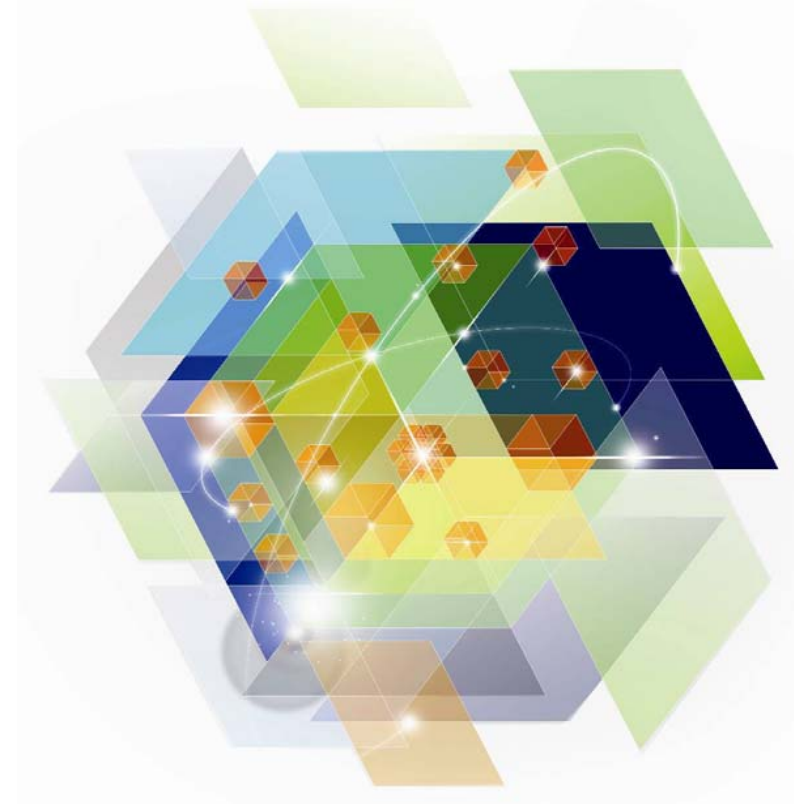




Getting started with highly scalable clouds across your enterprise

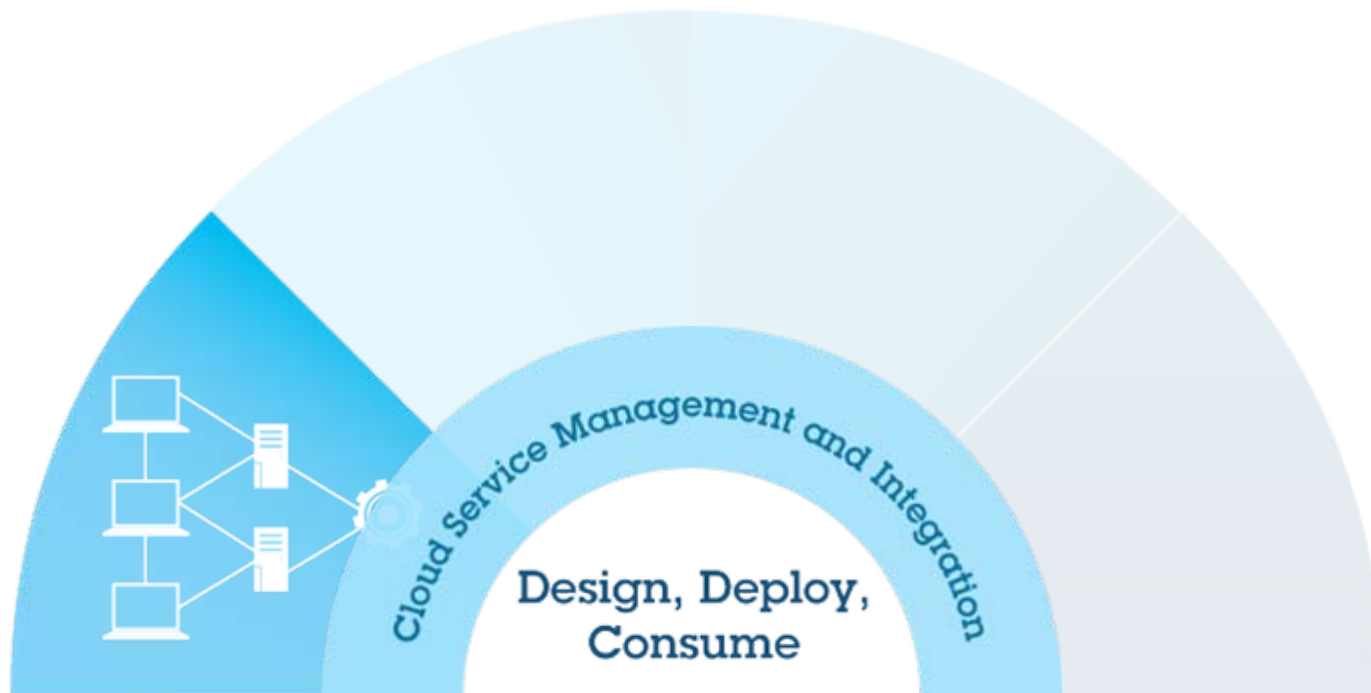
Kiron Rakkar

Product Manager Tivoli Cloud on z



Service management for cloud includes automation, provisioning, and self service

Cloud Enabled Data Center



Consequences of Lack of Action on Cloud

- Pressure from IT's internal customers to deploy services quicker and a lower costs as Cloud moves into the mainstream
 - One UK Bank had a LOB deploy a Public Cloud offering from Google without consultation with the IT dept...
- Without Cloud type offerings deployed, the businesses competition will be quicker to react when launching new applications or systems, leading to loss of 1st mover advantage.
- Without an internal scalable, elastic, easily provisioned, simply charged-back infrastructure the case for either outsourcing or Cloud increases
- Cloud computing offers the promise of starting new businesses relatively easier, without the high burden of IT capital expenditure of the past. This opens up many industries to new breeds of "IT asset light" competitors.

Why deploy clouds on larger, scale-up servers like System z?



Higher Utilization

- Up to 100% CPU utilization
- “Shared everything” architecture
- Host thousands of mixed workloads



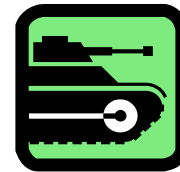
Increased Productivity

- Efficient, rapid provisioning
- Superior workload management
- Fewer parts to manage



More Efficient Data Center

- Less power and cooling
- Less floor space
- Fewer parts to manage



Greater Reliability, Availability

- Built-in hardware redundancy
- Decades of RAS innovation
- Capacity and Backup on Demand

System z has had Cloud Computing capability supplying business flexibility for years

