



Enterprise Grid Technology and Applications

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Introduction

Internet Pricing and Configurator (CRM: IPC)

Advanced Planner and Optimizer (SCM: APO)

Workforce Management (CRM: WFM)

Summary

Q&A

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As a result of this workshop, you will be able to:

- **Assess the benefits you will gain with Grid Computing**
- **Know how grid-enabled SAP applications work**
- **Get an impression of the SAP Grid strategy**

Why Grid Computing?

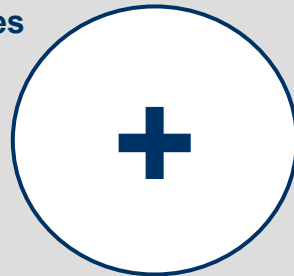
- **TCO reduction**
- **Performance increase**
- **Ease of use (installation, customizing, removal)**
- **Future-proof**
 - **Growing amount of information**
 - **Hardware evolution**
 - **Greater demands for efficiency**
 - **Standards-based**
 - **Integral part of SOA architectures**

➤ Grid Technology

- **Dynamic, on-demand resource allocation**
 - Resource awareness
- **Virtual Computing System**
 - Tools to handle distributed resources

➤ Service Oriented Architecture

- Usually Web Services based
- Standard Technology
- Static resource allocation

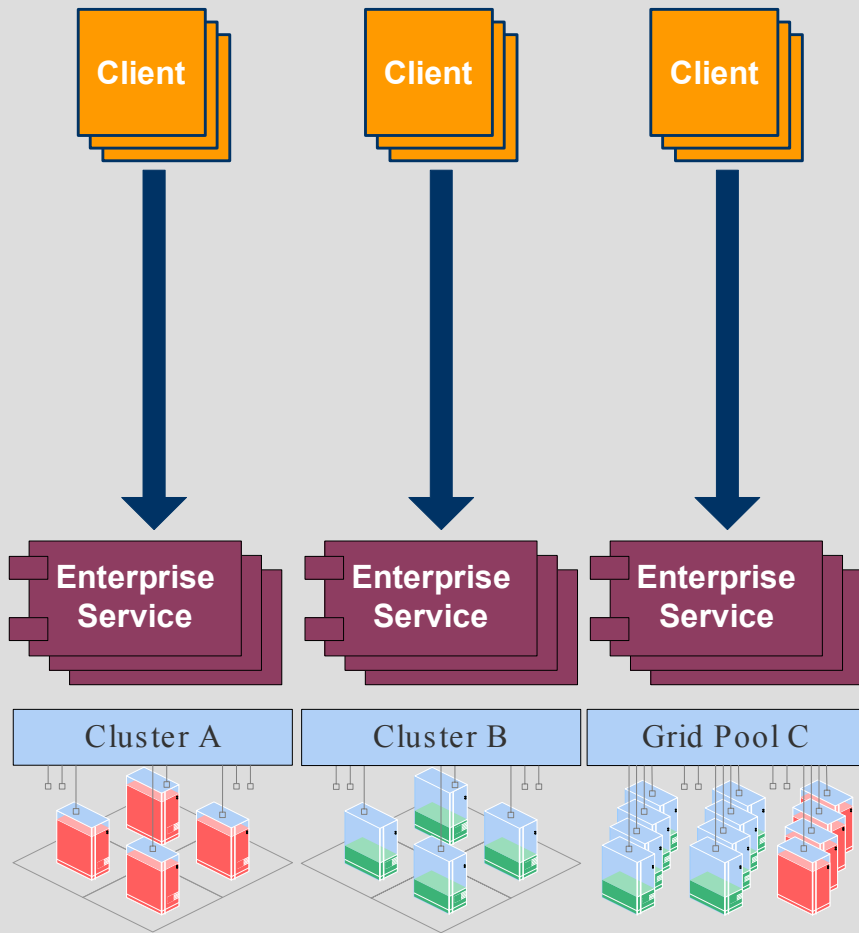


➤ Grid Services

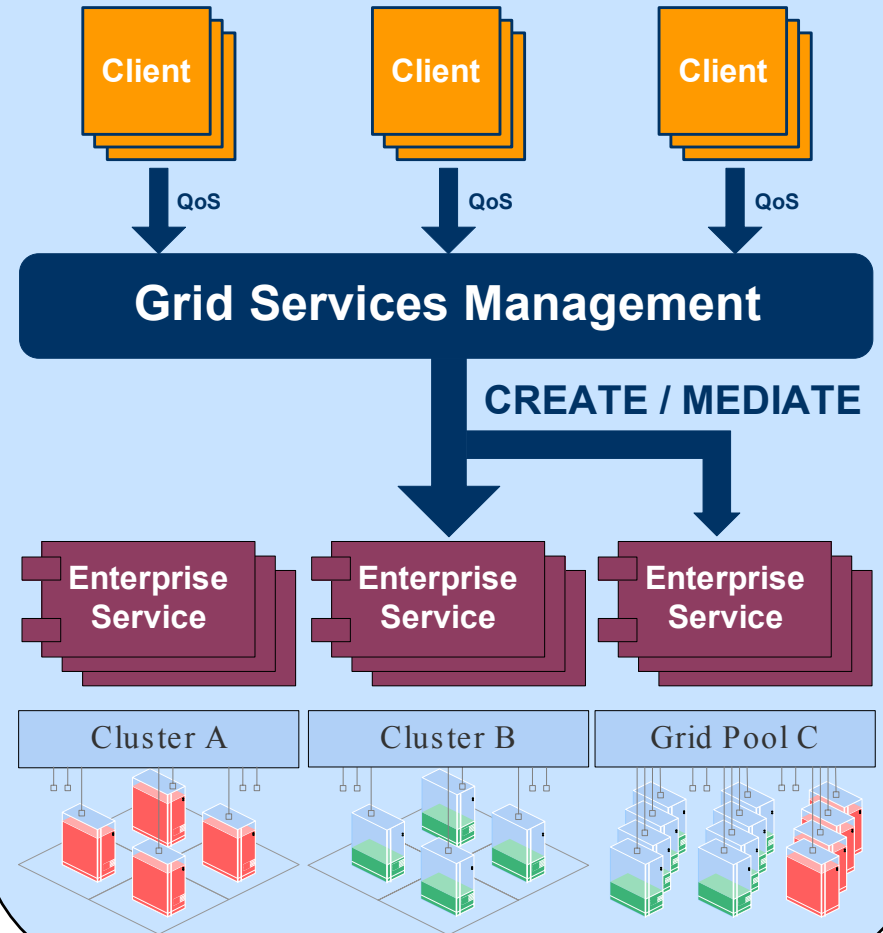
- **Dynamic, on-demand Web Services**
- **Resource-aware Web Services (QoS)**
- **Standards-based (WSRF, OGSA)**
- **Standard services for distributed SOA systems (Toolkit)**

