May 2012

What's new with IBM Tivoli Workload automation?
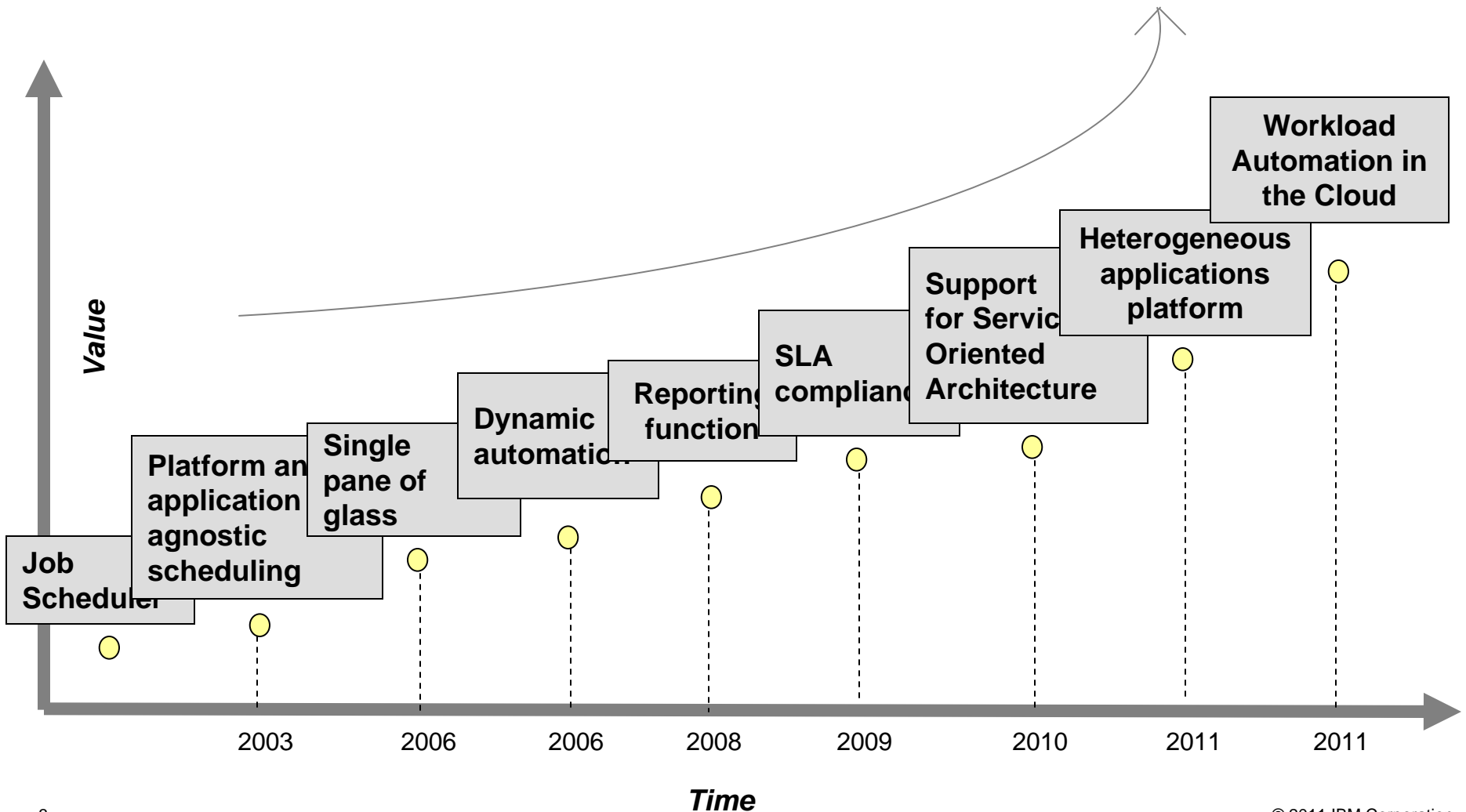
Today's conflicting pressures

Change imperative

Process constraint

SLA constraint

Audit constraints

Drive innovation

Meet business needs quickly

IT Budget constraint

Tivoli Workload Automation Journey timeline
How product changed to responde to business pressures

Value

Job Scheduler

Platform an application agnostic scheduling

Single pane of glass

Dynamic automation

Reporting function

SLA compliance

Support for Service Oriented Architecture

Heterogeneous applications platform

Workload Automation in the Cloud

2003   2006   2006   2008   2009   2010   2011   2011

Time

Tivoli Workload Automation Journey timeline
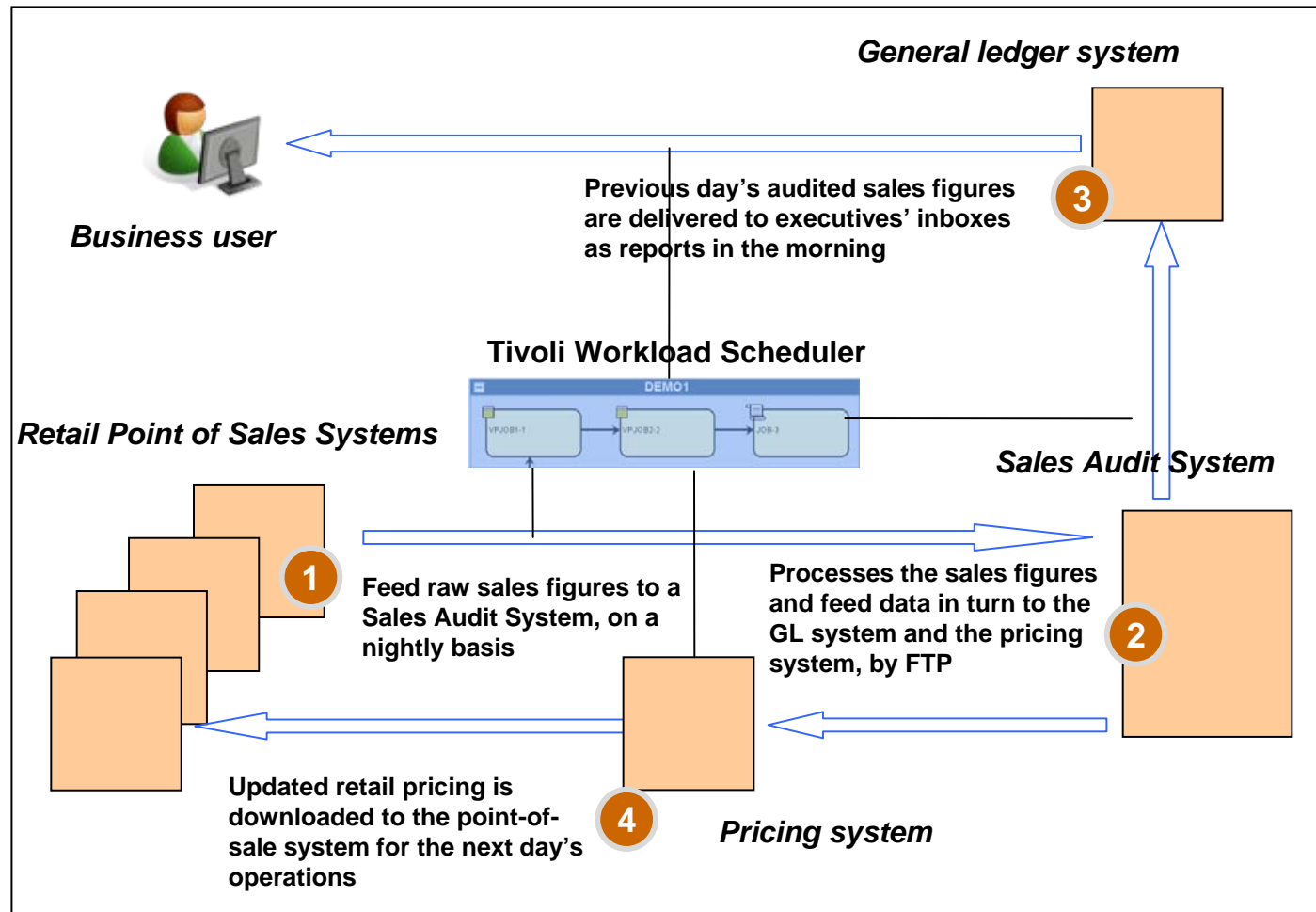## *How product changed to responde to business pressures*

Tivoli Workload Automation as a business key enabler, that drives automation of SLA-driven applications and optimized Cloud delivery models.

