IWSz for Rookies

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Session NM

- IBM Batch Scheduler – **The big picture**
- **WHAT** is IBM Workload Scheduler for z/OS
- **HOW** the workload is managed
- Modeling, Planning, Monitoring and Recovery

IBM Batch Scheduler – The big picture

IBM Workload Automation is a suite of software that plans, executes and tracks jobs on several platforms and environments. It comprises four products:

➢ **IBM Workload Scheduler for z/OS®**, solution for mainframe-resident workloads running primarily on z/OS. It is extended to other platforms such as UNIX and Windows.

➢ **IBM Workload Scheduler**, for workloads on UNIX and Windows platforms

➢ **IBM Workload Scheduler for Applications**, to extend automation features to Oracle suite, PeopleSoft®, SAP R/3.

➢ **Dynamic Workload Console**, component for automation suite, single point of control of the scheduling network.
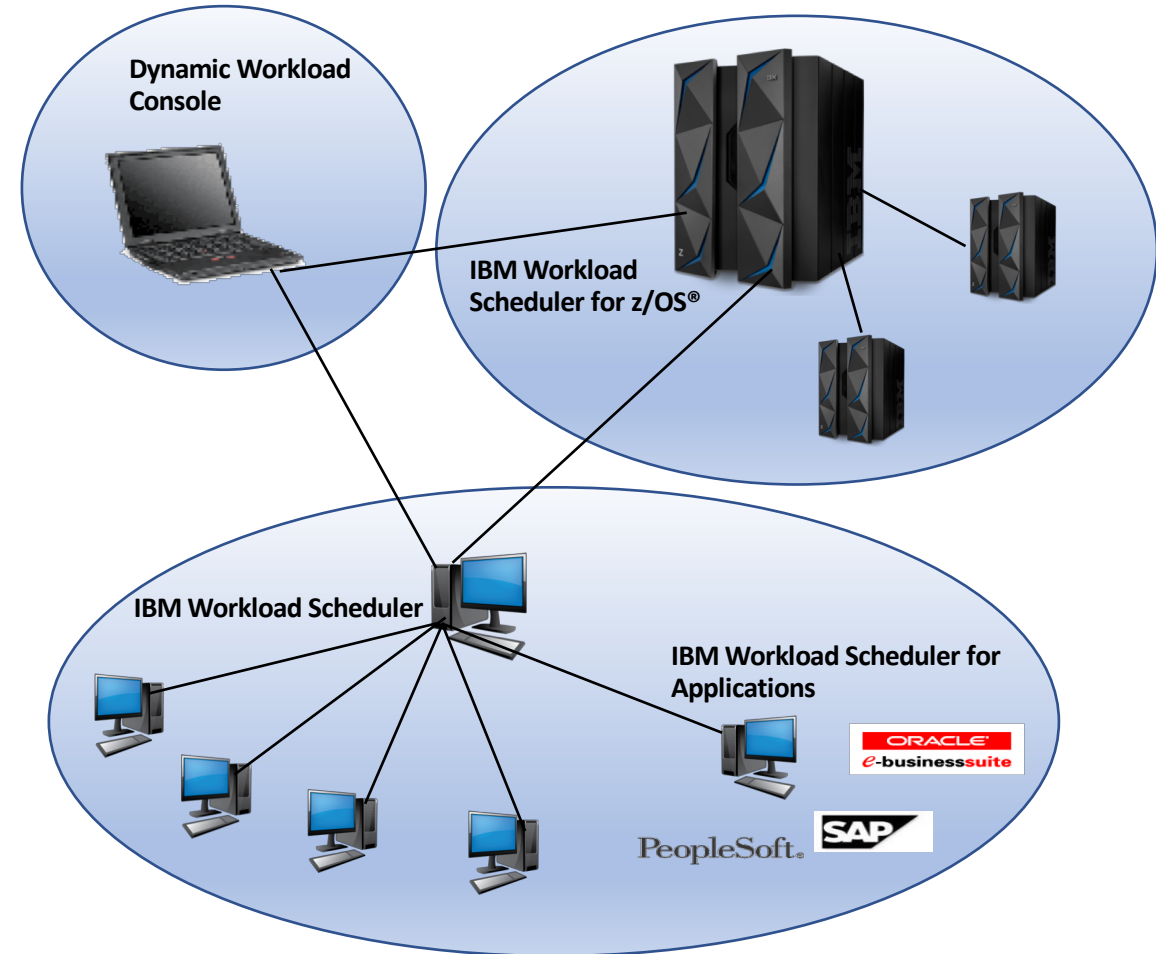
IBM Workload Scheduler for z/OS

