IBM System z Technology Summit

Maximize availability and performance
with Tivoli System Automation solutions

Increasing System Automation can improve availability across the entire enterprise

Key Takeaways

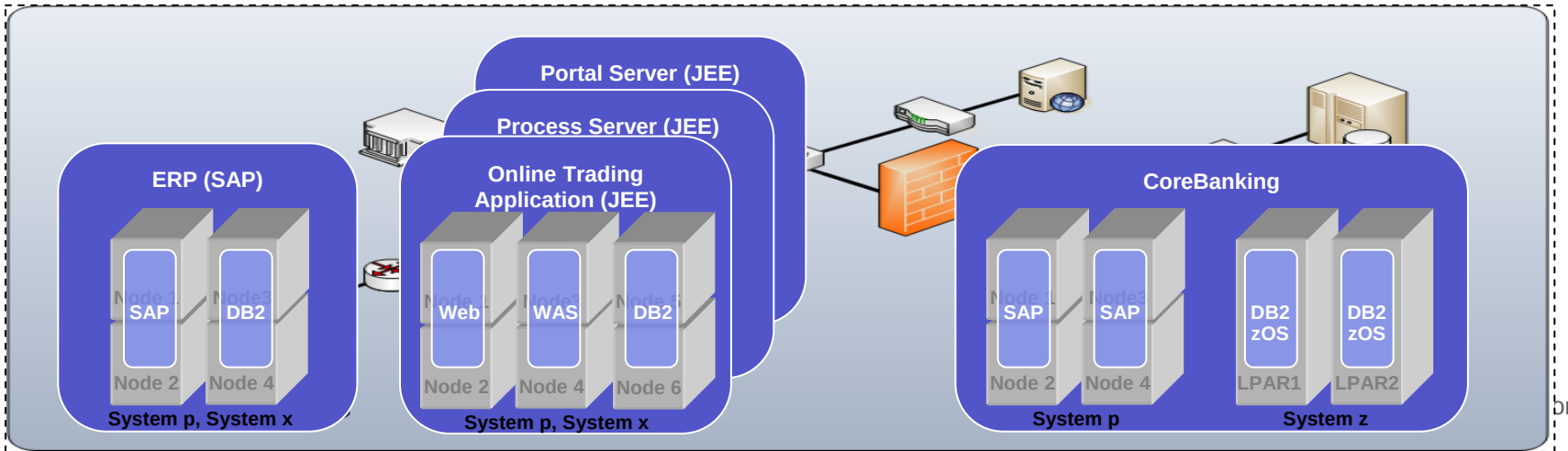
1. IBM provided leadership and best practices with System z Service Management Visibility, Control and Automation

2. Enterprise-wide Integrated Automation solution provides better availability and performance than separate products

3. IBM enhancemants to System Automation for z/OS and NetView for z/OS will improve productivity and availability

Where the Industry is Going

- **Focus on increasing organizational efficiency**
  - Operations are challenged to broaden scope with focus on managing entire applications
  - Often mainframe and distributed Ops are combined
  - Reduced z/OS operational skills, pushing problem determination onto sysprogs and applications
  - Sysprogs asked to manage more systems and greater complexity with fewer people
  - Deep skills are declining with retirement and job movement
- **Focus on improving end to end availability**
  - Manage applications as a business function, not as piece parts
  - Deep siloed skills remain, augmented by integrated tools to broaden perspective
  - Create better visibility, control, and automation to isolate and resolve problems quickly



Visibility, Control and Automation on three levels: Component, Related Resources, and Business

VISIBILITY

- See what is working as desired and also understand what has caused a problem
- See both health and problems in the context of the impact on other components
- See issues in a broader scope as they relate to the business