Impact on ESA

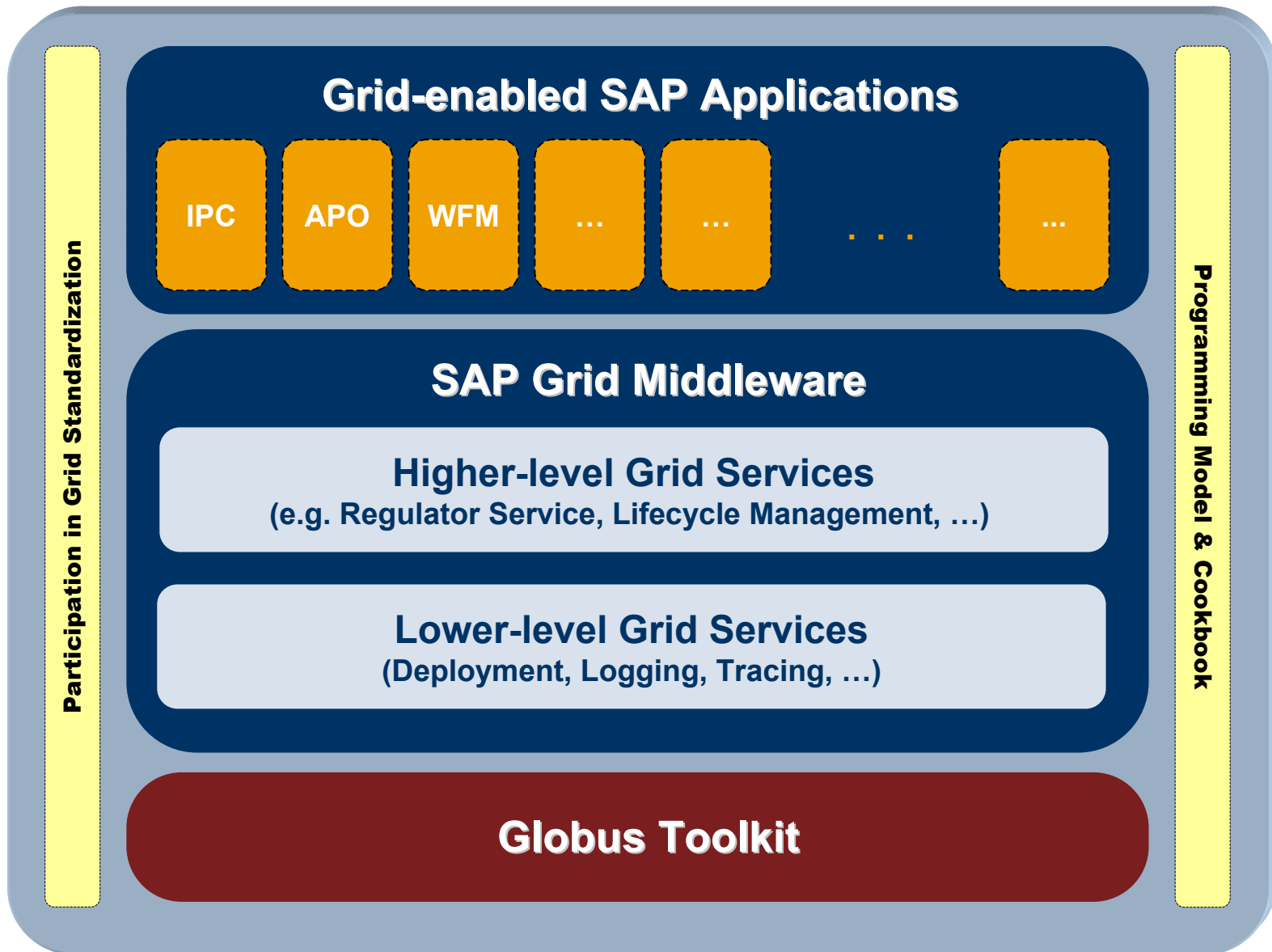
Static ESA



Dynamic ESA



SAP Grid Architecture Overview





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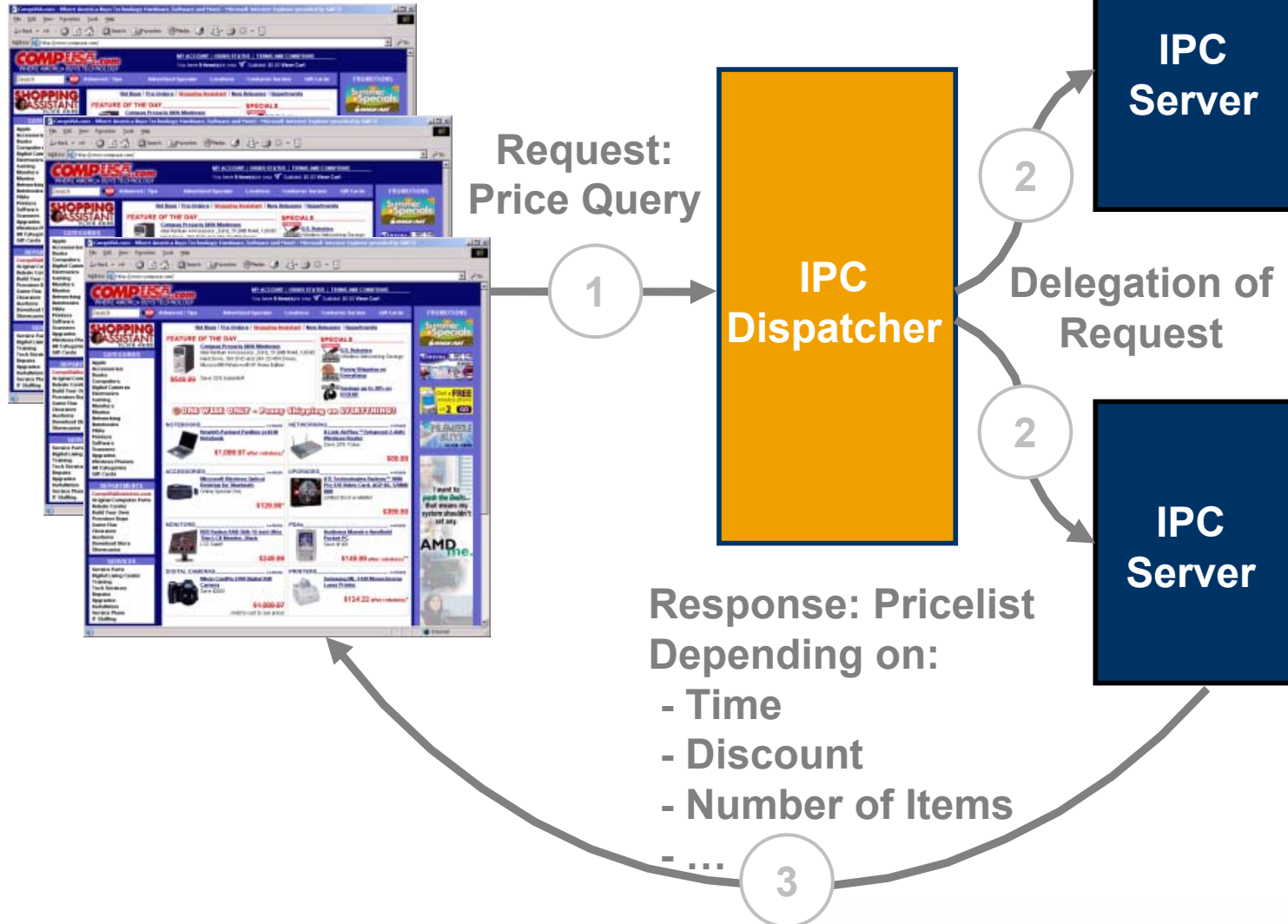
Q&A

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SAP Internet Pricing and Configurator (IPC) Overview

