# Implementing a Dynamic Infrastructure
# The Value of IBM System z

# IBM System z Value for a Dynamic Infrastructure presentation library NOTES TO PRESENTER

- This presentation library is composed of multiple sections to provide the flexibility to deliver presentations of variable length and to multiple audiences.
- The Sections included are:
  - High level value presentation
  - Comprehensive section on Reduce cost with system z
  - Comprehensive section on manage Risk with system z
  - Comprehensive section on Improve service with system z
  - April announcement summary, including:
    Reduce cost summary
    Manage risk summary
    Improve service summary
    Business intelligence
    zCloud

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| DB2* | System z10 | z/VSE |
| DS8000 | Tivoli* | |
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# Reduce cost with System z

- **System z delivers industry leading capabilities…**

    – Unique virtualization technology for Unparalleled scale of consolidation

    – Extensive automation capabilities across all aspects of IT service provision

    – Continual high utilization through automated prioritization and scheduling of IT tasks

    – Reuse and extend existing mainframe application investments

**SMART IS**
Saving millions in annual operating costs



**Bank of Russia:** Reduces payment processing costs by 95 percent, saving US$400 million per year. Server and data center consolidation create further savings on hardware and software licensing, maintenance and electricity, and increased security. Workload for technical staff reduced by 85 percent.

- **…To directly impact the bottom line**

| ✓ Dramatic reductions in energy and facilities requirements | ✓ Far fewer software licenses | ✓ Reduced labor requirements | ✓ Maximized ROI | ✓ Reduced total capacity requirement | ✓ Faster deployment of new services with fewer resources |

IBM

# Manage risk with System z

- **System z delivers industry leading capabilities…**

  – Comprehensive protection against all types of IT security threats

  – Availability protection spanning component failure to full disaster recovery

  – Centralized visibility, management and control to maintain availability

**SMART IS**
Protecting your customer... and your brand with no loss of data



**Bank of Montreal:** Providing a recovery point of zero and a recovery time of 2 hours helps reduce operational risk, increases client trust, improves availability, and meets stringent regulatory compliance requirements

- **…To deliver peace of mind**

| ✓ Industry's pinnacle in security certification | ✓ Massive throughput of secure transactions | ✓ Application availability of 99.999% | ✓ Leading portfolio of disaster recovery solutions | ✓ Automated notification and response to potential future failures | ✓ Protection from scheduled and un-scheduled outages |

# Improve Service with System z

- **System z delivers industry leading capabilities…**

  - The ideal enterprise hub for dynamic delivery of resources & applications as services

  - Centralized secure data serving for an enterprise wide view of real time data

  - Business-driven service delivery and management

  - Reduced application development time by reusing proven assets

**SMART IS**
Growing your business confidently in a rapidly changing economy



**Transzap:** Consolidates to System z to provide the stability and Internet scale needed to accommodate triple digit volume growth and 100% YTY growth-plan to production. The System z infrastructure securely and rapidly services more than 44,000 users across 4,200 companies with tens of billions in transaction details flowing through the company's systems each year.

- **…To deliver dynamic IT services to the business**

| ✓ **IT services aligned to business processes** | ✓ **A common view of data across enterprise applications and all access methods** | ✓ **Centralized management and control of IT services** | ✓ **Rapid and efficient deployment of new IT services and user interfaces** |
|---|---|---|---|

# Dynamic Infrastructure setup charts

# Globally, systems and infrastructure are reaching a breaking point.

- Explosion of data, transactions, and digitally-aware devices strains IT infrastructure and operations.
- Exponential growth in communications subscribers and services exposes bandwidth limitations.
- Supply inefficiencies and demand spikes tax energy and utility systems.
- Clogged and congested roadways impact productivity.
- Networks, supply chains, and borders face a proliferation of new risks and threats.

Meanwhile, customer expectations and competitive pressures are increasing.

# It's time to start thinking differently about infrastructure.

# A Dynamic Infrastructure addresses today's challenges *and* tomorrow's opportunities.

## IMPROVE SERVICE

Not only ensuring high availability and quality of existing services, but also meeting customer expectations for real-time, dynamic access to innovative *new* services.

## REDUCE COST

Not just containing operational cost and complexity, but achieving *breakthrough* productivity gains through virtualization, optimization, energy stewardship, and flexible sourcing.

**Dynamic Infrastructure**

## MANAGE RISK

Not only addressing today's security, resiliency, and compliance challenges, but also preparing for the new risks posed by an even more *connected* and *collaborative* world.

# IBM System z innovations for a Dynamic Infrastructure

*… IBM System z® delivers extreme business value by helping you reduce cost, manage risk and improve service*

**IBM System z**

IMPROVE SERVICE
REDUCE COST
MANAGE RISK

Dynamic Infrastructure
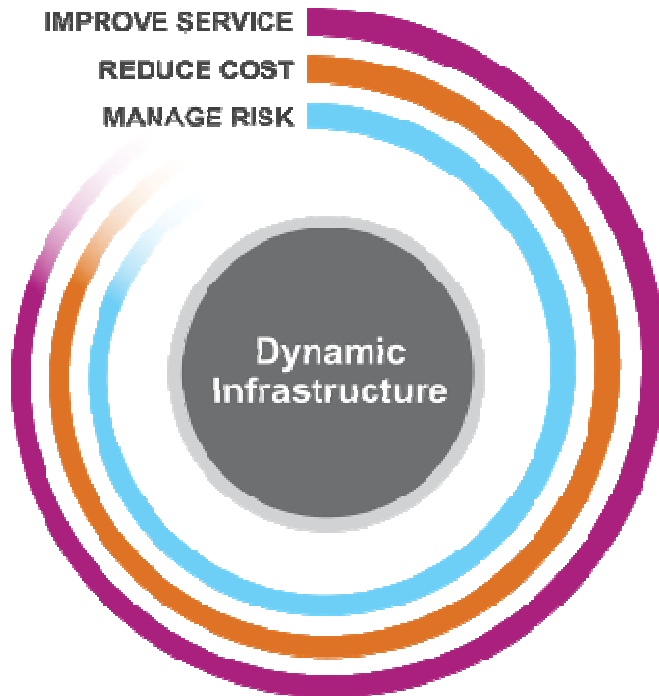
## REDUCE COST

- Industry-leading virtualization, energy efficiency, and scale
- Optimized performance, problem management, and workload automation
- Improve operating efficiency and reduce cost with business process management