System z supplies all components necessary to deliver cloud today

Workload Management

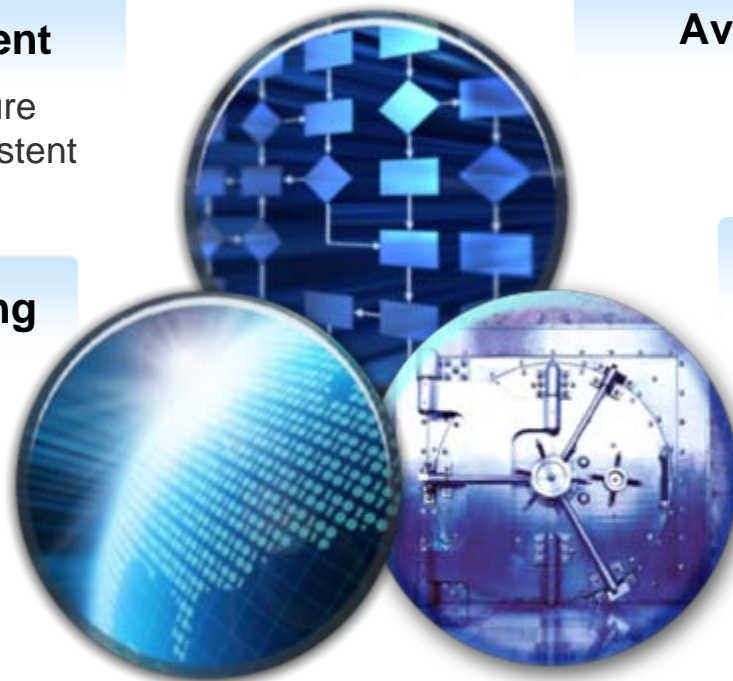
Manage cloud infrastructure capacity requirements consistent with business policies

Transaction Processing

Support integration of cloud with mission critical OLTP applications

Scalability

Scale vertically with zOS and LPAR and horizontally with zLinux and zVM coupled with Workload Manager



Availability and Provisioning

Automation for deploying Virtual Machines and recovery applications including DR

Security and Compliance

System Z Security provides fine grained controls with hardware encryption and isolation

Auditing and Metrics

Workload based accounting and metering to support capacity planning and chargeback to LOB

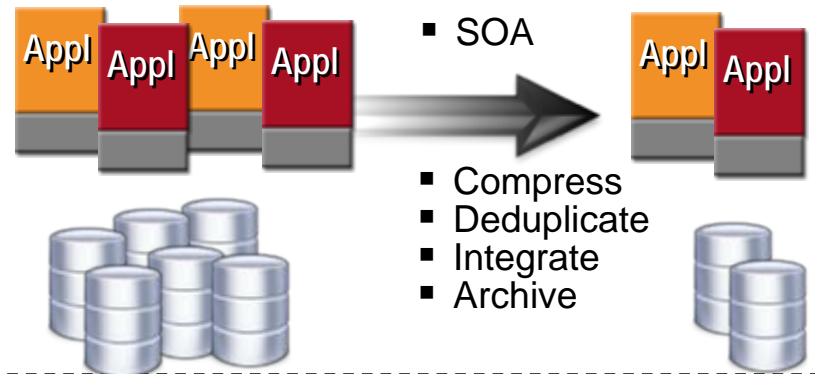
Strategies to Reduce Costs and Improve Value

