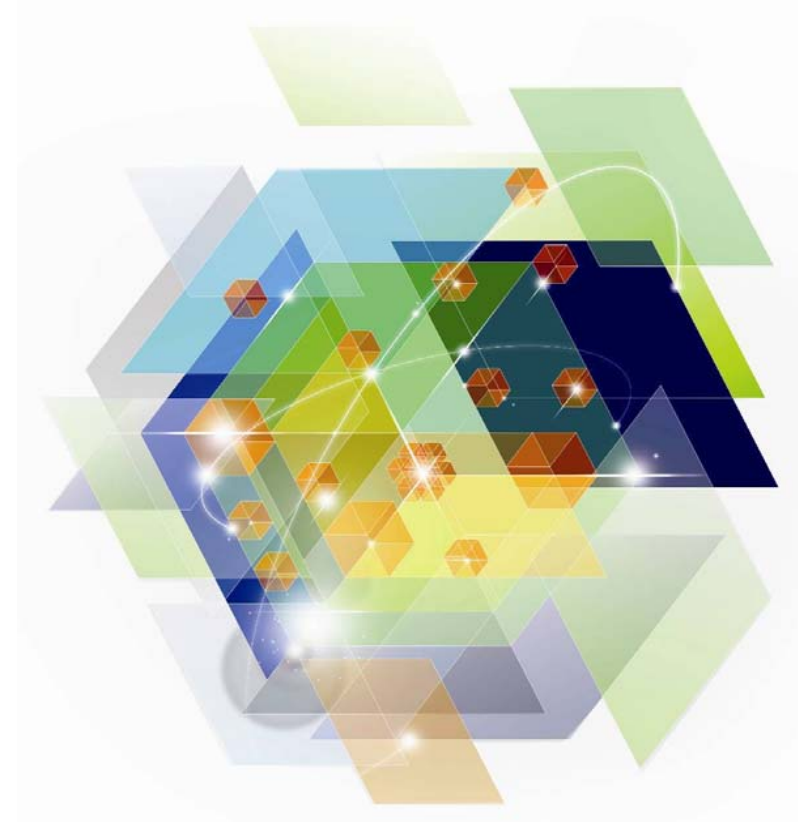


IBM System z Technology Summit



**Getting started with private clouds
on System z**



Cloud computing is about enabling the end user to help themselves

- **A user experience and a business model**
 - Rapidly provisioned
 - Ease of access
- **An infrastructure management and services delivery method**
 - Virtualized resources
 - Managed as a shareable, scalable cloud model
 - Delivering services with elastic scaling
- **Similar to Banking ATMs and Retail Point of Sale, Cloud is Driven by:**
 - Self-Service (consumer behavior)
 - Economies of scale
 - Technology advancement



Banking



IT



Retail

Cloud for business top characteristics

- ✓ Real time added capacity
- ✓ Accelerate time to value for implementing Cloud based Infrastructure as a Service
- ✓ Manage your existing Server and Virtualization sprawl
- ✓ Control software licenses and cost
- ✓ Optimize energy consumption

Does your cloud have these capabilities?

Let us help you lead – with zEnterprise and Cloud!

Customers are building
multiple virtualization
technology stacks

zEnterprise can run
multiple virtualization
stacks from one place

Cloud needs to be continuously available

- ***“Amazon says outage in Europe due to hardware failure, not hacking attack”***
 - Guardian.co.uk, December 2010
- ***“On the cusp of the launch of the next-generation Office 365 cloud, Microsoft's BPOS flakes again; outage is the fourth in two months, users complain”***
 - Microsoft Subnet on Wednesday, June 22, 2011 - 2:43pm
- **Gmail was up 99.984 percent of time which means seven minutes of downtime per month over last year**



Integrated Service Management for Service Lifecycle Management of Cloud workloads on IBM zEnterprise

Subscribe to Service

- Request a service
- “Sign” Contract

Deploy Service

- Request Driven Provisioning
- Management Agents and Best Practices
- Application / Service On Boarding
- Self-service interface

Offer Service

- Register Services and Resources
- Add to Service Catalog

Manage Operation of Service

- Visualize all aggregated information about situations and affected services
- Control operations and changes
- Event handling
- Automate activities to execute changes
- Include charge-back

Service Creation

- Scope of Service
- SLAs
- Topologies, Best Practices Management Templates

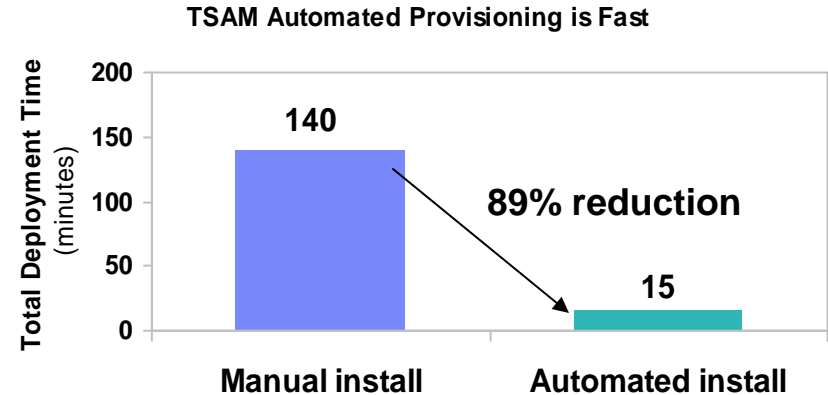
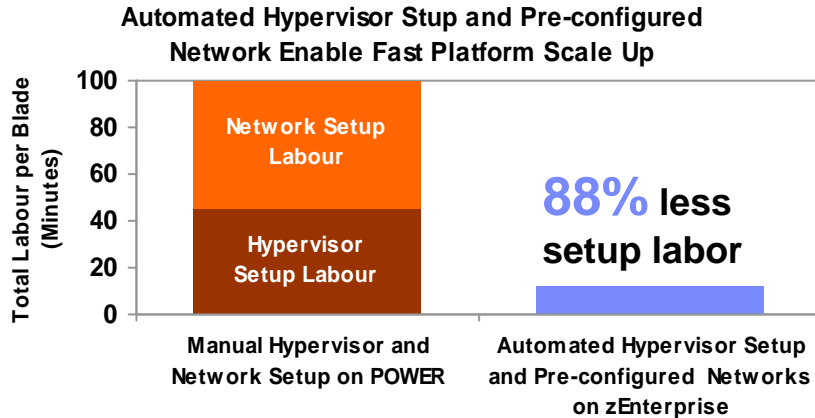
Terminate Service

