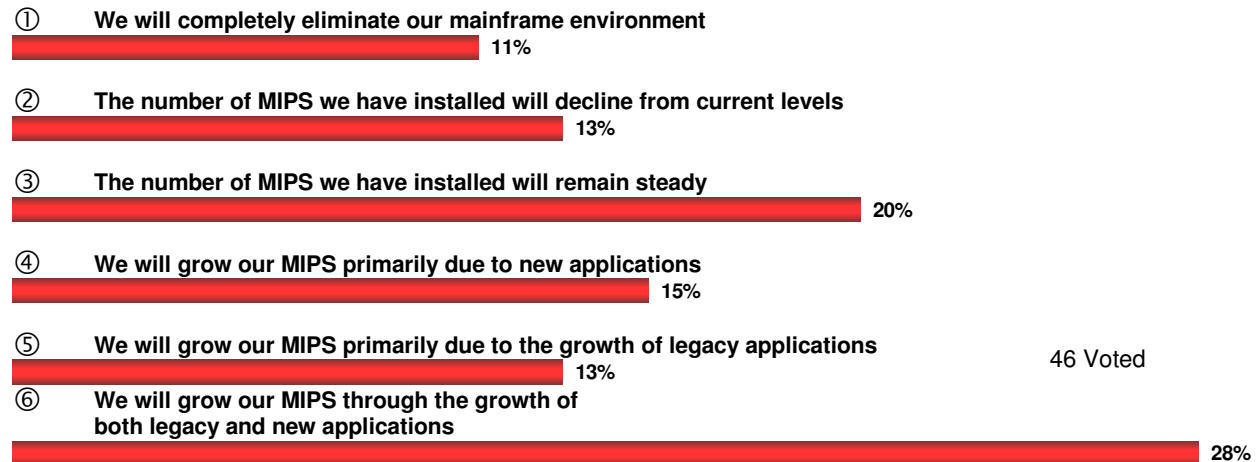
System Management

Perceived Shortcomings

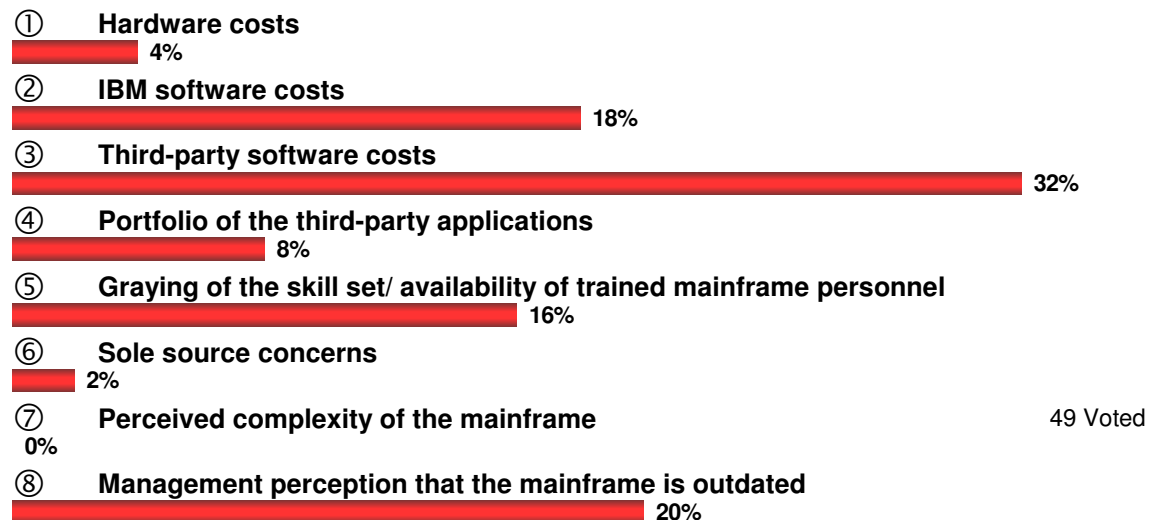
- High hardware costs
- High software costs
- Proprietary operating system
- Not user-friendly

The Mainframe Market: What Do Users Think?