Optimize the Overall IT Environment

Consolidate Hardware Infrastructure



Eliminate Redundant Software and Data



Improve Service Delivery Delivery

Integrated Service Management



Visibility



Control



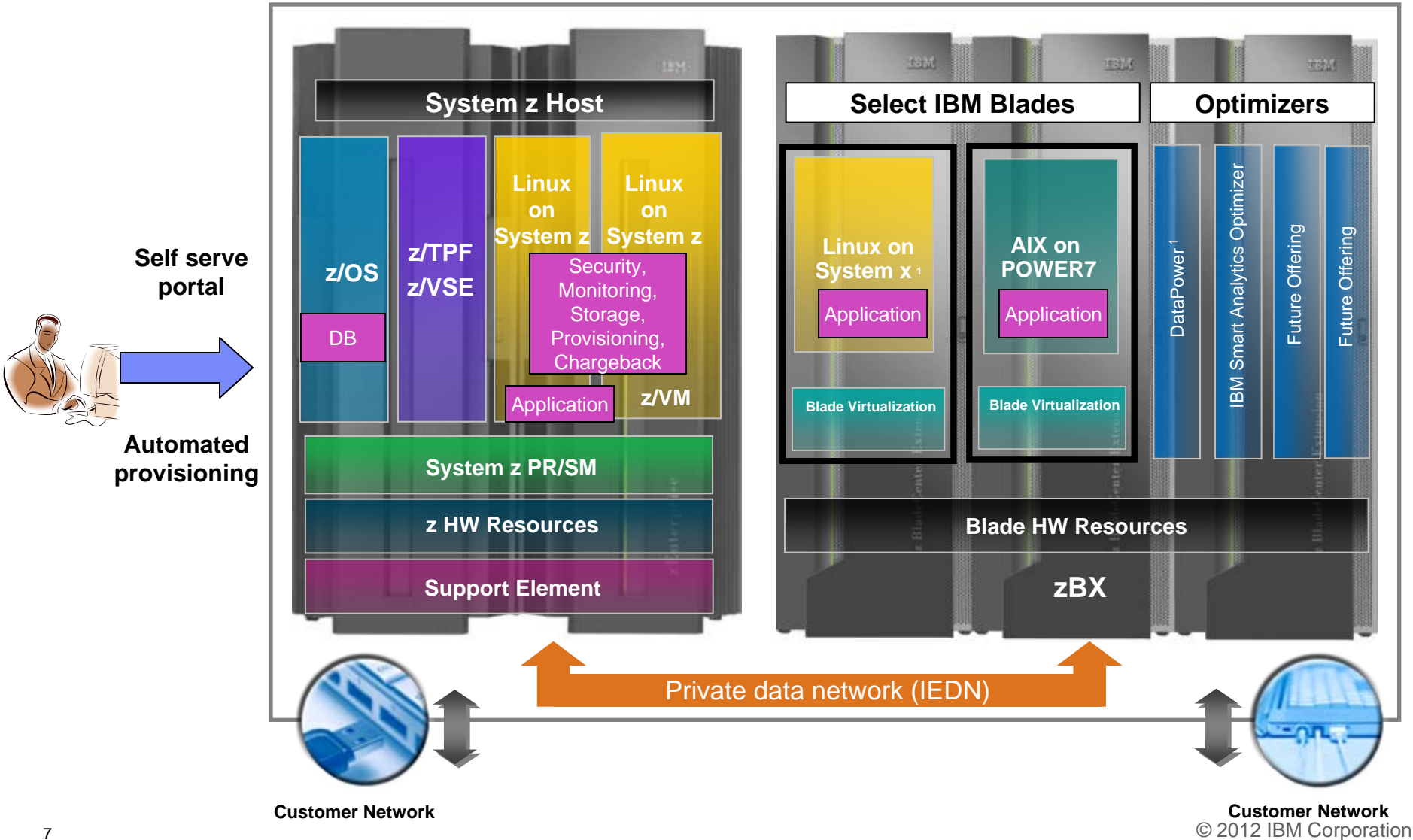
Automation



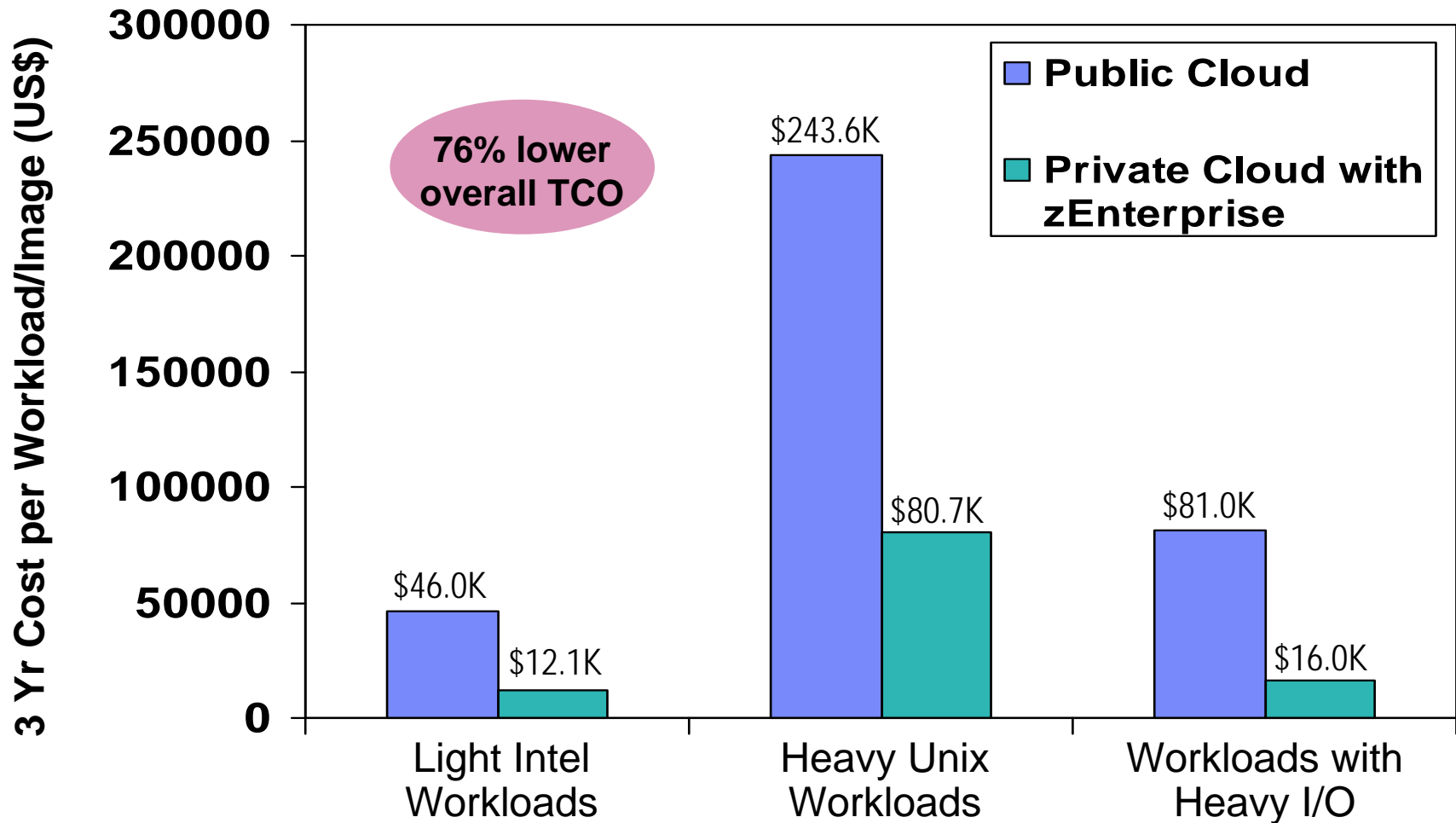
Cloud Computing

Putting zEnterprise System to the task

Use the smarter solution to improve your application design



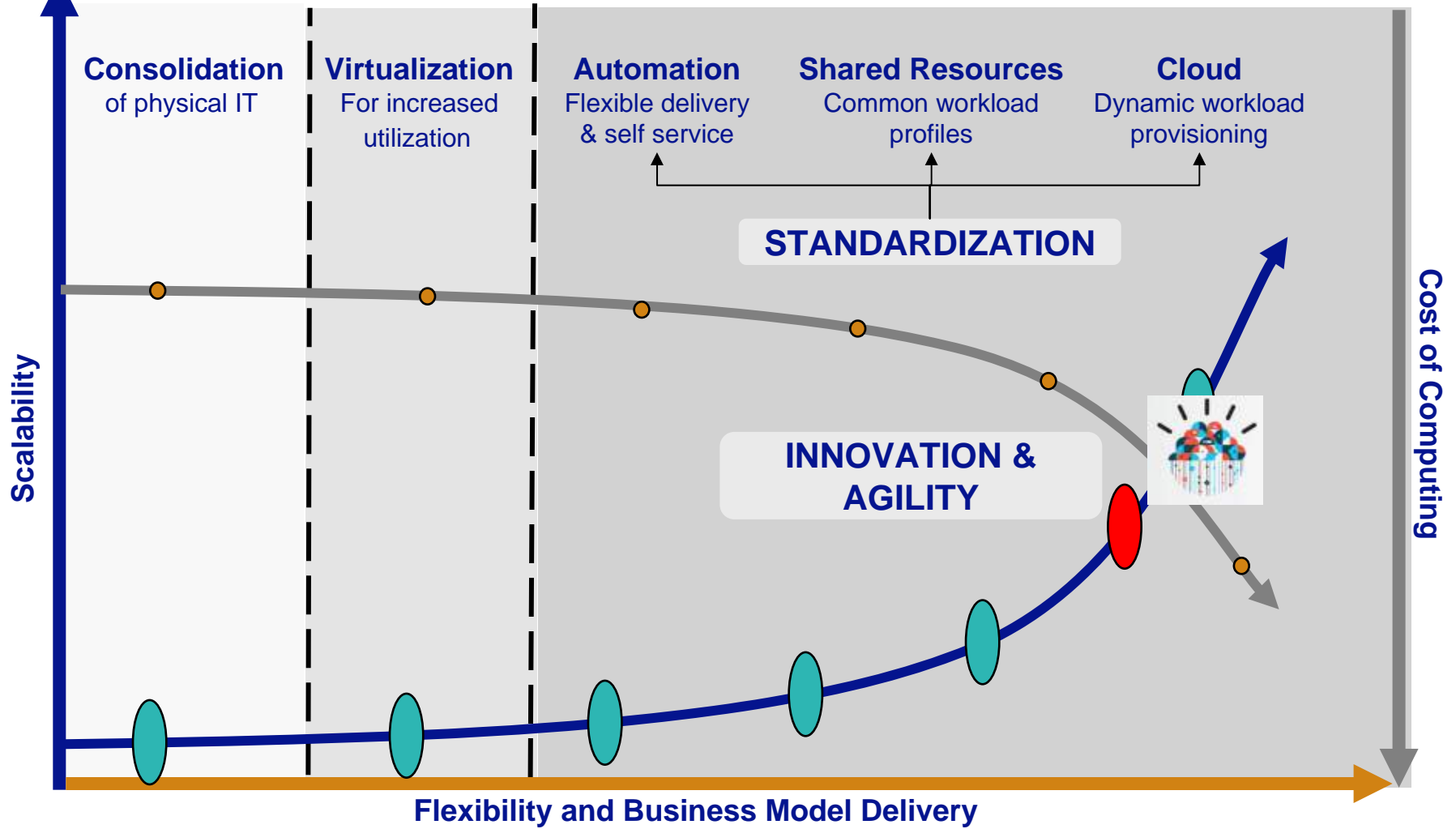
Private Cloud On zEnterprise Reduces Costs



