IBM System z Technology Summit

Increase availability and productivity in your z environment with Integrated Service Management Automation

Something meaningful is happening…
The world is about to get a whole lot smarter.

"Every human being, company, organization, city, nation, natural system and man-made system is becoming **interconnected, instrumented and intelligent.** This is leading to new savings and efficiency—but perhaps as important, new possibilities for progress."

IBM Tivoli System Automation: Keeping the Smarter Planet Highly Available and Resilient

Smart is: Maintaining *continuous business and IT operations* while rapidly adapting and responding to risks and opportunities with high availability and business resiliency

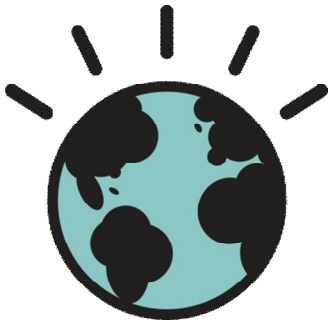
SMART IS: Always open for business in a 24/7 world.

SMART IS: Reducing cost through proactive incident response and reduced downtime

SMART IS: Managing risk with enterprise-wide resiliency strategy

SMART IS: Responding with speed and agility while minimizing risk exposure.

Automation is Essential to Businesses Success

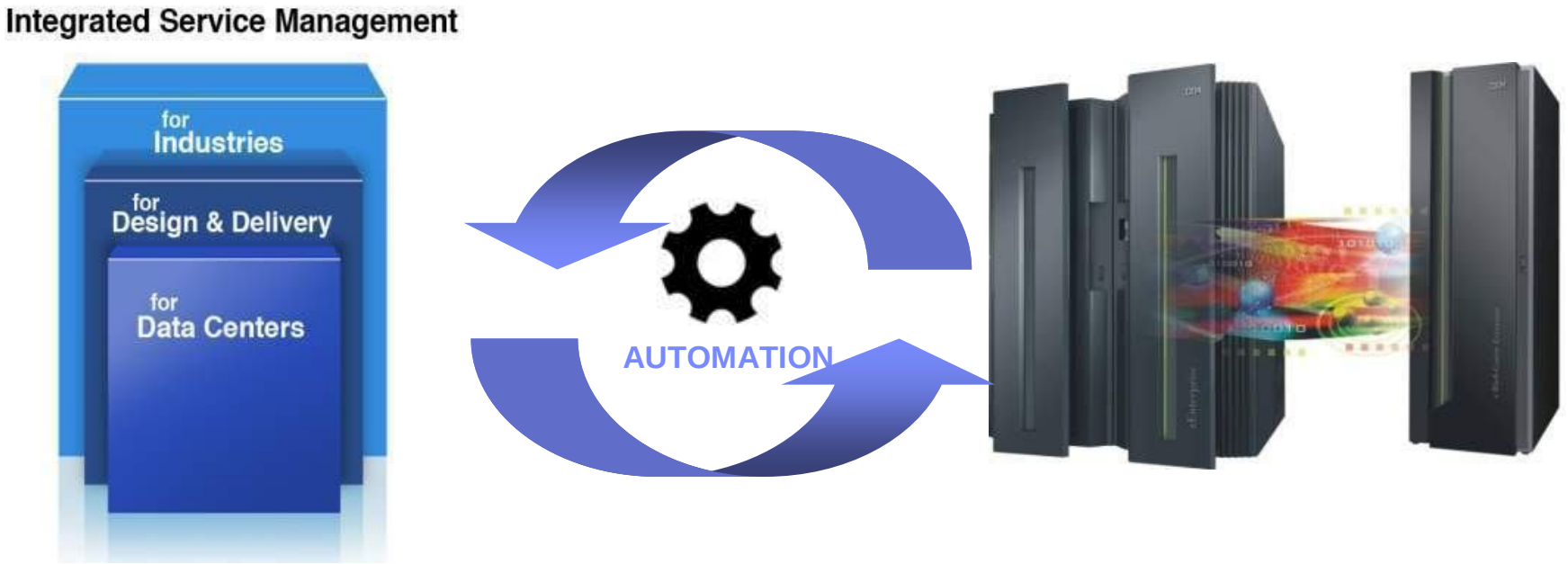


"Technology has outpaced the ability to manage it manually in every large enterprise and many smaller ones. Failure to build and evolve a well-integrated automation technology portfolio will almost guarantee catastrophic failure of the organization as it tries to expand virtualization's footprint. Automation is no longer an optional luxury; it is now a mandate."

Forrester Consulting: "Virtualization Management and Trends" January 2010

ISM for System z: Automate and Optimize Delivery of Business and IT Services

Automation: Integrates people, operational processes and tools across organizational silos to optimize the delivery of business-critical services



End-to-end business service automation based on policies

Optimize Availability and Resiliency of Multi-Tier, Composite Application Environments

Tivoli Application Resilience for System z

Key capabilities

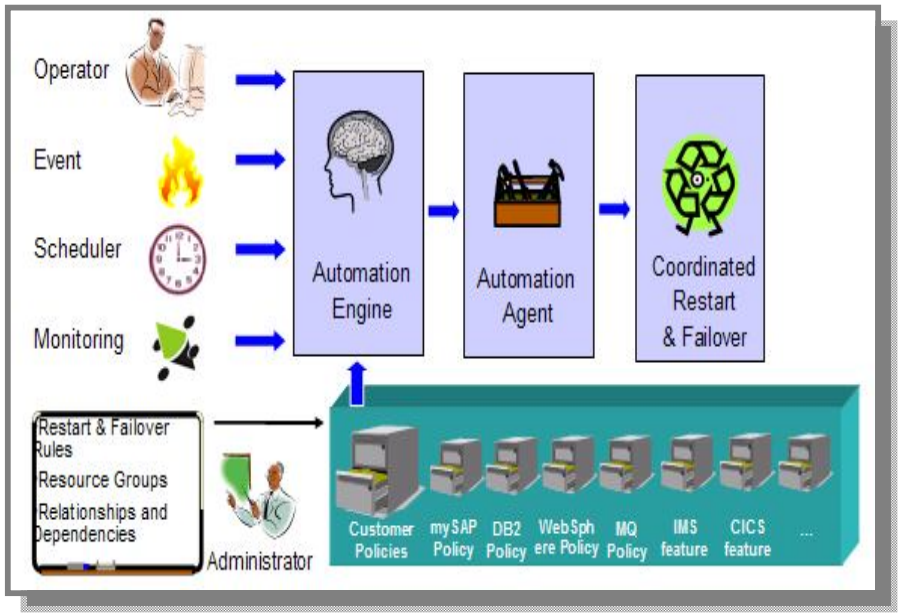
- Single end-to-end point of control for resource automation throughout zEnterprise
- Aggregate and centrally manage cross-enterprise, heterogeneous workloads to support business goals and service levels
- Automated High Availability and Disaster Recovery to meet business service level requirements

Provided by

- System Automation for z/OS, Multiplatforms, Application Manager
- System Automation for Integrated Operations Management
- Tivoli Workload Scheduler

