

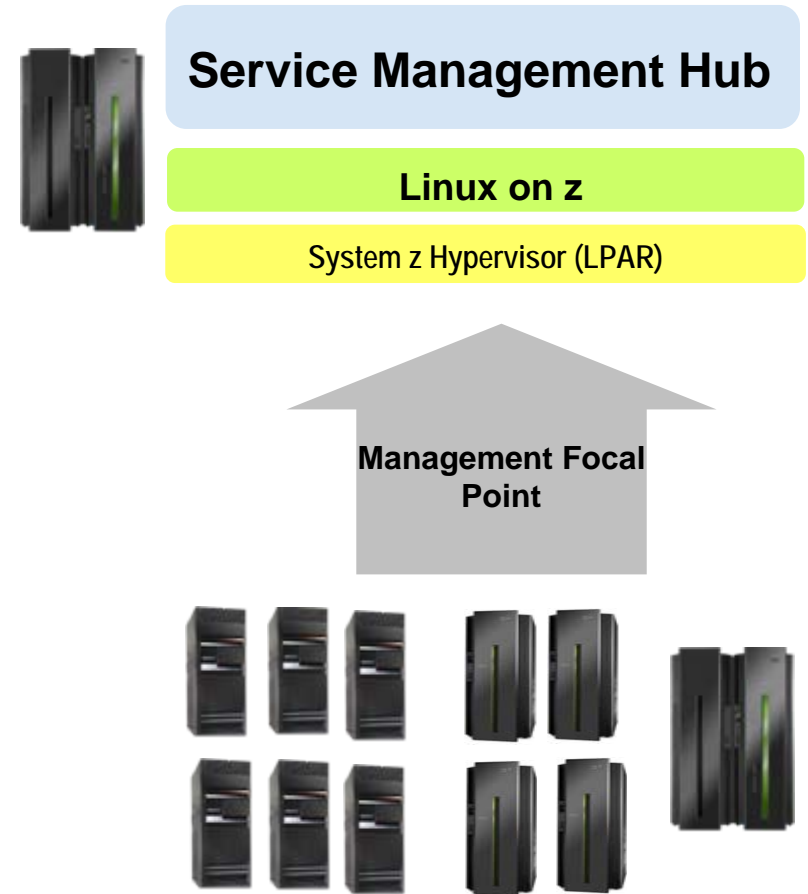


# **Extending Your Mainframe For More Business Value**

Extend IT Service Management

# Mainframe as a Service Management Hub

- Consolidate management on a mainframe
  - ▶ Hub on Linux on z
  - ▶ z/OS supported as a managed system
  
- Mainframe is a natural platform for a service management hub
  - ▶ Performance, scalability, reliability, inherent security, cost efficiencies



# Managing the Data Center from a Mainframe

How can we manage our data center from the mainframe?



**Data Center Manager**

Structured management is essential for the data center. IBM has a comprehensive solution.



**IBM**

# Data Centers Need Structured Management to Control Costs and Improve Service Levels

## Visibility

See issues in  
business  
context

*Respond faster  
and make better  
decisions*

## Control

Standardize IT  
processes to  
resolve issues

*Improve quality  
and reduce  
mistakes*

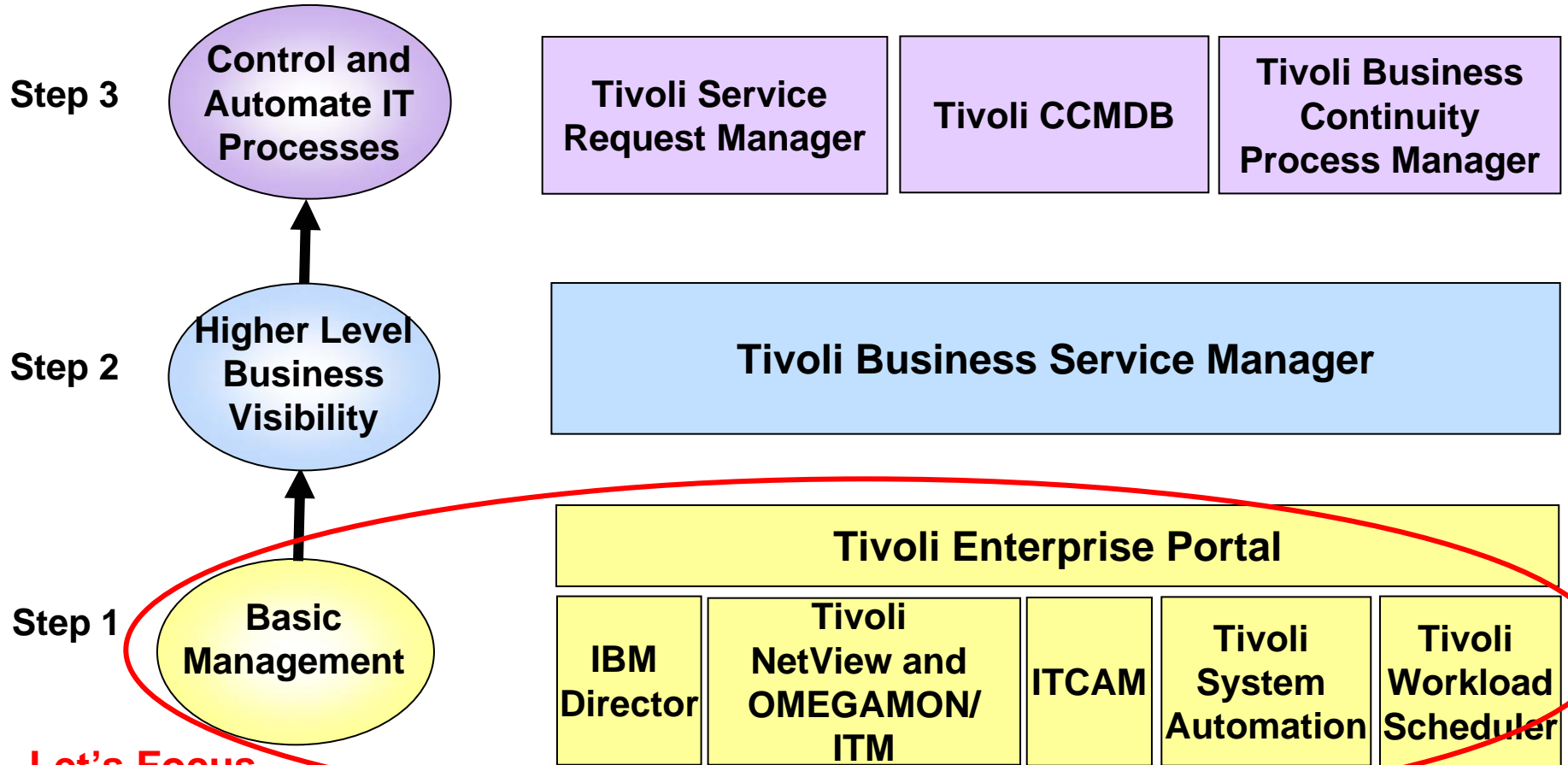
## Automation

Automate  
repeating tasks  
to simplify

*Lower costs  
and build  
agility*

**Solution:** *IBM Tivoli Service Management Center  
for System z*

# A Step by Step Approach to Implementing Tivoli Service Management Center for System z



**Let's Focus  
On Step 1**

**Visibility... Control... Automation**

# Basic Management and Visibility

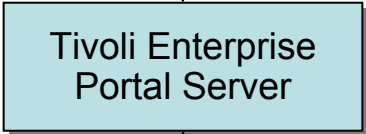
## Tivoli Enterprise Portal (TEP)

