Extending Your Mainframe for More Business Value

Extend Your Investment in System z

Extend the Mainframe Like Never Before

We need to extend our environment to support new applications. Can the new mainframe handle this well?

Service Oriented Finance CIO

The System z10 has *breakthrough* performance and scale especially to support new workloads like Java. It's a complete redesign!

IBM

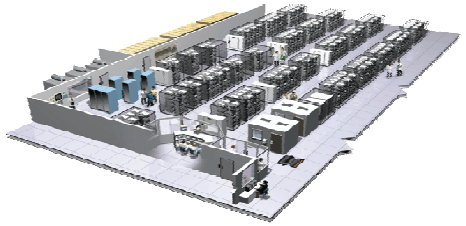
System z10 Vital Statistics

	System z9	*System z10*	
MIPS per processor	580	920	**60% more**
Maximum number of processors	54+10=64	64+13=77	**20% more**
Maximum MIPS per system	17,802	30,361	**70% more**
Clock-speed	1.7 GHz	4.4 GHz	**Compute-intensive tasks benefit ~ 2X**
I/O bandwidth	2.7 GBps	6.0 GBps	**122% more**
Max I/O thruput/system	173 GBps	288 GBps	**67% more**
One MSU	7.3 MIPS	8.2 MIPS	**12% reduction in MLC price performance**
PVU's (IFL)	100	120	**32% reduction in OTC price performance**

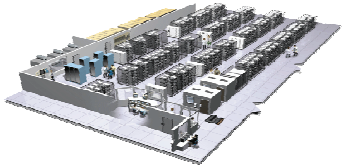
Typical Banking Data Center Workload

- **Banking by Telephone**
  - Interactive Voice Response (IVR)
    - Voice XML with WebSphere Application Server
  - 50 transactions per second
    - Each transaction is also logged to DB2 or Oracle
  - 24x7x365 availability required
- **Branch Transactions Sent to Backend Core Systems**
  - Message backbone with WebSphere MQ
  - Millions of messages per day
- **Workload is Separated by Function**
  - Production, development, quality assurance testing
- ***Let's Consider the Cost of Hardware, Software, Labor, Power, Cooling and Floor Space Over 5 Year Timeframe***

Three Choices to Run the Workload



Intel Servers

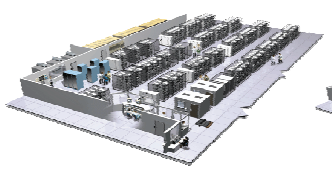
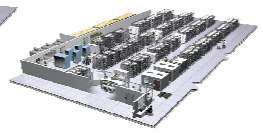


Intel Servers with VMWare

System z10 z/VM, Linux, IFL's

350 Intel Servers	45 Larger Intel Servers	1 System z10
2.8 GHz each	3.2 GHz each	24 IFL's 4.4 GHz
700 cores	360 cores	24 cores
2,464,650 rated capacity	1,263,555 rated capacity	14,238 MIPS
Low Utilization	Better Utilization	High Utilization

