Tivoli User Group

Tivoli Workload Automation
Tivoli Workload Scheduler 8.6

Main enhancements of TWS 8.6

Toward Service Management

End-to-end continued evolution

- **Distributed-driven end-to-end**
- **Dynamic zCentric**
- **Cross-dependencies**
- **Multiple-engines monitoring view**

Batch Modernization

- Embrace modern languages
- Application plug ins
- Fit-for-purpose

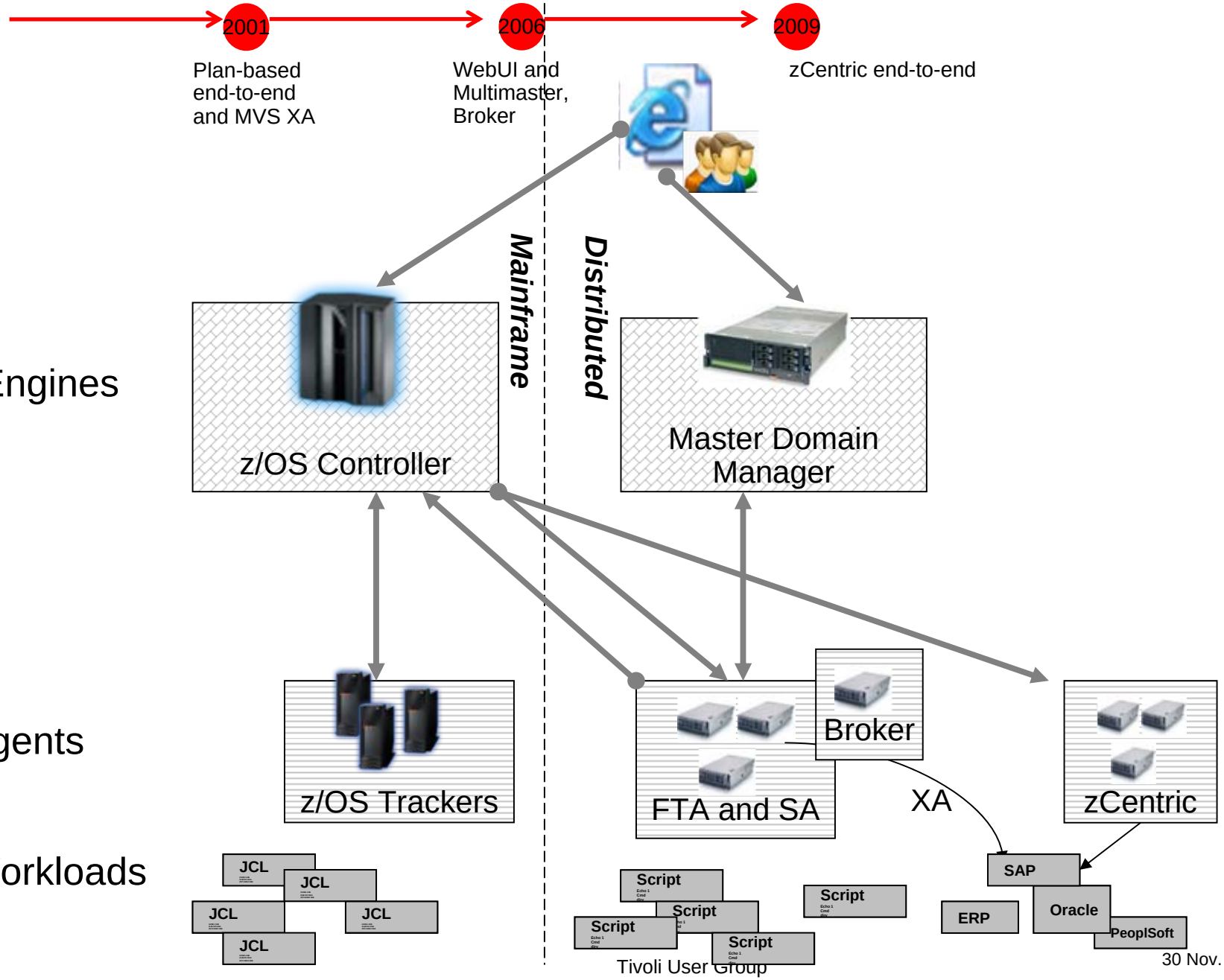
Smarter planet and cloud workload automation

- Create a workload automation execution environment with TSAM

Miscellaneous

- New ISPF panels
- Service catalogs
- Batch Reports

How Version 8.6 contributes to the end-to-end evolution



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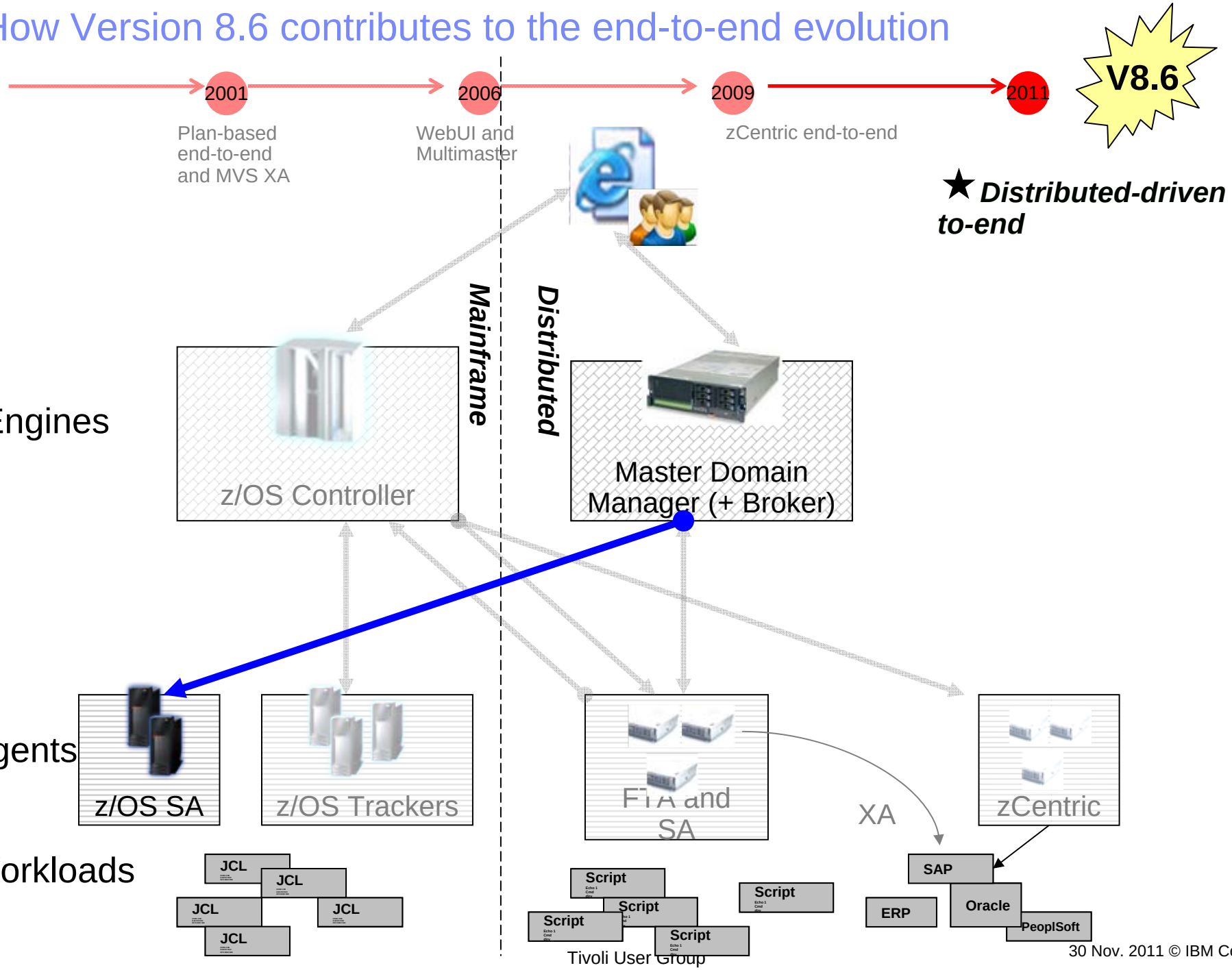

