System z – A Smart System For A Smarter Planet

What's Wrong With Offloading?

A Common Situation

I just attended a conference where they talked about saving money by moving workload off the mainframe

Service Oriented Finance CEO

Let me do an analysis, and I'll get back to you with a recommendation

Service Oriented Finance CIO

We need to analyze lower cost alternatives to our mainframe

Service Oriented Finance CIO

We can do an Eagle TCO study with your team

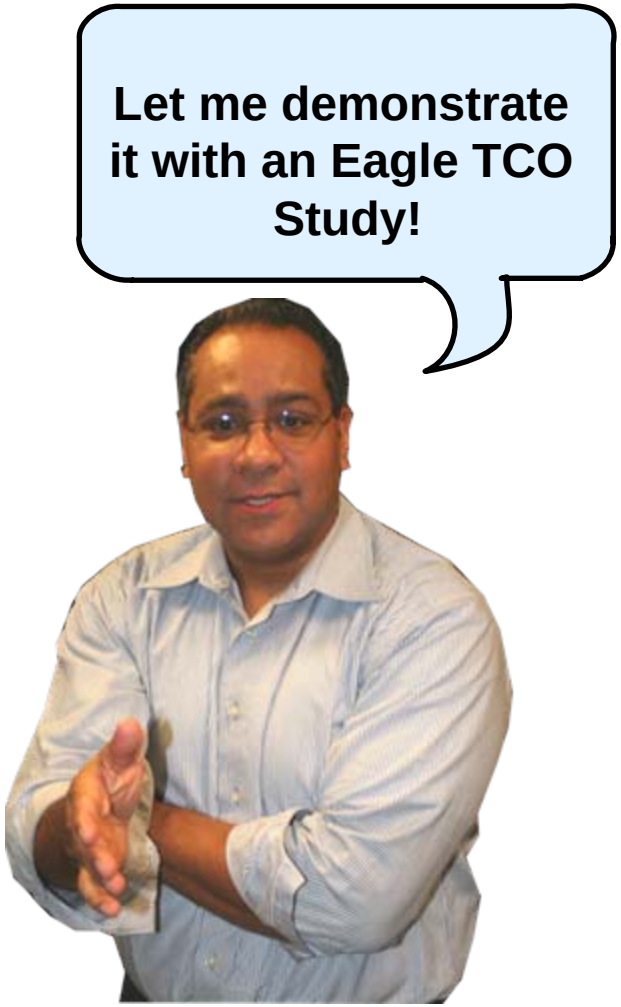
IBM

Perceptions And Misperceptions

- Workloads cost more on a mainframe
- Offloading mainframe workloads can save money
- Offloading migrations are easy and risk free
- Qualities of service of the resulting solution are just as good

Reality

- Heavy processing workloads and heavy I/O workloads are fit for purpose on the mainframe
  - Offloading these workloads will not save money
  - They are already on the lowest cost platform
- Costs of moving to a distributed deployment show up in several ways
  - Explosion of processor cores required
  - Cost for software priced per core goes up
  - I/O bandwidth can be a problem
  - Migration costs are significant
  - Acquisition and periodic refresh of distributed hardware boosts costs over time



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Service Oriented Finance CIO

Service Oriented Finance Eagle TCO Study

- Current solution
  - Workloads are of transaction processing and batch
  - Workload growth 14% per year
  - z990 with 4 general purpose processors
    - CICS, DB2 z/OS
  - Production, test and disaster recovery
- Three options considered
  - Grow current z990 system to 8 processors in 5 years
  - Upgrade z990 to z10 with zIIP processors
  - Migrate to distributed platform
    - HP Superdome
    - TmaxSoft open frame
    - Oracle RAC
    - HP-UX

Option 1: Add Processors

Existing Mainframe

z990
4 General Processors

Add Capacity

Mainframe in 5 years

z990
8 General Processors

- **Incremental cost due to capacity on demand**
- **IBM Service Techs perform upgrade without stopping the machine**

