

How To Provision and Manage Cloud Workloads with Improved Tivoli Capability

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Cloud success on System z requires reliable Service Management capabilities

Key Takeaways



- Business Service and Service Level Management are key components of cloud
- To optimize cloud environment it requires:
 - Automated Provisioning leading to DevOps Integration
 - Enhanced Virtual Image Lifecycle Management
 - Policy-based Audit, Secure Isolation
 - SLA level Monitoring/Reporting
- System Z and zEnterprise is designed around these capabilities:
 - Integration of heterogeneous virtualized infrastructure
 - Workload Aware Monitoring/Performance Management
 - Availability Management linking application to platform
 - Enhanced accounting/chargeback/capacity planning
 - Secure isolation at OS, middleware and data layers

IBM Integrated Service Management

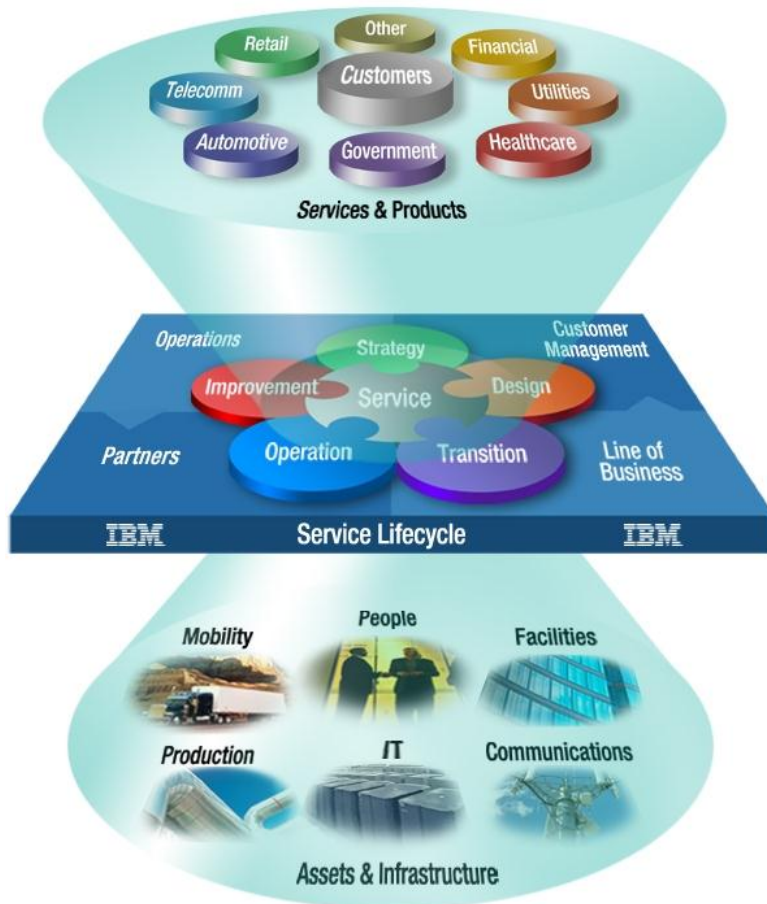


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Technology • Connections • Results

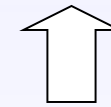
delivers **visibility**, **control** and **automation**™ across the end-to-end business infrastructure and the integrated service chain



Service Management is the alignment of *IT and Operation Assets* with desired *Business Outcomes*



Deliver repeatable business outcomes across all assets, aligned with the business needs of the customer/end-user.



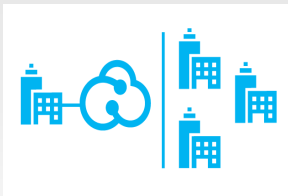
Establish disciplined management through the use of common metrics, repeatable processes, and task automation.



Create a complete, comprehensive, inventory of all assets, their relationships, status and operational metrics.

Cloud implementations can deliver smarter, more flexible infrastructure

Cloud computing is a service delivery model that enables the automation of shared computing resources.



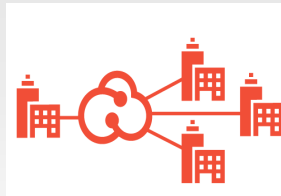
Private cloud

IT capabilities are provided “as a service” over an intranet, within the enterprise and behind the firewall.



Hybrid

Internal, on-premise and external service delivery methods are integrated.



Public cloud

IT activities and functions are provided “as a service” over the Internet.

System z provides a excellent platform for Hybrid and private cloud

60%

of CIOs plan to use cloud up from 33% two years ago

...the majority being hybrid clouds

Best Practices on System z cloud focus on simplification, standardization and security

- Enterprise IT can perform as Internal Service Provider for Private/Hybrid Cloud environment
- Need to communicate requirements across LOBs
 - Service Patterns/Templates
 - Provide application topology plus metadata for infrastructure resource requirements and constraints
 - Create Service Model with views of discovered resources, augmented with configuration information
 - Defined SLAs
 - Performance, Availability metrics
 - Internal accounting, external reporting and chargeback
 - Security Policies
 - data/application isolation, audit and compliance
- Enable additional automation and standardization based on business requirements for timely and sustainable processes



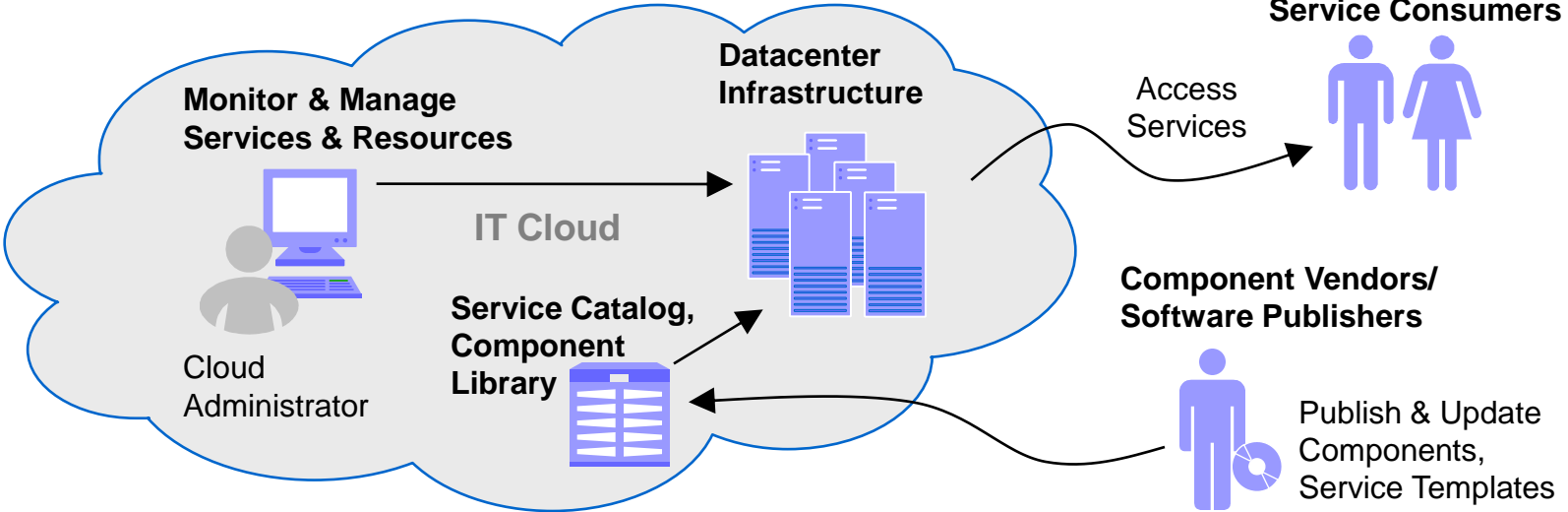
Cloud provides more than just automatic provisioning



