



System z Strategy and Direction

How New Technologies Help You Deliver Smarter Systems

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Smarter Planet Solutions Increase Demands on IT



1.2 zettabytes (1.2 trillion gigabytes) exist in the “digital universe

- **50%** YTY growth
- **25%** of data is unique; **75%** is a copy



Internet connected devices **growing 42% per year**



32.6 million servers worldwide

- **85%** idle computer capacity
- **15%** of servers run 24/7 without being actively used on a daily basis



servers growing **6x per year**
storage growing **69x per year**
virtual machines growing **42% per year**



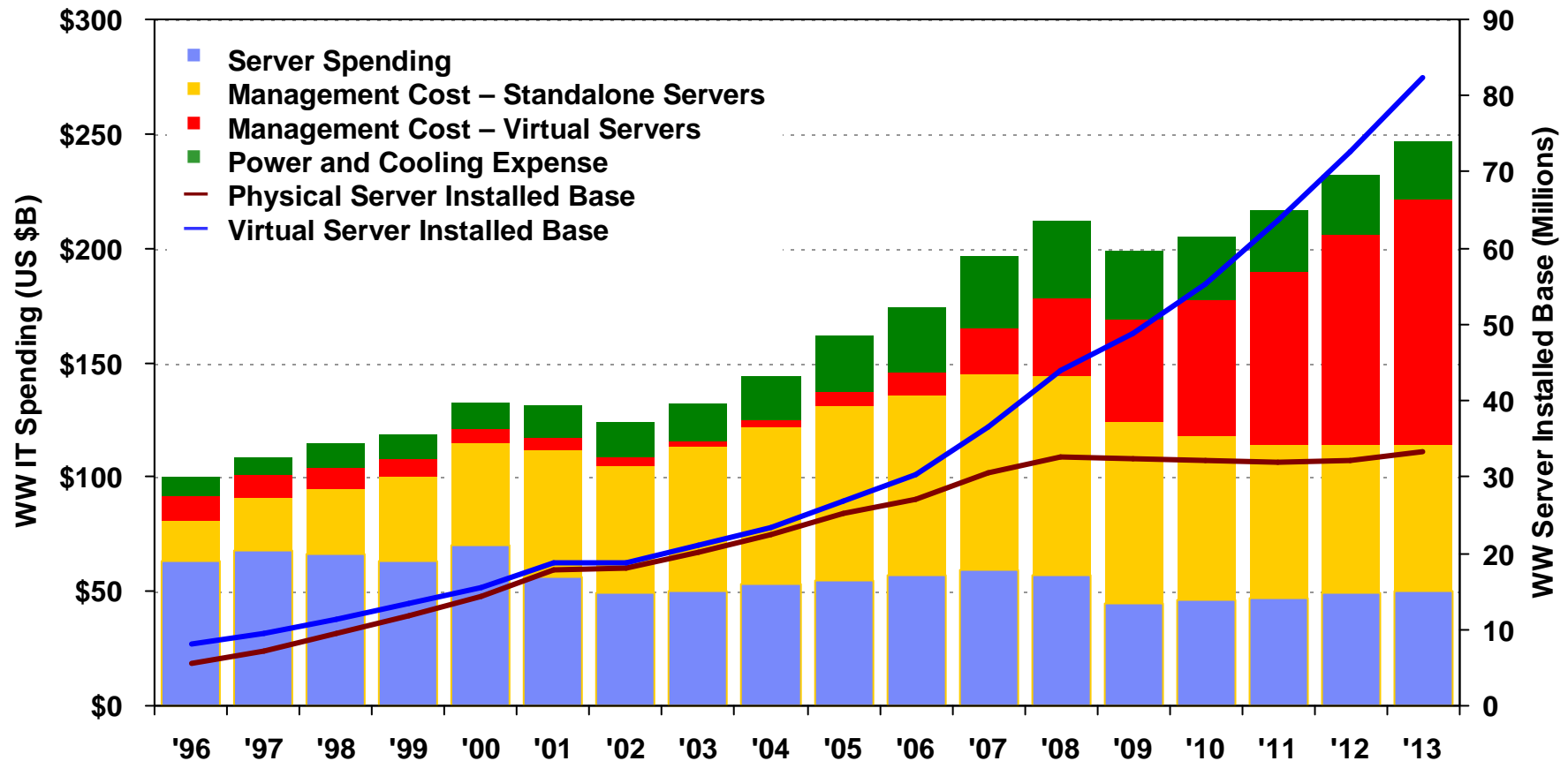
Data centers have **doubled** their energy use in the past five years