What is IBM Workload Scheduler for z/OS?

The IBM Workload Scheduler for z/OS provides a comprehensive set of services for managing and automating the workload. It plans and automatically schedules the production workload. From a single point of control, it drives and controls the workload processing at both local and remote sites.

Controller

The **controller** is the heart of the IBM Workload Scheduler for z/OS system. It contains all the controlling functions, user panels, databases, and plans. The controller communicates with all the trackers for managing the entire scheduling system.
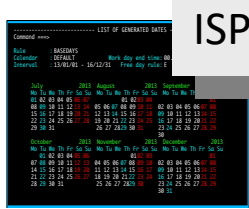
Tracker

The base component is the **tracker**. A tracker handles the submission of jobs and tasks on the system, and monitors the workloads. The event records are communicated to the controller for processing.

Datastore

Optionally, a **data store** is installed for each JES spool in a system. Its function is collecting information about steps and data sets of jobs.

Architecture

Single point of Control
Simple Governance
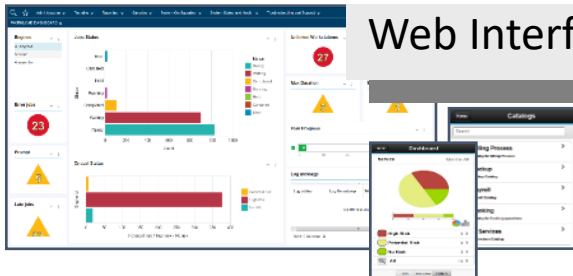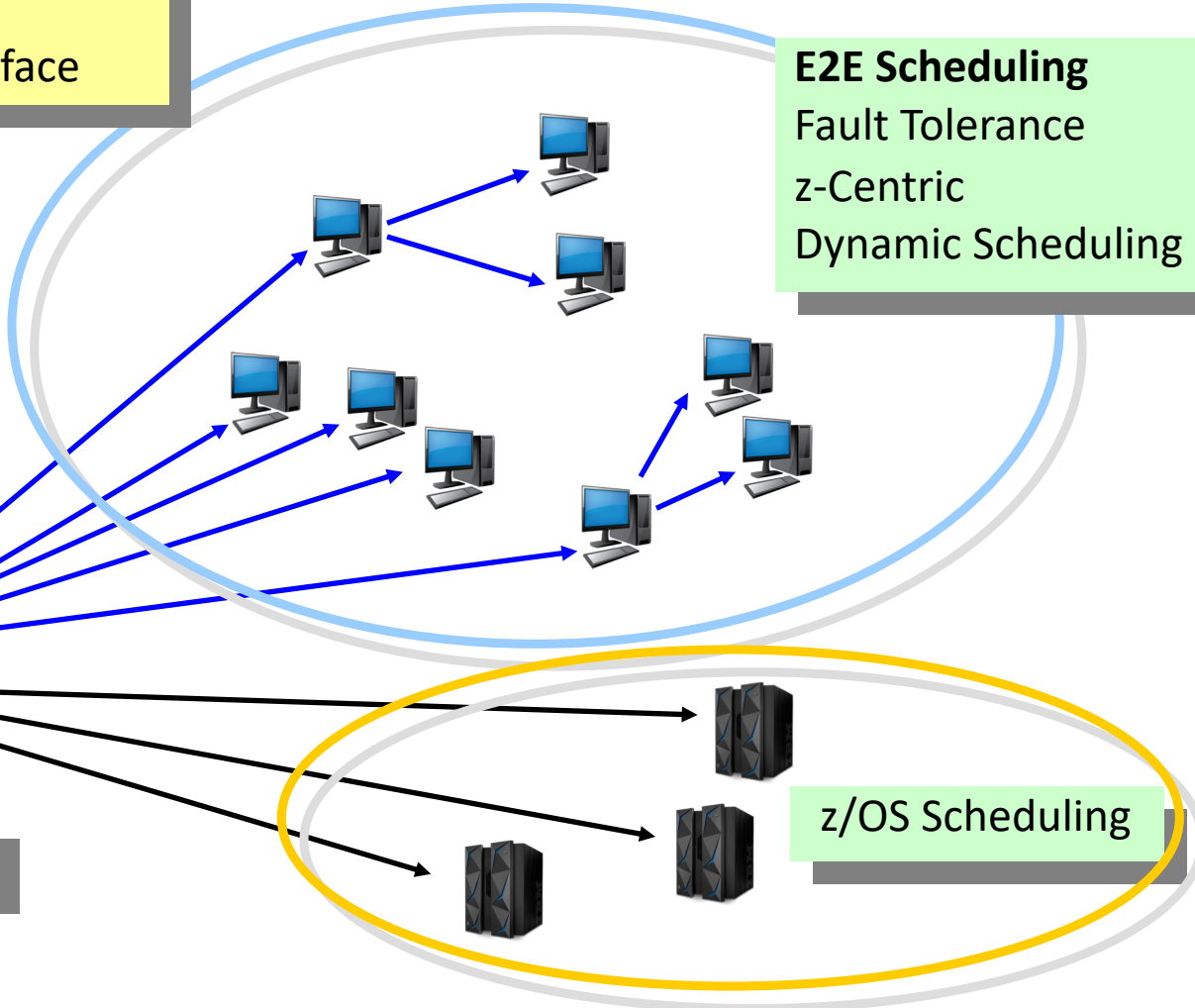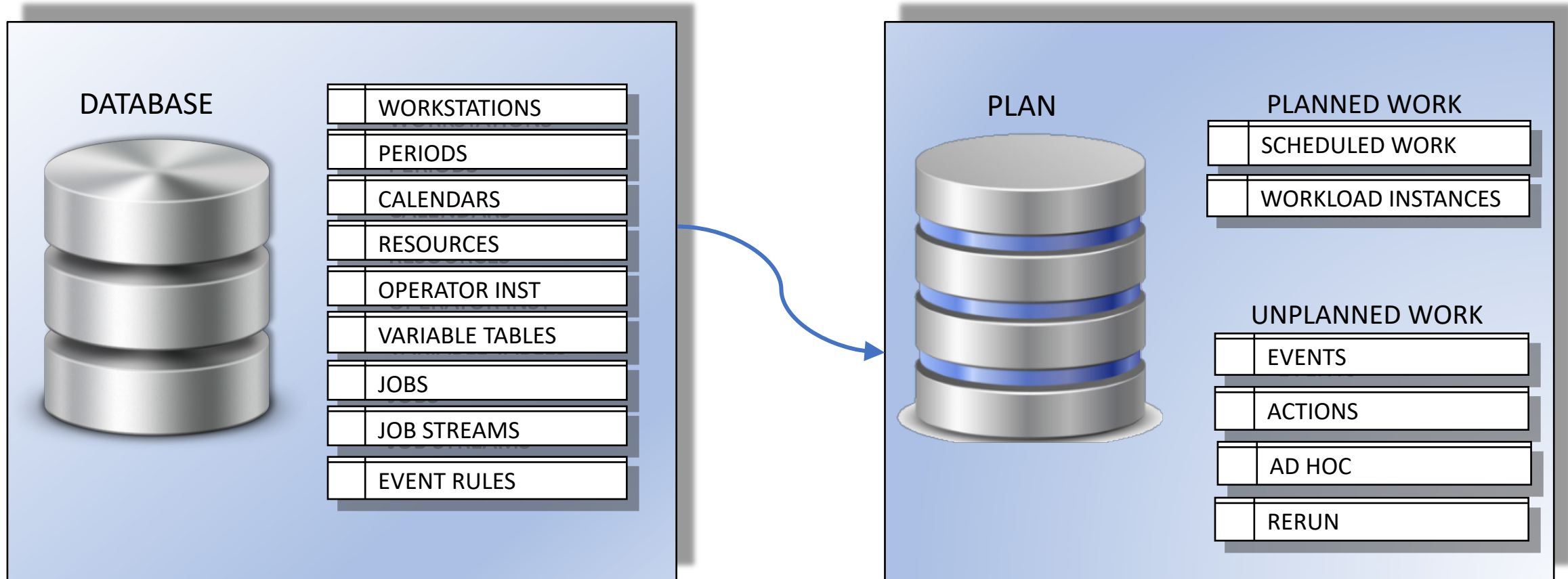Advanced Monitoring Interface