- Controlled Clean-up

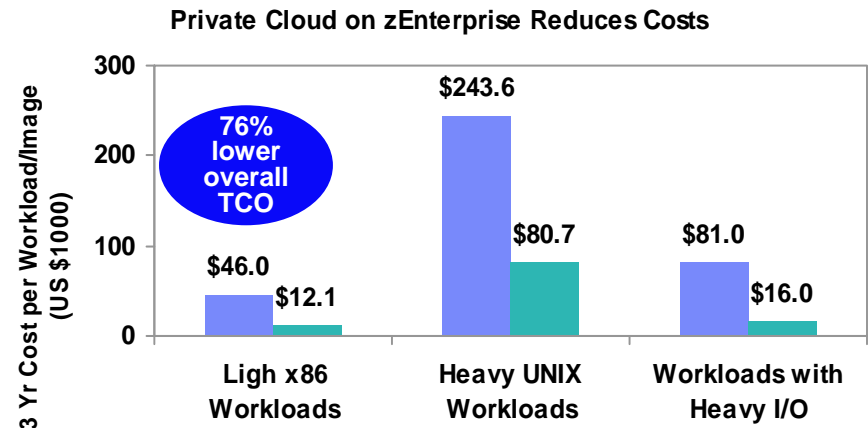
Cloud Computing Lifecycle



Cloud for real IT, designed to fit your business the way you run your business



- Using tools such as TPM and TSAM running on System z resources allows you to manage outward to the rest of your virtualization technologies managing them from a centralized, robust secure and trusted environment so that you can grow and secure your IT assets.
- zEnterprise cloud solutions are the only cloud offerings in the industry designed to run in a mix architected environment, and to manage a mixed environment.



IBM zEnterprise provides a new dimension in Cloud Computing

The world's fastest and most scalable system:

IBM zEnterprise 196 (z196)
IBM zEnterprise 114 (z114)

Unified management for a smarter system:

IBM zEnterprise Unified Resource Manager (zManager)

Scale out to a trillion instructions per second:

IBM zEnterprise BladeCenter Extension (zBX)

Broad Network Access

Very large number of end user access from multiple sources including mobile devices

Rapid Elasticity

A new dimension of Scale. Most efficient platform for Large-scale Linux consolidation