Job Scheduler

Platform a application agnostic scheduling

Single pa of glass

Dynamic automation

Reporting function

SLA compli

| 2002 | 2006 | 2006 | 2008 | 2009 | 2010 |
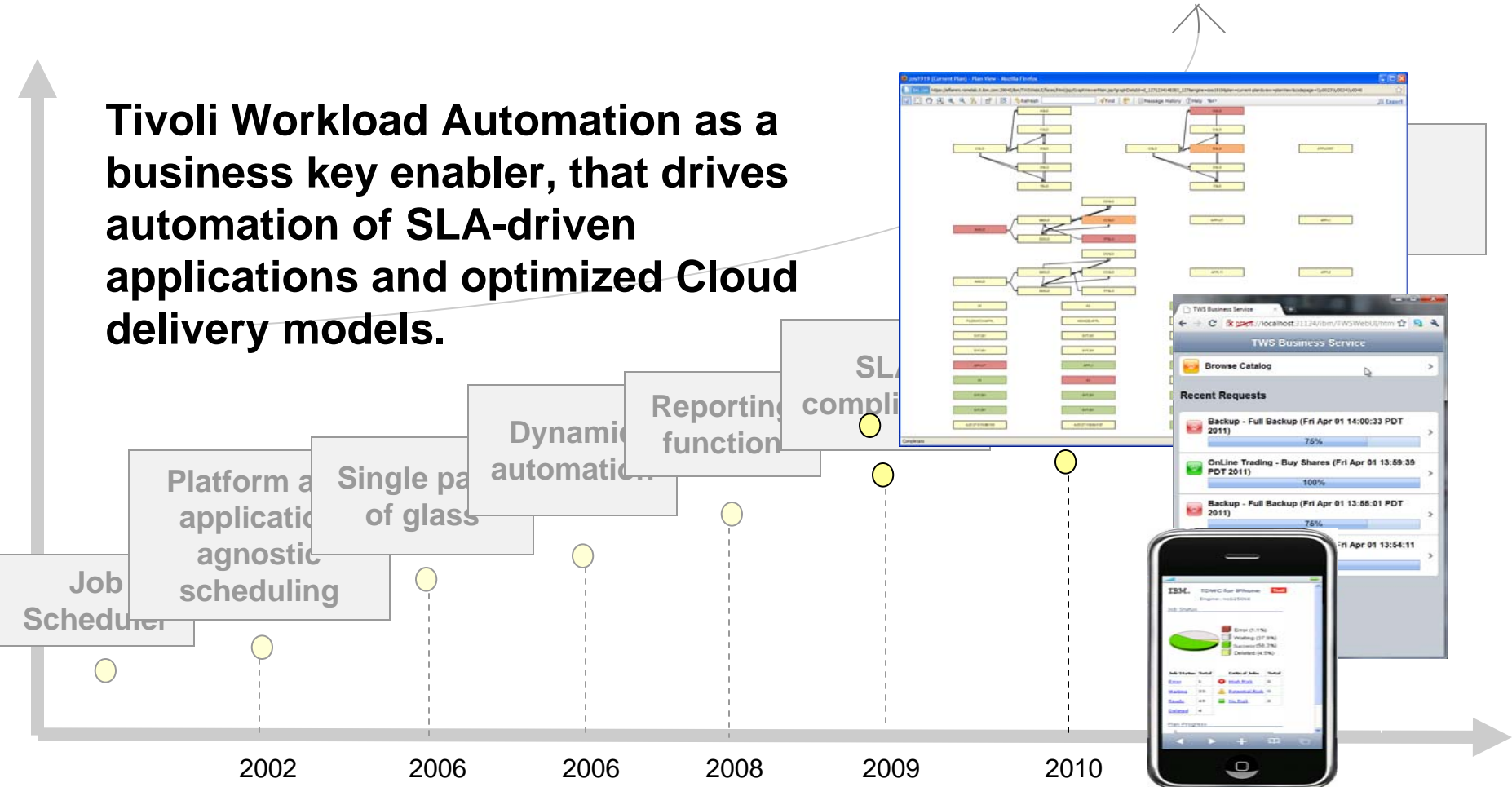
Time

Tivoli Workload Automation Journey timeline
Traditional scenario

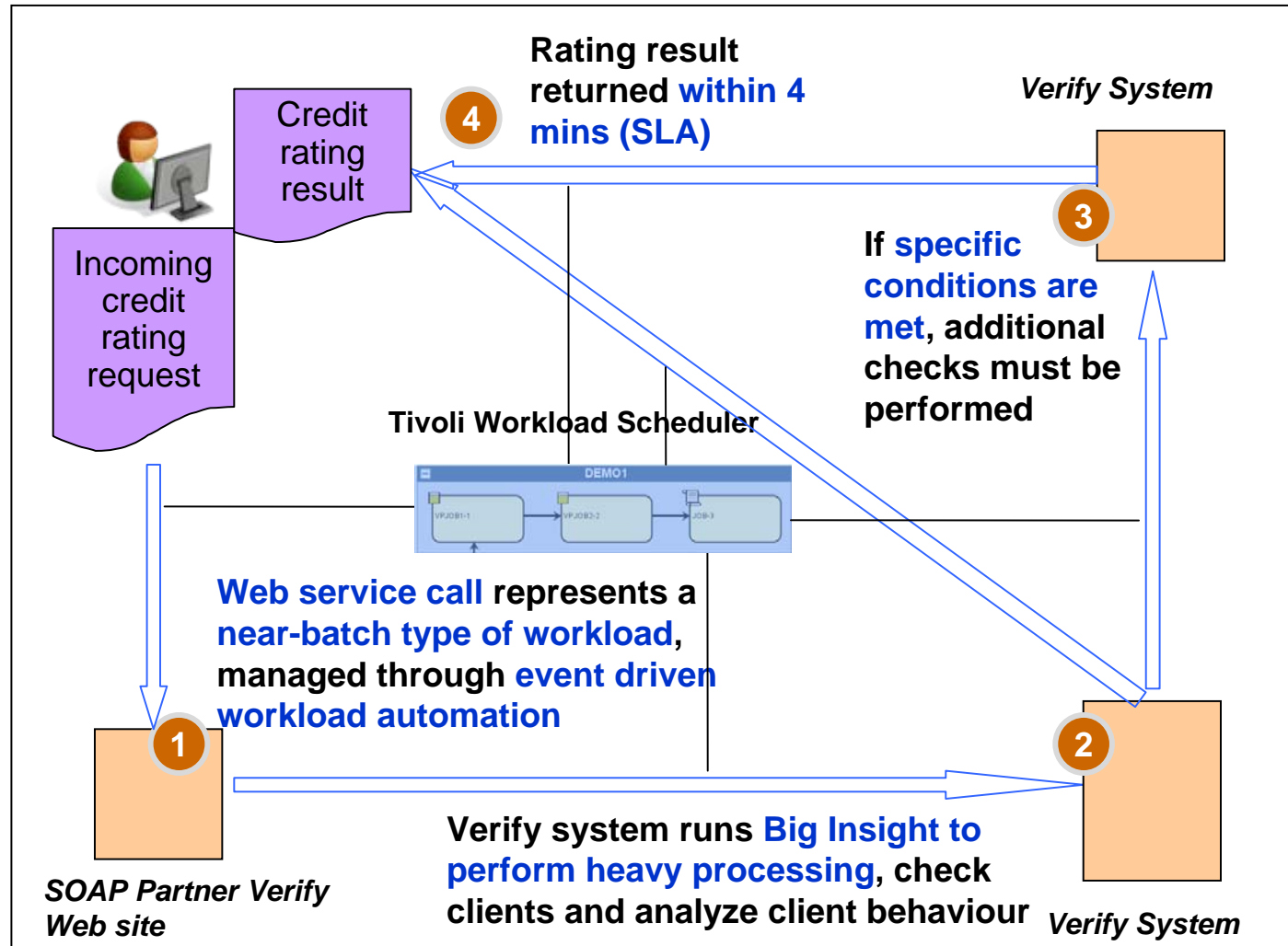**Reduce cost of ownership, automating and synchronizing tasks that support business service delivery**

General ledger system

Business user

Previous day's audited sales figures are delivered to executives' inboxes as reports in the morning

3

Tivoli Workload Scheduler

DEMO1

VPJOB1-1 → VPJOB2-2 → JOB-3

Retail Point of Sales Systems

Sales Audit System

Customer pain points

1 **Feed raw sales figures to a Sales Audit System, on a nightly basis**

Processes the sales figures and feed data in turn to the GL system and the pricing system, by FTP

2

- Manual intensive work to synchronize activities
- Lost of enterprise workloads global picture
- High risk of error

Updated retail pricing is downloaded to the point-of-sale system for the next day's operations

4

Pricing system

Tivoli Workload Automation Journey timeline
Innovative scenario

Customer pain points

- Automate near-real time workloads and react to user actions and events
- Ensure response within 4 minutes
- Integrate BigInsight analysis into a wider workflow

Rating result returned within 4 mins (SLA)

4

Verify System

Credit rating result

3

Incoming credit rating request

If specific conditions are met, additional checks must be performed

Tivoli Workload Scheduler

DEMO1

VPJOB1-1 VPJOB2-2 JOB-3

Web service call represents a near-batch type of workload, managed through event driven workload automation

