HP WORLD 2004
Solutions and Technology Conference & Expo

Adaptive Enterprise Computing in SAP Landscapes

Ricardo Adarraga / Klaus Brand

Solution Engineers
Hewlett-Packard

Agenda

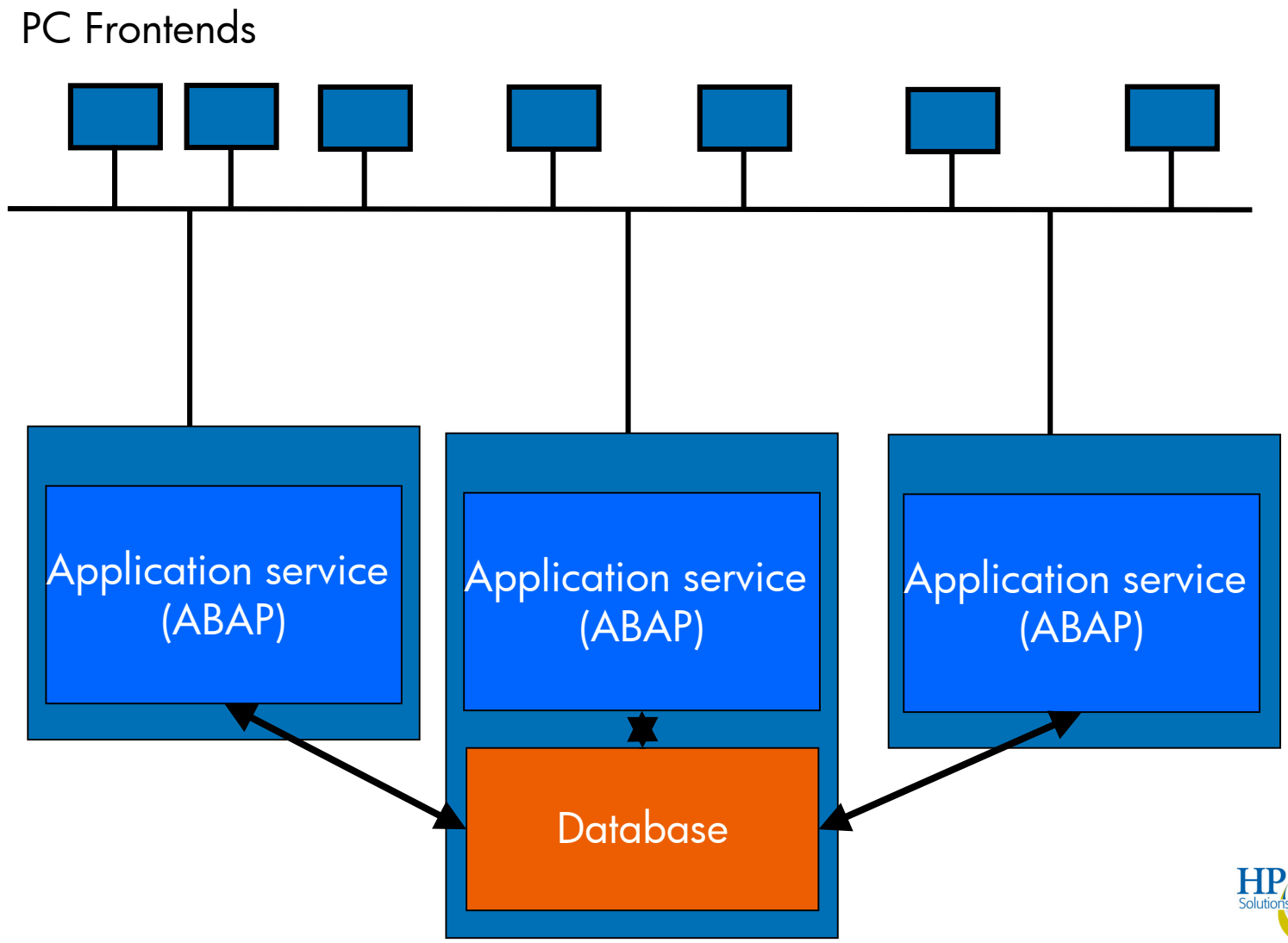
- Basic considerations
  - SAP landscape (classic / NetWeaver™)
  - HP's Adaptive Enterprise and SAP
- General approach for AE with SAP
- Concrete implementation
- Benefits