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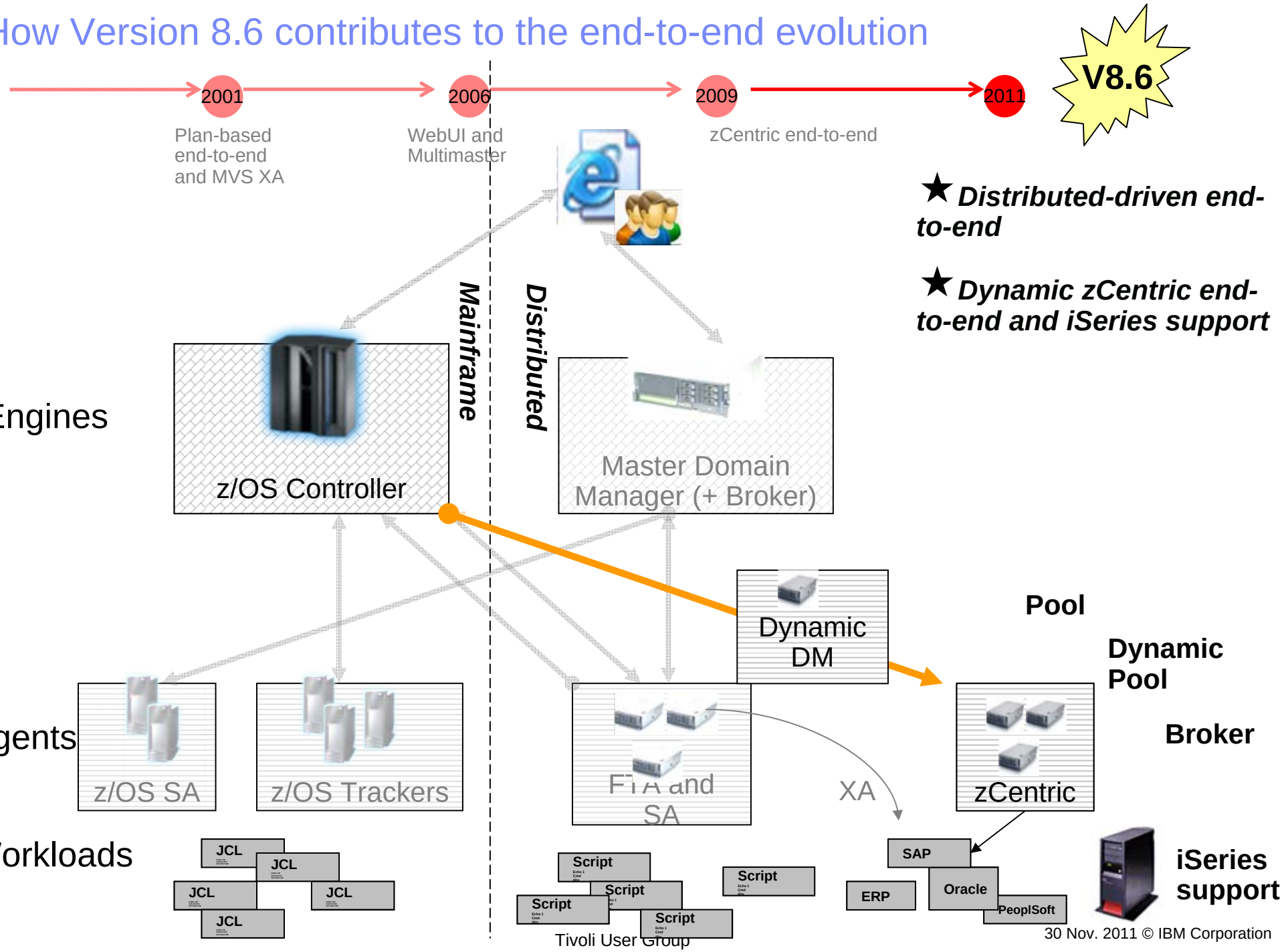

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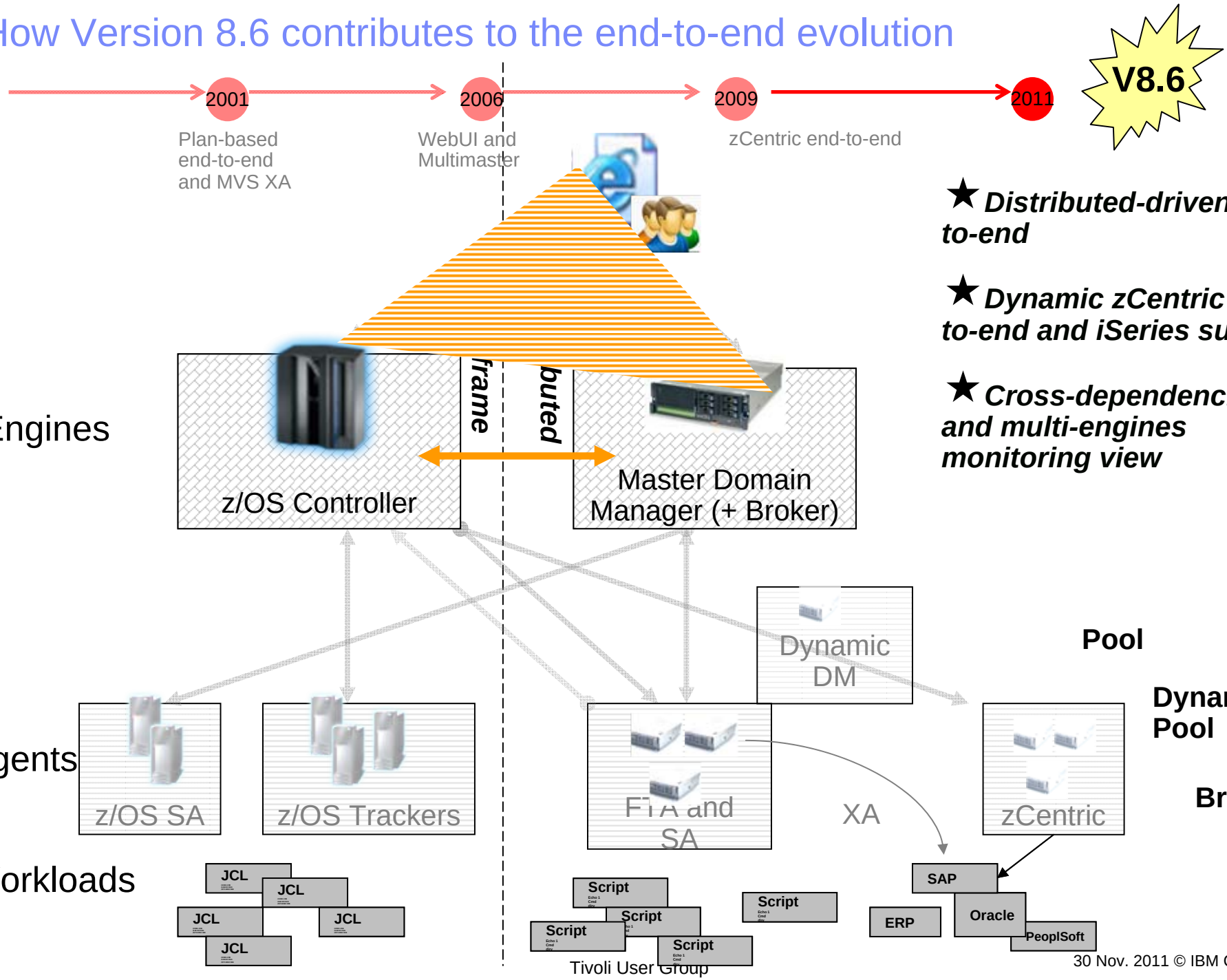

Distributed-driven end-to-end : key points

Scenario

- *A rocket company's IT en… They do job scheduling with Tivoli … non-IBM product and partly run nat… like to have the opportunity to m…*

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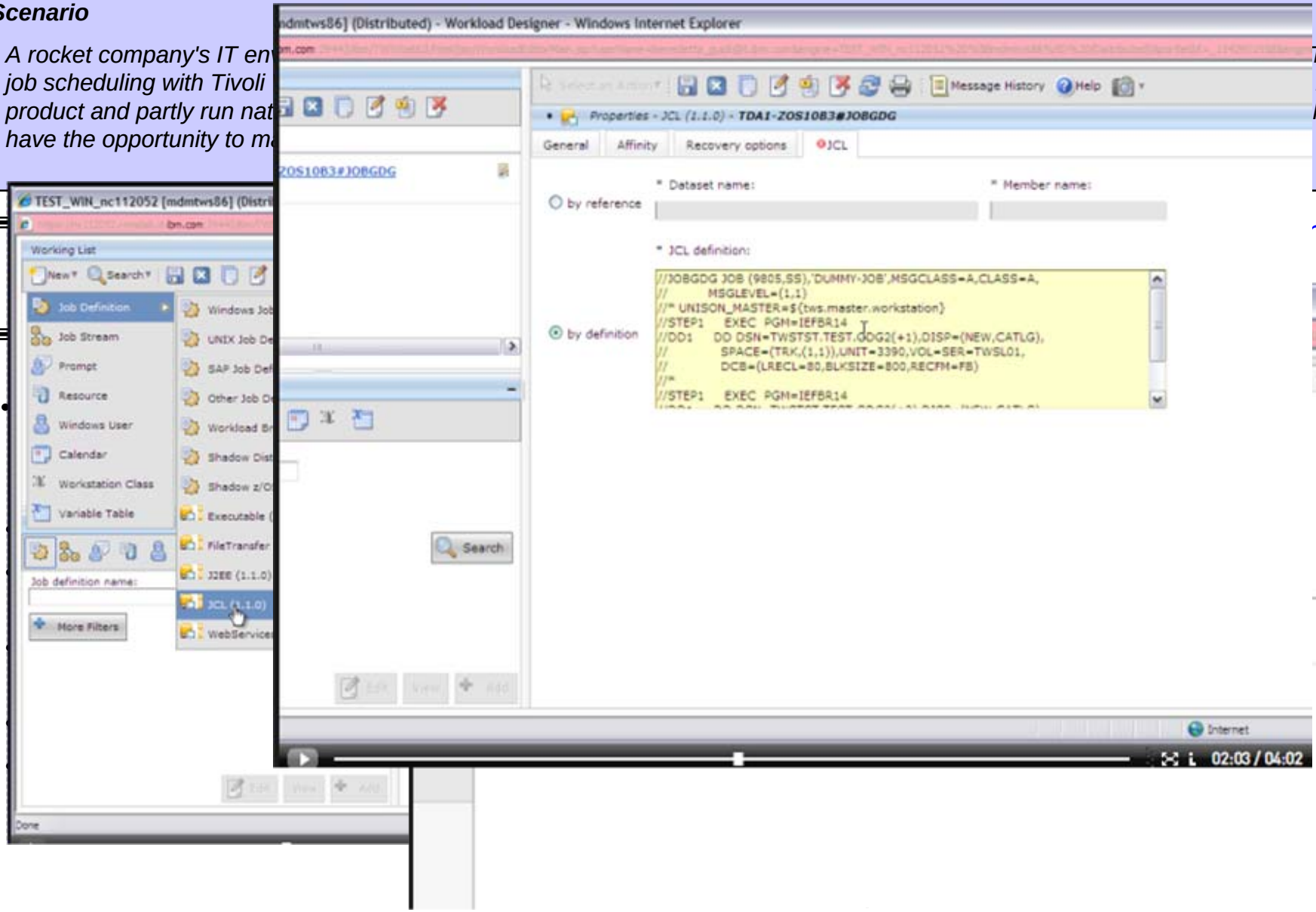
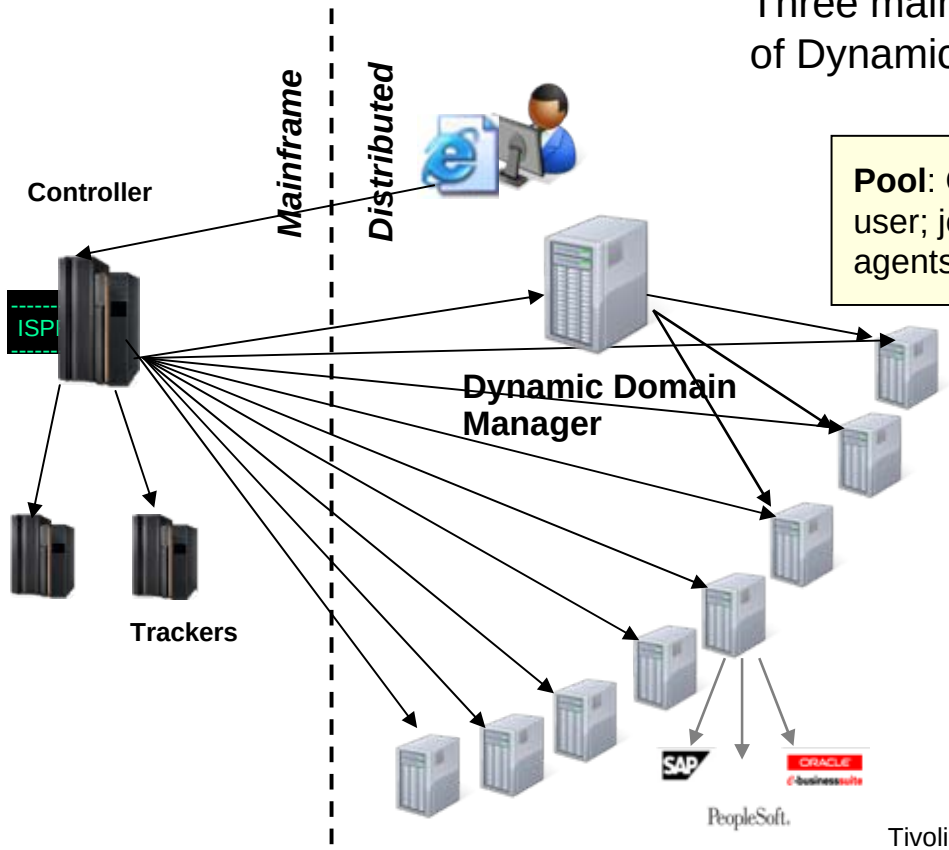