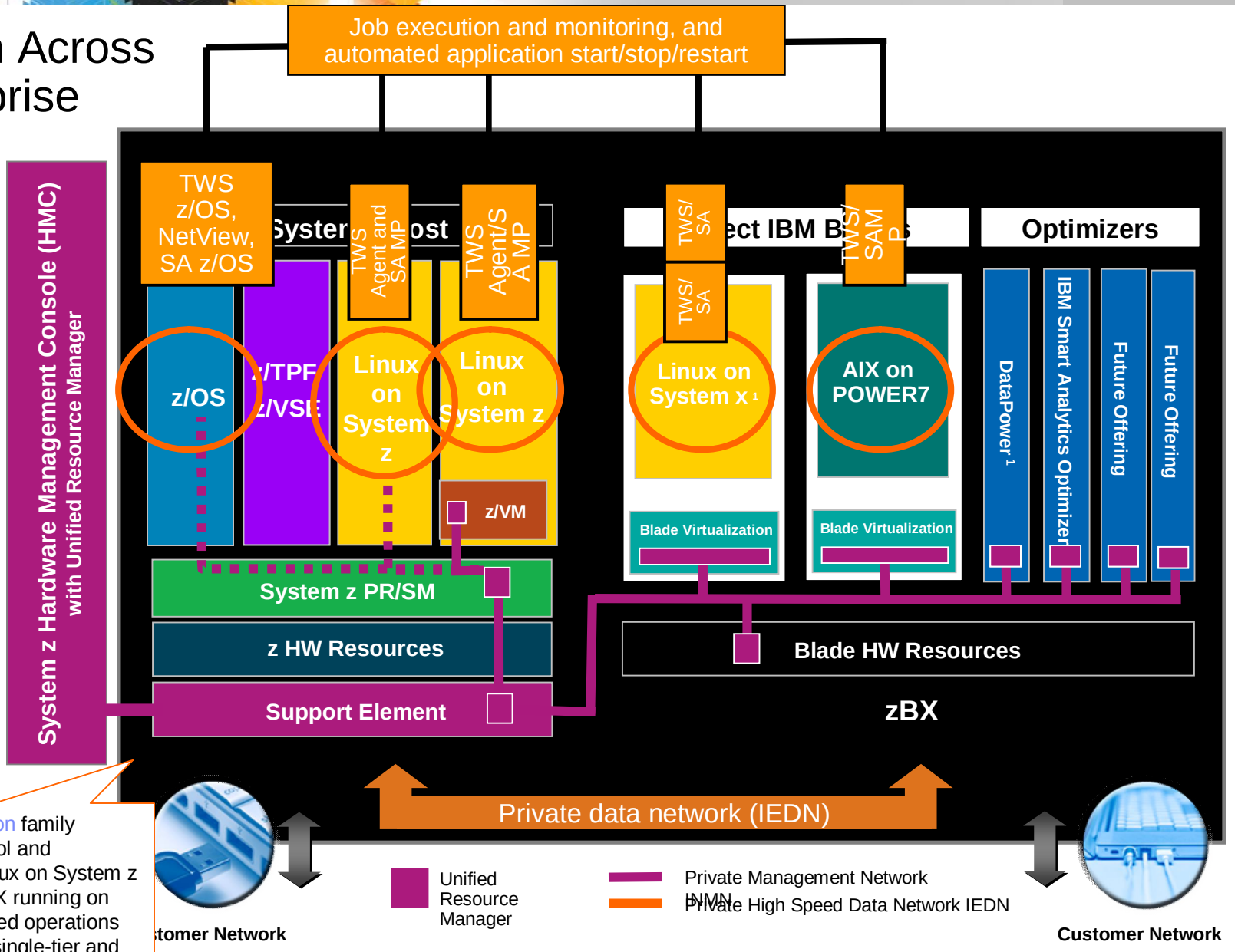
IBM Tivoli System Automation Provides Enterprise Automation and Resiliency

Supporting heterogeneous distributed and z environments



- Maximize the financial benefit and positive business reputation by maintaining the availability of customer facing applications
- Provide automation and application high availability regardless of platform or environment
- Minimize application interruptions or outages and substantiate benchmarks and service levels for application availability
- Reduce budgetary pressure while accepting additional workload by providing consistent actions/build organizational knowledge

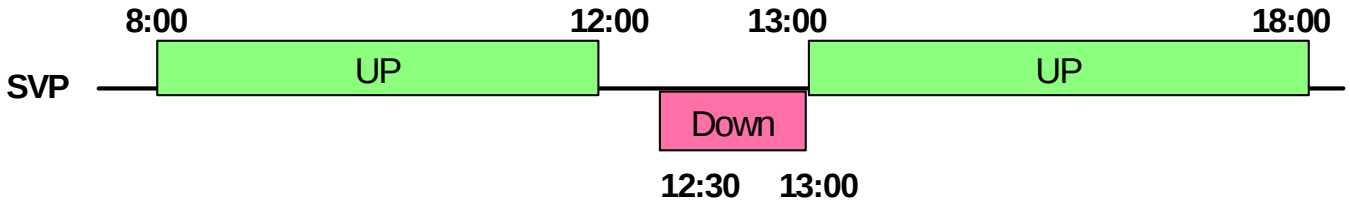
Automation Across the zEnterprise



Tivoli System Automation family provides visibility, control and automation of z/OS, Linux on System z as well as Linux and AIX running on IBM blades for automated operations and high availability of single-tier and multi-tier applications across the entire zEnterprise system

Goal Based Automation Keeps the Enterprise Available

- Administrator defines the "goals" for the application according to business requirements
  - Goals relate to desired state, availability schedule and preferred system
  - Relationships between resources and groups
  - Service Periods:



- System Automation Manager keeps the system in line with goals
- Easy, exception oriented operation
  - Operator can "overrule" the policy goals by overrides or start/stop requests
- Responsibility moves from the operation to automation administrator

Policies: Building Blocks for Automation Best Practices

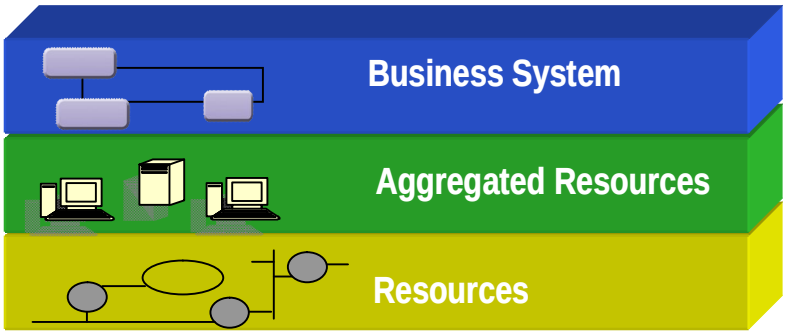
- Capture best practice knowledge for automation
- Provide a structured starting point for automation efforts
- Are building blocks that are easily configured to meet the needs of business critical applications
- Focus on solutions that are typically deployed in the cloud
- Sample policies are provided for these areas and many more:

CICS	ProcOps
DB2	SAP
GDPS	TBSM
IMS	TWS
ITM	USS
NMC	WebSphere
OMEGAMON	

The Power of Automation Policies for Service Management

Easier definition through ‘fill in the blanks’ application

- Pre-defined automation for common applications
- Faster time-to-value
- Elimination of coding errors
- Easy to build ‘business view’
- More efficient use of scarce ‘people’ resources