- **18%** increase in data center energy costs projected



But IT budgets are growing less than 0.8% per year

IT Cost Challenge Grows – even as *Management costs shift to virtualized servers*

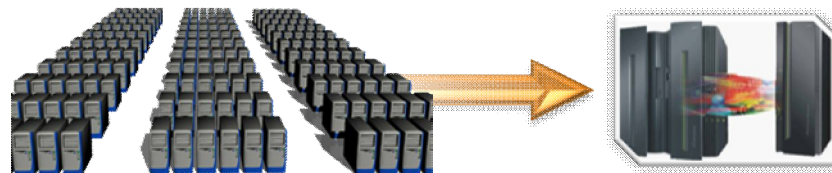


Source: IDC – “Three Data Centers – One Vision?”, March 2010

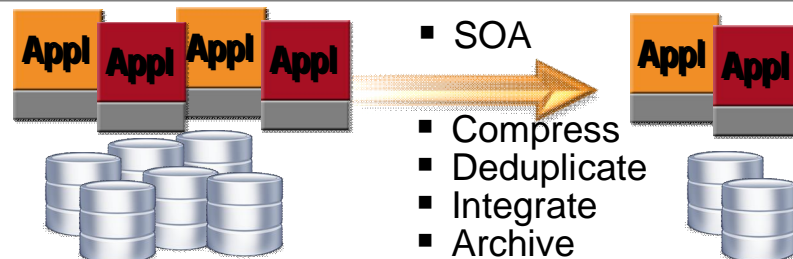
Strategies to Reduce Costs and Improve Value

Optimize the Overall IT Environment

Consolidate Hardware Infrastructure



Eliminate Redundant Software and Data

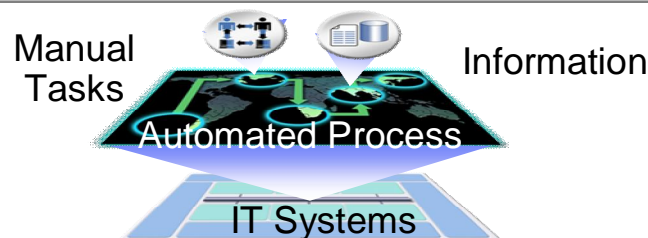


Improve Service Delivery

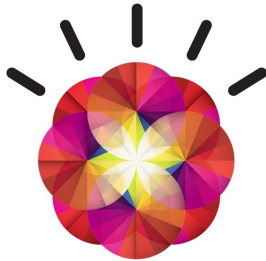
Integrated Service Management



Modernize the Enterprise

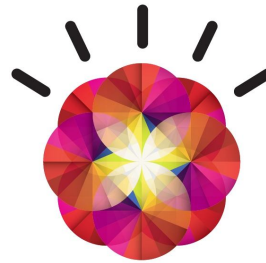


IBM System z delivers capabilities for Smarter Computing



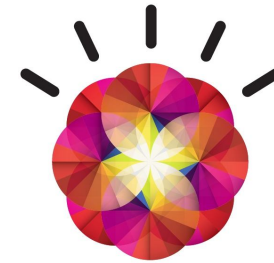
Automate

- Centrally manage and automate operations to lower cost
- Automated provisioning lowers cost of new and existing workloads
- Automated development tools for re-use of existing assets



Integrate

- Integrate multiple platforms to optimize workload deployment
- Integrate operations to free up resources for innovation
- Integrated private cloud for flexible service delivery



Secure

- Secure data for accelerated insight
- Advanced security to manage risk and reduce cost
- Governance to protect existing investments