Dynamic zCentric end-to-end : key points

Scenario

- *As a standard practice in the workload automation discipline, the insurance company has the target to optimize available resources, and implement load balancing policies where possible. The company has adopted the zCentric end-to-end solution for its simplicity, and they would like to exploit brokering capabilities.*

Implement the broker technology in the zCentric end-to-end solution.



Three main scenarios for three typology of Dynamic Domain Manager

Pool: Cluster of machines, selected by the user; jobs are balanced across available agents.

Dynamic Pool: Group of machines automatically identified to match a set of user defined resource requirements. Jobs are distributed according to user polices.

Broker: Backward compatibility with old broker.

Business benefits

- ★ ***Matching job requirements to available resources***
- ★ ***Controlling and optimizing use of resources***
- ★ ***Automatic discovery of scheduling environment resources***
- ★ ***Automatically following resource changes***
- ★ ***Requesting additional resources when needed***

Cross-dependencies : key points

Scenario

- *An enterprise organization comprises multiple activities; some of them are run in different sites or involve different organizational units; others require different skills to be run. For these reasons scheduling environments must be kept separated.*
- *Nevertheless, none of these environments is completely isolated from the others but most of the times they need to interoperate to exchange or to synchronize on data and activities.*

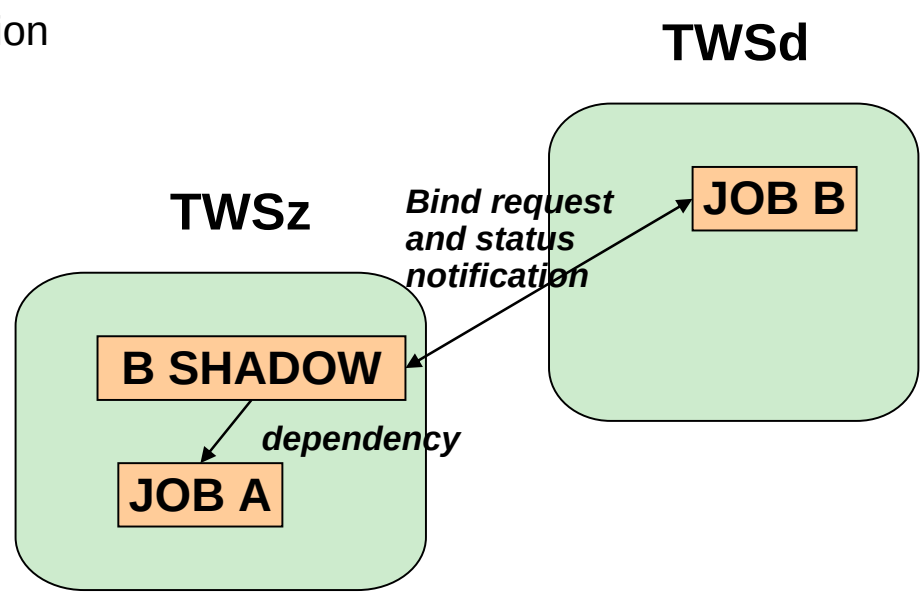
Easier mapping of workflows spanning multiple engines.

Architecture and definitions

- HTTP connection between engines, SSL secure
- Remote workstation
- Shadow job
- Lookup table

Synchronization mechanism

- Bind
- Status notification



Business benefits

★ ***Evolve multi-master configuration, liking cross activities***

★ ***Consolidate management and monitoring of workloads spread across multiple masters***

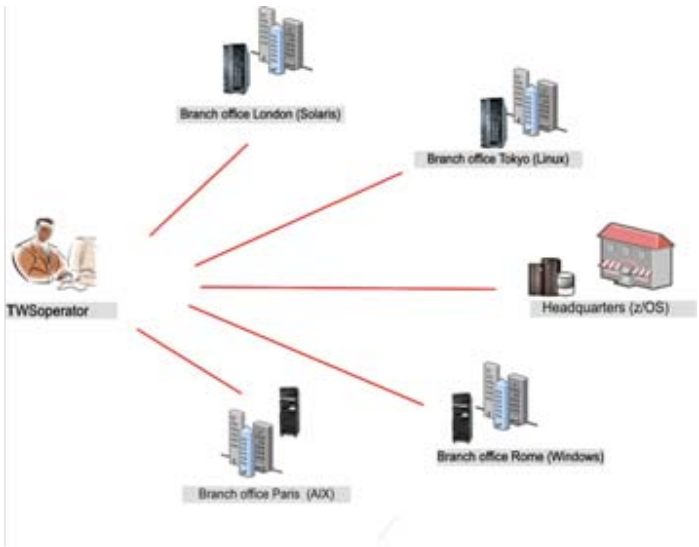
Multi-engines monitoring view

Scenarios

- *An enterprise organization consists of a headquarter where central office accounting department is located, and multiple branch offices located all over the world, where several administrative departments carry out accounting activity. The central office is in charge of the company's entire accounting workload. Therefore, the Tivoli Workload Scheduler operator must verify that all the workload processing for the company proceeds smoothly and without errors and needs an aggregated and comprehensive workload management*

- **Multi engines monitoring** feature represents one step forward in consolidation of activities spanning multiple scheduling environments

