

BMC Workload Automation

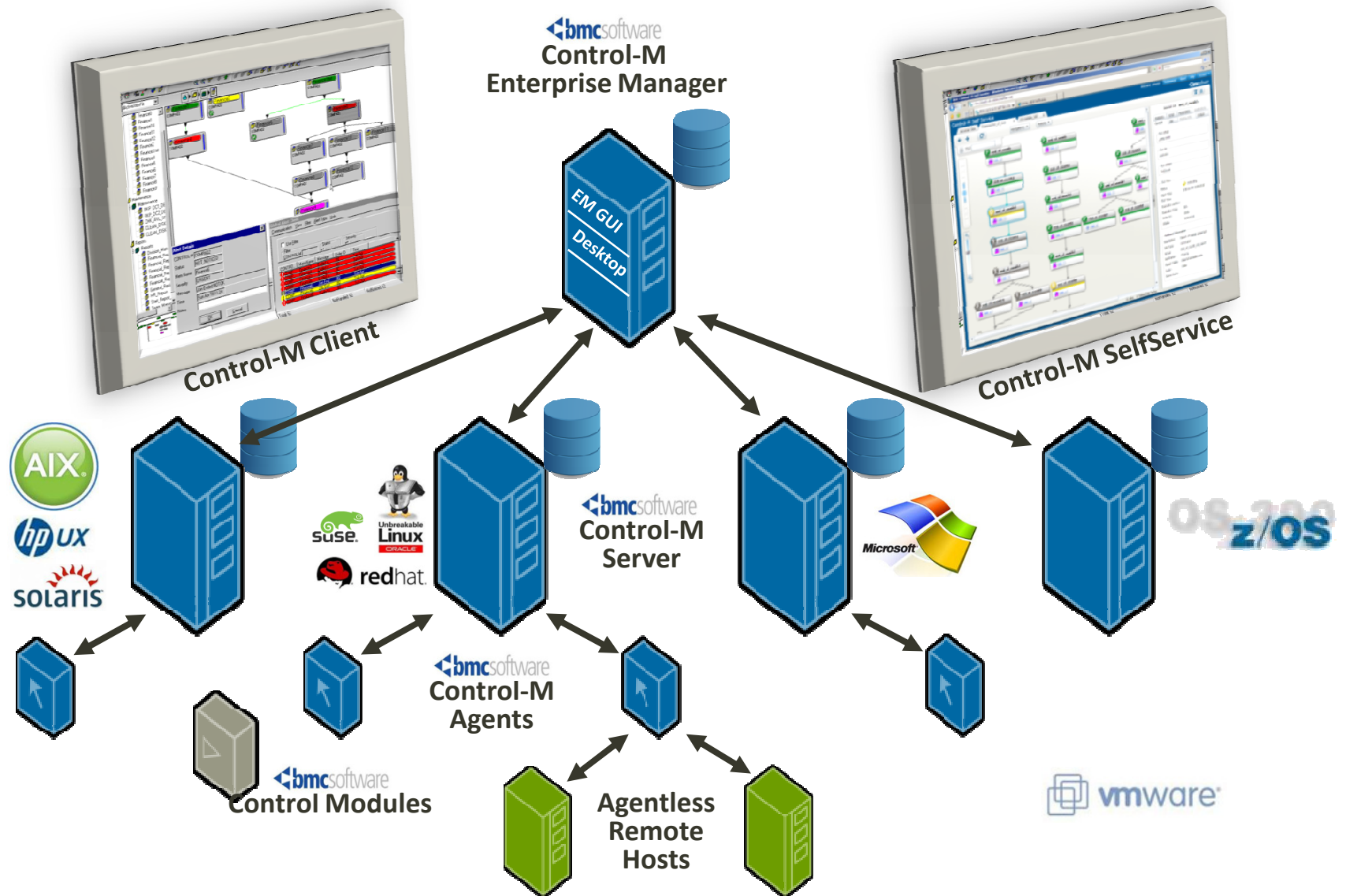
Overview + New Features

A perspective view of a server room with rows of server racks on the left. The racks have red and white horizontal stripes. The floor is dark, and the walls are a deep blue with a white grid pattern. A large white right-pointing triangle is superimposed on the grid in the center of the image.

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Control-M Architecture – Scalable & Flexible

3-tier Architecture



Playback

The screenshot displays the BMC Enterprise Manager playback interface. The title bar reads: "CONTROL-M/Enterprise Manager (Default) - [emuser connected to vie-mad-03] - [Archived ViewPoint: CONTROL-M: CTM640, Time: 10/8/2008 12:55:31 PM, Vie...". The interface includes a menu bar (File, Edit, View, Actions, Analysis, Tools, Window, Help), a toolbar with various icons, and a playback control area with a speed slider set to 1 and a timeline showing dates from 10/7/2008 12:42:36 to 10/8/2008 12:55:32. A "Tree View" pane on the left shows a "Root" folder. The main area displays a "Job-0 - Log" window with a table of log entries.

| Date | Time | Code | Job Name | Job Id | Message |
|----------|----------|--------|----------|--------|---|
| 07/10/08 | 15:09:38 | CS5065 | | | ORDERED JOB:110; DAILY FORCED, ODATE 20081007 |
| 07/10/08 | 15:09:39 | SL5204 | | | CONTROL RESOURCE JOB0-JOB2 ALLOCATED. MODE: E |
| 07/10/08 | 15:09:39 | SL5204 | | | CONTROL RESOURCE ORA-SERVER-1 ALLOCATED. MODE: S |
| 07/10/08 | 15:09:39 | SL5204 | | | CONTROL RESOURCE ORA-SERVER-2 ALLOCATED. MODE: E |
| 07/10/08 | 15:09:39 | SL5208 | | | QUANTITATIVE RESOURCE CPU-POWER QUANTITY 25 ALLOCATED |
| 07/10/08 | 15:09:39 | SL5208 | | | QUANTITATIVE RESOURCE DISKSPACE QUANTITY 100 ALLOCATED |
| 07/10/08 | 15:09:39 | SL5208 | | | QUANTITATIVE RESOURCE MEMORY QUANTITY 30 ALLOCATED |
| 07/10/08 | 15:09:39 | SL5208 | | | QUANTITATIVE RESOURCE ORACLE-HORSEPOWER QUANTITY 20 ALLOCATED |
| 07/10/08 | 15:09:39 | SL5208 | | | QUANTITATIVE RESOURCE TAPE QUANTITY 1 ALLOCATED |
| 07/10/08 | 15:09:39 | SL5105 | | | SUBMITTED TO vie-mad-03 |
| 07/10/08 | 15:09:40 | TR5101 | | | STARTED AT 20081007150939 ON vie-mad-03 |
| 07/10/08 | 15:09:40 | TR5120 | | | JOB STATE CHANGED TO Executing |
| 07/10/08 | 15:09:40 | TR5100 | | | ENDED AT 20081007150940. OSCOMPSTAT 0. RUNCNT 1 |
| 07/10/08 | 15:09:40 | TR5132 | | | STATUS SET TO OK AS A RESULT OF DO OK |
| 07/10/08 | 15:09:40 | TR5133 | | | ENDED OK |
| 07/10/08 | 15:09:40 | TR5120 | | | JOB STATE CHANGED TO Analyzed |
| 07/10/08 | 15:09:42 | SL5206 | | | CONTROL RESOURCES RELEASED |
| 07/10/08 | 15:09:42 | SL5214 | | | QUANTITATIVE RESOURCES RELEASED |
| 07/10/08 | 15:09:42 | SL5209 | | | CONDITION Job-0-ENDED 1007 ADDED |
| 07/10/08 | 15:09:42 | SL5120 | | | JOB STATE CHANGED TO Post processed |
| 08/10/08 | 12:55:25 | CD5216 | | | REMOVED FROM ACTIVE JOB FILE BY GENERAL DAILY |