Web Browsers / Batch Processes
(typically several thousand requests)



- **Scenario I: Too few IPC server applications**
 - **Result: Bad user experience**

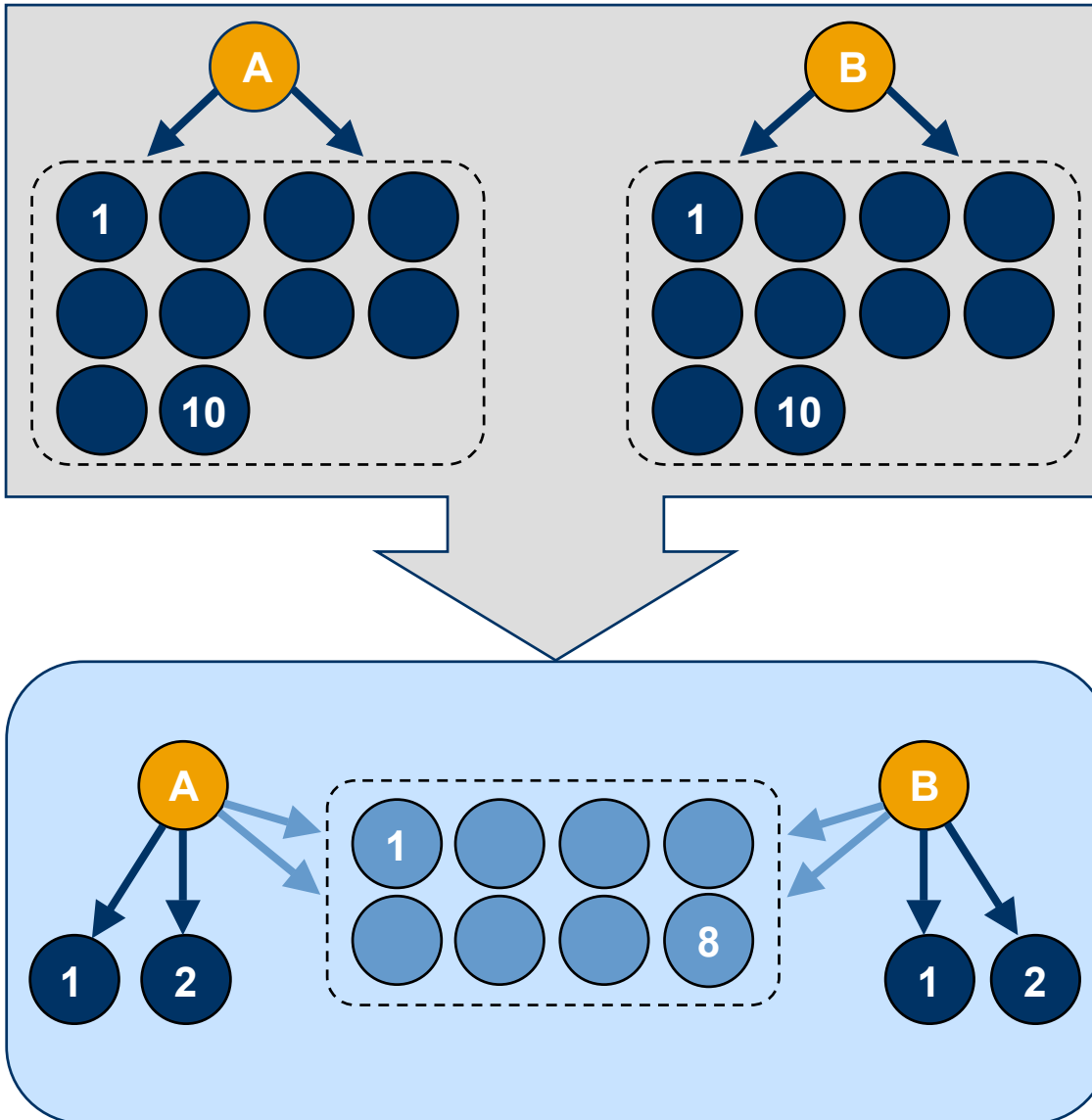
- **Scenario II: Too many IPC server applications**
 - **Result: Unnecessarily high TCO**