Single interface for management



Runs on Linux on System z

Retrieval, manipulation and analysis of data



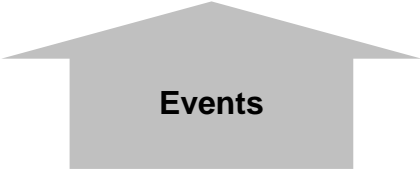
Runs on Linux on System z

Collect and correlate monitoring data



Runs on Linux on System z and z/OS

Intelligent monitoring agents on systems send events



# IBM Director – Hardware Management

- Base platform management included with purchase of IBM Systems
- Provides common management tools for System z, Power Systems, System x, and BladeCenter
- View and track hardware configurations of systems
- Monitor the usage and performance of critical components such as processors, disks and memory
- IBM Director Extensions for System z include:
  - ▶ z/VM Center
    - Manage virtual Linux server mainframe environment
    - Provides functions to deploy new z/VM virtual Linux systems easily using templates
  - ▶ Active Energy Manager
    - Measures, monitors and manages the energy components built into IBM systems
- Feeds events to IBM Tivoli Enterprise Portal

# Tivoli NetView and Tivoli OMEGAMON XE -- Monitor Mainframe Resources

- Tivoli NetView and Tivoli OMEGAMON XE agents for mainframe servers
  - ▶ *NetView on z/OS* – monitor and control TCP/IP and SNA networks to help maintain high availability
  - ▶ *OMEGAMON XE on z/OS* -- monitor key resources such as CPU, LPARs, I/O, network, enqueue, paging, zIIP, zAAP, Cryptoprocessors
  - ▶ *OMEGAMON XE on z/VM and Linux* -- monitor z/VM and Linux usage of resources such as CPU, network, storage
  - ▶ *OMEGAMON XE for Mainframe Networks* – collect data and diagnose network performance issues across z/OS systems
  - ▶ *OMEGAMON XE for DB2 PM/PE on z/OS* -- monitor performance of DB2 in a z/OS environment
  - ▶ *OMEGAMON XE for IMS on z/OS* -- manage IMS systems
  - ▶ *OMEGAMON XE for CICS on z/OS* -- manage CICS systems

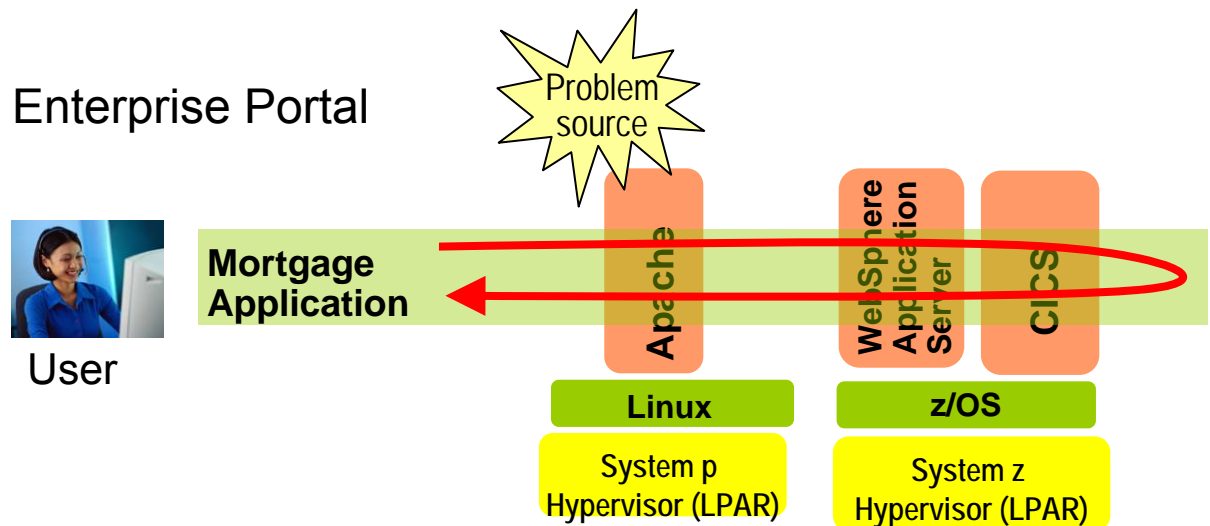


# Tivoli Monitoring -- Monitor Distributed Resources

- Tivoli Monitoring agents for distributed servers
  - ▶ *Monitoring (base)* -- monitor system resources such as CPU, I/O, network
  - ▶ *Monitoring for Database* -- monitor availability and performance of distributed databases such as DB2, Oracle, Microsoft SQL Server
  - ▶ *Monitoring for Business Integration* -- manage IBM WebSphere MQ, WebSphere MQ Integrator, WebSphere MQ Workflow and IBM WebSphere Interchange Server
  - ▶ *Monitoring for Applications* -- monitor SAP
  - ▶ *Monitoring for Messaging and Collaboration* -- monitor Lotus Domino

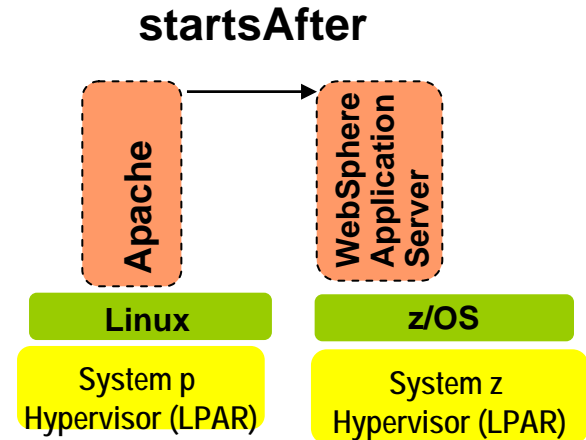
# Tivoli Composite Application Manager (ITCAM) -- End-to-End Transaction and SOA Management

- Track transaction performance end-to-end across multiple physical and/or virtual systems to quickly isolate bottlenecks
  - ▶ Isolate the source of the performance problem across web servers, WebSphere and WebLogic application servers, CICS, IMS and DB2 subsystems, as well as ERP environments
- Monitors and performs simple control of message traffic between Web services in the SOA environment
  - ▶ Can filter messages based on user-configurable criteria
- Sends events to Tivoli Enterprise Portal



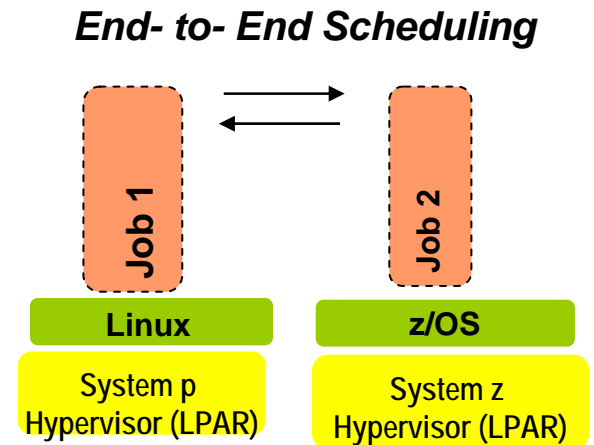
# Tivoli System Automation (TSA) – Automate System Operations