## MANAGE RISK

- Secures your business, reduces risk, builds trust and confidence
- Superior qualities of service allows clients to run their businesses reliably

## IMPROVE SERVICE

- Dynamic, policy based, and automated SOA infrastructure
- Adapt and respond quickly to changing business imperatives
- Modernize mainframe assets

# Reduce cost with System z charts

# Reduce cost with System z
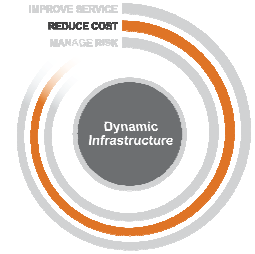
## Integrated, enterprise-wide, hub for the cost-efficient deployment of business and IT services

| Reduce operating costs through large scale consolidation of distributed workloads | Dramatically reduce energy consumption and costs | Reduce cost through optimizing performance & problem management | Workload automation to balance resources across multiple types of workloads | Improve operating efficiency and reduce costs |
| --- | --- | --- | --- | --- |
| *z/VM® Virtualization and Linux® on System z* | *z/VM Virtualization and Linux on System z* | *Tivoli® Service Management Center for System z* | *System z workload management and Tivoli* | *Business Process Management on System z* |

# Improve utilization of assets through industry-leading virtualization
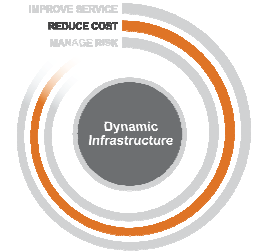
- Run 10s or 100s of application instances on a single System z server

- Drive hardware utilization rates near continuously at 85%+

- Dynamically optimize resources according to business priorities

- Deliver extra capacity for Linux virtual servers typically at no extra cost with z10™ specialty engines
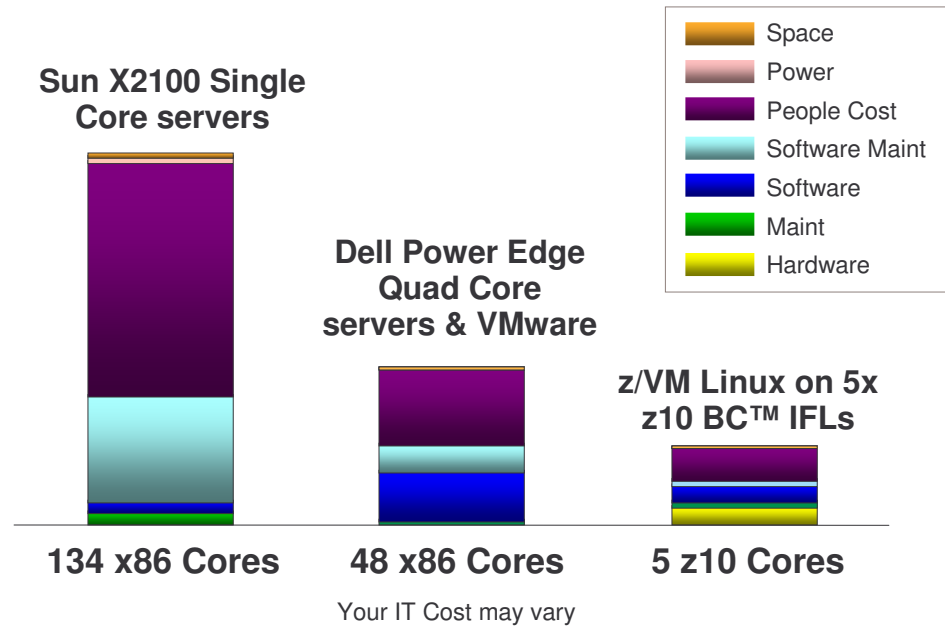
**… System z delivers large scale consolidation capabilities for savings of up to 80% in total cost of ownership compared to distributed platforms**

# It's cool to consolidate penguins
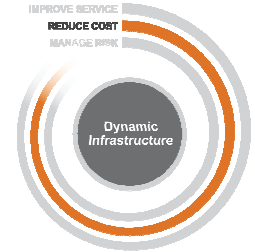
**Consolidating 134 Linux servers to 5 IFLs
Can save up to 50% over x86 with VMware**

Oracle DB Workload, 3-Year Total IT Cost

Legend:
- Space
- Power
- People Cost
- Software Maint
- Software
- Maint
- Hardware

**Sun X2100 Single Core servers**

**Dell Power Edge Quad Core servers & VMware**

**z/VM Linux on 5x z10 BC™ IFLs**

| 134 x86 Cores | 48 x86 Cores | 5 z10 Cores |

Your IT Cost may vary

*Here's a cool example:*
*IBM will consolidate 3,900 servers to about 30 System z servers with expected reductions in energy consumption of over 80%*

**Consolidation:**

**Save up to 50% over x86 virtualization**

IMPROVE SERVICE
REDUCE COST
MANAGE RISK

Dynamic Infrastructure

# The Green effect
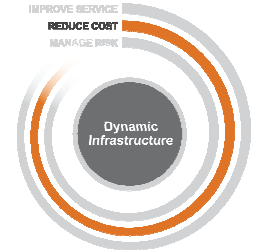
- Do the workload of up to hundreds of distributed servers in a single energy efficient System z10

- z10 technology delivers improved performance per KWh

- Active Energy Manager and Mainframe gas gauge to help manage energy consumption

"The IBM System z platform can be configured to require 1/12th the electricity as a distributed server farm with equivalent processor capability." [1]