- ▶ A given day business flow
 - Visually presenting the batch flow of a given date
 - Includes an estimated time window for each Job
 - Dependencies of all kinds are covered
 - Optional filtering
 - Viewpoint and tabular display modes available

The screenshot displays the Control-M/Forecast software interface. The main window shows a job flow diagram with jobs Job-1 through Job-5, each with a time window (e.g., 02:00 - 02:00). A 'Maintenance - What-If Scenario' dialog box is open, showing the following configuration:

- Quantitative Resources**
 - Decrease TapeCartridge by 2
 - At 18:00
 - Control-M is TLVL0186
 - Increase TaprCartridge by 2
 - At 23:00
 - Control-M is TLVL0186
- Job Run Time**
 - Increase Job Run Time by 30%
 - Application is Financial
 - CONTROL-M is TLVL0186
 - Owner is John
- Time Frame**
 - Shift Time frame by -03:00
 - Job Name is Prepare_Backup
 - Application is Backup
 - CONTROL-M is TLVL0186
- Conditions**
 - Add ExternalApplication_Cond
 - At 08:00
 - Control-M is TLVL0186
 - Order Date is ODAT
- Confirm**
 - Confirm at 10:00
 - Job Name is Order_Confirmation
 - Application is Send_Order
 - Owner is Dave

Reporting

(interactive or in batch)



Control-M/Reporting Facility (Default) - [emuser connected to vie-mad-03] - [Start Page]

File View Tools Help

CONTROL-M/EM

Save Save & Close Close Save & Order...

(UNIX/Windows/TANDEM Job), DataCenter Versi

* CONTROL-M: ctmsupport Job T

General Report Scheduling Execution

* User: emuser * Password:

Password file:

* Server host: ctmsupport

* Template: ServiceReportSLA

Template path:

* Output file type: Acrobat (*.pdf)

* Output file: C:\Reports\NightlyCalculationSLA-{date}

Report Parameters Add

| Parameter Name | Parameter Value |
|----------------|--------------------|
| ServiceName | NightlyCalculation |

Extreme Peaks Usage +

Start Page

Ready

Jobs & Tables Run Times

Printed Date: 2/3/2010 | Last Modified: 2/3/2010

Report Description:

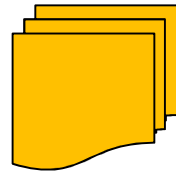
Total Run Time per Table

| Table | Run Time | Percentage |
|--------------------------|---------------|---------------|
| DailySchedule11 | 2,581 | 25.5% |
| DailySchedule18 | 2,480 | 24.5% |
| DailySchedule19 | 2,450 | 24.2% |
| PAPA | 1,282 | 12.5% |
| PAPA/SubTable1 | 423 | 4.2% |
| PAPA/SubTable1/SubTable2 | 0 | 0.0% |
| tab_1 | 356 | 3.5% |
| tab_1/st1 | 209 | 2.1% |
| tab_1/st1/st2 | 213 | 2.1% |
| tab_1/st1/st2/st3 | 144 | 1.4% |
| Total | 10,118 | 100.0% |

| CONTROL_M | Table | Job/Member Name | Start Time | Run Time |
|------------------------|-----------------|-----------------|---------------------|----------|
| DailySchedule11 | | | | |
| tlv-vm-emdev-26 | DailySchedule11 | Command101 | 1/27/2010 3:18:33PM | 6 |
| tlv-vm-emdev-26 | DailySchedule11 | Command100 | 1/27/2010 3:18:37PM | 5 |
| tlv-vm-emdev-26 | DailySchedule11 | Command107 | 1/27/2010 3:17:54PM | 6 |
| tlv-vm-emdev-26 | DailySchedule11 | Command106 | 1/27/2010 3:18:00PM | 5 |
| tlv-vm-emdev-26 | DailySchedule11 | Command105 | 1/27/2010 3:18:05PM | 5 |
| tlv-vm-emdev-26 | DailySchedule11 | Command104 | 1/27/2010 3:18:11PM | 3 |
| tlv-vm-emdev-26 | DailySchedule11 | Command103 | 1/27/2010 3:18:15PM | 4 |
| tlv-vm-emdev-26 | DailySchedule11 | Command102 | 1/27/2010 3:18:22PM | 7 |
| tlv-vm-emdev-26 | DailySchedule11 | Command109 | 1/27/2010 3:17:42PM | 7 |
| tlv-vm-emdev-26 | DailySchedule11 | Command108 | 1/27/2010 3:17:47PM | 7 |
| tlv-vm-emdev-26 | DailySchedule11 | Command109 | 1/28/2010 7:01:49AM | 62 |
| tlv-vm-emdev-26 | DailySchedule11 | Command108 | 1/28/2010 7:01:50AM | 59 |
| tlv-vm-emdev-26 | DailySchedule11 | Command107 | 1/28/2010 7:01:50AM | 61 |
| tlv-vm-emdev-26 | DailySchedule11 | Command106 | 1/28/2010 7:01:50AM | 61 |
| tlv-vm-emdev-26 | DailySchedule11 | Command105 | 1/28/2010 7:01:51AM | 60 |
| tlv-vm-emdev-26 | DailySchedule11 | Command104 | 1/28/2010 7:01:51AM | 52 |

Page 1 of 11

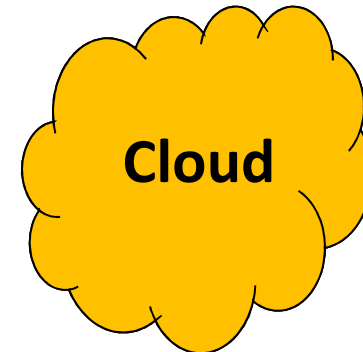
- ▶ Respond to processing changes at the right time for the business
- ▶ Align execution of workloads with the company's operational cycle
- ▶ Optimize utilization of virtual and physical resources
- ▶ Manage workloads in accordance to the business functions they support