Which of the following most closely describes the outlook for your mainframe environment for the next three years?

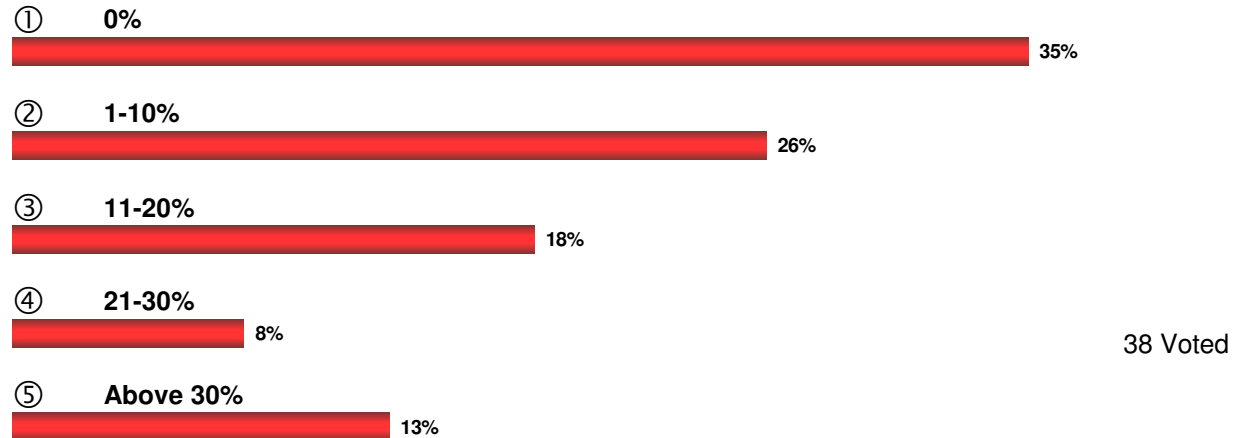


What is the single largest inhibitor to the growth in usage of the mainframe in your organization?

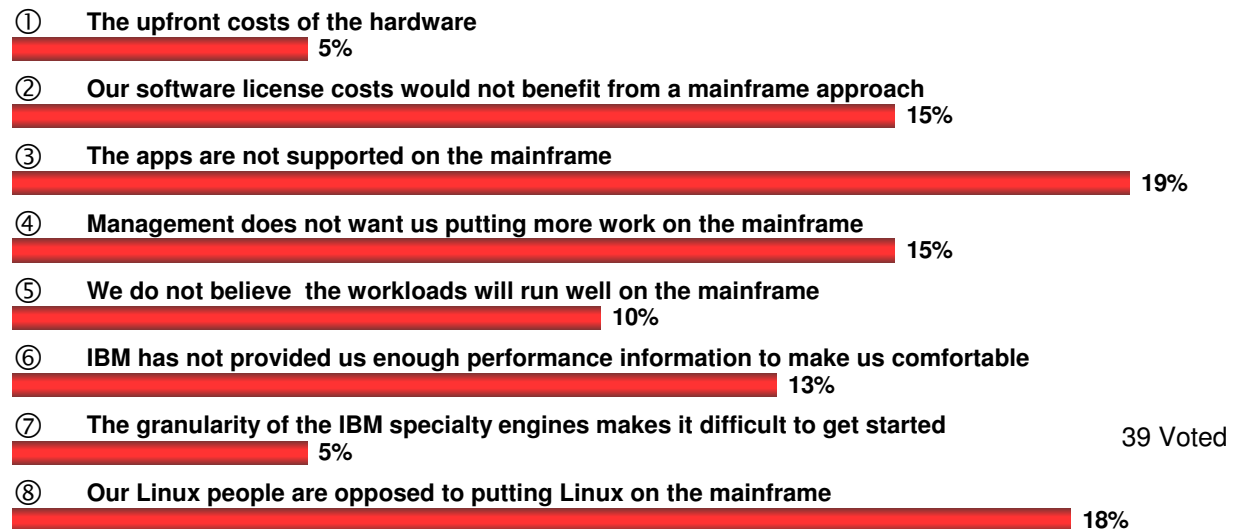


The Mainframe Market: What Do Users Think? (Continued)

What percentage of your mainframe MIPS installed today is represented by IBM's specialty engines?