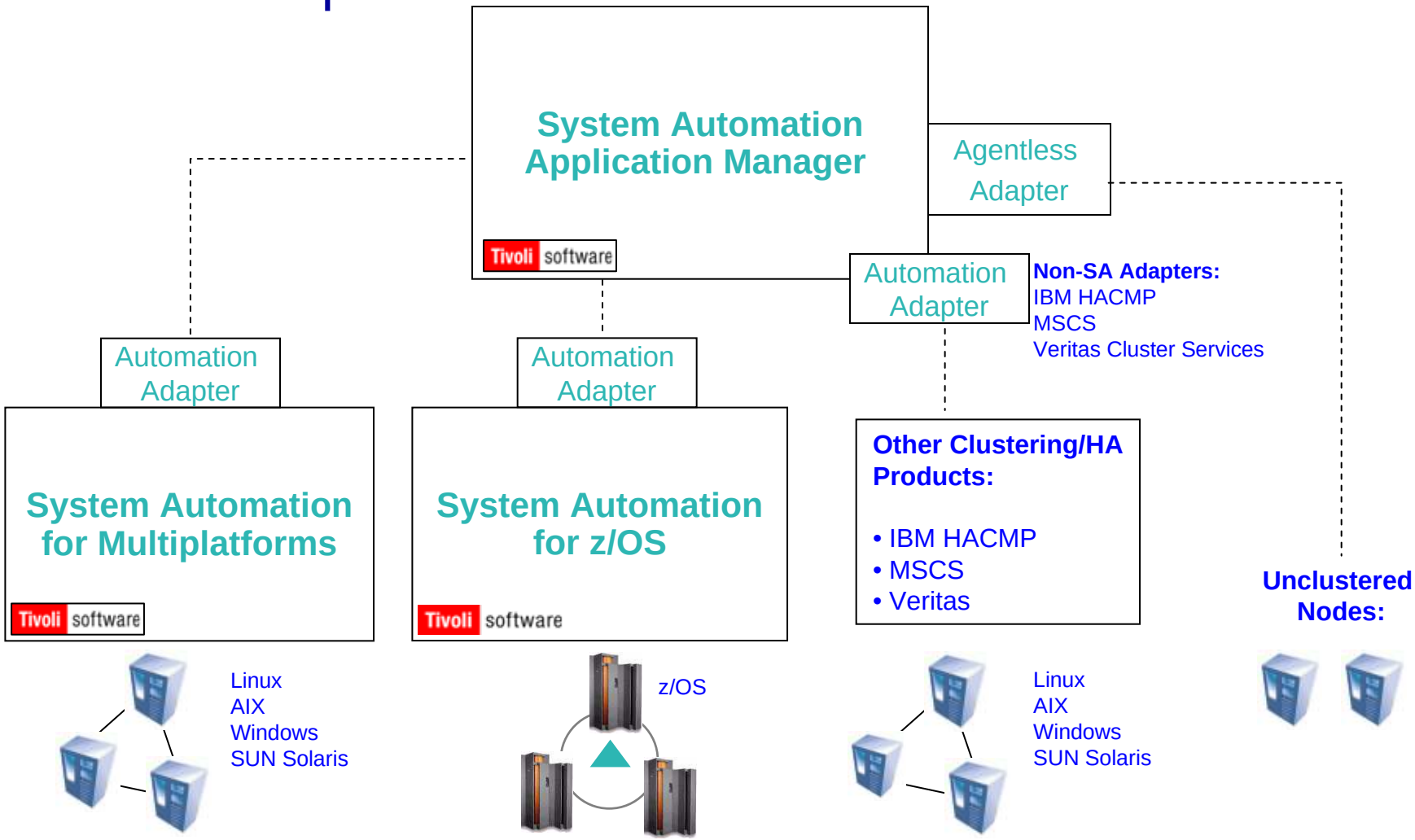
CONTROL

- Change the environment to keep resources in the desired state
- Issue commands with a clear understanding of the impact on related components
- Understand the impact of changes to the affected business service.

AUTOMATION

- Automatically respond to both desired and undesired changes in the environment
- Assure that responses are applied to both the impacted component and related resources
- Be clear on the end to end impact to overall availability

Entire System Automation family works together to provide Enterprise value



The Next Level of Application Management using System Automation Application Manager

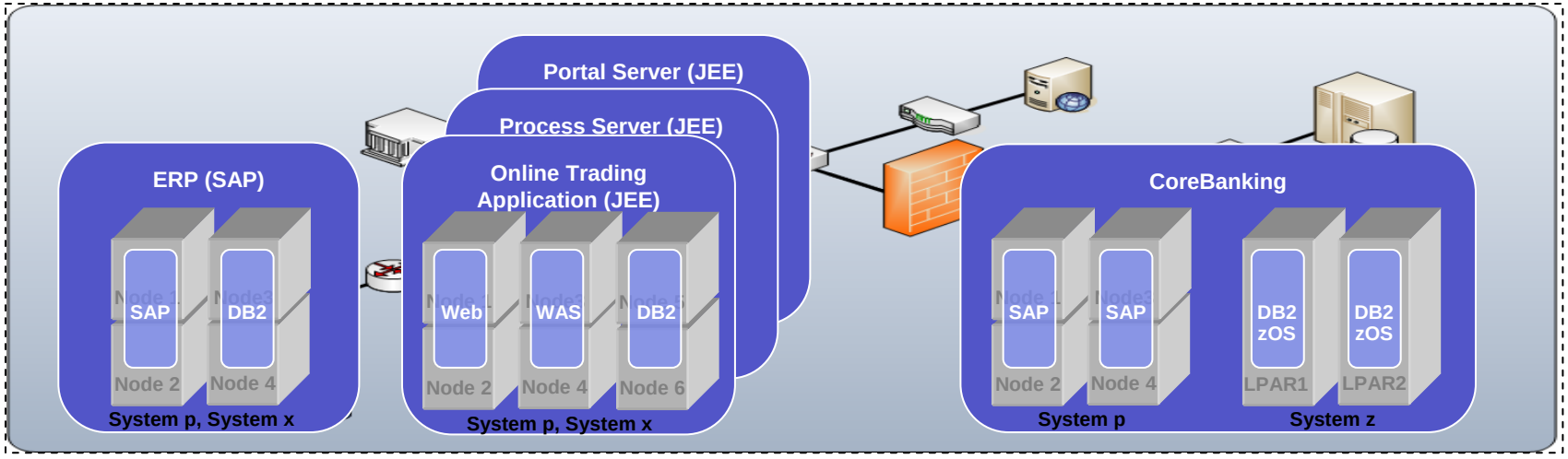
The Problem:

Business applications are **complex** and therefore **difficult to manage** for the IT operations staff

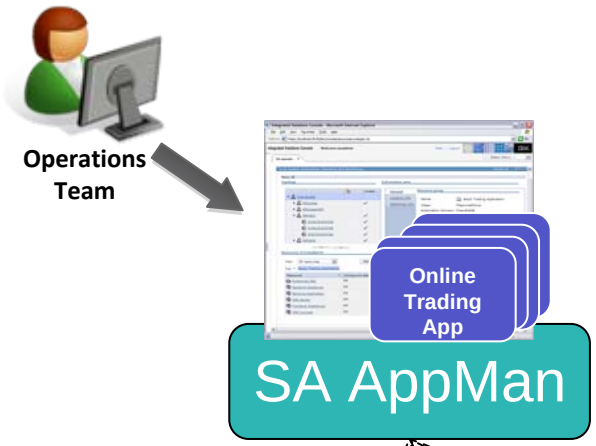
The reason for this complexity is caused by ...