IBM zEnterprise System

A System of Systems that unifies IT for predictable service delivery



IBM zEnterprise 196 (z196)

The next generation of mainframe technology, more performance, more scale, more efficient

zEnterprise Unified Resource Manager

Centralized management of heterogeneous resources for simplification and resiliency

zEnterprise BladeCenter Extension (zBX)

Integrated IBM POWER7 blades, IBM x86 Blades and high-performance optimizers and appliances

System z Software Strategy

- **Capitalize on Traditional System z Strengths**
 - Batch and Transaction processing, Data Serving, Highest Quality of Service
 - Optimize to the evolving System z Hardware design point
- **Extend Value Proposition to New and Mixed Workloads**
 - Systematic re-engineering of the software stack
 - Integrate with Modern Application Development Environments
 - Deliver extensive Data Management services
 - Leverage the wave of workload consolidation
 - Simplify System z – make it easier to install and manage for better TCO
 - New faces of z
 - End-to-end management from a z central point of control
- **Continue to grow the System z Ecosystem**
 - Attract new System z customers and ISV application workloads
 - Enable new Hybrid and Cloud environments
 - Make System z relevant to the new IT generation



The Value Begins at the Heart of z196 ...

Up to 40% Improvement for traditional z/OS workloads

Up to 60% Improvement for Linux workloads

30% Improvement in CPU intensive workloads via compiler enhancements

60% Total capacity improvement

1 to 80 configurable for client use

IFL, zIIP, zAAP, and ICFs

Up to 3 TB RAIM memory

15 subcapacity settings

Cryptographic enhancements

Optional water cooling and/or HV DC Power

Upgradeable from z10 EC and z9 EC

- Technology and Performance
- Enhanced Availability and Serviceability
- Workload Optimized Simplified Management
- Dynamic Energy optimized

IBM Compilers Exploit System z for Maximum Performance

- Compilers exploit new hardware instructions introduced by System z
- Code generated by the compilers is highly tuned for System z
- Boost in performance of applications running on System z



z/OS XL C/C++

Enterprise COBOL for z/OS

Enterprise PL/I for z/OS

135 new / changed instructions

... and the Value Extends to Heterogeneous Workloads

IBM zEnterprise BladeCenter Extension (zBX)

- **Integrated IBM Certified Components**
- **System z support**
- **Expanding OS support for z196**
- **Simplified management**



Optimizers

- **IBM Smart Analytics Optimizer**
- **DP¹**

Select IBM Blades

- **BladeCenter PS701 Express**
- **System x¹**



One to four – 42u racks – capacity for 112 blades

No MIPS/MSU rating

Configured for high availability

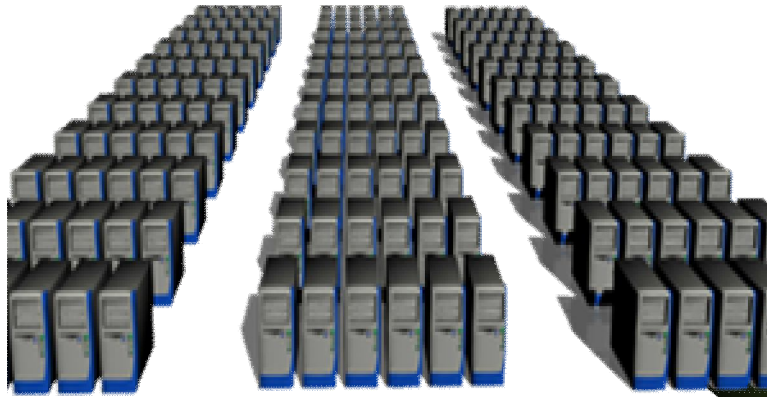
Integrated 10Gbe data network

Optional rear door heat exchanger

*... managed by the
zEnterprise Unified Resource Manager*

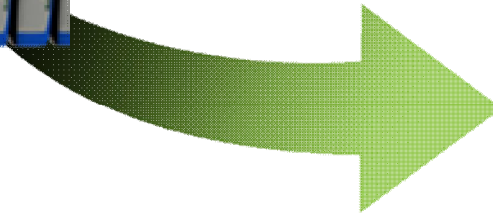
The IBM zEnterprise System

Lowering the cost of distributed workloads through optimal platform selection



Current data center:

Distributed workloads on a variety of Intel servers, connected to a System z



Optimize distributed work on zEnterprise with Linux on System z, POWER7 blades and Intel blades with Unified Resource Manager

Lower cost of acquisition by up to **56%***

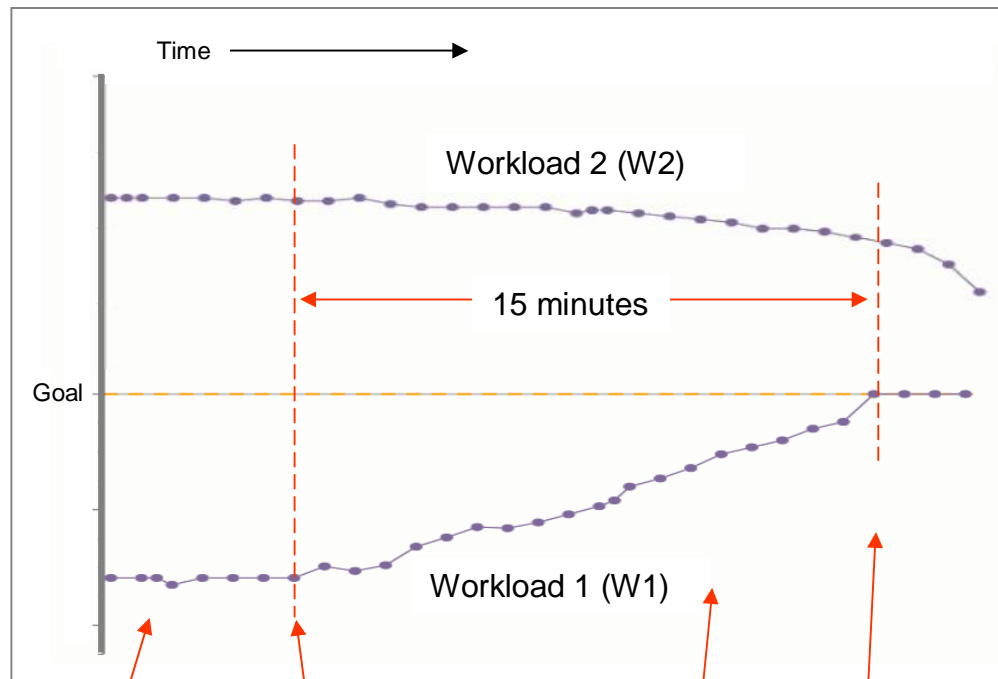
Reduce cost of ownership by up to **55%***

Reduce network complexity by up to **98%***

11 * Based on IBM analysis of a large Financial Services company Datacenter. See details on ibm.com/systems/zenterprise

Performance Manager Lab Test

Automatic Allocation Of CPU Resource



1. No performance management. W1 is underperforming, and W2 is overperforming.

2. Performance Manager is turned on. zManager detects W1 is underperforming.

3. Over time, zManager adjusts CPU resources, taking from W2 and giving to W1.

4. W1 reaches performance goal.

- **zManager monitors virtual machine performance and automatically adjusts CPU resources as needed**
- **Considers priority and performance relative to service level agreement goals**
- **Reduces the need to over-provision CPU resources**

Hypervisor Setup And Configuration Lab Test Do-It-Yourself vs. zManager

DIY Tasks (per Blade)	Elapsed Time	Labor Time
Initial communication setup & education	6 min 26 sec	6 min 26 sec
Boot VIOS disc & install (creates LPAR for VIOS automatically)	37 min 59 sec	36 min
Configure VIOS networking	2 min 49 sec	2 min 49 sec
Create new storage pool for LPARs	35 sec	35 sec
Install VIOS service fixpacks	61 min 5 sec	20 sec
TOTAL TIME	1 hr 48 min 52 sec	46 min 10 sec

zManager Tasks (per Blade)	Elapsed Time	Labor Time
Add entitlement for a blade	90 min	92 sec
TOTAL TIME	1 hr 30 min	1 min 32 sec

