

# It's All About The Agents

**CA Workload Automation**

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agility  
made possible™



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# Agenda

- Introduction
- A New Approach
- The System Agent
- Agent Plug-Ins
- Migration from the Remote Agent
- What's Ahead
- Agent Roadmap
- Questions

# In The Beginning There Were Command Jobs

- The ultimate utility tool
- Command jobs are powerful, so why bother with anything else?
- Command jobs require effort, cost money, and incur risk
  - Coding
  - Testing
  - Maintenance
  - Standards
  - Support
  - System resources
  - Monitoring
  - Application limitations





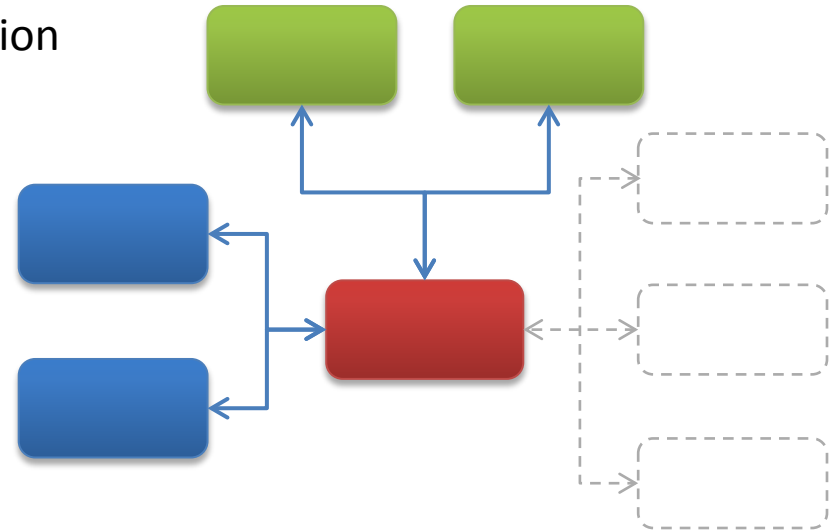
# A New Approach

- Expand the library of pre-defined job types
  - Reduced coding, testing, maintenance, support, footprint
  - Increased standardization
  - Simplified job streams and monitoring
  - Better access to application-specific functionality
  - Improved return on investment
- Job types to support workloads of all types
  - System automation
    - Basic tasks, object monitors, platform-specific activities, command jobs
  - Application automation
    - Common tasks for specific applications like SAP and Informatica
- Support for older job types

# The System Agent

## ■ Core Agent Component

- Common agent platform across all CA Workload Automation engines
  - Replaces the Unicenter AutoSys JM r4.5.1 and r11 Remote Agent and the Universal Job Management Agent for Windows, UNIX, Linux and z/Linux
- Improved architecture
  - Does not requires database connection
  - Includes support for agent plug-ins
- Enhanced security
- Includes a number of built-in job types
- Backwards-compatible











# The System Agent

## Job Types for System Automation










### Basic Tasks

 <b>Command Job</b>	Execute any command or script on UNIX, Linux (including z/Linux), Windows, or i5/OS while capturing output, errors and return code
 <b>FTP</b>	Upload or download data to or from an existing FTP server or another System Agent running as an FTP server
 <b>Secure Copy</b>	Upload or download data to or from a remote server using encrypted SCP or SFTP protocol
 <b>SNMP Value Get</b> <span>New!</span>	Retrieve the value of an SNMP variable
 <b>SNMP Value Set</b> <span>New!</span>	Set the value of an SNMP variable
<b>SNMP Subscribe</b> <span>DE Only</span>	Subscribe to and monitor SNMP trap messages
<b>SNMP Trap Send</b> <span>DE Only</span>	Send SNMP trap messages
 <b>Wake On LAN</b> <span>New!</span>	Send a command to start up or shut down a system using the WOL protocol