- ... a **multi-tiered SW stack** which builds up the overall business application.
- ... application components running in a **heterogeneous platforms environment**
- ... **start/stop dependencies** between application components (which are also often not documented)
- … **large number** of different business applications

Often, business applications are **operated manually by the IT operations staff**



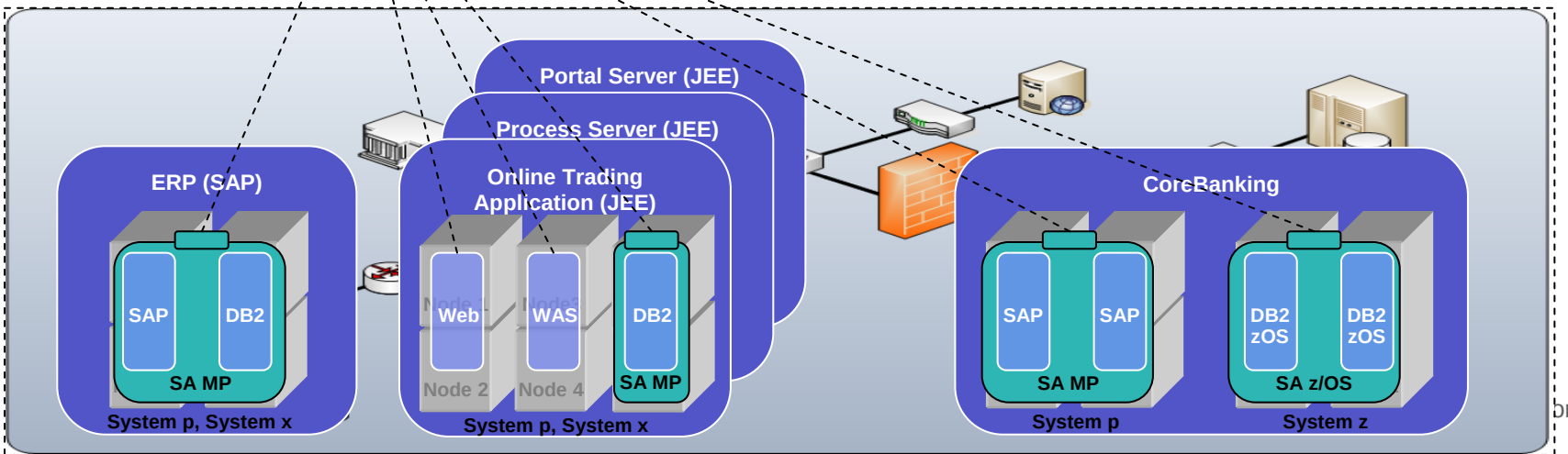
System Automation Application Manager (SA AppMan)



The Solution:

Tivoli System Automation Application Manager (SA AppMan) allows **semi-automated** or **fully automated** operation of the business applications infrastructure

- **semi-automated**: an operator invokes an automation request which then is automatically processed by System Automation Application Manager.
- **fully automated**: due to a failure, System Automation Application Manager triggers automated recovery actions.

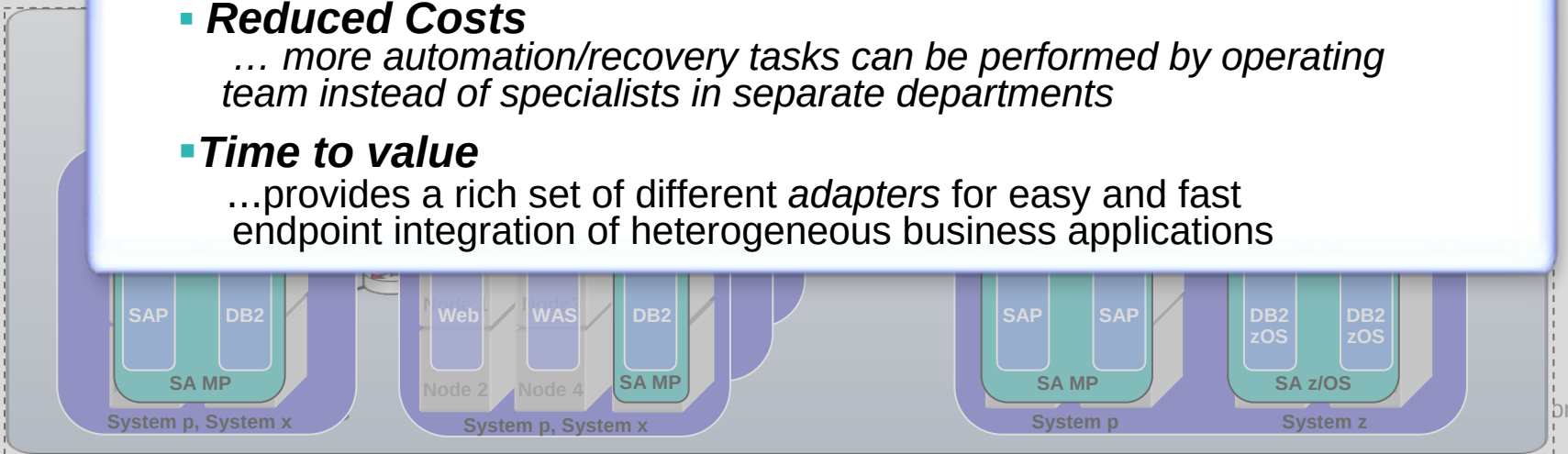


Benefits of System Automation

Operati
Team

Benefits of System Automation

- ***Simplified automated operational tasks***
  - …allows *aggregation* of a multi-tiered SW stack into a single manageable business application instance - in which operations
  - … *knows the dependencies* among the application components
- ***Reduced planned and unplanned downtime***
  - … simplified manually invoked recovery (semi-automation)
  - … helps to avoid/reduce error-prone manual steps
  - … can *automatically recover* from application failures
- ***Reduced Costs***
  - *… more automation/recovery tasks can be performed by operating team instead of specialists in separate departments*
- ***Time to value***
  - …provides a rich set of different *adapters* for easy and fast endpoint integration of heterogeneous business applications