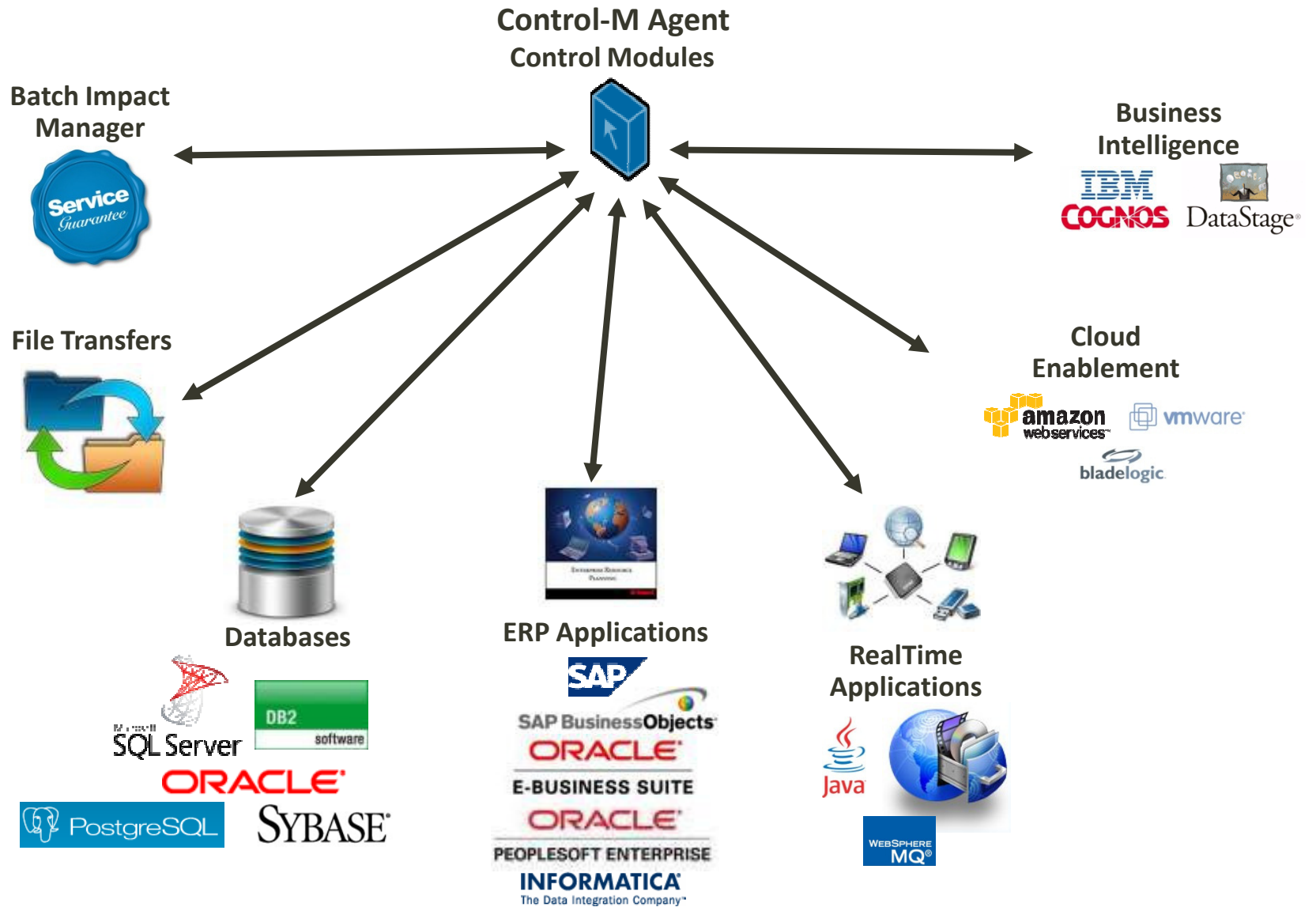
Workload Policy

Wait

Run



Control-M Control Modules

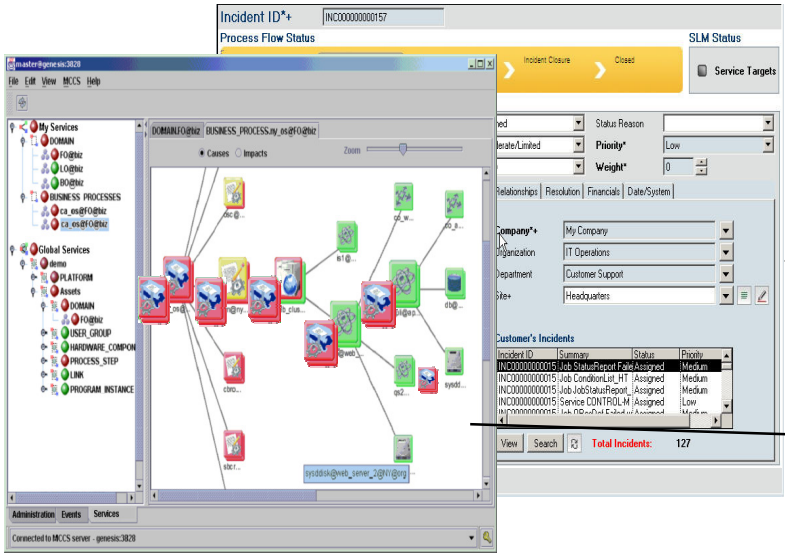
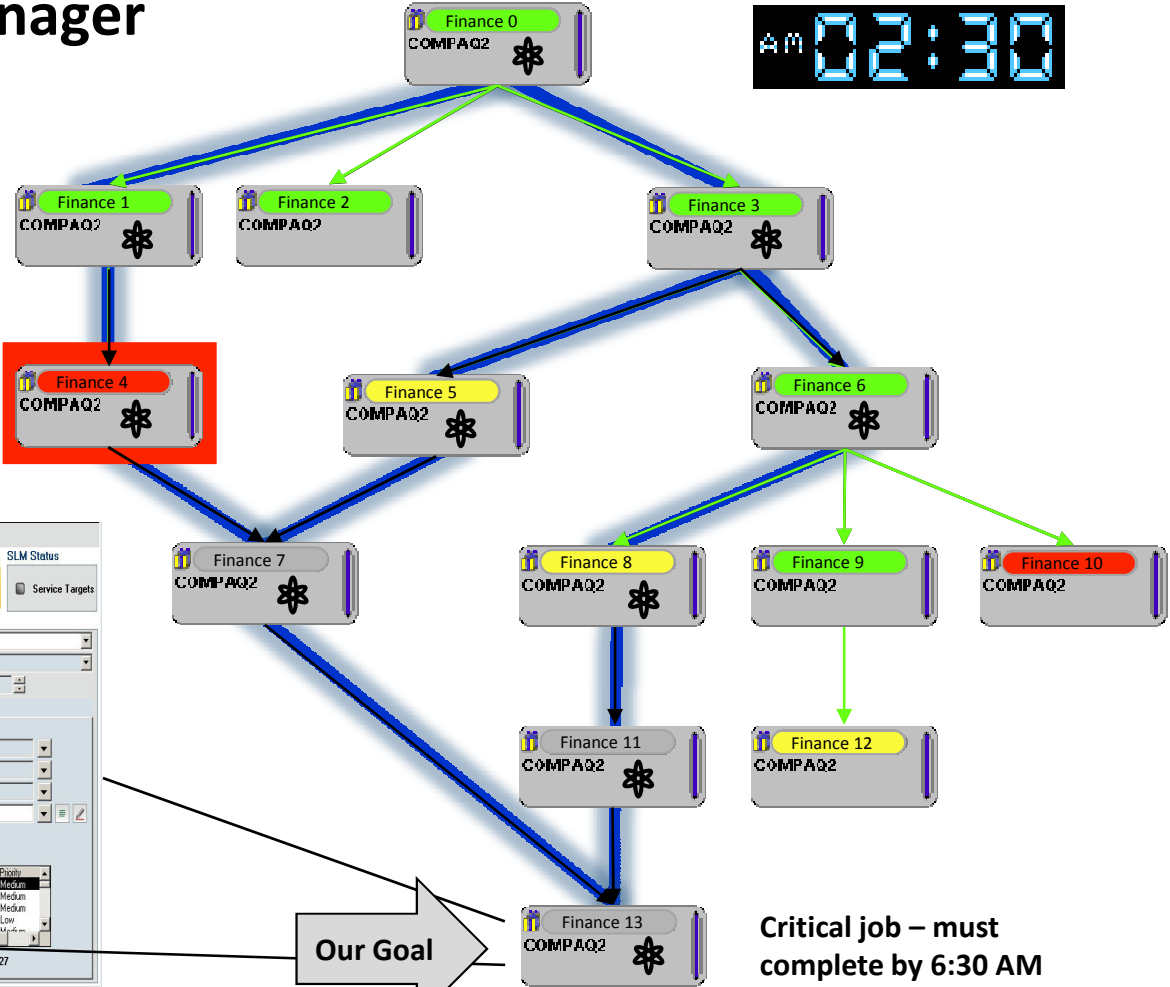


Batch Business Services



► BMC Batch Impact Manager

- Define service point and “must complete by...”
- Discover service path
- Monitor progress and provide early notification of potential delays
- Create Remedy incident
- Display in the Service Model



Integrated Filetransfer

- ▶ Single view of the entire business process
 - Encrypted file transfers
 - Data compression support
 - Integrated into the entire business flow
- ▶ Full control over the file transfer session
 - Native “Sysouts”
 - Wild cards and recursive directory structure support
 - Recovery from the point of failure
 - Integrated into the business
 - Pre and post FTP commands
- ▶ Remote File Watching Capabilities
- ▶ Support for SSH Key Authentication
- ▶ A lot of advanced features ...