97% reduction
in labor time

New Companies are Migrating to the Mainframe

61 New Accounts
in 2010

- **40%** growth markets
- **60%** major markets
- **50%** running Linux
- **Majority installed Business Class technology**
- **Across all industries**

Payment Solution Providers: The New Generation of Processing on System z

- An industry leader specializing in business consulting, smart-card solutions, e-payment networks and the integration of financial transaction processing systems
- Rapid growth required the payment switch platform to transform into a more robust and reliable environment
- Migrating from an Oracle on Intel platform to a highly secure System-z based solution

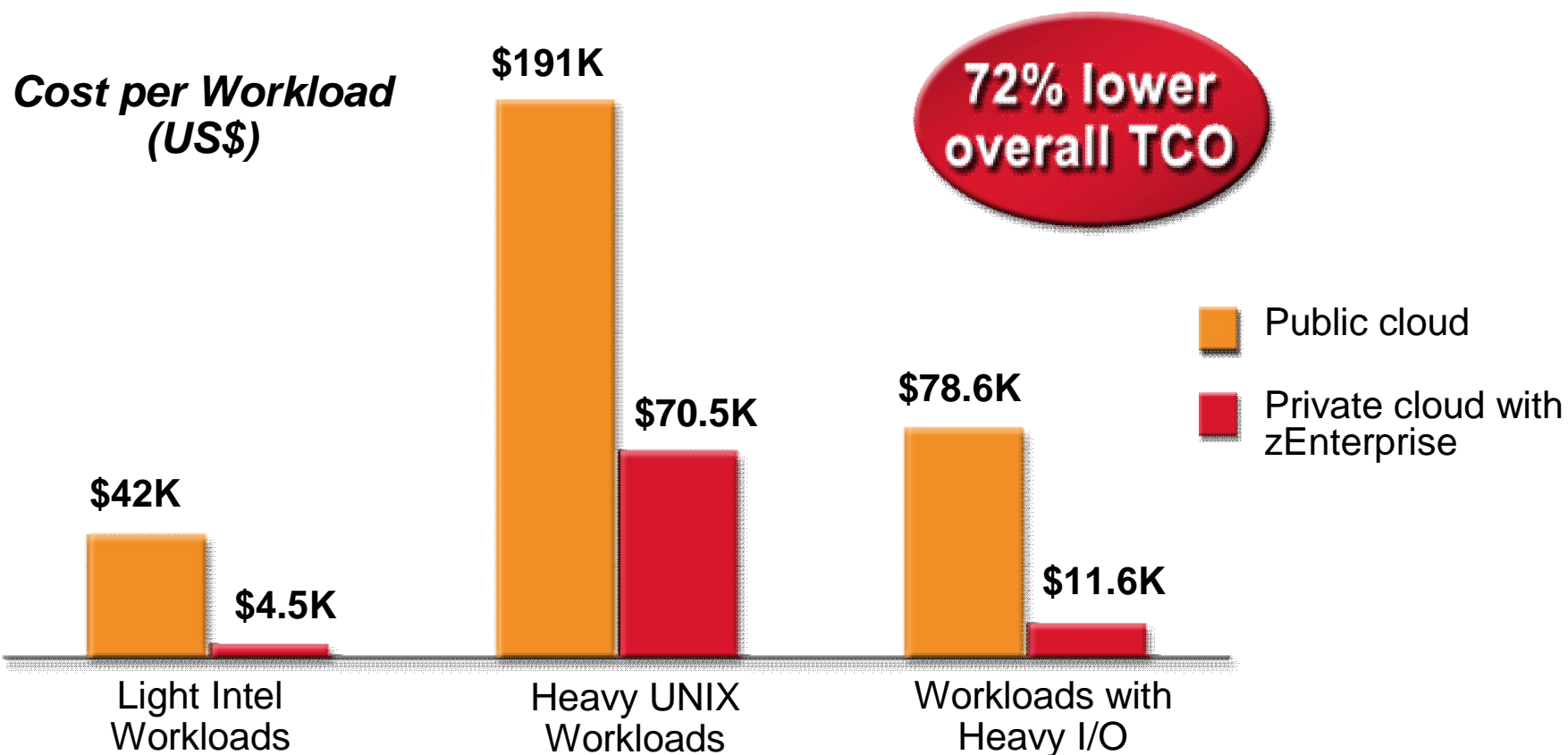


Needs high-transaction payment switch

- Ability to accept millions of transactions each day
- Provides ideal environment for cloud services

Fit-for-Purpose Private Cloud on zEnterprise

Dramatic Reduction in Costs



Cloud Solution Manages 6M Merchant Locations

- Makes payment transactions for merchants, financial institutions and its customers
- Needed to share resources and business data to process 60 billion transactions
- zEnterprise-based cloud solution with IBM software, services and financing

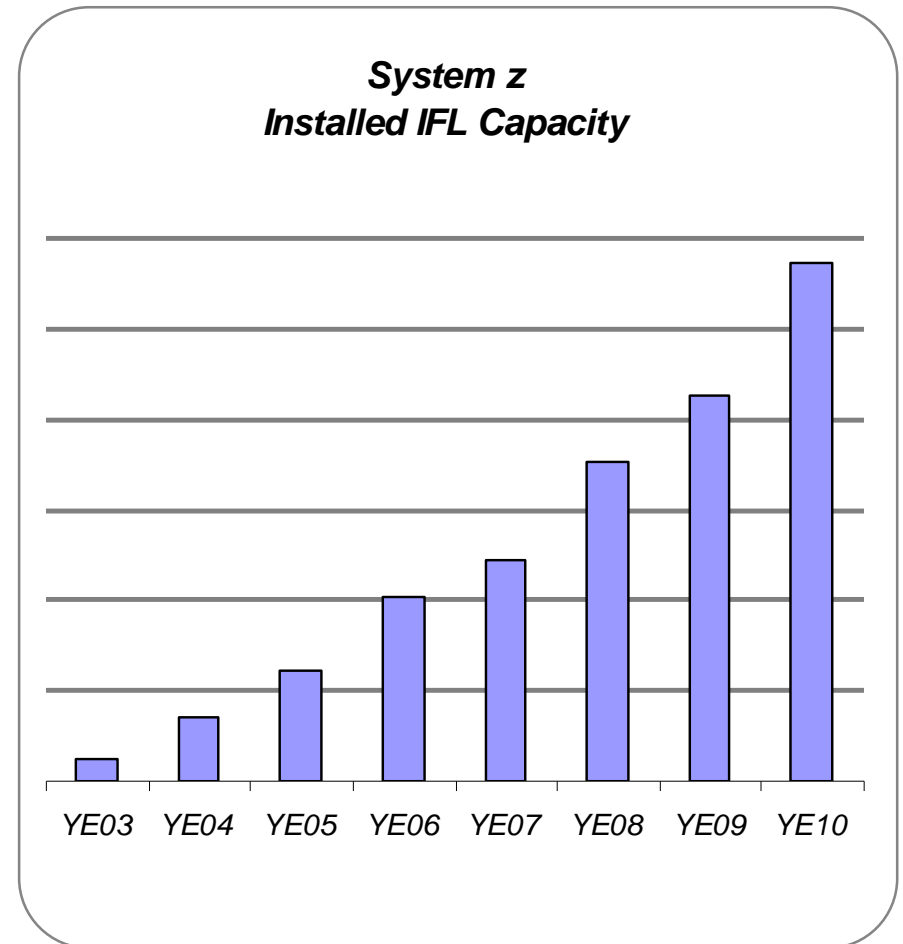


Needs simplified management

- Manage data from more than 6 million merchant locations
- Process transactions up to 70 percent faster