Option 2: Upgrade to z10

Existing Mainframe

z990
4 General Processors

Upgrade

Mainframe After Upgrade

z10
3 General Processors
1 zIIP

<u>Cost Reduction Factors</u>

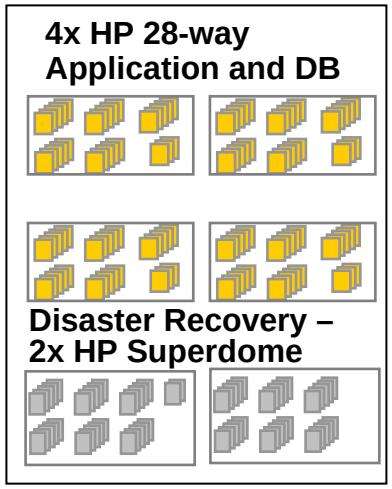
- **Subcapacity Pricing**
- **zIIP specialty processor**
- **Disaster Recovery - CBU**

Option 3: Migrate to HP Superdome

Existing Mainframe

z990
4 General Processors

- Migration
- Parallel Environments



6 HP Superdome Servers
28 Processors Each

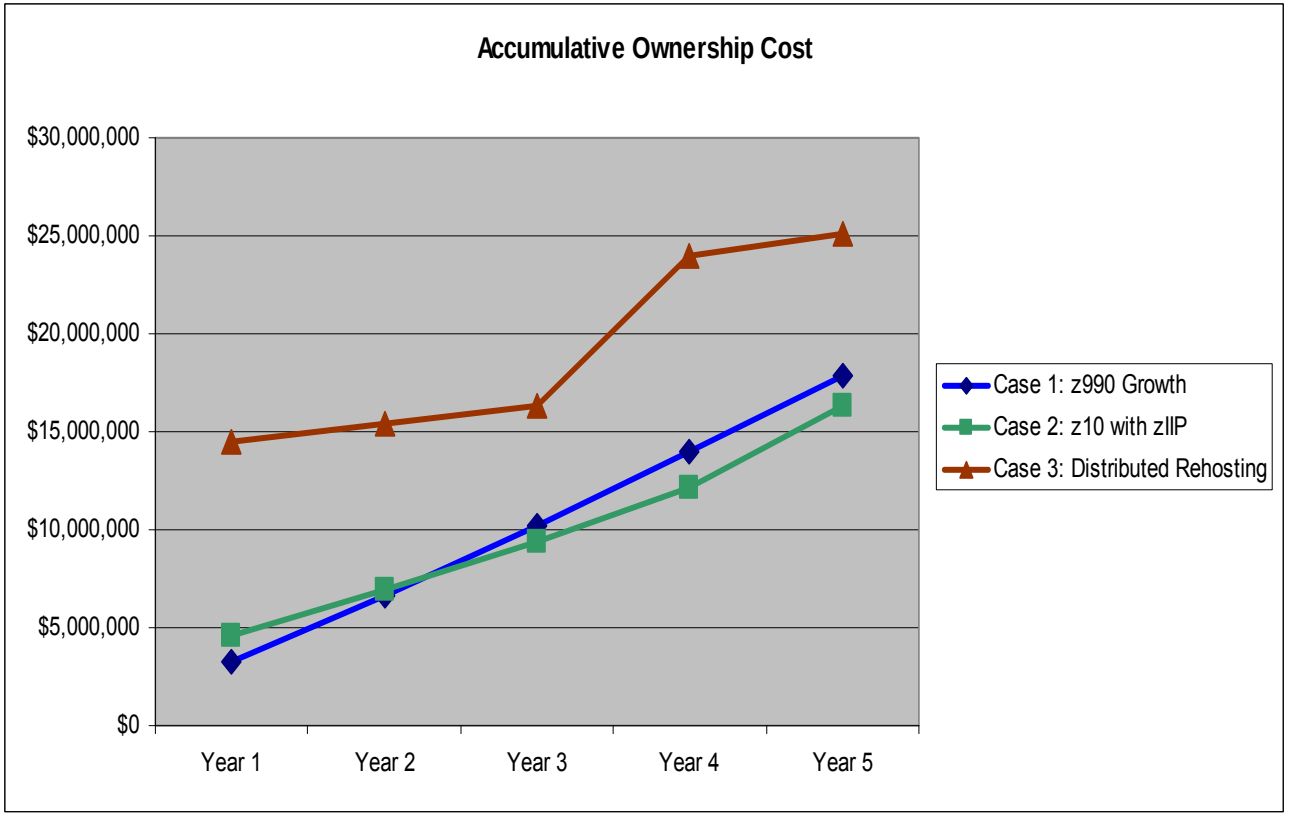
Cost Increase Factors

- **Core Proliferation**
- **Code Expansion**
- **HW+SW Acquisition and refresh**
- **Disaster Recovery Cost**
- **More servers required after year 3**