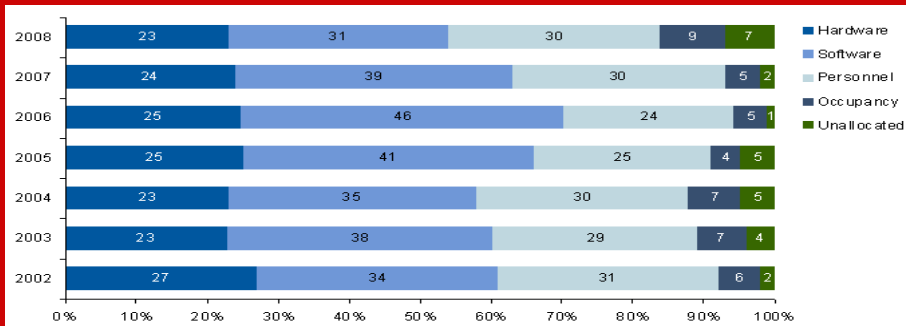


What is the single largest inhibitor to your organization using Linux on z?

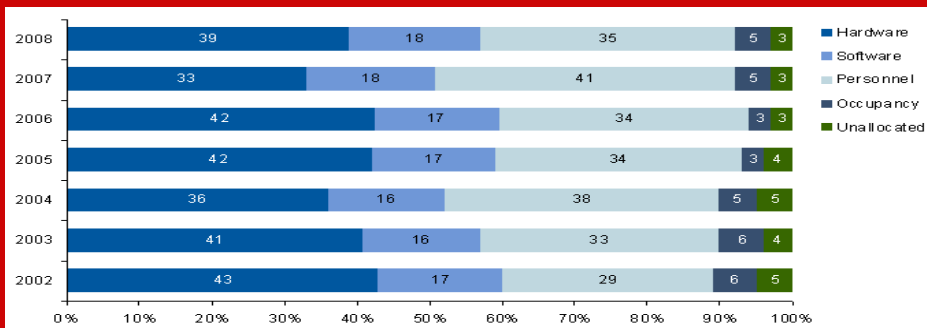


Mainframe Costs

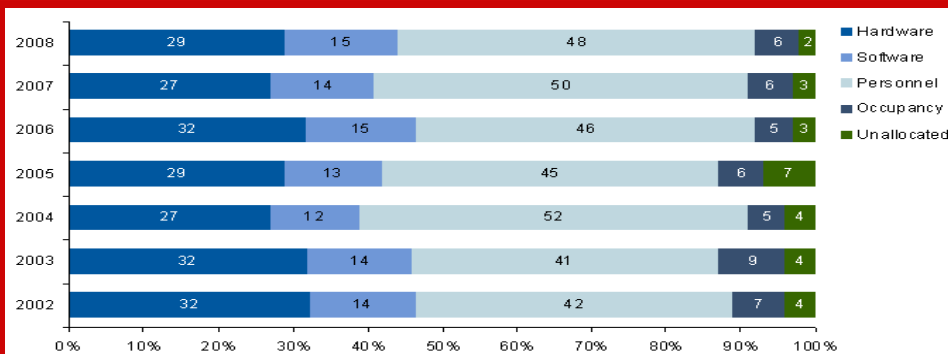
What the Numbers Say



Distribution of Mainframe Costs (2002–2008)



Distribution of Unix Server Costs (2002–2008)



Distribution of Wintel Server Costs (2002–2008)

