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Hex, Lies and Videoblogs – Debunking Mainframe Myths

Frank J. De Gilio
IBM

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Quick Survey: True or False?

- Mainframes expensive to buy and support.
- Mainframes are an outdated platform for enterprise applications
- All Mainframe code is in COBOL or Assembler
- The only way to get to 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

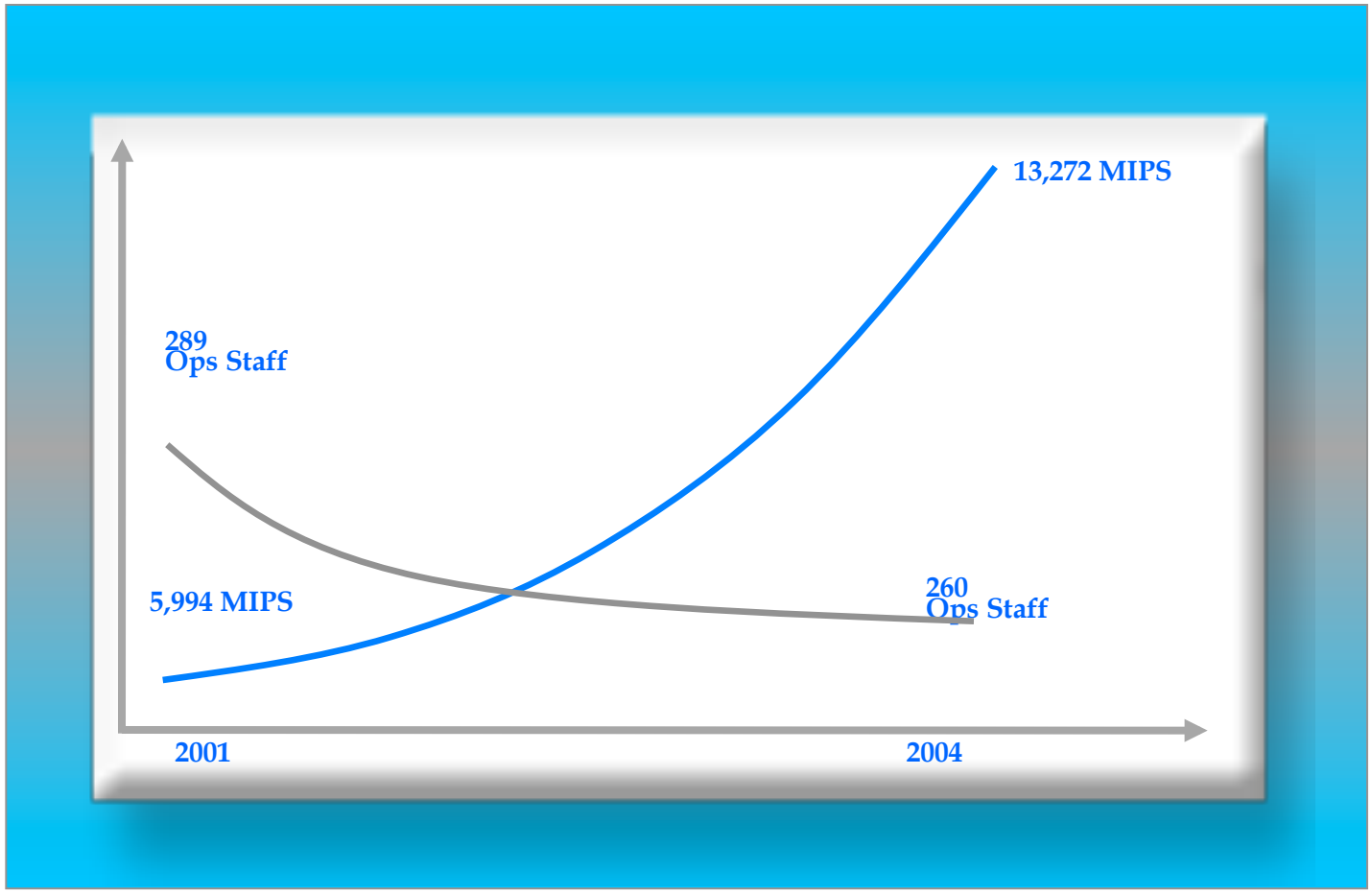
Quick Survey: True or False?

- Mainframes expensive to buy and support.
- Mainframes are an outdat atfo nterprise applications
- All Mainframe er
- The only way een screen.
- Mainframe pe etire
- Mainframe te d the other platforms
- Mainframes a
- Mainframes

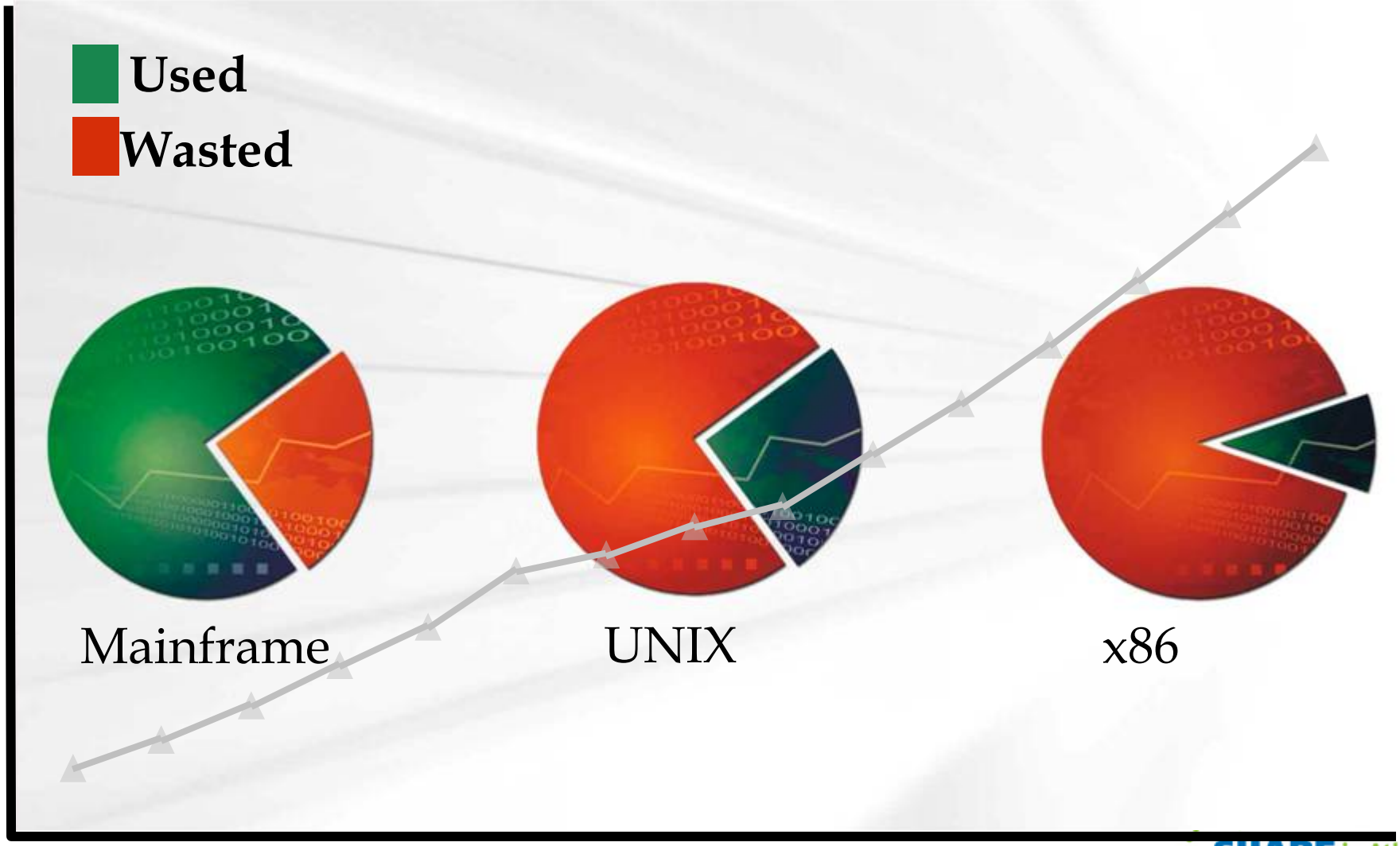
Myth1: Mainframes are Expensive

- Acquisition cost of System z is higher
- Total cost of ownership of mainframes are lower
  - End user operations
  - Cost of availability
  - Cost of security
  - Productivity
- Compare apples to apples
  - Hidden data center fees tied to the mainframe
- Current System z customers can increase power for less
- As the number of MIPS grows the cost decreases
- Support costs remain consistent