Options Summary

- Add Capacity to z990
  - Lowest initial cost
  - Yearly run rate exceeds z10 after year 2
- Upgrade to z10
  - Slightly higher initial cost than z990
  - Software cost (and TCO) lowered by using specialty processor
- Migrate to HP Superdome
  - Year 1 expense to buy new hardware
  - Year 4 expense to upgrade hardware
  - Year 1 migration cost
  - Software costs accelerated due to core proliferation

Result: Compare 5 Year TCA Costs

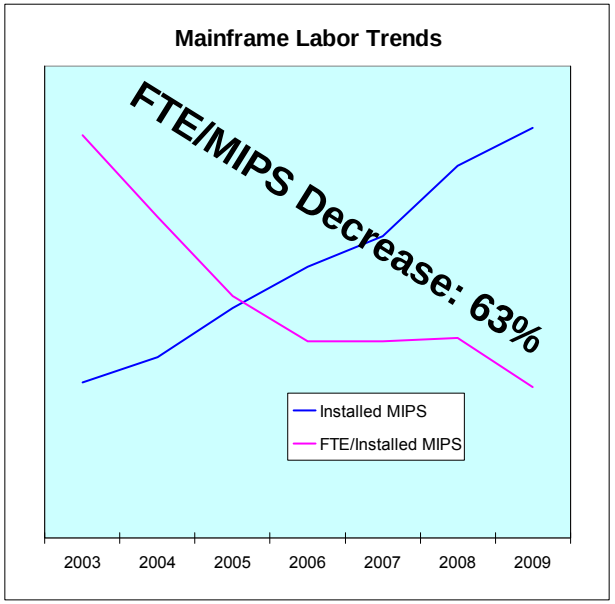


Lower cost reconfirms fit for purpose

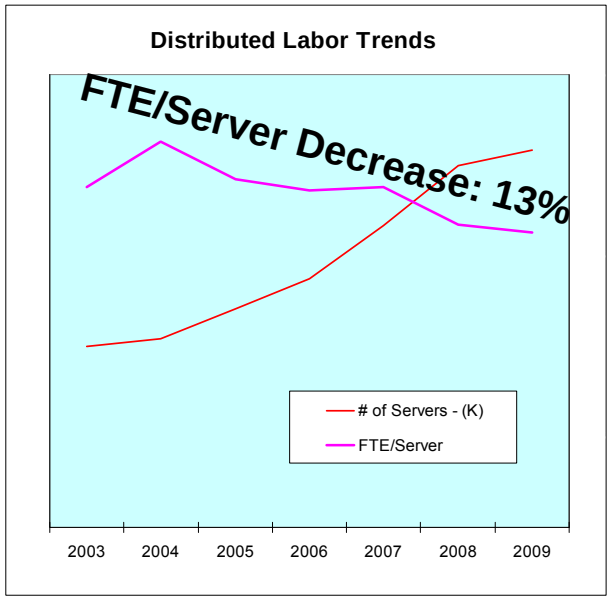
Other Costs Not Considered In TCA

- Labor Cost
- Quality Of Service
- Unexpected Pricing Consequences

Labor Cost Trends Favor A Centralized Approach To Management



Source: Gartner, 2010



Source: IDC, 2010

Large scale consolidation and structured management practices drive increases in labor productivity