Verify destination file size
Performs a verification of the file size at the end of the transfer

Verify checksum
Performs a checksum verification at the end of the transfer. In order to implement this verification, you must ensure that
- your FTP server supports the checksum commands XMD5 or SITE CHECKSUM
the md5sum program is installed in the FTP directory search path on your UNIX FTP Server and the FTP command SITE CHECKSUM can be executed.

Restart from failure
Specify whether the FTP server supports the REST FTP command correctly.

General | **OpenSystems/OS400** | MVS | SFTP Options | Commands | File Watcher

After the completion of a successful file transfer the **source** file will be:

Left as is Deleted Renamed Moved

File name:

If a file of the same name as the destination file already exists:

Overwrite Append Abort Skip

After the completion of a successful file transfer the **destination** file will be:

Left as is Renamed Moved

File name:

Create Empty File

File name:

Use temporary file prefix Temporary file prefix:

Continue on failure Do post AFT command on failure

Delete Destination file on failure

Integrated Filetransfer



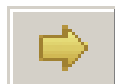
Watch the selected file but don't transfer



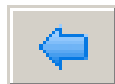
Watch the file on host A and transfer it to host B



Watch the file on host B and transfer it to host A



Transfer the (existing) file from host A to host B



Transfer the (existing) file from host B to host A

The screenshot shows the FileWatch (Distributed Job) interface. The window title is "FileWatch (Distributed Job), DataCenter Version: <700>". The interface includes a menu bar with options like Save, Save & Close, Close, Save & Order..., Parent..., and Save as Template. Below the menu bar, there are fields for "CONTROL-M:" (vie-mad-03) and "Job Type:" (AFT). The main area is divided into tabs: General, FILE_TRANS (selected), Active, Execution, Conditions, Resources, Set, Steps, and PostProc. The FILE_TRANS tab shows a table with columns for Status, Progress, Remaining Time, Transferred out of Total, and Rate. The table contains three rows, all with a status of "Ended OK" and 100% progress. Below the table, there are fields for "Enter Account:" (AFTUser) and "Enter the file paths or click 'select':". There are also checkboxes for "End job NOTOK when 'Continue on failure'" and "Rerun from point of failure". At the bottom, there are fields for "LOCAL[LOCAL]" and "vie-mad-03[FTP]" with OS type and User information. The file paths are: C:\CTMJob\bla*, C:\CTMJob\Job-0.jpg, and C:\CTMJob\Alert-Export\Alerts.xls, all pointing to \AFT1Home\.

| Status | Progress | Remaining Time | Transferred out of Total | Rate |
|--------------|----------|----------------|--------------------------|--------------|
| 1 ✓ Ended OK | 100% | 00:00:00 | 333 Bytes / 333 Bytes | 1 Bytes/sec |
| 2 ✓ Ended OK | 100% | 00:00:00 | 39.41 KB / 39.41 KB | 39.41 KB/sec |
| 3 ✓ Ended OK | 100% | 00:00:00 | 5.279 KB / 5.279 KB | 5.279 KB/sec |

CONTROL-M for Databases

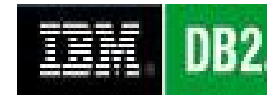
Overview



- ▶ Interactive wizard for building the database oriented workload elements
 - Low database oriented skill set required
 - Scripting elimination
 - Typo errors reduction
- ▶ Wide coverage for industry common databases
 - Oracle
 - MSSQL
 - IBM (DB2 and UDB)
 - Sybase
 - PostgreSQL
- ▶ Login credentials encrypted within the solution
- ▶ No database related pre-requisites (except SSIS for MSSQL)
- ▶ Full integration & transparency from an operational perspective, taking full advantage of all CONTROL-M offerings

ORACLE

Microsoft®
SQL Server®



SYBASE®



CONTROL-M/CM for SAP

Overview



Test0 (Distributed Job), DataCenter Version:<700>

Save Save & Close Close Save & Order... Parent... Save as Template Template: TestTest

* CONTROL-M: vie-mad-03 Job Type: SAP R3

General SAP Scheduling Execution Conditions Resources Set Steps PostProc

Job Mode: Create

Account: [] Load... Exec. Target: Server [] [] Load...

Job Name: [] Filter... Load...

Start Condition: ASAP

Job Class: C - Low Priority Spool List Recipient...

| No. | Program name/Command | Type | Variants/Parameters | User | Language |
|-----|----------------------|------|---------------------|------|----------|
|-----|----------------------|------|---------------------|------|----------|

Post Job Actions...

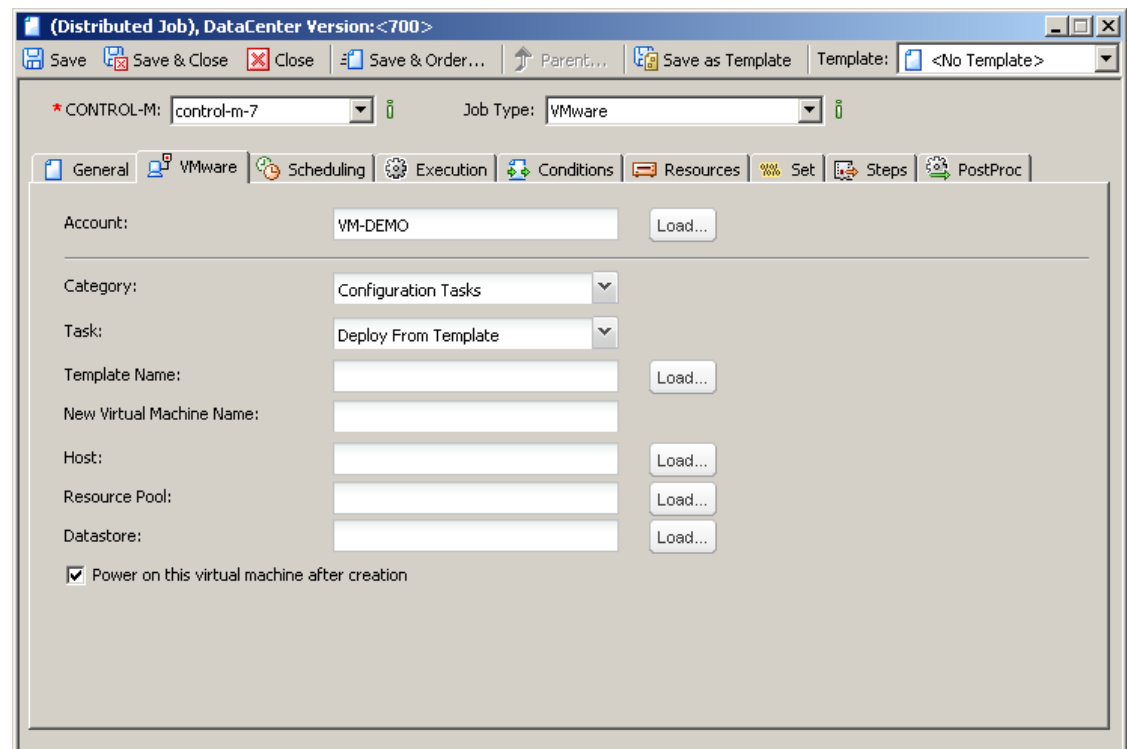
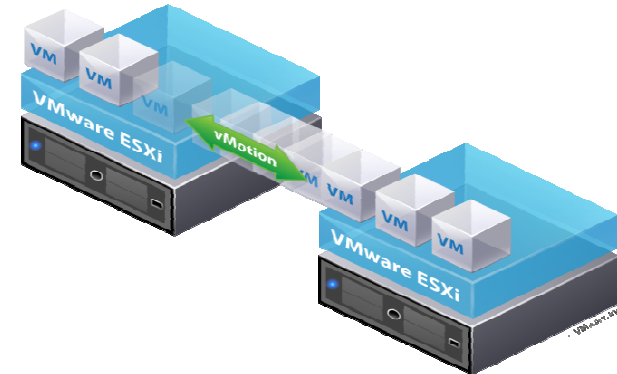
Detect Spawned Job... No Detection Rerun from step: 1