- **Grid-enabled scenario:
Right number of IPC server applications**

Demo



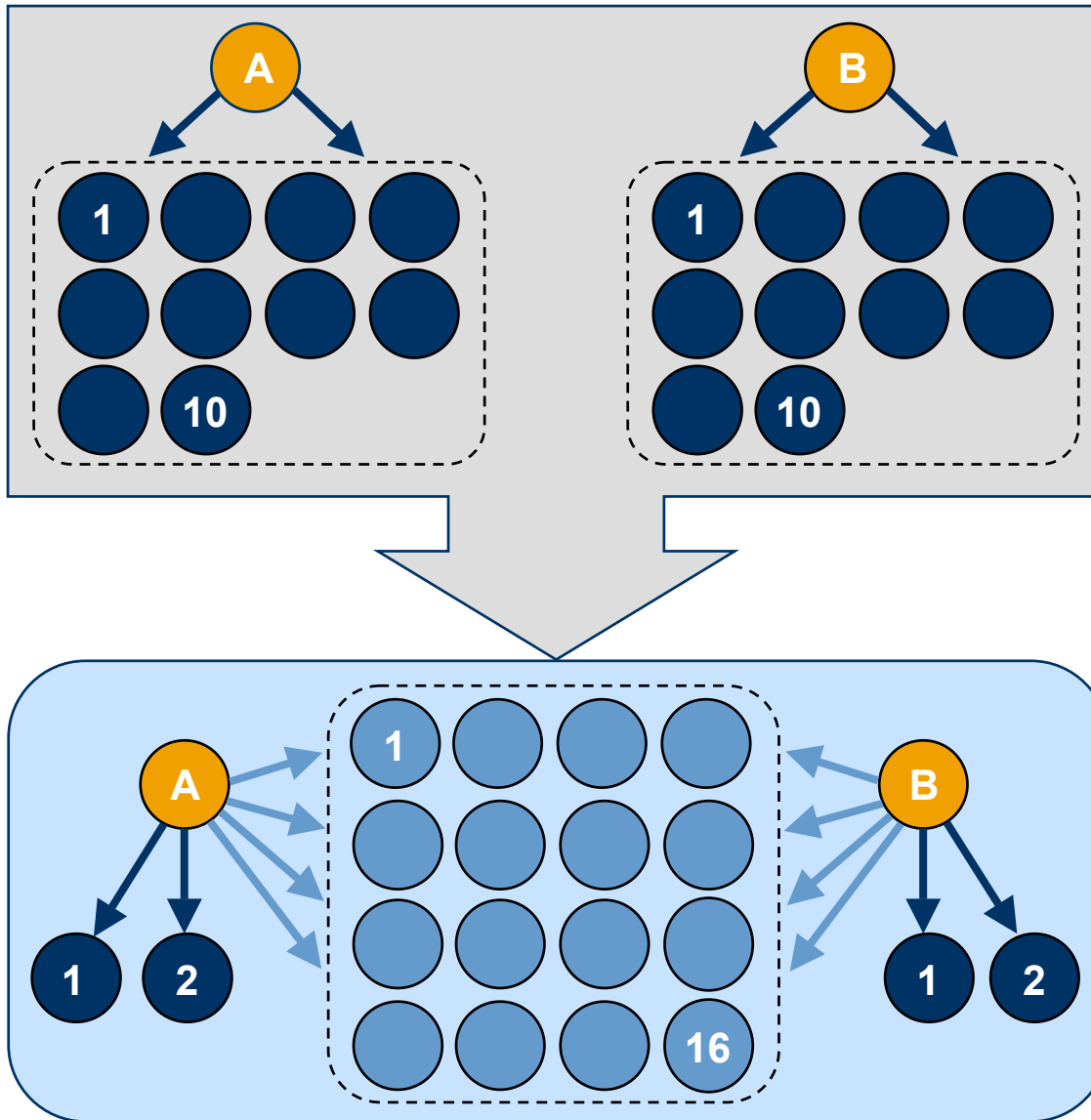
Grid IPC: TCO Reduction by Less Server Components



Traditional scenario
for two departments:
20 Servers

Grid-enabled scenario
for two departments:
12 Servers

Grid IPC: Performance Increase



Traditional scenario
for two departments:
10 Servers Each

Grid-enabled scenario
for two departments:
18 Servers Each

- **Automatic IPC deployment via drag&drop**
 - **Automatic OS detection (Unix / Windows platform)**
- **Central STOP command removes IPC installation completely**
- **Advanced monitoring capabilities**