Small scale consolidation achieves lesser gains

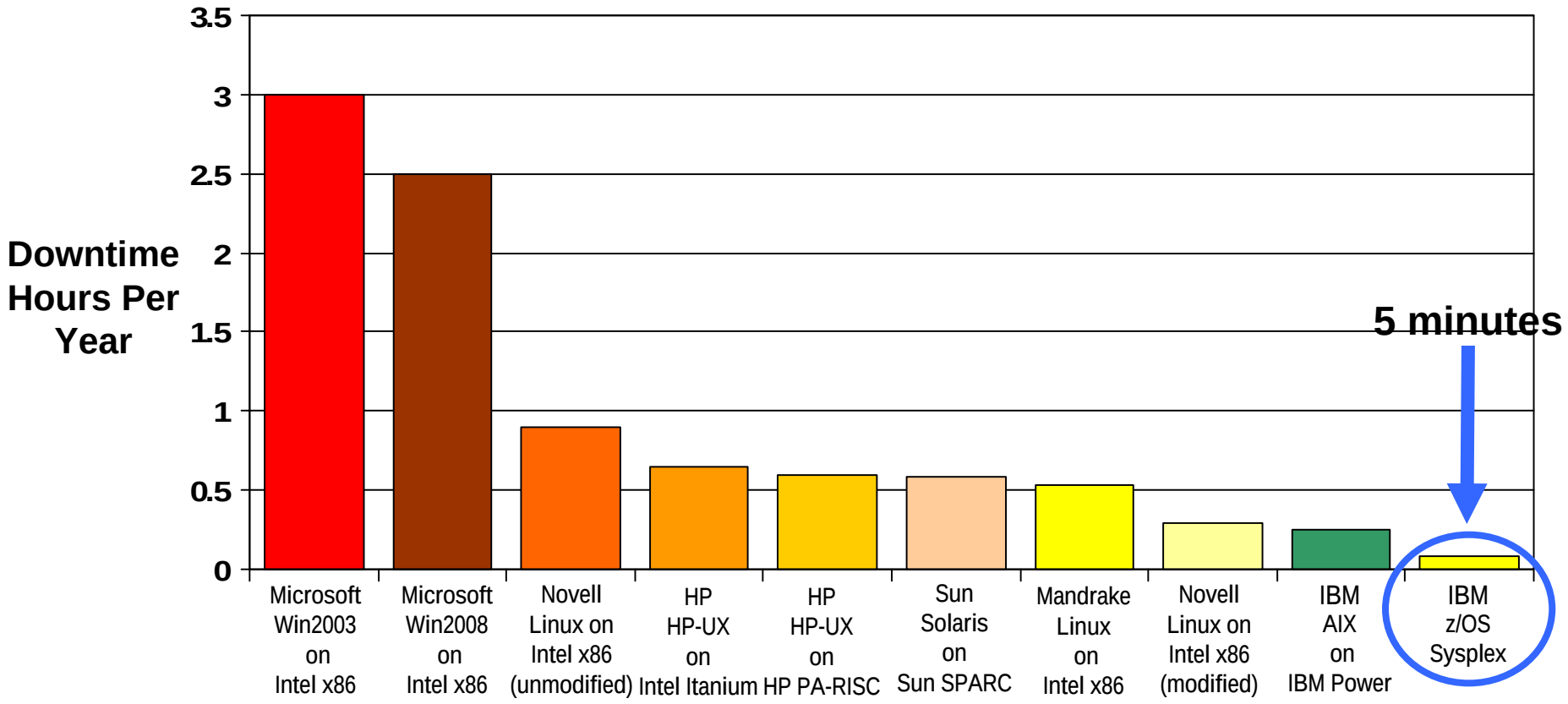
The more workloads you consolidate and manage with structured practices… the lower the management labor cost

Example: Labor Analysis For A Large Financial Services Company

- Scenario
  - Highly invested in process methodology
  - Consolidated 1000 applications on 6000 cores to 90 IFLs
- Labor processes studied
  - Access management
  - Server provisioning
  - Application on-boarding
  - Software installation and maintenance
  - Asset management
  - Capacity management
  - Change management
  - Server decommissioning
  - Chargeback
- Result
  - Process iteration count reduction
  - Process work time reduction
  - ***Estimated labor savings ALONE was $1.6M PER MONTH***

Qualities Of Service – Availability

(400 participants in 20 countries)



Source: ITIC: ITIC 2009 Global Server Hardware & Server OS Reliability Survey; July 2009; http://itic-corp.com/blog/2009/07/itic-2009-global-server-hardware-server-os-reliability-survey-results/; Results are measured in minutes per year.