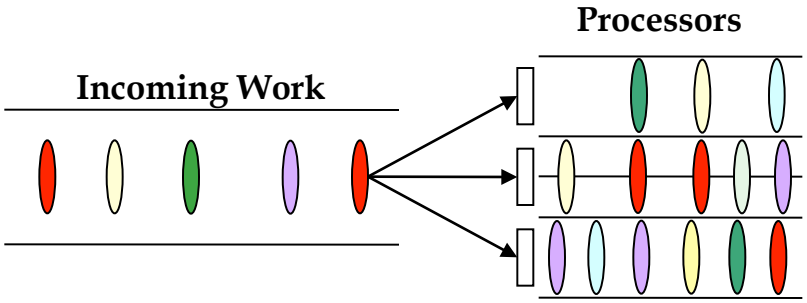
More Powerful Mainframe – Same Staff

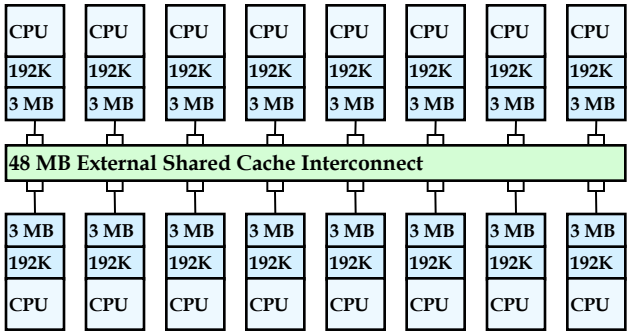


Comparison of Utilization Rates



System z – Shared Everything





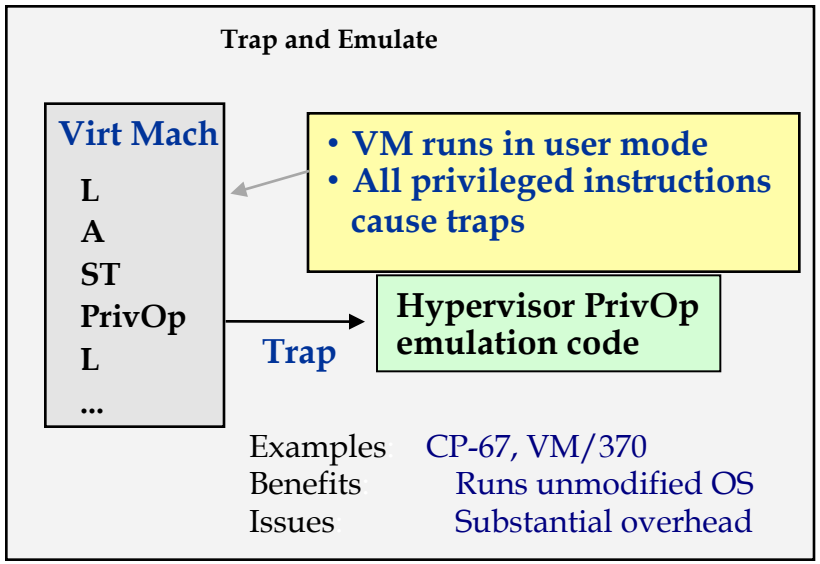
z/OS Workload

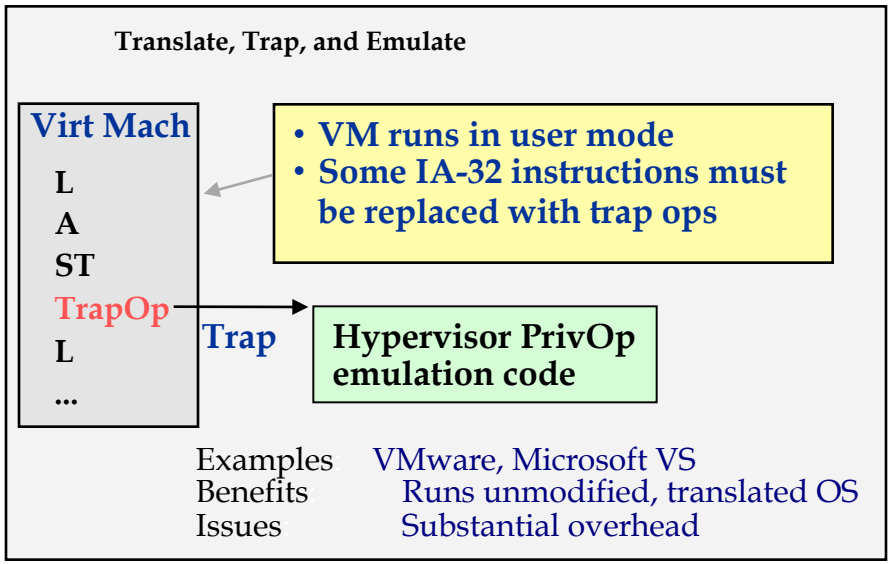
- Varying sizes, arrival rates, and workload types
- Frequent context switches
- Need to dispatch work to any available processor with very little affinity to achieve high utilization
- Significant data sharing between threads
- I/O operations offloaded to independent channel subsystem