Private Cloud – VMWare Integration

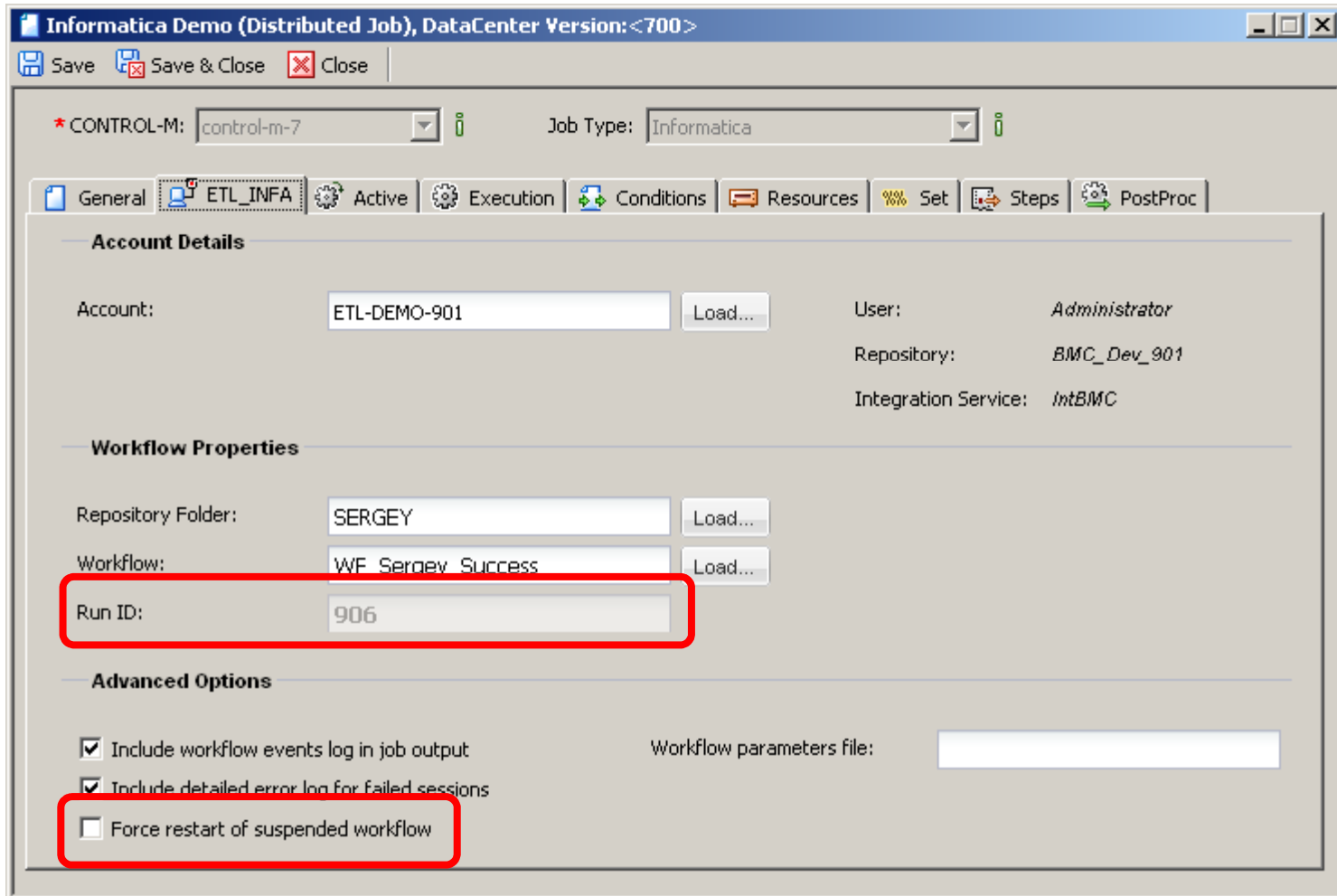
- ▶ Power tasks
 - Power On/Off, Suspend, Reset
 - Guest Reboot, Shutdown, Restart

- ▶ Configuration tasks
 - Clone VM
 - Deploy from template
 - Reconfigure VM
 - Migrate VM (vMotion)

- ▶ Snapshot tasks
 - Take a snapshot
 - Revert to snapshot
 - Remove snapshot
 - Remove all snapshots