1 IBM System z: Platform Star for Linux and Open Source Software, Ptak, Noel & Associates.

# Better management to drive efficiencies
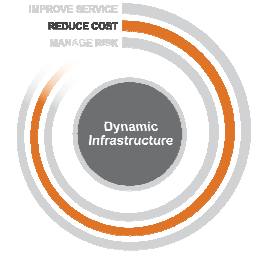
## *Automate operations to reduce TCO*

- Improved management of resources helps you maximize value from your assets

- Improve productivity with a single graphical interface to manage millions of jobs across mainframe and distributed environments

- Significantly reduce labor costs through automation of manual processes and ticket generation

✓ *Automate business & IT interactions*

✓ *Automate tasks (including problem management) across domains*

✓ *Automate tasks within domains*

# Make better use of IT assets
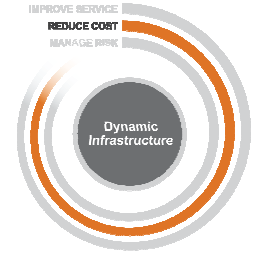
## *Balancing resources across multiple types of workloads*

- Optimize efficiencies based on service requirements and the importance to the business

- Specialty engines optimize costs for Linux, Web and data workloads – freeing up general purpose engines

- Balance workloads by running non-critical jobs at less costly times

- Leverage existing investments in mainframe applications through intelligent reuse of code to reduce application development costs

**Managing the Delivery of Services**
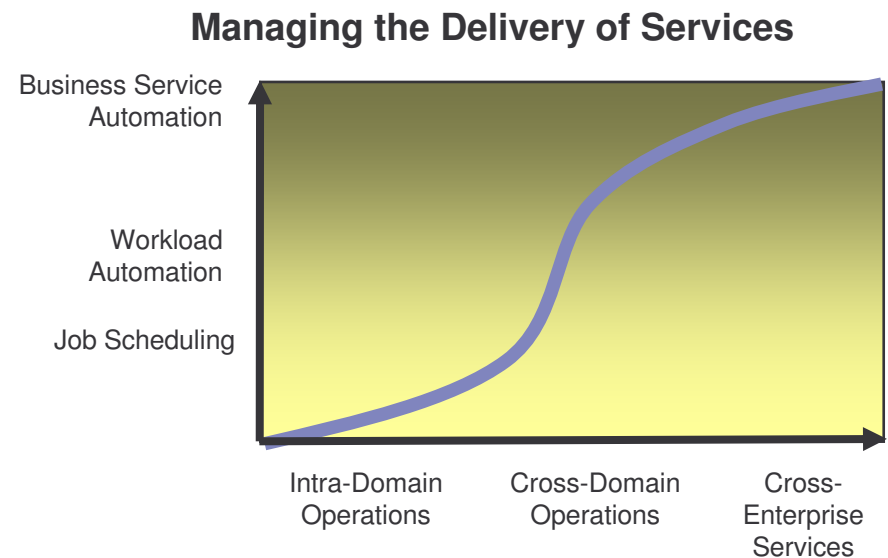
# Dynamic Infrastructure
## Smart is: Reducing Cost
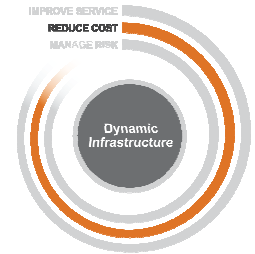
**SMART IS**
Consolidating hundreds of servers to maximize space, reduce power consumption and operating costs



**Bank of New Zealand:** Consolidates its front-end systems data center reducing its footprint by 30 percent; power consumption by nearly 40 percent; heat output by 33 percent; and carbon dioxide emissions by 39 percent. BNZ is also expecting 20 percent ROI over the life of the platform, deploys new environments in minutes vs. days and, with just one administrator needed per 100 virtual servers, is saving on resources used to manage the platform.

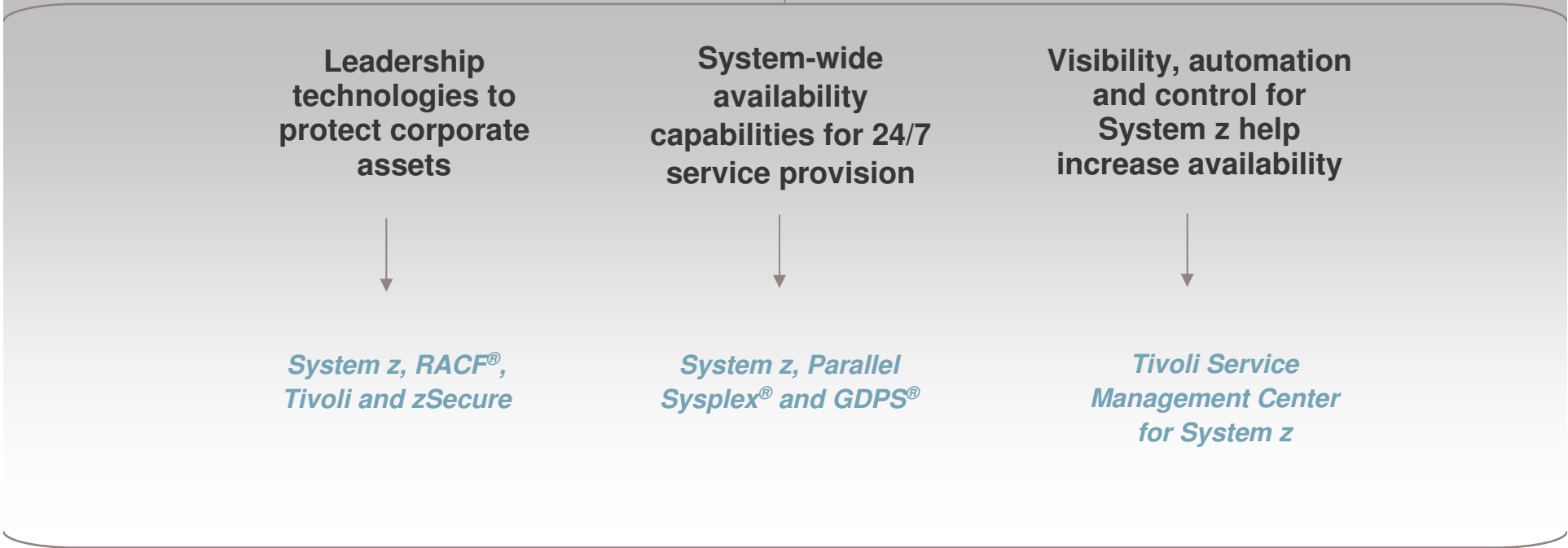**SMART IS**
Saving millions in annual operating costs