- Automate operations on hardware, I/O and applications
- No Scripts, policy-based automation
- Can manage relationship between resources and grouping of resources to automate at application level
- Includes out-of-the-box automation modules for middleware such as IMS, CICS, DB2, mySAP, WebSphere
- Can enable end-to-end application startup and shutdown across System z and distributed platforms
- Sends events to Tivoli Enterprise Portal



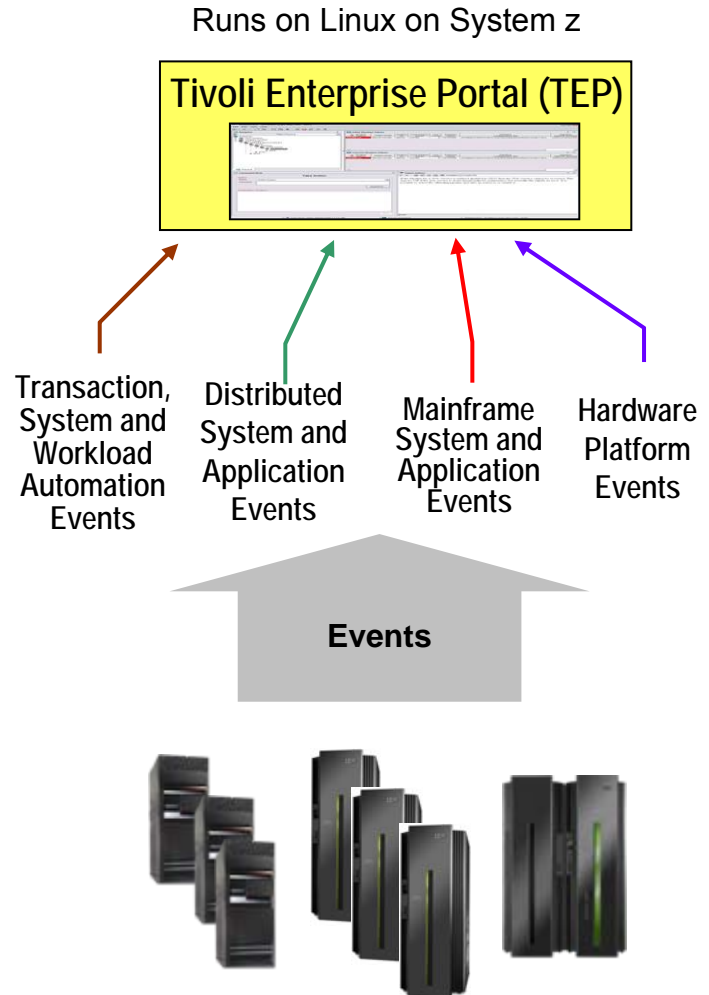
# Tivoli Workload Scheduler (TWS) -- Batch Workload Automation

- Enables planning for hundreds of thousands of jobs, resolves interdependencies, launches and tracks each job
- Powerful calendar-based and event-based scheduling capabilities
- Automatic recovery of jobs
- Workload Manager (WLM) integration to optimize resource utilization and favor late critical jobs
- Provides a single point of control for System z workloads or enterprise-wide workloads in end-to-end environments
- Sends events to Tivoli Enterprise Portal



# Tivoli Enterprise Portal (TEP) – A Common Monitoring Dashboard on System z

- Resource status/health from various event sources:
  - ▶ Hardware platform events from **IBM Director**
  - ▶ Mainframe events from **Tivoli OMEGAMON**
  - ▶ Distributed events from **Tivoli Monitoring (ITM)**
  - ▶ Transaction events from **Tivoli Composite Application Manager (ITCAM)**
  - ▶ System automation events from **Tivoli System Automation (TSA)**
  - ▶ Batch workload events from **Tivoli Workload Scheduler (TWS)**
  - ▶ Events from 3<sup>rd</sup> party monitors
- Detect incidents with *situations*
  - ▶ Out-of-the-box supplied *situations* include combination of metrics and thresholds
  - ▶ Built-in situation editor allows to customize
- *Expert advice* helps obtain detailed explanation and recommendation for resolution
- *Take action* to automatically resolve recurring problems with existing or customized scripts



# DEMO: Tivoli Enterprise Portal (TEP)

- Monitor resources end-to-end with workspaces
- *Situations* triggered by problems, for example:
  - ▶ CICS application not responding
  - ▶ DB2 application has issues

The screenshot shows the Tivoli Enterprise Portal (TEP) interface. The top window is titled "Enterprise Status - 192.169.1.54 - SYSADMIN \*ADMIN MODE\*". The interface is divided into several panes:

- Navigator:** A tree view showing the hierarchy of system components, including Linux Systems, z/10 Items, z/9ccmdb, DB2, Linux OS, Web Server Agent - Primary, WebSphere Agent - Primary, z/xcvdir, z/xcvmaps, Windows Systems, z/DC Systems, and ADCDPL:MVS:SYSPLEX.
- Situation Event Console:** A table displaying active situations. The table has columns for Severity, Status, Owner, Situation Name, Display Item, and Source. Three critical situations are listed:

Severity	Status	Owner	Situation Name	Display Item	Source
Critical	Open		WebServicePipeline_Critical		ADCD.CICSA
Critical	Open		WASNotConnected	MXServer	Primary:z9ccmdb:KYNA
Critical	Open		UDB_Status_Warning		db2inst1:z9ccmdb:UD
- Open Situation Counts - La...:** A bar chart showing the count of open situations for various categories. The categories include WebServicePipeline\_Critical, WASNotConnected, WASError, UDB\_Status\_Warning, MS\_Offline, Linux\_Process\_High\_Cpu, Linux\_Low\_percent\_space, Linux\_High\_CPU\_Overload, KSY\_TEPS\_Connectivity\_Fail, and CICSplex\_RTAGroup\_Warning. The Y-axis is labeled "Count".
- My Acknowledged Events:** A table displaying acknowledged events with columns for Severity, Status, Owner, Situation Name, Display Item, Source, Impact, Opened, Local Timestamp, Type, and Reference ID.
- Message Log:** A table displaying message log entries with columns for Status, Name, Display Item, Origin Node, and Global Timestamp.

At the bottom of the interface, there is a status bar showing "Hub Time: Mon, 09/08/2008 10:21 PM", "Server Available", and "Enterprise Status - 192.169.1.54 - SYSADMIN \*ADMIN MODE\*". The taskbar at the bottom shows various applications like IBM Tivoli Net..., MAXIMO - Start..., Netcool/OMNIB..., Mozilla Firefox, and Enterprise St... with the system clock showing 10:11 PM.