User experience and a business model

- Emerging style of IT delivery in which applications, data, and IT resources are:
 - Rapidly provisioned and configured dynamically
 - Standardized offerings visible via catalog
 - Flexible pricing model supporting virtualization

An infrastructure management and services delivery methodology to manage large numbers of highly virtualized resources delivered with elastic scaling



"It's a **mainframe model where things run together but in isolation. ...You need reliability, security, auditing, privacy, data integrity, automation and full isolation..."***
- Steve Mills, SWG, in CNET interview when asked about Cloud Computing

Cloud provides both opportunity and risks

Value

- Elastic scalability
- Rapid provisioning
- Advanced virtualization
- Image management
- Multi-tenancy & Isolation
- Flexible pricing
- A better user experience

Concerns/Challenges

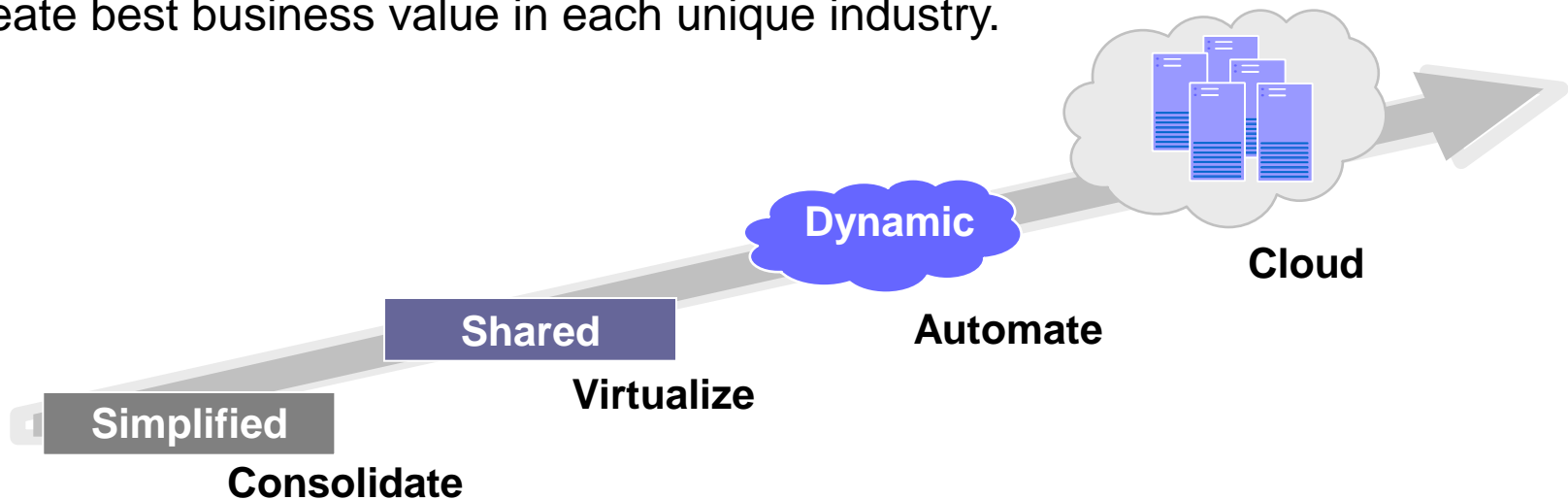
- Compliance/Audit
- Software licenses
- Availability
- Data Protection/Integrity
- Analytics/capacity planning



IBM Service Management helps organizations leverage current environment to ease moving to Cloud



- Leverage current best practices service management principles
- Tailor combinations of **hardware, software, best practices and consulting**
- Create best business value in each unique industry.



Successful transformation to Cloud computing requires a Secure, Consistent and Integrated Service Management platform as the foundation with visibility to virtualized infrastructure and controls to manage change and meet SLAs

System z ideal platform for private cloud focused on provisioning LOB, Development and Test



Create maximum Business flexibility while maintaining System z required integrity and performance

LOB Workloads

- Identify Application components
- Create Workflow to provision
- Define Security and SLAs
- Assign LPAR or Virt Machine
- Isolation with ability to share production resources

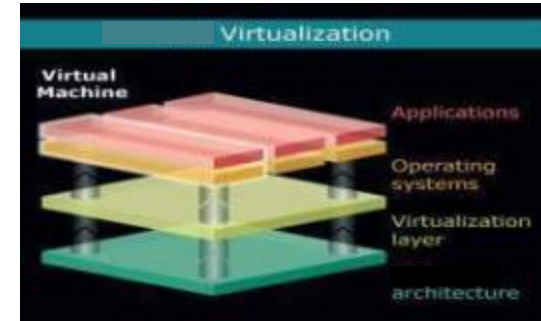
Development and Test

- Create Standardized Image
- Dynamically allocate resources
- zVM supports 1000's VMs on single processor with very rapid provisioning
- Most efficient use of energy and software licenses
- Reclaim resources when done



Built-in Virtualization and Metering/Usage Accounting will be key for assessing value of cloud

- Understand virtual and physical resource usage
- Dashboards which aggregate views across hypervisors and enable drill-down

