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Learn How to Leverage System z in Your Cloud

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Cloud implementations that include System z maximize Enterprise flexibility and increase cost savings

Key Takeaways

- IBM SmartCloud open cross-platform architecture includes System z within a fit-for-purpose framework
- System z in Cloud optimizes critical business workloads requiring high availability and performance
- Implement Cloud on System z quickly with Cloud Ready, and easily migrate to SmartCloud over time

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Today's data centers are struggling to stay efficient and profitable while keeping up with needs of business

- Over 60% of Data Center Costs are spent on management labor, followed by costs associated with equipment
- Increasing government and industry regulations focused on security risks and data access
- With growth of virtualization, IT admins now being called to manage both physical and virtual servers with hundreds or thousands of VMs and Network / Storage devices
- 1 hour of downtime costs an organization at least $42K, for large enterprises 12 hours of downtime could cost $10M
- With over 2.7B ZB of digital content, how will this data be analyzed, stored, and protected?

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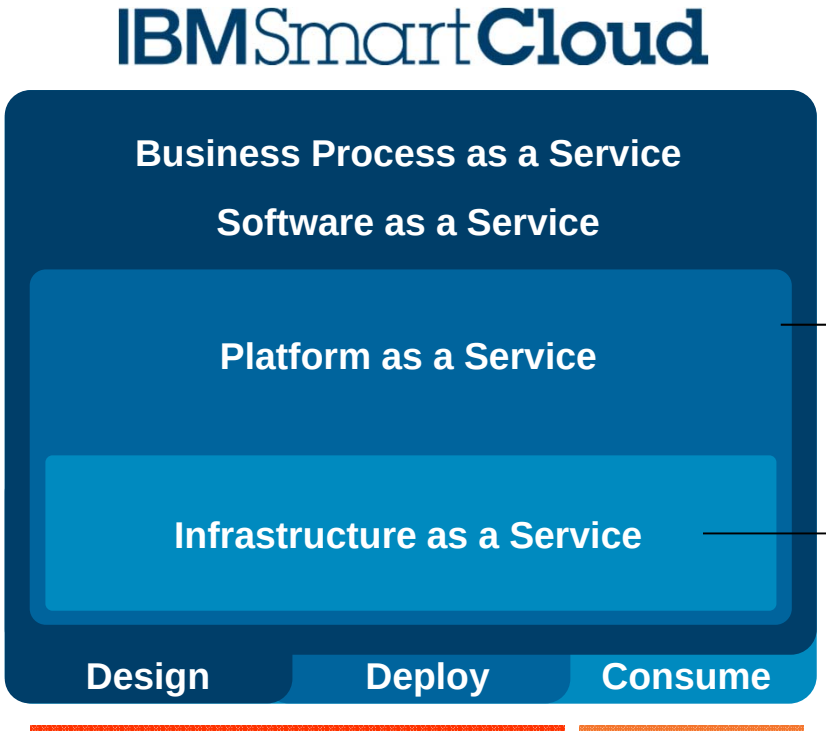
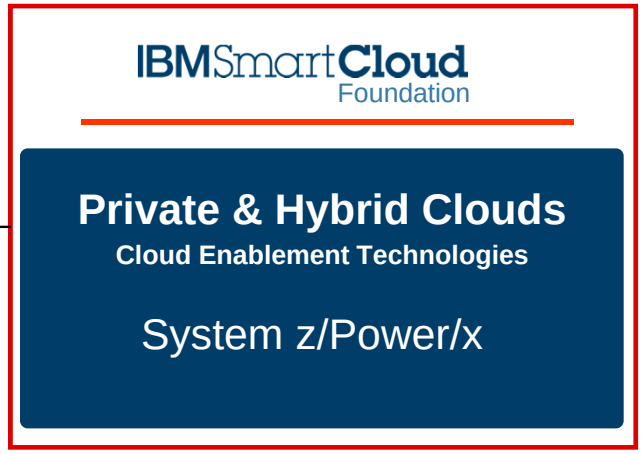
IBM SmartCloud supports accelerating business transformation with open, fit-for-purpose architecture

Commitment to open standards and a broad ecosystem



Integrated set of enabling technologies for private and hybrid Clouds with platform consistency



Leveraging OpenStack and cross-platform open APIs

Build, scale, monitor and manage cloud quickly and easily across heterogeneous platforms