# The System Agent

## Job Types for System Automation

### Monitoring




 <b>File Watcher</b> <small>AE Only</small>	Monitor for the existence and minimum size of a file
 <b>File Trigger</b>	Monitor file activity: when a file is created, updated, deleted, expanded, shrunk, or to check for existence
 <b>Text File</b>	Search a text file for a string; for example, you can monitor a log file for an error message
 <b>Process</b>	Monitor the status of a process; for example, wait for a process to finish running
 <b>CPU</b>	Monitor the CPU usage of the local computer; for example, wait for CPU usage to drop below 80% or alert if CPU usage goes above 95%
 <b>Disk</b>	Monitor the available or used space on a disk or partition
 <b>IP</b>	Monitor an IP address or a specific remote port; for example, wait for the IP address to stop responding, or a port to be in use
 <b>Windows Event Log</b>	Monitor the Windows Event log, watching for events that match criteria to occur
 <b>Windows Services</b>	Monitor Windows services; for example, waiting for a service to enter a RUNNING state



# The System Agent

## Job Types for System Automation

### z/OS Platform Tasks

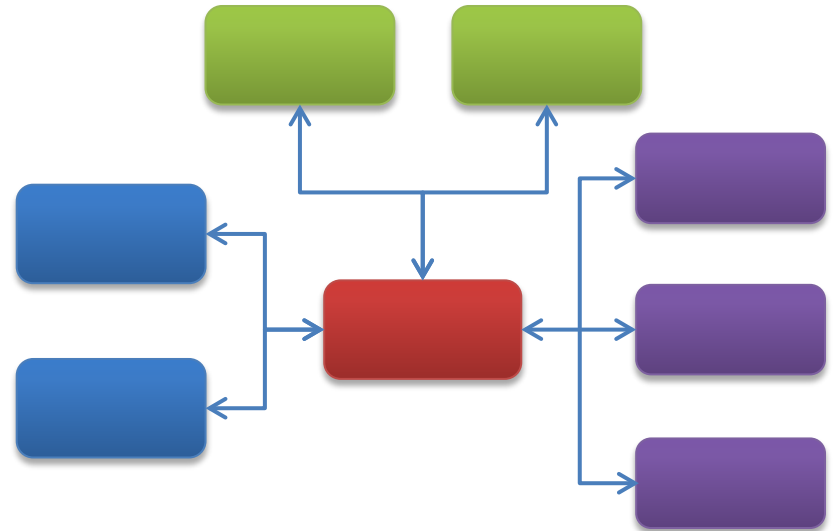
 <b>Batch Job</b>	Execute and monitor regular z/OS jobs
 <b>Manual Job</b>	Create dependencies on z/OS jobs submitted outside of the scheduling manager
 <b>Data Set Trigger</b>	Monitor z/OS data set activities and return successfully if the defined activity is detected; activities include data set creation or updates and data set notifications such as a successful FTP transfer

### HP Integrity NonStop Platform Tasks

 <b>Command Job</b>	Execute and monitor regular Tandem jobs
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# Beyond the System Agent














- Agent Plug-Ins
  - Extensibility for the System Agent
    - Application services and Java
    - Web services
    - Database services
    - Specific applications like SAP, PeopleSoft and Oracle
  - Requires a locally-installed System Agent
  - Each uses one agent license