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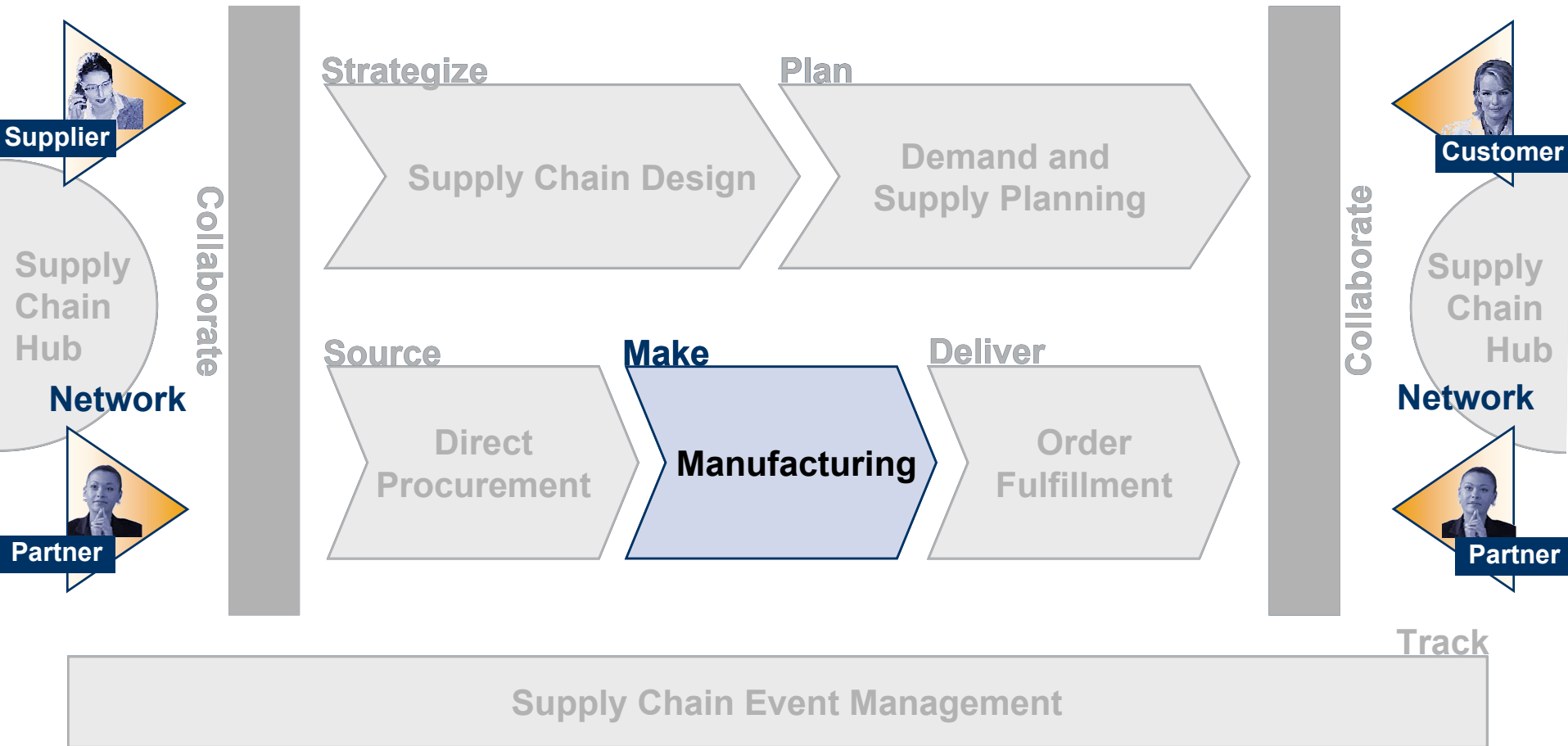
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SCM Optimization