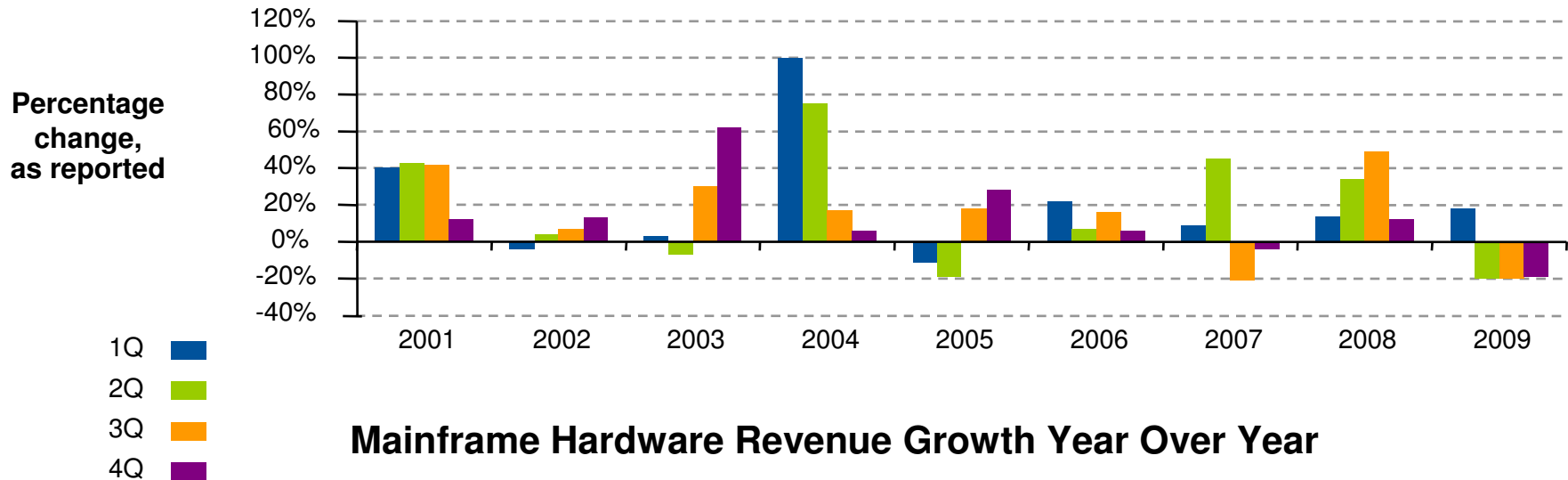
Users place the availability of mainframe skills as a moderate inhibitor to further mainframe investment.

Mainframe systems require fewer people as a proportion of the overall system expenditure than corresponding reduced instruction set computer (RISC)/Unix and Windows/Intel (Wintel) systems.

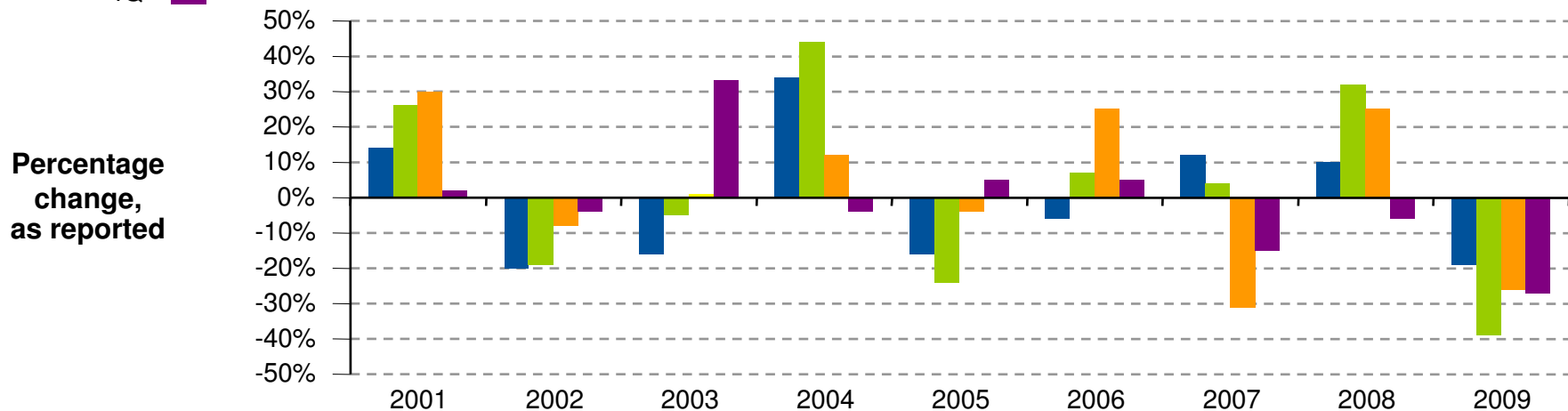
Mainframe support staff cost less than the corresponding staff for RISC/Unix and Wintel environments.