Client Adoption Continues to Drive Linux Success

- 64 of the top 100 System z clients are running Linux on the mainframe
- 32% of System z customers have IFLs installed
- Linux represents 19% of the System z install base capacity (MIPS)
- Installed IFL MIPS increased 35% from 4Q09 to 4Q10
- > 3,250 applications are available for Linux on System z *



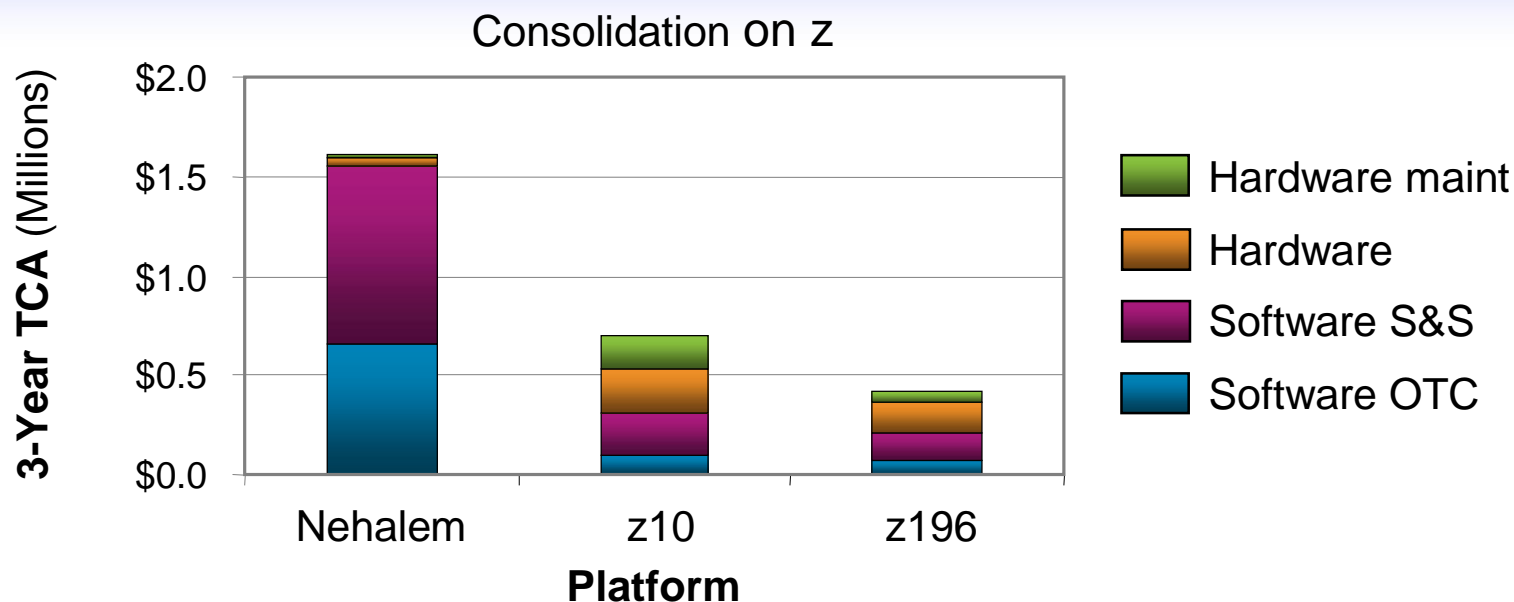
* ISV Enablement – data as of 2Q10

The Most Efficient Platform for Large-Scale Consolidation

Linux on zEnterprise

- Lower acquisition costs of hardware and software vs. distributed servers*
- Less than **\$1.00/day** per virtual server (TCA)*
- Reduce floor space by up to **90%** compared to distributed servers*
- Reduce energy consumption by up to **80%** compared to distributed servers*

Example: Consolidate 40 Oracle server cores to 2 Linux engines on zEnterprise



TD Ameritrade: Modernizes to Linux on System z

- Provides online brokerage services to self-directed investors
- Consolidate and modernize a crumbling infrastructure
- Move production and disaster recovery data centers

Needs reliable, scalable and secure data center

- Remove 6,000 old servers and install 2,000 new, including four System z mainframes running Linux
- Implemented real-time incident and asset management
- Increased online capacity four times



Introducing **SystemzJobs.com**

The IBM System z Job Board at [SystemzJobs.com](https://www.systemzjobs.com) is a new resource to connect IBM System z clients, partners, and businesses with students learning the mainframe and professionals seeking System z job opportunities.