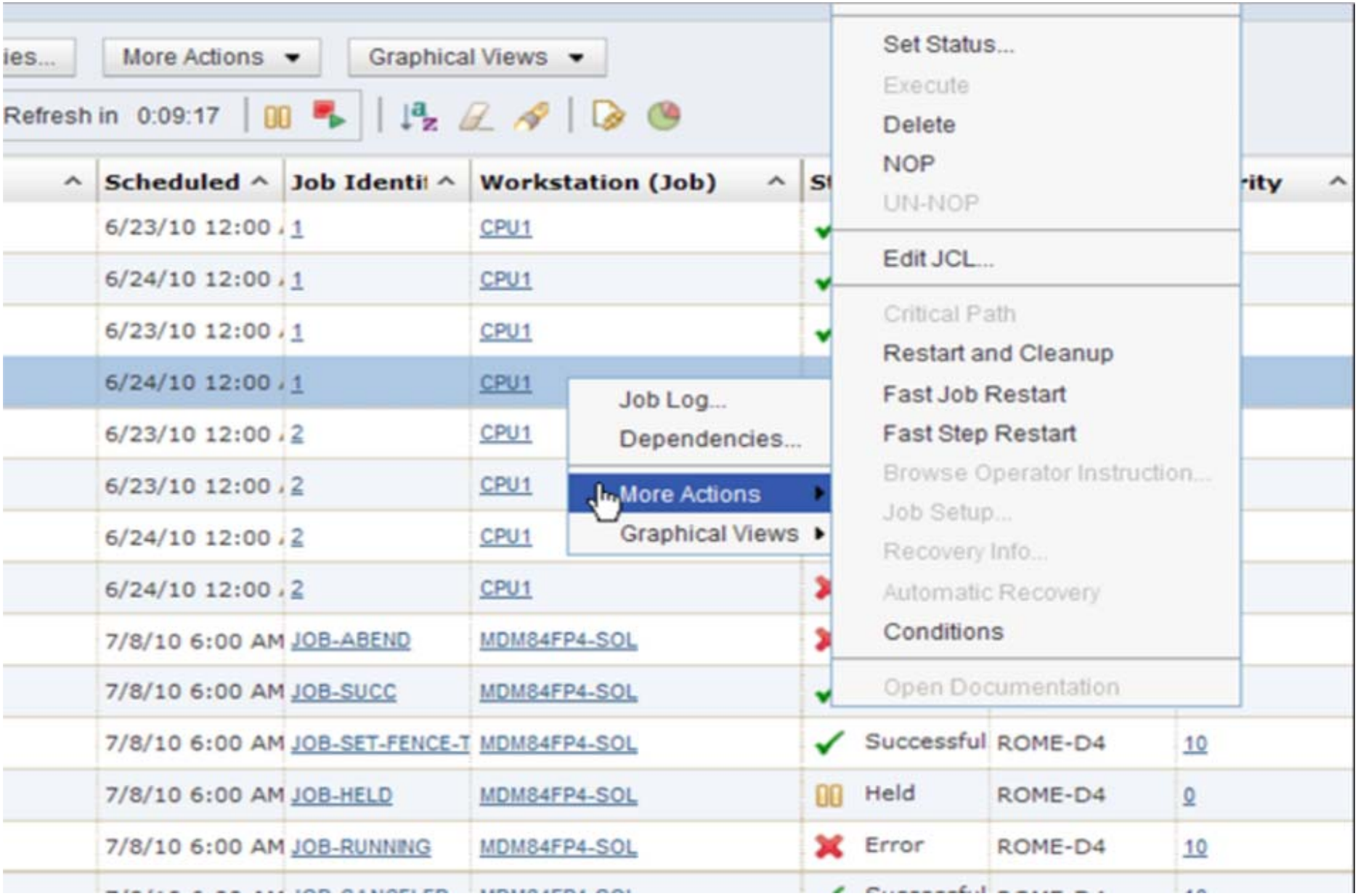
- It provides an aggregated vision and monitoring of workloads running on different engines



Business benefits

★ ***Provide an aggregated view of cross-engines workload, for easy monitoring and immediate perception of workload ongoing status***

Multi-engines monitoring view



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- **Embrace modern languages**
- **Application plug ins**
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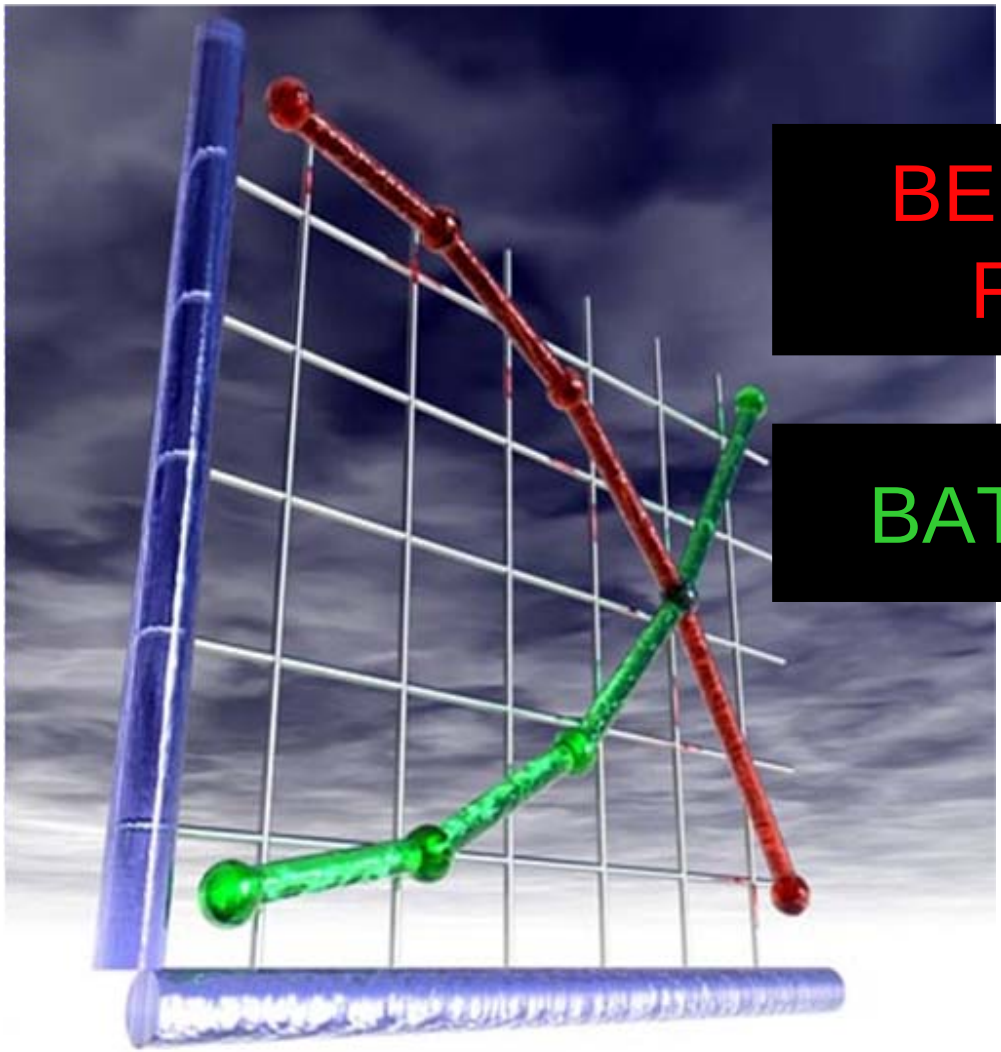
Miscellaneous

- New ISPF panels
- Service catalogs
- Batch Reports

Modern challenges in the batch processing



BE READY FOR NEW REQUIREMENTS

BATCH MODERNIZATION

Modern challenges in the batch processing

The context

- Batch workload may be an issue in most IT transformation projects – inability to reuse and integrate assets
- Cost and complexity of maintaining and operating existing batch applications continues to grow – creating demand for improved runtimes and tools
- Gaps in technology and skills
- Variants of batch processing are emerging that run on new platforms, infrastructure and middleware

The needs

- Elastic batch, flexible, able to change at the speed of the business – faster turnaround to implement newer or modified business processes
- Reduce maintenance and skill costs
- Satisfy new functional requirements
- Consolidate IT systems; adopt a fit-for-purpose model

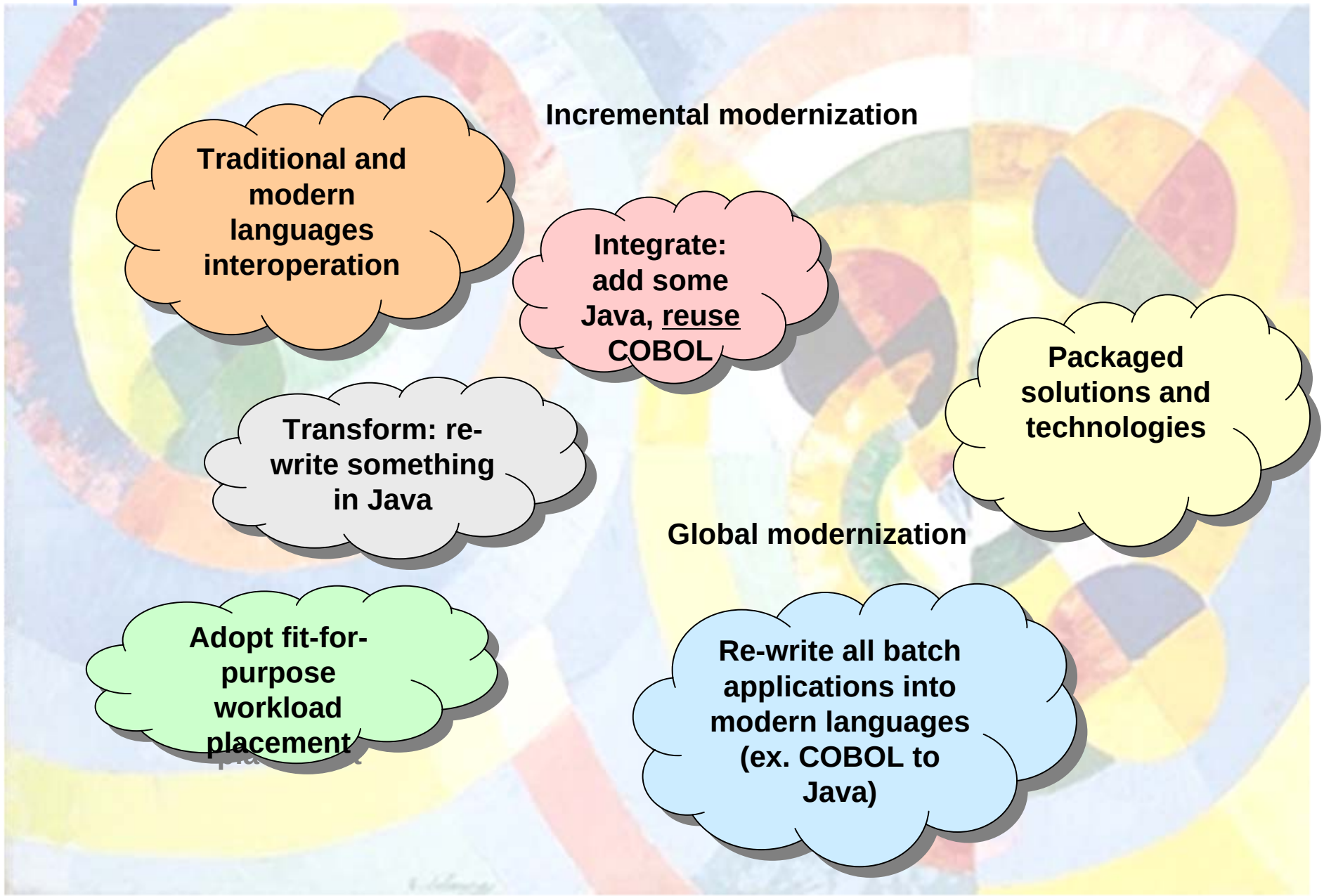
Modern challenges in the batch processing