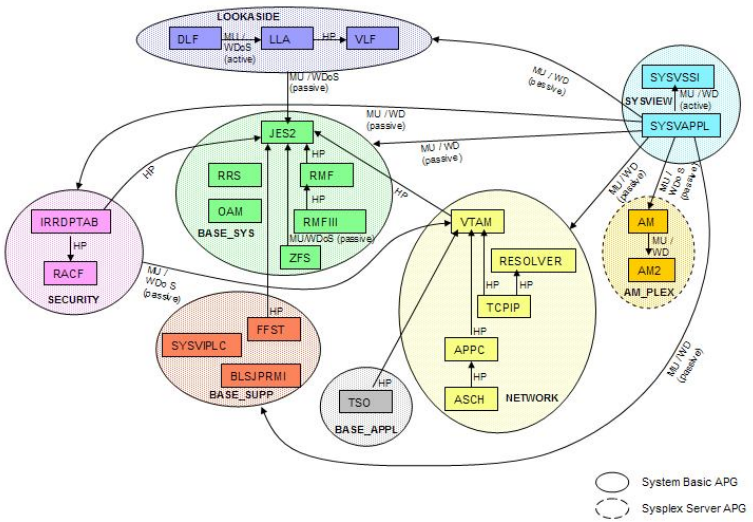


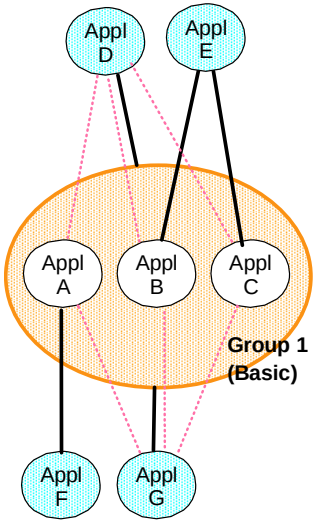
Consistent, reliable, automation actions

- Testing of abnormal condition actions is difficult and sometimes incomplete with ‘programming’ solutions
- Policy definitions can be re-used, copied and cloned for similar requirements elsewhere in the enterprise
- Management of entire business applications, rather than individual resources

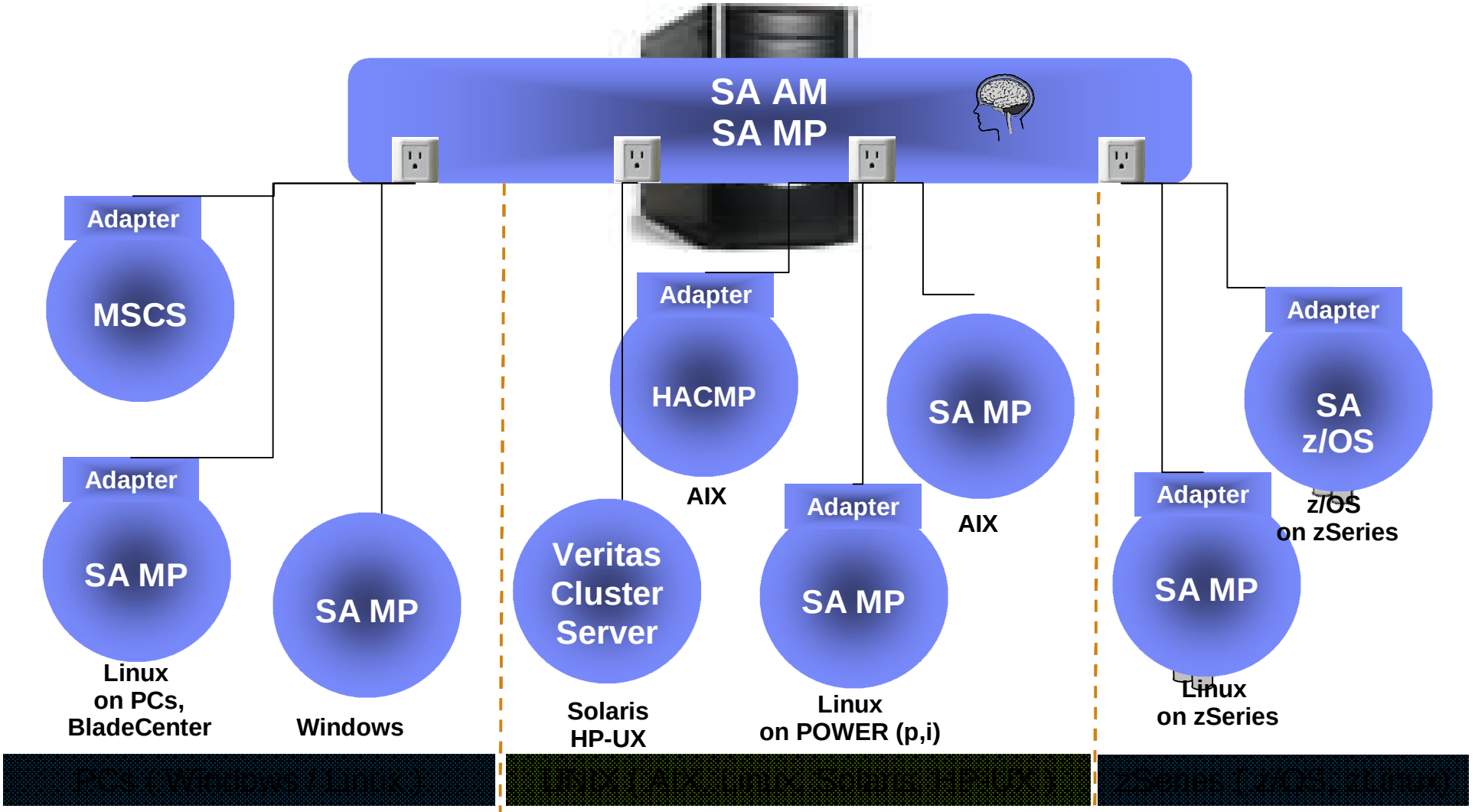
Using System Automation Relationships and Groups to Manage the Health of Business Applications

- Relationships define the connection and dependency between resources, allowing automation actions to occur transparently
- Disparate resources required by a business application can be collected into a group, allowing automation to manage the health of a complete business application as a single entity
- Relationships, groups, and health-based automation make it simple to keep business applications always available and resilient to failure while taking advantage of the transparency and maximizing the use of available resources