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Tivoli System Automation Application Manager 3.2.2 adds Cloud, monitoring and zEnterprise support

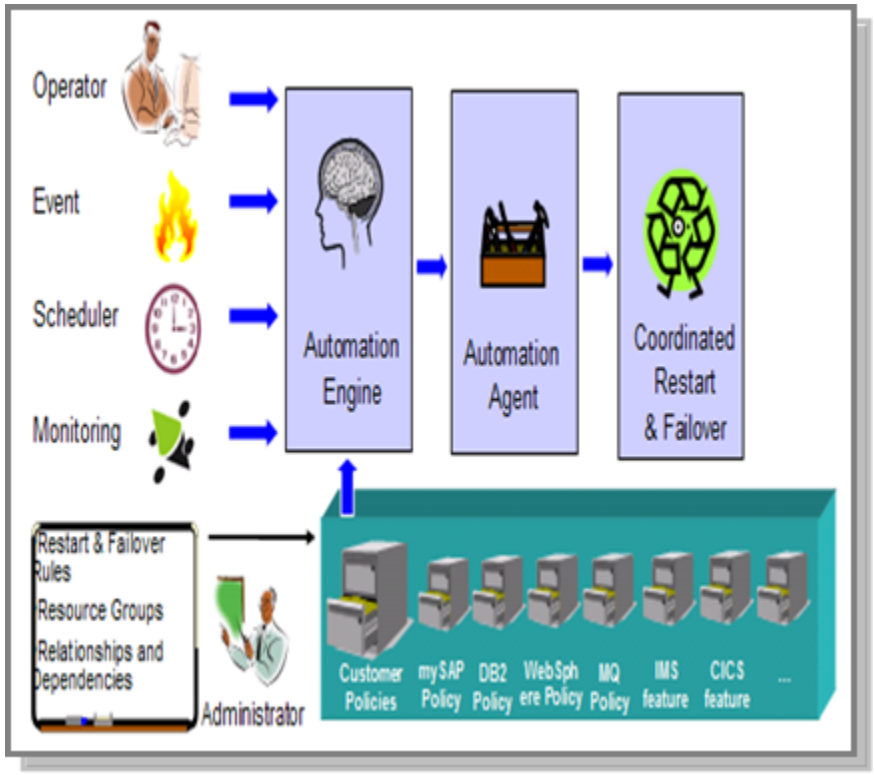
- **Continuous availability** of business applications in a virtualized infrastructure
  - Reduced operations cost thru automatic site failover solution for composite workload
  - Increased operational speed through reduced manual intervention and automated dynamic adaptations of policies reflecting environment changes
- IBM zEnterprise System **disaster recovery (DR)** support
  - Site failover of the entire business environment with no distance limit
  - Reduced operations cost thru simplified cross-platform DR capabilities
- **Improved Cloud Application Management**
  - High Scale application start/stop capabilities thru agentless adapter parallelization
  - Number of managed applications increased by 700%
  - DR for Cloud: Automated site failover thru SA AM/DB2 pre-canned replication policy
- **Performance-based automation (Smart integration with IBM Tivoli Monitoring)**
  - Enhanced availability through automatic recovery actions across multiple systems
  - Save 50% on environment customization effort

The Value of Policy Based Automation

Integrated automation to streamline operations and improve availability

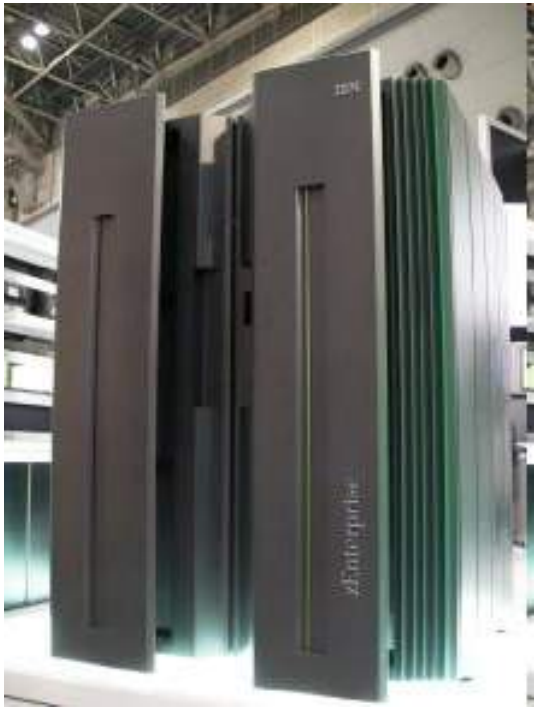
End-to-end applications management, integrated operations management for multi-platforms