Visibility

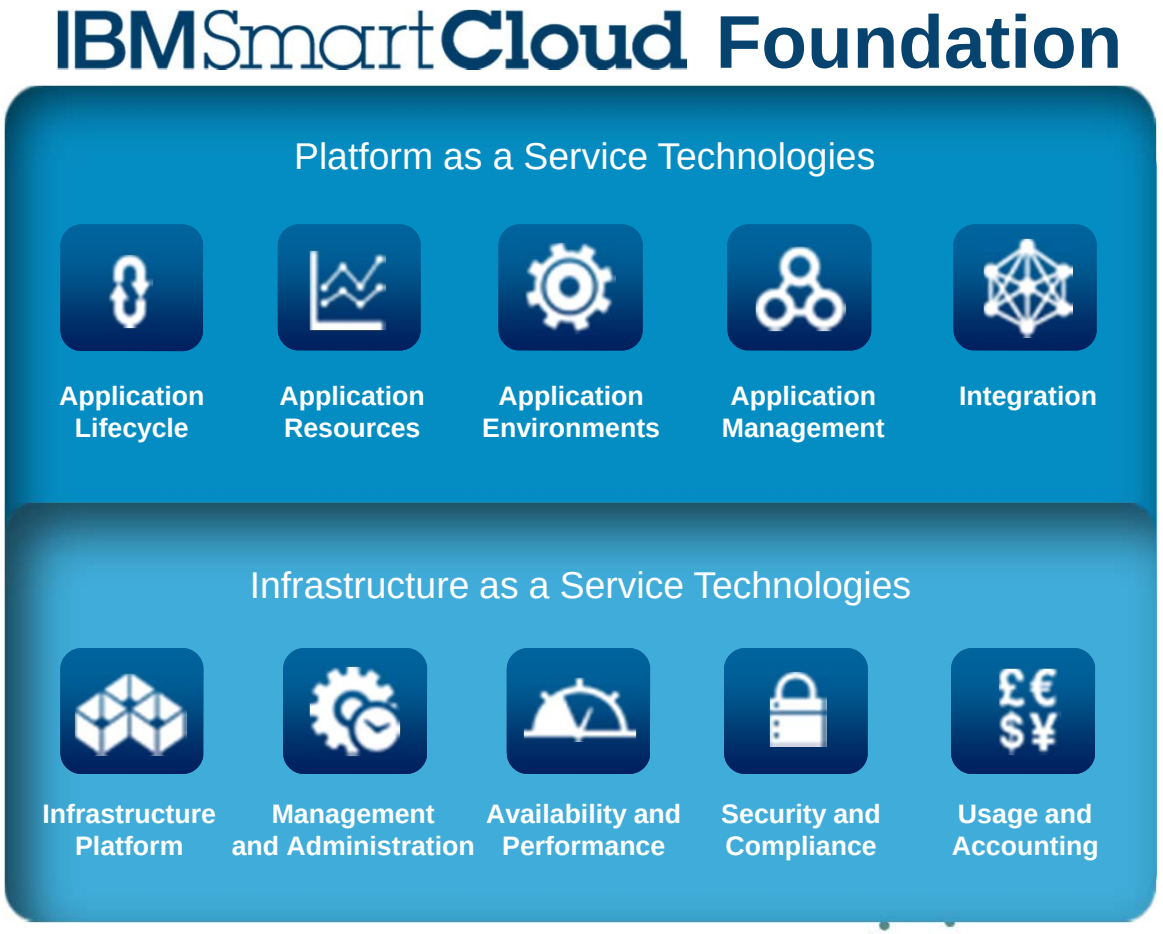
- Improved manageability
- Health analytics
- Cloud Security

Control

- End-to-end process integration
- Simplified cloud administration
- Lower costs/improve performance

Automation

- Collaborative development
- Customize workload patterns
- Cloud lifecycle management



Migrating to Cloud provides significant business value day one and increased value over time

Infrastructure Teams

1

Self Service Delivery and Management

Reduce capital costs, increase utilization, and gain accountability for resource usage

Operations Teams

2

Virtualization Optimization

Not gaining benefits of virtualization: image sprawl , compliance, lack of visibility