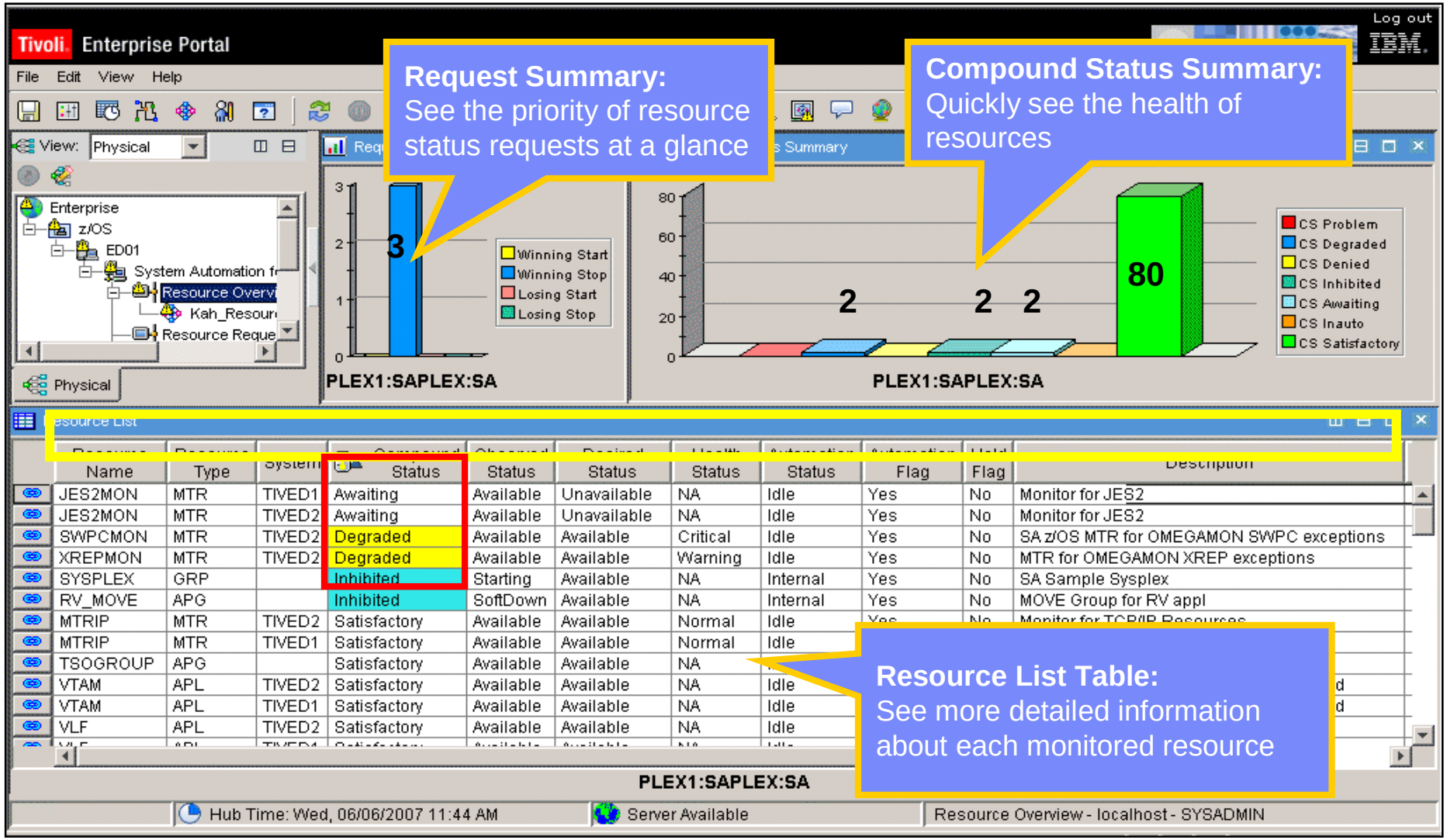


Automation for High Availability and Resiliency Across Platforms



SA: System Automation Application Manager; SA MP: System Automation for Multiplatforms

Integration with Monitoring for Improved Performance



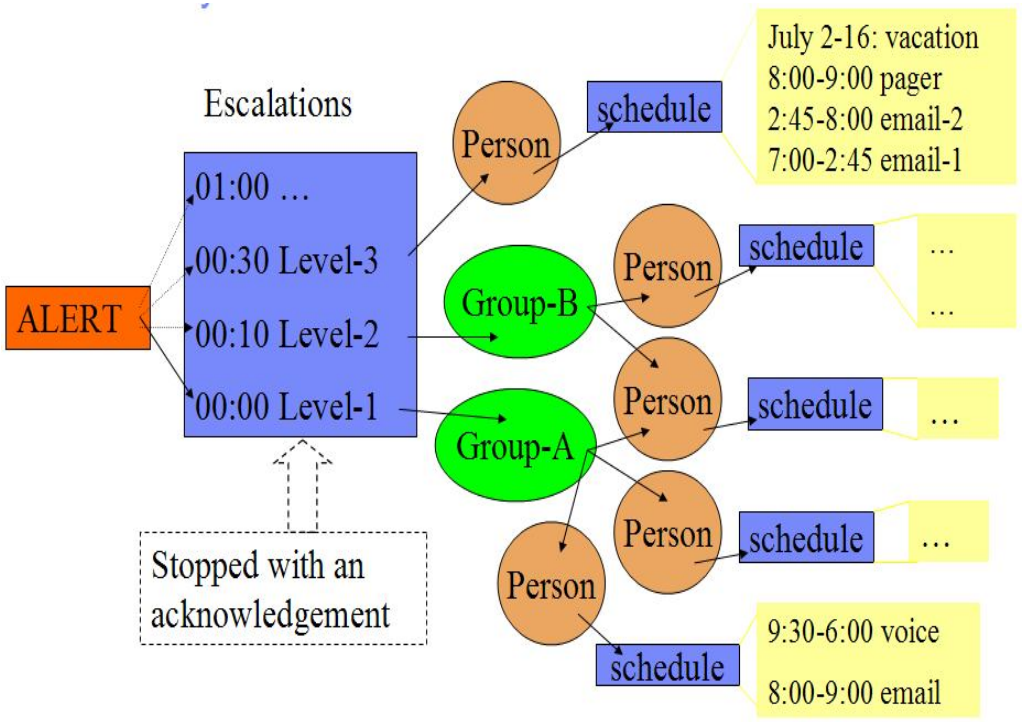
Name	Type	System	Status	Status	Status	Status	Status	Flag	Flag	Description
JES2MON	MTR	TIVED1	Awaiting	Available	Unavailable	NA	Idle	Yes	No	Monitor for JES2
JES2MON	MTR	TIVED2	Awaiting	Available	Unavailable	NA	Idle	Yes	No	Monitor for JES2
SWPCMON	MTR	TIVED2	Degraded	Available	Available	Critical	Idle	Yes	No	SA z/OS MTR for OMEGAMON SWPC exceptions
XREPMON	MTR	TIVED2	Degraded	Available	Available	Warning	Idle	Yes	No	MTR for OMEGAMON XREP exceptions
SYSPLEX	GRP		Inhibited	Starting	Available	NA	Internal	Yes	No	SA Sample Sysplex
RV_MOVE	APG		Inhibited	SoftDown	Available	NA	Internal	Yes	No	MOVE Group for RV appl
MTRIP	MTR	TIVED2	Satisfactory	Available	Available	Normal	Idle			
MTRIP	MTR	TIVED1	Satisfactory	Available	Available	Normal	Idle			
TSOGROUP	APG		Satisfactory	Available	Available	NA				
VTAM	APL	TIVED2	Satisfactory	Available	Available	NA	Idle			
VTAM	APL	TIVED1	Satisfactory	Available	Available	NA	Idle			
VLF	APL	TIVED2	Satisfactory	Available	Available	NA	Idle			

