



# Mainframe MythBusting

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## Quick Survey: True or False?

- Mainframes expensive to buy and support.
- Mainframes are an outdated platform for hosting enterprise applications
- To code an application on the mainframe you need to code in COBOL or Assembler
- The only way to get data from the mainframe is a green screen.
- Mainframe people are all old and about to retire
- Mainframe technology is always behind the other platforms
- Mainframes are hard to use
- Mainframes are slow

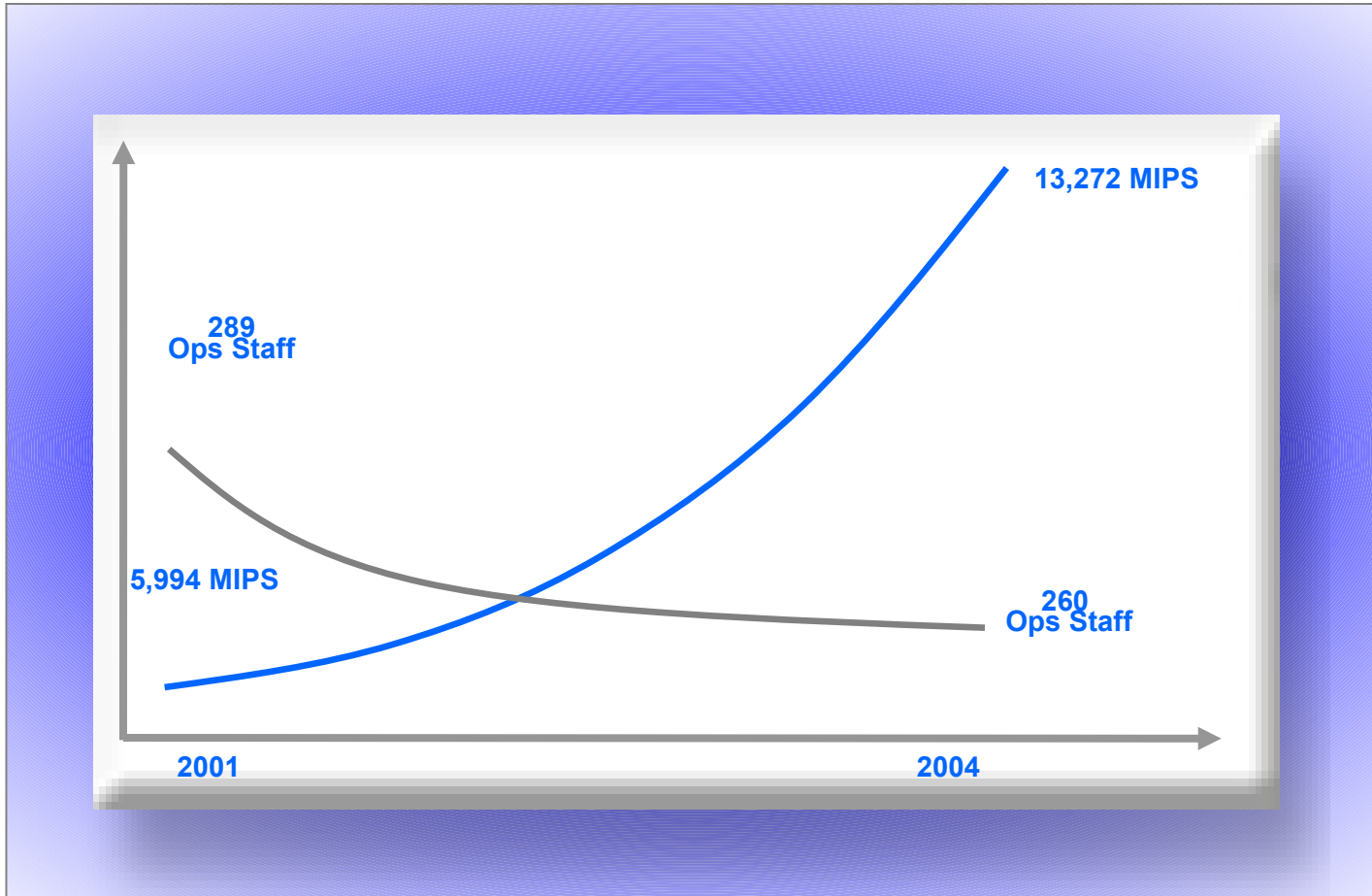
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# Myth1: Mainframes are Expensive