*A Dynamic Role-based Portal for End-to-End Monitoring!*

# Prioritize IT Issues with Business Visibility

**We need to prioritize IT issues based on business impact**



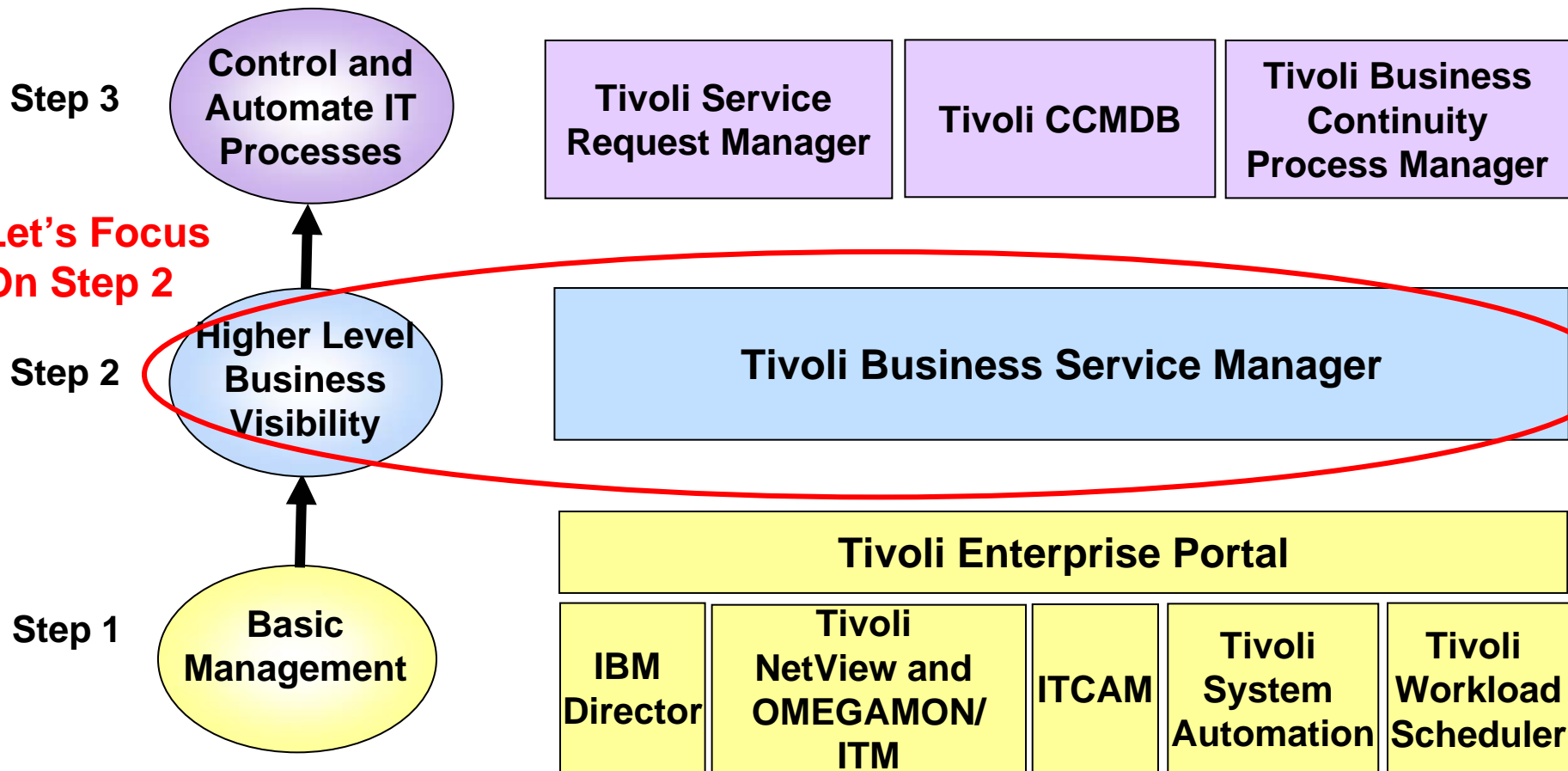
**Data Center Manager**

**You can achieve this with IBM Tivoli Business Service Manager ....**



**IBM**

# A Step by Step Approach to Implementing Tivoli Service Management Center for System z



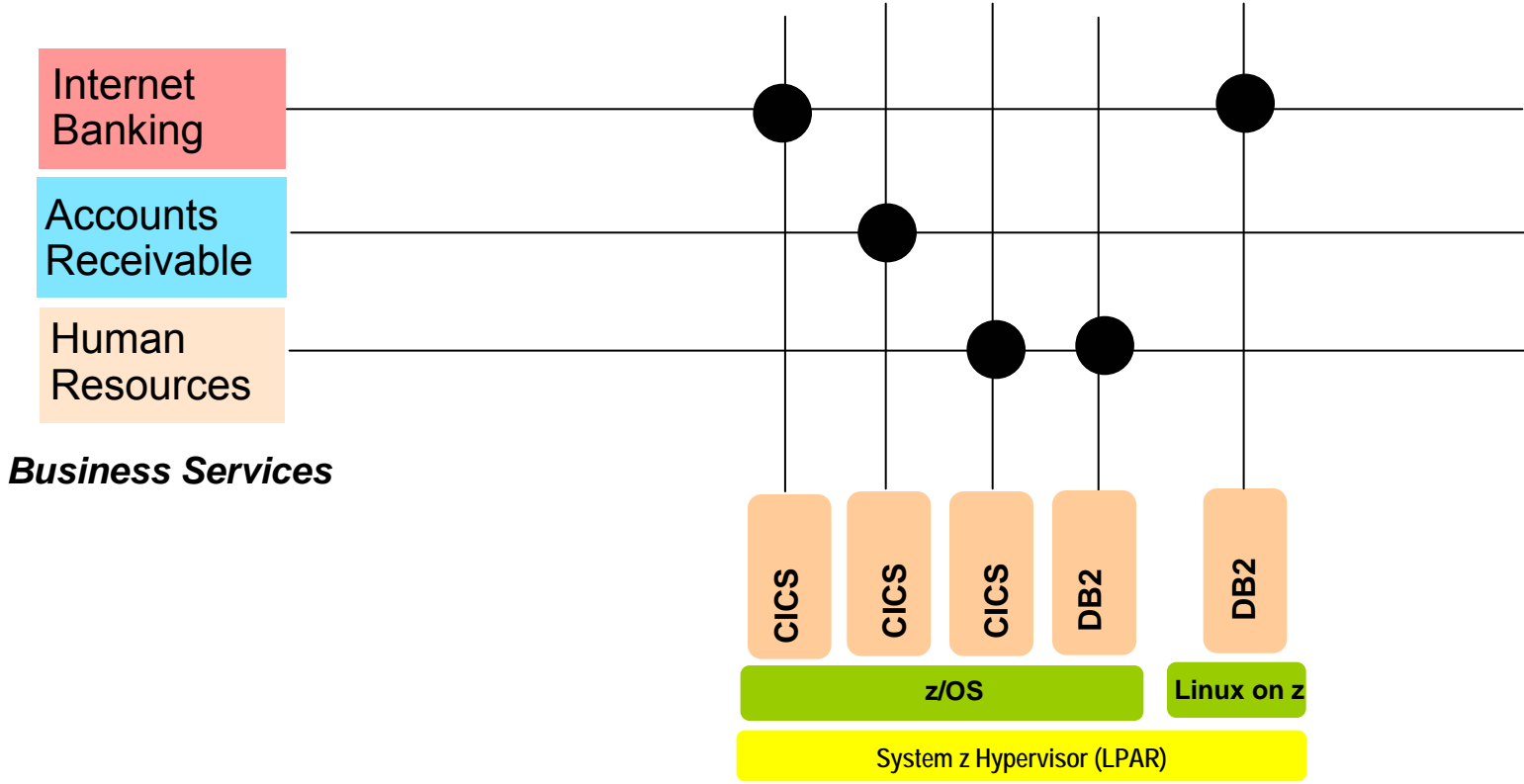
Let's Focus On Step 2

**Visibility... Control... Automation**

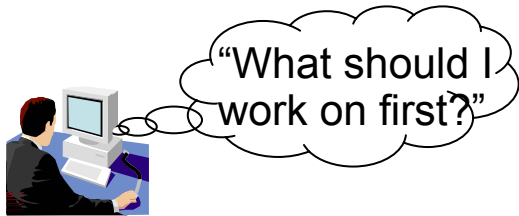


# Associate IT Resources with Business Services Using IBM Tivoli Business Service Manager (TBSM)

## Associate IT Resources with Business Services



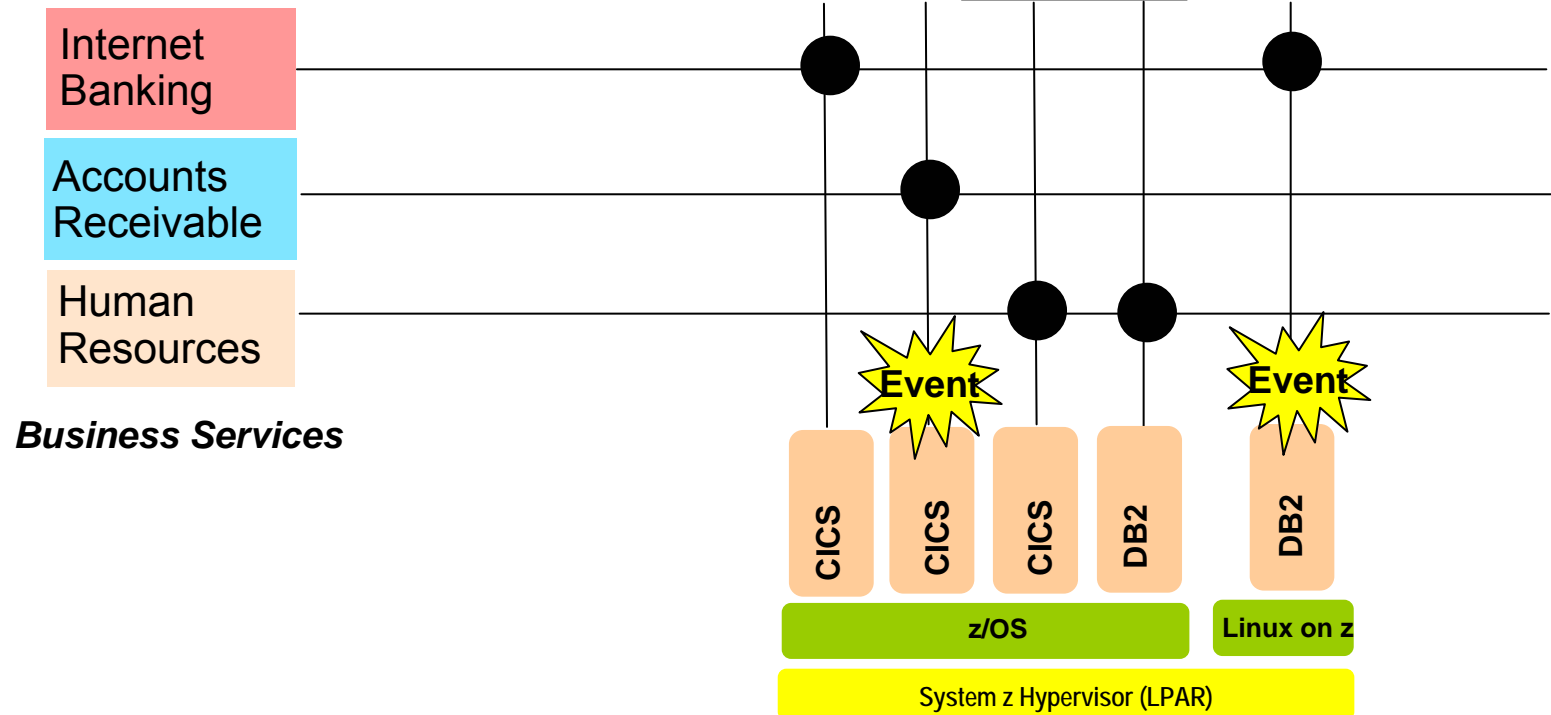
# Associate IT Resources with Business Services Using IBM Tivoli Business Service Manager (TBSM)



Determine Business Impact and Prioritize



TBSM



# **NEW** Tivoli Business Service Manager (TBSM)

## **Gain Real-time Business Visibility**

- Group IT resources to define business services
- Determine business impact and isolate service availability and performance issues
  - ▶ Collect status of IT resources that make up a business service, such as:
    - Mainframe and distributed system events (z/OS, zLinux, Unix, Windows)
    - Application and transaction events across web servers, application servers, database servers (such as WebSphere Application Server, CICS, IMS, DB2 etc.)

## **Prioritize**

- Prioritize issues impacting business services against service level agreements

The screenshot displays the IBM Tivoli Netcool interface. On the left, a 'Service Tree' table lists various services with their status and event counts. On the right, the 'Service Viewer' shows a hierarchical tree structure. The 'Internet Banking' service is highlighted with a red circle. Below it, three sub-services are shown: 'Credit Check', 'Customer Portal', and 'Loan Application'. At