Measure

Supply Chain Performance Management



Track

Supply Chain Event Management

Optimization Process

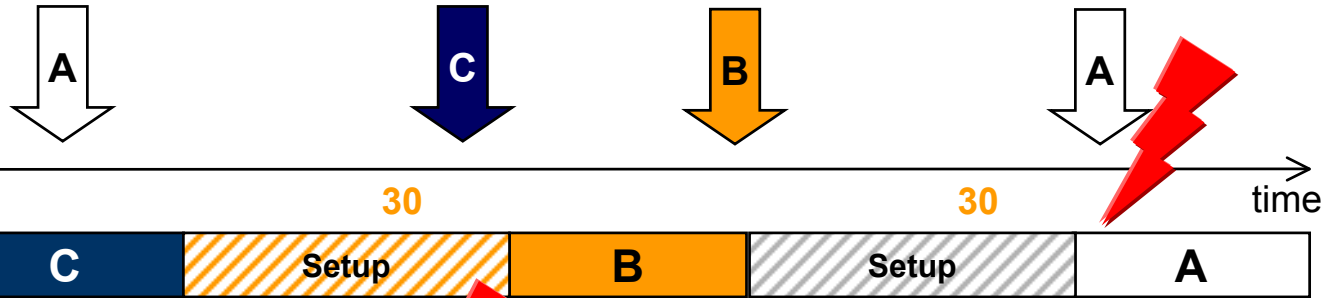
Setup times in paint shop

Prod.	A	B	C
A	0	10	20
B	30	0	10
C	40	30	0

Setup time in minutes

Product A: white color
Product B: yellow color
Product C: blue color

Customer orders and due dates



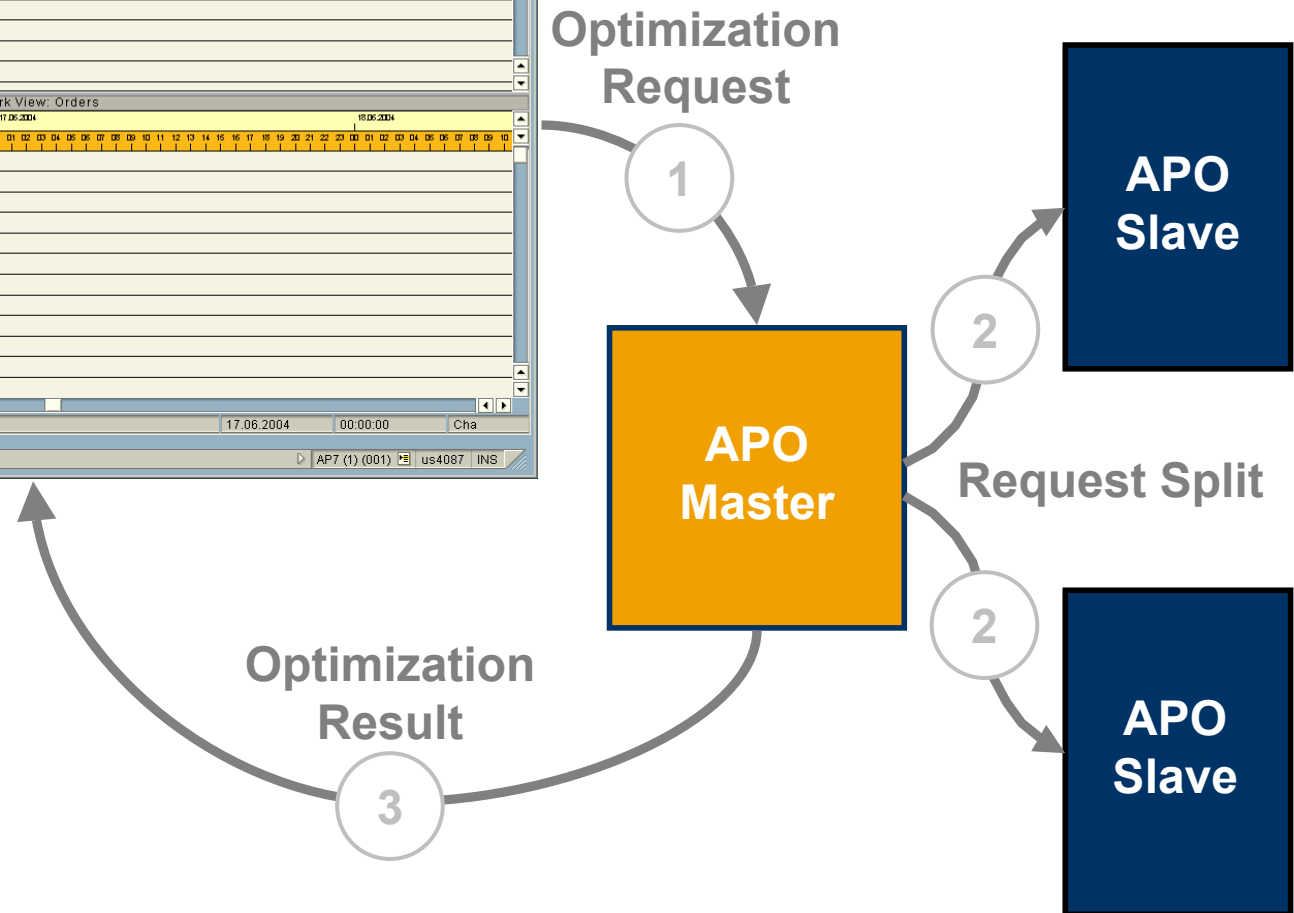
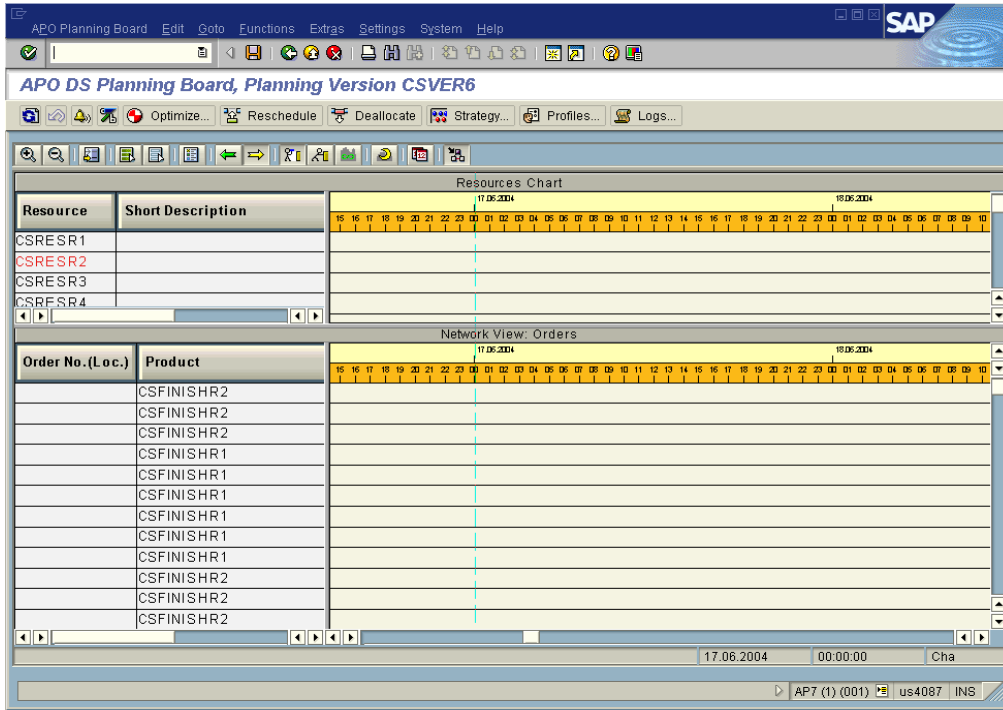
Optimal plan for setup



Optimal plan for setup and due dates



APO Overview



- **Traditional setup:**
APO running on one dedicated machine with fixed number of optimization processes
- **New grid-enabled setup:**
APO running on multiple machines with optimal number of optimization processes

Demo



- **Get better optimization results**
 - E.g. lead time reduction of **ONE BUSINESS WEEK** possible
- **Dynamic usage of available resources**
- **Ease of use**
 - **Automatic deployment and removal of all APO components (master and slaves)**



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What is Workforce Management?

Ability to optimally deploy human resources with the right skills, right place at the right time

Application Scenarios

- Contact centers, hotels, police stations, banks, fast food restaurants, department stores, airlines, distribution centers, etc.



Why is Workforce Management important to these scenarios?

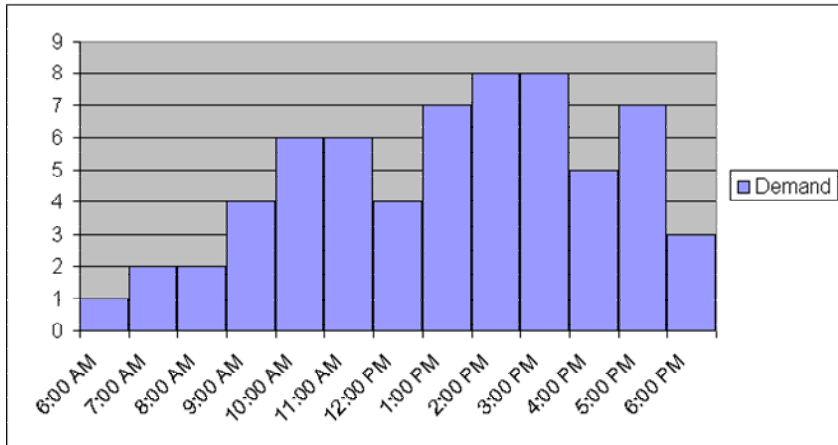
- They operate more efficiently, from reducing labor law violations to bottom line reduction in payroll costs
- Improvements in customer service/care
- Improvements in staff morale & retention

What is the Challenge?