Basic considerations

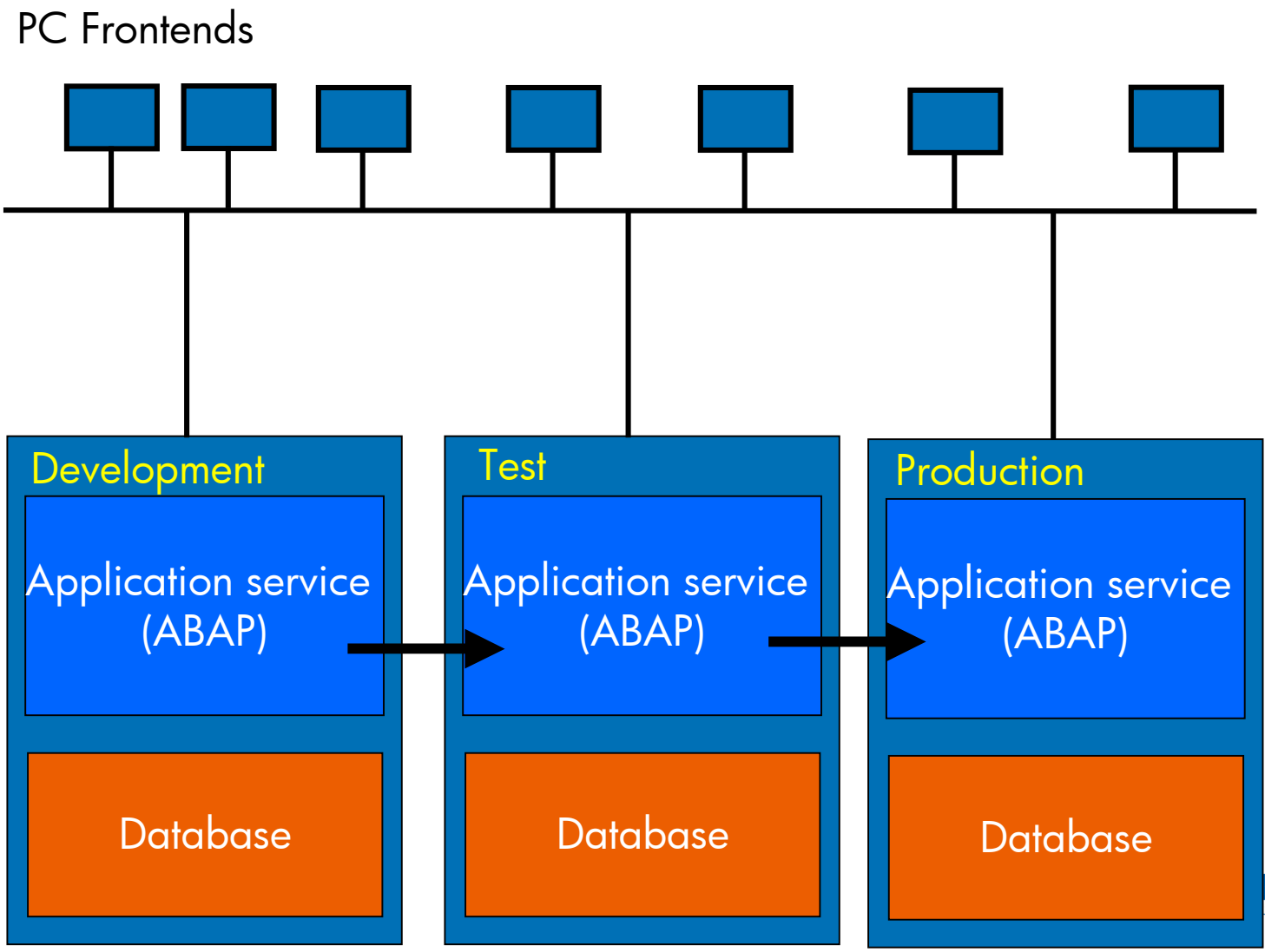
Classic SAP landscape

- mySAP is a set of business software solutions based on a 3-tier client-server architecture
  - 1 database server
  - 1-N application servers (1 central instance)
  - multiple presentation „servers“ = GUI of user
- Usually 3 different system types:
  - development server
  - test system
  - production system
  - transport system for changes included in software

Classic SAP System Landscape (R/3)



Classic SAP 3-System Landscape (R/3)