# Agent Plug-Ins

## Application Services





### Application Services

 <b>HTTP</b>	Perform a task via an HTTP GET or POST action and capture the resulting output
 <b>POJO</b>	Instantiate a class to create a Java object and invoke a method on it; can be used to execute custom Java code on the local system
 <b>RMI</b>	Utilize Remote Method Invocation (optionally with Remote Object Activation) to call a method on a remote server and store the method's output
 <b>JMS Publish</b>	Send a message to a queue or publish a message to a topic on a Java Message Service server such as Apache ActiveMQ or IBM WebSphere or BEA Weblogic
 <b>JMS Subscribe</b>	Consume messages from a queue or topic on a Java Message Service server; for example, wait for a specific message to be delivered
 <b>Session Bean</b>	Access a session bean on an application server, invoke a method on the bean, and return the results; stateful and stateless session beans are supported
 <b>Entity Bean</b>	Create, update the properties of, or remove an entity bean, which is a type of Enterprise Java Bean that represents persistent data maintained in a database
 <b>MBean Create Instance</b>	Create an MBean on a Java Management Extensions (JMX) server
 <b>MBean Remove Instance</b>	Remove an MBean from a JMX server
 <b>MBean Attribute Get</b>	Retrieve the value of an MBean attribute
 <b>MBean Attribute Set</b>	Change the value of an MBean attribute
 <b>MBean Operation</b>	Invoke an operation on an MBean
 <b>MBean Subscribe</b>	Monitor an MBean for one or more notifications





# Agent Plug-Ins

## Web Services and Databases

### Web Services

 <b>WS RPC/Encoded</b>	Execute an operation within a web service and pass parameters (including serialized Java objects) to the operation using “RPC/encoded” style binding
 <b>WS Doc/Literal</b> <i>New!</i>	Execute an operation with in a web service and pass parameters (including serialized Java objects) to the operation using “document/literal” style binding
 <b>Process Automation</b> <b>Process Execution</b> <i>New!</i>	Directly execute a CA Process Automation process
 <b>Process Automation</b> <b>Start Request Form</b> <i>New!</i>	Submit a Start Request Form to execute a CA Process Automation process; the Start Request Form sets the values for the current execution of the process









### Databases

 <b>DB Monitor</b>	Monitor a database table for added or deleted rows; checks at intervals
 <b>DB Trigger</b>	Monitor a database table for added, changed (in general or matching a specific trigger) or deleted rows; for example, wait for a row where dept=75 to be deleted
 <b>DB Stored Procedure</b>	Invoke a procedure or function stored within a database; criteria can be added to test the procedure’s output
 <b>SQL</b>	Execute a SQL statement and capture the output; criteria can be added to test the statement’s output


# Agent Plug-Ins

## SAP and PeopleSoft

### SAP

 <b>R/3</b>	Schedule an R/3 job on your SAP system
 <b>Job Copy</b>	Schedule an SAP Job Copy job that runs a copy of a specified R/3 job
 <b>BW Process Chain</b>	Run a sequence of background processes on an SAP system; some SAP processes trigger events that start other processes, these are run as job steps
 <b>BW InfoPackage</b>	Transfer data from any supported data source into an SAP Business Warehouse system
 <b>Data Archiving</b>	Store information described in an SAP Archiving Object into a data archive
 <b>Batch Input</b>	Utilize a Batch Input Session to import large amounts of data from external systems into SAP
 <b>Event Monitor</b>	Trigger or monitor for an SAP event
 <b>Process Monitor</b>	Monitor an SAP process for a specified condition




### PeopleSoft

 <b>PeopleSoft</b>	Run and monitor different types of jobs defined in your PeopleSoft system; various attributes can be set to manage the output, set parameter values and control how the job is run
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# Agent Plug-Ins

## Oracle E-Business Suite and Micro Focus

### Oracle E-Business Suite

 <b>Single Request</b>	Run and monitor a single jobs defined in your Oracle E-Business Suite system; various attributes can be set to manage the output, set parameter values and control how the job is run
 <b>Request Set</b>	Run and monitor a request set program defined in Oracle
 <b>Copy Single Request</b>	Run a copy of an existing single request defined in Oracle; the original definition's value can be overridden during the run

### Micro Focus

 <b>Micro Focus</b>	Run, control and monitor a mainframe JCL or COBOL program utilizing the Micro Focus Net Express JCL engine in a Microsoft Windows environment
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# Agent Plug-Ins

## Remote Execution

### Remote Execution



#### **Remote Execution** New!

Execute any command or script on a *remote* UNIX, HP Integrity NonStop (Tandem) or OpenVMS system through Secure Shell (SSH2) or Telnet.