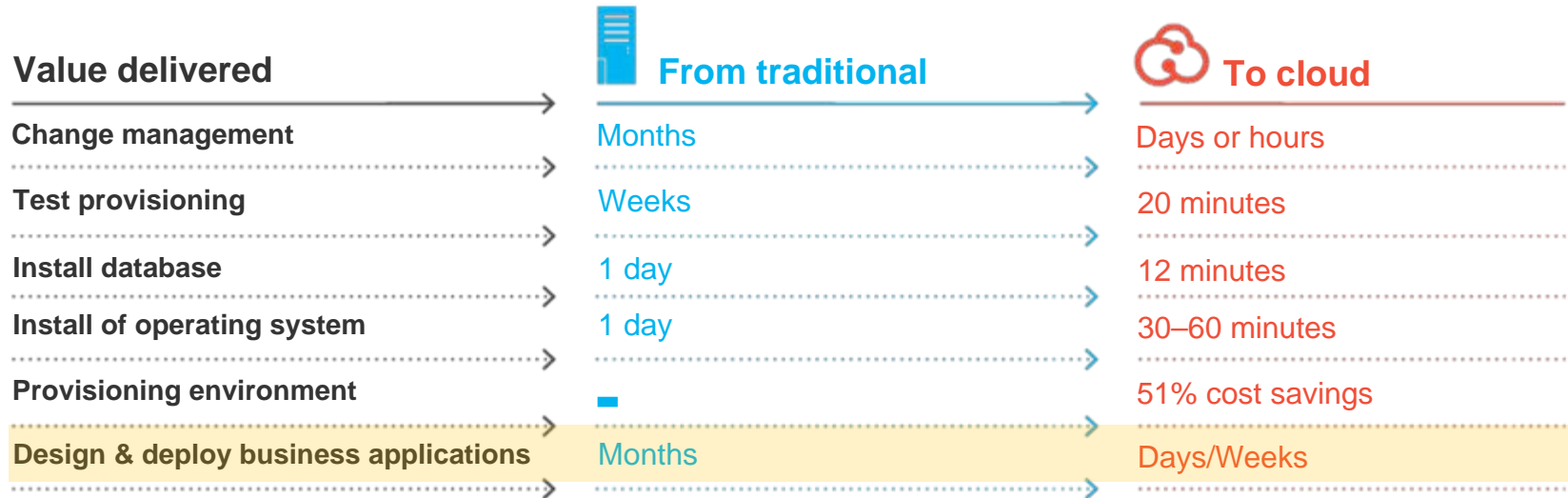
Source: IBM internal study. zEnterprise configurations needed to support the three workload types were derived from IBM benchmarks. Public cloud sizing needed to support the three workload types was calculated based on compute capacity of public cloud services. 3 yr TCO for public cloud based on pricing info available by the service provider. 3 yr TCO for zEnterprise includes hardware acquisition, maintenance, software acquisition, S&S and labor. US pricing and will vary by country.

Obtaining the full benefits of cloud

Movement to standardized infrastructure is driving greater automation and optimization



Cloud computing services are delivering measurable results and addressing IT infrastructure challenges



Improve IT delivery speed and agility

Deliver IT without boundaries

Create new business value

However, Cloud is not without its challenges...

After all, IT has been trying to automate service delivery from the start...

...design a secure & resilient
cloud infrastructure?

...ensure effective
release across DevOps?

...design cloud-
ready applications?

How do you...

...enable self-service
in the cloud?

...ensure cloud service
quality is maintained?

- Bottom Line:*
- Virtualization good starting point but not sufficient
 - X86 Server Virtualization has not been the nirvana it was promised to be:
 - VM Stall - Still hundreds of server o/s images to manage
 - VM sprawl – Hundreds of VM's deployed as it is easy to deploy a VM
 - Requires intelligent platform and QOS that z provides

**Cloud
Requires**

- ✓ Full **service lifecycle management**, not just provisioning of resources
- ✓ Seamless collaboration & workflow **across Service Design and Service Operations.**
- ✓ Interoperability of infrastructure, tools & delivery models as **automated system.**

Service Management delivers the value of Cloud

- Maximize utilization from automating and deploying workloads in a cloud
- Achieve greater efficiency with standardized, simplified resource allocation and monitoring
- Increase availability based on analytics for improved customer satisfaction
- Operate workloads securely across Enterprise Businesses
- Improve ROI with tracking and billing based on workload usage



Discovery



Monitoring



Security



Provisioning



Accounting

IBM's Cloud Service Delivery Platform gives organizations the Visibility, Control, Automation™ needed for cloud...



VISIBILITY



Visibility: Track cloud service levels & performance, and predict cloud problems before clients are impacted.



CONTROL

Service	Units	Rate	Charge
Wire Transfer	95,000.00	0.000000	17,000.00
Total International Banking Charges			17,000.00
ACH Transfers	61,022.00	0.027920	1,693.02
Credit Card Payments	60,000.00	0.000000	20,000.00
Electronic Deposits	11,000.00	0.000000	30,000.00
Online Electronic Payments	35,000.00	0.075200	11,000.00
Telephone Transfers	0.000.00	0.000000	33,300.00
Total Global Consumer Charges			106,711.02
Checks and Collections	30,200.00	0.000000	14,000.00
Secure Mail - Branch Services	7,400.00	1.940000	14,360.00
Total Cash Management Charges			28,360.00
Commercial Loans	0.000.00	1.000000	20,000.00
mortgages	7,825.00	1.000000	7,825.00
Total Loan and Credit Charges			27,825.00
Refinancing	0.000.00	0.000000	1,000.00
Total Issuance Charges			1,000.00
Total for AS - Northern California Branch Operations			186,236.41

Control: Manage compliance and costs through effective cloud policy enforcement and service reporting.