SA IOM Alerts and Notification to Enhance Automation

- **Flexible model for scheduling call outs**
- **Allows individual notification preferences**

08:00-09:00 pager
14:00-16:00 email
17:00-24:00 SMS
Sep01-20,2006 vacation

- **Can be used to activate a blackout period for a given escalation ID (to prevent alert flooding)**



At-A-Glance Status of Notifications

Event history

Refresh

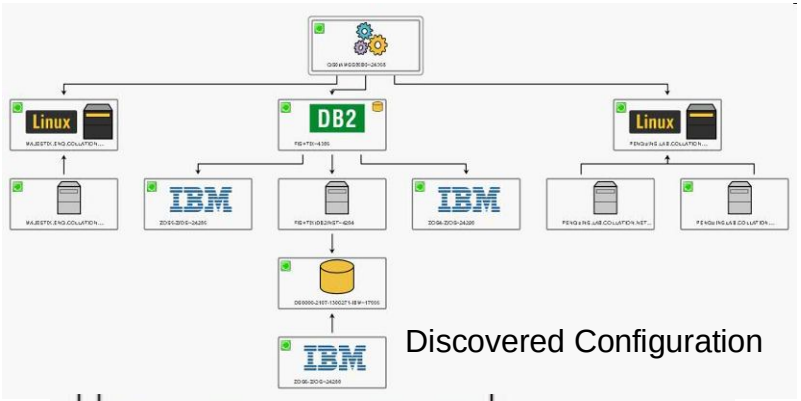
--- Select Action --- Go

Select	Time stamp	Alert ID	Esc. ID	Esc. L...	Event type	Info
	Filter	= 4,797	Filter	Filter	Filter	Filter
○	19.03.2007 15:38:48	4797	SMS_ESCALATION	1	Status change	new status=exhausted
○	19.03.2007 15:38:48	4797	SMS_ESCALATION	1	Escalation end	total notifications: 2
○	19.03.2007 15:38:48	4797	SMS_ESCALATION	1	Escalation level end	level expired
○	19.03.2007 15:33:49	4797	SMS_ESCALATION		Helper script end	result from NotifyEmail(5) result=OK desc=
○	19.03.2007 15:33:48	4797	SMS_ESCALATION	1	Helper script invoke	NotifyEmail.rex started with 2 recipients
○	19.03.2007 15:33:48	4797	SMS_ESCALATION	1	Person processing	user=Gunnar notification=email
○	19.03.2007 15:33:48	4797	SMS_ESCALATION	1	Person processing	user=Christa_eMail notification=email
○	19.03.2007 15:33:48	4797	SMS_ESCALATION	1	Escalation level start	duration=5 minutes
○	19.03.2007 15:33:48	4797	SMS_ESCALATION		Escalation start	ING140I ALERT 'OS_PROBLEM' FOR 'IOMBROKEN/APL/SAT1' ON 'SAT1' AT 17:33:40 2007-03-19
○	19.03.2007 15:33:47	4797	SMS_ESCALATION		Alert arrival	

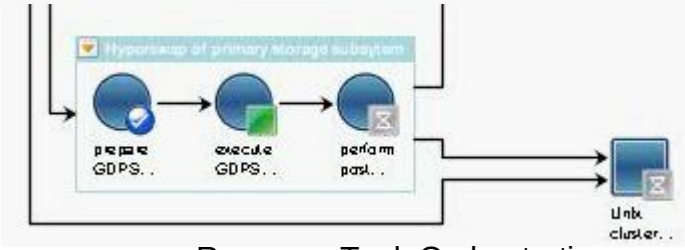
Page 1 of 1 | Total: 10 Filtered: 10 Displayed: 10

Extending Automation to Continuity of Operations

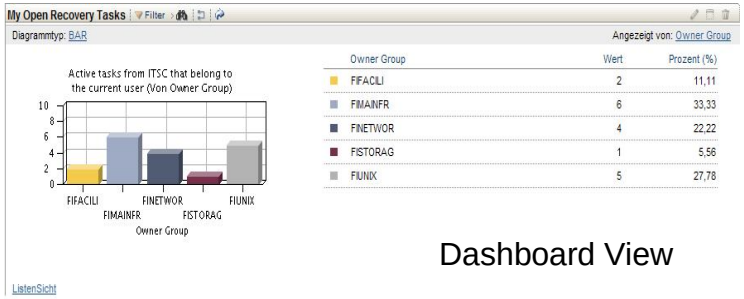
- Adaptable process, recovery procedures, and role-based user interface allow you to exercise business continuity actions and workflow in their actual business environment
- Reliable, repeatable, and auditable actions minimize manual steps and human errors, and time to recover from service interruptions and application outages
- Reports and a common information data store allow efficient responses to internal and external regulatory and governance audit and reporting requirements
- Dashboard views and notification capabilities Increase awareness of resiliency events, their ownership, and recovery status
- Standard processes support frequent testing of automation and training to reduce the effort required to maintain current automation processes and build collaboration and maintain organizational effective communication