For each agent license, the Remote Execution Agent Plug-In can connect to up to six remote systems.

Because the command is run through SSH2 or Telnet, functionality is limited compared to commands run locally through the System Agent.

Useful for supporting systems not natively supported by the System Agent (such as OpenVMS or older versions of UNIX) or for supporting systems that run few or only occasional jobs.





# Migration from the AutoSys Remote Agents

- System Agent not identical to Remote Agent
  - Process name
  - Initial directory for jobs and directory switching
  - Logging folders
  - Profile sourcing
  - File watcher jobs check immediately
  - Variable changes – especially \$AUTOPID
  - Encryption and security
  - Regular expression support
  - Temp file cleanup
- Several options implemented in r11.3 patches to support behavior more similar to Remote Agent

# Migration from the AutoSys Remote Agents Configuration Options

## Configuration Options

<b>filemon.firstscan.skip</b>	Set to <i>true</i> to force file watcher to wait to check for file size changes; otherwise, if the timestamp of the file is older than the wait interval the watcher could trigger immediately
<b>oscomponent.cmdprefix.force</b>	Set to <i>true</i> to allow jobs to run using relative paths
<b>oscomponent.initialworkingdirectory</b>	Set to <i>USER</i> to set the initial working directory to the home directory of the owner of the script
<b>oscomponent.noexitcode</b>	Set to 256 to configure the agent not to send a completion code to the scheduling manager host if a job's exit code is 256. This value is chosen as the agent's default settings are 255 for UNIX and 127 for Windows. This allows the agent to properly return status for exit codes 0 through 255 on all platforms.
<b>oscomponent.noforceprofile</b>	Set to <i>true</i> to prevent the agent from automatically sourcing any profiles (/etc/profile, the user's profile, global, or job). (UNIX only)
<b>oscomponent.profiles.global.override</b>	Set to <i>true</i> to source the job profile (if present) instead of the global profile
<b>oscomponent.profiles.src.order.global.first</b>	Set to <i>true</i> to source global profile first (instead of last)
<b>oscomponent.profiles.src.delay</b>	Set to <i>true</i> to execute the sourcing of global and job profiles from a temporary shell script. The agent will not add /etc/profile or the user's login profile to this temporary shell script. (UNIX only)
<b>oscomponent.profiles.src.verify</b> <i>New!</i>	Set to <i>true</i> to have the agent return an error if it detects a command jobs pointing to a non-existent profile
<b>oscomponent.wrapper.exec.force</b> <i>New!</i>	Set to <i>false</i> to support chained commands



# System Agent Patches

- Recent System Agent patch releases have included a number of issue fixes plus the options described on the previous slide
- CA Workload Automation Agent r11.3 Service Pack 1 Cumulative Patch Set 1 is highly recommended
  - Especially for customers upgrading to AutoSys 11.3 or 11.4



# What's Planned Agent Roadmap

## ■ New Plug-ins for:

- Informatica
- Microsoft SQL Server
- Oracle Fusion
- Teradata
- Lawson
- IBM DataStage
- IBM Cognos
- EPIC
- JD Edwards
- Siebel
- Retek
- HADOOP

## ■ Enhancements for:

- SAP Agent Plug-In
  - XBP 3.0
  - Batch statistics
  - Event criteria manager
  - SAP load balancing
- Application Server Agent Plug-In
  - HTTPS
  - Additional application server certifications
  - Message Broker/ESB Certifications
  - POJO job changes
- System Agent
  - Features TBD, possibly including internationalization, enhanced deployment and customer-requested enhancements



# Vision for the Future

## Agent Management

- Always considering possible enhancements
  - Dynamic agent support
    - Add and update job types without having to rebuild the engines or user interfaces
  - Agent monitoring
    - Track installed agents and plugins, including usage, system resources, and patch levels
  - Autonomous agent support
    - Would allow agents to run for short periods of time under limited conditions without a connection to the scheduler



Questions?  
Thank You!

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