- **The System Automation Policy Advantage:**
  - Resources are defined with relationships amongst those resources
  - Resources are managed in context, simplifying operations
    - The impact of a change on related resources is obvious
    - Problems can easily be addressed automatically across multiple resources
    - Business impact of a change or a problem is clearer
- Single end-to-end point of control for resource automation throughout zEnterprise to reduce risk and assure service
- Central view and management of critical business processes
- Automated High Availability and Disaster Recovery to meet business service level requirements
- Contain costs with policy based automated, repeatable processes



Tivoli System Automation capability on System z enables simplification across hardware and software

- **Ease of Maintenance**
  - Less customer written and maintained code (typically at least 40% reduction, up to 85%)
    - Better stability, less testing, redirect ongoing support to higher value work
  - Consistent monitoring and automation across all of z making it simple to add new applications
  - More IBM-supported best practices for managing z/OS, improving time to value
- **Ease of Operation**
  - Single interface for z and distributed, highlighting any problems in the environment
  - Single 3270 interface for z, allowing management of the entire environment
  - Ability to see relevant data on one screen, regardless of the source monitor
  - One click to bring up a resource, a group of related resources, an application, an entire system
  - Ability to bring up resources in stages for maintenance windows, DR tests, data moves, reconfiguration, etc.
  - Automate the HMC to switch to a new IPL profile, initiate a backout IPL, change capping, weights, load balancing across sysplexes
- **Improved Availability**
  - Systems and applications are brought up consistently and on time
  - Problems in the environment are easily identified and responses automated
  - Problems are addressed immediately and the cascading impact of a problem can be easily seen
  - Increase the sophistication of both monitoring and automation while reducing the effort to create/maintain

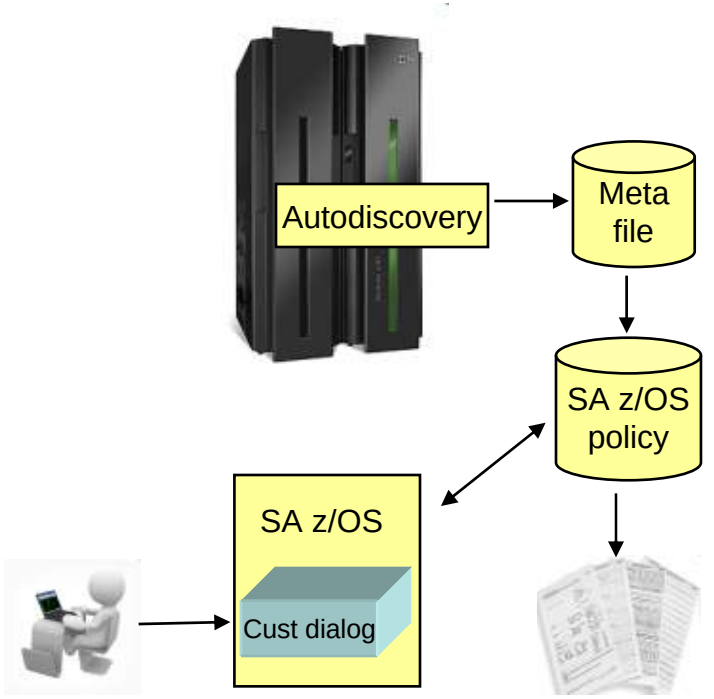


Significant usability and productivity savings with updated Tivoli System Automation for z/OS V3.4

- **Improve Time to Value by 80%** with new Autodiscovery
  - Find applications without manual effort
  - Addresses key customer requirement
- Faster automation customization via enhanced log visibility
  - **Save 80% on customization** to include job-related events
  - Increased administration productivity by 30% via data import and customization
- Faster system restarts with recycle enhancements
  - Lead to **50% higher availability**
- Ability to **speed automation by 90%** across z196/z115 and zBX blades with new zEnterprise API support