1

2

Verify system runs Big Insight to perform heavy processing, check clients and analyze client behaviour

SOAP Partner Verify Web site

Verify System

Consolidate through end-to-end solutions
Control and manage workloads across distributed and System z from single control point

Business benefits

- Single agnostic point of management and control that integrates composite and complex services and applications workloads, including new "emerging" workloads, across multiple platforms

- Flexible components, to be deployed in various configurations, and adhere to any organizational structure:

  - Mainframe-centric
  - Distributed-centric
  - Peer-to-peer
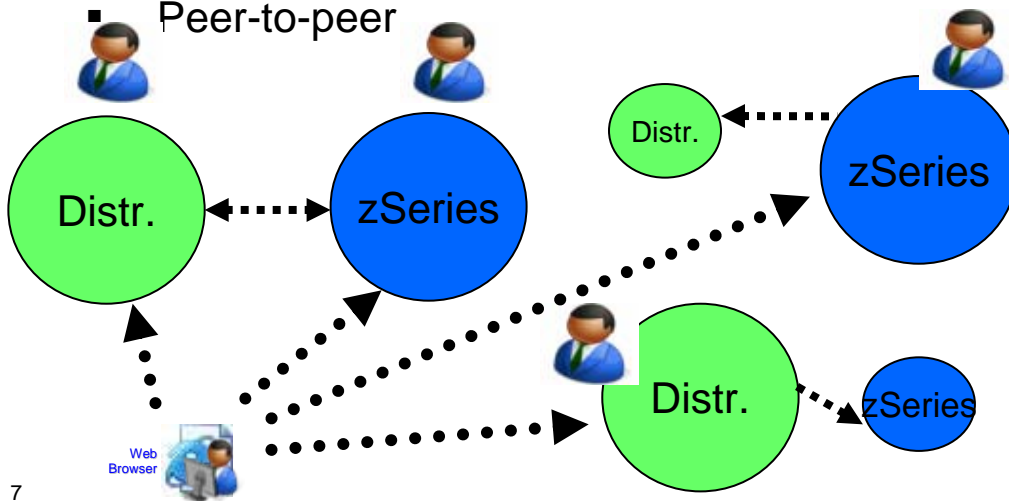
★ *Ideal in CONSOLIDATION scenarios, to reduce software, hardware, and labor costs and implement shared services (cut costs down 15%-20%)*

★ *Visibility, Control, Automation™ through SINGLE POINT OF CONTROL*

★ *Maintain the same skills, despite of workloads movements*

Proofpoints – Customer quotes

"A single tool that can accommodate a heterogeneous environment eliminates the need to maintain multiple technologies. This means lower software licensing costs and fewer, more efficient IT administrators" – Belgium bank

Distr. — zSeries — Distr. — zSeries — Distr. — zSeries

Web Browser

Consolidate through end-to-end solutions
Tivoli Dynamic Workload Console

**Impact graphical view** to walk through your network dependencies

Graphical Workload Designer for centralized and intuitive manipulation of scheduling objects

Reports are available with historical workload statistics, workloads distribution, for tuning and optimization purposes. Can be produced via Batch

Graphical production plan View for centralized monitoring of heterogeneous workloads

Historical loads and runtimes

Dashboards for at-a-glance view of job statuses
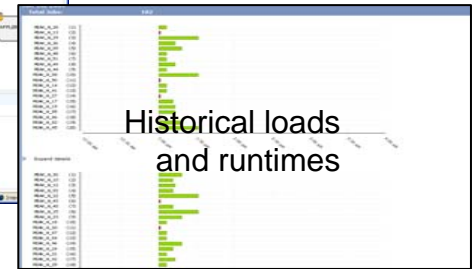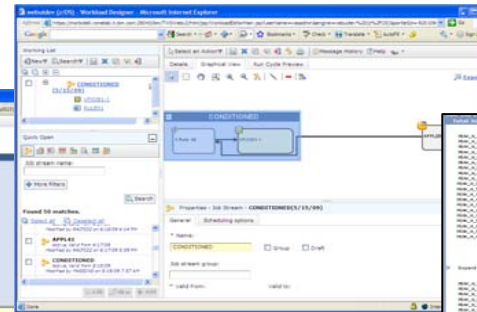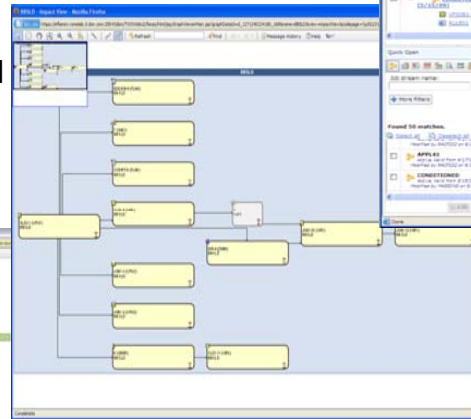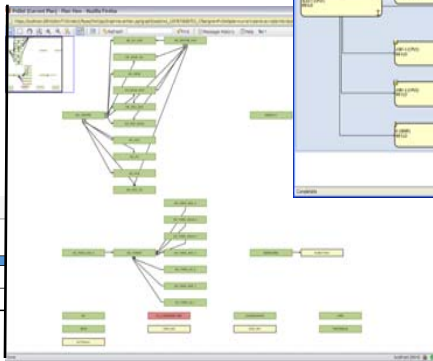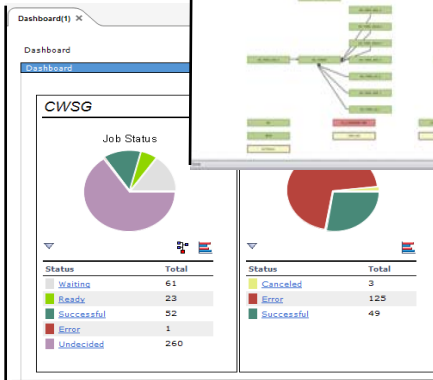
Proofpoints – Customer quotes

"With the ability to manage the entire workload through a single Web-based console, staff can easily see when jobs have failed and pinpoint the problem, which saves a great deal of time" – USA Farmaceutical.

Consolidate through end-to-end solutions
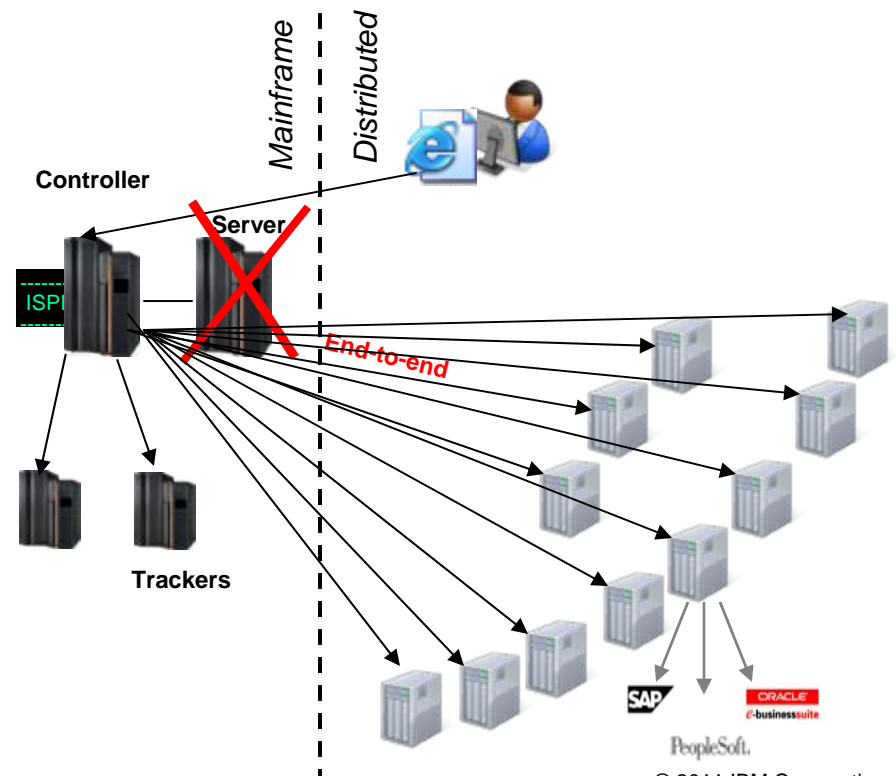*End-to-end driven by mainframe*