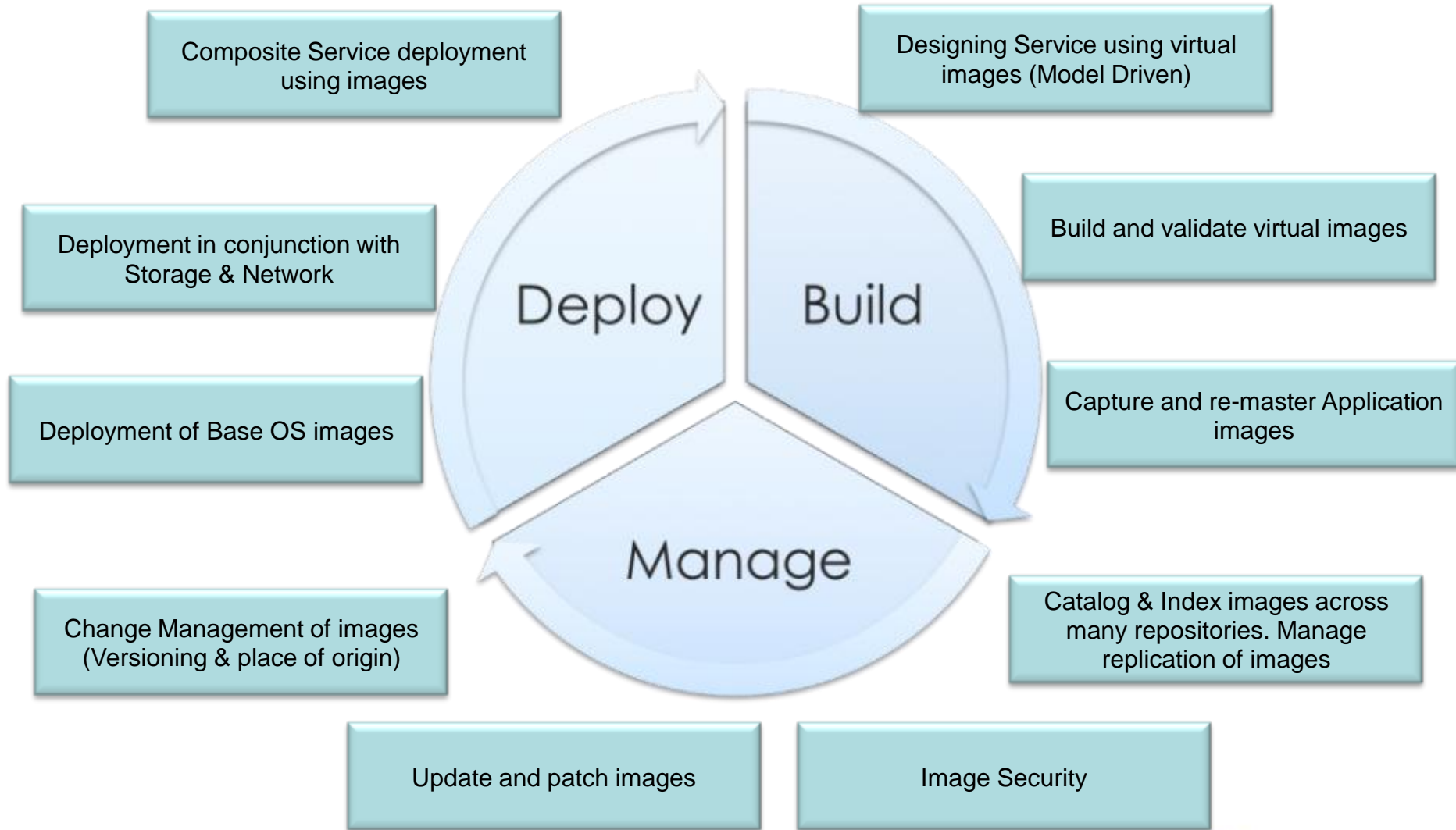


- Generate billing to clients for services delivered based on service usage data
- Provide visibility into the cost of services in order to determine the rate structure
- Understand costs, track, allocate and invoice by department, user and many additional criteria
- Deliver detailed information and reports about the intricate use of shared resources



...Increases utilization for lower capital expense and provides data for planning, budgeting, billing and accurate chargeback for services

Image Lifecycle Management allows for faster innovation of business services



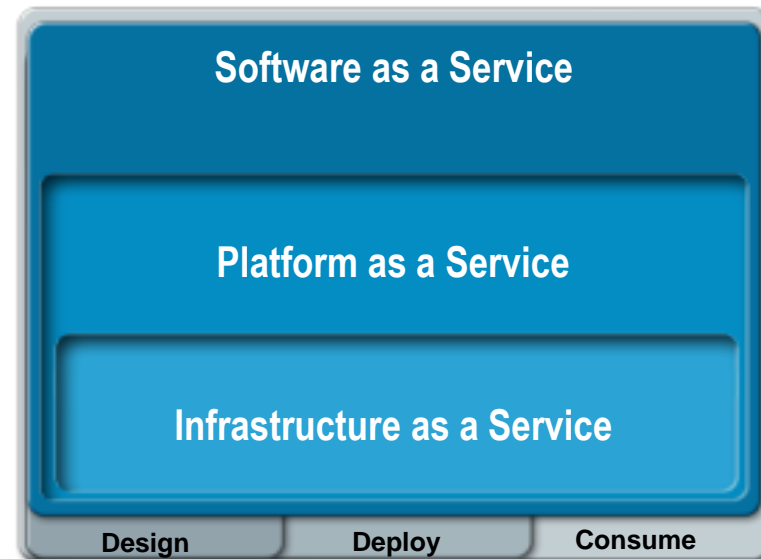
Images can be customer built, vendor built or ISV built

zEnterprise Service Management provides business flexibility at each cloud level



- Intelligent Platform Management meets Service Management
 - Insights from collection of virtualized resources in context of the workloads/services
 - Coordination of actions across server, storage and network
 - Application of E2E policy objectives to the affected resources
 - Correlation/federation of information with analytics relative to impact on business

- zOS+Middleware+ISM = Platform-as-a-Service
 - Additional insights at application/middleware level including SLAs and accounting/chargeback
 - Optimized workload deployment in “fit-for-purpose” model across different architectures
- zEnterprise = Infrastructure-as-a-Service
 - Virtualized images deployed across heterogeneous architectures
 - Ability to connect logical with physical/virtual topology and monitor/report utilization at workload (collection of virtual servers – Unified Resource Manager) level