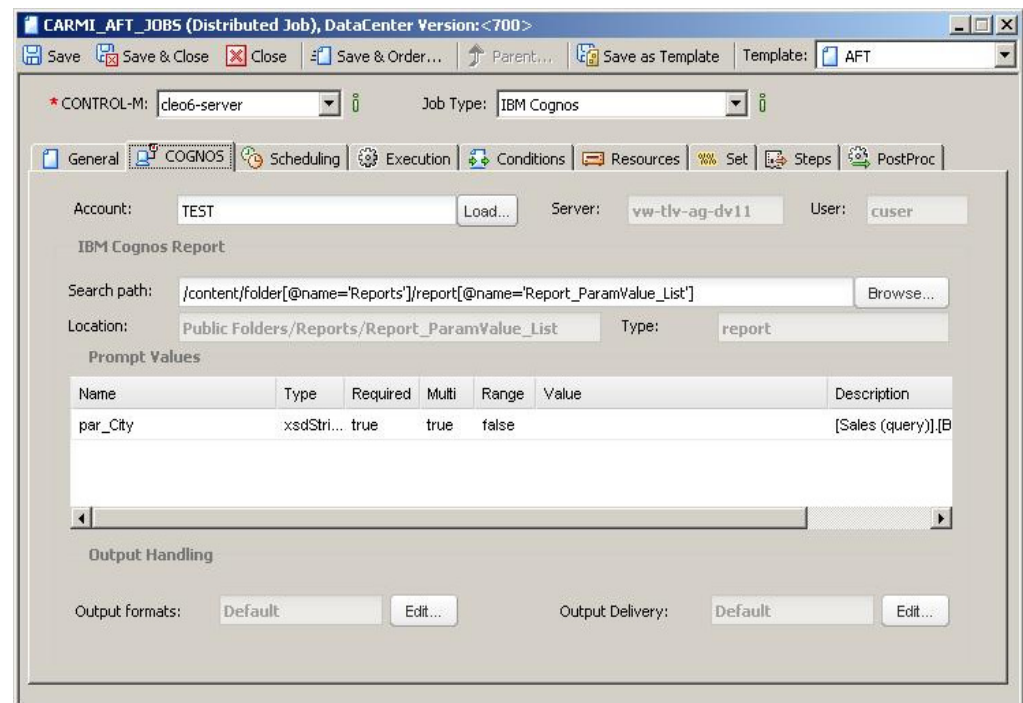
Control-M for Informatica



Control-M for IBM Cognos Business Intelligence



- ▶ Automate Cognos jobs and reports generation with native integration and transparency from an operational perspective, taking advantage of all CONTROL-M workload automation offerings
- ▶ Bi-directional communication with the Cognos environment
 - Eliminate the need to copy/paste or manual typing of the report attributes
- ▶ Dynamic prompts support
- ▶ Overwrite report attributes for a scheduled instance
- ▶ Native job output
- ▶ Encrypted login credentials
- ▶ Supporting IBM Cognos versions 8.4.x and 10.1.x



Introducing Control-M Self Service



- ▶ Control-M Self Service is the only workload automation solution that is designed specifically for the business user, providing a service view.

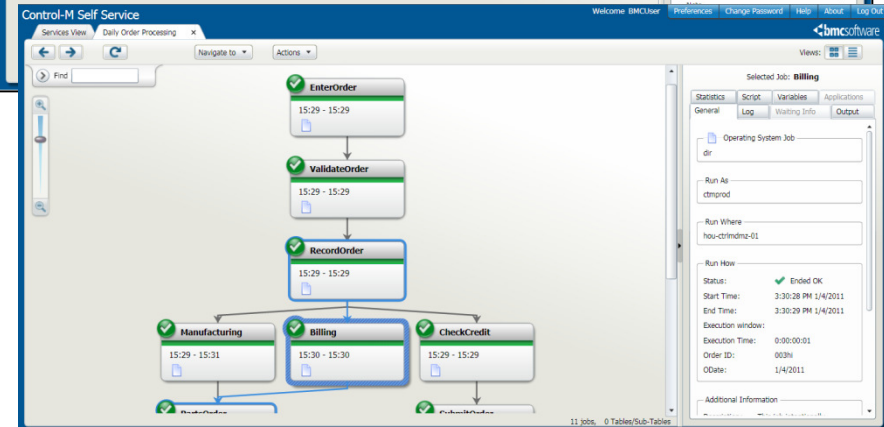
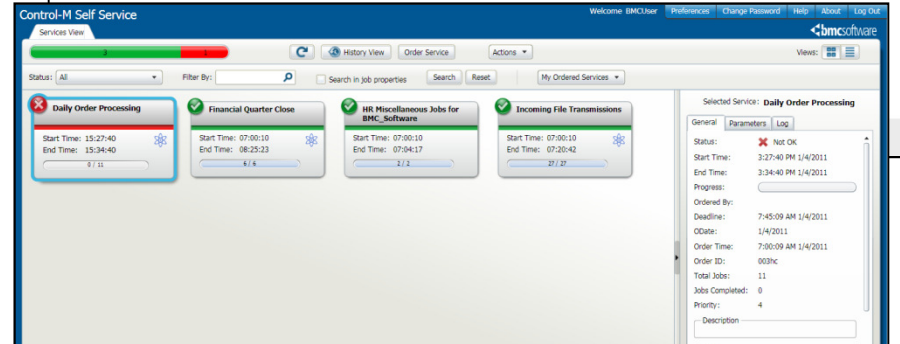
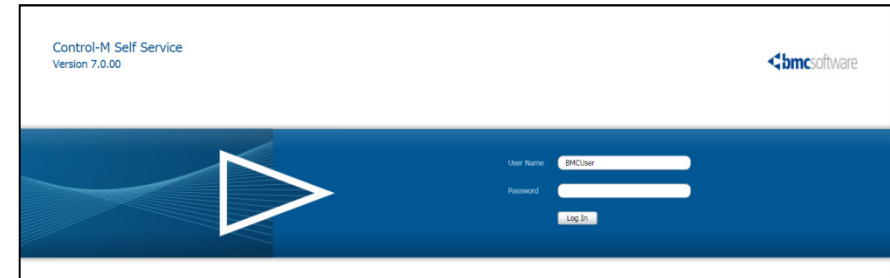
The screenshot displays the Control-M Self Service interface. On the left, a service flow diagram shows a sequence of steps: ValidateOrder, RecordOrder, CheckCredit, SubmitOrder, Billing, ServiceNotify, ShipOrder, and EMKTOrder. The main window shows a 'Services View' with a progress bar at 62% and a filter set to 'INS'. Three service cards are visible: 'Ins HSA Expirations' (Start Time: 16:52:28, End Time: 16:57:00, 6/8 jobs), 'Ins HSA Reconciliation' (Start Time: 16:50:59, End Time: 16:55:40, 6/8 jobs), and 'Ins HSA X Conversion' (Start Time: 16:51:59, End Time: 16:59:50, 2/8 jobs). A right-hand panel provides details for the selected service, 'Ins HSA Expirations', including a 'Jobs By Status' pie chart and a legend.

| Status | Count |
|----------------|-------|
| Executing | 2 |
| Wait Condition | 1 |
| Wait Resource | 1 |
| Wait User | 1 |
| Unknown | 1 |
| Ended OK | 2 |
| Failure/Error | 0 |

Introducing Control-M Self Service



- ▶ **Web-based application**
 - No installation – only a browser like Internet Explorer, Firefox, Chrome, etc.
 - User requires only ID and Password to log in
- ▶ **Services View**
 - Business oriented, intuitive names
 - Projected start and end times
 - Tile or List View
 - Service Status overview
- ▶ **Service details**
 - View job details in Graphical or Tabular view
 - Predecessor/successor relationship
 - Zoom in and out
 - Extended job properties such as Output, Log, etc.