the bottom of the tree, three database instances are listed: 'db2inst1', 'zib2inst1', and 'CICS'. These database instances are also highlighted with a red circle. Red arrows point from the text 'Collect status of IT resources that make up a business service, such as:' to the 'Internet Banking' service and the database instances.

**Runs on Linux on System z**

# DEMO: Tivoli Business Service Manager (TBSM)

- Show how problem in DB2 affects service levels of customer-facing business service (high priority)
- Assign this high priority issue to IT operations staff
- Show how IT Operations staff resolves the issue with Tivoli Enterprise Portal using *Expert Advice* and *Take Action*

The screenshot displays the IBM Tivoli Netcool interface within a Microsoft Internet Explorer browser window. The browser address bar shows 'http://localhost:8000/portal'. The interface is titled 'Tivoli' and indicates the user is logged in as 'Netcool Administrator'. The main content area is divided into two panes: 'Service Tree' and 'Service Viewer'.

The 'Service Tree' pane contains a table with the following data:

Service	State	SLA Status	Events
Accounts Receivable	Red	Yellow	Red
Customer Inquiry	Red	Yellow	Red
Human Resources	Green	Green	Green
Internet Banking	Yellow	Green	Red
Credit Check	Red	Green	Red
Customer Portal	Yellow	Green	Red
Loan Application	Green	Green	Green

The 'Service Viewer' pane shows a hierarchical diagram of services. At the top is 'Internet Banking'. Below it are three sub-services: 'Credit Check', 'Customer Portal', and 'Loan Application'. Under 'Credit Check' is a red icon representing a problem. Under 'Customer Portal' and 'Loan Application' are green icons representing healthy services. The diagram is titled 'View Definition: BasicRelationships' and includes controls for 'Levels Down' (set to 2) and 'Levels Up' (set to 0). The status bar at the bottom indicates 'Status refresh in 3 seconds...'