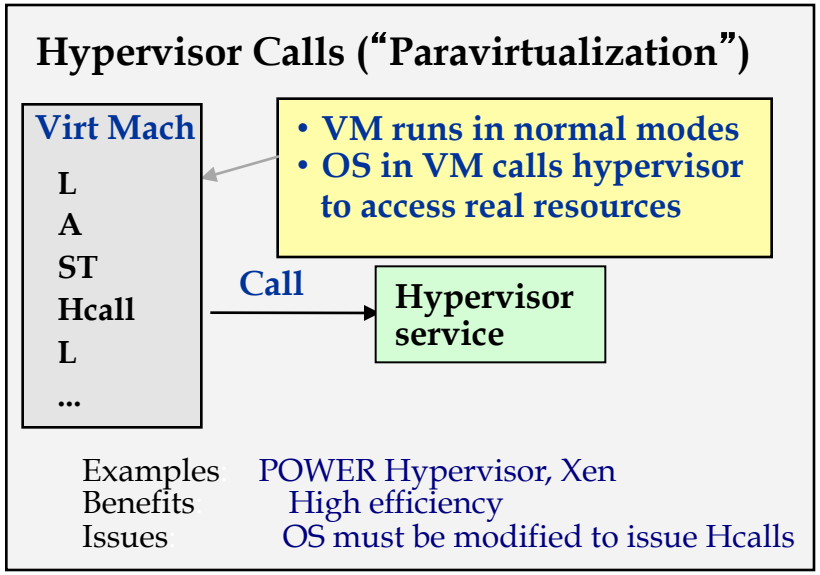
System z10 Book

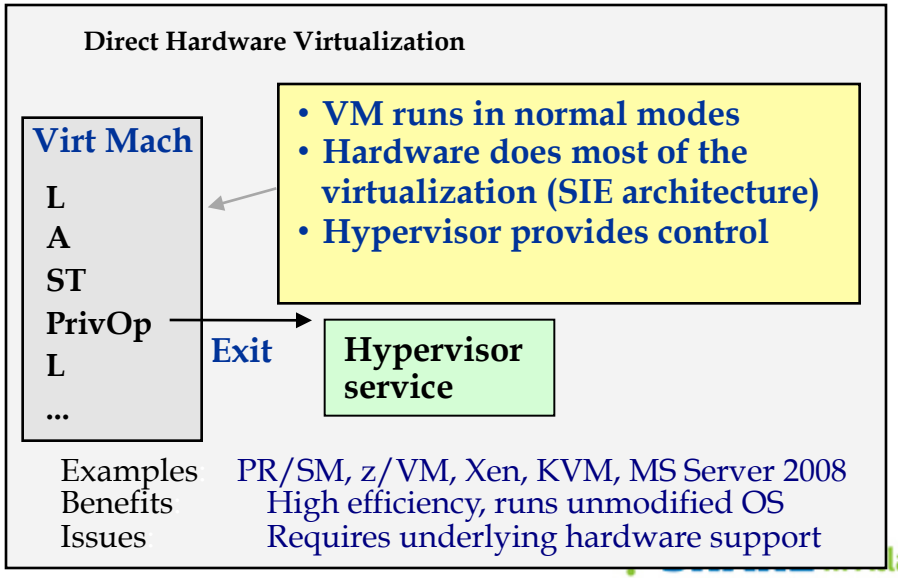
- Designed for frequent context switches between short running applications
- Flattest IBM memory model
- Shared cache provides faster access and less update delay for shared data
- Strong consistency memory model provides faster updates to shared data (more efficient locking).
- Breaks CPU affinity quickly

Different Virtualization Model









Developing a Cost / Value Model

The cost model is where you quantify the items that were developed in the evaluation model

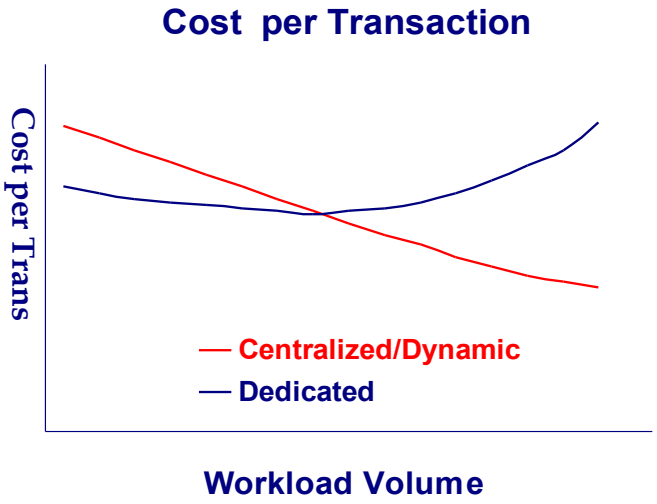
- The choice of cost elements often dictate which platforms are considered the "lowest" cost.
- Costs in fact go way beyond hardware, software, and maintenance
- Values are often the inverse of indirect costs
- Develop metrics to quantify value (e.g. outages, security breaches, etc)

Sample Direct Costs
- Hardware: Prod and non-prod
- Hardware maintenance
- Internal FTEs and consultants
- Software
- Software maintenance
- Power and cooling
- Floor Space
- Network and FC ports
- Residual value
- Disaster recovery
- High Availability
- Asset management

Sample Indirect Costs
- Cost of an outage
- Security breach
- Cluster complexity
- Business flexibility
- Risk
- Time to market

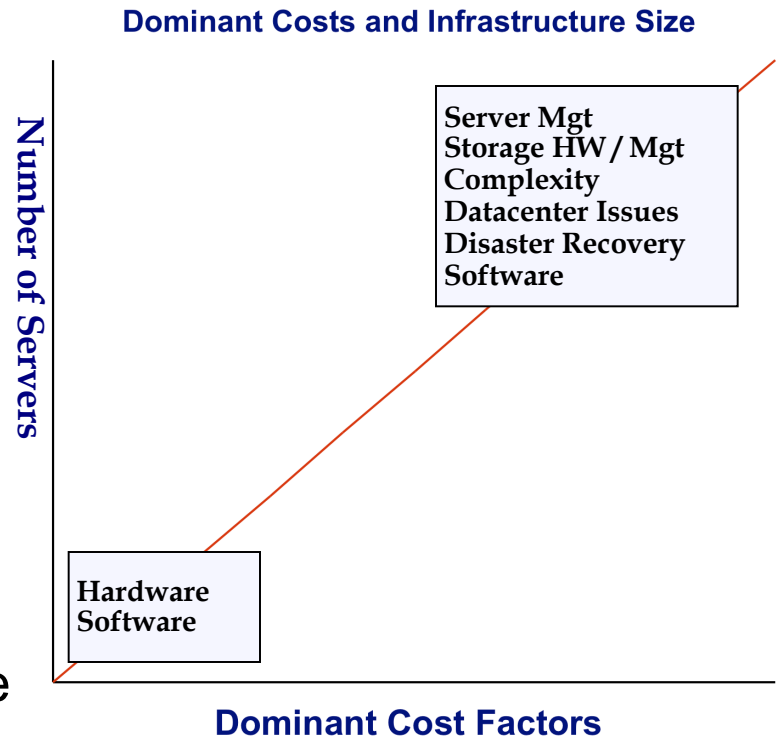
Cost per Unit of Work

- Centralized Business Infrastructure
  - Initial cost higher
  - Costs decline per transaction
- Dedicated Business Infrastructure
  - Initial costs low
  - Sharing lowers costs per transaction
  - As workload continues to increase so do costs
- A dynamic virtualized infrastructure affects cross over point