Plan-based End-to-end

- Hierarchical topology
  - Optional multi-level configuration

- Network Fault Tolerance
  - Distribution of plan to agents
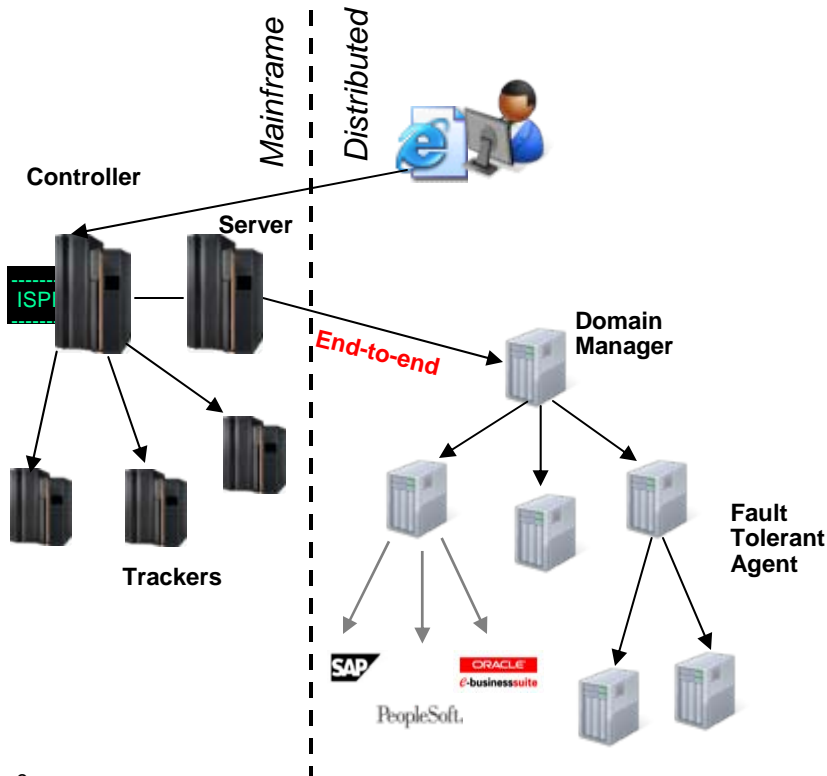
Z-centric end-to-end

- Simple architecture
  - Flat topology
  - No communication layer

- Fully centralized and homogeneous control
  - Direct control over distributed workload

Consolidate through end-to-end solutions
Z-centric end-to-end: where it best fits

Predominant mainframe culture
- Simplified access to distributed workloads from a mainframe concept, for mainframe customers who want to reuse processes and procedures already in place and embrace distributed workloads

Further simplification in deployment and maintenance
- Very simple installation, configuration and maintenance. Minimized TCO and disruption for managing distributed workloads in mainframe-centric mode

Fully centralization
- Fully centralized control over distributed workload, expand the TWS z/OS automation to distributed workloads.

Seamless synchronization of work
- Dependencies are handled within one single engine

WEB-based Centralized Management
- Web-based single administrative and monitoring console for enterprise scheduling
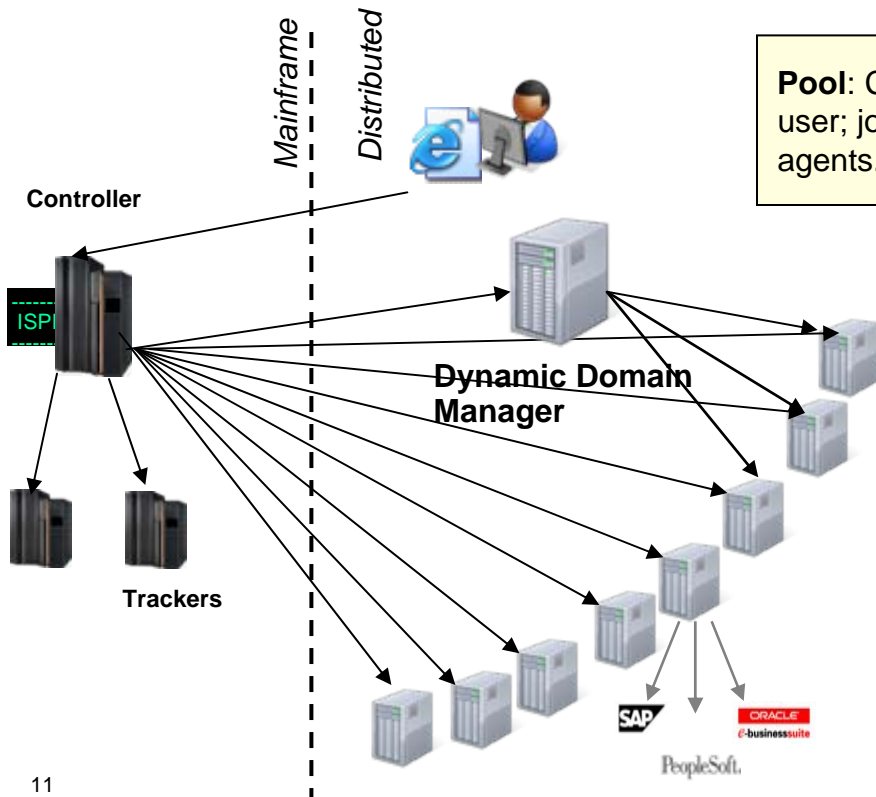
Business reasons   **Technical reasons**

Optimize resources through dynamic scheduling
Dynamic scheduling in Z-centric end-to-end solution

Two personalities of Dynamic Domain Manager for two different types of scenarios

Mainframe | **Distributed**

Controller

ISPF

Dynamic Domain Manager

Trackers

SAP

ORACLE *e*-businesssuite

PeopleSoft.

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.

Business benefits

★ *Matching job requirements to available resources*

★ *Controlling and optimizing use of resources*

★ *Automatic discovery of scheduling environment resources*

★ *Automatically following resource changes*

Modernize "batch" environment
Introduction

- Customers are modernizing batch infrastructure to make it more flexible, and more responsive to new functional and business requirements

- Re-using existing assets with modern interfaces, integrating traditional and cloud workloads, moving workloads and operational point.

TIME TO BUILD NEW FEATURES

BATCH MODERNIZATION
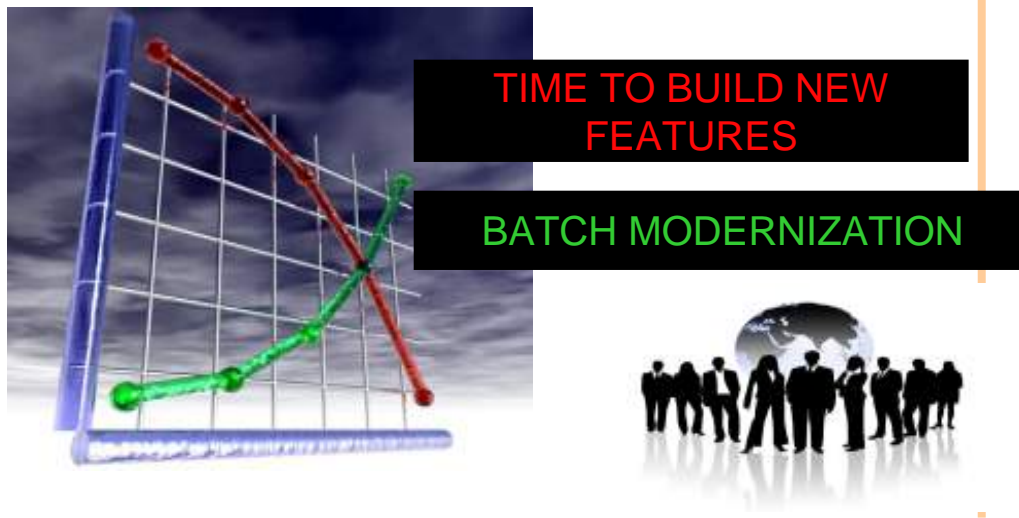
Examples of batch modernization opportunities

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

Re-use: existing applications with business oriented Web Services

Integrate: legacy applications with new applications

Modernize "batch" environment
Increased flexibility and cost reduction through new technologies