Cloud Ready

Dev & Operations Teams

3

Workload Optimized Cloud

Standardize and optimize workloads to deliver applications faster

SmartCloud Provisioning

CIO / IT Executive

4

Cloud Enabled Data Center Foundation

Integrate, Optimize and Orchestrate services across domains, including storage and networks

SmartCloud Foundation offer private cloud across platforms with open “fit for purpose” approach

z Enterprise secure cloud for data	Power Systems for compute intensive applications	System x reduced cost & data→ insight	Pure Systems for workload optimized design
			
zEnterprise EC12	*Power 770, Power 780, Power 795*	*System x eX5, x3640*	*Pure Systems*

Gives customers flexibility to choose “fit for purpose” platform(s) that meets business and workload requirements

- Management tools are **consistent** and **interoperable** across platforms
- Open approach avoids vendor lock-in
- Common tools translate to low learning curve which translates to:
  - Reduced administration costs and increased staff productivity
  - Lower total cost of ownership including software licensing savings
  - Decreased risk with improved automation and workload consolidation

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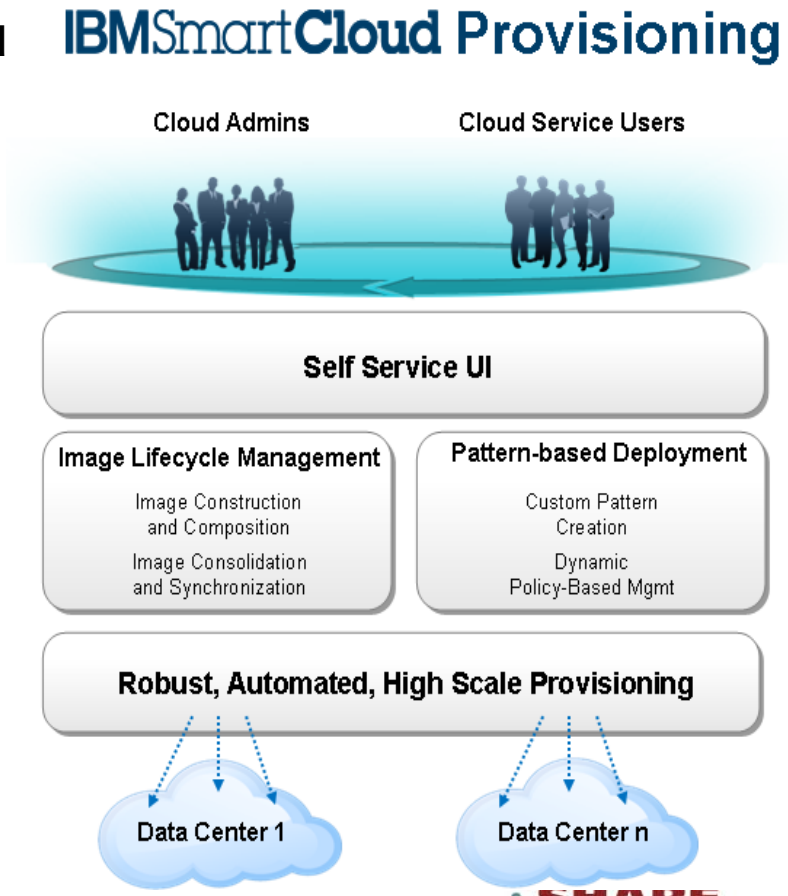
Increase business agility by automating the building of the workload-optimized cloud environment

Differentiating capabilities of business-ready cloud

- Accelerate application deployment
  Reduced standardized topology deployment from over 2 months to 18 minutes
- Manage virtual environment
  40% - 80% labor cost reduction by increasing image/admin ratio efficiency
- Avoid vendor lock-in
  IBM SmartCloud supports VMware, PowerVM, KVM, z/VM, Hyper-V, and OpenStack
- Improve agility
  Deploy 100s of new VMs in less than 5 minutes



Include visibility and management for z/VM & Linux applications and resources

SmartCloud Monitoring

Cloud Health Visibility and Optimization:

- Reports on Performance and Availability metrics

Foundation for Extensible Cloud Environment:

- Business Expansion based on capacity planning with ability to grow without adding hardware

Performance & availability:

- Take advantage of zVM Live Guest Relocation and Single System Image.