IBM Mainframe Market Is Quite a Story

Mainframe Capacity Shipments Year Over Year

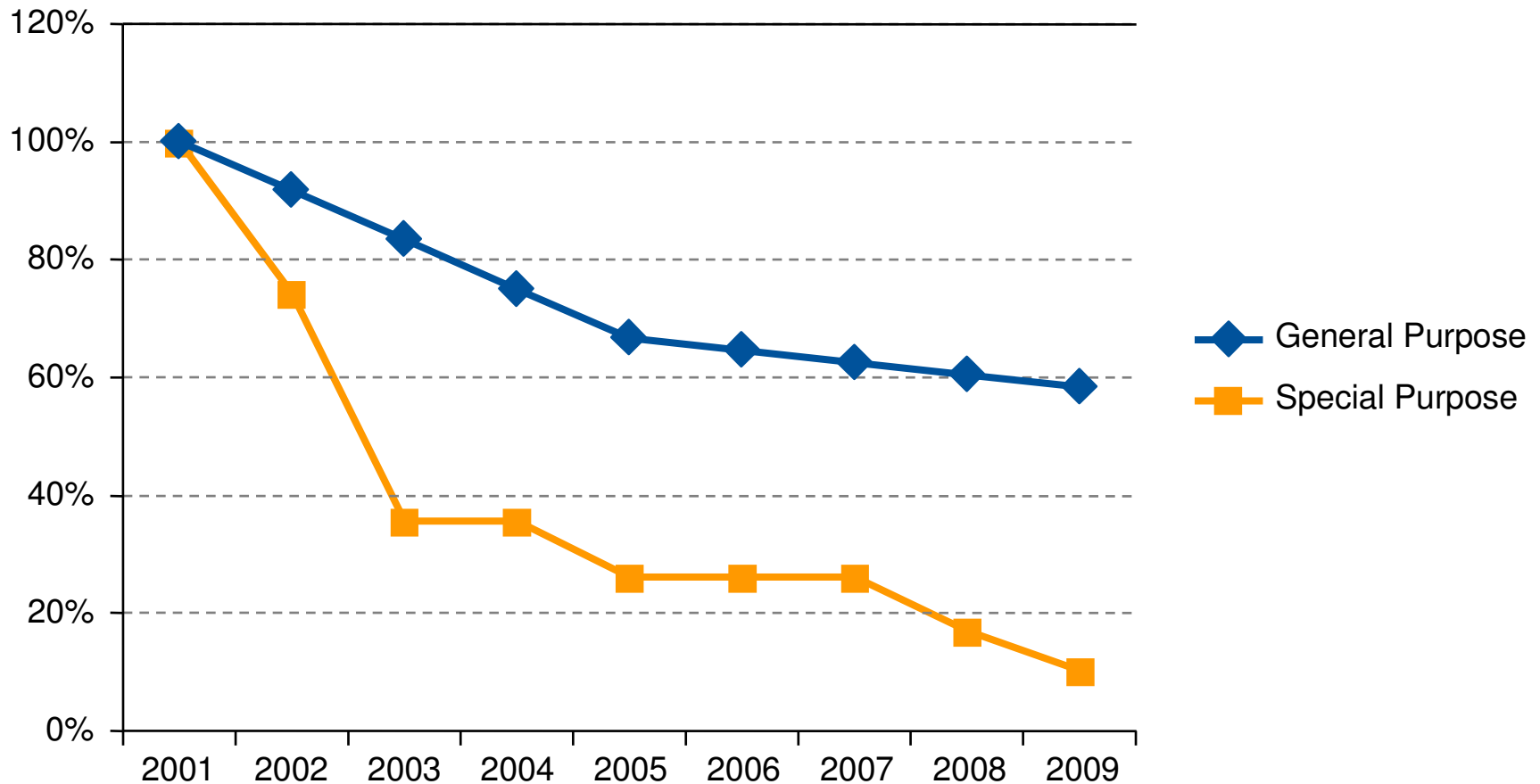


Mainframe Hardware Revenue Growth Year Over Year



Mainframe Price and Performance Trends: Two Paths Diverge

IBM Cost per MIPS



IBM's System z10: High-End and Midrange Systems

System Highlights

- 50% boost in processor performance
- 70% of the maximum system capacity of the z9
- Three times the maximum memory
- Chip frequency goes from 1.7GHz to 4.4GHz

Potential Benefits

- Reduced IBM software costs
- Reduced hardware maintenance costs
- Special-purpose engine upgrades at no charge

Challenges

- Granularity
- Hardware pricing (from an absolute sense)
- Capacity planning



System Highlights

- 40% boost in processor performance over z9 BC
- 50% of the maximum system capacity of the z9 BC
- Almost four times the maximum memory
- One model — 130 capacity settings
- Up to 5 CPS and 5 zAAP/zIIP, or up to 10 IFLs or CFs

Potential Benefits

- Reduced IBM software costs
- Special-purpose engine prices reduced 50%
- 60% lower memory costs associated with specialty engines (EC and BC)
- Dedicated machine for niche requirements of big shops

Challenges

- Entry price is still about \$100,000
- The price of cross-family upgrades will still be six digits
- Capacity planning



IBM's Specialty Engines: The Catalyst for Growth

- Lower hardware prices — now including memory!
- Investment protection on upgrades
- Lower software costs — IBM and third party
- Create room for legacy applications to grow
- No additional staffing
- Overhead? Utilization level?
- Expect broader use of current rather than new ones

- More than 400 ISVs and 3,000+ applications for Linux on z
- Facilities are now a mainframe competitive strength
- Academic initiatives — over 600 universities