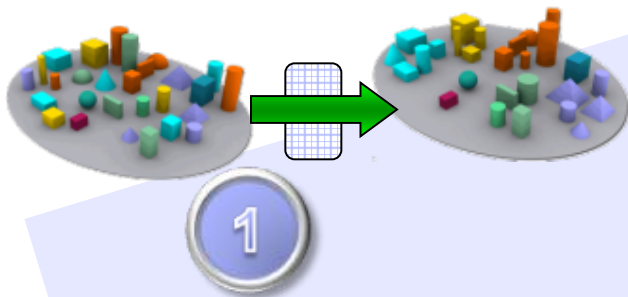
Successful Clouds on zEnterprise grow over time



STEP 1

Lower Cost

Consolidate and Virtualize



- Exploit the extreme virtualization capabilities of System z and z/VM
- Use basic z/VM features and functions to manage virtual Linux servers

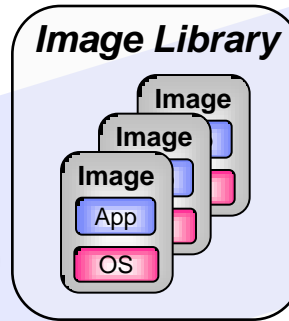
Cloud Offerings and Products

Enterprise Linux Server
Solution Edition for Enterprise Linux

STEP 2

Simplify

Automate and Manage Better



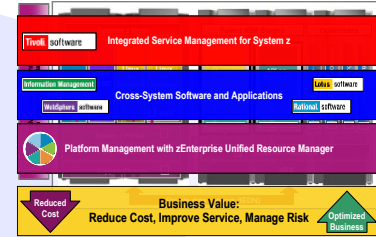
- Use advanced z/VM features and functions for automated operations and service delivery
- Add Tivoli technologies for greater levels of service management

System z Solution Edition for Cloud Computing

STEP 3

Integrate and Optimize

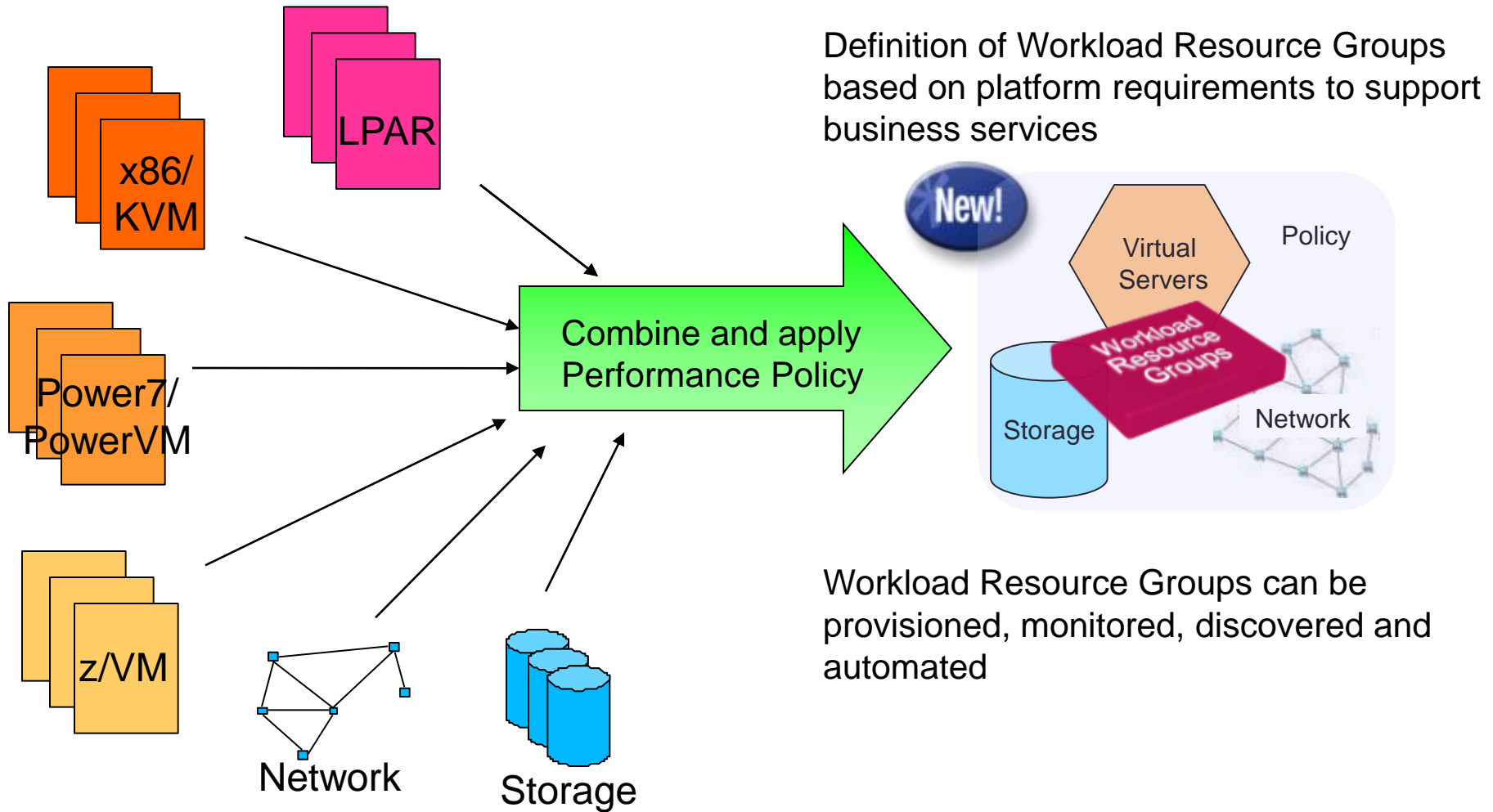
Cross-architecture Workload Optimization