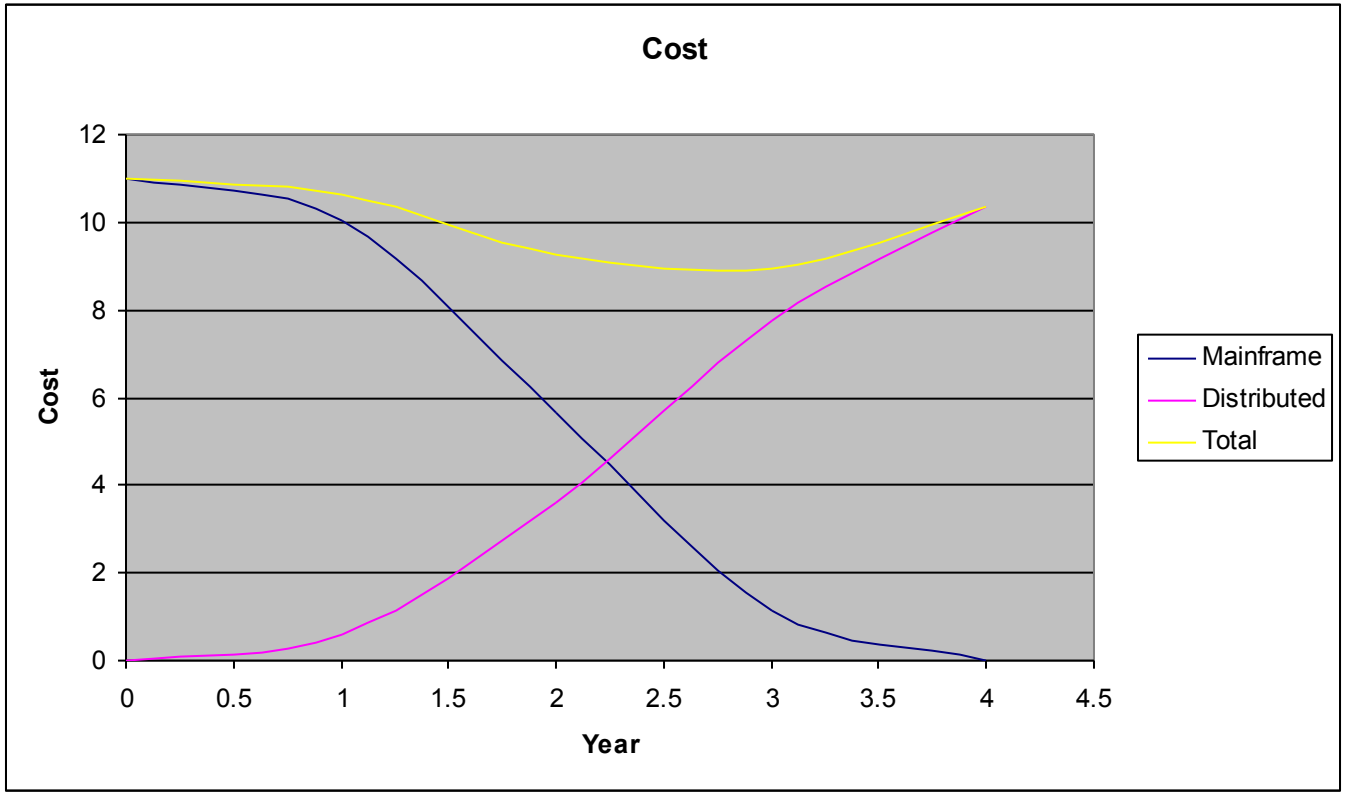
Dominant Costs Factors Change with Scope

- Cost Factors
  - As infrastructure grows, the costs shift from HW/SW to other factors.
- Deployment Model Matters
  - Distributed servers offer the lowest cost for small environments.
  - Virtualized servers will most likely dominate the middle of the curve.
  - Centralized servers become critical with scale.
- Line of Business deployment costs may be sub-optimal for the enterprise



Cost over time

"If technology is saving money, why does the bill go up every year?"



In this case you save money initially but the savings are not sustained

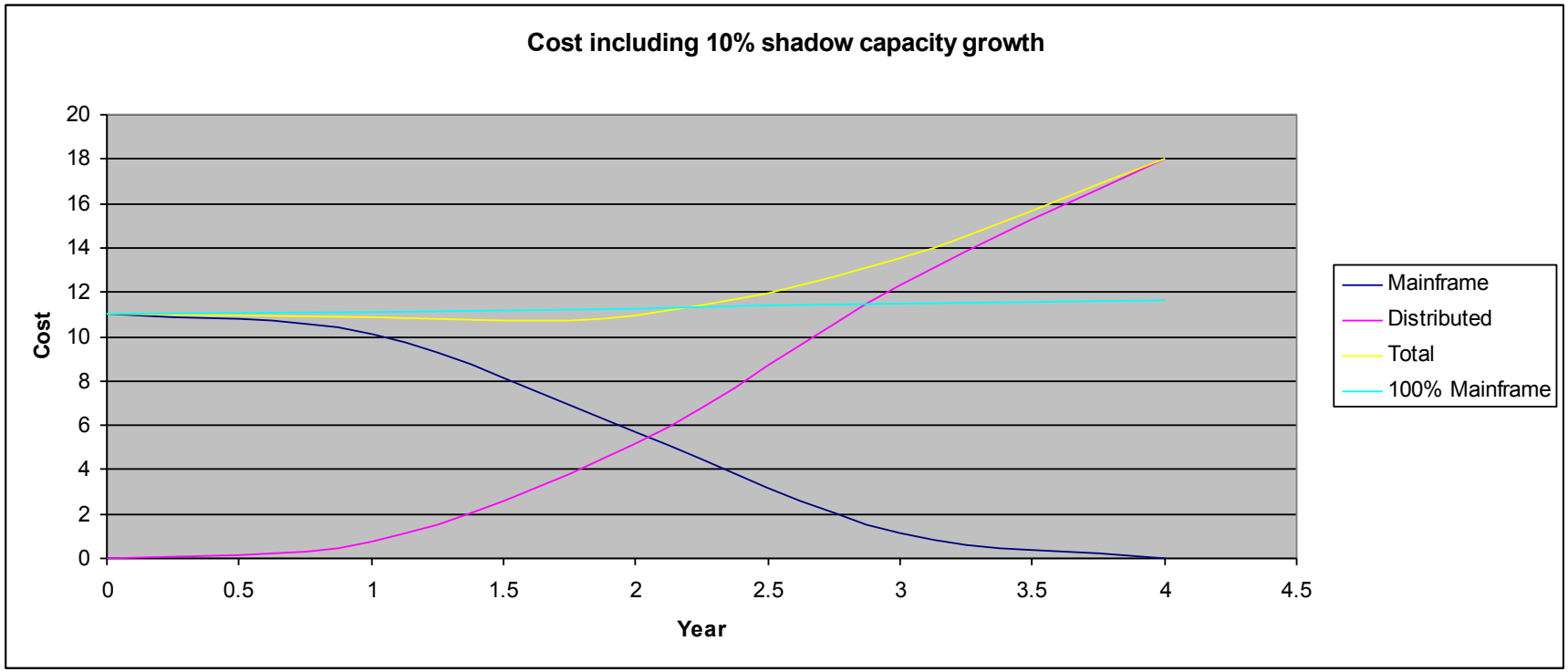
This does not include migration costs. The business case is not robust.

Shadow Capacity

If you “disintegrate” a z load “shadow capacity” is added to the load.

- Capacity to connect distributed applications to data
- Capacity for Management/Monitoring Software
- Capacity for redundancy
- Capacity due to increases in headroom required to meet SLAs
- Capacity due to lower saturation design points
- Capacity for infrastructure management (Network, Security, Provisioning, etc.)
- Capacity due to shifts in application design and implementation (language changes, code generators, object orientation, etc.)

Modified cost model



Shadow Capacity eliminates savings

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
- Cloud – Making the distributed world more like the mainframe
- ITIL – Taking mainframe procedures to distributed environments

Myth 3: Mainframe Skills are OLD!

- Middleware direction is for platform independent code
  - J2EE and other containers
  - Cross platform management tools and GUI tools are growing
- Data retrieval protocols favor platform agnosticism
  - Cost of mainframe skills flat
  - 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 rising
  - IBM's academic initiative has trained 50,000 students
  - Supported by over 600 colleges and universities

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Myth 4: ISVs Don't Do Mainframes

- Over 6,000 applications from 1,600 vendors on Linux on System z
- J2EE applications run on the mainframe
  - Oracle
  - Temenos
  - SAP
  - Misys
- IBM continues to improve its portfolio for the mainframe to ease ISV utilization
- SOA and services make mainframe resources more available
- Web 2.0 Support makes “old” “new”