**Gain Real-Time Business Visibility and Prioritize!**

# Control and Automate IT Processes

**One of my key staff members is leaving.  
My new employees don't have the experience to  
handle problems when they come up.**

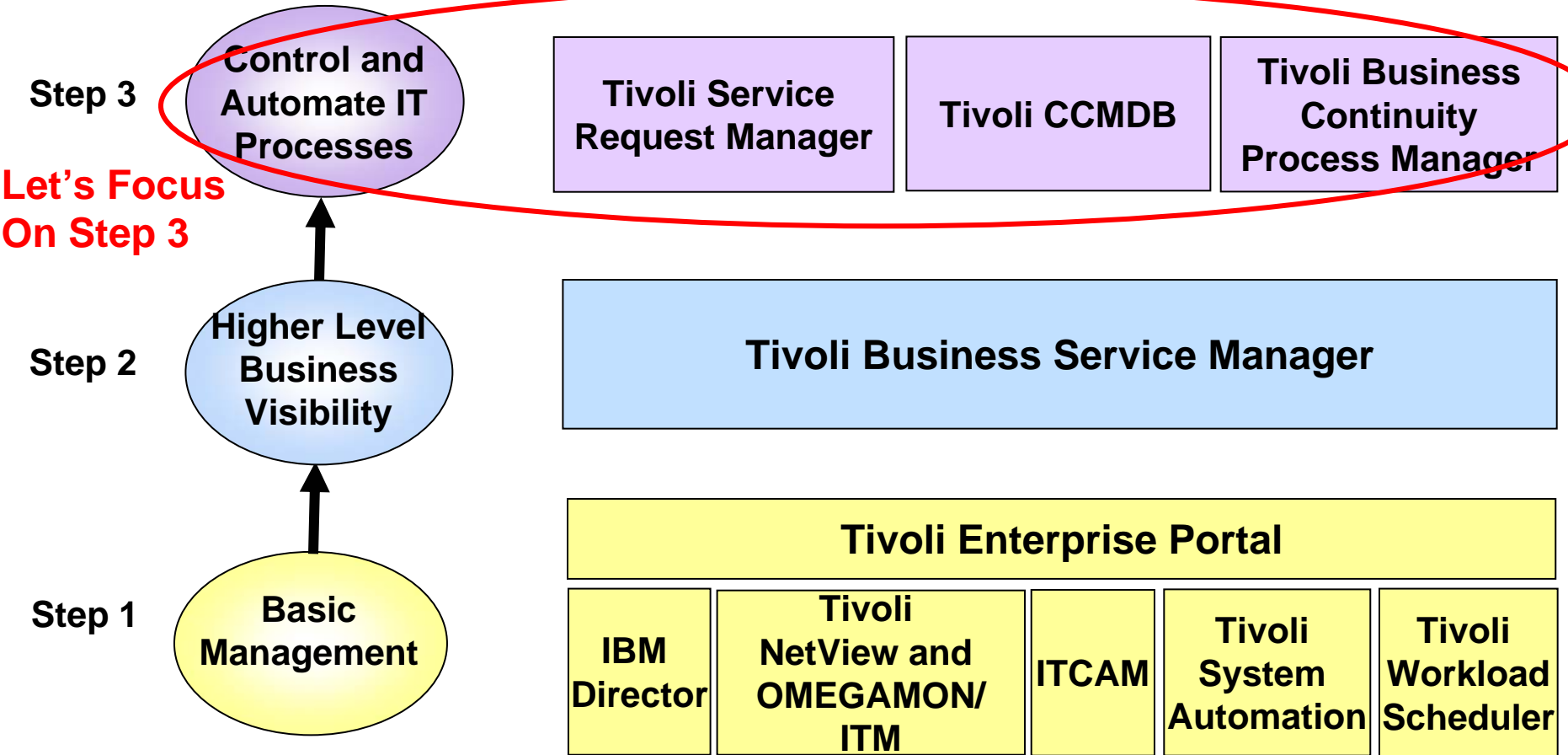


**Data Center Manager**



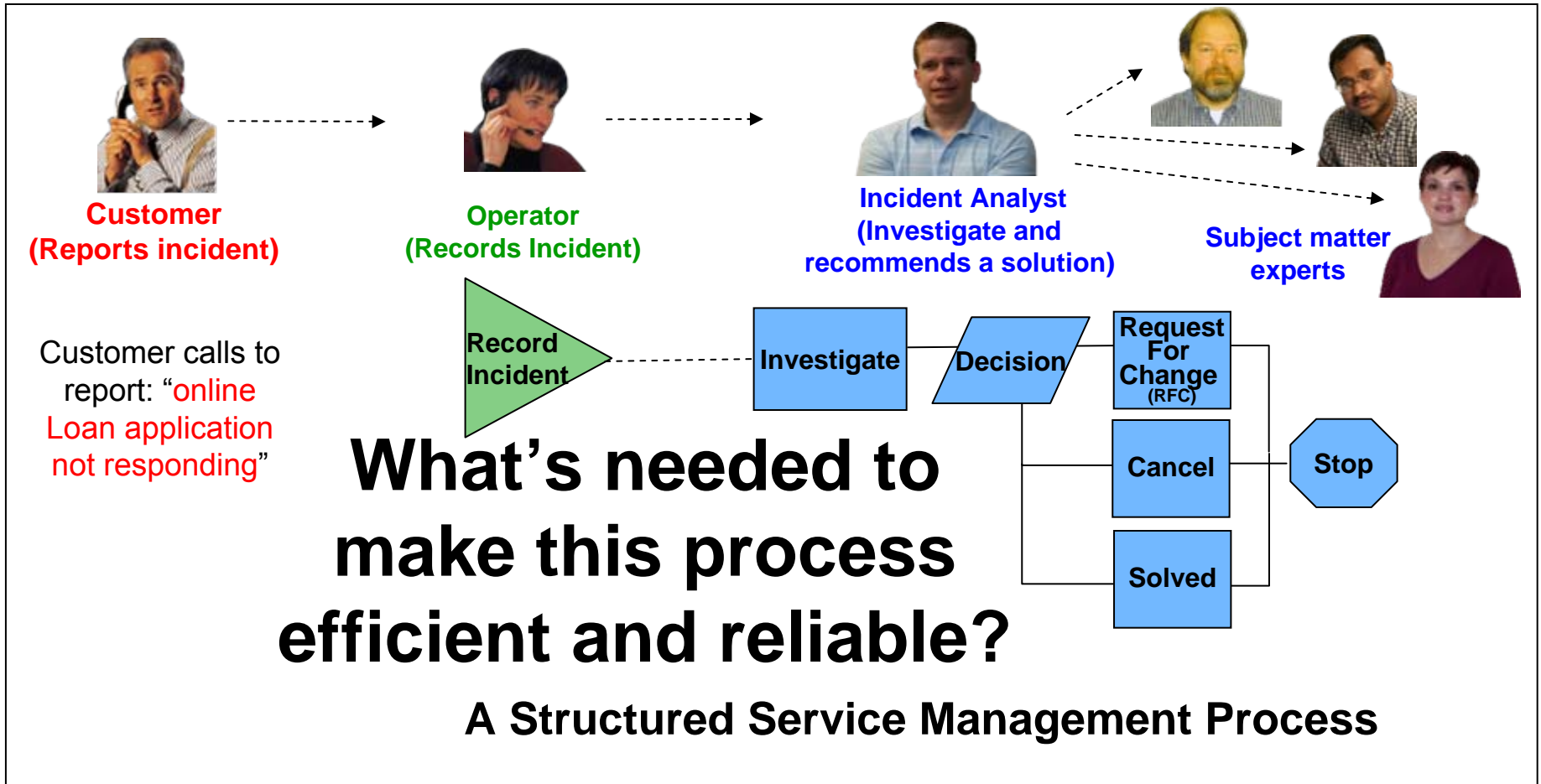
**New Employee**

# A Step by Step Approach to Implementing Tivoli Service Management Center for System z



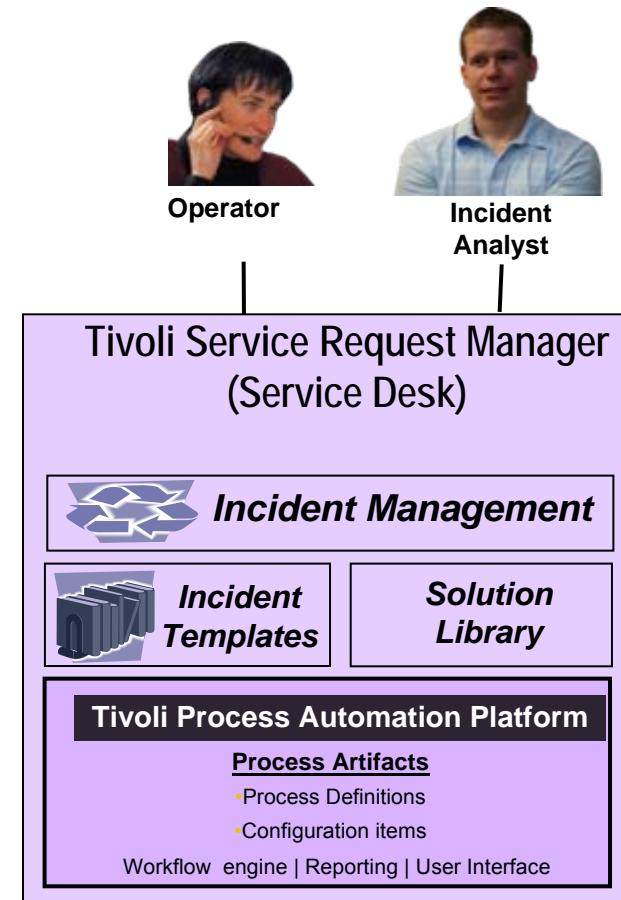
**Visibility... Control... Automation**

# It Takes A Team To Resolve An IT Service Issue



# Tivoli