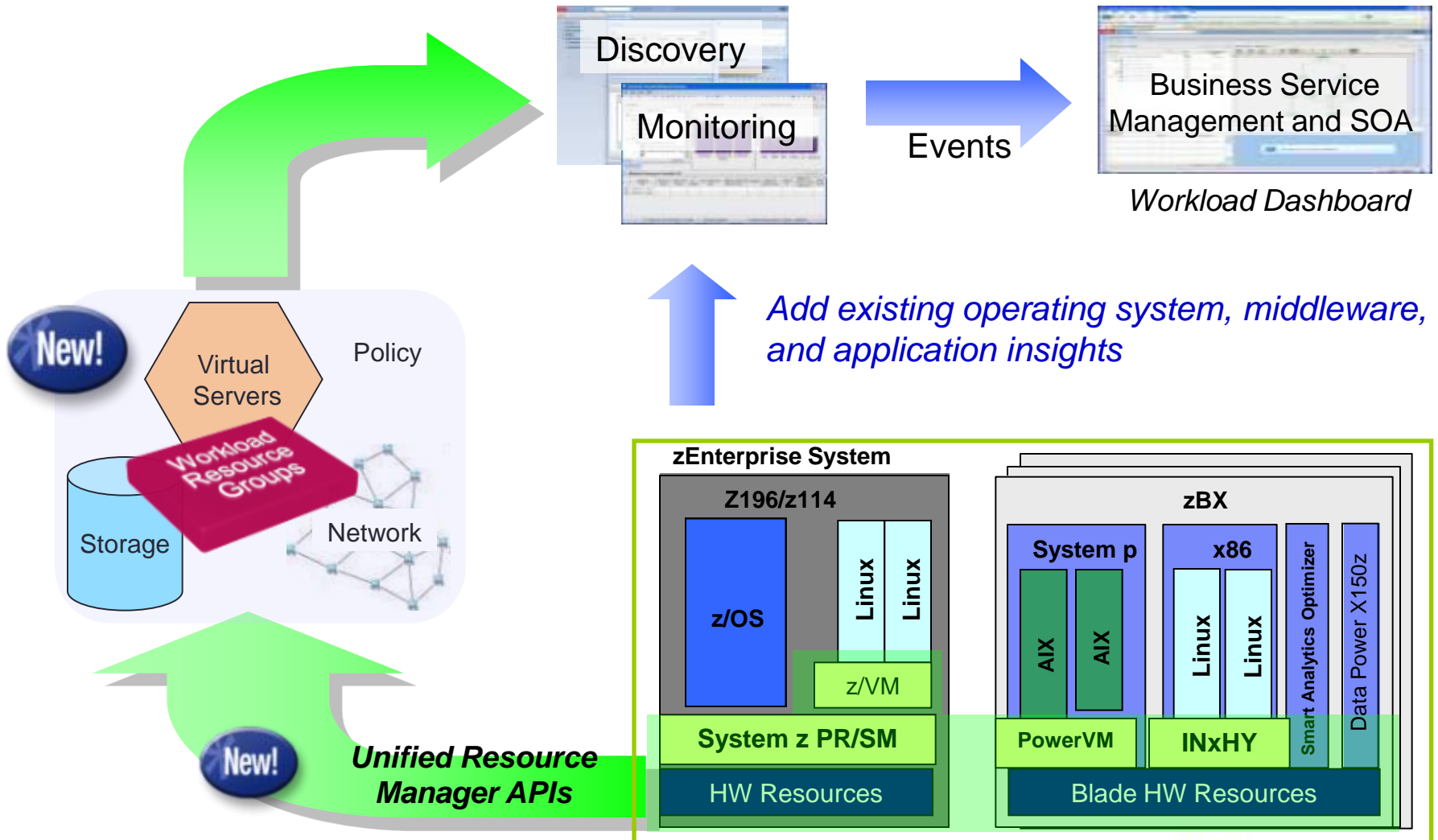
- zEnterprise as multi-architecture cloud solution
- Use a cloud deployment model to host multi-tier solutions across System z, POWER and System x resources
- Use Unified Resource Manager and Tivoli support for optimal workload management

zEnterprise System and Unified Resource Manager
Tivoli Integrated Service Management

Tivoli can create and manage Workload Resource Groups enabled by zEnterprise APIs

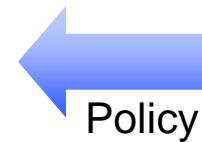


Tivoli monitoring and discovery can track and manage Workload Resource Groups across zEnterprise



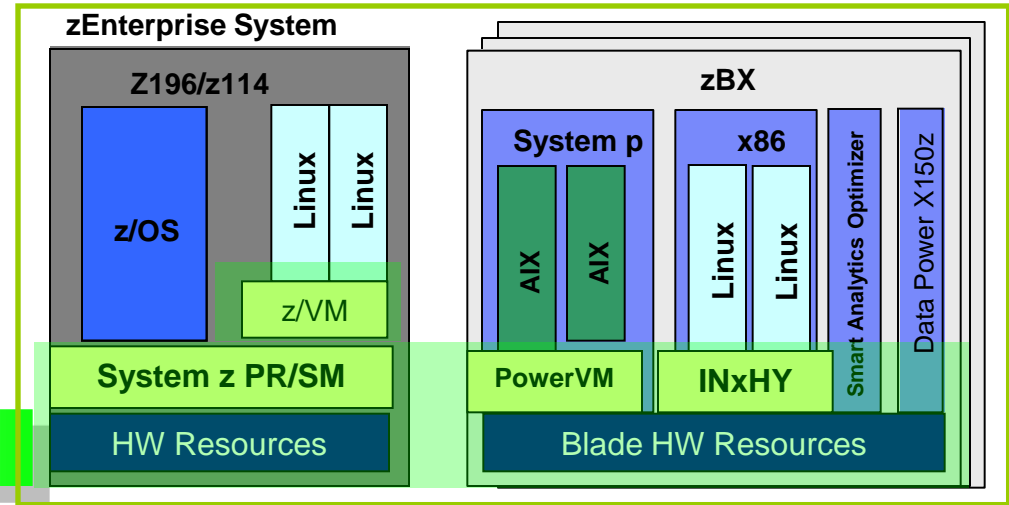
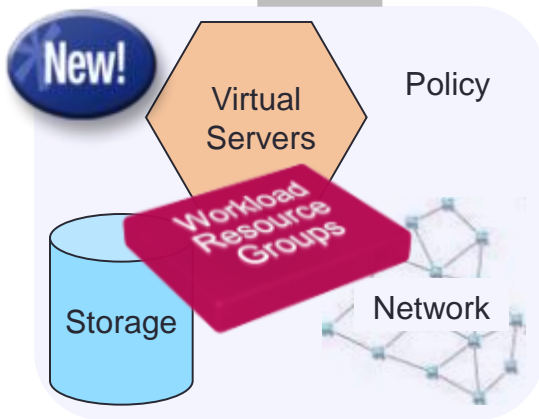
Add existing operating system, middleware, and application insights

Tivoli System Automation can ensure availability of Workload Resource Groups and Business Services