The solution

BATCH MODERNIZATION

- Set of tooling, processes and best practices to transform existing assets and reusing them through modern technologies, so achieving tomorrow's challenges

Examples of batch modernization



How Version 8.6 contributes to the Batch Modernization

Examples of batch modernization

Transform: batch applications using modern languages (ex. COBOL to Java)

Re-use: existing applications with business oriented Web Services

TWA V8.6 helps supporting transformation and re-using projects

- **Invoke scheduling services as Java API**
  - **Through zConnector, now running also on z/OS**
- **Enable wrapping existing scheduling services with web services**
  - **Edit and submit jobstreams with variable substitution**
- **Embrace scheduling of Java and Web Services**

★ ***Reduce costs offloading MIPS to zAAP***

★ ***Enable easy remote access to scheduling services***

★ ***Re-use of existing processes running rather than encouraging a re-write***

Java API and Web Services for scheduling

- **Exposing core TWA functions as SOA services**
  - Provide TWA functions as Java API, z/OS Connector component running on an external WebSphere z/OS
  - New Web-service for submission and variable substitution. Performs a job stream submission and the job set up substitution of promptable variables within one call
  - New Web-service for modeling, submission and variable substitution. Possibility to modify jobs details, like the job name, add new jobs to the job stream and add or modify dependencies among the jobs, before submitting the job-stream with variable substitution

Business benefits

★ ***Enable to wrap existing batch process with business oriented web service***

★ ***Reusing/integrating assets, bringing relief to the batch workload issue in IT transformation projects***

★ ***Make scheduling services available on the network***

★ ***Modern applications (Java) allow offloading of MIPS to zAAP***

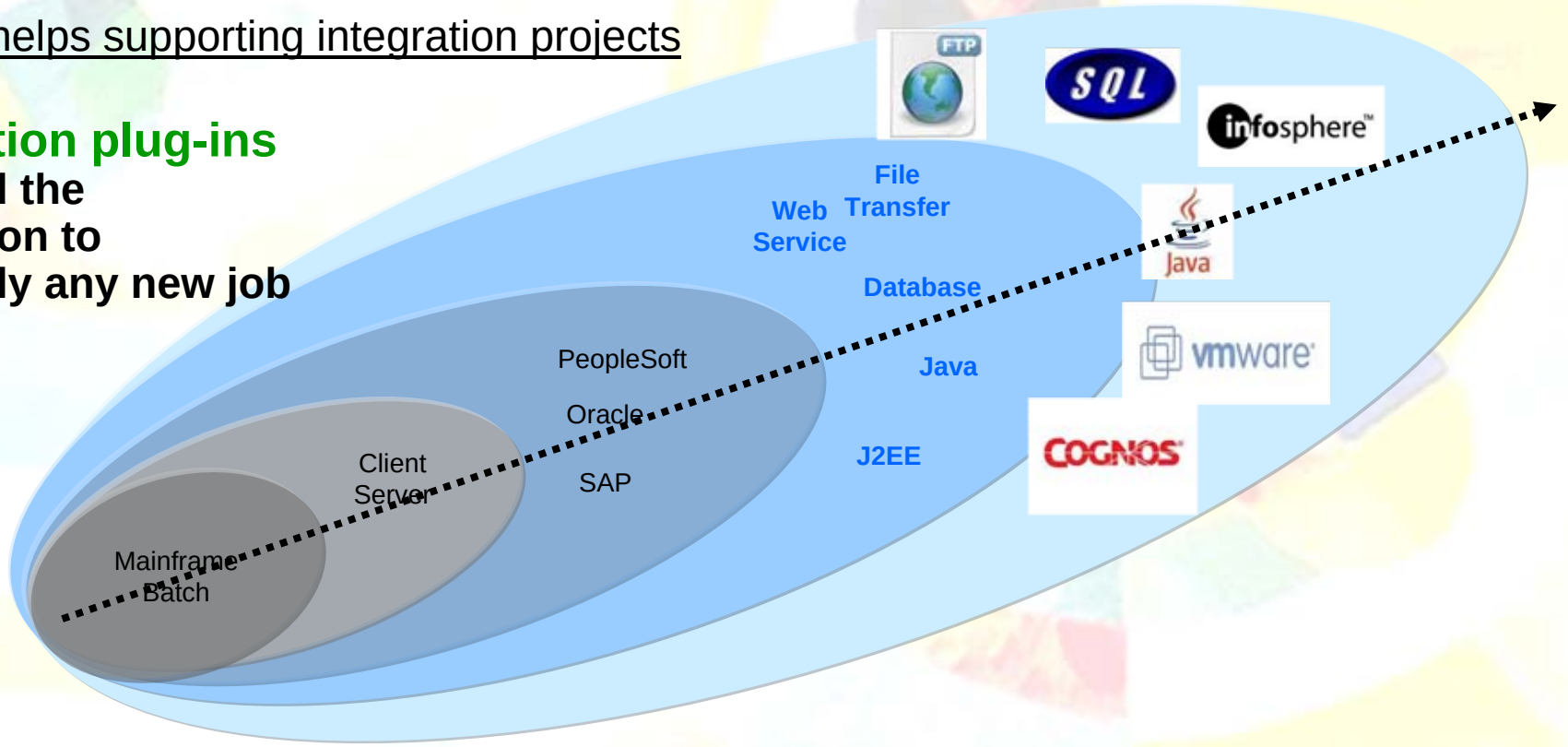
How Version 8.6 contributes to the Batch Modernization

Examples of batch modernization

Integrate: legacy applications with new applications

TWA V8.6 helps supporting integration projects

- **Application plug-ins to extend the automation to potentially any new job types**



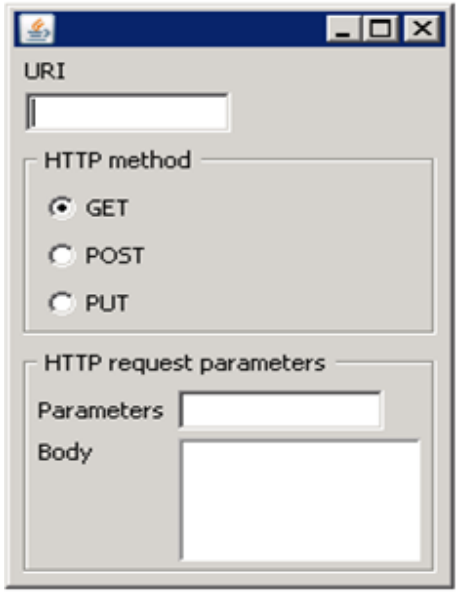
Application Plug-ins : details

What we offer to 3° parties (Clients, BP, System Integrators) for new Application Plug-ins implementation

- **Tivoli Workload Scheduler Integration Workbench**
  - Takes you through the **creation** of your plug-ins

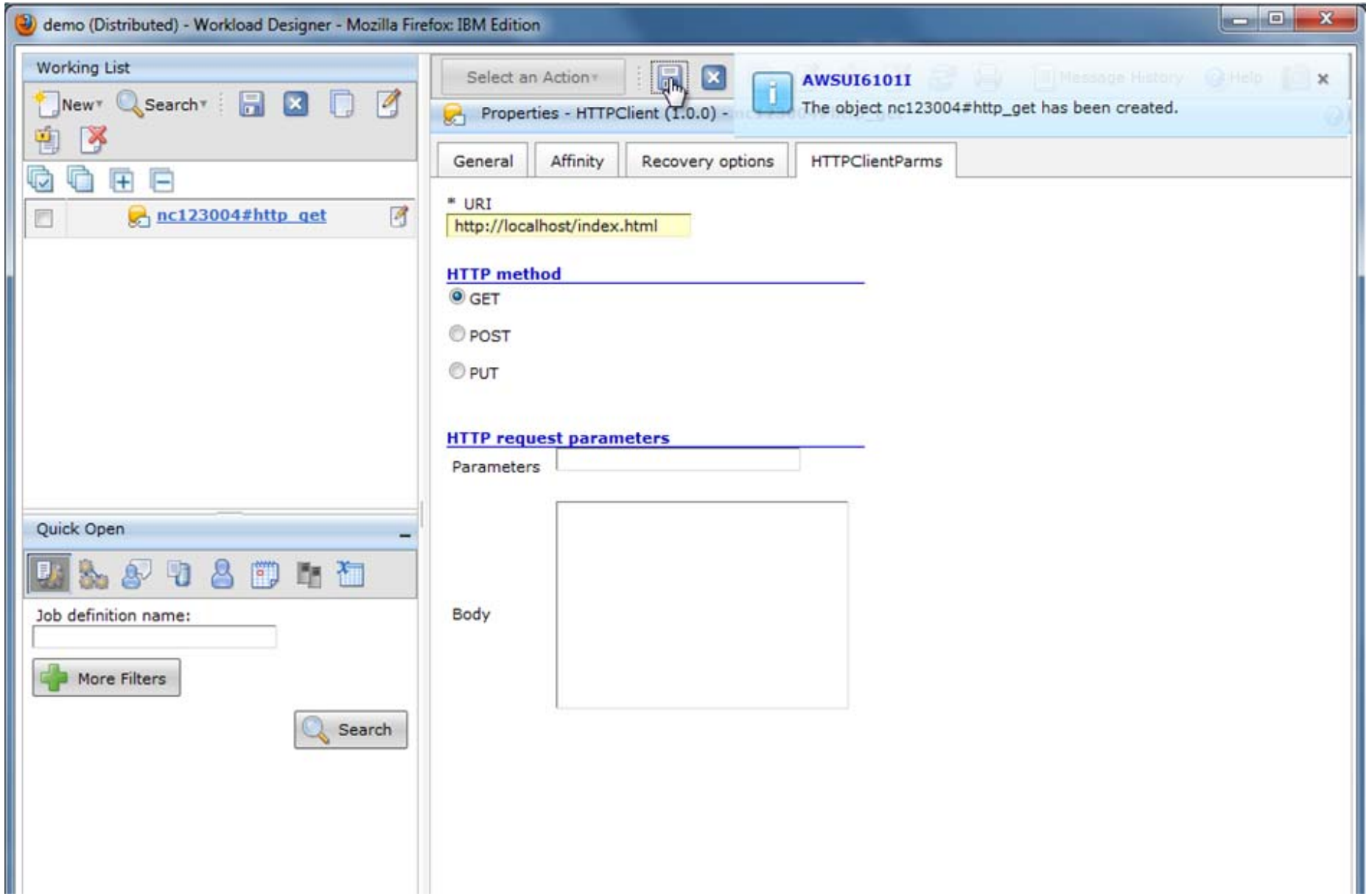
- Two main phases:
  - Panels creation (AUIML file)
  - Execution method creation (JSDL)