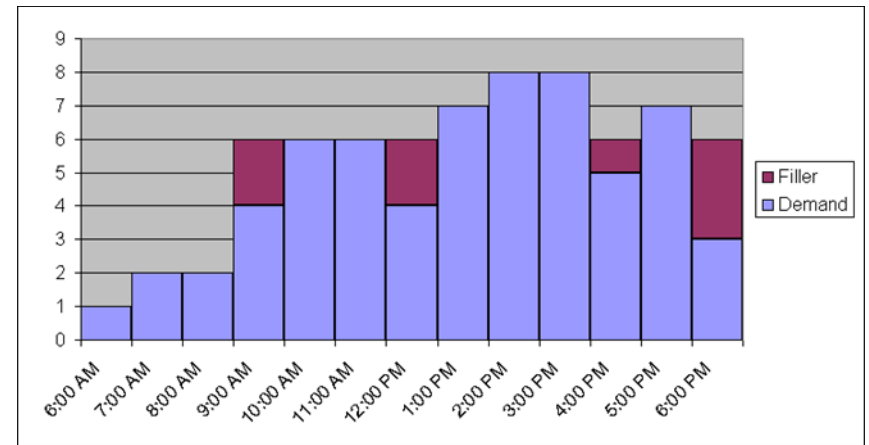
- Scheduling/optimization problem with a variety of competing objectives and constraints
- Customer needs, staff needs and performance, company policy & legal regulations etc.

Scheduling and Optimization

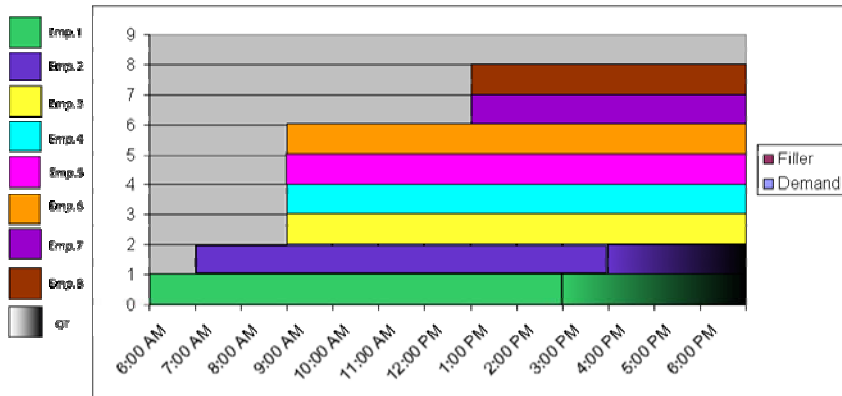
1. Schedule demand



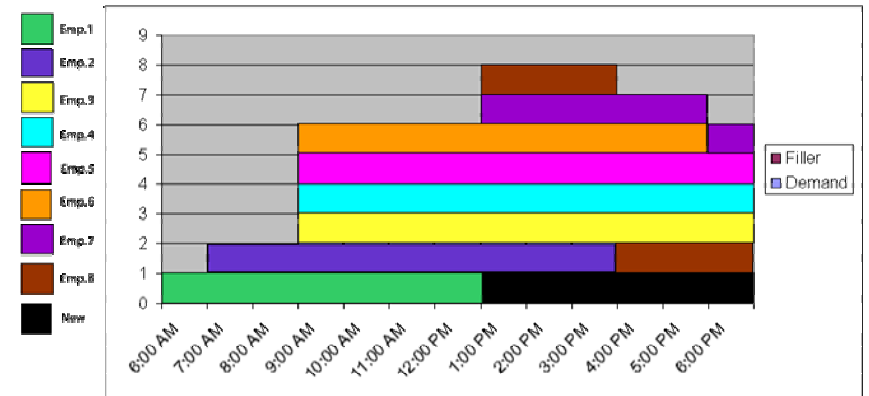
2. Schedule Filler Work & smooth demand



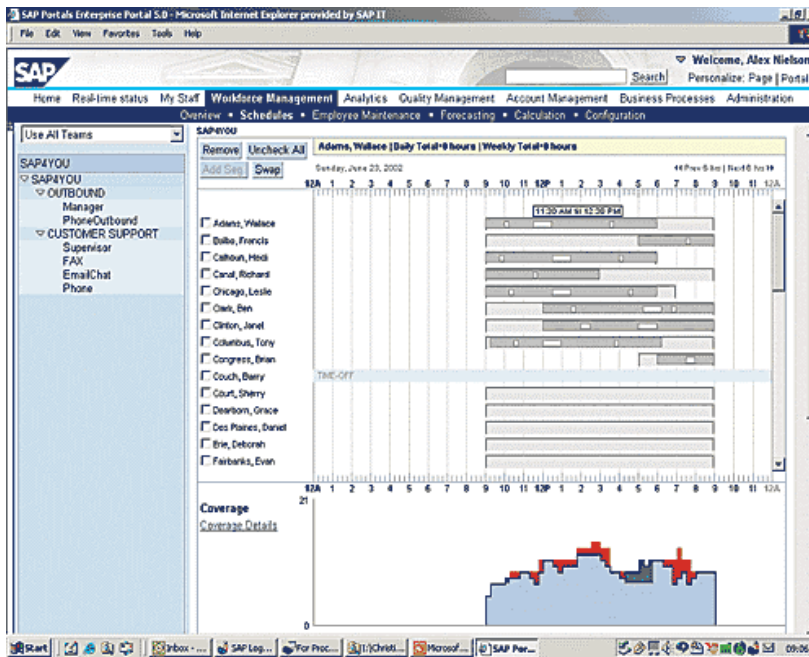
3. Schedule Employees to demand & filler work



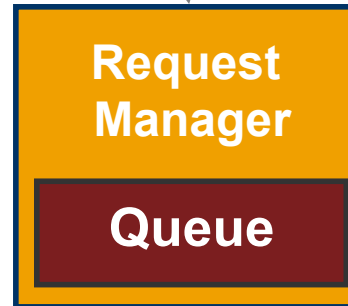
4. Optimize Employee schedules within rules & constraints, minimize costs



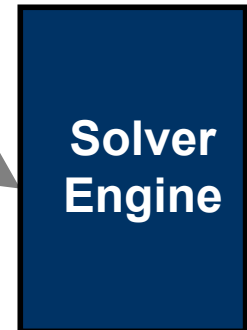
WFM Overview



Calculation Request



Dispatch



Calculation Result



- **Traditional setup:**
Static amount of WFM solvers for one work queue

- **New grid-enabled setup:**
Adapted number of WFM solvers depending on size of work queue