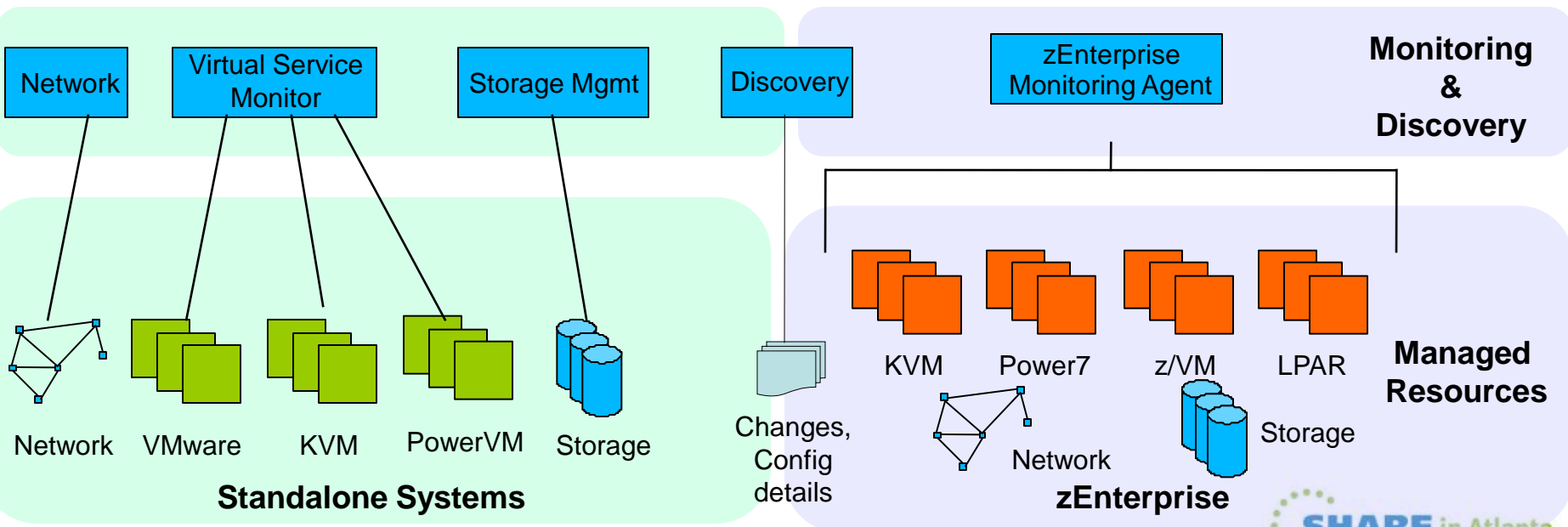
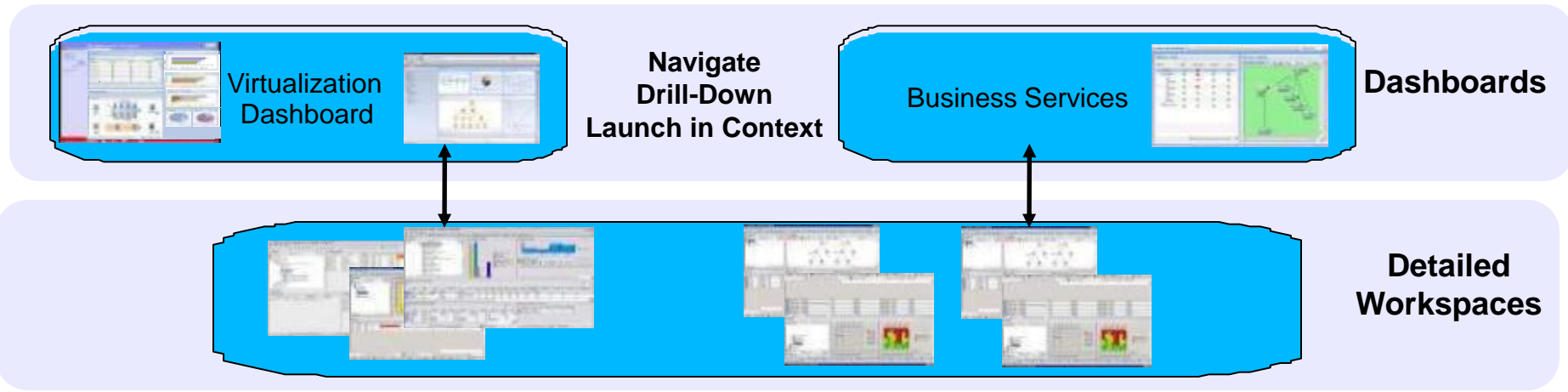


Automate Operations

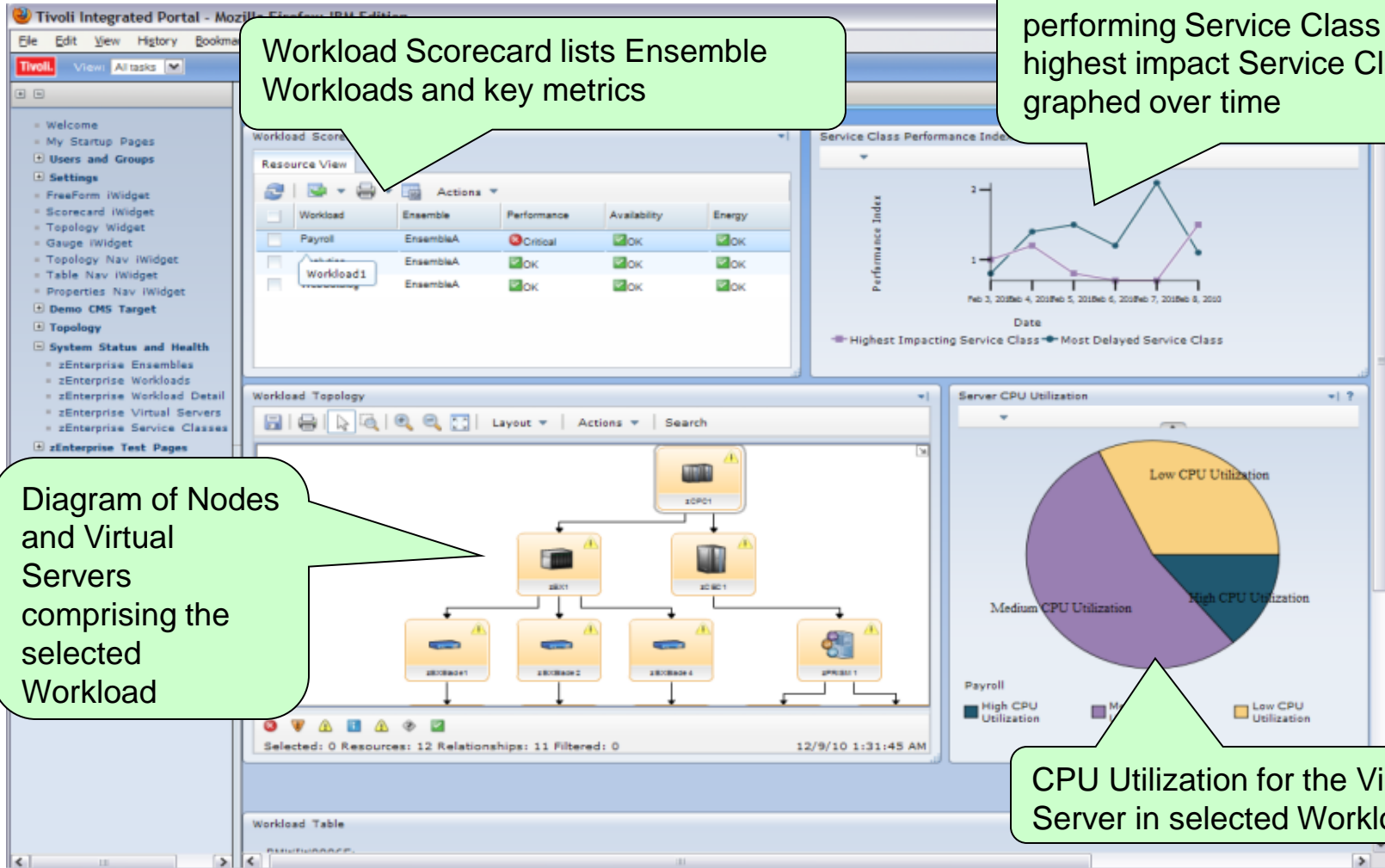
Integrated Workload availability for normal operations and disaster recovery!