TWA helps supporting transformation, re-using and integration projects

- Embrace scheduling of Java and Web Services

- 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

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

Business benefits

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

★ *Reduce costs offloading MIPS to zAAP*

★ *Enable easy remote access to scheduling services*

Proofpoints – Customer quotes

Thanks for the opportunity to offload MIPS to zAAP

Support business growth in a managed approach
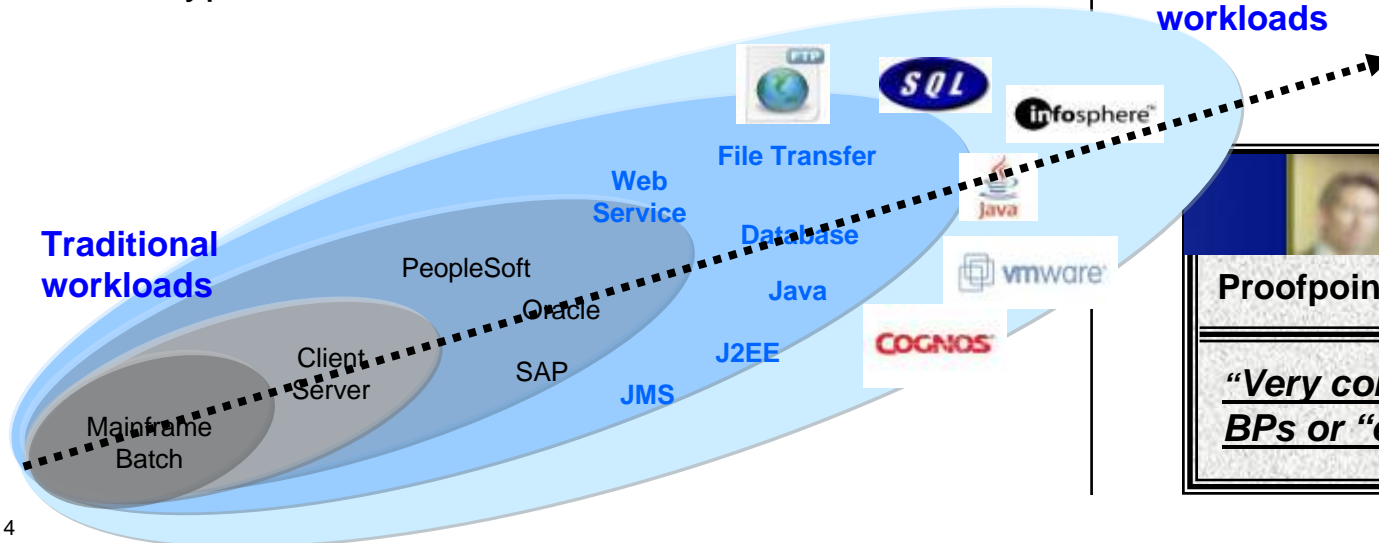*Extensible applications framework*

Business benefits

Available in z-centric end-to-end configuration

- Customers shifting from traditional backend transaction focused systems to modern systems running web applications and heterogeneous applications

- TWA provides extensible framework through application plug ins to extend the reach of automation to any new workload type

★ *Share infrastructure among applications*

★ *Reduces labor costs, enabling to automate new workloads with the same staff of people*

★ *No request for new skill: re-using of workload automation processes and procedures already in place*

Emerging workloads

Traditional workloads

FTP

SQL

infosphere

File Transfer

Web Service

Database

PeopleSoft

Oracle

Java

java

vmware

Client Server

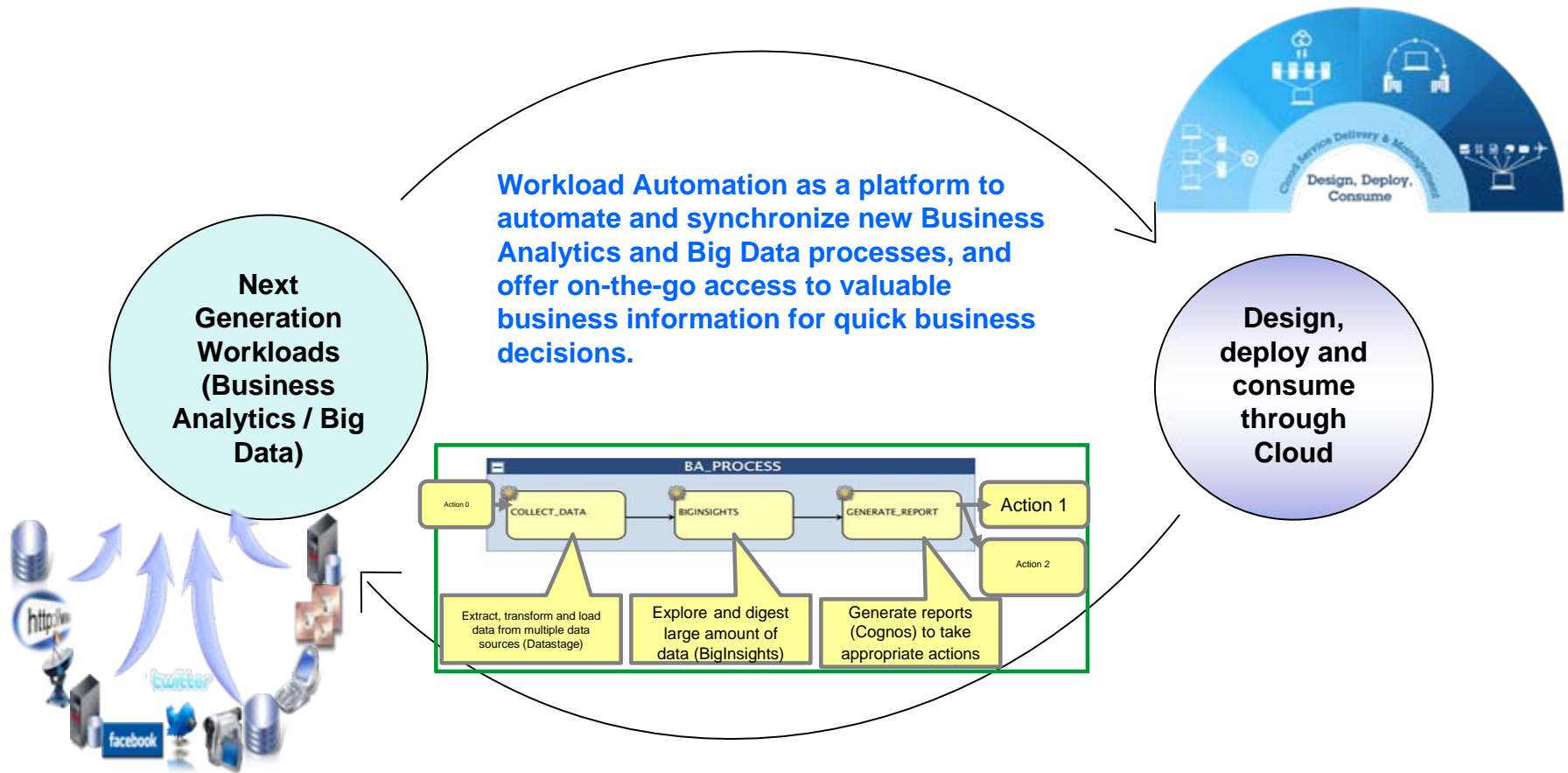SAP

J2EE

JMS

COGNOS

Mainframe Batch

Proofpoints – Customer quotes

"Very concrete needs" from BPs or "early adopters"

Support business growth in a managed approach
Business analytics and Cloud

Workload Automation as a platform to automate and synchronize new Business Analytics and Big Data processes, and offer on-the-go access to valuable business information for quick business decisions.

Next Generation Workloads (Business Analytics / Big Data)

Design, deploy and consume through Cloud

Design, Deploy, Consume

BA_PROCESS

Action 0

COLLECT_DATA → BIGINSIGHTS → GENERATE_REPORT → Action 1

Action 2

Extract, transform and load data from multiple data sources (Datastage)

Explore and digest large amount of data (BigInsights)