ISPF Interface

E2E Scheduling
Fault Tolerance
z-Centric
Dynamic Scheduling

IWSz Engine

Web Interface

z/OS Scheduling

Modeling and planning workload

Basic Objects

Operation (job) & Workstation

Unit of work runs on workstation. The atomic object representing a single activity to be scheduled. It belongs to an application.
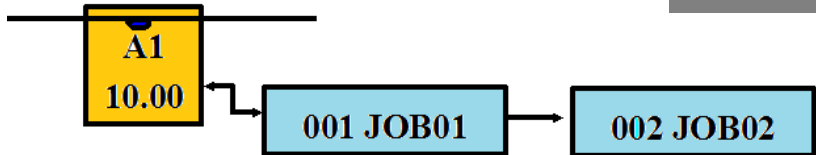
Application (Job Stream)

Definition of a logical container of operations. An application is a set of operation to be executed in a specific order.

Dependency

1 October

A1
10.00

001 JOB01

002 JOB02

Dependencies between jobs in the same or different applications.

Scheduling Objects

Calendars

The scheduler uses the calendar to detect when applications are scheduled.

Special Resource

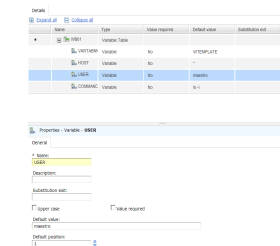Special resources are typically defined to represent physical or logical objects used by jobs.
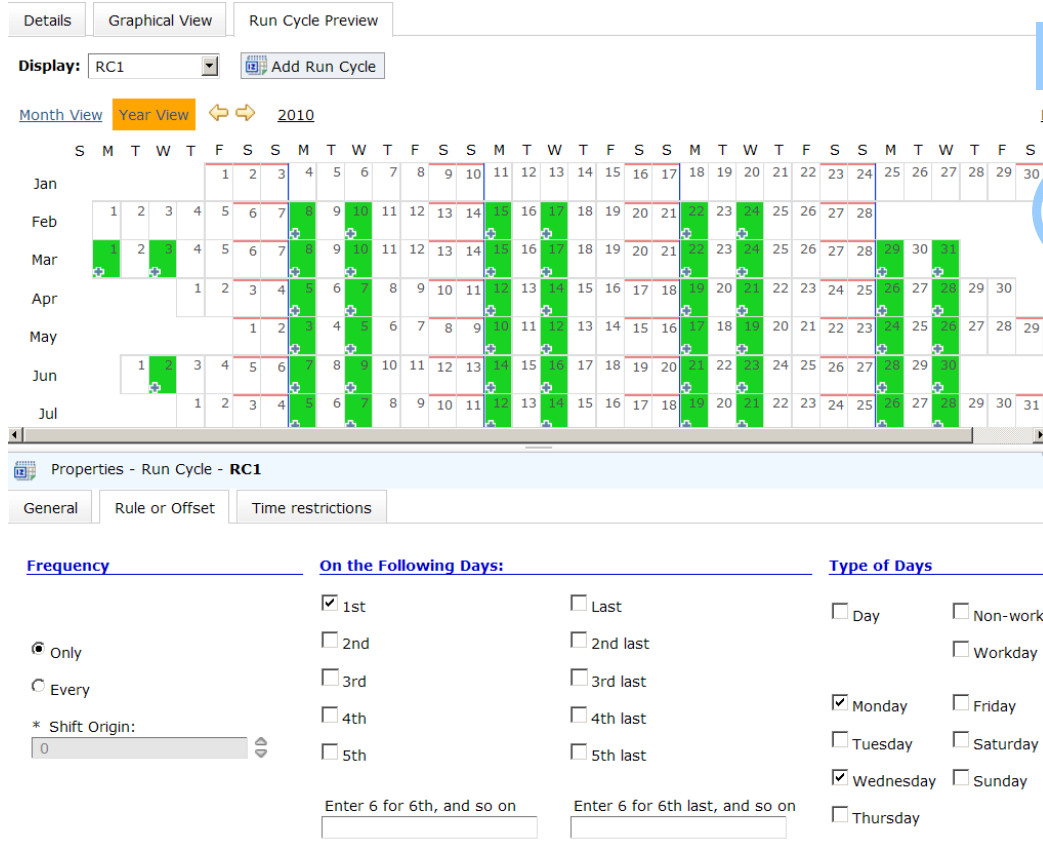
Operator Instructions