Take advantage of Dashboards to allow for sense and isolation of problems



Monitoring cloud on zEnterprise with Workload Dashboard simplifies meeting SLAs



Workload Scorecard lists Ensemble Workloads and key metrics

The Performance Index for worst performing Service Class and highest impact Service Class graphed over time

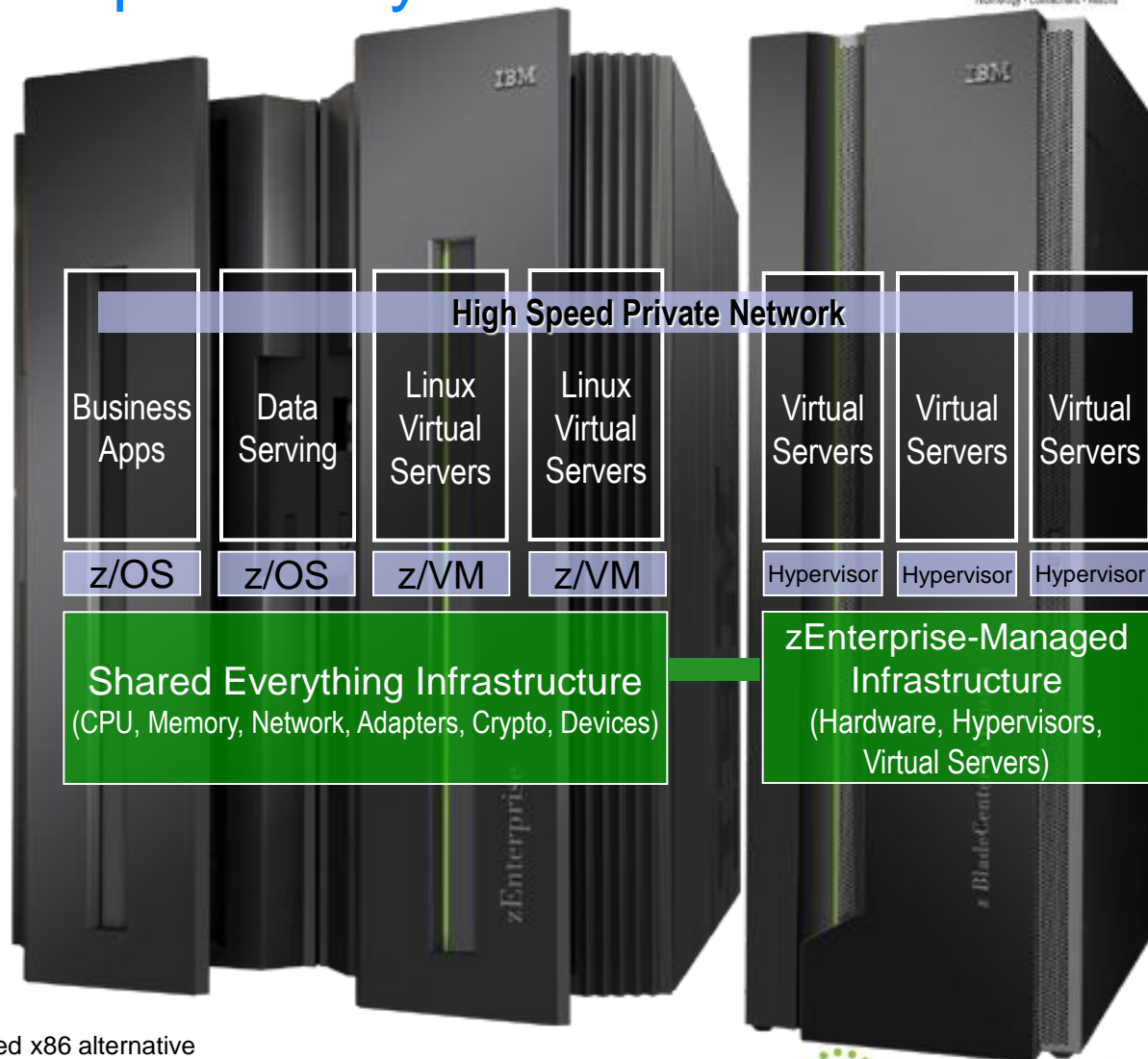
Diagram of Nodes and Virtual Servers comprising the selected Workload

CPU Utilization for the Virtual Server in selected Workload

IBM zEnterprise Cloud Starter Edition provides first step in moving to a private/hybrid cloud



- 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 with Smart Cloud to deliver superior business results at a lower cost