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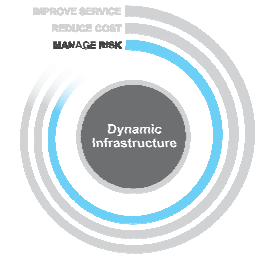19

# Manage risk with System z charts

# Manage Risk with System z
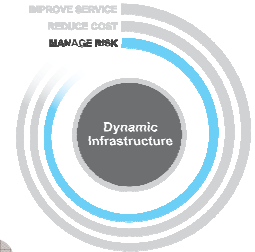
Integrated, enterprise-wide, hub for the secure and resilient deployment of business and IT services

| Leadership technologies to protect corporate assets | System-wide availability capabilities for 24/7 service provision | Visibility, automation and control for System z help increase availability |
|---|---|---|
| *System z, RACF®, Tivoli and zSecure* | *System z, Parallel Sysplex® and GDPS®* | *Tivoli Service Management Center for System z* |

# *Leadership technologies for peace of mind*

- Comprehensive protection with System z, RACF, Tivoli, zSecure:
  - User authorization and access control
  - Encryption to secure data
  - Security Compliance
  - Protection from viruses and malware

- Industry leadership capabilities and certification - (EAL5)
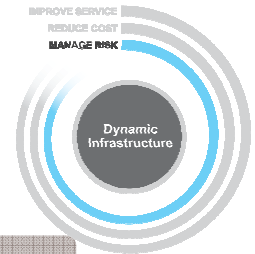
- Dedicated cryptographic processors

✓ **Mitigating the risk of security breaches**

✓ **Helping to protect your organization's brand image – and bottom line**

✓ **Helping to address compliance needs**
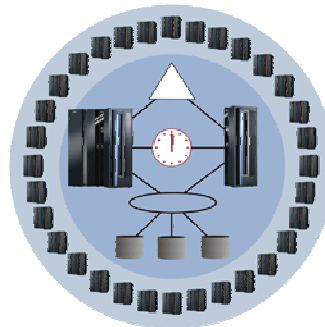
# *Availability built in across the system*

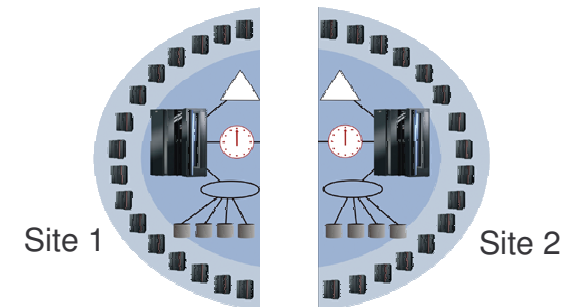**Designed to deliver availability at the _application level_**

| **Single System z** | **Multiple System z** | **Multiple Data Centers** |
|---|---|---|
| Where mean time between failure is measured in decades | Designed for _application_ availability of 99.999% | Industry-leading solution for disaster recovery |

Site 1     Site 2

✓ *Avoiding the cost of downtime*
✓ *Ensuring access to critical applications*

✓ *Maintaining productivity of users*
✓ *Open to clients 24/7*

# *Visibility, Control & Automation help increase availability*
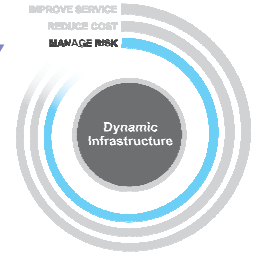
## *Utilize System z as a centralized and resilient management hub, to:*

- Eliminate human error through automation of processes

- Proactively manage the health and availability of your IT infrastructure, end-to-end

- Create an integrated view of the enterprise for problem prevention and resolution

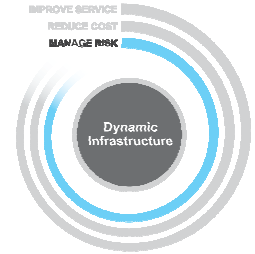- Automate management of user accounts, permissions, and passwords from creation to termination

✓ *Centralized management*

✓ *Proactive management*

✓ *Automated management*

# Dynamic Infrastructure
## Smart is: Manage Risk

**SMART IS**
Connecting to the world securely with 24x7 availability



**Kookmin Bank:** Consolidates all of the bank's business units across the world, providing a highly responsive, flexible and secure platform for 26 million active clients across 1,218 branches.