Resource Pooling

1000s of virtualized systems across a heterogeneous resource pool

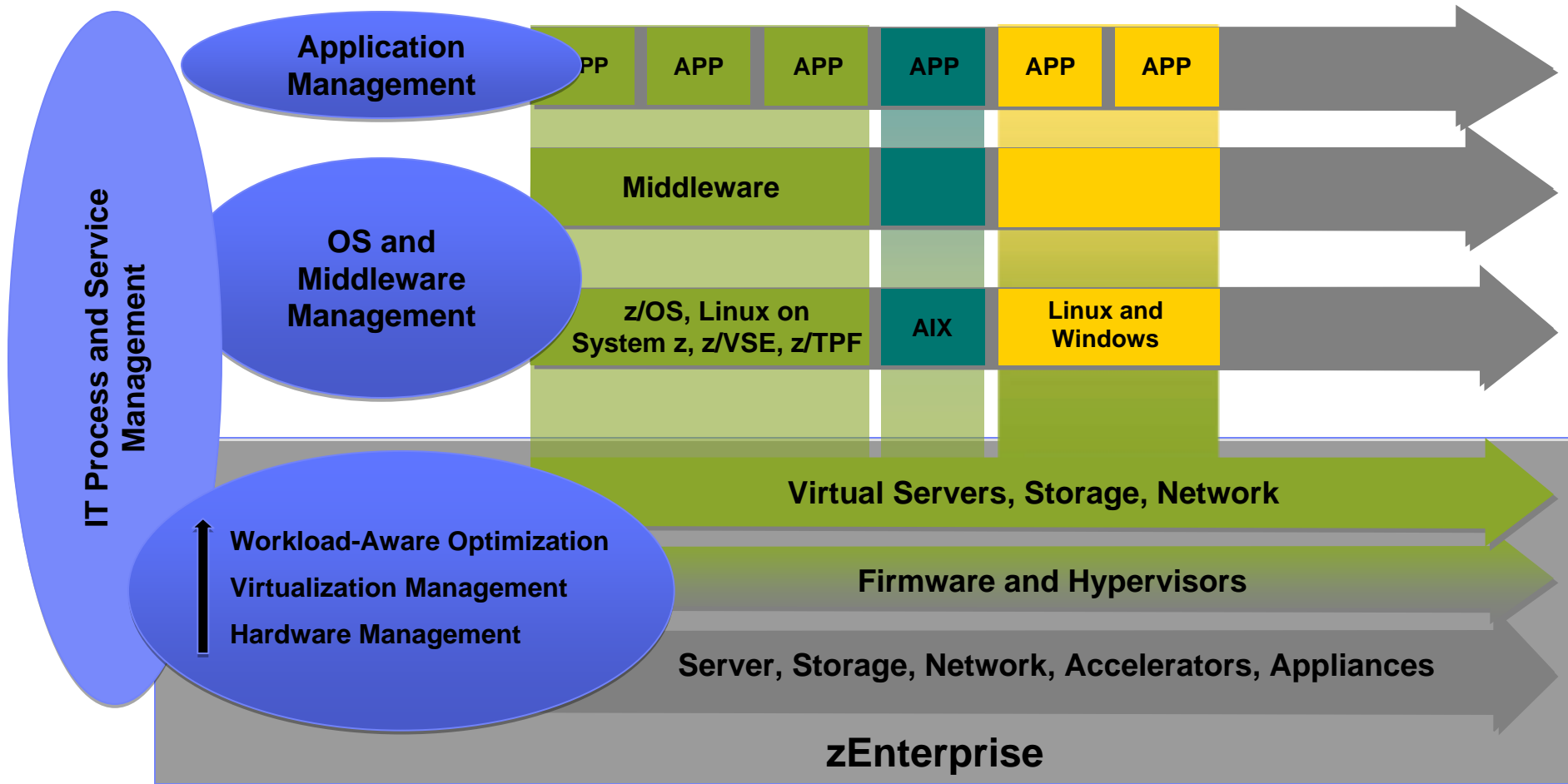
Measured Service

Meter, monitor, and track workloads for chargeback and capacity expectations

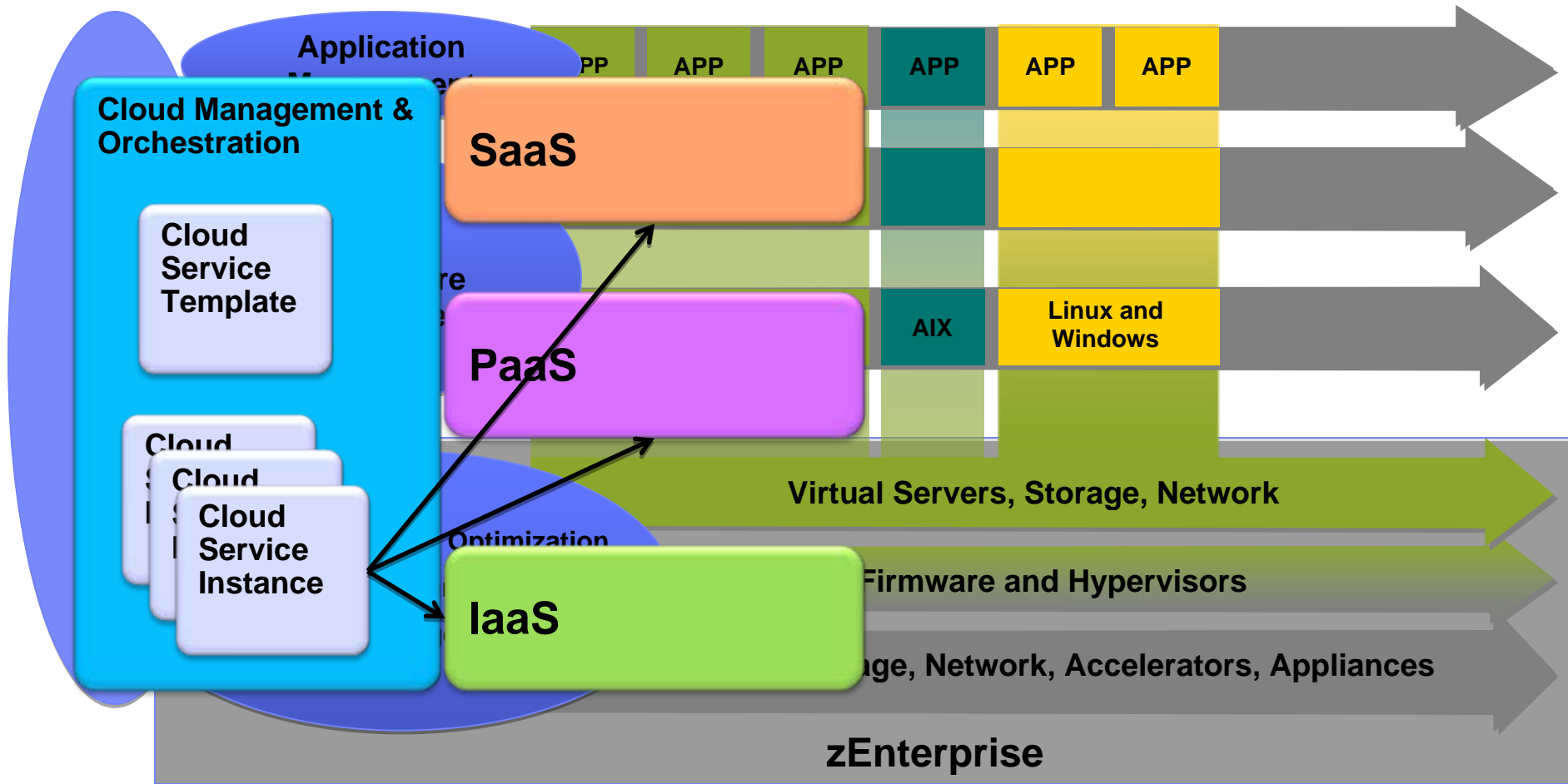
On Demand Self-Service

Automate provisioning and service requests reducing provisioning cycles from weeks to minutes