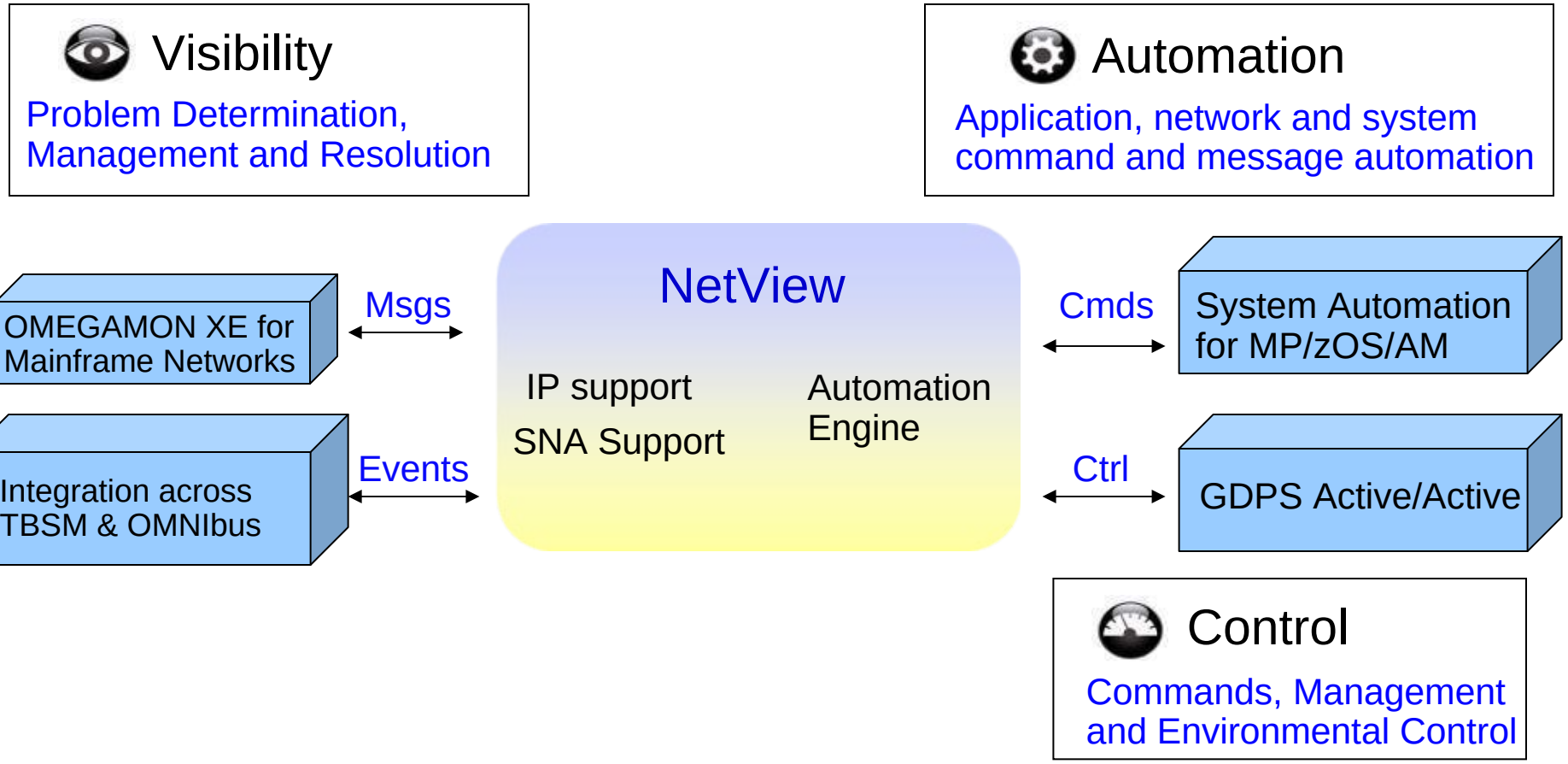
System Automation now provides autodiscovery to find applications and achieve faster value

Customer Challenge today: Automation rules have to be entered manually in SA z/OS policy database, which can be a time consuming process



- Execute autodiscovery to collect all automation relevant data of software components installed
- Save data in Meta file
- SA z/OS builds policy using data Meta file and sample policies
- Automation programmer produces and examines report of policy data and makes adjustments
- SA z/OS is ready to use
- For existing installations, autodiscovery has proven to be an excellent audit to find addtional automation opportunities

IBM's Automation Integrated Solution includes a number of key capabilities



NetView and OMEGAMON for MfN working together create single view of enterprise networks

NetView

Network Availability

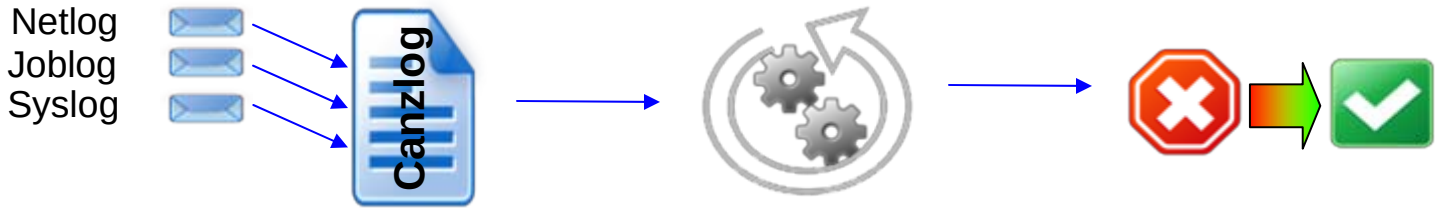
OMEGAMON XE for Mainframe Networks

Network Performance

- Common user interface integrates TCP/IP data from both NetView and OMEGAMON XE for Mainframe Networks.
- Integration function provides customers with a consolidated TCP/IP workbench
  - Allowing management of both TCP/IP availability and performance from the same user interface.
- Smart IP tracing to immediately learn where poor or unstable TCP/IP connections hamper application performance

NetView v6.1 Enhanced Automation capability increases availability via consolidated message logging

- Provides centralized message logging and enhanced message attributes
- Enables easy integration with powerful Tivoli automation
- Proactively resolves issues without operator intervention



Customer Value

- Automatic capture of messages from multiple sources removing burden of understanding which messages are important
- Recording new message attributes to enhance automation capabilities, providing more control and flexibility

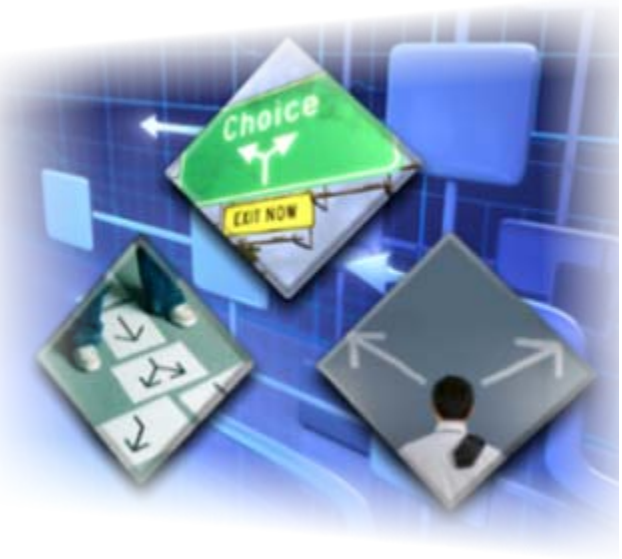
Business Value: 20 – 40% reduction in time to automate / resolve issues previously requiring operator intervention