Demo



- **Get results faster**
 - **Significant reduction of your waiting time by using idle resources**
- **Dynamic usage of available resources**
- **Ease of use**
 - **Automatic deployment and removal of WFM components**



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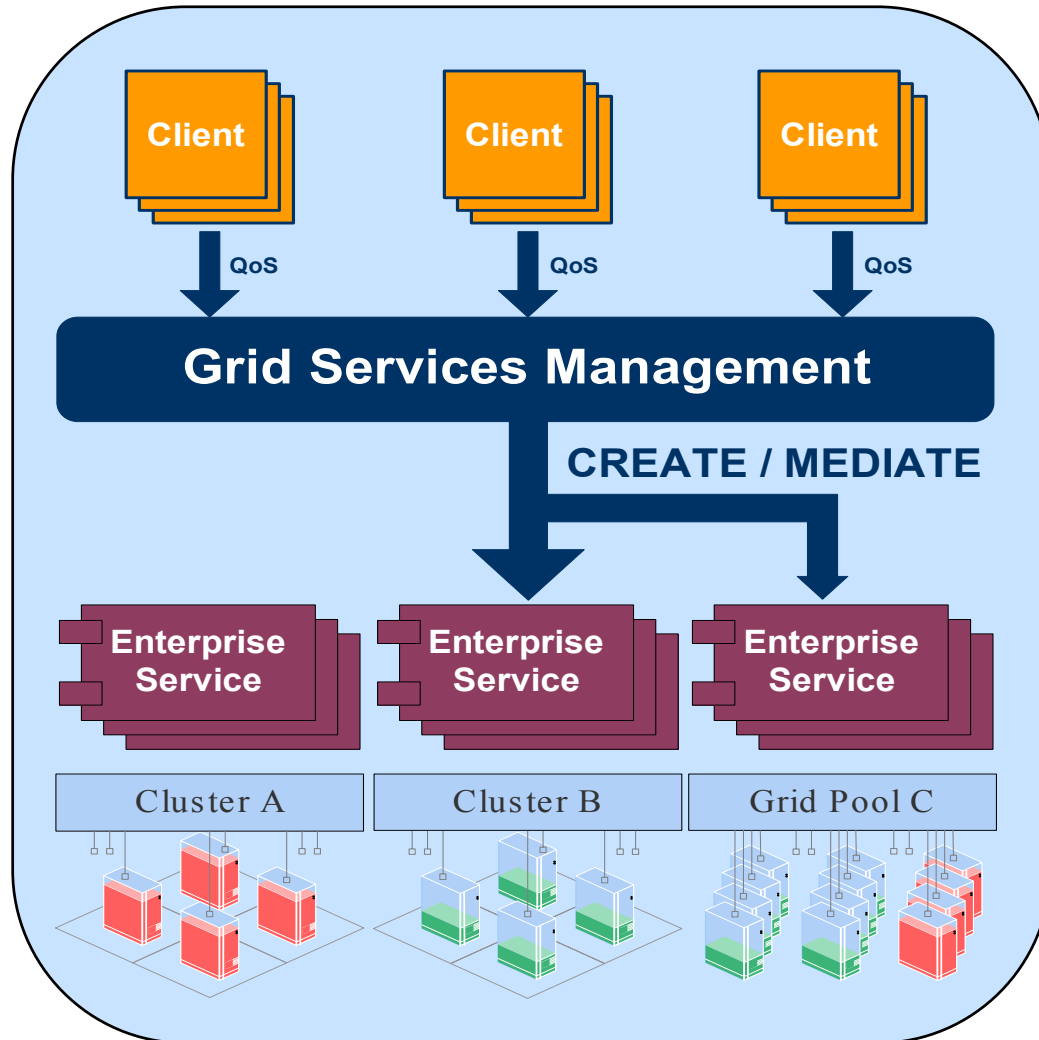
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Grid Services enable a dynamic ESA...



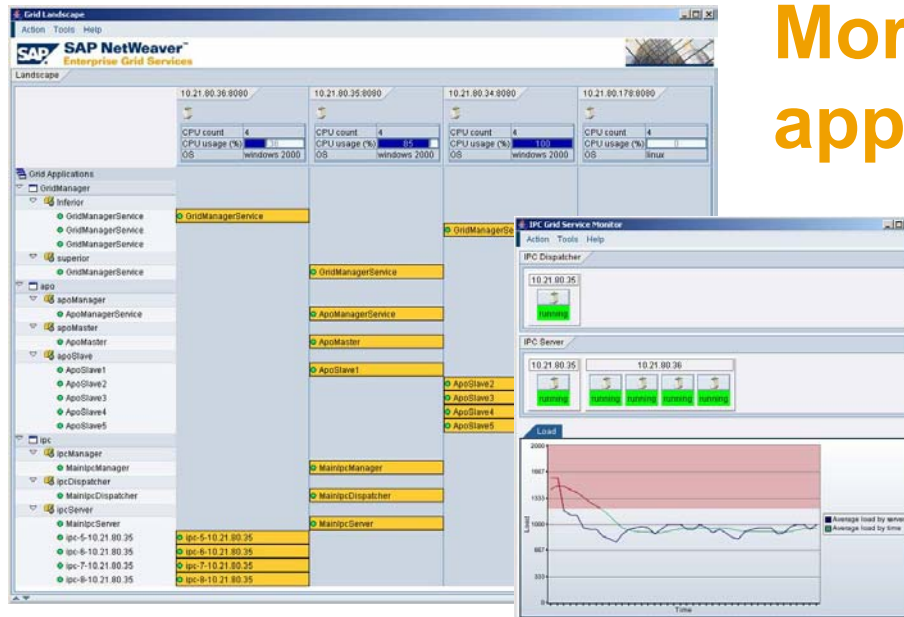
TCO reduction / performance increase with NEW grid-enabled SAP software

- Better results in less time
- Flexible usage of idle (low-cost) resources
- Ease of use
 - Automatic installation, customizing and removal
 - Autonomic capabilities

Future Proof

- Standards-based (WS, OGSA, WSRF, Globus Toolkit)
- Part of ESA

More grid-enabled applications upcoming...





Q&A

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