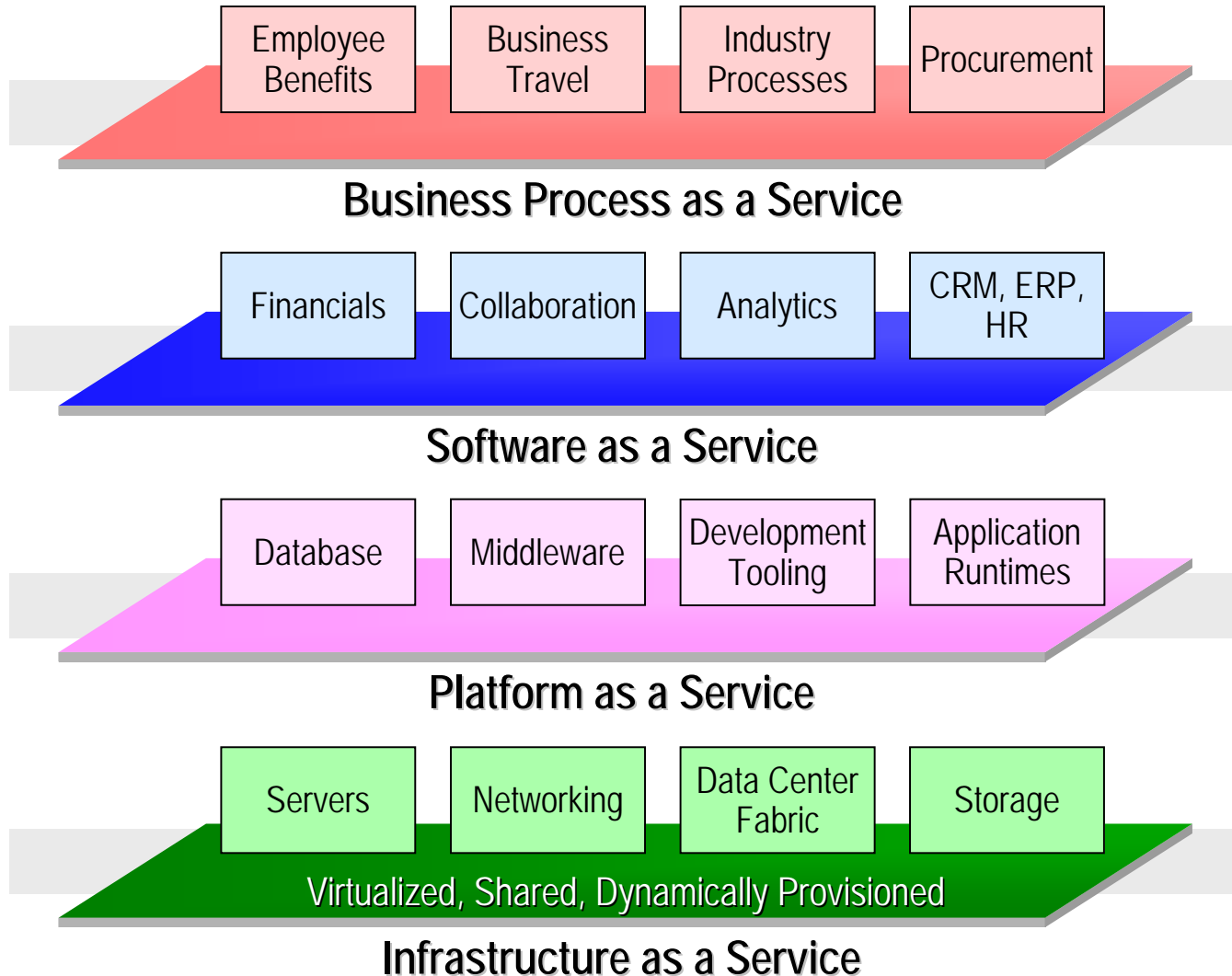
zEnterprise Heterogeneous Virtual Infrastructure Management



zEnterprise Heterogeneous Virtual Infrastructure Management



Cloud Service Models



Infrastructure as a Service

▪ Definition

- Provisioning the data center infrastructure of server, operating system, disk storage and network resources in a virtualized shared dynamic environment

▪ Client Business Model

- Motivated CTO or IT Director who wants to drive efficiency for his staff who build environment for their end-users

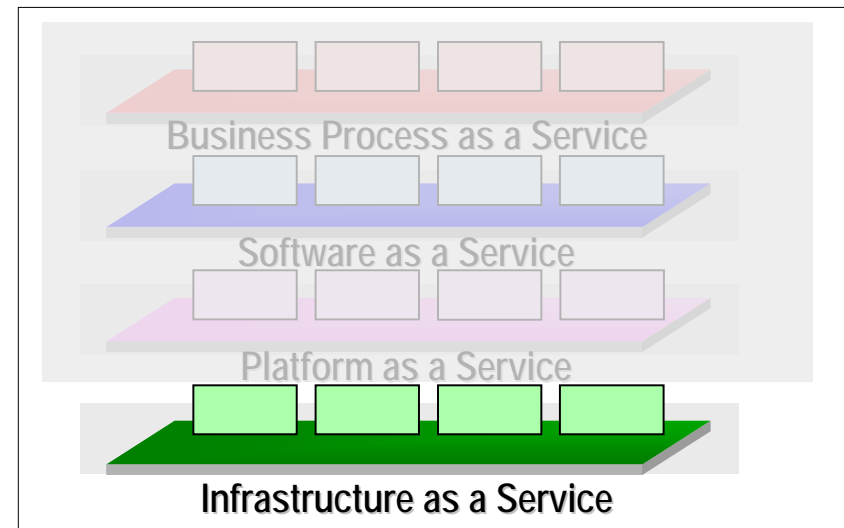
▪ Customer References / Examples

- Blue Cross Blue Shield of Minnesota
- Universita di Bari

▪ Solution / Offering Examples

- IBM System z Solution Edition for Cloud Computing

<http://ibm.com/systems/z/solutions/editions/cloud/>



Blue Cross Blue Shield of Minnesota

▪ Advantages of virtualization

- First, the lead time for server provisioning has been reduced by more than 99 percent. When the business requires a new test or development environment, **the IT team can deploy a new Linux virtual server within 20 minutes.**

▪ Realizing the cost savings

- BCBSM expects the new infrastructure to deliver cost savings over and above the predicted TCO savings in the initial cost-benefit analysis.

“Even without factoring in the maintenance and support costs—which would be considerable for a large estate of physical servers—we found that running a virtualized Linux environment on System z would be somewhere between 30 and 50 percent less expensive than a distributed architecture.”

— Ted Mansk, Director of Infrastructure Engineering and Databases at BCBSM

• Solution components:

- System z10 Enterprise Class (z10 EC)
- System z9 Enterprise Class (z9 EC)
- z/OS, DB2 for z/OS, Linux, z/VM

University of Bari – Using IT architecture to transform a local economy

▪ Business challenge:

- The Università di Bari needed a system to help local businesses (Wine market, fish market, logistics firm) decrease time-to-market, reduce transportation costs, reduce the amount of wasted products and improve overall product quality.

▪ Solution:

- The Università di Bari worked with IBM to architect a complete IT transformation, deploying a cloud-based solution that leverages System z, IBM software, storage and Global Technology Services.