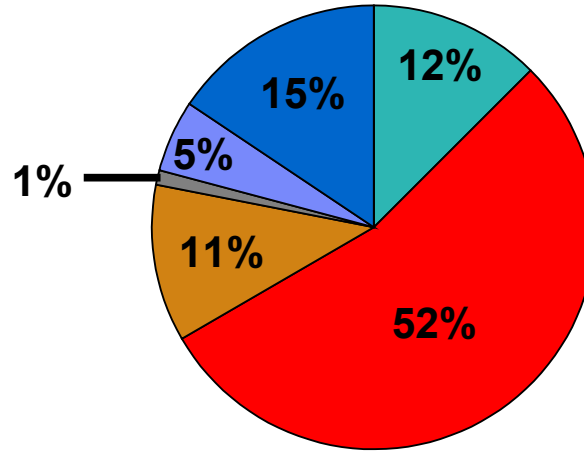
- Acquisition cost of System z is higher than a 1U Server
- Total cost of ownership of mainframes are lower
  - ▶ End user operations
  - ▶ Cost of availability, security, etc.
  - ▶ Productivity
- Compare apples to apples when measuring cost
  - ▶ Hidden data center fees tied to the mainframe
  - ▶ Make sure the whole picture is taken into account
- Current System z customers can increase power for less
- As the number of MIPS grows the cost decreases
- Support costs remain consistent

# More Powerful Mainframe – Same Staff



# Largest Inhibitors to Growth

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



- IBM Hardware Costs
- IBM Software Costs
- Third Party Software Costs
- Portfolio of Third Party Applications
- Graying of trained skills
- Sole Source Concerns
- Mainframe Complexity
- Management Perception of z



# The Power of Specialty Engines



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

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



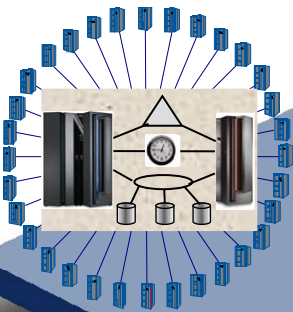
**System z Application  
Assist Processor  
(zAAP) 2004**