Text field for writing online instructions for setting up, starting, restarting, or rerunning the operation.

Variable table

The scheduler supports automatic substitution of variables during the job setup and execution process.

Scheduling Objects

Run cycles

Based on calendar, the run cycles determine every time the applications have to run.

Time Dependency

This option allows to control job and job stream processing using time restrictions.

Planning

Long Term Plan

It's a long plan up to 5 years and lists by day all instances of workload to run during the period of the plan.

Current Plan

It is the current "window" of LTP plan, that is, is made of job stream that will be considered by Controller for submission.

Trial Plan

It simulates the effects of changes to the production workload.

Monitoring the workload

ISPF Interface

Fast path to the list of operations in error and possible immediate recovery actions

```
 Action   View   Help
 _____
 EQQMOPRV                  OPERATIONS IN THE CURRENT PLAN
 Command ===> _____    Scr

    View: Compact (EQQMOPRT)                    Row 1 of 58
 Row Application ID      Operation
 cmd                     WS   No. Jobname
 ____  APPL1             CPU1 001 JCL1
 ____  APPL2             CPU1 001 JETESTC
 ____  APPL2             CPU1 001 JETESTC
 ____  APPL2             CPU1 001 JETESTC
 ____  APPL2             CPU1 001 JETESTC
 ____  APPL2             CPU1 001 JETESTC
 ____  APPL2             CPU1 001 JETESTC
```

```
 Action  Operation  Occurrence  View  He
 _____
 EQQSOPSD                  OPERATION IN THE CURRENT PLAN
 Command ===> _____    Scroll ===> CSR

    View: Full (EQQSOPST)           Line 20 of 97              >>
 Jobname . . . . . . : JETESTCA
 Operation . . . . : CPU1 001
 --------------------------------------------------------------------
 DEP---------------------------- Dependencies ----------------------------
 Predecessors . . . . . . : 1       Successors . . . . . . . . : 1
 Conditional Predecessors : 0       Conditional Successors . : 0

 Predecessors and successors

 Row Type Cond Jobname  S Operation            Application id
 cmd       no.  _         ws   no. text
 ___  P    0    JOB1    C CPU1 001              APPLCONDSVA
 ___  S    0    JOB1    W CPU1 001              APPLCONDSVZ

 Conditions

 No condit
```
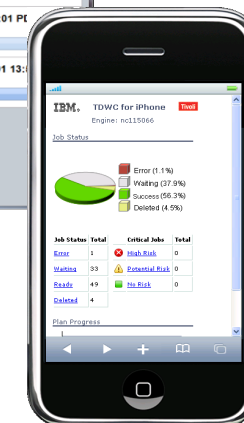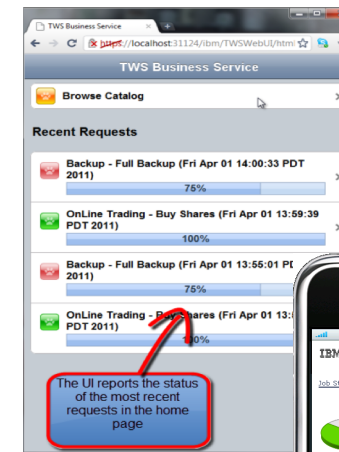
Advanced Interface Capabilities