▪ Benefits:

- Decreased time-to-market
- Minimized transportation costs
- Quick and accurately assessment of demand
- Increased profits and minimized waste

▪ Solution components:

- IBM System z9 BC
- IBM System z IFL
- WebSphere Integration Developer
- WebSphere Process Server
- Web Services Gateway
- WebSphere Business Modeler
- DB2 for z/OS
- Tivoli Service Automation Manager

Platform as a Service

▪ Definition

- Provides the infrastructure on which software developers can build new applications or extend existing applications without requiring the need to purchase new server infrastructure

▪ Client Business Model

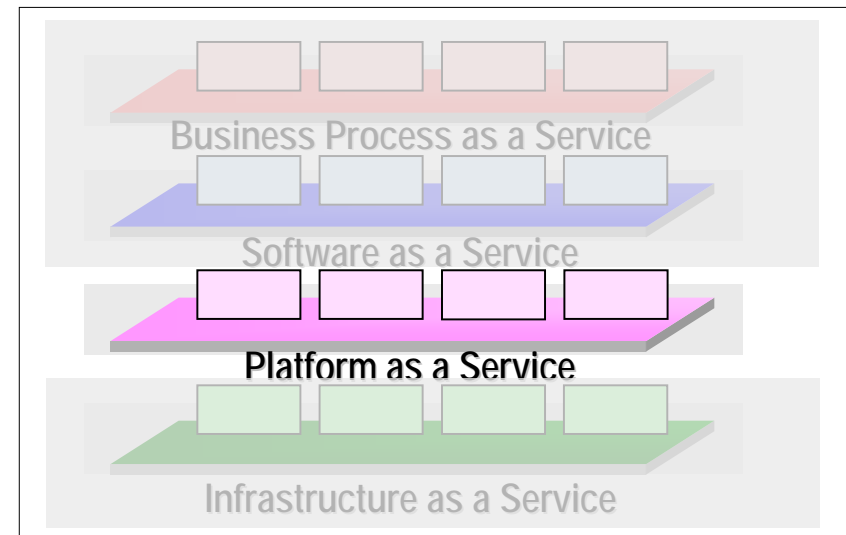
- Customers that want to provide standardized platforms or environments for their end-user community

▪ Customer References / Examples

- Nationwide
- Haddon Hill

▪ Solution / Offering Examples

- IBM Workload Deployer
- WebSphere Application Server provisioning



Nationwide delivers Cloud Services with Linux on System z

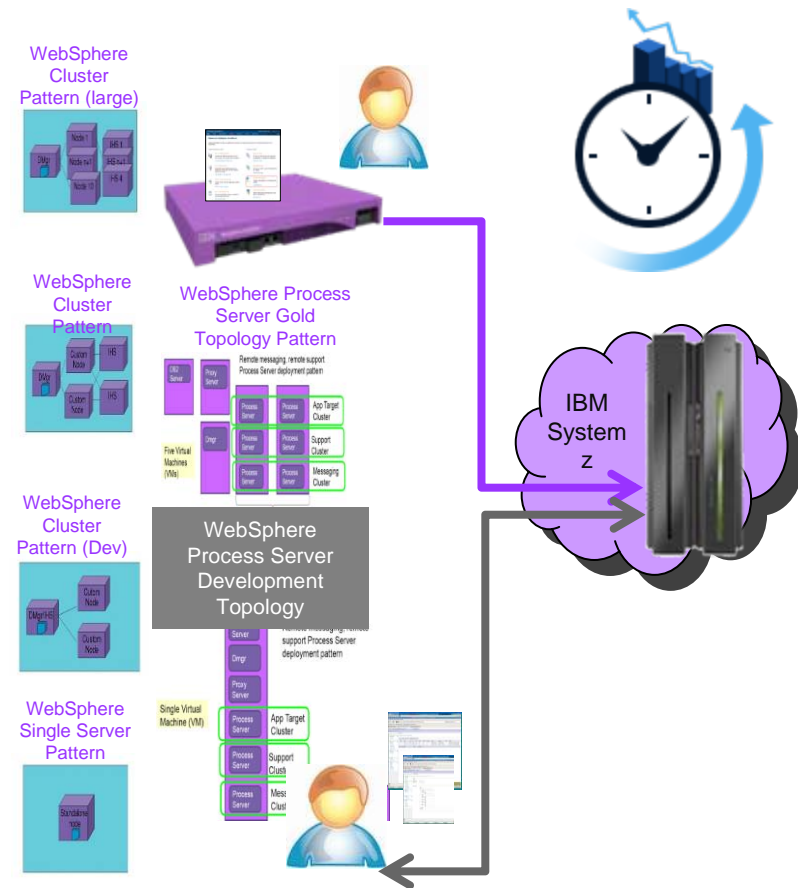
- Nationwide is running hundreds of virtual Linux servers on two IBM System z10 Enterprise Class machines. The company offers a broad set of tested-and-certified Linux images as part of their catalogue of services:
 - WebSphere Application Server
 - WebSphere Portal Server
 - Apache Server
 - DB2 LUW Server
- **Virtual server images are deployed in minutes** after a request is submitted using pre-approved templates and a “shared root” file structure made possible by running Linux on z/VM.
- Services are monitored and managed with complete back up capabilities to run in either of their two Class 4 Data Centers. Services are terminated and resources are reclaimed when user contracts expire.



Nationwide[®]
*On Your Side*SM

Haddon Hill is using IBM Workload Deployer to increase efficiencies through simplified tax filing processes

- **Business challenge:**
 - Consolidate large, complex IBM WebSphere product environments in two data centers
 - Build temporary development environments for holiday sales
- **Solution:**
 - IBM Workload Deployer to roll out and roll back configurations for the WebSphere stack, reduce the complexity of large environments and maintain consistency of server configurations
- **Benefits:**
 - Projected 7-figure savings for enterprise WebSphere implementations
 - 13 - 15x faster time to market (3 - 4 days versus 40 - 60 days)



HHG | Haddon Hill Group

Software as a Service

▪ Definition

- Software distribution model in which applications are hosted by a service provider and made available to their customers over a network

▪ Client Business Model

- Customer who has a specialized application which needs to be provided to a large number of users with rapid elasticity, therefore requiring automation and the ability to dynamically grow and teardown environment