Client Success

- Major cloud service provider **consolidates 59 development & test labs into 6** centralized labs.
- Utilizing SmartCloud Monitoring, able to increase utilization significantly, **increasing VM density by 58%**

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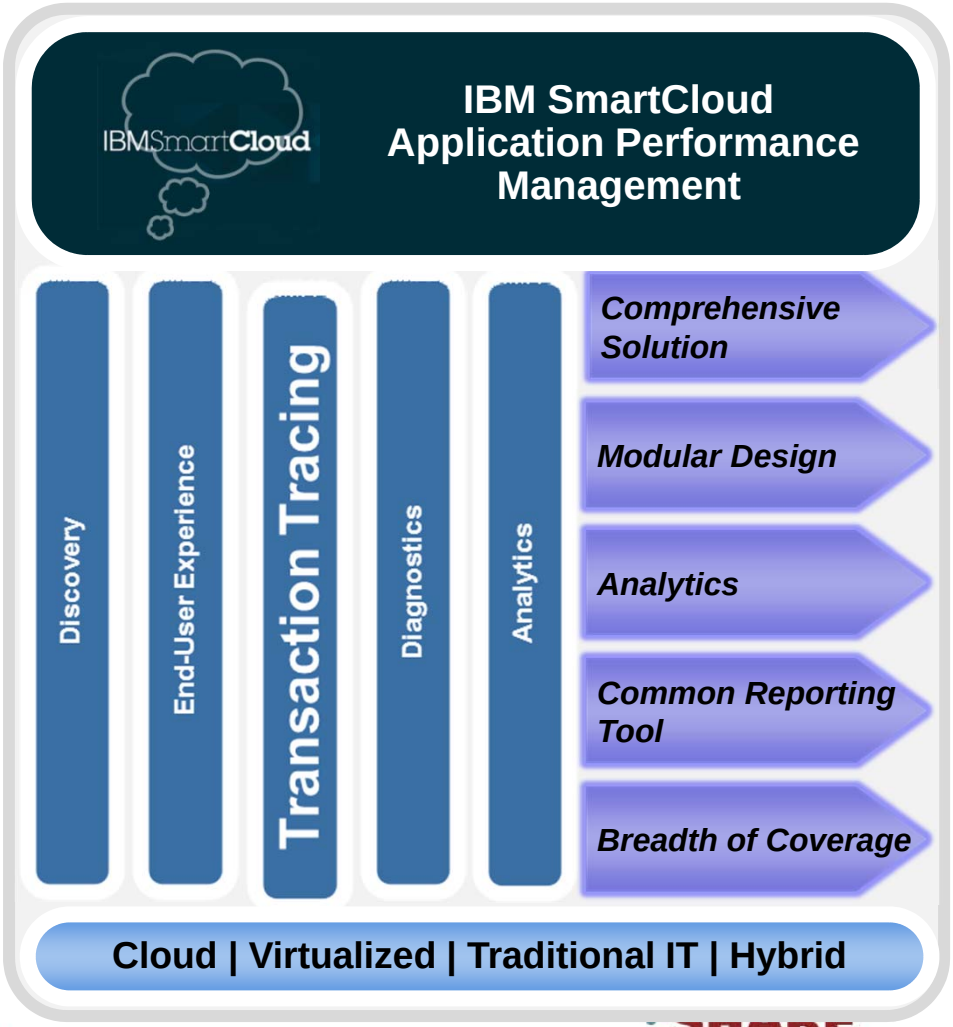
Intelligently manage Cloud Application infrastructures

- Comprehensive application/workload solution
- Modular design to get started quickly and add capabilities as needed.
- Analytics to improve capacity utilization and optimize performance
- Common reporting tool, based on Cognos, makes reporting simple and easy to customize
- Single trusted source of information for accurate and fast problem diagnostics
- Entry edition available for mid market clients



Provide IT asset and service management across entire enterprise

Manage cloud services from single console utilizing Service Catalog

- Asset lifecycle management
- Services and policies based on SLAs.
- Manage IaaS across service lifecycle
- Intelligent provisioning to simplify Private Cloud Change Control
- Automated service request handling

Holistically govern service management processes with **SmartCloud Control Desk**

Benefits:

- Minimize outages related to changes within IT Operations by up to 70%
- Increase Process Speed and Efficiency by up to 40%
- Increase Service quality and responsiveness by up to 60%
- Optimize Software license usage and bring savings back to the business

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Track, allocate and report resource usage accurately including chargeback