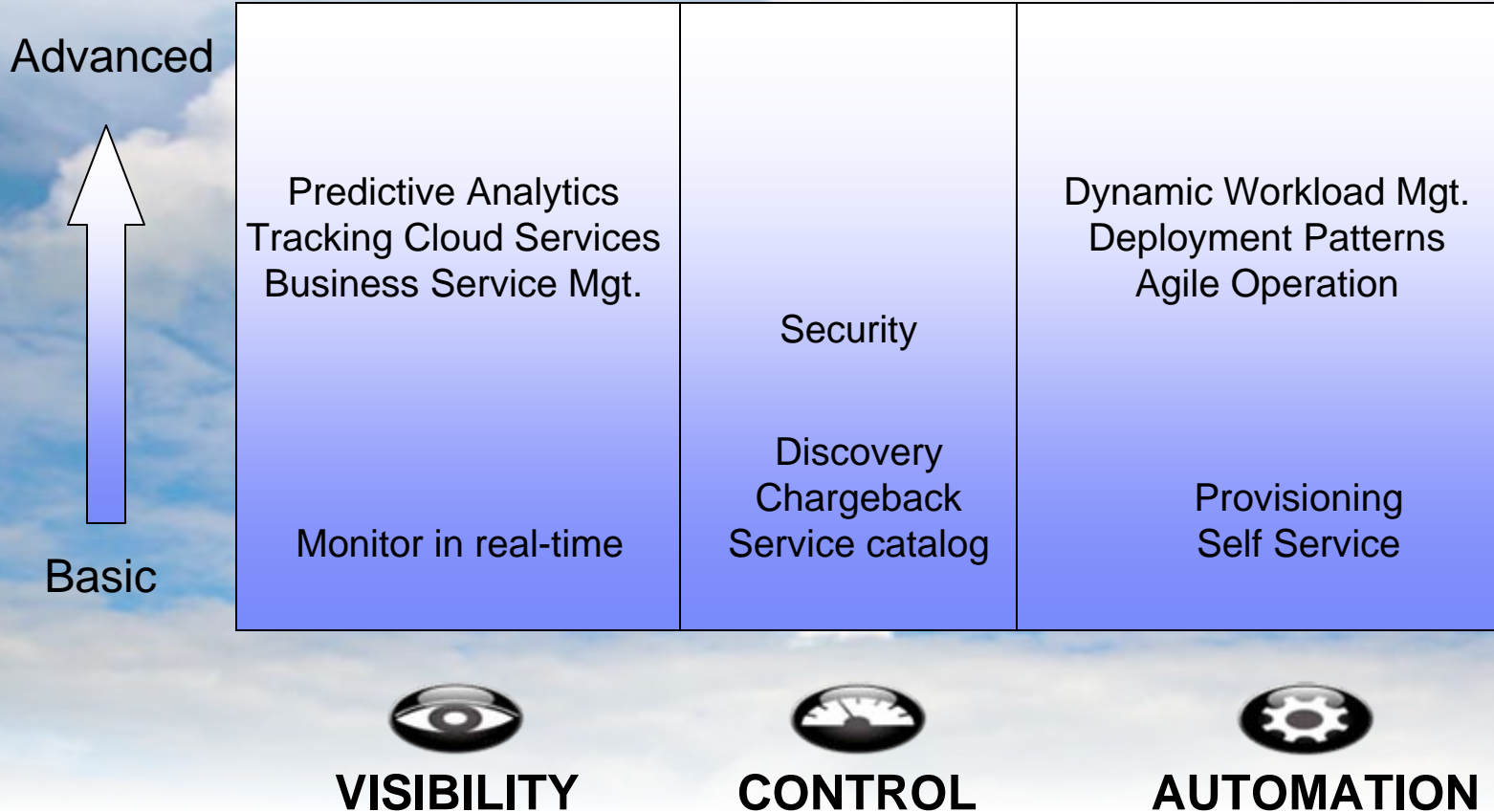
AUTOMATION



Automation: Enable user self service while improving productivity and time to market for cloud services.

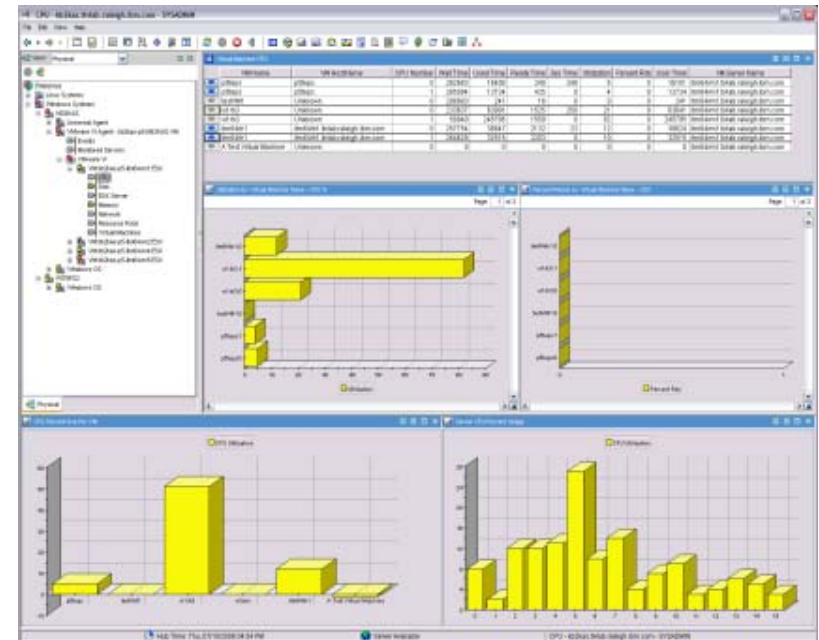
Driving cloud ROI using advanced cloud management capabilities

Cloud Management



Visibility to cloud servers through real-time monitoring

- Collect key performance and availability metrics.
 - Application, VM, virtual network, virtual storage I/O and other metrics
- Receive real-time proactive & predictive alerts
 - Side-by-side and historical data to identify problems quickly
- Warehouse data and report on current and future trends
 - Identify resource bottlenecks, plan for future capacity needs, and optimize resource performance

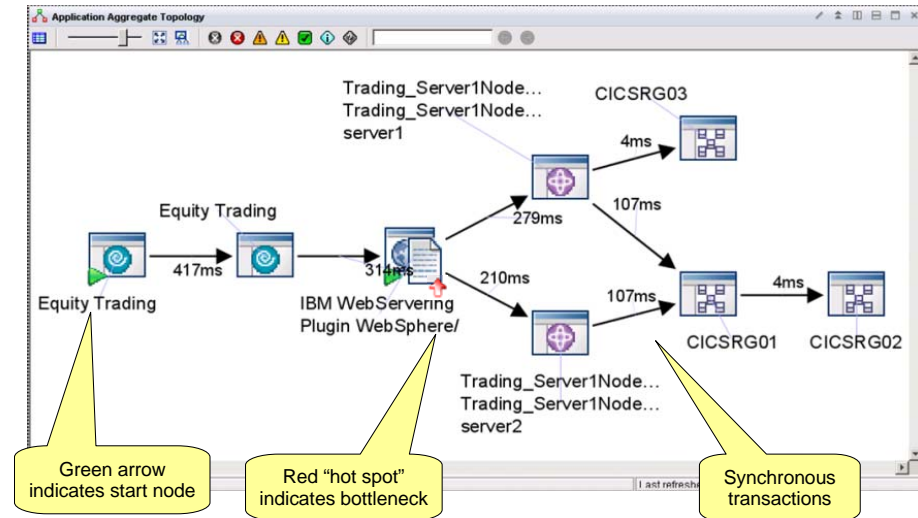


Visibility at the business level leveraging detailed views

Business Service Management



Detailed transaction view

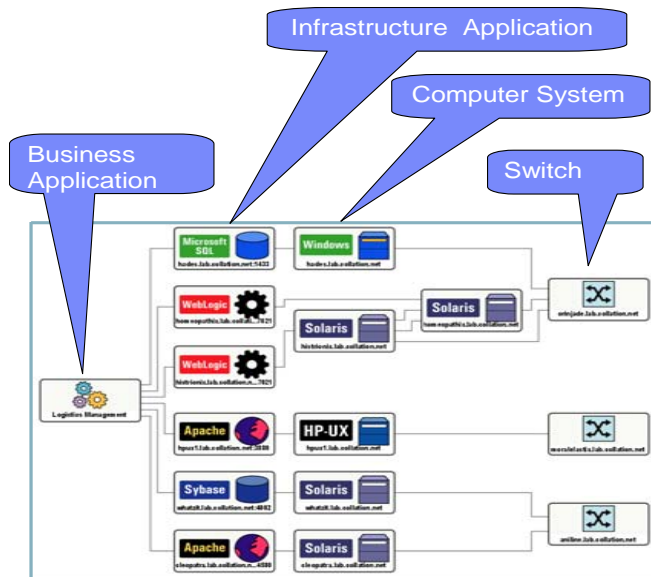


- Visualize physical & logical partitions and physical & virtual machines
- See service-impacting root cause events for prioritized response