**SMART IS**
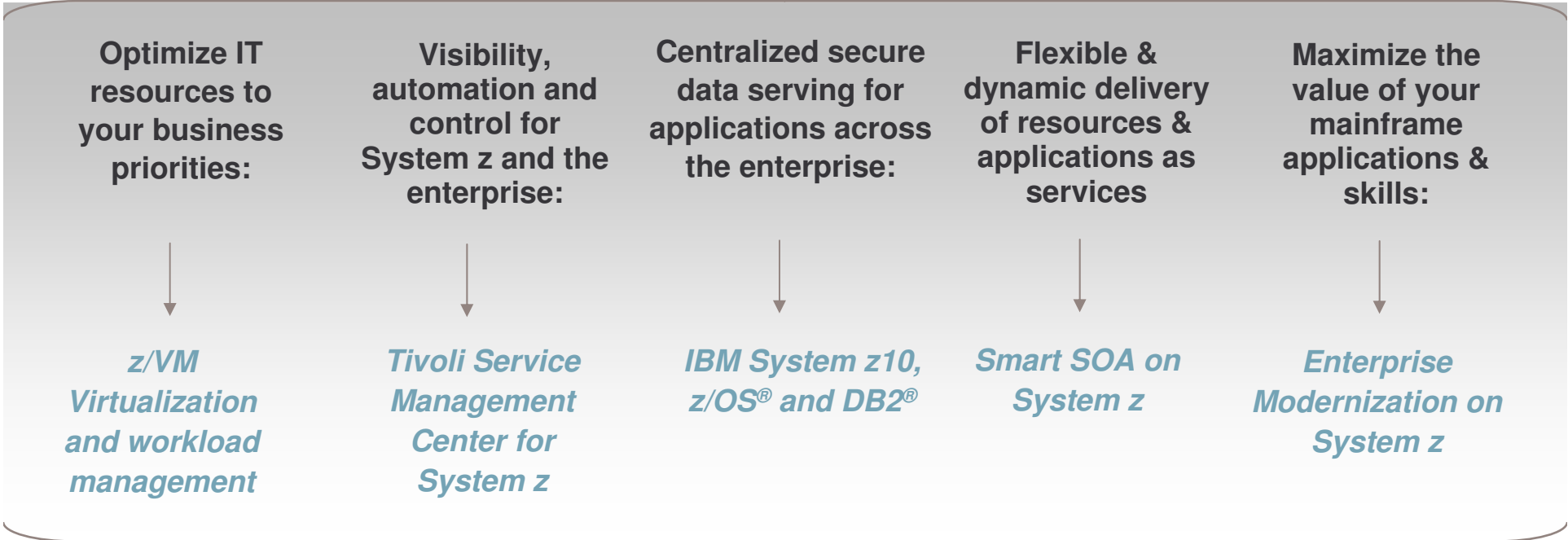Protecting your customer... and your brand with no loss of data



**Bank of Montreal:** Providing a recovery point of zero and a recovery time of 2 hours helps reduce operational risk, increases client trust, improves availability, and meets stringent regulatory compliance requirements
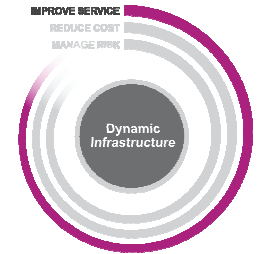
**IBM**

# Improve service with System z charts

# Improve service with System z

**Dynamic Infrastructure**

IMPROVE SERVICE
REDUCE COST
MANAGE RISK
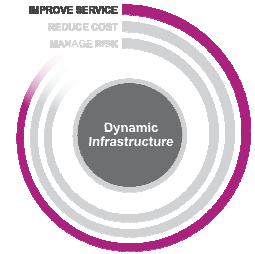
**Integrated, enterprise-wide, hub for the efficient management of business and IT services**

| Optimize IT resources to your business priorities: | Visibility, automation and control for System z and the enterprise: | Centralized secure data serving for applications across the enterprise: | Flexible & dynamic delivery of resources & applications as services | Maximize the value of your mainframe applications & skills: |
|---|---|---|---|---|
| *z/VM Virtualization and workload management* | *Tivoli Service Management Center for System z* | *IBM System z10, z/OS® and DB2®* | *Smart SOA on System z* | *Enterprise Modernization on System z* |

# *Optimize IT resources to your business priorities*

- A wide choice of operating environments delivers flexibility and choice to the business

- Hugely flexible deployment options to optimize use of IT resources

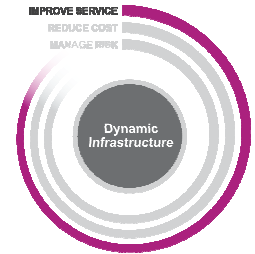- Huge scalability and leading provisioning technologies to respond to changing business demands

**z/OS**    **z/VM**    **z/VSE**™    **z/TPF**    **Linux**

# Centralized management for better visibility, control and automation

## *Deliver services aligned to your business goals*

- Superior management of end-to-end business – and IT – services with System z as the integrated, enterprise-wide hub

- Enable businesses to standardize service delivery and management processes through automation of entire IT infrastructure

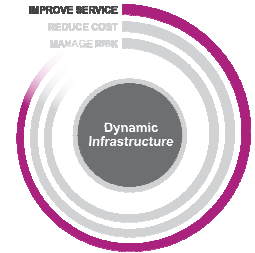- Make the business process more efficient and effective with a single point of control

✓ *Improve performance with comprehensive visibility*

✓ *Improve effectiveness with a single point of control*

✓ *Improve responsiveness and reduce errors through automation*

# Intelligent information service for the enterprise

**Dynamic Infrastructure**

*System z builds on 45 years leadership in large scale enterprise data serving delivering:*

- Provides centralized highly scalable data serving across the enterprise

- A consolidated and integrated view of real time data across the enterprise

- A suite of business analytics and data visualization tools and applications

*Delivering value in Business Intelligence by helping customers transform their data into a strategic asset enabling:*

- *Actionable information*
- *Intelligent decision making*
- *Business foresight*

# Superior service to the business
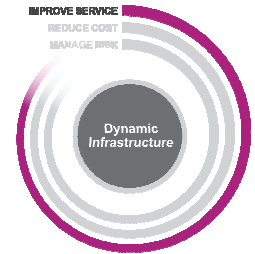
- Create an application foundation with WebSphere® and CICS® to build, deploy and manage existing and innovative new services

- Add new capabilities to existing business data that resides on System z

- The ideal enterprise hub to orchestrate SOA infrastructures underpinned by the highest qualities of service

- Deploy SOA enterprise hub alongside corporate data for tight integration and better service to users

- Build upon the resiliency and openness of System z as you deploy the enterprise service bus at the heart of your SOA implementation

# Increased efficiency for new service deployment
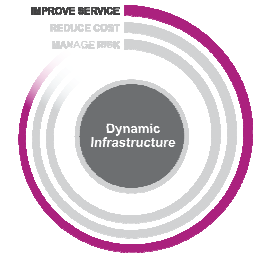
- Extend the life of existing System z application investments through intelligent reuse of code