- Approximately 14 million IBM mainframe MIPS installed
- Linux on z — more than 20% of MIPS being shipped
- Specialty engines (MIPS) — now >20% of installed base

- No short-term resolution is likely in IBM-Neon dispute
- Don't base your budget on savings from the use of zPrime until this matter is resolved



zIIP

- Introduced in 2006
- System z9 and z10
- Initially certain database workloads
- Applicability now expanding
- ISV support emerging

zAAP

- Introduced in 2004
- Java workloads initially
- Applicability now expanding
- z890, z990, z9 and z10

IFL

- Introduced in 2000
- 9672 through System z10
- Went from 127 MIPS in 2000 to 920 MIPS in 2008

System z Solution Editions

- **Building on the Solution Edition for SAP**
- **Special package pricing for IBM's most popular solutions**
 - z10 hardware (stand-alone footprint or isolated LPAR)
 - Prepaid hardware maintenance
 - Comprehensive middleware stack (including service and storage)
 - Services and storage (as needed)
- **Utilizing mainframe quality**
 - System quality, security, availability and scale
 - Integration of applications with corporate data
 - Industry leading virtualization, management and resource provisioning
 - Designed for investment protection
- **Competitive acquisition prices and TCO**



***Mainframe security, availability and scale ...
priced to be competitive with Unix alternatives.***

Mainframe in Your Data Center: What's the Decision Process?

Information-Gathering Phase

Quantify the size and complexity of the mainframe suite

Assess and articulate the strategic and business criticality of applications

Quantify the real financial cost of running the mainframe environment

Assess and articulate the cultural opinion toward a mainframe

Decision-Making Phase

Assess the options.
Decide on both a long-term strategic plan and a tactical plan