Incorporation of Java™ into existing mainframe solutions



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

Support for new workloads and open standards

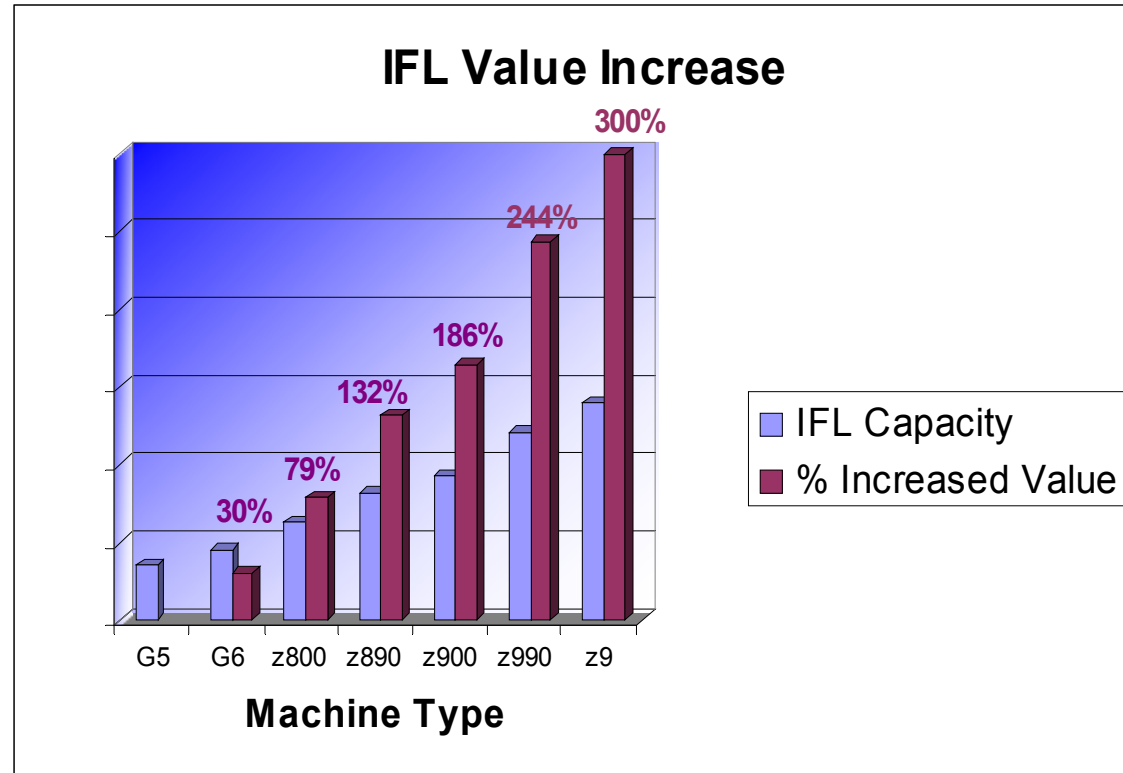


**Internal Coupling  
Facility (ICF) 1997**

Centralized data sharing across mainframes

# Unique Value of an IFL

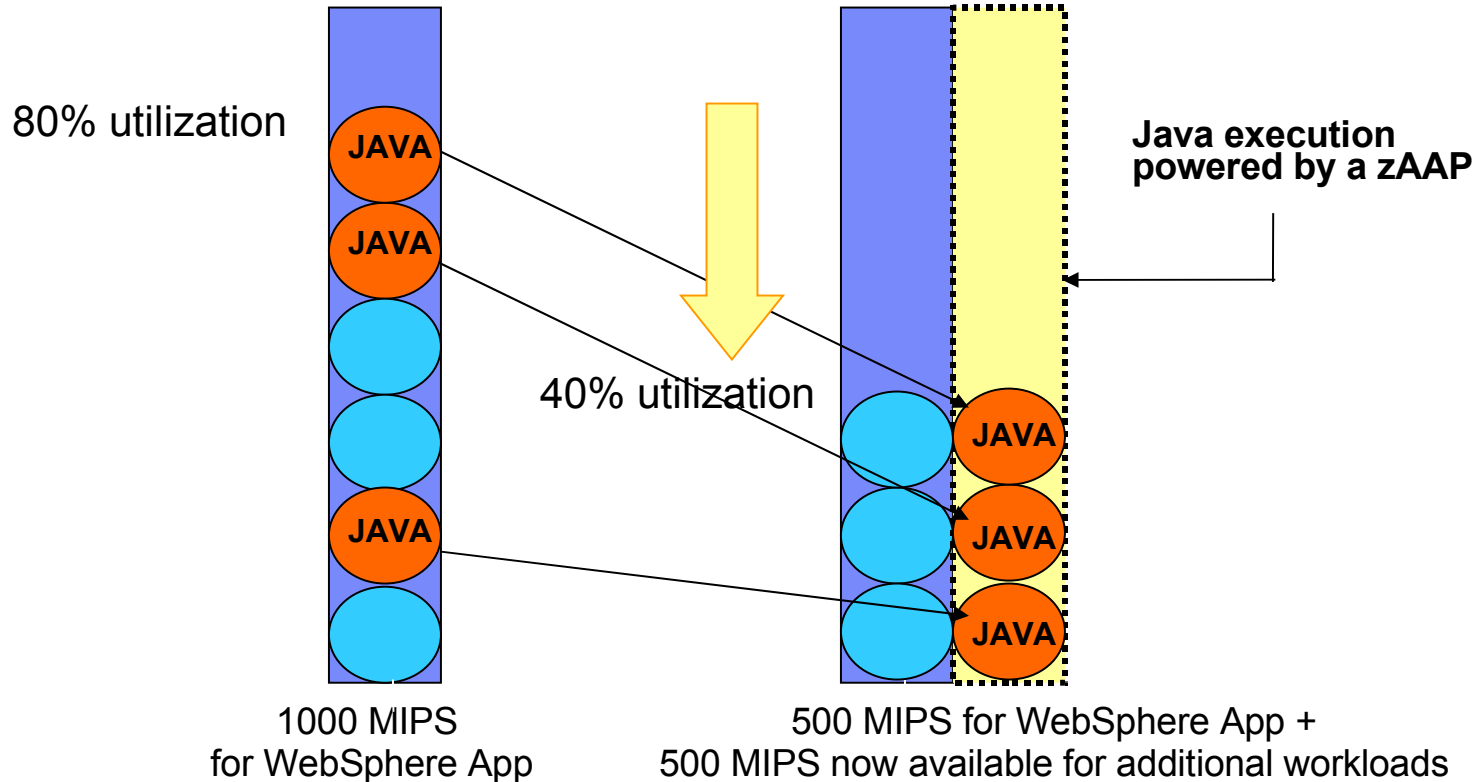
- FL Price has remained constant
- IFLs move with upgrades
- 30% more capacity!!!
- zAAP follows same model
- Distributed model over same time:
  - ▶ 2 Technology Refreshes (New Hardware)
  - ▶ 2 System migrations