[SystemzJobs.com](https://www.systemzjobs.com) lets you post your job requirements for job seekers to review and apply.

Benefits of using **SystemzJobs.com**

- Free, secure, and easy to use
- Specialized audience of mainframe educated students and experienced professionals
- Global pool of mainframe talent

Getting started

Follow these steps at **SystemzJobs.com** to get started:

1. Create a secure account
2. Post your job description
3. Connect with qualified candidates

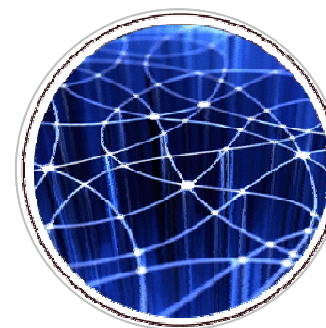
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System z future direction

IBM
System z



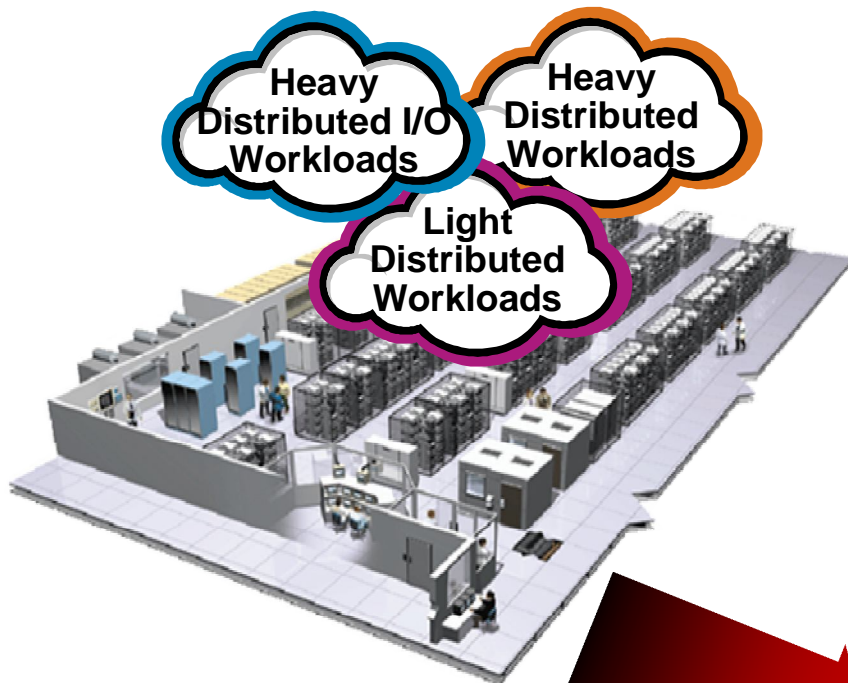
2011

and beyond ...

- DataPower XI50z
- New zEnterprise Statement of Direction for Windows and Linux support in zBX
- zEnterprise midrange follow-on
- z/OS V13
- Netezza and System z
- Active Active

- Leadership technologies
 - Improve performance and system capacity
 - Continue leadership on single thread performance
 - Improve OS / app availability via real-time monitoring and diagnosis
 - Simplify management of zEnterprise workloads
- Transformational technologies
 - Enable new capabilities with flash memory
 - Take advantage of connectivity tools and other industry trends

zEnterprise is a Roadmap to the Data Center of the Future



- Lowest cost per unit of work for large scale workloads
- Revolutionary cost reductions for smaller scale workloads
- Data center simplification
- Improve quality of service
- ***No Other Platform Can Match!***

**Mainframe workloads
+
distributed workloads
best fit for cost**





Thank you.