(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

Cloud success on System z requires reliable Service Management capabilities

Key Takeaways

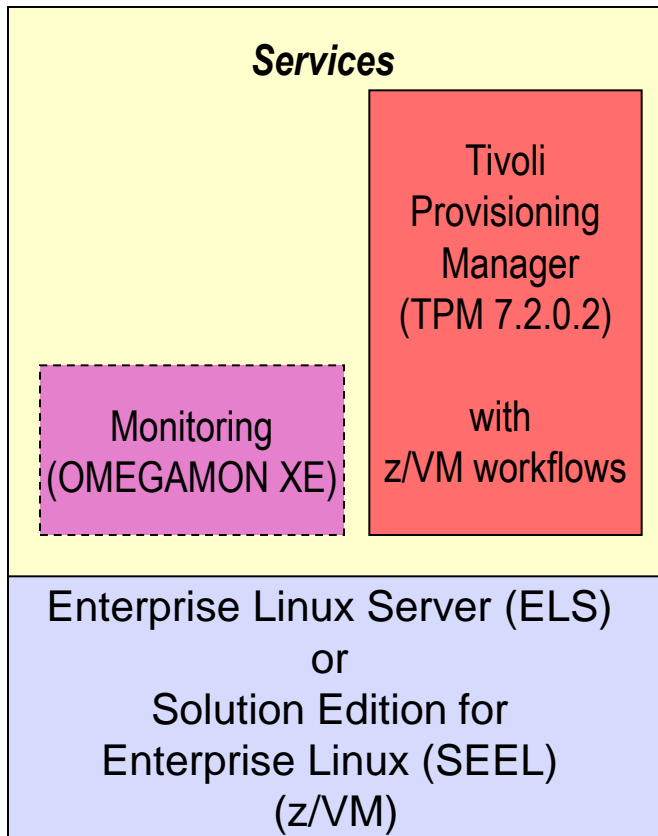


- Business Service and Service Level Management are key components of cloud
- To optimize cloud environment it requires:
 - Automated Provisioning leading to DevOps Integration
 - Workload aware monitoring and capacity management
 - Automated compliance and reporting
 - SLA level Management for Performance and Availability
- System Z and zEnterprise is designed around these capabilities:
 - Single view of virtualized server/network/storage
 - Workload context aligned with business priorities
 - Automated HA and DR at workload level
 - Workload level accounting and analytics
 - Secure isolation across infrastructure

zEnterprise Cloud Starter Edition provides several key Tivoli components



Solution focused on establishing Infrastructure as a Service (IaaS) delivery model



Built on top of Enterprise Linux Server or Solution Edition for Enterprise Linux

- Allows customers to create a Cloud IaaS environment
- Integrates into customer's self-service UI
- Resource monitoring provided by OMEGAMON XE for z/VM and Linux
- STG Lab Based Services provide rapid provisioning with newly created z/VM workflows

Tivoli zEnterprise Monitoring and Discovery

Beta Program



• **Beta Process**

- Education provided via web conferences.
- Pre-GA product code available for download or use in IBM hosted Cloud environment.
- Product documentation drafts available for download.
- Support web site with Discussion Forum.

• **Steps to Register**

- Nomination form for background information.
- Online license which covers Confidentiality and Beta code license.

• **Customer Benefits**

- Early exposure to planned product functions.
- Development assistance during your initial testing period.
- Ability to influence the product through your direct interaction with the Development team.

• **Time Commitment**

- No specific minimum time commitment – we realize customers have other work to perform.
- Attend web conferences if possible and download and install code when able to.
- Beta planned schedule: Is currently taking place
- Status will be collected occasionally informally via e-mail.
- Two written feedback surveys will be requested – quality survey and final feedback survey.

• **Contact Info**

- Beta Coordinator: Mathias Manohar (mmathias@in.ibm.com)
- Development Release Manager: Rohit Badlaney (ribadlan@us.ibm.com)

Stay Connected - Service Management Connect



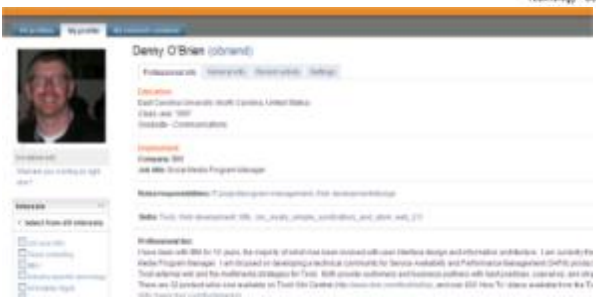
- New online technical community for Integrated Service Management practitioners
- Built on IBM developerWorks
- Using Rational jazz.net as the model
- Bridges the gap between clients, partners and development teams
- Promotes a more transparent development model

<http://www.ibm.com/developerworks/servicemanagement>

Getting Started – Service Management Connect



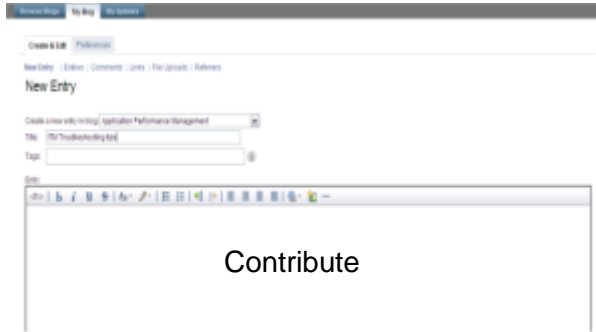
- Create a developerWorks profile:
<https://www.ibm.com/developerworks/dwwi/jsp/Register.jsp?lang=en&d=http%3A%2F%2Fwww.ibm.com%2Fdeveloperworks%2F>
- Join the Service Management Connect groups: <http://www.ibm.com/developerworks/servicemanagement>
- Contribute to the discussion
 - Create blog entries
 - Contribute your best practices on wikis
 - Ask questions in the product forums



Create a profile



Join a group



Contribute



Related sessions - Performance Monitoring on System z



10386: How To Provision and Manage Cloud Workloads with Improved Tivoli Capability
(Monday, March 12, 2012 – 11:00am)

10384: Managing Your zEnterprise Platform with New Tivoli Monitoring Support
(Monday, March 12, 2012 - 4:30pm)

11093: What's New with System z Monitoring? - Lunch & Learn
(Tuesday, March 13, 2012 - 12:15pm)

10383: Introducing e3270UI Problem Solving Capability with OMEGAMON XE on z/OS 5.1.0
(Tuesday, March 13, 2012 - 4:30pm)

11083: Understand the Power of the IBM Mainframe Storage Management Portfolio to Save Time and Money
(Wednesday, March 14, 2012 - 1:30pm)

10385: Solving CICSplex Performance Problems Using the New Enhanced 3270 User Interface in OMEGAMON XE for CICS on z/OS 5.1.0
(Wednesday, March 14, 2012 - 4:30pm)

10972: Getting your hands around z/OS Storage management, top 10 common problems and how to address them
(Thursday, March 15, 2012 - 4:30pm)

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Thank
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