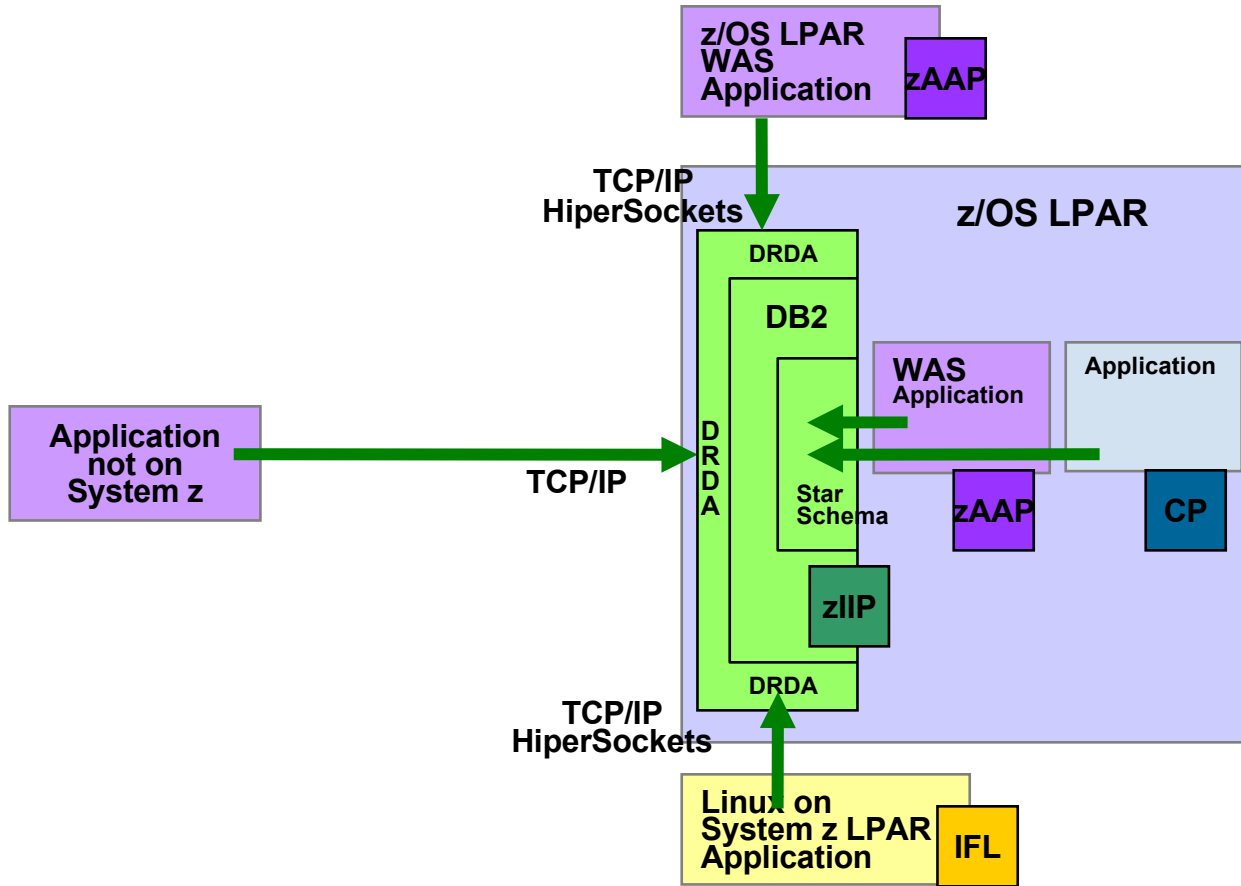
# Why zAAP? A Simplified Example

Example: 1000 MIPS WebSphere Application



In this example the zAAP reduced the standard CP Capacity requirement in half.