Suggested Possible Alternatives

Consolidate the mainframe environment

For smaller firms, use a "milking" strategy, where the system is untouched

Consider a specialty engine

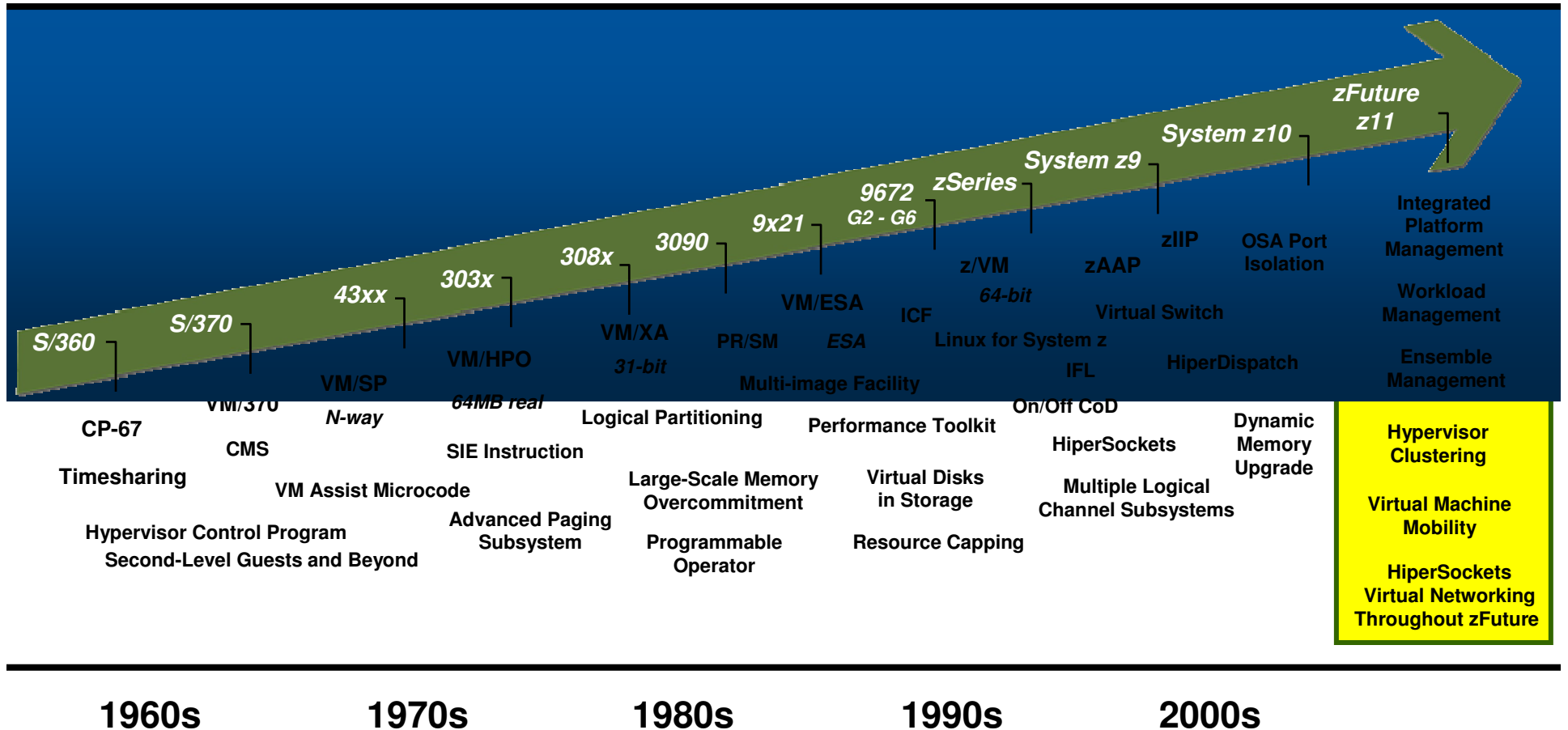
Move to a smaller System z10 Business-Class machine

Move onto the latest System z10 with Renegotiated software license and maintenance contract