Application Plug-in (jar file)



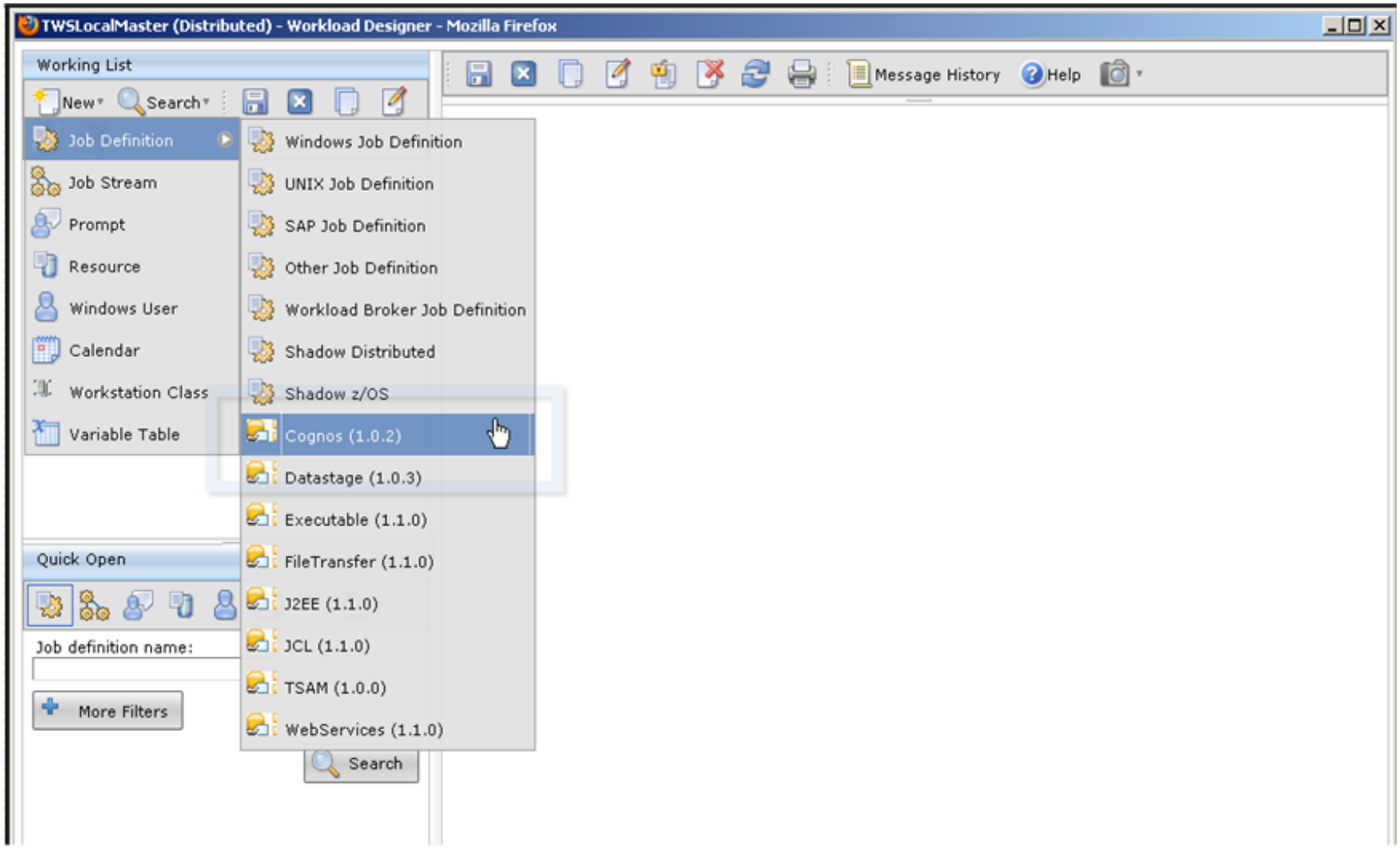
- After **deployment** of new Application Plug-in, you will be able to manage the new job type in the same fashion as all other TWA job typesd creation (JSDL)

Application Plug-ins : details



Application Plug-ins : near future

What are planning to exploit the application plug-ins feature and deliver out-of-the-box executors for Cognos and Datastage



Introduction to zEnterprise

zManager unifies management of resources, extending IBM System z® qualities of service end-to-end across workloads

The world's fastest and most scalable system
IBM zEnterprise™ 196 (z196)

Scale out to a trillion instructions per second:
IBM zEnterprise BladeCenter® Extension (zBX)

Unified management for a smarter system:
zEnterprise Unified Resource Manager (zManager)

zEnterprise and batch modernization

Fit-for-purpose

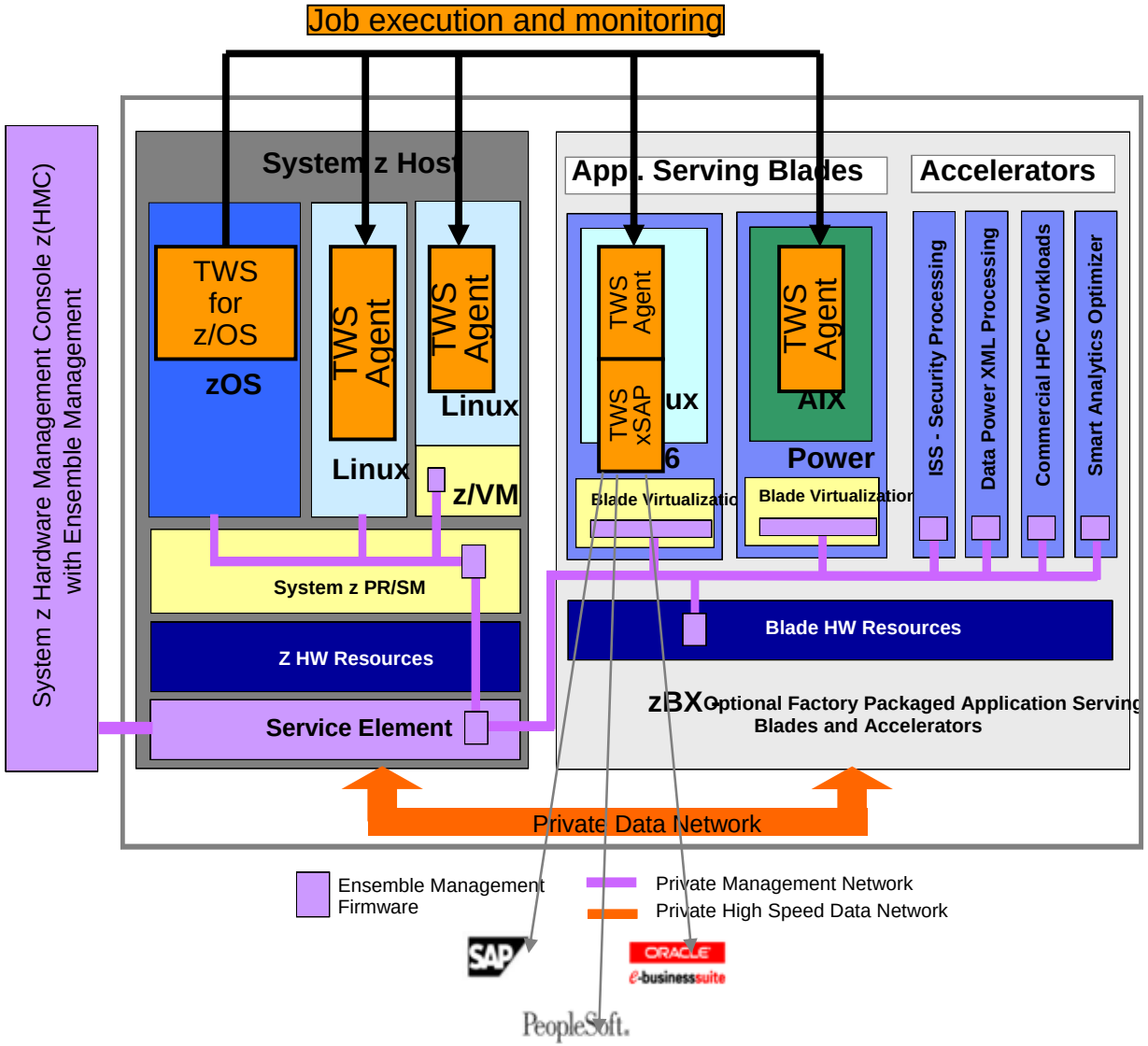
Adapt to a fit-for-purpose distribution of workloads