- Quick-at-glance view
- Active pull-down menu
- Customizable colors
- All info in a scrollable panel
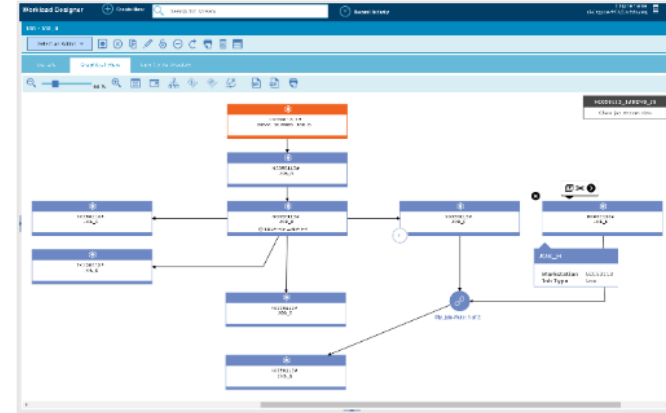- All operation dependency info
- Contextual row command menu

List of occurrences: changes and recovery actions allowed

Monitoring the workload

Web Graphic console (DWC)

Centralized and proactive web monitoring

Dashboard: linked to prefiltered jobs by status

Monitoring the critical workload

The WEB UI critical jobs dashboard gives at a first glance the view of how well the critical workload is proceeding

Prompt proactive when human reactions is needed

IWS network

Dynamic Workload Console – Web-based UI

IWS z/OS ISPF Panels

Monitoring how well critical workload is proceeding to milestone points

Pipe of high risk (red), potential risk (yellow) and no risk (green) jobs is provided

When do we have to wake up?

Jobs in the plan are expected to run successfully and in time:

Easily identifying ended in error jobs, the reason of the failure and the impacts on the workload execution
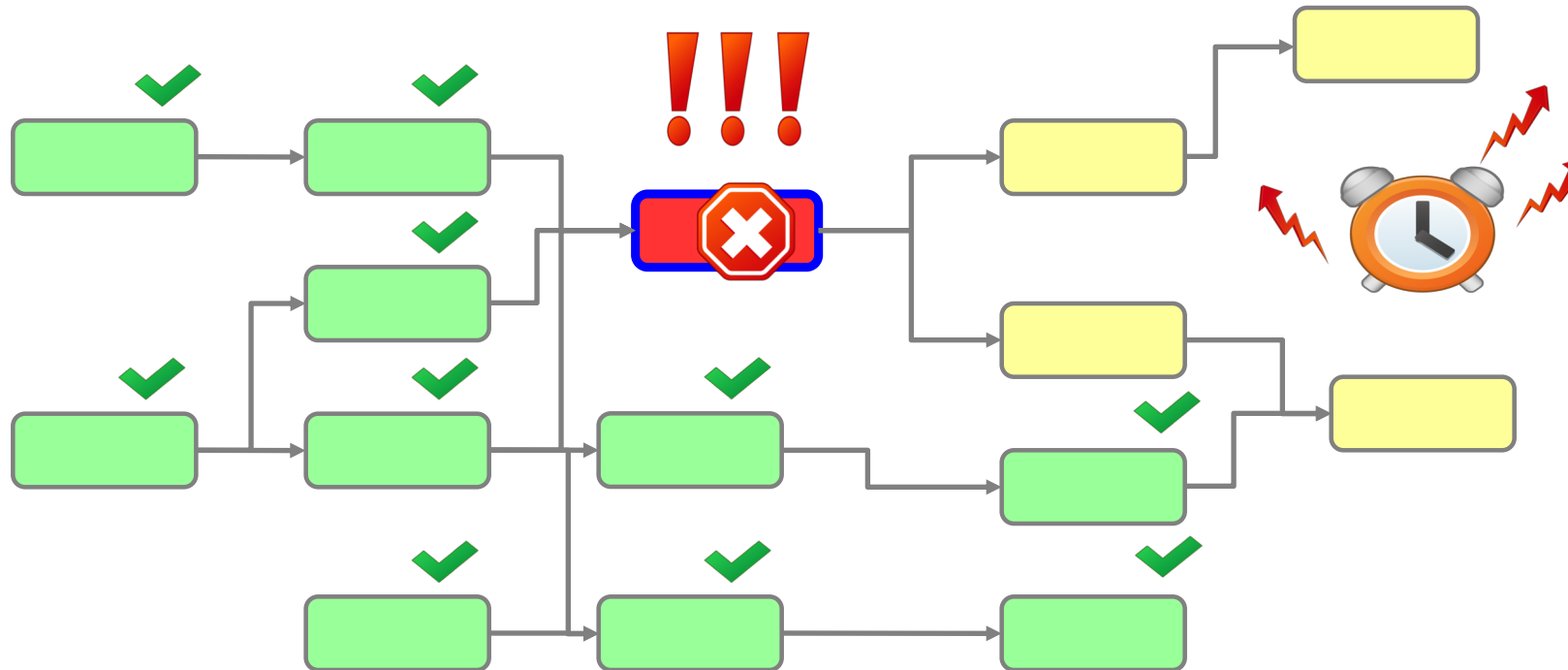
Customizable alerting, automatic notification and automatic promotion

Recovery actions list

Jobs completing in error

Automatic Notification

Rerun (job or occurrence)