- Agentless tracking for public and hybrid clouds, zLinux agent for clouds on z
- Ability to monitor and alert on SOA SLA policies defined in WebSphere
- Integrated response time and tracking

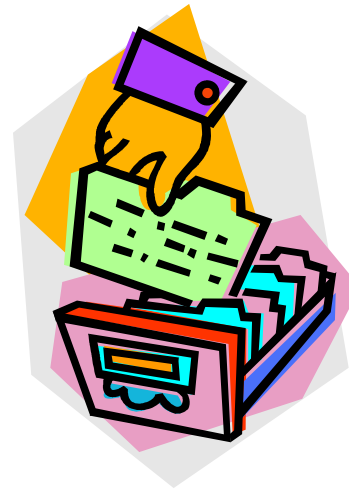
Control the cloud environment and services

Discover



- Understand what you have
- Discovery application relationships/dependencies
- Determine if it is compliant

Service Catalog



- Single repository for all cloud services
- Insure delivery of standard services to avoid virtual server sprawl

Chargeback



- Control supply by charging for services
- Determine service rates based on service costs and real usage
- Provide service usage and enable billing

Control cloud security

- Deploy a security strategy that smoothly integrates into the fabric of the cloud
- Consider... one size does not fit all, different cloud workloads have different risk profiles



Access and Identity

Need to leverage a combination of extensive internal policies



Data and Information

Apply data protection to information when possible



Release Management

Implement strong policies for management of virtual images and software within it's environment



Security Event Information Management

Provide the functions for security event and information management



Physical Security

Need to apply security to data centers such as CCTV, 24/7 physical security biometrics, etc.



Threat and Vulnerability Management

Leverage managed services and tolling for best of breed solutions

Control in cloud will require security to address reliability and compliance

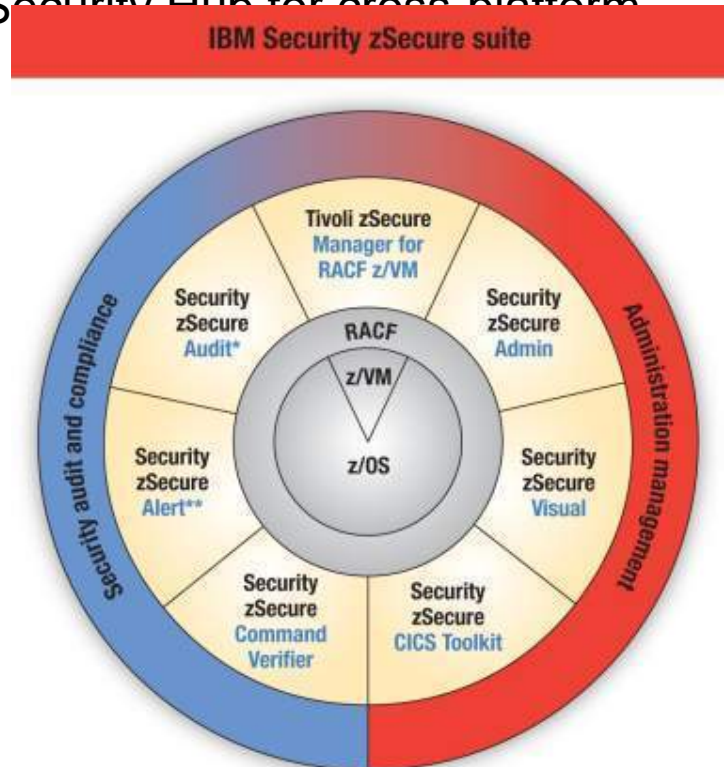
- Enforce security policy compliance and reduce security vulnerabilities
- Centrally manage and protect access to applications, business services, infrastructure, and data across server, storage and network
- Leverage the mainframe as your Enterprise Security Hub for cross platform security

Comprehensive security control

- Cost-effective security administration, security policy enforcement, automated auditing and compliance to detect threats and reduce risk

Advanced security key management

- Protect data encrypted on server and storage
- Supports all latest system Z centric storage
- Supports all system Z hardware crypto