- Mixed end-to-end applications are best served by heterogeneous resources that includes System z and other processor types
- Batch Modernization does not mean rewriting/transforming all applications, but rather reusing, integrating new and traditional, and run applications where they best fit

- zEnterprise is the new system z generation, that allows to manage a set of closely federated heterogeneous compute resources as a single environment, a system of systems
- zEnterprise is ideal for the fit-for-purpose paradigm, since it allows you to place workloads where they best fit

zEnterprise and z-centric end-to-end

Fit for purpose workload deployment



- zCentric end-to-end solution is ideal to manage heterogeneous workloads running across System z and Blade extensions, under a single point of control and management
- Virtualization capabilities of zEnterprise well combines with dynamic capabilities of end-to-end that assesses best workload distribution based on policy and job requirements

Business benefits

★ ***Reduce costs with fin-for-purpose platform, and implement a virtualized and green data center***

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Miscellaneous

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Smarter planet and cloud workload automation

Scenarios

- *Every month-end a Bank needs to create a set of Reports. Reporting application runs on a Linux servers pool that should be created on month-end and released after its usage*
- *Reports for private-banking accounts must be delivered by 8:00 AM the first month-day; in case of potential delays, customer wants the environment to be automatically boosted to meet this SLA*

- **Create a workload execution environment with TSAM**
  - Allows to model, reserve and automatically provision “WA-ready execution environments” in a cloud
  - Automatically configure a scheduling sandbox in an existing TWA environment (or provision a new one) for managing the new environment
  - Adjust workload dispatching according to SLA risk status

Business benefits

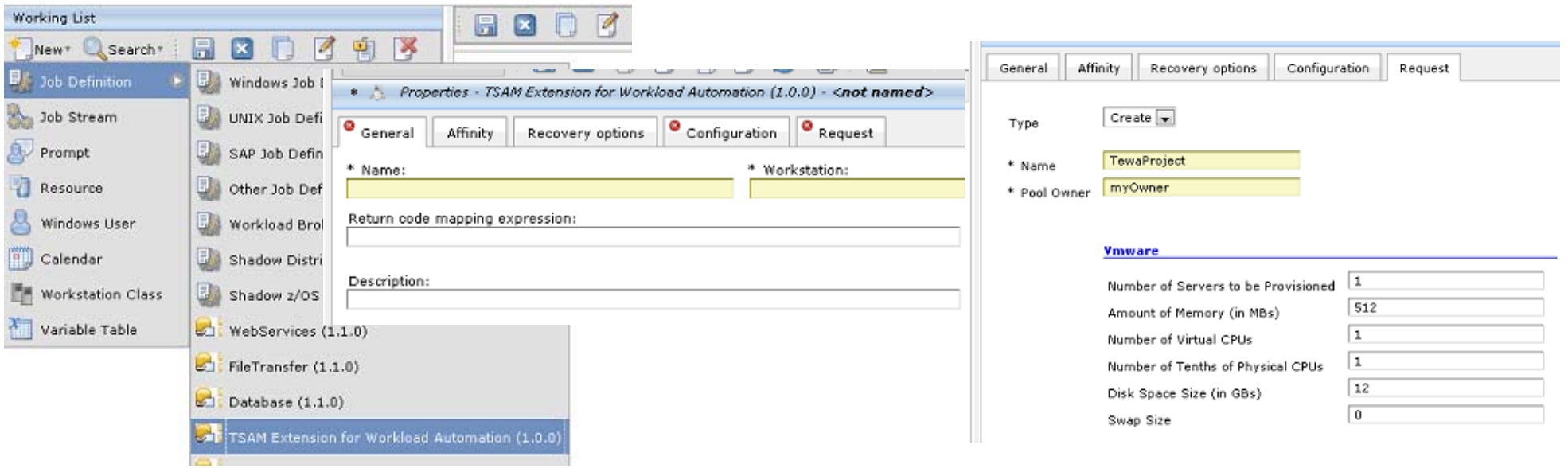
★ ***Reduce energy costs and be leading edge in green data center play***

★ ***Simplify the lifecycle management of a “batch-ready” execution environment***

★ ***Reduce investments and effort, through simple provisioning and release of workload automation resources***

Cloud workload automation

- **Elastic scaling**
  - Automatic provisioning of additional TWS agents in case of delay in processing TWS workflows. Delay triggers TSAM request for new agent provisioning.
- **Provisioning of a batch-ready environment**
  - Request through TSAM a batch-ready execution environment. The owner will be able to use that environment and schedule jobs.
- **WEE failover**
  - Automatic provisioning of a server capable to satisfy job resource requirements, to recover the a job in error. TSAM is invoked as a recovery action and it provides the needed server.



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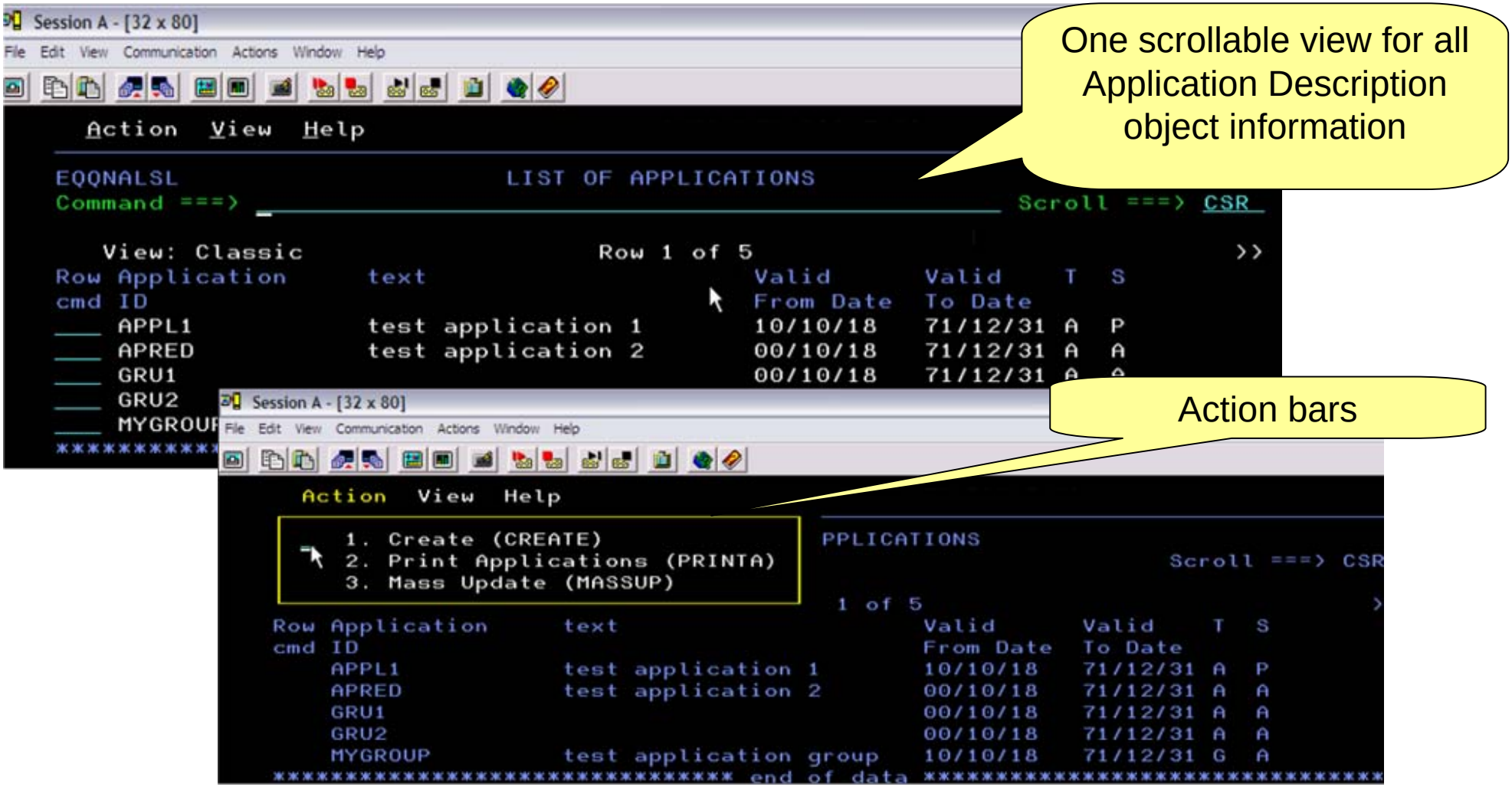
New ISPF panels