Customers are using automation today to improve availability enterprise-wide

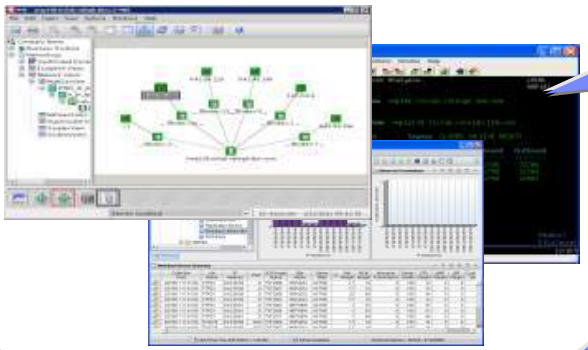
Use Case: Enterprise availability and performance

Customer Challenge:

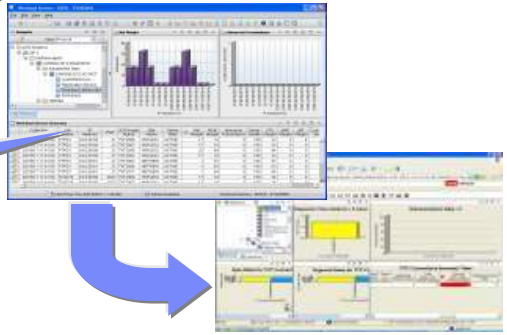
- ***Enterprise is composed of both distributed and z/OS assets***
- ***Any interruption in the availability or performance of network resources can have significant impacts to business.***
- ***Require solution that can quickly diagnose, resolve, and prevent network issues in a way that is both intuitive and consistent across heterogeneous resources.***



All components work together to keep applications and services available

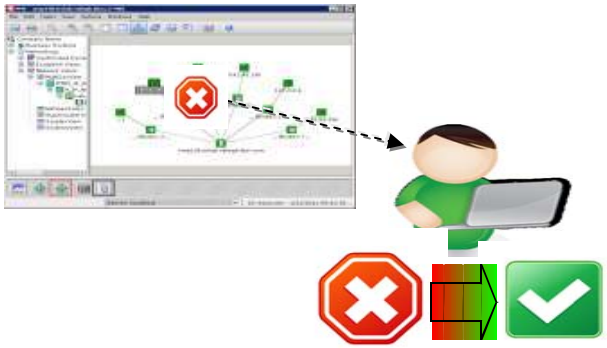


Role appropriate views of the right data at the right time

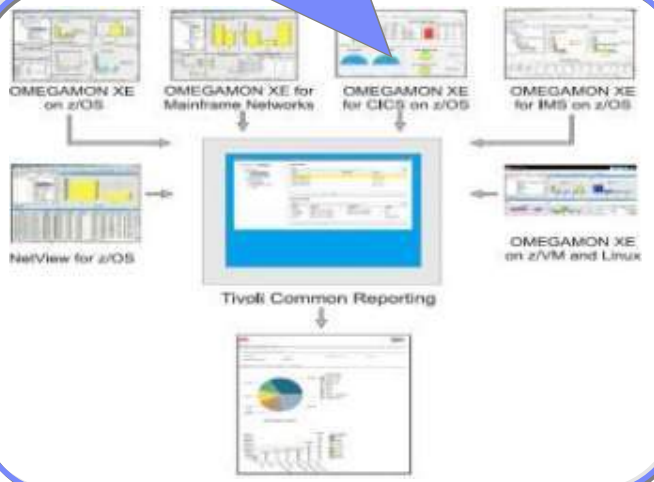


Rapid problem diagnostics via common UI and drill down between products

Alert me when thresholds are breeched and enable me to automate corrective actions for the future



Consistent historical views of resource performance and availability data



Global Food & Beverage Org gained real ROI from implementing System Automation

Challenge

- Unplanned downtime of large SAP app hurting business.
- System processed close to $20B of business
- Wanted solution that would span across multiple platforms and automate recovery of application components in case of failure

Customer View of Solution

"IBM Tivoli System Automation products automates high availability of our application infrastructure.

The current solution extends automation to the hardware and network layer in addition to keeping the SAP components and DB2 database highly available.

In case of any unplanned outages, TSA automatically initiates recovery across the stack which saves us millions of dollars in terms of lost business.

Additionally we drive operational efficiencies by being able to manage the entire application from one management console"

Business Benefits

- Eliminated most unplanned outages saving $Millions of dollars of lost business in a year
- Quickly and efficiently respond to unplanned outages
- Better managed and executed planned outages by using TSA
- Predictable and reliable recovery of application components has saved overtime and other labor related costs
- Drove operator efficiencies and better usage of IT teams
- Better alignment of application management duties with IT teams skills and responsibilities