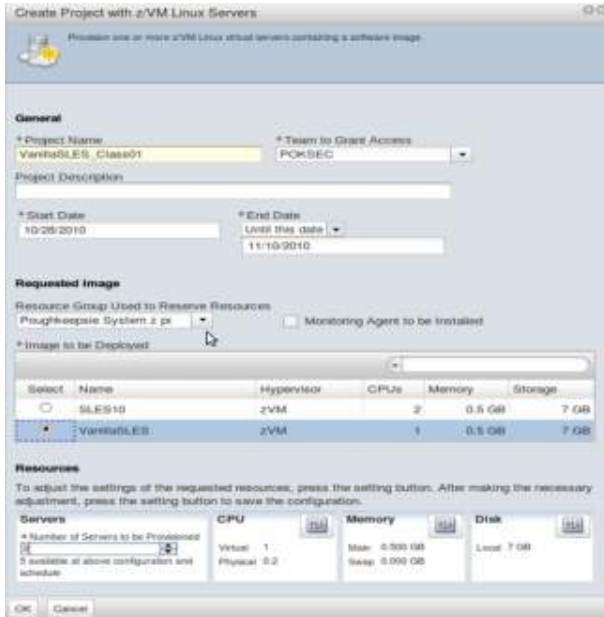


*Also available for ACF2™ and Top Secret®

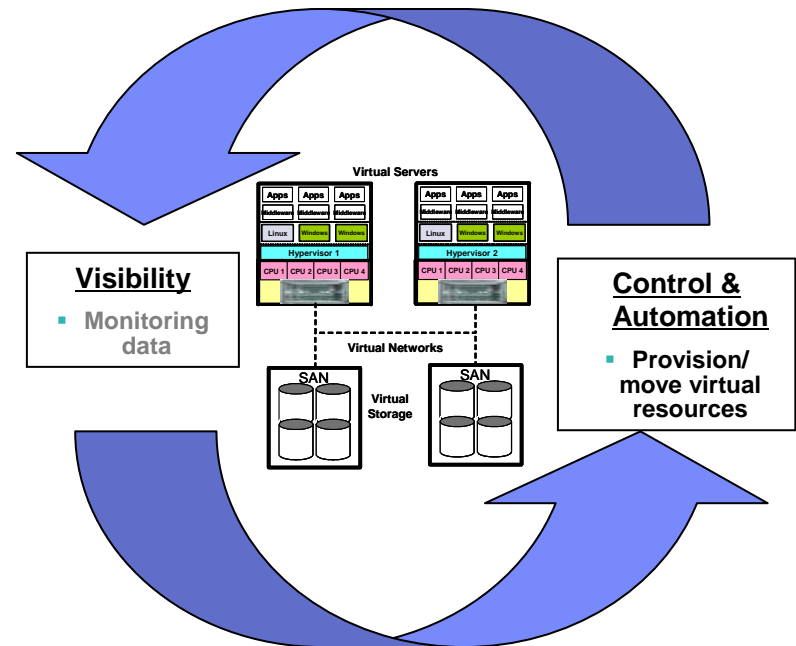
**Also available for ACF2

Automation of service provisioning and enable self service

Self Serve Portal



Automated Provisioning

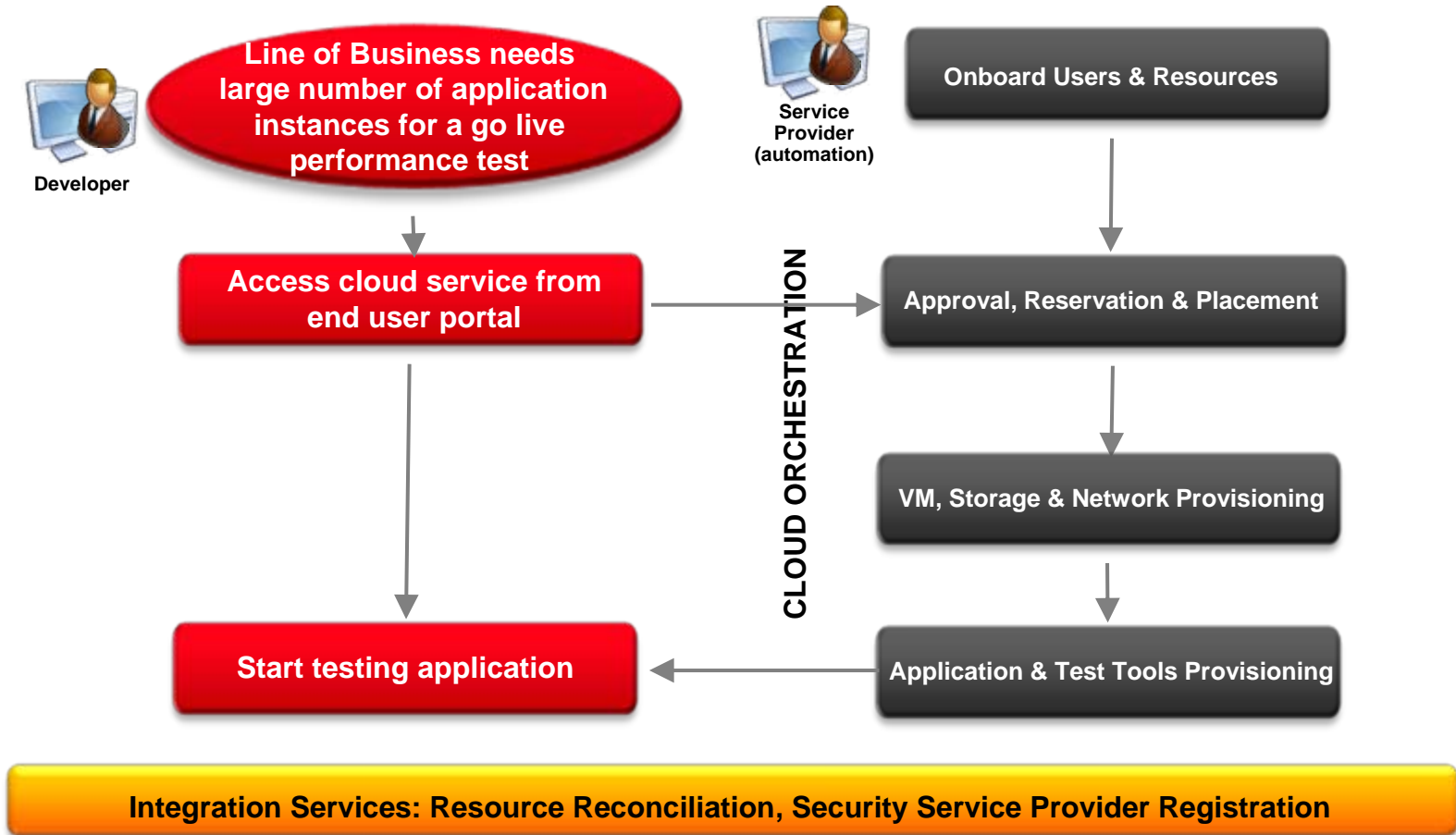


- Self serve web portal allows users to request services from a service catalog
- Automate approval workflows and provide visibility to status
- When service no longer needed de-provision resources and return to pool

- Coordinate and manage virtual resource provisioning from a centralized manager
- Increased HW utilization and decreased energy consumption

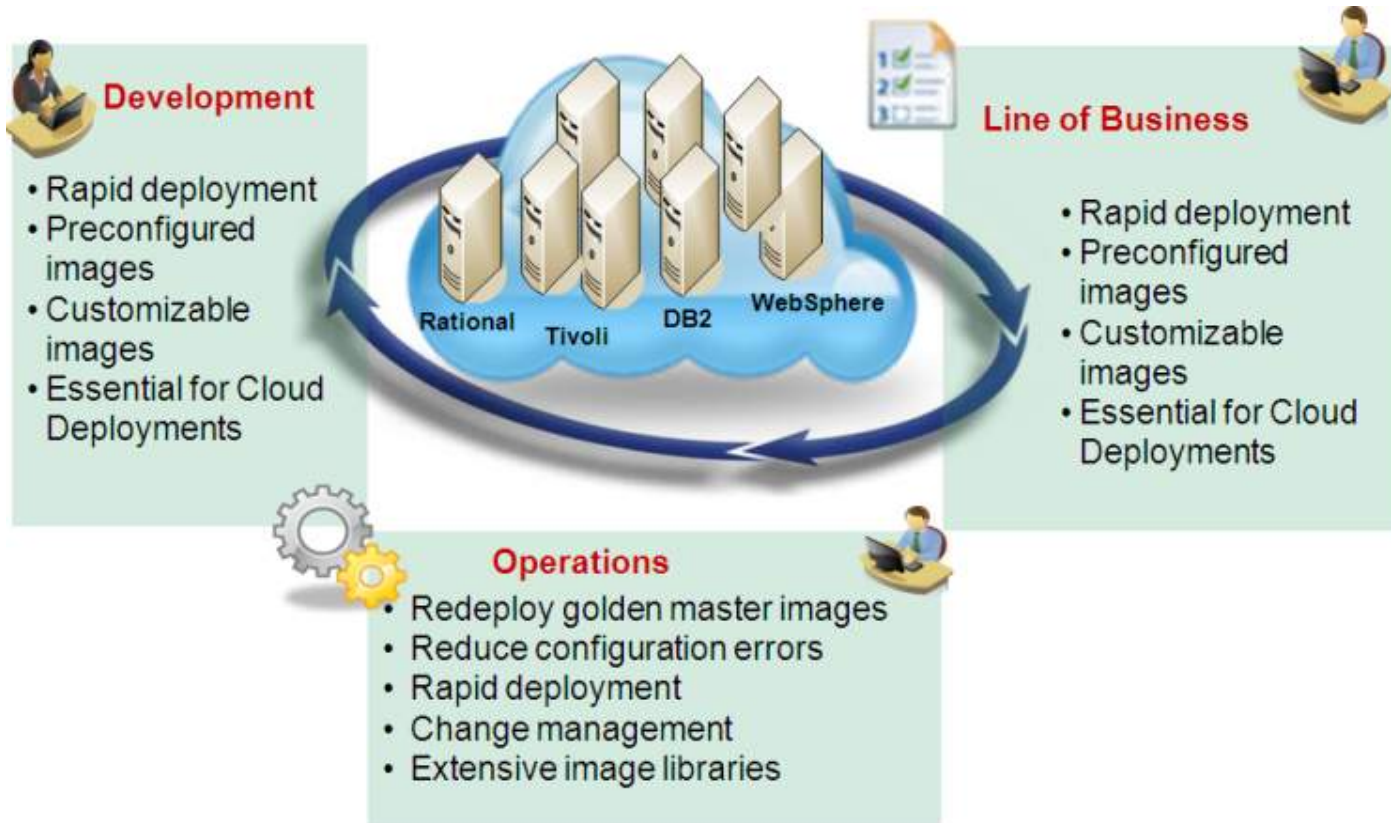
Automation drives agile operations cloud