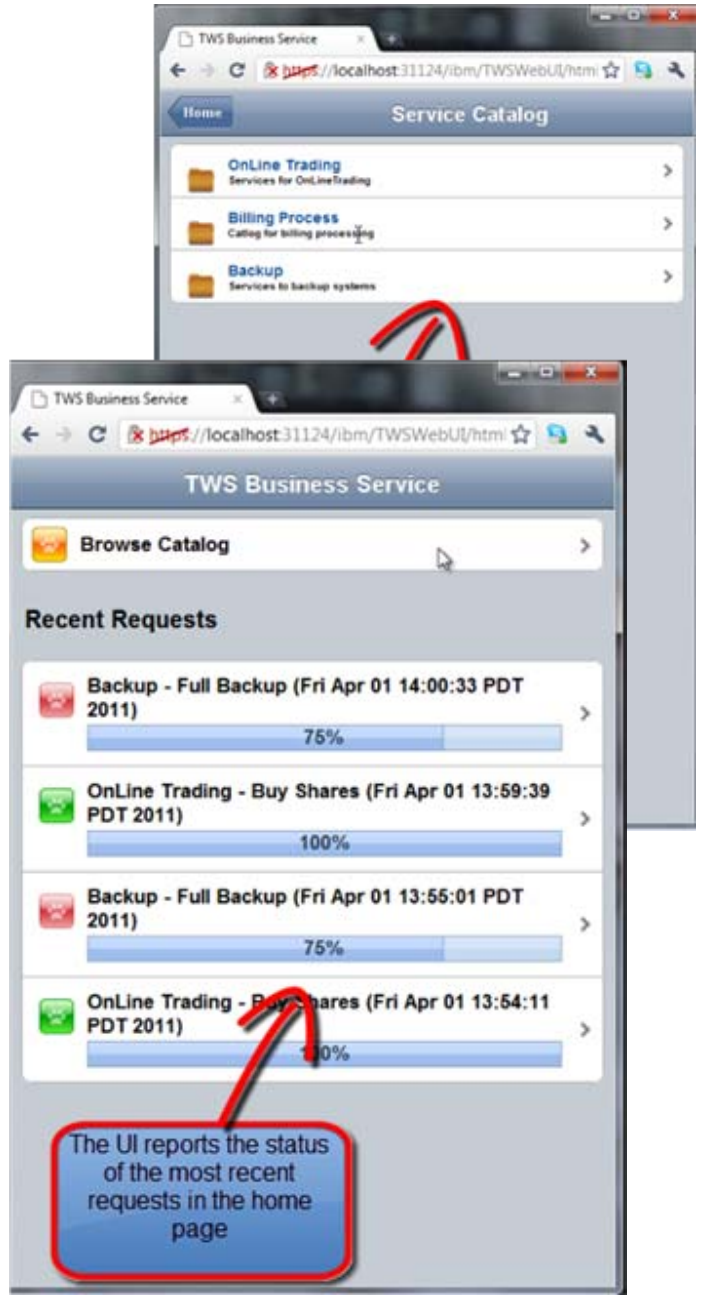
Scenarios

- *Customers require to rapidly navigate across ISPF TWS Dialogs, to accelerate operations, increase speed-up and more confidence with the product interface.*



Service Catalog

- Extract business value into a new interface, design for mobile devices and intuitive.
  - Based on the Service Catalog paradigm
- Offer an interface to Business end users so they have power and flexibility to request workloads
- Hide complexity of operations through an efficient ticketing and resolution system.
- Embed SLA into design of applications
  - Provide classes of service running – Gold, Silver
- It all amounts to breaking access barrier to power of Workload Automation for Business Users



Batch reports (ReportCLI)

A new self-contained tool that allows users to run reports on a remote database has been developed.

The report can be generated simply invoking the command:

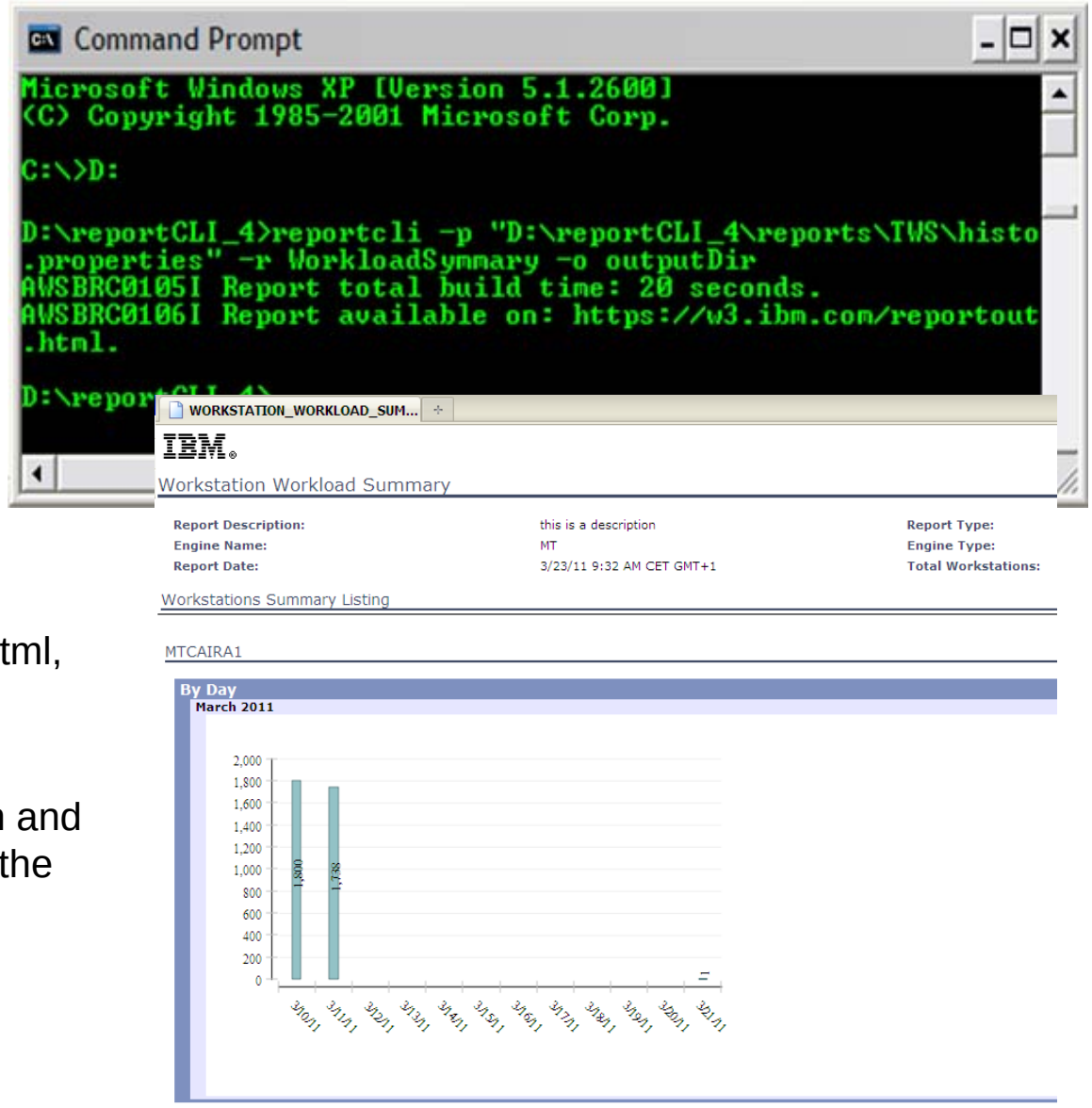
reportcli –p <properties file> -r <output file>

Available reports are:

- Job Run History
- Job Run Statistics
- Workstation Workload Runtimes
- Workstation Workload Summary
- Audit General
- Audit Details

The report output can be generated in html, csv and pdf format.

Installing the tool on a TWS Workstation and defining this command in a TWS Job, the reports can be run in batch mode.



Other Miscellaneous….

TWSd

Allow $MANAGER

TWSz

Extended VSAM supported for JS file

TWSd

Auditing

TWSz Restart and Cleanup

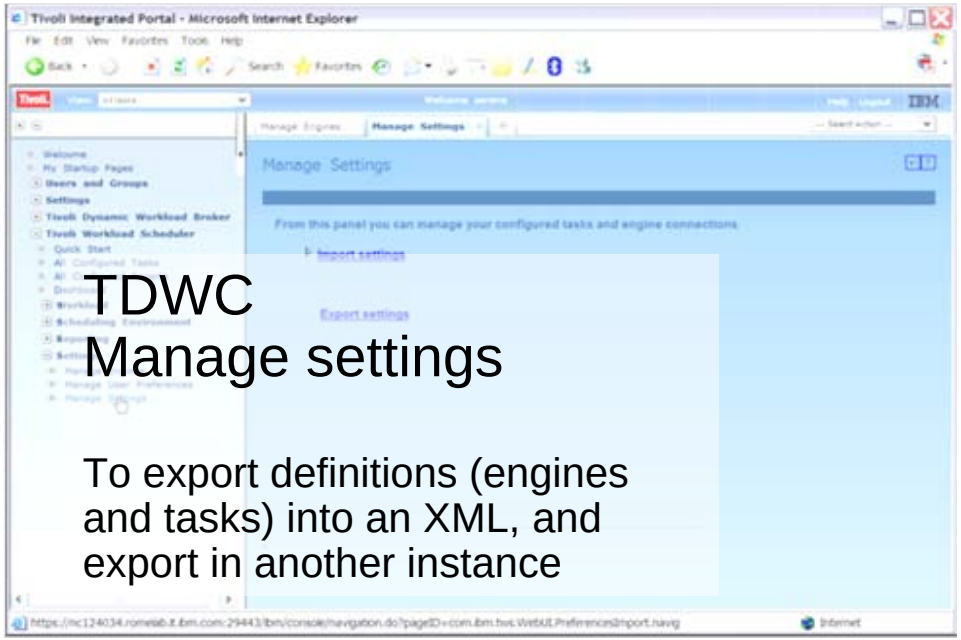
Automatic retrieval of joblogs in case of error

TWSd

TSRM integration

TWSz

Variable substitution in FTP



TDWC Manage settings

To export definitions (engines and tasks) into an XML, and export in another instance