Discovered Configuration

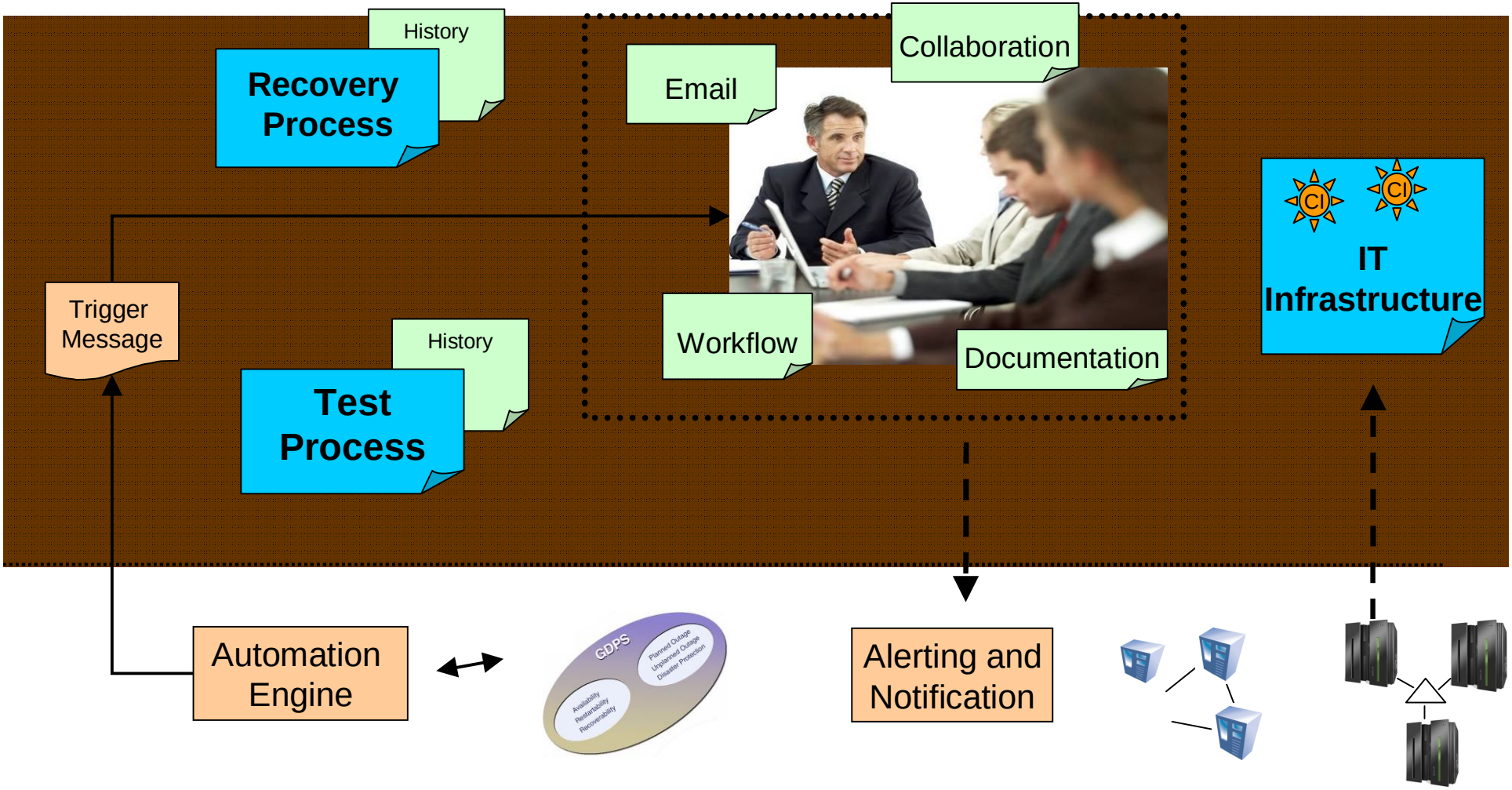


Recovery Task Orchestration

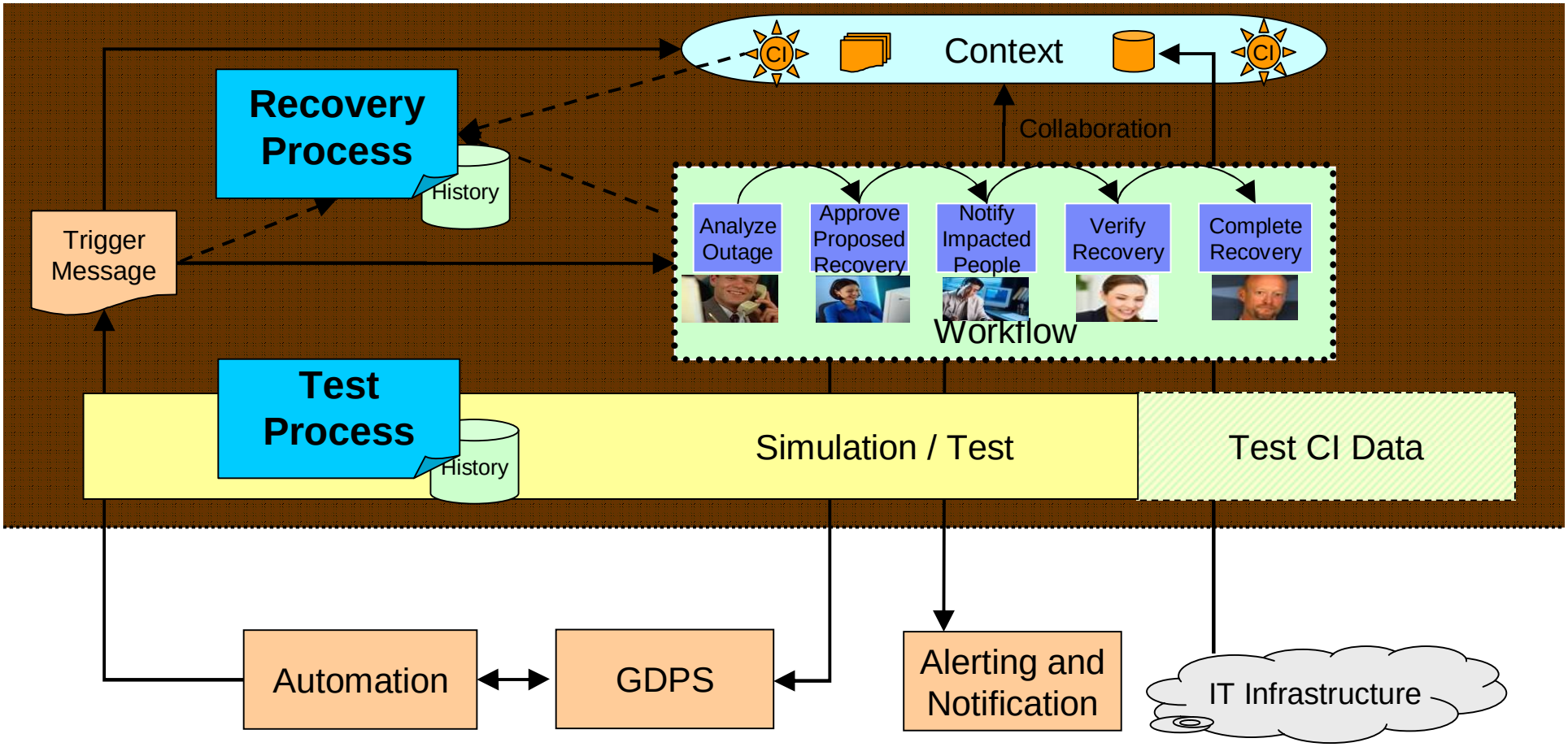


Dashboard View

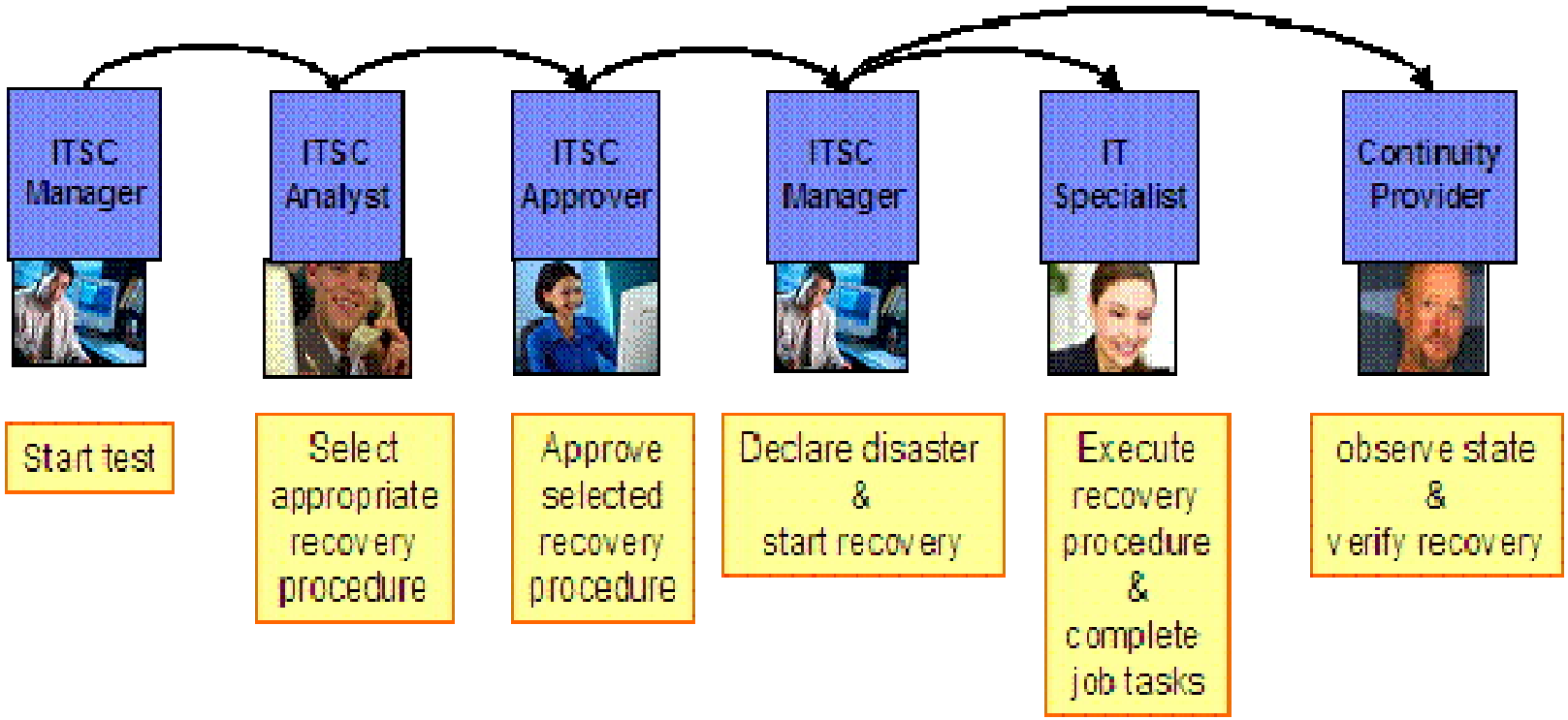
Crisis Management Based on Documentation



Crisis Management Based on BCPM Workflows

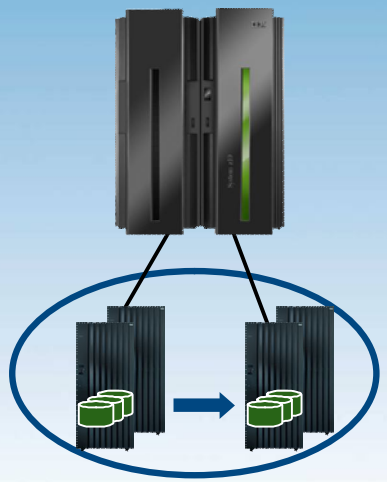
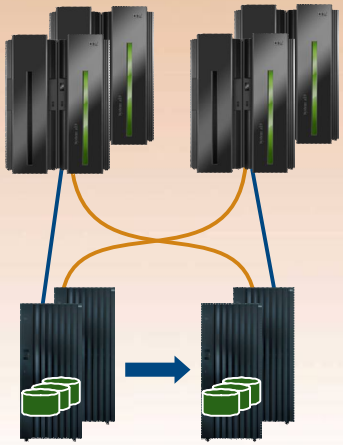
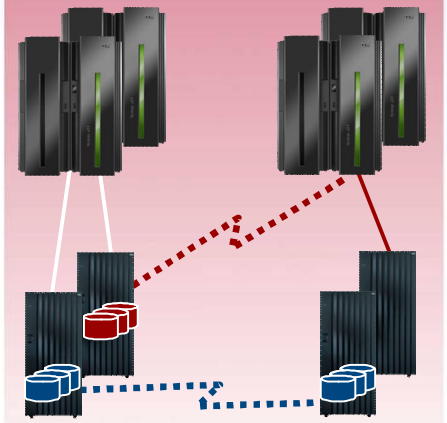
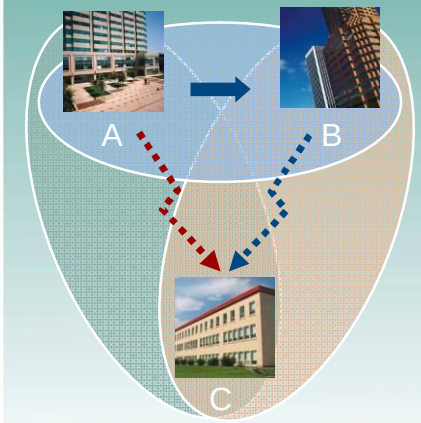


A Customer Experience with BCPM



From business scenario to recovery plan in less than two weeks!

Always Available Business with Automated Data Recovery

Continuous Availability of Data within a Data Center	Continuous Availability & Disaster Recovery Metropolitan Region	Disaster Recovery at Extended Distance	Continuous Availability Regionally and Disaster Recovery Extended Distance
Single Data Center **Applications remain active** **Near-continuous availability to data**	**Two Data Centers** **Systems remain active** **Automated D/R across site or storage failure** **No data loss**	**Two Data Centers** **Automated Disaster Recovery** **"seconds" of Data Loss**	**Three Data Centers** **Data availability** **No data loss** **Extended distances**
			
GDPS/PPRC HM	**GDPS/ PPRC HM** **GDPS/PPRC**	**GDPS/GM (blue line)** **GDPS/XRC (red line)**	**GDPS/MGM** **GDPS/MzGM**

Benefits of Integrated Service Management Automation

- Virtual: a “share all” approach to system resources for efficiency
- Agility: responding quickly and efficiently to meet the demands from users and data
- Risk: reduce risks through healthful, state-based automation, high availability, and business continuity
- Availability: 24x7x365 operation to keep the business always available to customers