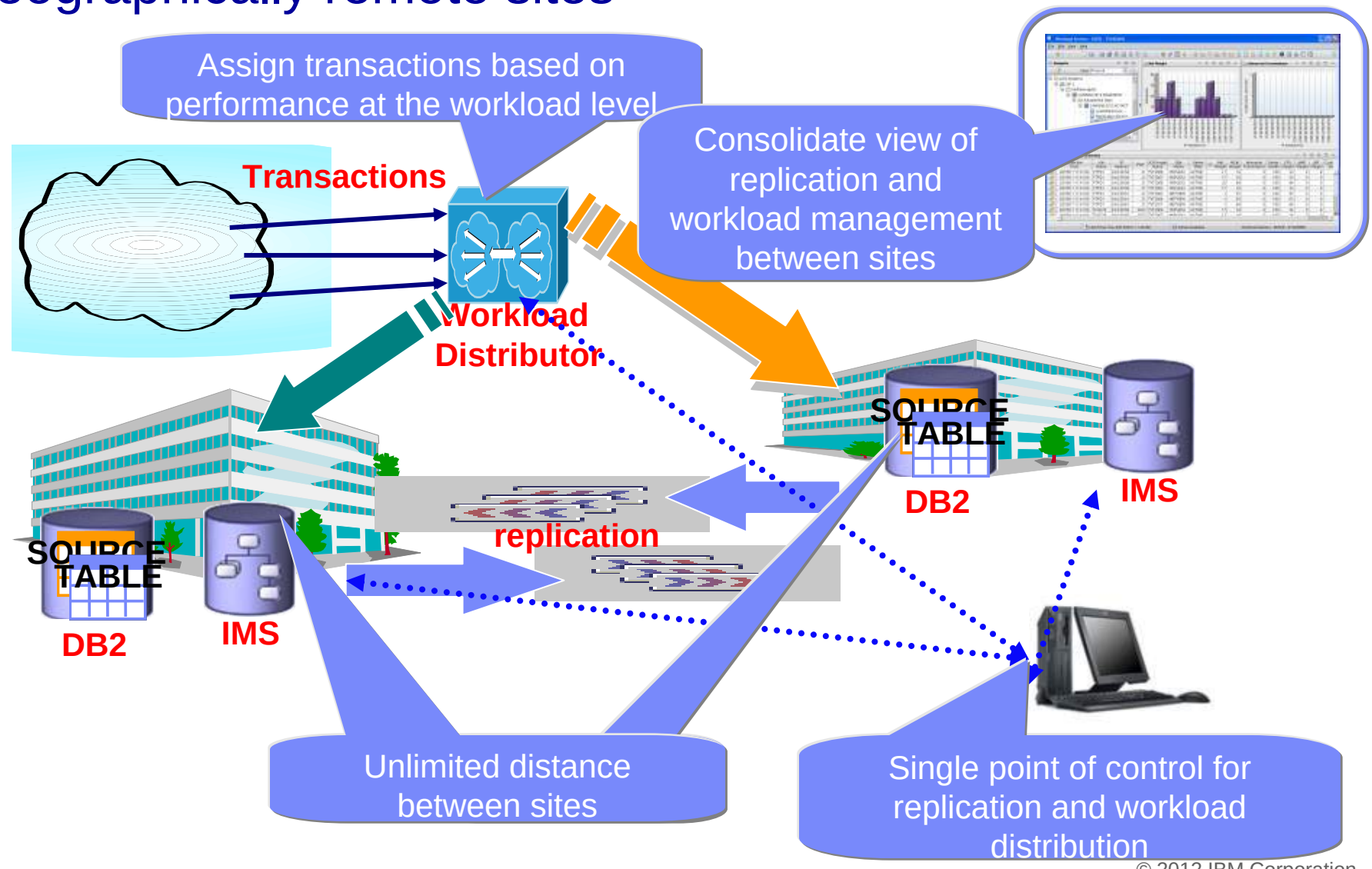
Achieving 100% uptime 24/7 requires Business continuity and continuous availability solution

Use Case: GDPS High Availability

Customer Challenge:

- **Business continuity objectives have evolved from a failover model, in which service interruption is tolerated, to a continuous availability model, in which uninterrupted services is the expectation.**
- **When services are down, even for a limited time, revenue is lost.**
- **Need to ensure near instantaneous recovery of service availability, regardless of the outage.**

IBM's GDPS can provide continuous availability across geographically remote sites



FIDUCIA banks: System automation to increase availability System z

Business Challenge:

- Improve availability in their mainframe environment by adding a system automation solution
- Reducing the risk that unplanned outages could threaten availability

Software Solution:

- Tivoli System Automation for z/OS provides policy based automation capabilities
- NetView automated operations so that System z can run almost completely unattended

Business Results

- ***Helps to ensure high availability in case of faults or outages***
- ***Centralizes system administration and message management***
- ***Enables smooth integration with other Tivoli products***

"The IBM system automation solution helps us deliver the high-availability services our customers expect." FIDUCIA IT AG

Learn more about the individual capabilities of IBM's System Automation Solution

IBM Tivoli NetView for z/OS	http://www-01.ibm.com/software/tivoli/products/netview-zos/
IBM Tivoli Network Manager	http://www-01.ibm.com/software/tivoli/products/network-mgrproductline/
Tivoli Application Dependency Discovery Manager	http://www-01.ibm.com/software/tivoli/products/taddm/
Tivoli Workload Scheduler	http://www-01.ibm.com/software/tivoli/products/scheduler/
Tivoli Netcool/OMNIbus	http://www-01.ibm.com/software/tivoli/products/netcool-omnibus/
Tivoli Business Service Manager	http://www-01.ibm.com/software/tivoli/products/bus-srv-mgr/
IBM Tivoli Monitoring	http://www-01.ibm.com/software/tivoli/products/monitor/
Tivoli OMEGAMON XE for Mainframe Networks	http://www-01.ibm.com/software/tivoli/products/omegamon-xe-mainframe/
Tivoli System Automation for z/OS	http://www-01.ibm.com/software/tivoli/products/system-automation-zos/
IBM Geographically Dispersed Parallel Sysplex	http://www-03.ibm.com/systems/z/advantages/gdps/index.html