- Respond quickly to business changes and increase overall application quality

- Achieve greater business agility and productivity by leveraging existing domain knowledge and new talent

- Increase team efficiency & collaboration across the software lifecycle
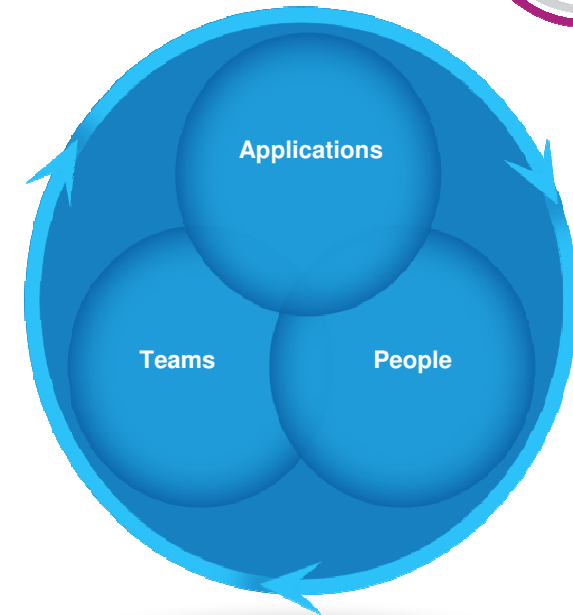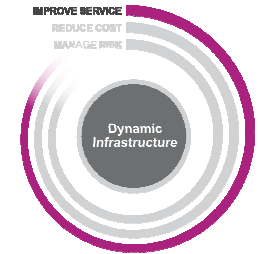
✓ *Cut application development time by reusing proven assets*

✓ *Accelerate deployment of new services and user interfaces*

# Dynamic Infrastructure
## Smart is: Improving Service

**SMART IS**
Improving customers' satisfaction by streamlining processes

**Ball State:** Leverages its new SOA infrastructure on System z to streamline and automate its online student enrollment process resulting in improved student satisfaction and recapture of lost revenues.

**SMART IS**
Reducing response times and improving customer satisfaction

**Häfele GmbH & Co KG:** Deploys IBM System z technology resulting in a reduction in transaction processing and online response times of 50 percent for customers in over 150 countries.

# April Announcement charts

- Reduce cost summary
- Manage risk summary
- Improve service summary
- Business intelligence
- zCloud

# New Innovations help to reduce cost

- **IBM System z10 Business Class™ (z10 BC)**
  - Maximum memory doubled to allow large scale consolidation

- **Energy Efficiency SOD**
  - Future generations of High-end System z servers will offer the options to utilize existing data center chilled water supplies and/or use a direct High Voltage DC power design either one designed to improve energy efficiency

- **GTS Services**
  - Networking integration, strategy and optimization services are being enhanced to help deliver lower costs networking implementations

- **CICS Transaction Server V4.1**
  - Control costs by simplifying IT infrastructure and productivity through easier-to-use interfaces & functions

# New Innovations to help manage risk

- **Enhancements to IBM System z10 Enterprise Class (z10 EC™) and z10 BC:**
  - z10 EC certified as EAL 5 compliant
  - New Enhancements for problem determination, recovery times and capacity backup
- **z/VSE 4.2.1**
  - Support for IBM DS8000™ Full Disk Encryption to secure data at rest
  - Encryption Facility for z/VSE V1.2 with support for OpenPGP for secure data exchange with partners
- **ACI Payments: ACI Proactive Risk Manager and Enterprise Risk Management**
  - Reduce losses by stopping fraudulent payment transactions before authorization
  - Improve fraud analyst productivity and operational efficiency with an enterprise approach
- **Tivoli Workload scheduler 8.5**
  - Manage workloads across the enterprise
- **CICS Transaction Server V4.1**
  - Comply with corporate, industry, and government policies to manage business risk

# New Innovations to help improve service

- **Enhancements to z10 EC and z10 BC:**
  - WWPN prediction tool helps reduce SAN installation time to accelerate service provision

- **IBM Systems Director 6.1.1**
  - Open integrated toolset enable customers get started faster and be more productions

- **z/VSE 4.2.1**
  - Boost productivity of application development for faster introduction of new services

- **GTS Services**
  - A new IT Optimization Business Value Roadmap service that includes cloud readiness assessment helps clients design a strategy for improved service to the business

- **CICS Transaction Server V4.1**
  - Improved insight into business processes and modify business applications quickly

# System z innovations for Business Intelligence

IMPROVE SERVICE
REDUCE COST
MANAGE RISK

Dynamic Infrastructure
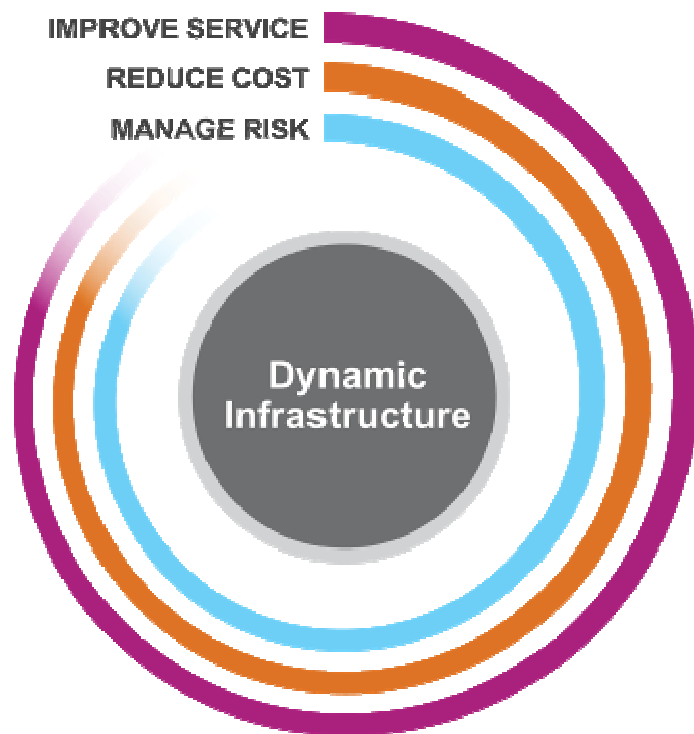
**Delivering an integrated solution for business intelligence that offers:**

- A low cost implementation through the use of specialty engines, hardware compression, reduced networking requirements and higher utilization of assets

- A resilient implementation that takes advantage of the inherent strengths of the system z platform such as WLM, that enables the prioritization of critical queries within a mixed query workload, for optimized performance and response times.