With SmartCloud Cost Management, accurately assess shared computing resource usage

- Insights into relationships between virtualized and physical IT assets
- Usage metering coverage to help determine costs based on allocation and utilization.
- End user visibility into cost implications of services requesting .
- Mechanism for chargeback with accurate metering and cost rating tool
- Integrates secure cloud usage reporting with the cloud provisioning and management so users can manage infrastructure costs

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Cloud Computing for Linux for System z providing customer value today

- zEnterprise represents world's most powerful and scalable processor
- System z represents both lowest TCO coupled with industry leading Qualities of Service (QOS) for deploying cloud
  - Coupled with advanced virtualization features like Live Guest Relocation
- Automate provisioning and provide key cloud capabilities
  - Focus today on **Cloud Ready offering**
  - Roadmap in place and delivering SmartCloud on z

Deploy a cloud solution for **50-70% less**

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Cloud Ready for Linux on System z offering supports quick/ easy provisioning of images and applications

- Automated provisioning from simple VMs to clustered infrastructure applications
- Automated and integrated server lifecycle management for physical and virtual machines across platforms and hypervisors
- Pre-built automation that can be leveraged by customers existing tools

Benefits:

- Client turnaround time reduced per service request from 2 months down to 4 hours
- Build simple to complex VMs consistently and fast in an automated fashion
- Ensures standardized VM rollout at large volumes according to enterprises' best practices - 7 days a week, 24 hours a day, highly available and meeting the highest security standards

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Use Cloud Ready to get up and running quickly, and easily grow as requirements increase

Cloud Ready for Linux on System z

Automation with Cloud
System Automation for Multiplatform

Cloud Backup/Recovery
Tivoli Storage Manager

Cloud Monitoring
ITM (OMEGAMON for z/VM & Linux)

Service Lifecycle Management
SC Control Desk (Svc Catalog)

Automated Provisioning
Tivoli Provisioning Manager

SmartCloud

Automation with Cloud
System Automation for Multiplatform

Cloud Backup + Recovery
Virtual Storage Center

Cloud Monitoring
SmartCloud Monitoring

Service Lifecycle Management
SC Control Desk (Svc Catalog/Desk)

Automated Provisioning
SmartCloud Provisioning

- Services for all stages of Cloud on z design & implementation
- Knowledge Transfer & on-going support, as needed.

ITM – IBM Tivoli Monitoring
SC – SmartCloud

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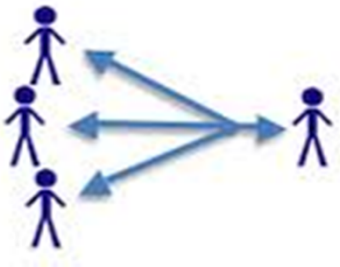
Customers exploiting different approaches to take advantage of Cloud on System z today

Workload consolidation to Linux on System z

- Reduce administration and capital cost
- Remove inefficiencies due to image sprawl
- Avoid server and workload underutilization across platforms

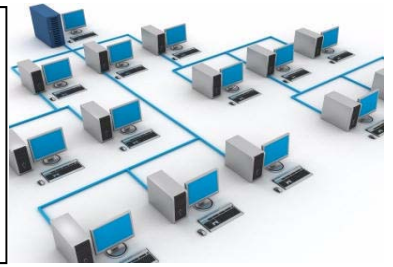


Enabling System z to be Cloud Ready

- Get up and running quickly with Installation/Configuration Services
- Provide platform to easily interface to Enterprise wide cloud services

Creating Peer to Peer Cloud across Distributed and System z

- Provide workload optimization based on business requirements
- Manage from either distributed or z platform



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Nationwide Insurance cuts costs with smart workload consolidation on Cloud on System z

Client Pain Points addressed by solution:

- Need to standardize development in Fit-for-Purpose model
- Reduce complexity of deploying workloads
- Take advantage of best platform that met characteristics
  - Initially across z Linux and x Linux.
- Monitoring and capacity management that spans x, z and p based on SLA

Solution description:

Application Deployment of standardized patterns on an integrated, optimized expert system for faster time to market

IBM Value Add:

- Patterns to reduce complexity of application development
- Consistent user and admin interfaces across x and z
- Abstraction in elements used to manage platform selection based on customer policies
- Initial platform for cloud delivery with ability to grow

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