Generate reports (Cognos) to take appropriate actions
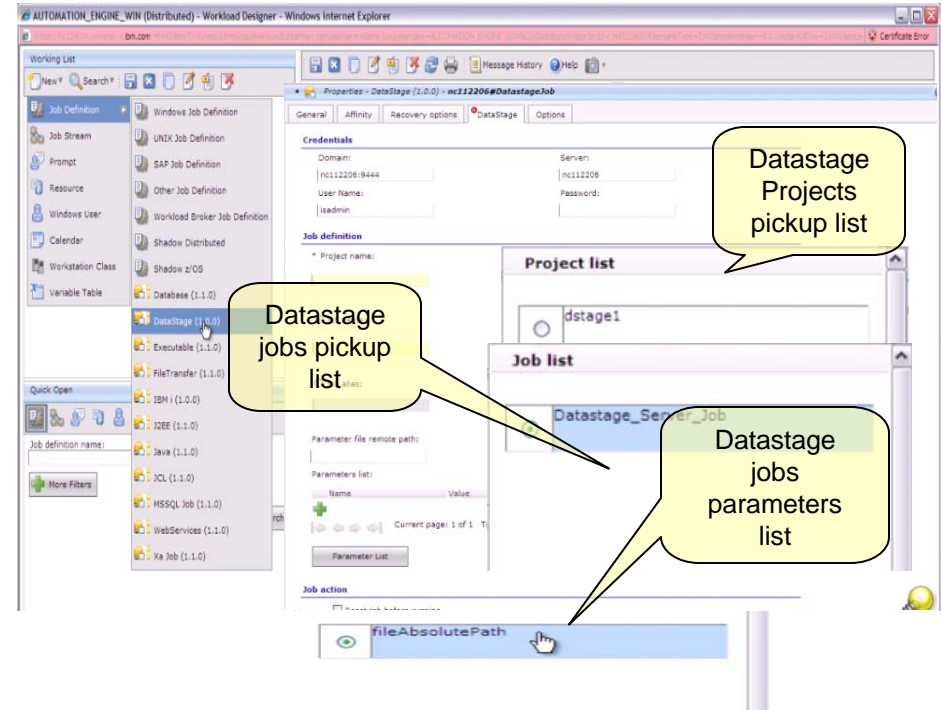
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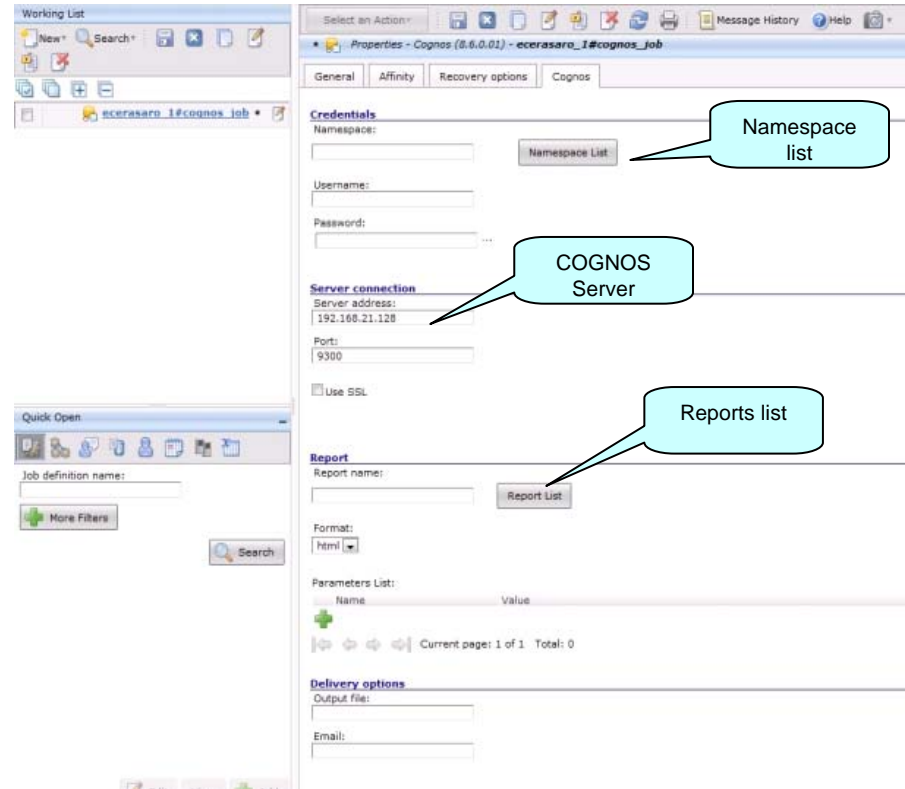# Support business growth in a managed approach
Datastage example

■Upcoming Datastage application plug in automates and integrates DataStage resources and tasks within the larger TWS environment for maximum efficiency

- ■From the Tivoli Dynamic Workload Console Workload Editor you select Datastage job type and define your jobs

- ■You can list Datastage projects, listing Datastage jobs, setting parameters, running and stopping DataStage jobs

- ■Once the definition is saved, it is stored into JCL library and available for submission

Datastage Projects pickup list

Datastage jobs pickup list

Datastage jobs parameters list

Support business growth in a managed approach
InfoSphere example

▪Upcoming Datastage application plug in automates and integrates COGNOS reports within the larger TWS environment for maximum efficiency

▪Cognos users will benefit through the use of TWS core scheduling capabilities that include constraints, event triggers, monitoring, alerts, and audits, as well as the integration of Cognos with other data sources, applications and processes.

Workload Automation in the Cloud

Require App service

Other requests

Tivoli Workload Automation

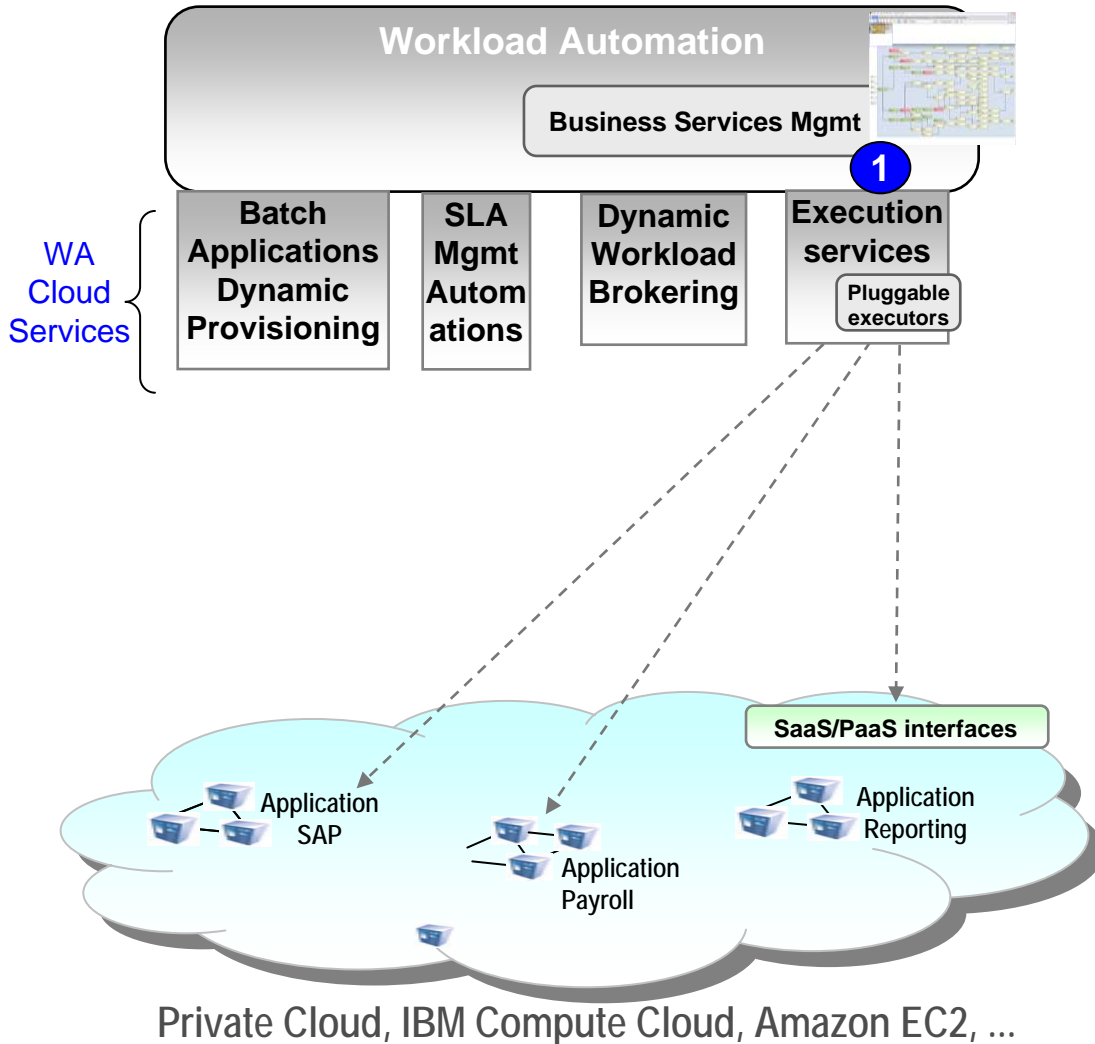**Require Infrastructure**
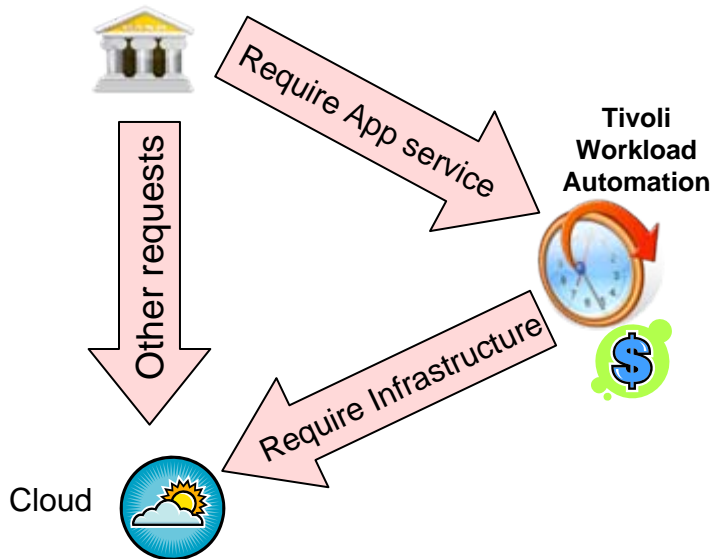
Cloud

★ TWS has moved to the center between the request for business services and the demand for Cloud infrastructure and resources: it allows to manage mission-critical, end-to-end workloads through fluid and elastic cloud resources

★ *Reduce resource, installation and customization costs and increase productivity*

★ *Adapt quickly in the context of limited resources*

Tivoli Workload Automation in the Cloud

1. <u>Automate</u> and <u>Orchestrate</u> execution of workloads and applications across heterogeneous cloud environments

2. <u>Dynamically dispatch</u> batch workload to cloud endpoints based on workload <u>requirements</u>, endpoints <u>availability</u>, <u>balancing</u> criteria, etc..