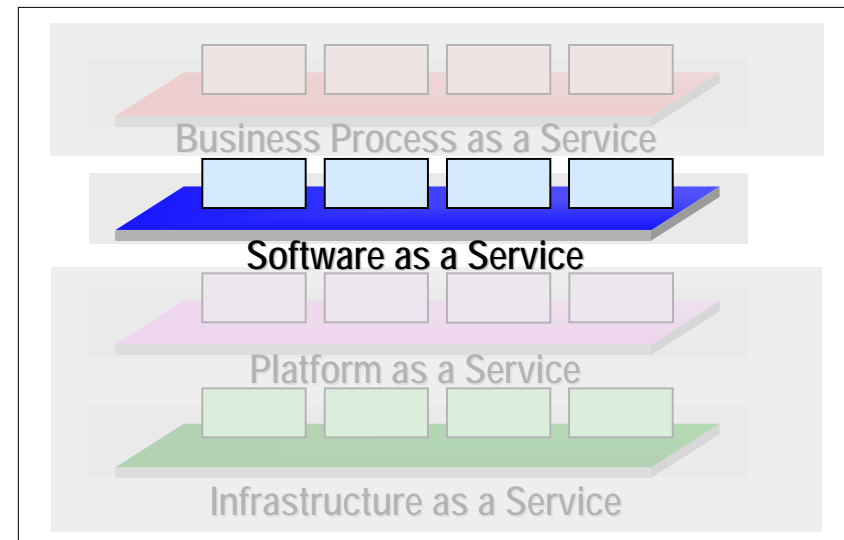
▪ Customer References / Examples

- Transzap
- PSP

▪ Solution / Offering Examples

- IBM Blue Insight –
IBM Smart Analytics Cloud

<http://ibm.com/systems/z/solutions/cloud/smart.html>



Transzap boosts Software-as-a-Service uptime with IBM System z

- **Business challenge:**
 - Transzap offers its customers a comprehensive suite of financial software tools. As a small business with tens of billions of dollars in client transactions flowing through their systems each year, Transzap needed an economical, reliable platform to provide clients with high availability, while enabling the capacity to accommodate growth within their Software-as-a-Service business model.
- **Solution:**
 - Transzap decided to consolidate on an IBM System z platform to provide the stability and scalability needed to accommodate triple digit volume growth, enabling them to focus on the business of software innovation. Transzap migrated to System z and virtualized its critical applications on Linux on System z, a platform that supports Transzap's dynamic Java and Oracle environments.
- **Benefits:**
 - Helps Transzap serve more than 69,000 users across 6,800 companies
 - Provides higher levels of uptime for their customers
 - Offers peace of mind through 24x7 world-class hardware support

“We intend to deliver a 99.9% application uptime guarantee to our customer base, thanks to the availability characteristics of System z.”

Peter Flanagan,
CEO, Transzap, Inc.

- **Solution components:**
 - IBM System z
 - Linux on System z
 - IBM z/VM

TRANSZAP

Smart Analytics Cloud in the IBM Corporation



Our commitment to informed decision making led us to consider private cloud delivery of Cognos via System z, which is the enabling foundation that makes possible more than **\$20M savings over 5 years.** – IBM CIO Office

▪ Business Results:

- Consolidating 20+ multi-product, departmental BI deployments to Cognos 8 BI on System z
- Deploying private cloud self service to support 200,000+ users across global workforce
- **56%** cost savings per user (grows with volume)
 - **\$7,775,767** – Infrastructure cost savings realized with z10 technology
 - **\$2,558,525** – Business Intelligence Competency Center (BICC) cost savings

“What IBM has done is come up with a perfect application for a private cloud.”

– John Webster, CNET, Nov. 18, 2009

Business Process as a Service

- **Definition**

- Providing fundamental Business Process services to customers looking to outsource that functionality, such as accounting, payroll, tax filling, invoicing, etc.

- **Client Business Model**

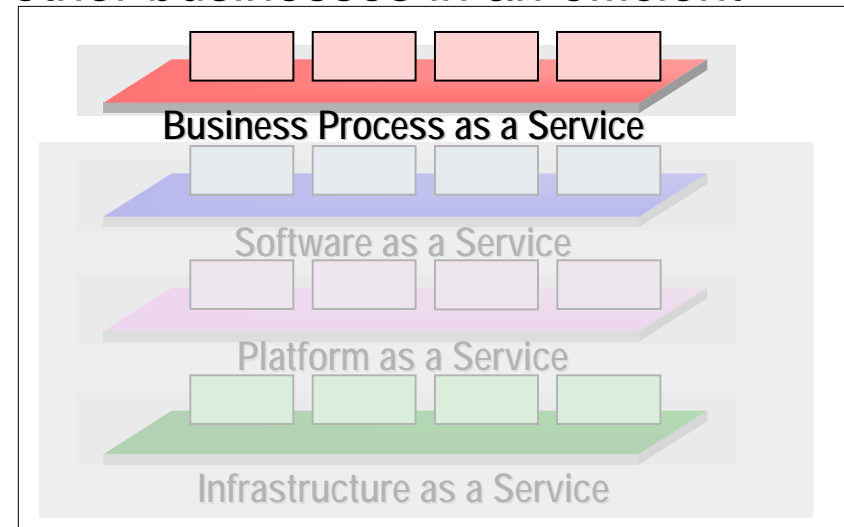
- Niche client, who has their own written application and now wants to provide it as a business service to other businesses in an efficient and elastic environment