Introducing Control-M Self Service

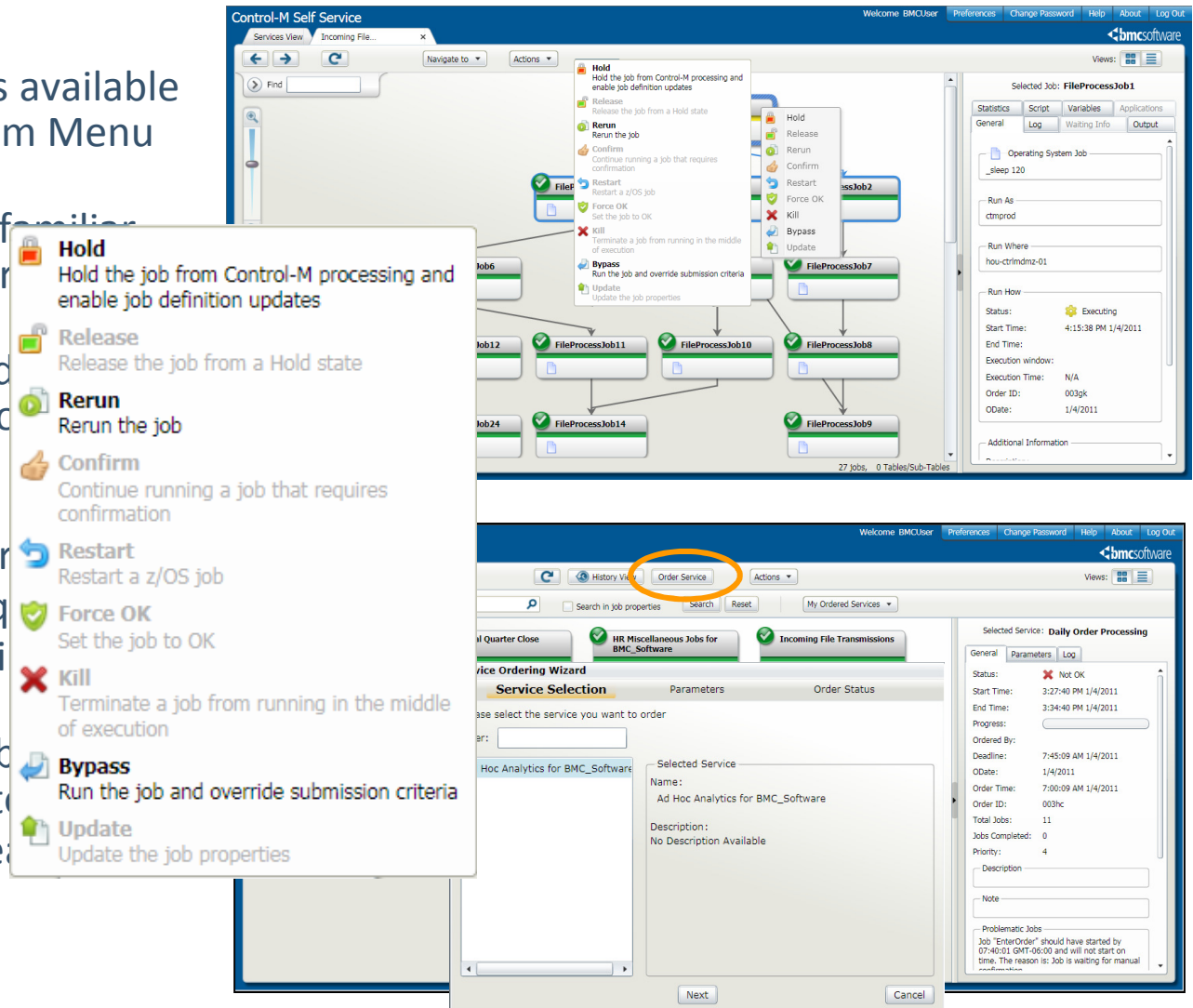


▶ Perform Actions

- Operational actions available via right click or from Menu Bar
- Fully controlled by familiar and standard Control-M Authorizations
- Comprehensive audit including User Annotations

▶ Service Catalog

- Users can Order Services
- Support Ad Hoc requests
- Business oriented, intuitive names
- Variable input can be optional or mandatory
- Automatically appear in Services View



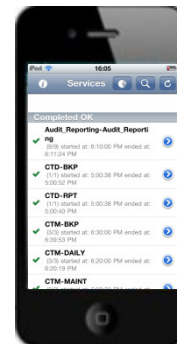
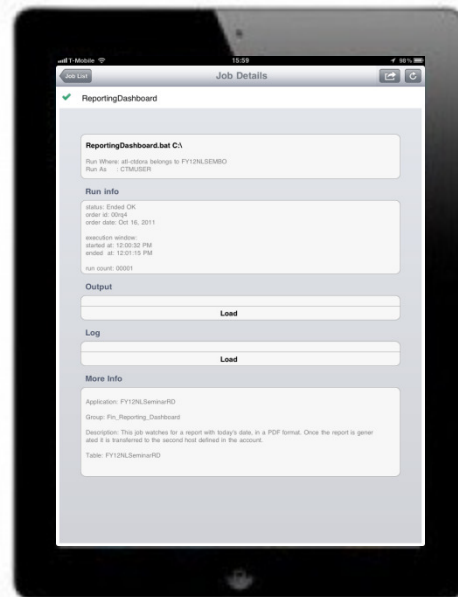
iPad / iPhone App for Control-M Self Service

Latest in Control-M Mobility



► Access Business Service workloads while on the go

- Real time information
- Relevant to the business users interest
- Business oriented, intuitive names and access
- Take advantage of technology

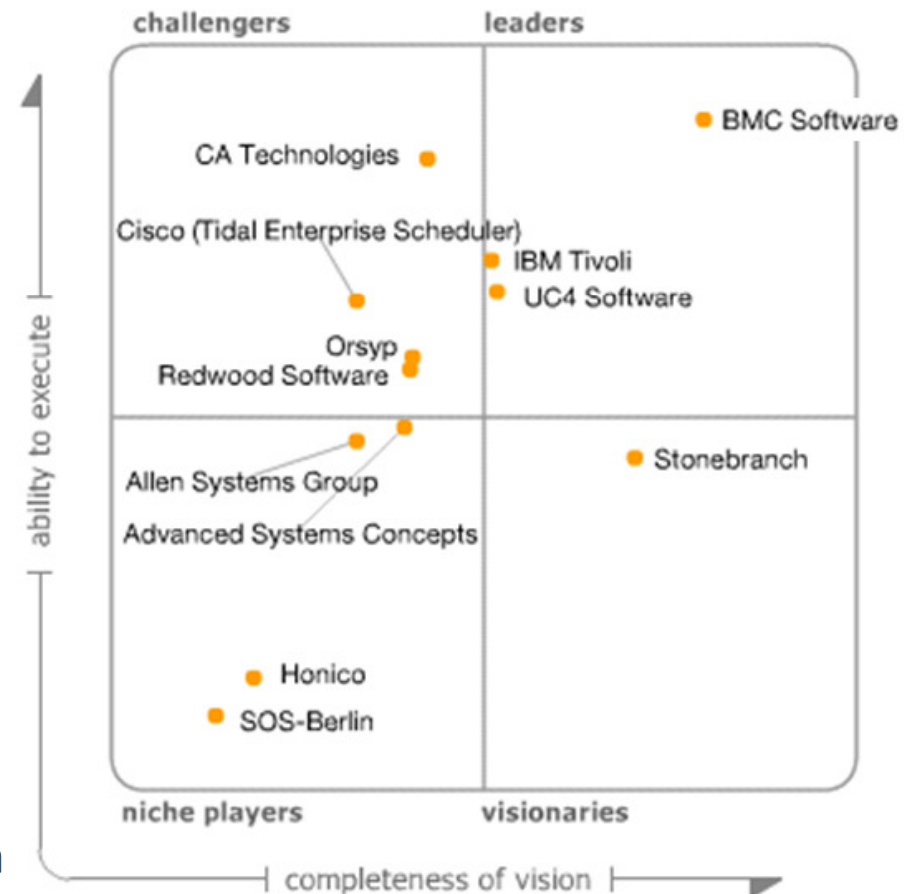


Analyst Feedback

▶ A history of innovation:

- **(1992)**
 - First with an enterprise-wide solution for Job Scheduling
- **(1996)**
 - First with event-driven scheduling
- **(2004)**
 - First with business SLAs into schedules
- **(2006)**
 - First with agentless scheduling
- **(2008)**
 - Workload Lifecycle Management
- **(2009)**
 - SLA Advisor and Real-Time Simulation
- **(2011)**
 - Self Service Workload Automation for Business Users

Gartner MQ Feb. 2012



Control-M Version 8

coming soon ...