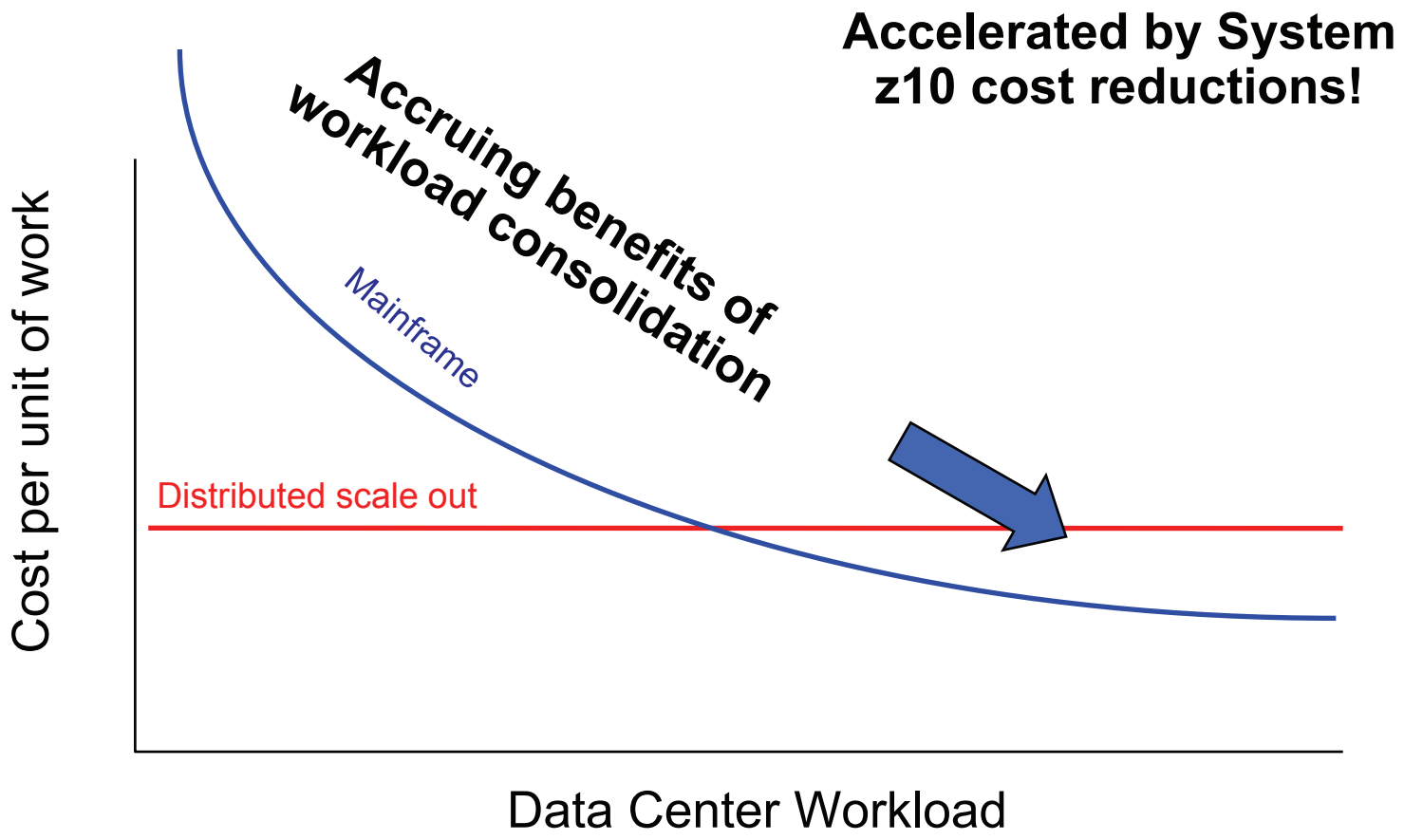
Resources Consumed by the Workload

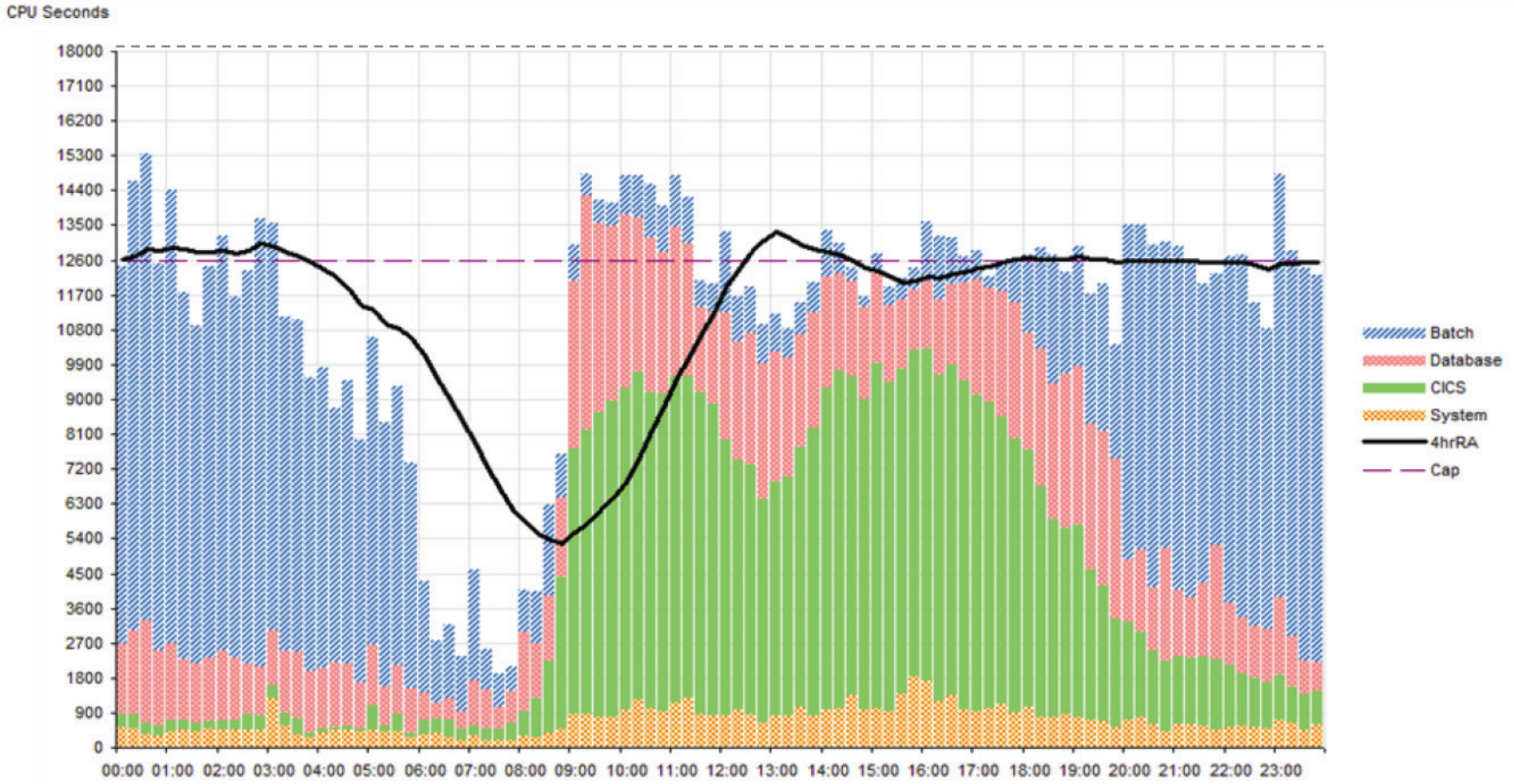

	Intel	Intel with VMWare	System z10
Servers	350	45	1
Memory GB	700	720	352
Cores	700	360	24
Software Licenses	742	352	40
System Administrators	35	18	5
Sq. Feet of Floor Space	135	75	62
Kilowatt Hours Per Year	3.2M	697K	127K

$ 7 million yearly savings

Mainframe Cost Per Unit of Work Goes Down as Workload Increases



Only System z Consolidates Enterprise Workload



Note:

- *Each bar represents the amount of CPU seconds used in 15 minutes (= 900 seconds) with 2 10-way machines*
- *The way Workload Management controls the workload 4-hour rolling average to the Cap "high-water mark"*

Remember This:

- Deploying a new application on System z will probably cost less if:
- **It is Incremental Workload on an existing system**
- **Specialty Engines can be used**
- **Disaster Recovery is required**

The Value of Mainframe Computing

- ☑ Mainframe core business systems can be easily extended
- ☑ Mainframes deliver superior qualities of continuous operations, rapid scale-up, virtualization and security
- ☑ Consolidation is a proven way to save money and simplify operations
- ☑ Modern mainframes leverage the latest hardware and software technology for maximum business value
- ☑ Mainframes have a lower environmental impact
- ☑ Modern mainframe tools enable speed-to-value, flexibility, deployment, productivity and reduced cost

Shifting Trends Favor the Mainframe Again

- ☑ Continuous availability is increasingly more important
- ☑ Security and compliance are top of mind
- ☑ Server sprawl has driven up the cost of labor
- ☑ TCO pressure is driving customers to consolidate & integrate workloads on virtualized platforms
- ☑ Network economics favor consolidation once again
- ☑ Cost of power, cooling and space continues to increase
- ☑ Growing use of Linux
- ☑ IBM has delivered dramatic mainframe price reductions

Mainframes – more relevant than ever