3. Automatically <u>provision/configure</u> application environments in a cloud to run batch workload

4. <u>Elastic scaling</u> of environments and continuing to meet workload SLA breaches

Tivoli Workload Automation in the Cloud

Workload Automation

Business Services Mgmt

(1)

WA Cloud Services

Batch Applications Dynamic Provisioning	**SLA Mgmt Automations**	**Dynamic Workload Brokering**	**Execution services**
			Pluggable executors

SaaS/PaaS interfaces

Application SAP

Application Payroll

Application Reporting

Private Cloud, IBM Compute Cloud, Amazon EC2, ...
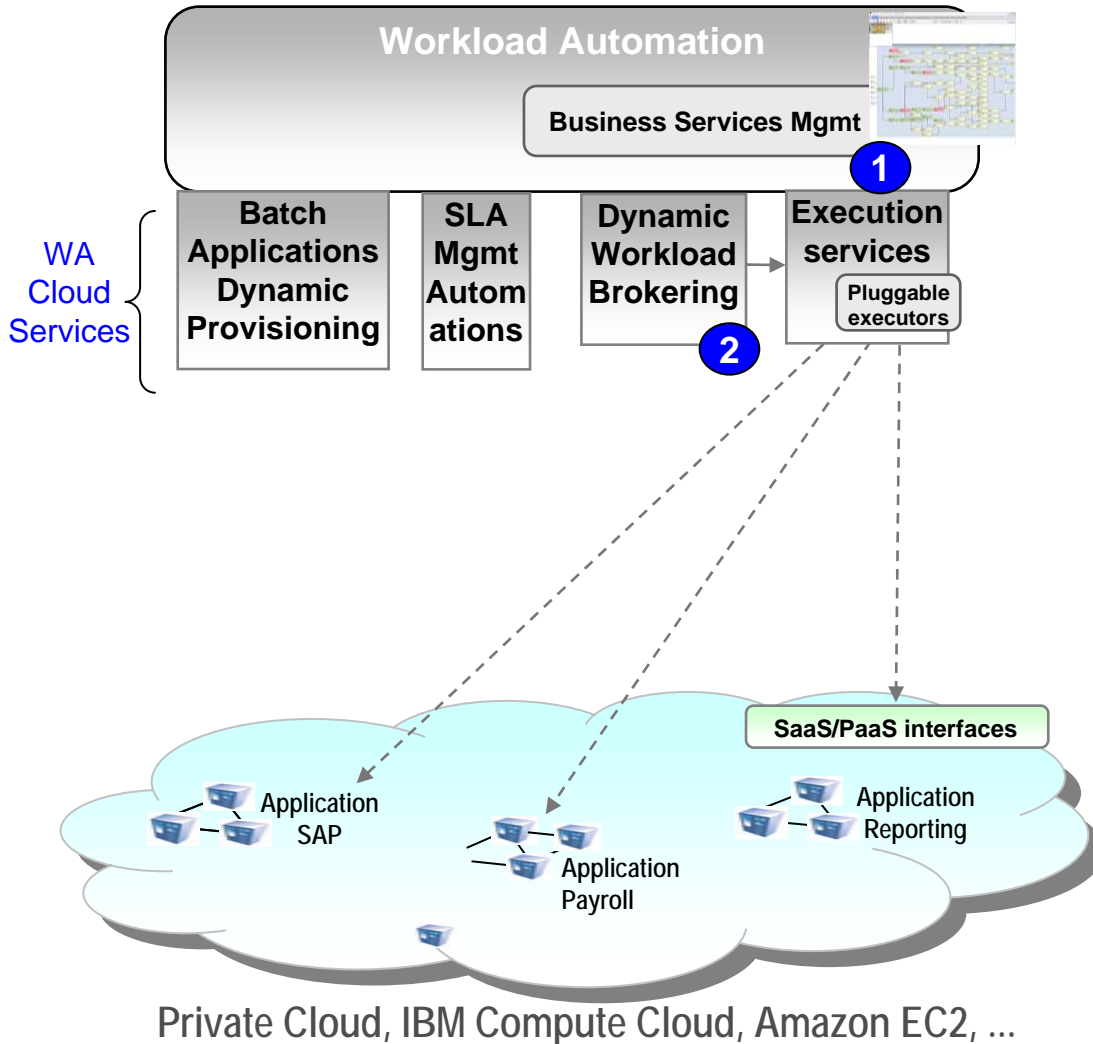
Automate and Orchestrate Workload across heterougeneous cloud environments

▪ Use agent or agent-less approach to execute and monitor workload on endpoints in private or public clouds

▪ Use Web-Services executor or leverage WA in a cloud environment

Tivoli Workload Automation in the Cloud

Workload Automation

Business Services Mgmt

①

WA Cloud Services

Batch Applications Dynamic Provisioning	**SLA Mgmt Automations**	**Dynamic Workload Brokering** ②	**Execution services** **Pluggable executors**

SaaS/PaaS interfaces

Application SAP

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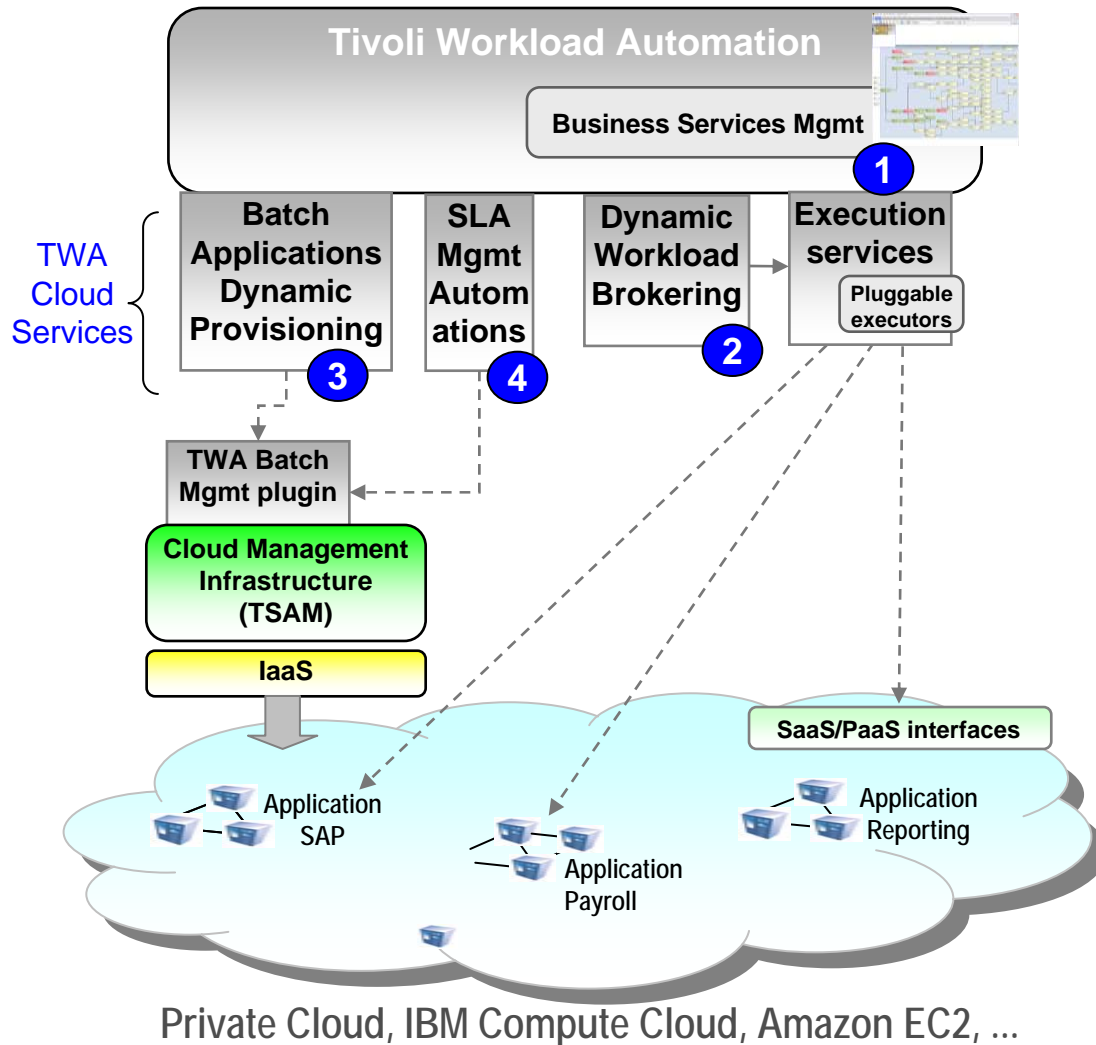
Private Cloud, IBM Compute Cloud, Amazon EC2, ...