Restart & Cleanup

Automatic Recovery

Lateness or long running conditions
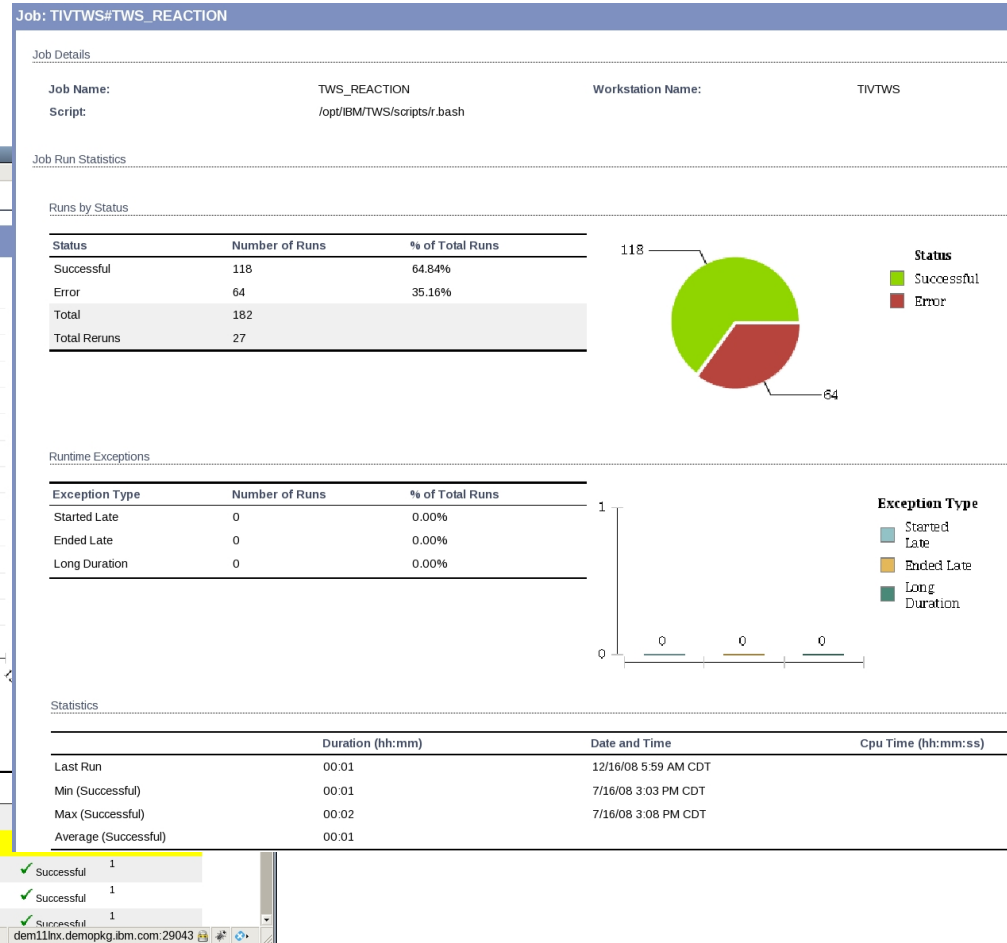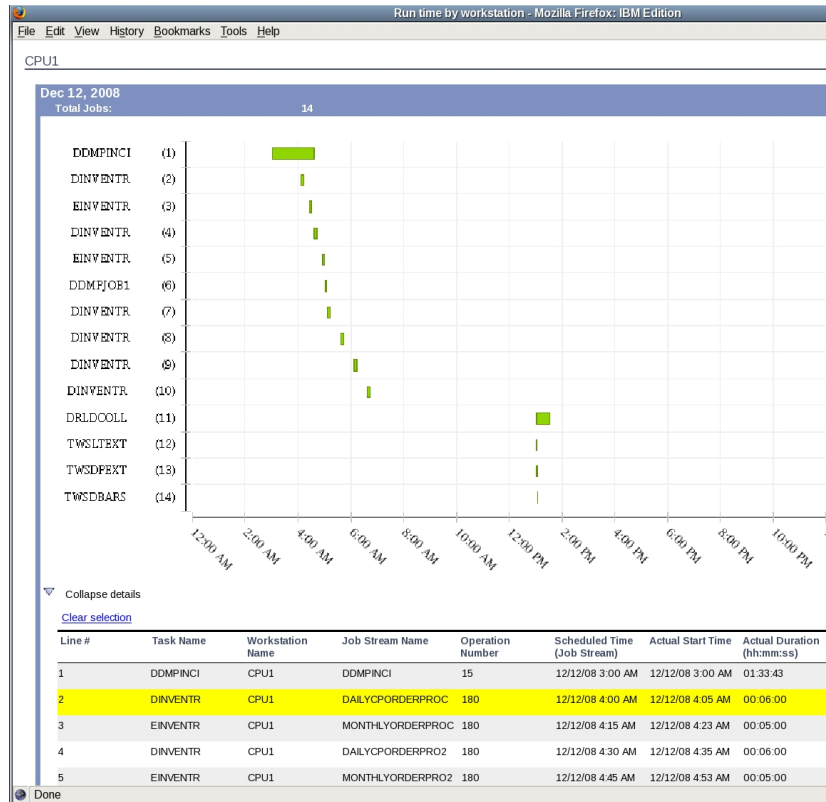
Automatic notification

Automatic Promotion

Analyzing historical data

Generating reports from the reporting task

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- Please submit your feedback online at ….
  - ➢http://conferences.gse.org.uk/2018/feedback/NM

- Paper feedback forms are also available from the Chair person

- This session is NM