- **Customer References / Examples**

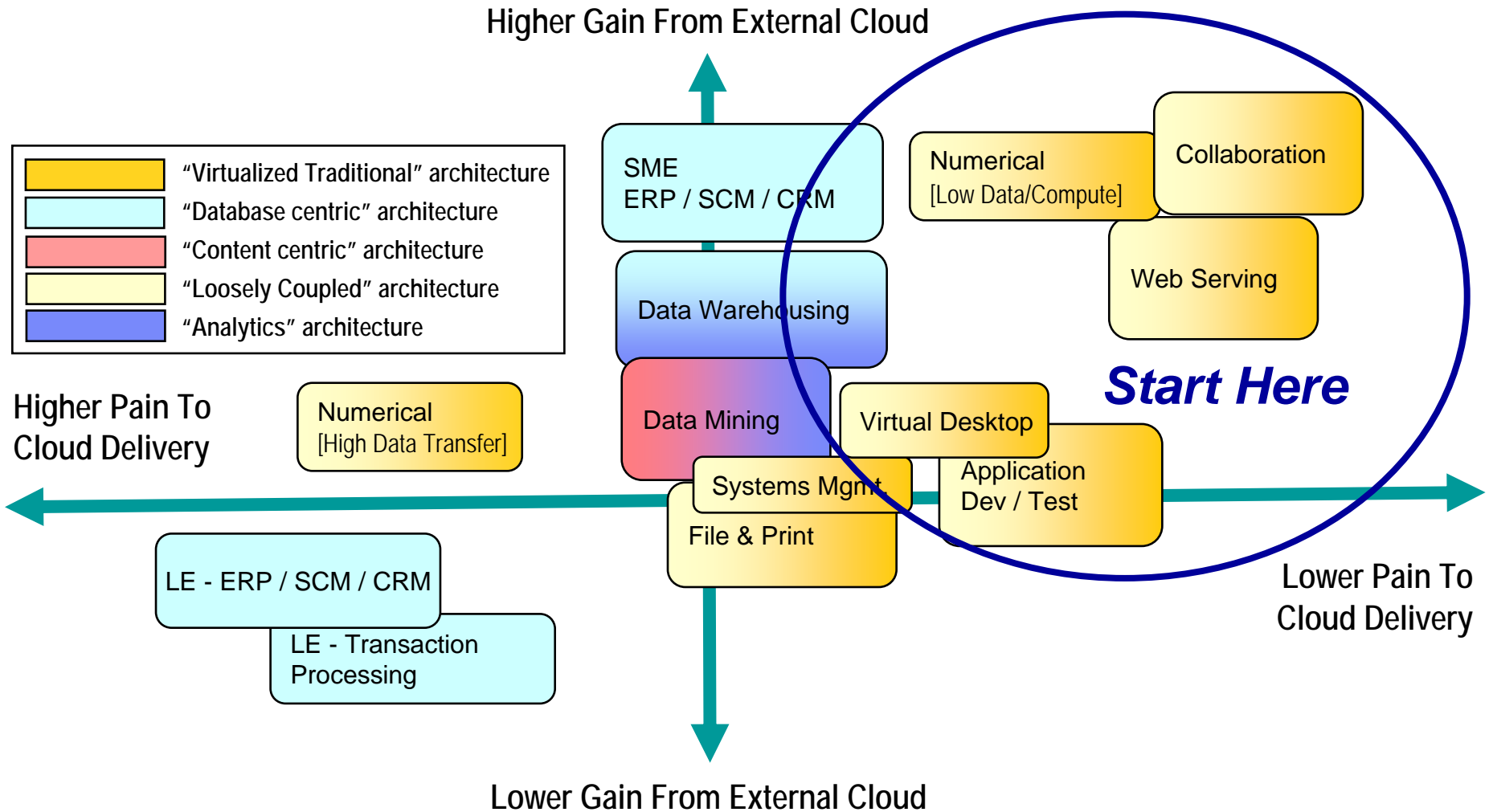
- ADP

- **Solution / Offering Examples**

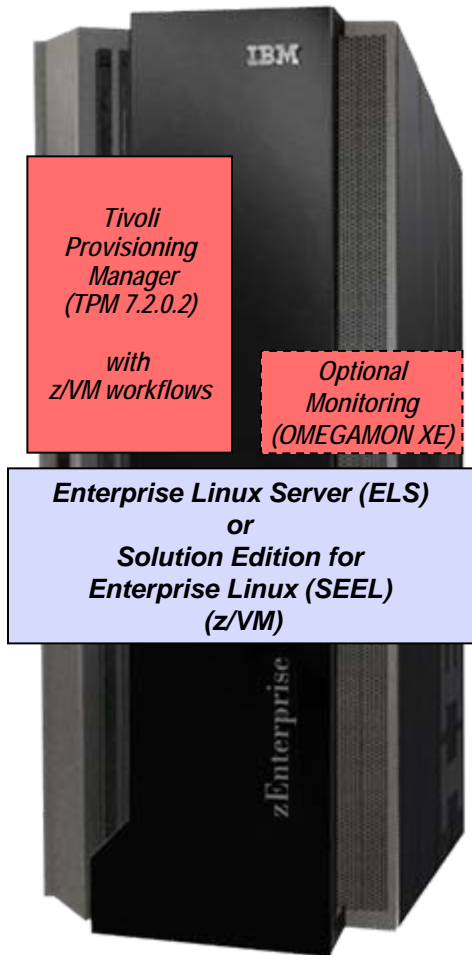
- Customer dependent – custom deployments