Dynamically dispatch workload based on resource requirements, availabilty, balancing and other criteria

▪ Decouple workload from physical endpoints through
- workload requirements
- business priority
- endpoints availabilty,
- optimization policies
- etc..

▪ Evaluate workload requirements/policies and bind workload to the best endpoints

Tivoli Workload Automation in the Cloud

Tivoli Workload Automation

Business Services Mgmt

①

TWA
Cloud
Services

| **Batch Applications Dynamic Provisioning** ③ | **SLA Mgmt Automations** ④ | **Dynamic Workload Brokering** ② | **Execution services** **Pluggable executors** |

TWA Batch Mgmt plugin

Cloud Management Infrastructure (TSAM)

IaaS

SaaS/PaaS interfaces

Application SAP

Application Payroll

Application Reporting

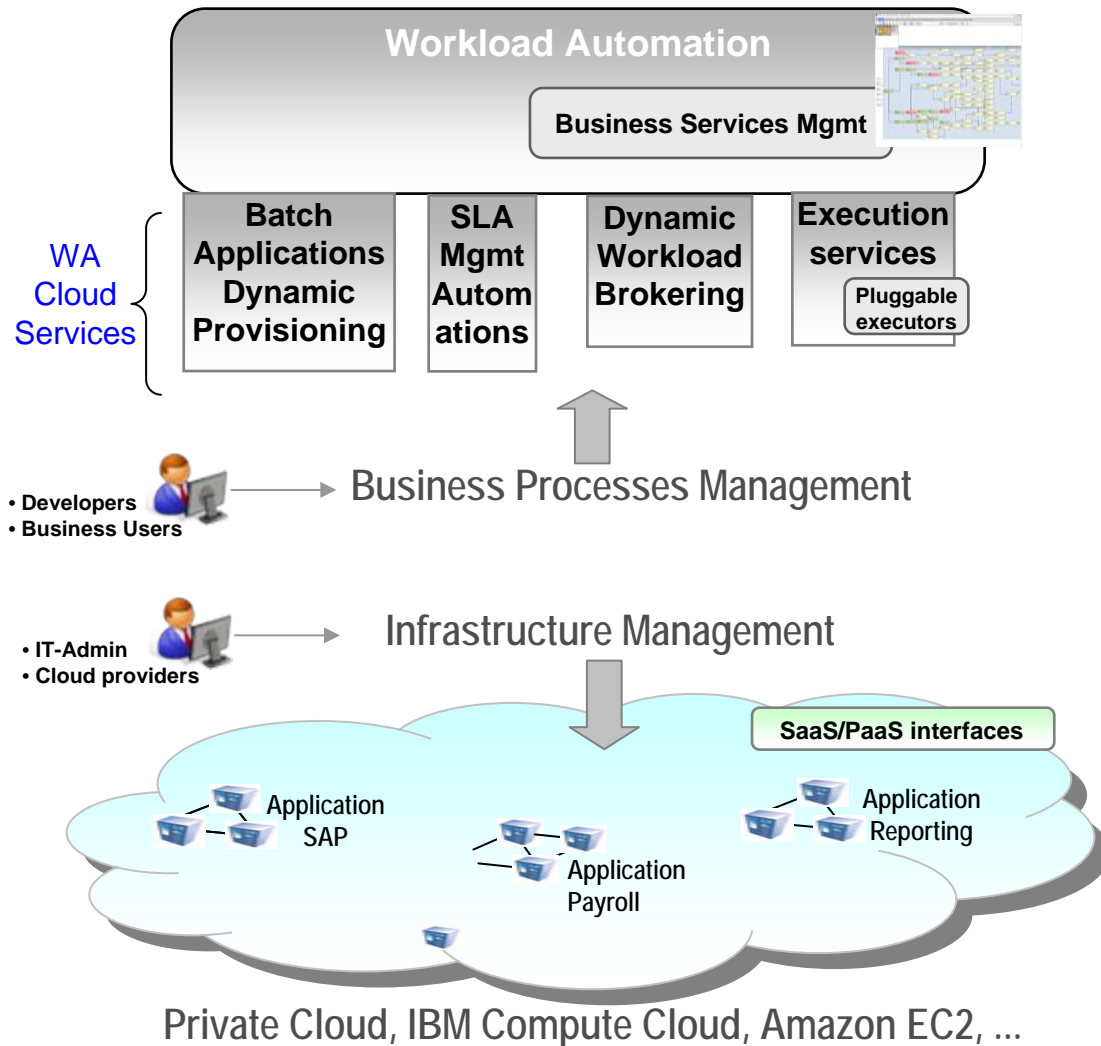Private Cloud, IBM Compute Cloud, Amazon EC2, ...

Automatically provision and configure batch application environments

▪ Use TWA-Batch-Mgmt service to provision batch application environments on-demand and configure in WA

▪ Can be used in TWA workflows or from self-service UI

Elastic Scaling

▪ Detect potential SLA breachs (e.g. critical jobs running late)

▪ Provision new endpoints and monitor endpoints to discover supported resources, endpoint status, load, etc...

Tivoli Workload Automation in the Cloud

Workload Automation

Business Services Mgmt

WA Cloud Services

Batch Applications Dynamic Provisioning	**SLA Mgmt Automations**	**Dynamic Workload Brokering**	**Execution services**
			Pluggable executors

• Developers
• Business Users

Business Processes Management

• IT-Admin
• Cloud providers

Infrastructure Management

SaaS/PaaS interfaces

Application SAP

Application Payroll

Application Reporting

Private Cloud, IBM Compute Cloud, Amazon EC2, ...

Abstracting IT infrastructure from "Business Process Management" allows to

- Leverage infrastructure and workload virtualization to provide
  - Flexibility
  - Business Resiliency
  - Optimization
  - Elasticity

- Shift focus from mgmt of IT-Infrastructure to development of Business applications

- Provide more responsive and qualitative services

- Reduce operational costs

Tivoli Workload Automation in the Cloud
Self-service catalog

- Extract business value into a new interface, design for mobile devices and intuitive.

- Offer an interface to Business end users so they have power and flexibility to request workloads

- Hide complexity of operations

- 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

The UI reports the status of the most recent requests in the home page
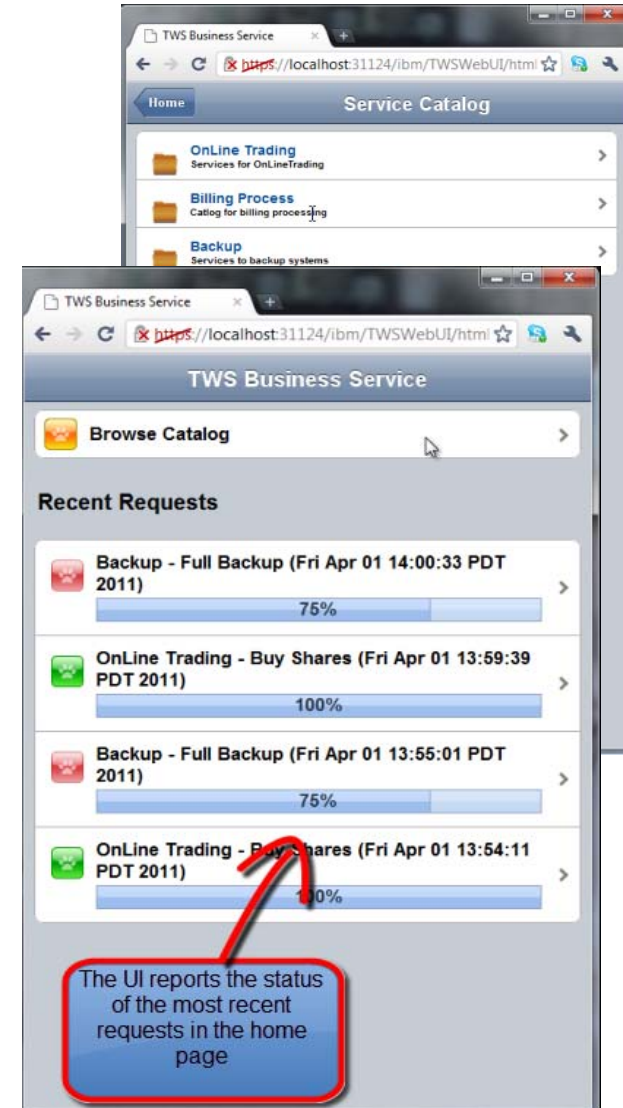
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