- Secure: highly certified hardware security and role-based software security
- Green: Making the most effective use of resources to reduce energy consumption and avoid additional costs

Automation Makes Money for the Banking Industry

Business Challenges

- Ensure that customer facing applications and applications that support customer facing personnel are always available for business
- Improve the ability to of systems to automatically heal configuration and usage issues
- Use system resources more efficiently to reduce costs to the business

How Automation Helps

- Centralizes and improves consistency of repetitive and routine actions, reducing manual errors
- Ensures high availability and minimizes recovery time from planned and unplanned outages
- Enables accurate provisioning based on actual workload performance, reducing infrastructure costs
- Integrates monitoring for visibility, automation, and control of infrastructure performance, enabling faster response and better service during peak capacity usage

Benefits

- Enhanced customer satisfaction with efficiency of order processing
- Decreased overhead expenses
- Improved business operations

Automation Helps Medical Teams Improve Patient Care

Business Challenges

- Regulate incoming calls
- Locate emergency teams
- Optimize and coordinate patient care
- Share and access the same patient information
- Optimize patient follow-up
- Improve exceptional situation management

How Automation Helps

- High availability of the communication infrastructure
- Resiliency and continuity of healthcare applications

Benefits

- Improved coordination of care enables better and faster treatment while reducing the risk of medical error
- Improved patient satisfaction with speed and robustness of care