- An implementation that delivers exceptional service to users, with information made available in a timely, accurate and consistent manner

# Business Intelligence with System z
# New announcements to deliver enhanced value

**NEW!**

Designed to simplify the delivery of warehousing solutions on System z

*IBM InfoSphere™ Warehouse on System z*

Enables the business to make more informed, faster, and more aligned decisions.

*IBM Cognos 8 BI for Linux on System z v4*

Deliver information to business users whenever and wherever they need it

*IBM Cognos® 8 Go! Mobile for Linux on System z*

Delivers dynamic and customizable information with drag-and-drop ease.

*IBM Cognos 8 Go! Dashboard for Linux on System z*

# System z – Scalable and secure data serving

- Centralized data serving to support applications and users across the enterprise

- Leverage z/OS to prioritize critical queries within large mixed query workloads, to ensure timely execution and responses

- A common view of data that spans multiple applications and is updated in real time

- Scalability and flexibility to be responsive to changing business demands

- Underpinned by availability and security you can trust

- Enablement of zIIP specialty engine helps reduce cost

- Simplify your BI infrastructure to ensure easy operations, in a secure, easy to scale environment for critical BI workloads

## *Helping customers:*

- *Process queries faster*

- *Lower total cost of ownership*

- *More easily manage growing query volumes with limited operational risk*

# Delivering a Successful Business Intelligence Environment on System z

## Synergistic Hardware

### IBM System z10 EC and z10 BC

- ✓ Very low cost of deployment with Integrated Facility for Linux

- ✓ Excellent ROI with extreme utilization and balancing of data requests by priority

- ✓ Hugely scalable and flexible to respond to user demands

- ✓ Excels in delivery of very high quality of service

## Dynamic Warehousing

### InfoSphere Warehouse

- ✓ Simplify Managing your warehouse on z/OS
- ✓ Cubing Services
- ✓ Warehouse Tooling

## Information Transformation

### InfoSphere Information Server and Master Data Manager

- ✓ Transform information into a trusted strategic asset
- ✓ Deliver trusted information in context

## Business Intelligence

### IBM Cognos BI for Linux on System z V4

- ✓ Broad range of BI capabilities
- ✓ Delivered however and whenever it is required
- ✓ Built upon an open enterprise-class platform

# An Integrated Solution Centralized data serving and Business Intelligence on System z

- **Better than the sum of the parts:**

    - Execute queries according to business priority to deliver consistent improved service

    - Reduce cost by integrating on a cost effective single, flexible platform

    - Faster service to users through high speed access to data

    - More accurate and timely service to users through information based on real time data

    - Manage risk by extending strengths of System z and z/OS to your BI infrastructure

    - Minimize costs, delay and risks of external networking
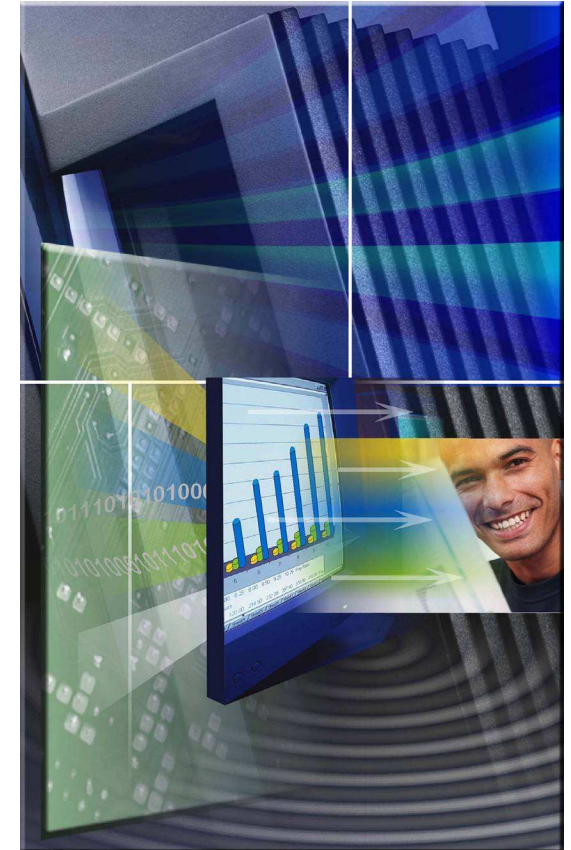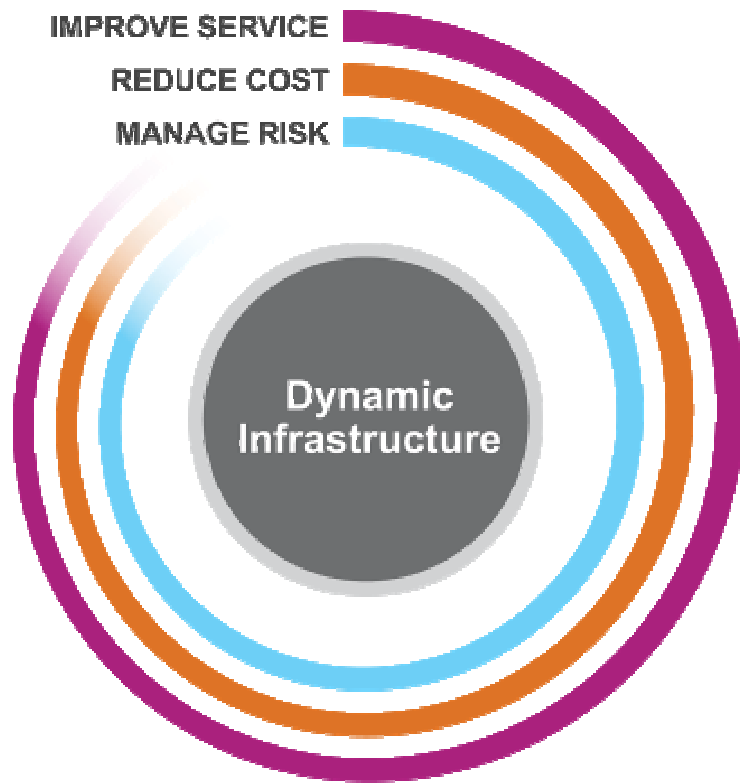
*Helping customers:*