Clients will adopt Cloud Computing based on workload affinity

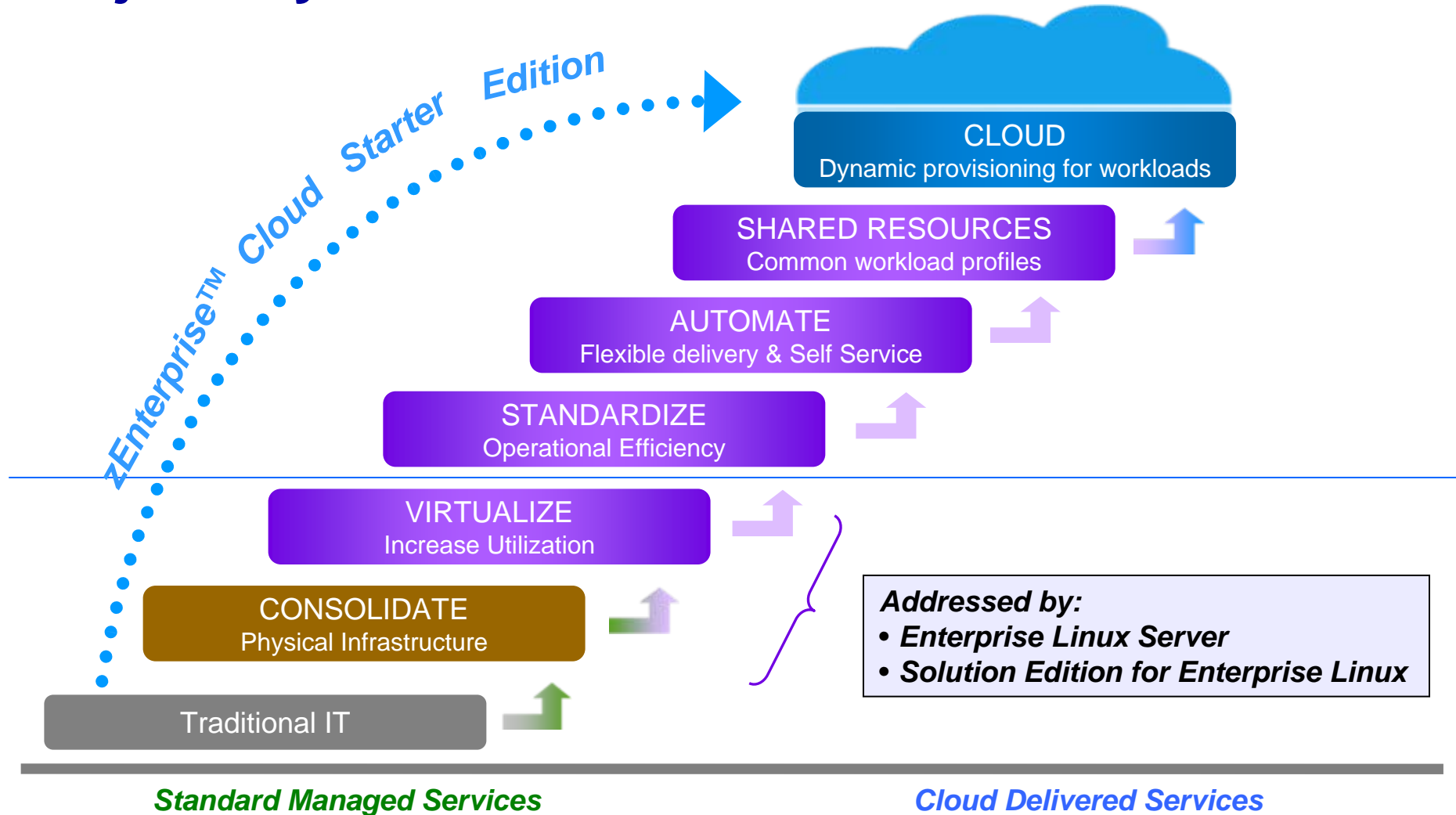


IBM zEnterprise Starter Edition for Cloud – Establishing Infrastructure as a Service (IaaS) delivery model



- **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 (Optional)
 - z/VM workflows simplify installation
 - STG Lab Services can provide rapid provisioning with newly created z/VM workflows (Optional)

How zEnterprise™ Cloud Starter Edition helps in the journey to Cloud



IBM System z Solution Edition for Cloud Computing

Creates ...

That delivers ...

Solution Edition for Cloud Computing	An infrastructure for cloud computing built on Tivoli and System z	The framework to migrate workloads for rapid adoption of cloud computing benefits
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The solution components ...

IBM Software

IBM Services



IBM Hardware

Centralize, Virtualize, Simplify

- Phase 1: Create cloud computing use cases within the enterprise
- Phase 2: Implement the service automation and management tooling to support cloud workloads
- Phase 3: Educate the client on cloud computing for on-going success and provide a sample workload

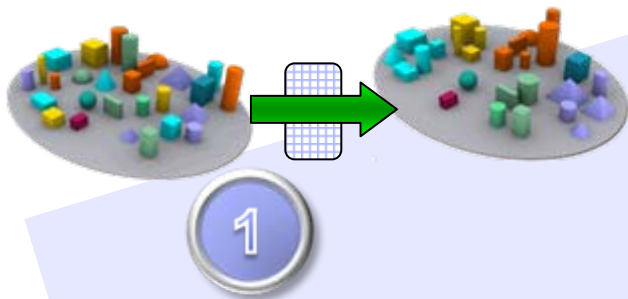


Learn more at: <http://ibm.com/systems/z/solutions/editions/cloud/>

A Step-by-Step Approach for Growing Cloud on zEnterprise

Take Out Cost

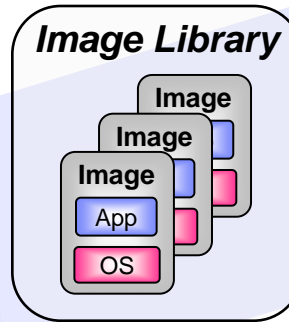
STEP 1
Consolidate and Virtualize



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

Simplify

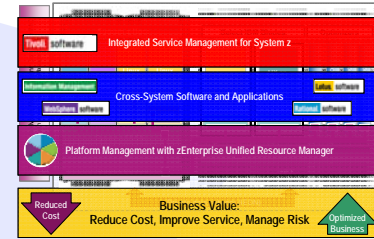
STEP 2
Automate and Manage Better



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

Integrate and Optimize

STEP 3
Cross-architecture Workload Optimization



- zEnterprise is the industry's only multi-architecture cloud solution
- Use a cloud deployment model to host multi-tier solutions across System z, POWER and System x resources
- Use the Unified Resource Manager and Tivoli ISM for optimal workload placement

Cloud Offerings and Products

- Enterprise Linux Server (z196, z114)
- Solution Edition for Enterprise Linux

- zEnterprise Starter Edition for Cloud (TPM)
- Solution Edition for Cloud Computing

- Tivoli Integrated Service Management
- Unified Resource Manager (zManager)

Key takeaways

- **IBM Cloud Computing on System z is transforming businesses**
 - Better qualities of service, advanced workload optimization, and efficient resource consolidation
- **zEnterprise is an Infrastructure as a Service platform for workload-optimized, heterogeneous computing**
 - The Unified Resource Manager is zEnterprise platform management strategy for Infrastructure as a Service facilitating secure cloud services and providing the building blocks for Integrated Service Management
- **zEnterprise is the industry's only heterogeneous cloud platform**
 - Centralized platform management and optimization across multiple architectures with the ability to also manage other virtualization solutions for a complete cloud portfolio

Questions?



Thank
You

The text "Thank You" is rendered in a large, bold, sans-serif font. Each letter is filled with a different portrait of a diverse group of people, including men and women of various ethnicities and ages, all appearing to be in professional or collaborative settings. The portraits are cut out to fit the shape of the letters, creating a mosaic effect.