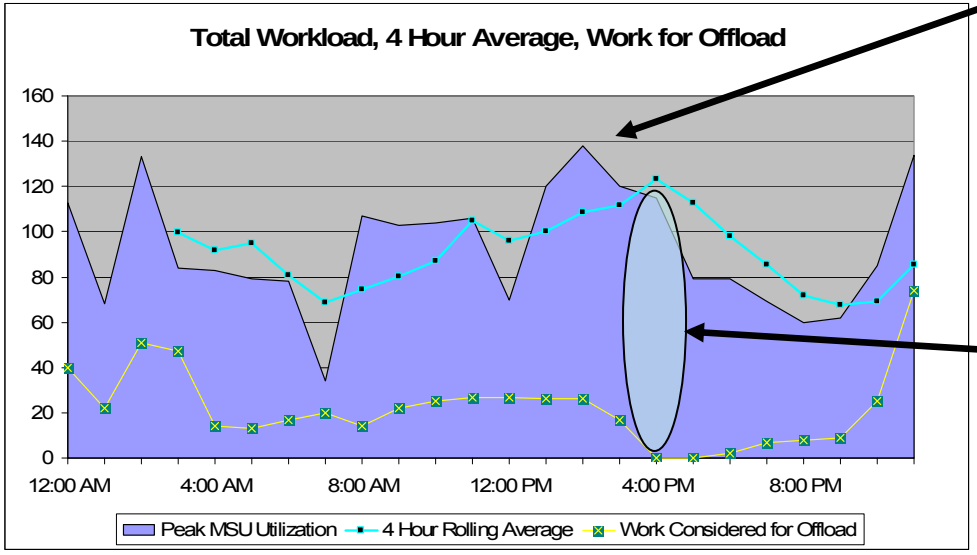
*Note: All operating systems included in the survey are not included in this chart. Fifteen operating systems on various processor architectures were included in the survey. The chart will be updated when the full report is available.

Example: Large Brazilian Telco

- 30% annual growth forcing disruptions
- Application is pre-paid SIM
  - System down = Customers using cell network without paying
  - Downtime cost: in the millions – monthly!
- Mainframe adds capacity non disruptively
  - CPU Memory and I/O can be added on fly
  - Database and application changes tested in LPAR and quickly promoted to production
- ***Downtime elimination savings hundreds of millions R$***

Large German Financial Institution

- Offloaded about 1000 MIPS workload from mainframe that was not “peak”
  - Mainframe software charges did not change
    - Sub-capacity pricing charges are calculated on peak of 4 hour rolling average
    - Offloaded workload did not contribute to the peak
  - Hardware and software licenses for distributed servers cost an additional 1M Euro
  - Offloaded workload was running “for free”



Peak 4 hour average = 123 MSU at 4pm

Offloaded workload MSU = 0 at 4pm which doesn’t affect mainframe software MLC price

Do <u>you</u> need a TCO study?
Think about this…

TCO Checklist

For New Workload

- ☑ Have you considered only the incremental cost if using an existing mainframe?
- ☑ Have you used LPARs and sub-capacity pricing to limit incremental cost?
- ☑ Have you used zIIPs and zAAPs and Solution Editions for new workload?
- ☑ Are you co-locating your database and transaction monitor?
- ☑ Have you upgraded to the latest hardware to get improved price/performance of specialty engines?
- ☑ Have you extended your existing applications to get decreased costs/transaction?
- ☑ Do you have an ELA or OIO contract with IBM?
- ☑ Is your IBM seller aware of the latest pricing plays?
- ☑ Are you aware of the various Capacity on Demand capabilities and are you using them?
- ☑ Does the new workload require disaster recovery

For Consolidation Scenarios

- ☑ Have you used IFLs to run Linux software
- ☑ Do you understand the savings in software licensing?
- ☑ Have you examined the savings in
  - network complexity, power and cooling, labor productivity?
- ☑ Have you considered how to avoid server hardware refresh?
- ☑ Are you using sub-capacity pricing where appropriate?
- ☑ Have you considered costs benefits of disaster recovery on System z?
- ☑ Have you considered potential savings in system management on System z?
- ☑ Have you consolidated as much workload as possible on your System z?

- ☑ **Have you engaged with the IBM Eagle TCO Studies team?**

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धन्यवाद

Hindi

Спасибо

Russian

多謝

Traditional Chinese

ขอบคุณ

Thai

Gracias

Spanish

شكرا

Arabic

Thank You

Obrigado

Portuguese

Grazie

Italian

Danke

German

Merci

French

நன்றி

Tamil

多谢

Simplified Chinese

감사합니다

Korean

ありがとうございました

Japanese