# Specialty Engines Can Work Together



The IBM System z9 specialty engines can run independently or complement each other (shown at left, instances where specialty engines can be employed)

## Myth 2: Mainframes are Outdated

- Mainframes support Latest Standards
  - ▶ J2EE
  - ▶ Linux
  - ▶ SOA
  - ▶ Open standards
- Mainframes support collaboration
  - ▶ Simplified integration of infrastructure facilitates collaborative infrastructures
- Rest of the world is catching up to zSeries
  - ▶ Distributed systems virtualization is behind mainframe
  - ▶ Advanced power management
  - ▶ Workload management
- 60% mainframe MIPS purchased since 2000 are for new workload

## Myth 3: Mainframe Skills are OLD!

- O.K. - Some of us are.... more mature.... (physically)
- Middleware direction is for platform independent code
  - ▶ J2EE and other containers
  - ▶ Cross platform management tools and GUI tools are growing
- Cost of mainframe skills not rising
  - ▶ COBOL programmers do not make more than Java programmers
  - ▶ Huge supply of programming skill worldwide
  - ▶ Mainframe skill staff are less than 5% higher than distributed skills
- Education of mainframe skills are on the rise
  - ▶ IBM's goal is to train 20,000 students on mainframe technology by 2010
  - ▶ Supported by over 150 colleges and universities

## Myth 4: ISVs Don't Do Mainframes

- 912 applications from 399 vendors run on Linux on System z
- J2EE applications run on the mainframe
  - ▶ Oracle
  - ▶ SAP
  - ▶ Misys
  - ▶ Temenos
- IBM continues to improve its portfolio for the mainframe to ease ISV utilization
- SOA and services make mainframe resources more available

## Myth 5: Mainframes are Inflexible

- Mainframes pioneered Capacity Upgrade on Demand
- Can you say LPAR?
- Intelligent Resource Director
- Transaction based workload management
- Virtualization the other guys wish they had
- Upgrades without interruption
- Using zLinux & zOS collocates applications and data
- More compute power same staff

## Myth 6: Mainframes are slow

- Measurements based on benchmarks
  - ▶ Benchmarks test operations on cached data
- Not based on real workload
  - ▶ Real workload is messy
- Not about chip speeds
  - ▶ For most workloads it's not about calculations
- All computers wait at the same speed



# Beware the Distributed Platform Bigot

- Evangelists understand why theirs is cool
- Just because you can doesn't mean you should
  - ▶ Distributed guys think you can do anything as long as you have enough machines
- Time to look at platform selection more intelligently
- Think about capabilities as well as function
  - ▶ Non Functional Requirements
  - ▶ Security
  - ▶ Availability
  - ▶ Performance
- Understand the workload