Control-M 8: Planning and Monitoring

The screenshot displays the Control-M 8 interface with several key components highlighted by callouts:

- Navigation Pane:** Located on the left side, it contains a vertical list of icons for Planning, Monitoring, History, Forecast, and Tools.
- Ribbon Menu:** Located at the top, it features tabs for File, Workspace, View, and Analysis, with various icons for actions like Check Out, Save, Validate, Export, Load, Forecast, Order, Rearrange, Expand All, Map, List, Paste, Copy, Delete, Categorize, Save As Template, Find, and Find And Update.
- Explorer Tree View:** Located on the left side, it shows a hierarchical tree structure of folders and files, including 'Samples', 'AddAutoEditVariable', 'ListAutoEditVariable', and 'DeleteAutoEditVariable'.
- Primary pane: "map" or list view:** The central area displays a flowchart or map view of the workflow, showing nodes like 'AddAutoEditVariable', 'ListAutoEditVariable', and 'DeleteAutoEditVariable' connected by arrows.
- Properties of currently selected Object:** A callout points to the 'ListAutoEditVariable' node in the primary pane, which is highlighted in blue. This node is also selected in the Explorer Tree View.

The right side of the interface shows a detailed properties panel for the selected 'ListAutoEditVariable' object, including fields for General, What, Where, How, Additional Information, Scheduling, Time Settings, Prerequisites, and Actions.

The New Job Editing Form

- ▶ A new minimalistic approach
 - Synopsis and edit modes
- ▶ A sample job in synopsis view
 - Type, Name and description
 - What does it do, where does it run and how
 - Additional properties
 - Example:
 - Runs daily
 - Waits for
 - 2 predecessor jobs
 - A manual user confirmation
 - An environment resource
 - Once completed and/or recovery actions
 - Fires another job for execution
 - Sends an e-mail notification in case of severe delay

Job 300 - Synopsis

OS Job

Job Name: Script.sh
Description: This is the description of the job...

What:

File Path: /home/bin/script.sh

Where:

Endpoint Machine/Group: land
Control-M: tlvd0120

How:

Run As: controlm

Additional Information:

Parent Table: TABLE1
Application: HR
Group: FINANCE
Author: emuser

Scheduling

Every day

Prerequisites

Requires user confirmation

Dependent on Jobs: [Job 400 \(different dates\)](#)
[MEMBER1234](#)

Requires resource: Resource1 (Quantity: 3)

Automatic Actions:

Depending Jobs: [Job 100](#)

Actions:

When job not submitted until 20:00 (+1 day)
Notify by mail to avner_waldman@bmc.com

The New Job Editing Form

- ▶ A total of 4 sections
- ▶ Simple default view
- ▶ Drilling to the details is done
 - Through navigation “links”
 - By choosing “more options”

The screenshot displays the 'Job 300 - Details' form. At the top, there are navigation links: 'OS Job', 'Scheduling', and 'Pr'. The 'OS Job' link is circled in red. Below the navigation, the form is divided into sections: 'Job Type: OS Job', 'Job Name: Job300', 'Description: Starting up the trading system, in order', 'What: Script', 'File Path: /home/tmp/script.sh', 'Where: Endpoint Machine/Group: land', 'Control-M Name: tlvd0120', 'How: Run As: controlm', 'Additional Information: Parent Table: Table1', and 'More Options'. The 'More Options' section is also circled in red. The detailed view of the 'OS Job' section includes fields for 'Alternative Directory: /home/mydir', 'Pre-Execution Command:', 'Post-Execution Command: /home/tmp/cleanup.sh', 'Run job on all endpoints in group' (checkbox), 'Run as Detached' (checkbox), 'Variables' (Name: TEMP, Value: /home1/tmp), 'Use variables defined in external file' (checkbox), 'Highest Variables Type: Local', 'Additional Information: Application: HR, Group: Finance, Author: emuser, Documentation: /home/ctmprod/documents/script.bt', and 'Priority: Very Urgent (99)'. There is also a checkbox for 'Critical (reserve resources)'.

Control-M 8: The New JEF

Setting Scheduling Rules

▲ Scheduling

Schedule:

[Forecast](#)

Time Settings:

Job must start running within time frame:

From Time: + days

To Time: + days

Job must end until time:

Rerun Settings:

Cyclic [Edit...](#) Rerun every 15 minutes, from job's start

▼ More Options

▲ Scheduling

Schedule:

[Forecast](#)

Time Settings:

Job must start running within time frame:

From Time: + days

To Time: + days

Job must end until time:

Rerun Settings:

Cyclic [Edit...](#) Rerun every 15 minutes, from job's start

▼ More Options

If a day is not in confirmation calendar:

Shift to next day by days

Active Between dates:

Start Date End Date

Retroactively order job that its scheduled date has over

Time Zone:

Limit the number of reruns to:

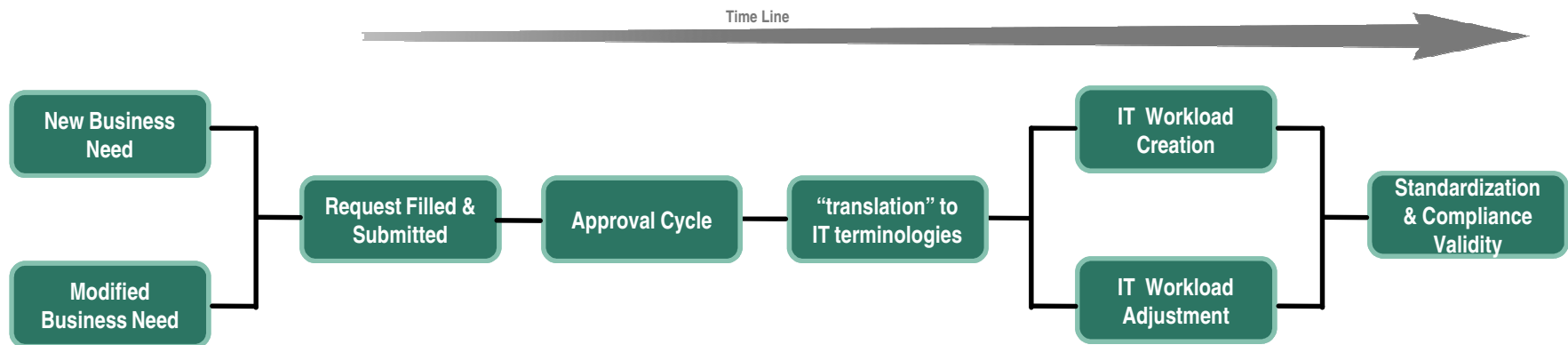
Active environment retention

Allow submission for days

Ignore 'From Time' on next days

BMC Control-M: The Road Ahead

Workload Change Manager



- ▶ Manage the whole process prior to defining a new application
 - The end user perspective and terminology of a job or flow of jobs
 - Request being reviewed & verified by application support personnel
 - The business requirements are “translated” from the business/application “vocabulary” to the IT one
 - Validating & applying naming standards, dealing with potential conflicts and overlaps
 - Assuring actual deployment supports the business requirements

Competitive Take-Out

An official Conversion Product



Release Notes

Control-M Conversion Tool

Version: 7.0.00.500

January 12, 2012

Tracking number: LPO52.7.0.00

BMC Software is releasing version 7.0.00.500 of Control-M Conversion Tool, which is a conversion tool that allows you to convert the following scheduling environments to the Control-M environment:

- ORSYD Dollar Universe[®]
- IBM[®] Tivoli[®] Workload Scheduler (TWS)
- CA Jobtrac[™]
- CA AutoSys[®] Workload Automation
- CA Unicenter WLM[®] (TNG)
- Tidal Software[®] Enterprise Scheduler

Danke !





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