Myth 5: Mainframes are Inflexible

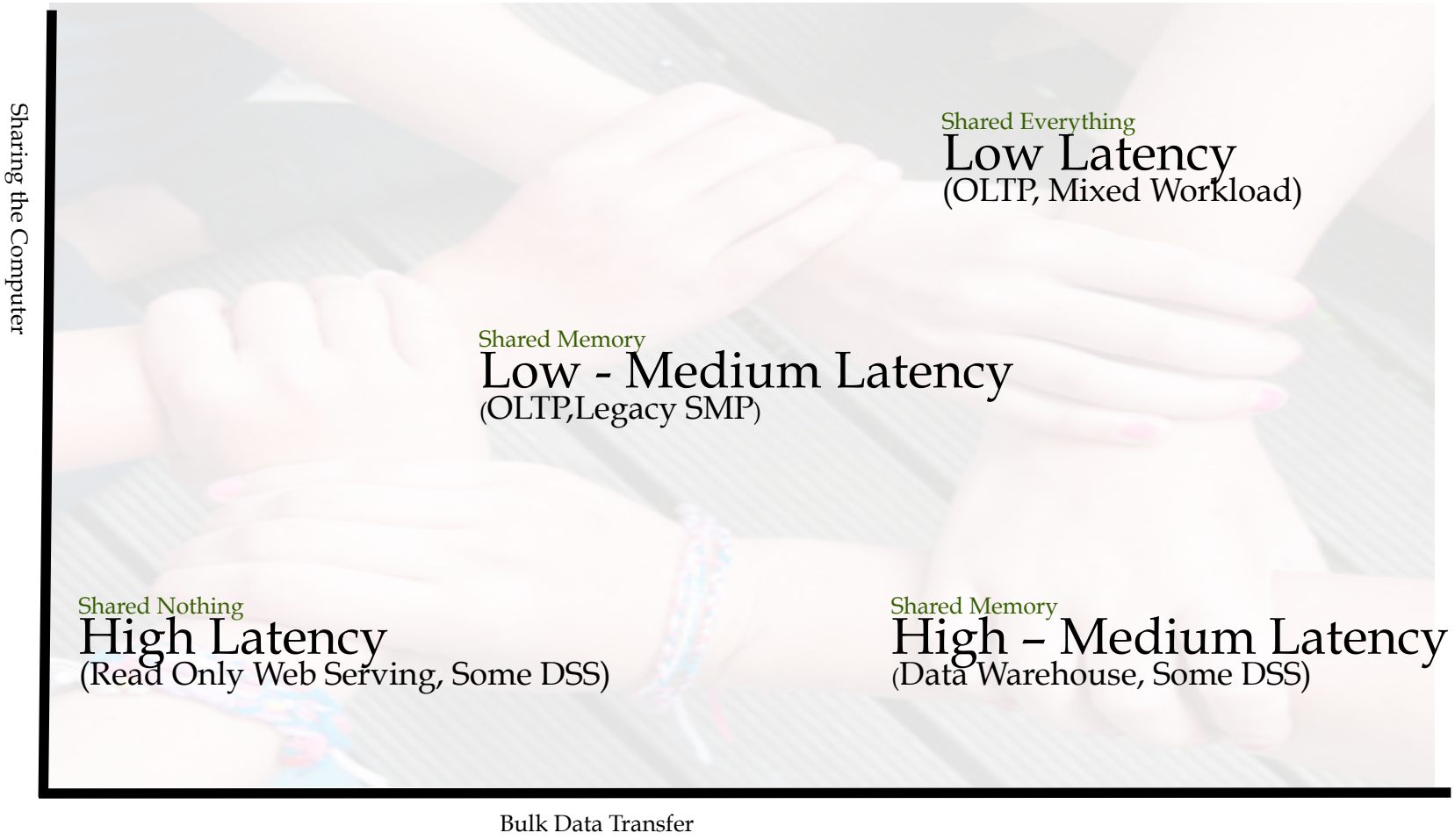
- Mainframes pioneered Capacity Upgrade on Demand
- Can you say LPAR?
- Intelligent Resource Director
- Transaction based workload management
- Virtualization the other guys wish they had
- Upgrades without interruption
- Using zLinux & zOS collocates applications and data
- More compute power same staff

Myth 6: Mainframes are slow

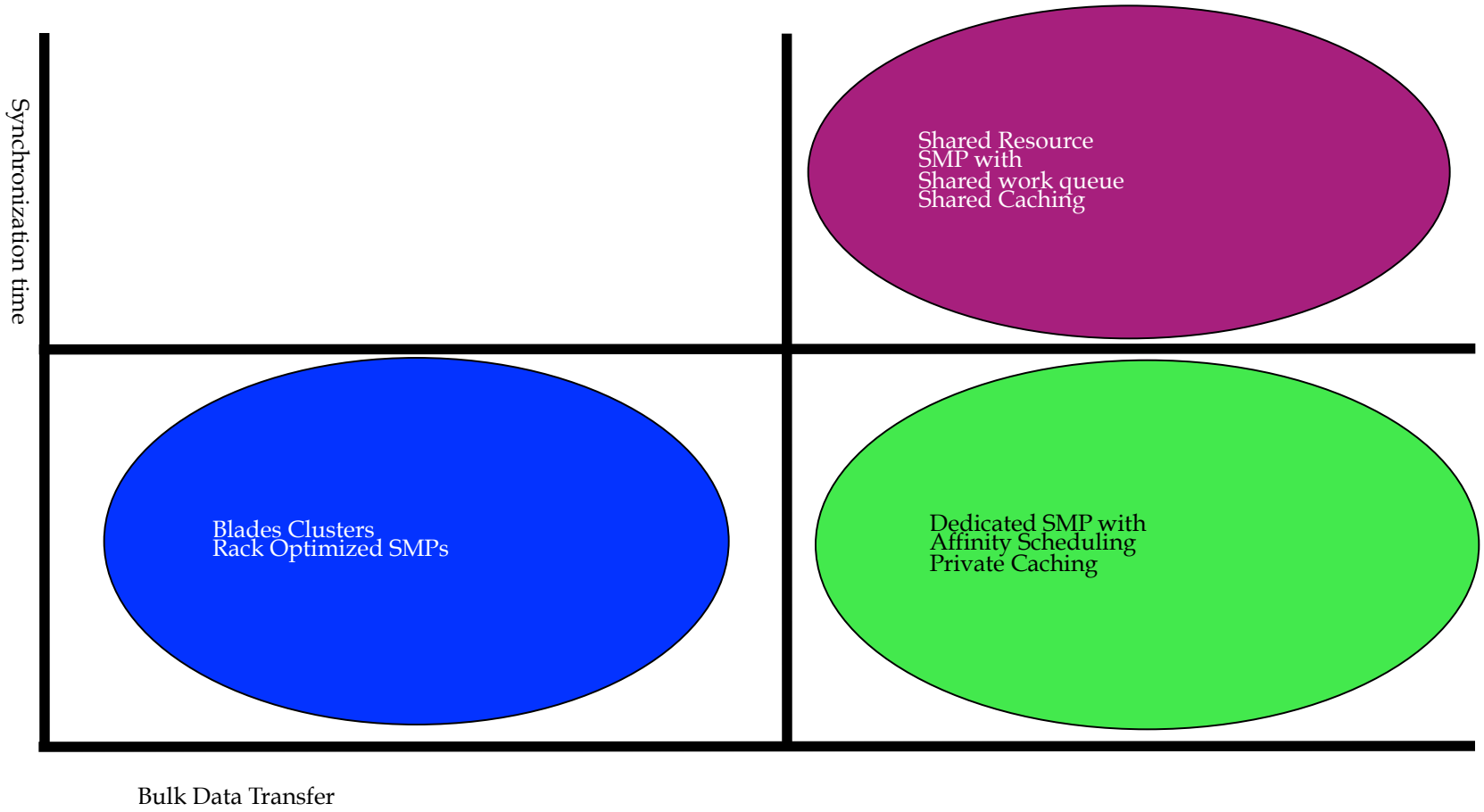
- Measurements based on benchmarks
- Benchmarks test operations on cached data
- Not based on real workload
- Real workload is messy
- Not about chip speeds
- It's not about calculations

All computers wait at the same speed!