Service Request Manager (TSRM)-- Control and Automate Incident Management Process

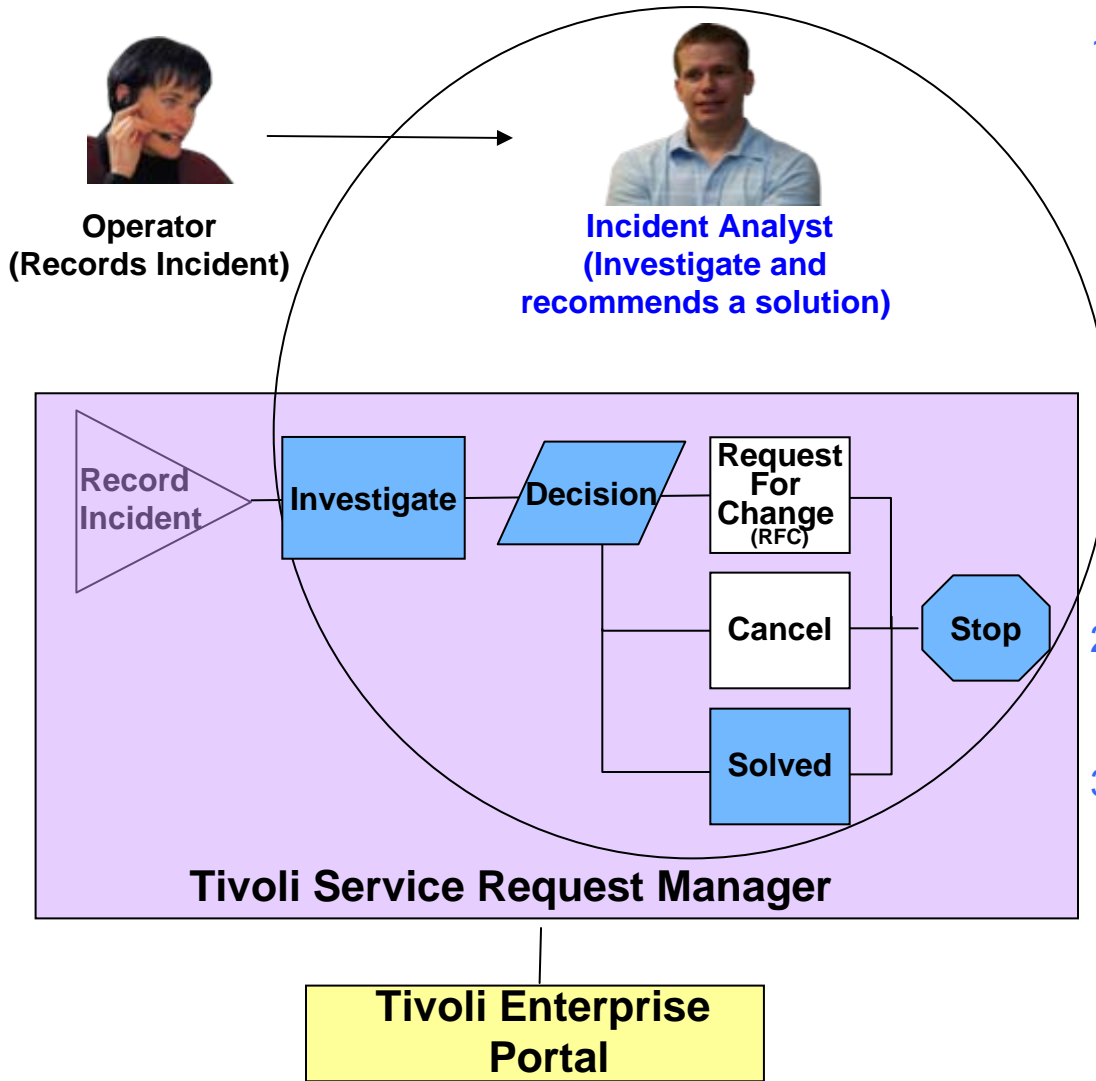
- Central point to control service requests for help, information and service
- Create incident templates for common service desk calls and library of reusable solutions
  - ▶ Use templates to quickly create tickets
  - ▶ View updates and search library for solutions
- Automate incident management process
  - ▶ Built on the common Tivoli Process Automation Platform to enable integration with other processes via common UI, common workflow engine, common database