Use Case: Rapid and scalable deployment of an application performance test environment for a critical Line of Business Application



Automation optimizes service delivery through dynamic application pattern deployment

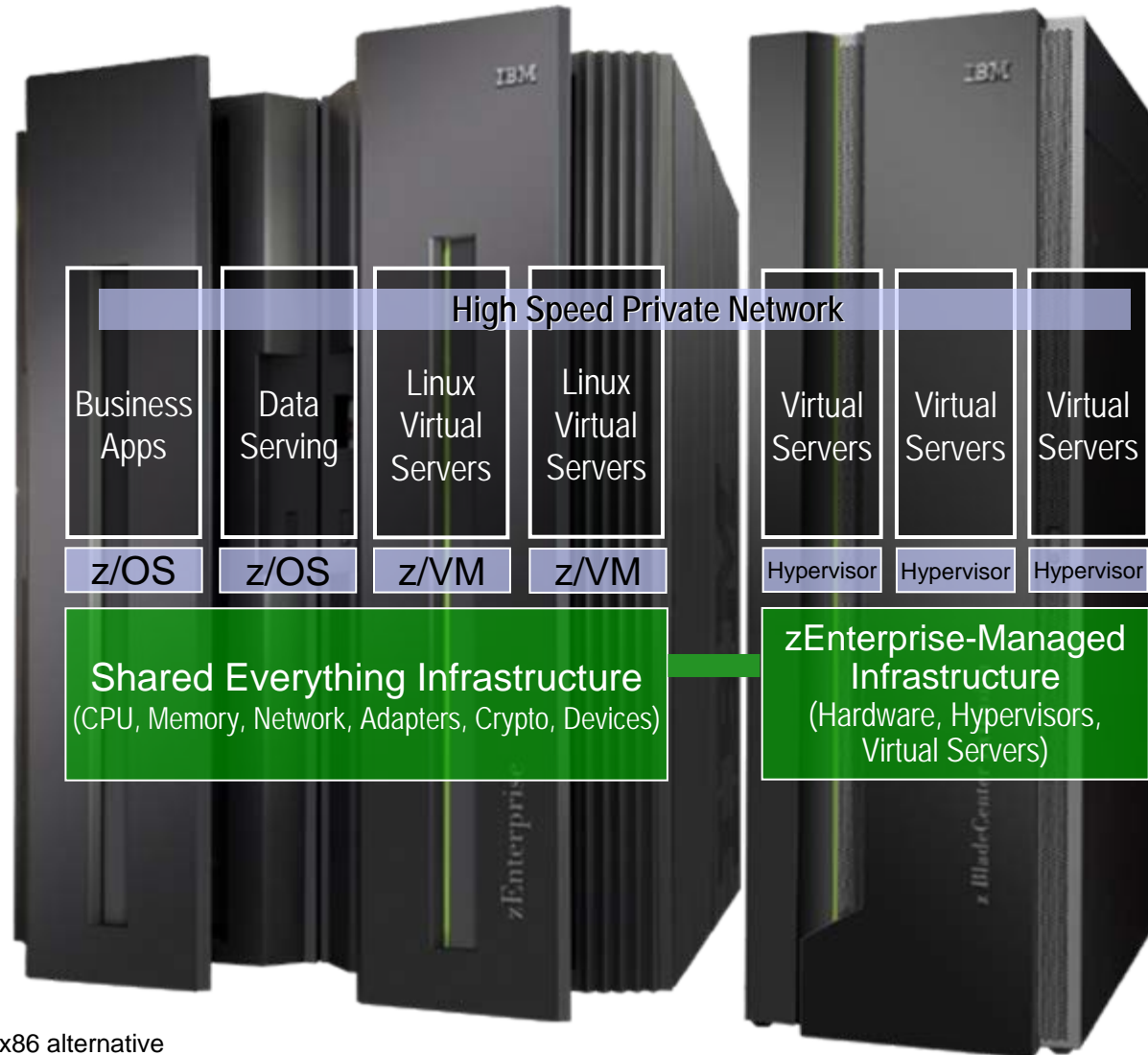
Use Case: Rapid development of middleware application patterns with accelerated staging across release environments



Optimized workload deployment : Integrated Dev/Ops tools, Dynamic Scalability, Resource Elasticity

■ IBM zEnterprise™ Cloud Starter Edition

- Consolidate even more with zEnterprise IFLs: up to 60% faster at 33% lower price
- Increase energy savings as you scale, up to 75%⁽¹⁾
- Spend up to 70% less on acquisition costs⁽²⁾ and boost staff productivity by up to 70%⁽³⁾ compared to virtualized x86 alternatives
- Incorporate IBM POWER® and System x technologies for unparalleled levels of workload optimization
- Manage and govern the integrated environment to deliver superior business results at a lower cost



23 (1) Based on zEnterprise comparison to virtualized x86 alternative
 (2) Based on three-year acquisition costs for large-scale, enterprise-class workloads
 (3) Based on life-cycle management testing of large-scale virtual server environment conducted by IBM

Next steps

- IBM Cloud Workshop
 - Platform Study
 - Workload Analysis
 - Assess Security Gaps
 - Create a Security Roadmap
 - Integration Gap Analysis
 - Build a Cloud Roadmap
 - Measure Success
- **IBM Cloud Ready Services Offering**
 - Delivering Cloud services on Linux on System z. IBM Cloud Ready is a Cloud offering that provides:
 - A Service Catalog capable of deploying all of your Cloud Services
 - Automated provisioning of resources and de-provisioning of underutilized resources
 - Performance Management
 - High Availability
 - Backup and Recovery
 - Customizable, Superior Scalability, Adaptable
 - And a fixed price software installation*

Learn more about IBM's entire Tivoli System z portfolio at upcoming Pulse Conference

Pulse 2012

Optimizing the World's Infrastructure

Location:

MGM Grand Hotel

Register at:

<http://www-01.ibm.com/software/tivoli/pulse/>



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