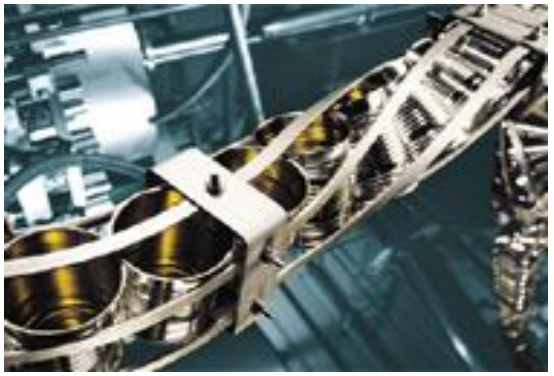
System and Workload Automation Keep the Assembly Line Running Efficiently

Business Challenges

- Integrate the work of sales offices, corporate offices, and their suppliers
- Improve monitoring of the end-to-end supply chain
- Use system resources more efficiently

How Automation Helps

- Simplifies management of systems and applications
- Simplifies application and subsystem monitoring
- Reduces infrastructure costs
- Increases the efficiency of scheduling efforts
- Eased the implementation of a disaster recovery solution



Benefits

- Enhanced customer satisfaction with efficiency of order processing
- Decreased overhead expenses
- Improved business operations

Automation is an Essential Element to Deliver Quality Integrated Service and Business Innovation

Visibility:
See your business

Respond faster and make better decisions

Control:
Manage your business

Manage risk and compliance

Automation:
Improve your business

Lower costs and build agility

The Value of IBM Tivoli System Automation for ISM

Application Level Automation in Complex Environments

- Policy based management for ease of configuration
- Pre-defined policies to accelerate deployments

Enterprise-wide View for Resilient Resource Management

- Single point of control across heterogeneous environments
- Minimize unique skills required to support various IT silos

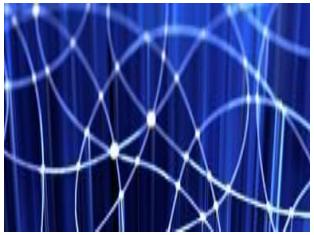
Scalable, Flexible and Open to Meet Future Demands

- Unique capability to support 3rd party cluster technologies for customer investment protection and migration strategy
- Integration with Tivoli ISM portfolio to provide integrated solution extensions

Built on Proven Technologies

- IBM cluster technology deployed in 1000s of Sysplex and distributed environments
- Leverage proven cluster technology for distributed automation engine

System Automation High Availability and Resiliency Solutions

Manage Risk		**Business Continuity Process Manager** offers unique workflow automation, testing exercises, and recovery processes to bring confidence to how clients protect their business.
Increase Visibility		**System Automation for Integrated Operations Management** raises visibility of issues to expedite responses and help avoid impact to customers.
Optimize the Business		**System Automation Application Manager** gives your business applications agility and speed to satisfy business demands – allowing customers to interact with the business whenever and wherever.
Platform High Availability		**System Automation for Multiplatforms** extends automation and high availability to additional resources
Improve Service		**System Automation for z/OS** offers unrivaled automation and high availability to keep the business infrastructure always available.

IBM Tivoli Automation Resources

- **Automation Portfolio Landing Pages**
  - Business Continuity Process Manager web site
  - GDPS web site
  - System Automation Application Manager web site
  - System Automation for Integrated Operations Management web site
  - System Automation for Multiplatforms web site
  - System Automation for z/OS web site
  - Tivoli Workload Scheduler web site
- **Interactive Discussion Forums**
  - SAUsers on Yahoo
  - SA IOM
  - System Automation for Multiplatforms
- **Annual User Conference**
  - AOTC'11 conference web site
  - Subject specific presentations delivered by customers and IBM specialists
  - Excellent opportunity for interaction and discussion
- **Additional Automation Resources**
  - System Automation for z/OS Bookshelf
    - Publication Library and Redbooks
    - Presentations, Demonstrations, and Education
  - Business Continuity Process Manager demo
  - System Automation for Multiplatforms demo
  - Tivoli Workload Scheduler demo
- **System z Resources**
  - IBM System z Advisor Newsletter
  - IBM System z Community

Pulse2011
The Premier Service Management Event
Optimizing the World's Infrastructure
February 27–March 2 Las Vegas, Nevada

http://www-01.ibm.com/software/tivoli/pulse/

Customer Experience Using Automation to Manage High Availability and Disaster Recovery

IBM asked 560 IT managers and CIOs in all types of companies all over the world about IT risk

http://www-935.ibm.com/services/us/gbs/bus/html/risk_study.html

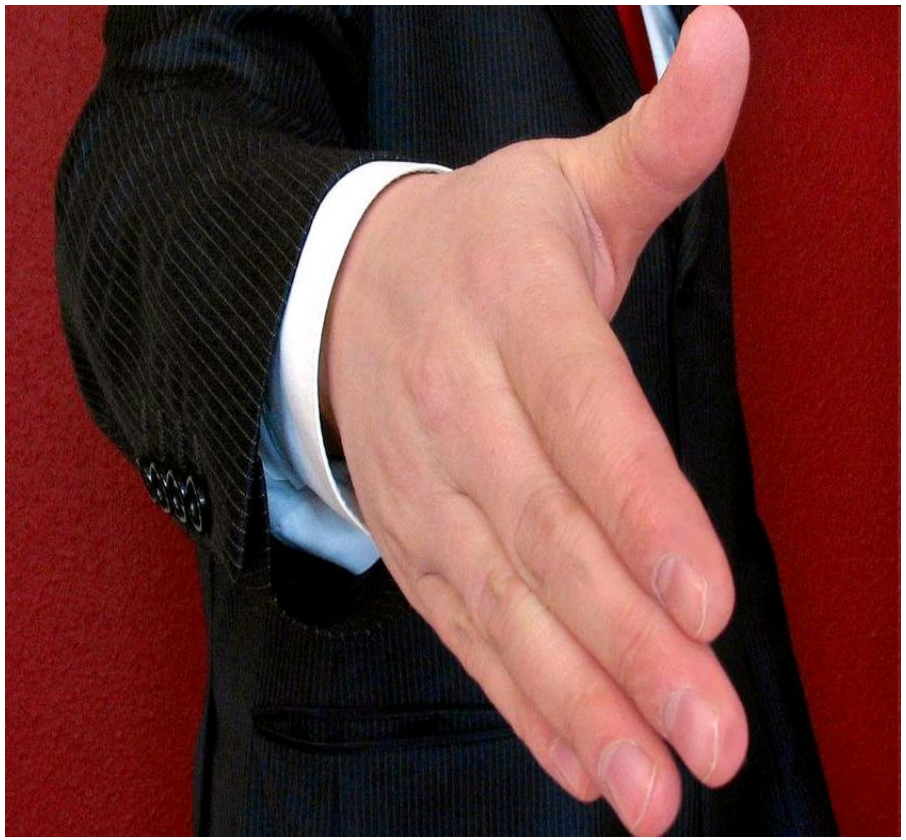
Using Cloud Computing for Disaster Recovery: Watch the Video

http://www-935.ibm.com/services/us/gbs/bus/html/videos.html

"The cloud opportunity meant that without adding infrastructure into my environment, without having to add support staff to my environment, I could actually do a nightly back-up through the cloud."

Jessica Carroll, Managing Director, Information Technologies, USGA

Thanks for Your Participation



Need More Information?

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