- *Reduce Cost*    - *Manage Risk*    - *Improve service*

# System z
# Roadmap for Cloud computing in a Dynamic Infrastructure



Deliver an Elastically Scalable, Virtualized System That Is Rapidly Provisioned With Flexible Pricing Models

# System z:
# Capabilities for cloud computing

- System z delivers the security, availability and performance users expect from the promise of cloud computing…

- …with unparalleled scale in the industry…

- …while delivering the reduction in operating costs that the business demands…

- ... and the ability to minutely manage resources and respond to changing business demands on the fly…

- …all while dynamically allocating potentially 10s of 1000s of new and diverse workloads to the operating environments best suited to support them

- … on a single physical box.

# zCloud: Designed to deliver dynamic services

*"Elastically Scalable, Virtualized System Resources That Are Rapidly Provisioned With Flexible Pricing Models"*

## System z today…

- **Elastic Scaling**
  - Huge scalability with capacity provisioned on demand to meet the fluctuating needs of the business
- **Advanced Virtualization**
  - Industry leading virtualization with a shared everything design where resources are deployed automatically on the fly for flexibility and maximize ROI
- **Rapid Provisioning**
  - IT capacity and capabilities can be provisioned automatically on demand on a permanent or temporary basis
- **Flexible pricing**
  - Multiple pricing policies, pay for what you use, unique proposition of specialty engines

## … and in the future

- **Extend these capabilities to an integrated heterogeneous infrastructure:**
  - Extend management to integrated accelerator technologies
  - Extend Quality of service out to the infrastructure
  - Optimize cost of technology deployed according to business need
  - Control end-to-end applications across heterogeneous platforms

# System z delivering cloud capabilities to client's today

**SMART IS**

Taking cost centric software that is needed to support the business and selling it as services to other industry organizations through "software as a service"



**Marist College:** leverages the open-source education platform Sakai, which is used to support the learning & management of Marist's + 5,500 student population. Marist runs it's branded version of Sakai, called iLearn as an internal asset, but with cloud computing they distribute this learning service to partner organizations, supporting +25 other institutions and recovering their costs.

# Technology Roadmap to Deliver Client Value
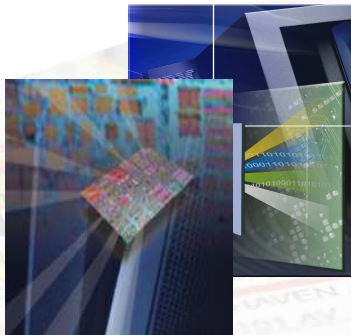


**Specialty
Engines**

**IBM System z10™**

**The worlds most
powerful enterprise
computing platform**

**Integrated or
network attached
Accelerators**

*Enable new solutions
with optimal
efficiency,
performance and
service and cost*

**The next evolution of
IBM Mainframe
computers**

*Extend mainframe
qualities to
heterogeneous platforms
within a Dynamic
Infrastructure® to Support
Business Critical
Applications*

# The road ahead for Dynamic Infrastructure with z

*Our goal is to extend mainframe qualities to <u>heterogeneous</u> platforms within a Dynamic Infrastructure to Support Critical Applications*

- **End-to-end systems management**
- **Policy based automation across the applications stack**
- **Mainframe security**
- **Application resiliency**
- **Consolidated disaster recovery**
- **Improved economies of scale and efficiency**

# The Future runs on System z…
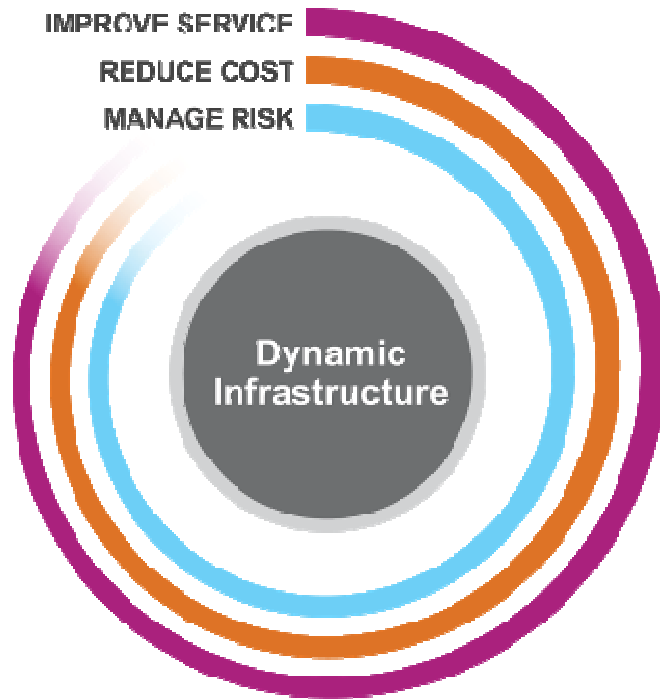


*… System z delivers extreme business value by helping you reduce cost, manage risk and improve service*

IBM

# Thank you!

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