Not All Computers are Created Equally



Computers and Their Strengths



Beware of Distributed Platform Bigots

- Evangelists understand why theirs is cool
- Just because you can doesn't mean you should
  - “Just give me enough machines!”
- Beware of distributed use of mainframe terms
- Think about capabilities as well as function
  - Non Functionals
    - Security
    - Availability
    - Performance
- Understand the workload

Which is the Better Vehicle?

Maserati MC12

VS

Peterbuilt Semi

The Race - ¼ Mile Dragstrip

Which is the Better Vehicle?

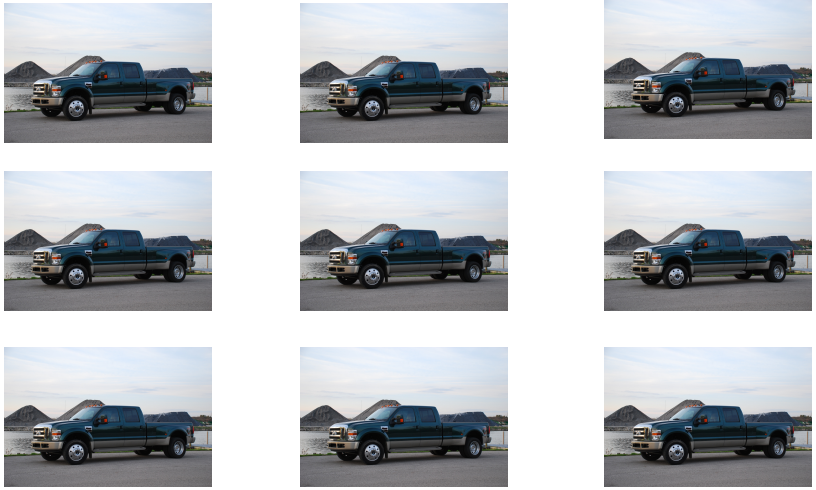
100 Maserati MC12s

VS

Peterbuilt Semi

The Race - ¼ Mile Dragstrip
Carrying 10 tons of crates

Is this better ?



10 - Ford F-450 1 Ton Pickups

VS

?

1- Peterbuilt Semi

The Race - ¼ Mile Dragstrip
Carrying 10 tons of crates

More than analyzing the speed….

- Can the load be split into parts?
  - Can you make more trips with fewer pickups?
- Where is the load going?
  - Can the truck go there ?
- 10 drivers vs. 1 driver (skills)
- Fuel cost differences
- Maintenance differences
- Loading/Offloading differences
- Parking differences

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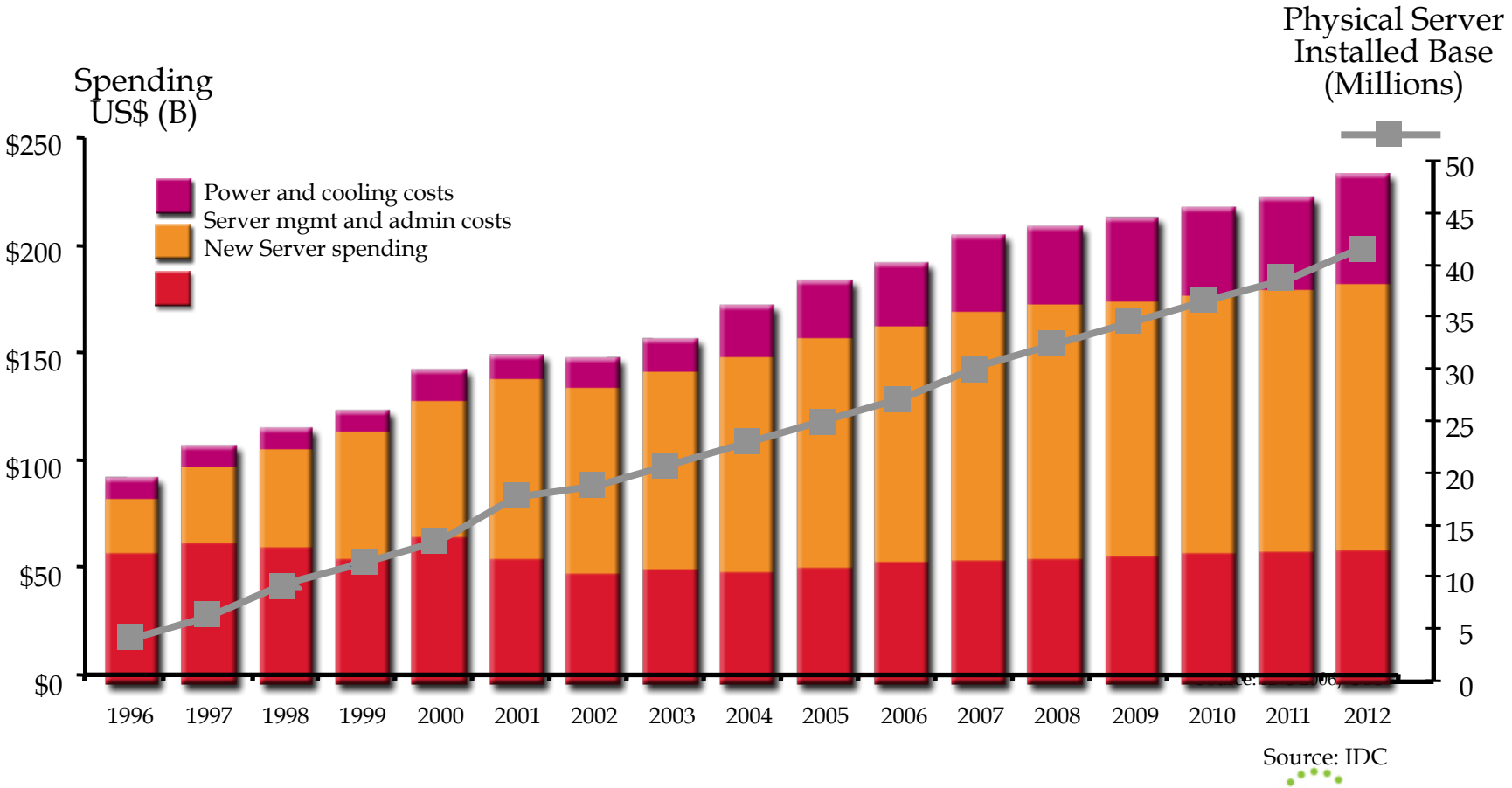
Myth 7: Small Servers are Cheap