# Which is the Better Vehicle?



Maserati MC12

VS



Peterbilt Semi

The Race -  $\frac{1}{4}$  Mile Dragstrip

# Which is the Better Vehicle?



100 Maserati MC12s

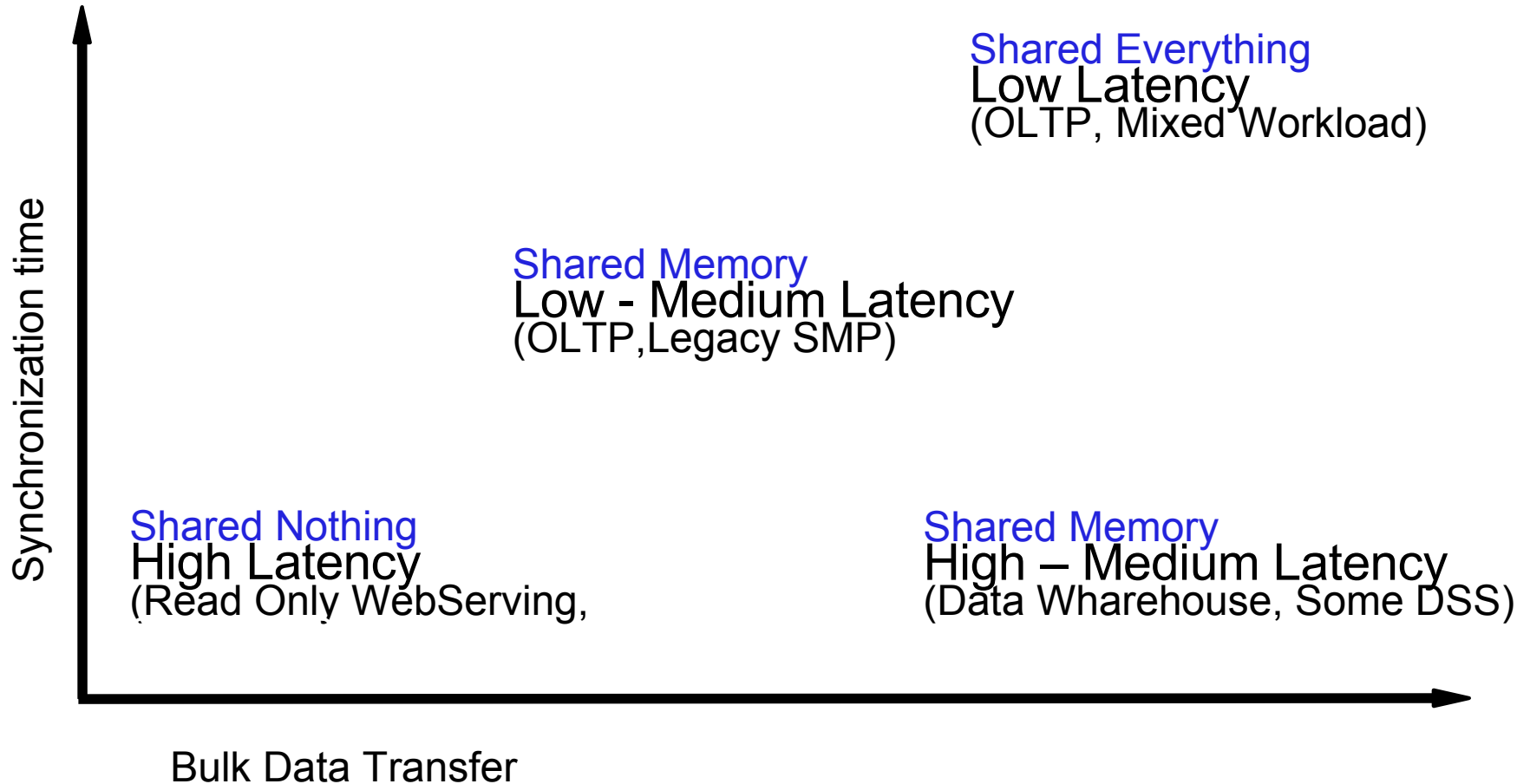
VS



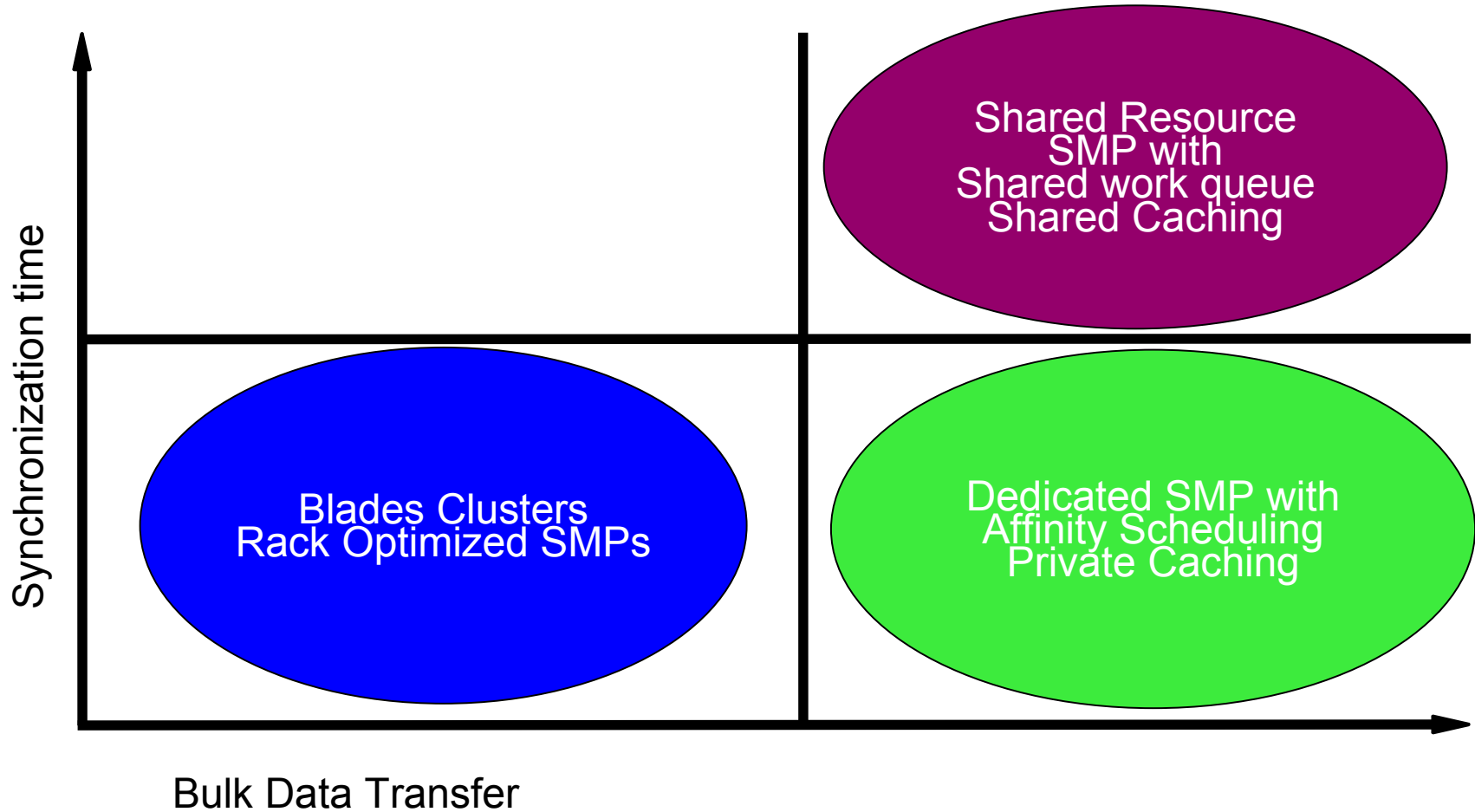
Peterbuilt Semi

The Race -  $\frac{1}{4}$  Mile Dragstrip  
Carrying 10 tons of crates

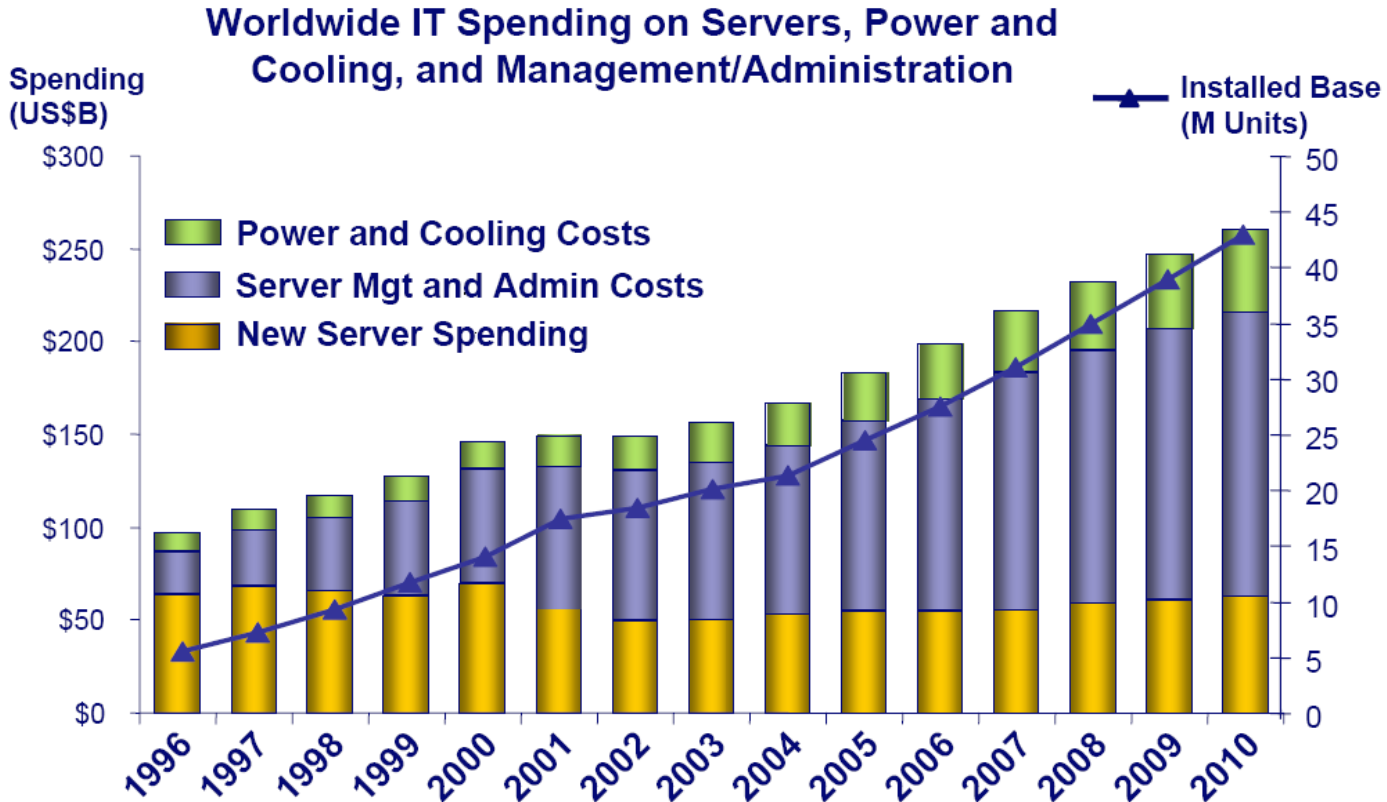
# Not All Computers are Created Equally



# Computers and Their Strengths



# Myth 7: Small Servers are Cheap



Source: IDC 2006/UBS

## Small Servers and Power

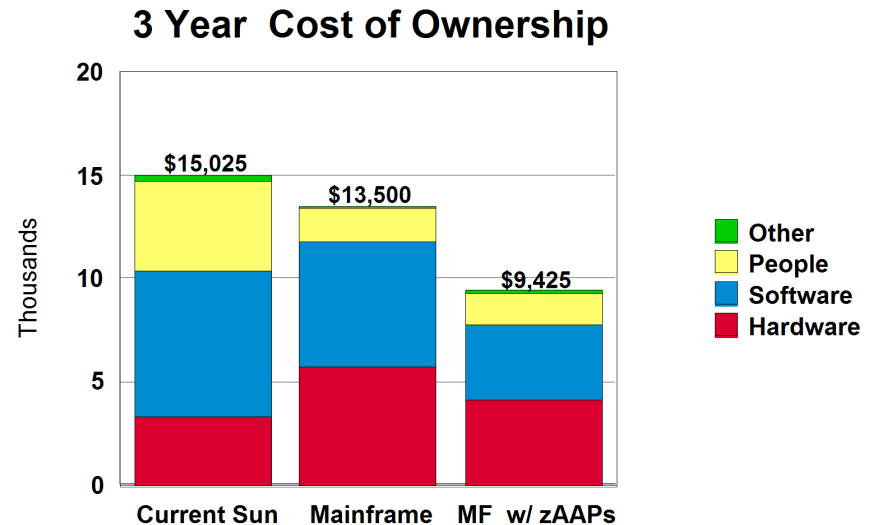
- Distributed server farms can generate as much as 3,800 watts per square foot (Wall Street Journal)
  - ▶ In 1992 it was 250 watts/sq foot
- “Power-related problems in 2005 will cause 4 of the 20 major failures, up from 2 of 20 last year” (The Uptime Institute)
- By comparison, a mainframe z9 generates 312 watts per square foot – **one tenth the amount**





# The Hidden Costs Kill

- They needed 14 people to support these servers and \$7M software
  - ▶ Running at only 20% utilization
  - ▶ Each server cost \$20K per annum to support
- A comparable z- implementation would have required just 20 servers
  - ▶ Requiring 5 people to support
  - ▶ Using \$6M software (over 3 years)
- The client thought Sun was 1/5 the Cost
- With IFLs System z was 37% Cheaper



# Summary

- Too much disinformation on mainframe
  - ▶ The conspiracy is widespread
- Think Holistically
- All you need are the real facts
- Make sure the playing field is level
- Make sure that you look at the full picture
- Understand the workload
- Remember the cost model

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