**Runs on Linux on System z**



# DEMO: Tivoli Service Request Manager



## 1 Investigate

- ▶ Incident analyst selects an incident template from knowledge base
- ▶ Incident template recommends activities:
  - Investigate problem with **Tivoli Enterprise Portal**
  - Verify problem root cause as being the CICS web service. Take action to resolve the problem

## 2 Decision

- ▶ Decide on the next step

## 3 Solved

- ▶ Mark problem as solved

# Change Management with IBM Tivoli CCMDB

The resolution of the issue requires making a change



**Data Center Manager**

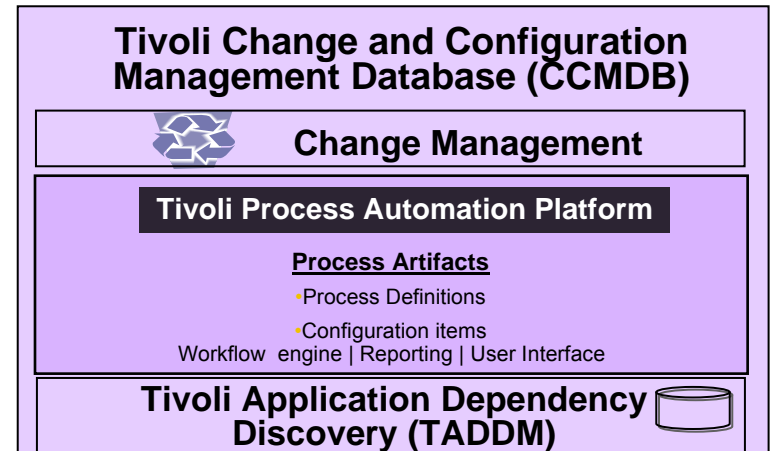
**IBM Tivoli Change and Configuration Management Database (CCMDB)** can help you manage your change process...  
Let me show you!



**IBM**

# Tivoli Change And Configuration Management Database (CCMDB) -- Discover and Manage Changes

- Discover assets and keep track of changes
  - ▶ Discovery library adapter for z/OS
  - ▶ 200 out-of-the-box sensors discover distributed resources
- Automated dependency mapping via application descriptors
  - ▶ Capture information about modules in business applications via descriptors
  - ▶ Can be utilized by Tivoli Business Service Manager
- Leverages the common Tivoli Process Automation Platform to enable integration of change process with other processes via common UI, common workflow engine, common database



Out-of-the-box  
Automated  
Discovery



# Tivoli CCMDB -- Control and Automate Change Management Process

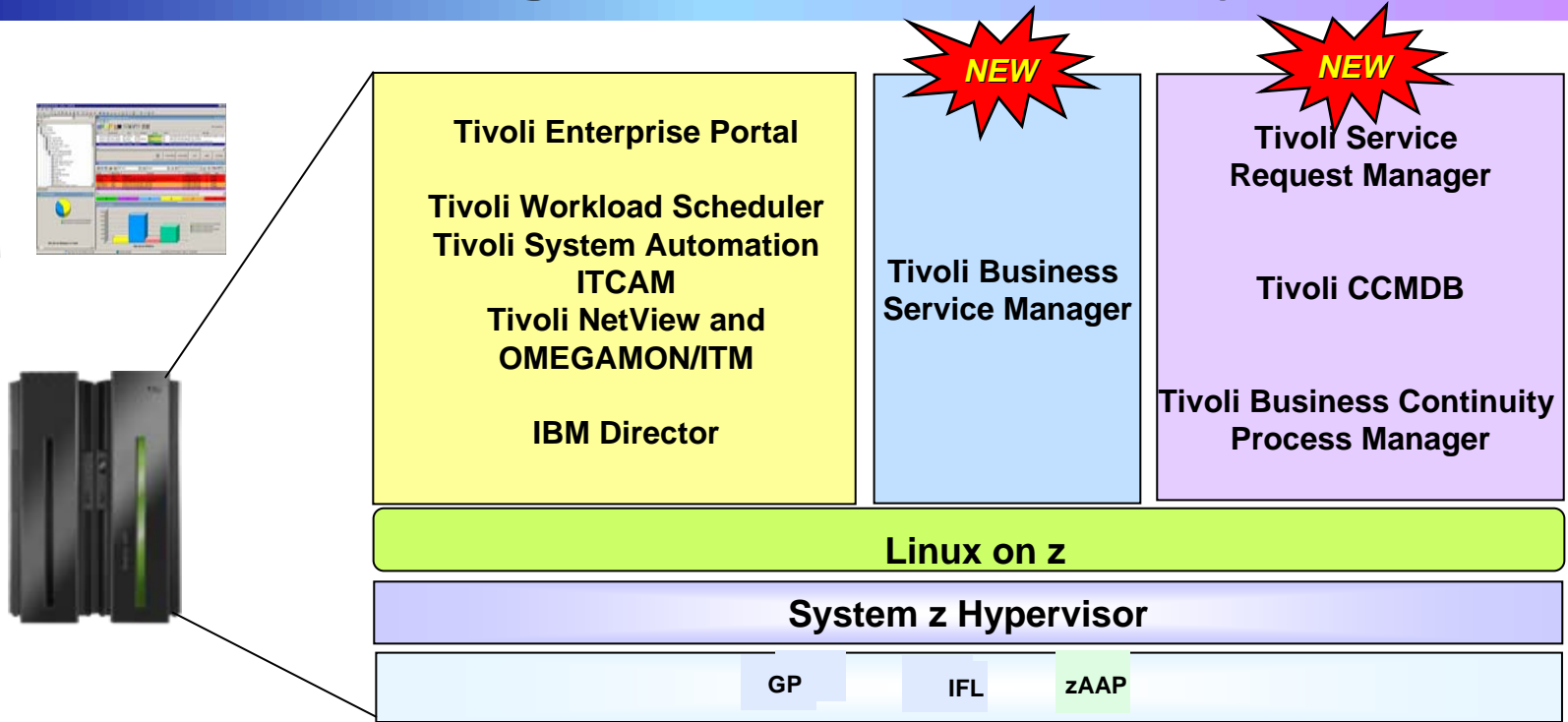
- Associate change window with configuration items (managed assets)
  - ▶ Check for schedule conflicts
  - ▶ Prevent changes from occurring outside defined window
- Identify the impact of implementing a change
  - ▶ Identify and record impacted configuration items using the discovered relationship data
  - ▶ Subject Matter Experts can document assessment results
  - ▶ Get Approvals from all stakeholders before implementing the change
- Out of the box best practices customizable change management process



# Tivoli Business Continuity Process Manager -- Control and Automate Recovery Process

- Provides key processes required to identify and recover critical business systems when an outage occurs
- Workflows can route IT service continuity work orders through a succession of phases
  - ▶ From outage analysis, through approval and implementation to final verification that a recovery is complete
- Enables one to design test plans and run test scenarios to verify the effectiveness of an organizations' disaster recovery procedures
- Integrates with GDPS and the Tivoli System Automation to automate recovery tasks within the process

# Mainframe as a Service Management Hub with Tivoli Service Management Center for System z



# Summary



**Happy  
Customer**



**Successful  
Employee**

**Structured Management with System  
z can lower your costs, increase  
service levels and help  
you be responsive**



**IBM**