Worldwide IT Spending on Servers, Power, Cooling and Management Administration

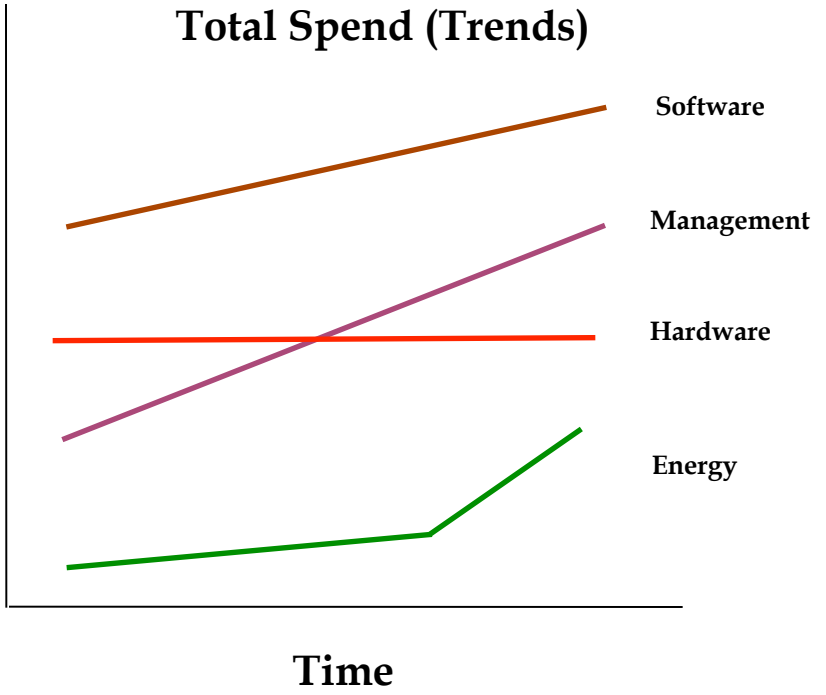


Source: IDC

IT Cost Trends – Alternative view

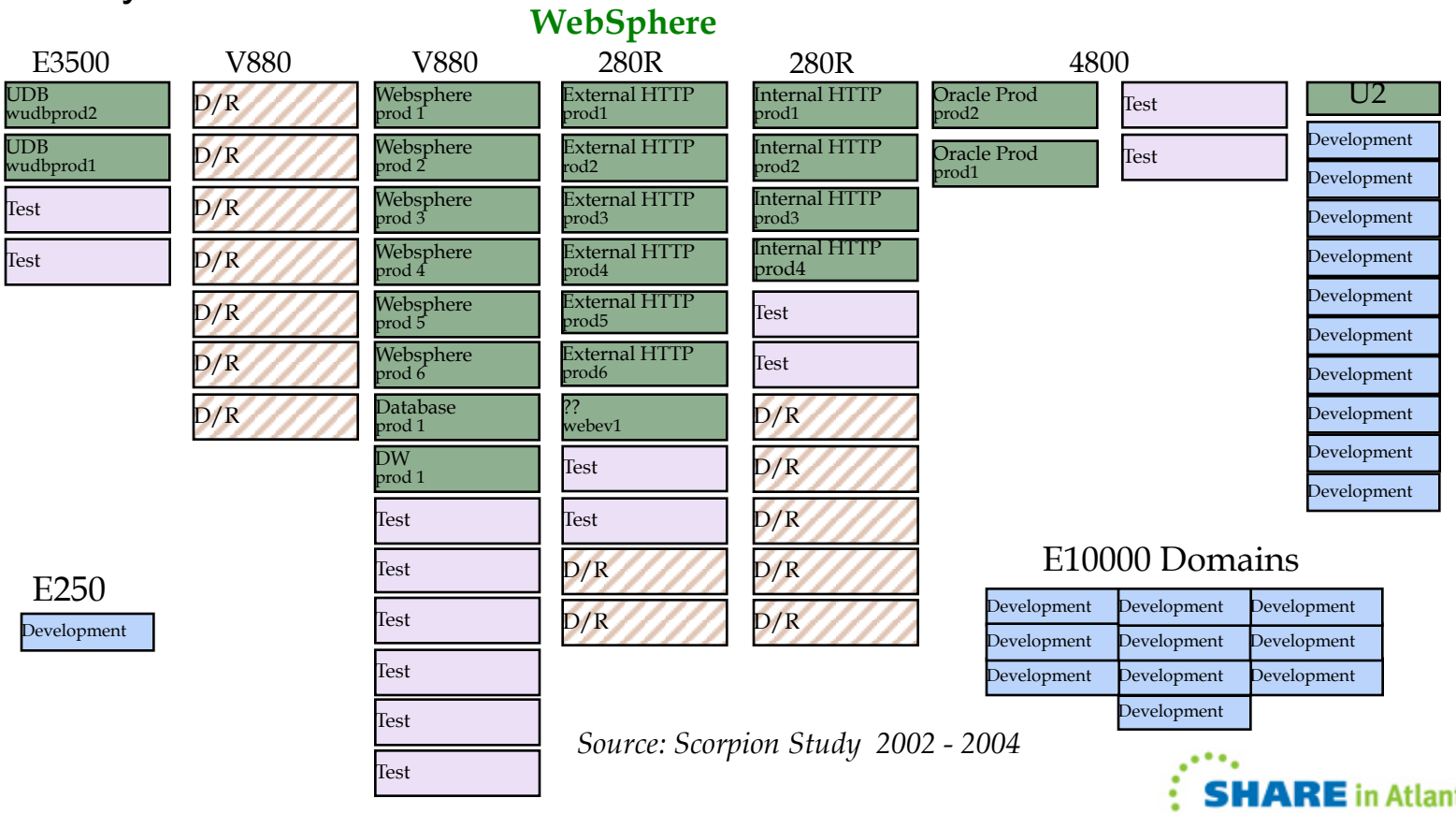
- Management costs are growing rapidly
- Software costs grow linearly
- Energy costs are rising
- Hardware spend is flat

New datacenters are expensive!!



Case Study: A Sun Loving Finance Co.

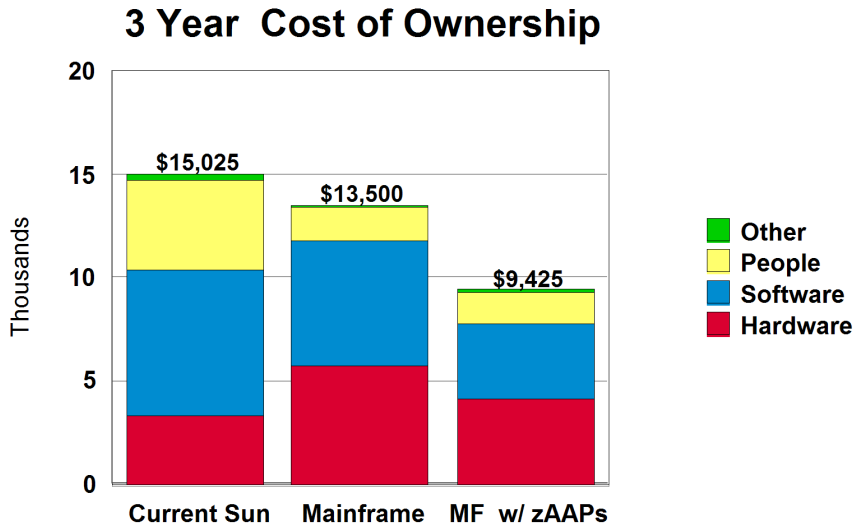
- US Finance customer thought they only had 24 UNIX servers
  - But these were just the PRODUCTION servers
  - In addition they had 49 servers for Development, Test and Disaster Recovery