Plan for an alternative platform

Use a partner with an established mainframe migration business

System z Virtualization Road Map

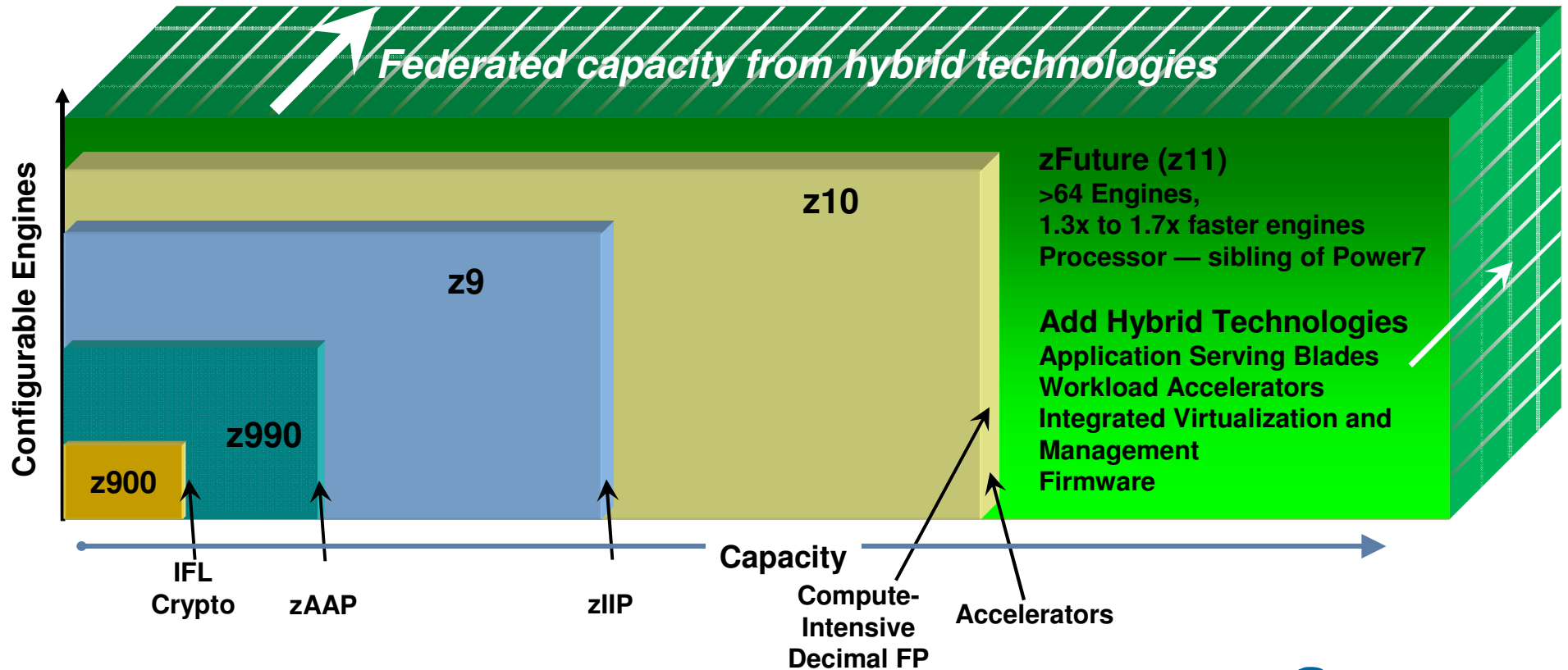


Source: IBM

System z — Next-Generation Architecture

New System Claims

- Hybrid technologies increase overall capacity under control of system z
- Deploy optimized solutions across z/OS, specialty engines and blades
- System z management extended across end-to-end applications



Source IBM. All statements regarding IBM's future direction and intent are subject to change or withdrawal without notice, and represent goals and objectives only.

What You Need to Do

Today: Articulate the Strategic Importance of the Mainframe

- ✓ Evaluate the criticality of the application portfolio.
- ✓ Benchmark the cost of running the mainframe eco system.
- ✓ Define middleware Upgrades

The next 18 months: Determine the Upgrade Path

- ✓ Determine which older machines need to be upgraded. Beware of the support issues
- ✓ Consolidate onto newer machines (Business Class where necessary)
- ✓ Start using Specialty Engines
- ✓ Revisit sub capacity software pricing

Two to three years: get the right applications on the right Platform

- ✓ Manage software costs – un bundle maintenance
- ✓ Start using hybrid systems with across the platform management tools
- ✓ Make the Mainframe part of your Internal Cloud

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