Source: Scorpion Study 2002 - 2004

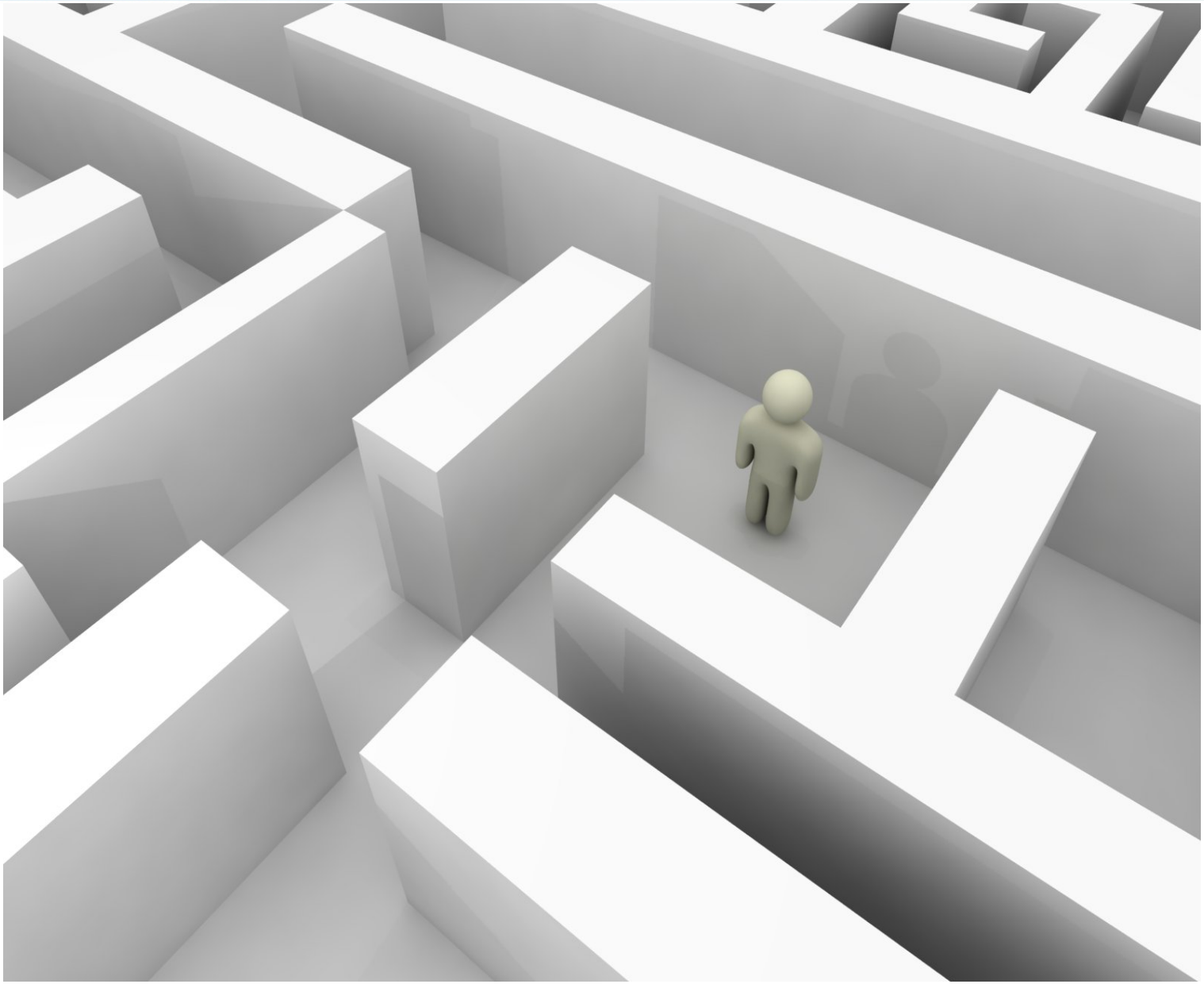
The Hidden Costs Kill

- Servers: Distributed 63 vs mainframe 20
- Admins: Distributed 14 vs mainframe 5
- Software: Distributed $7M vs mainframe $6M
- The client thought Sun was 1/5 the Cost
- With IFLs System z was 37% cheaper



Myth 7: Cloud Computing Replaces Mainframes

- Stateless model
  - Availability based on replication
  - Commit Scope?
- Relies on software only
- Security is an issue
  - Data Privacy
- Value for variable workload
- Compliance

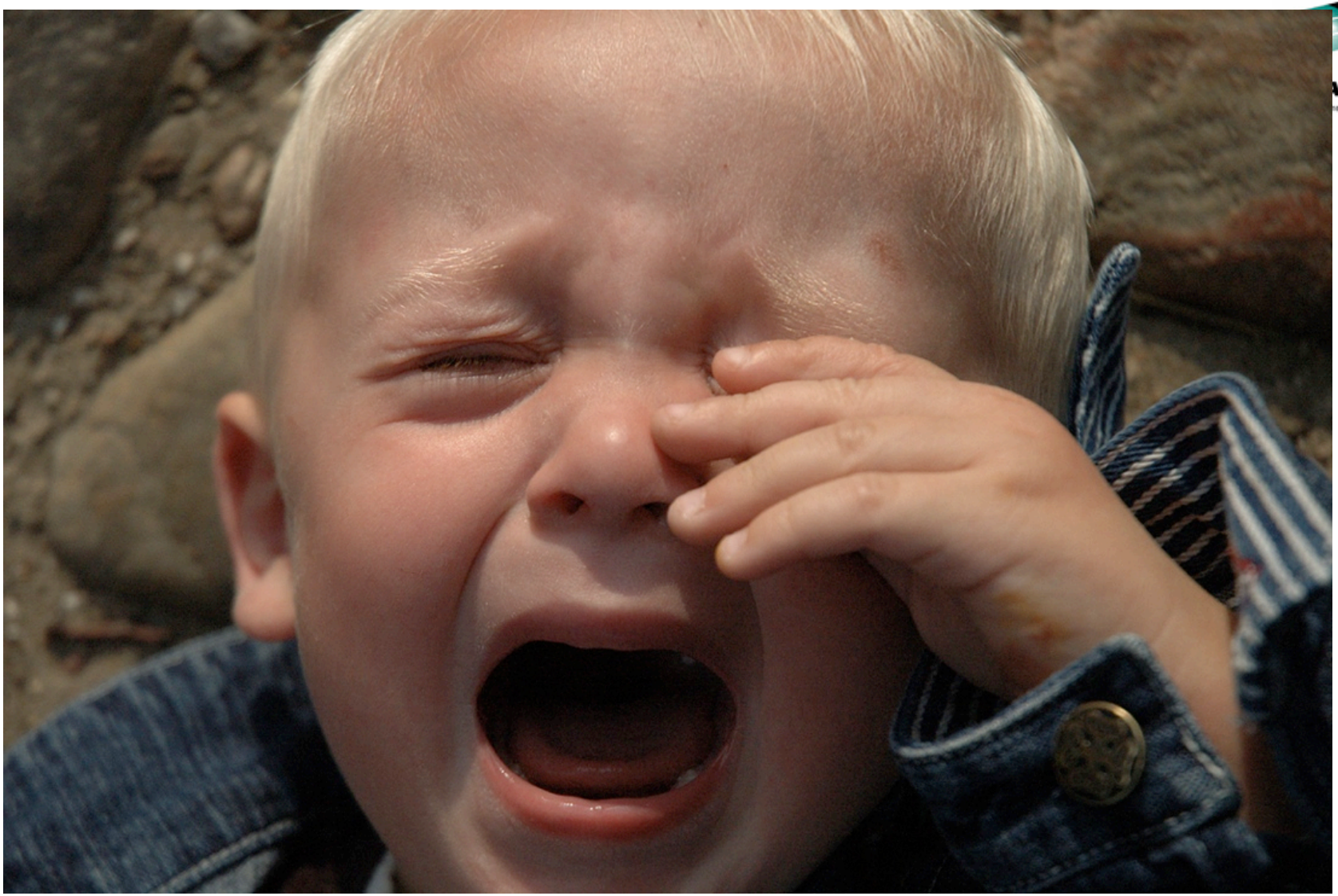


Myth 8: Mainframe is too Complex

- Complex business problems
- Intricate process
- Distributed complexity abounds
  - Hidden in the data center
- Green screen

Summary

- Too much disinformation on mainframe
  - The conspiracy is widespread
- Think Holistically
- All you need are the real facts
- Create a level playing field
- Make sure that you look at the full picture
- Understand the workload
- Remember the cost mode
- Don’t be fooled by terms



Please Make those Distributed Weenies Stop!!

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