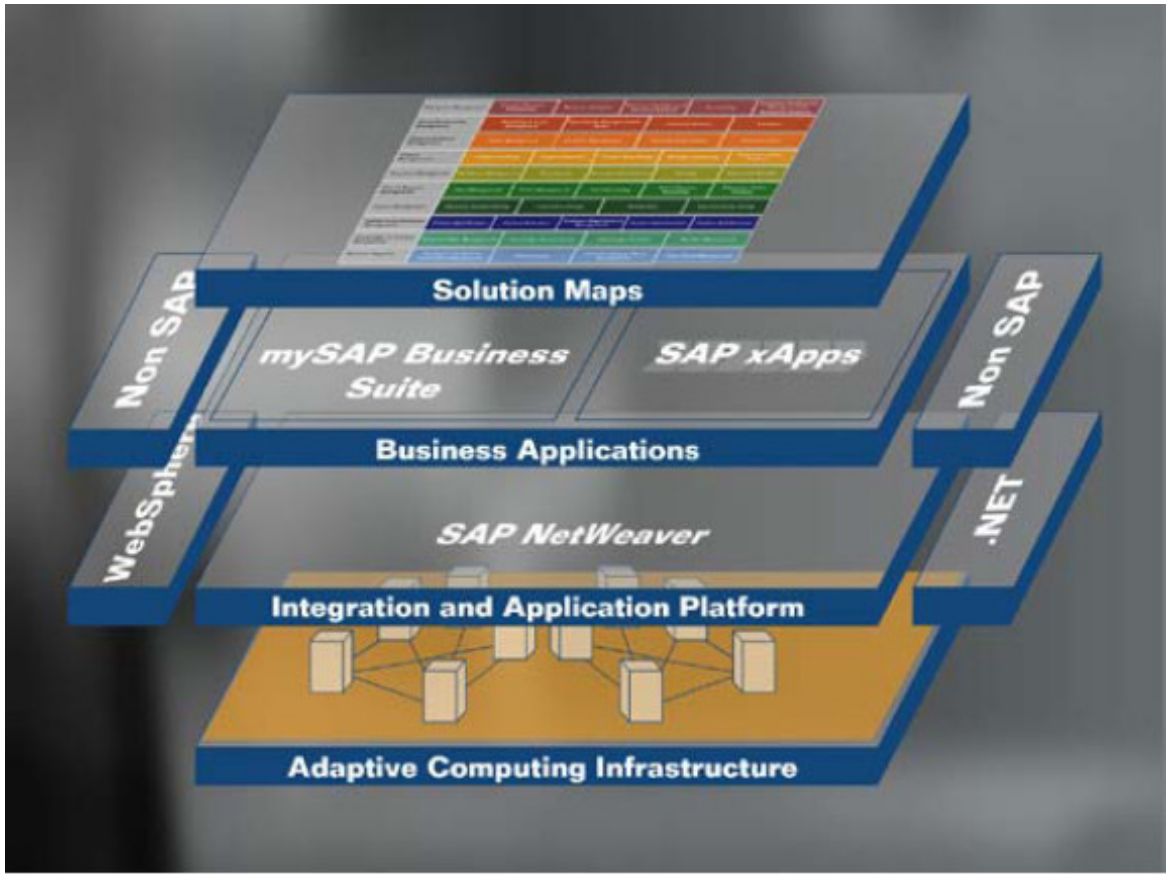


Classic SAP System

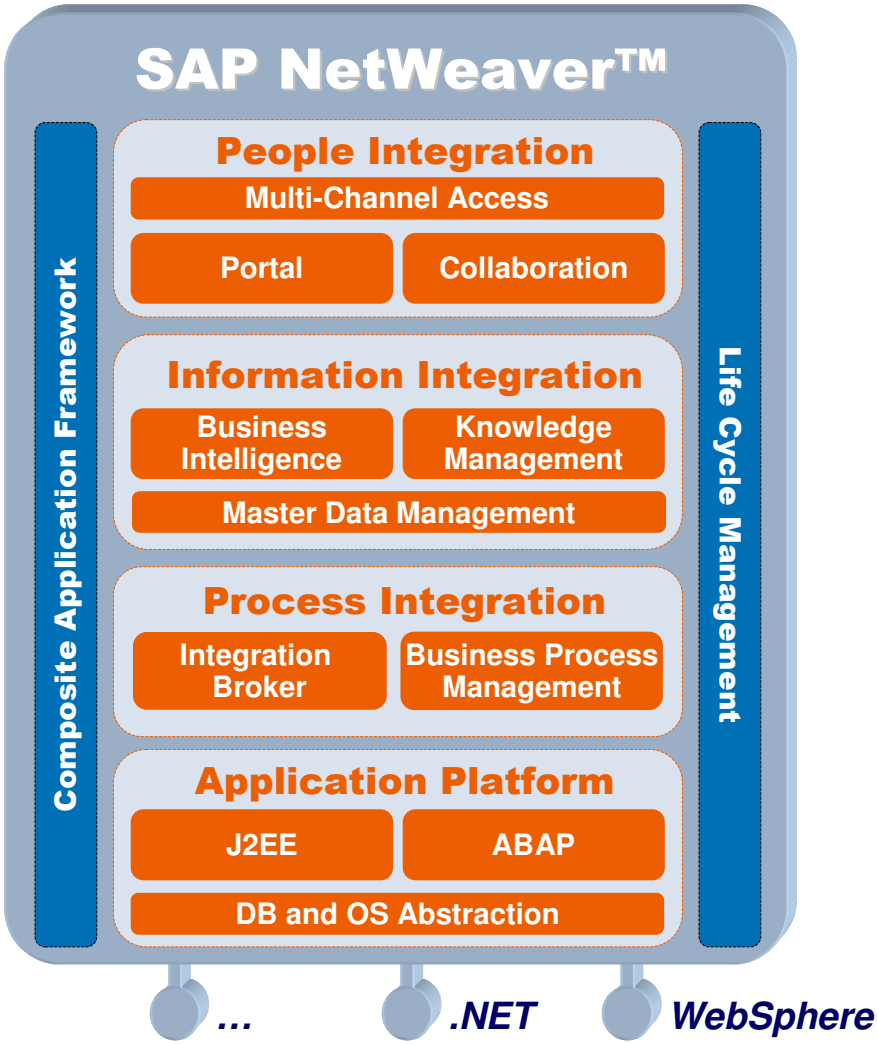
- Monolithic
- Communication through propietary protocol
- Data are „captured“ in system
- Limited integration with outer world
- Hardware Infrastructure is static („Big Box“)
- Limited infrastructure flexibilty according to changing businees needs

SAP NetWeaver™

- Enterprise Services Architecture
- Next generation of SAP system landscapes



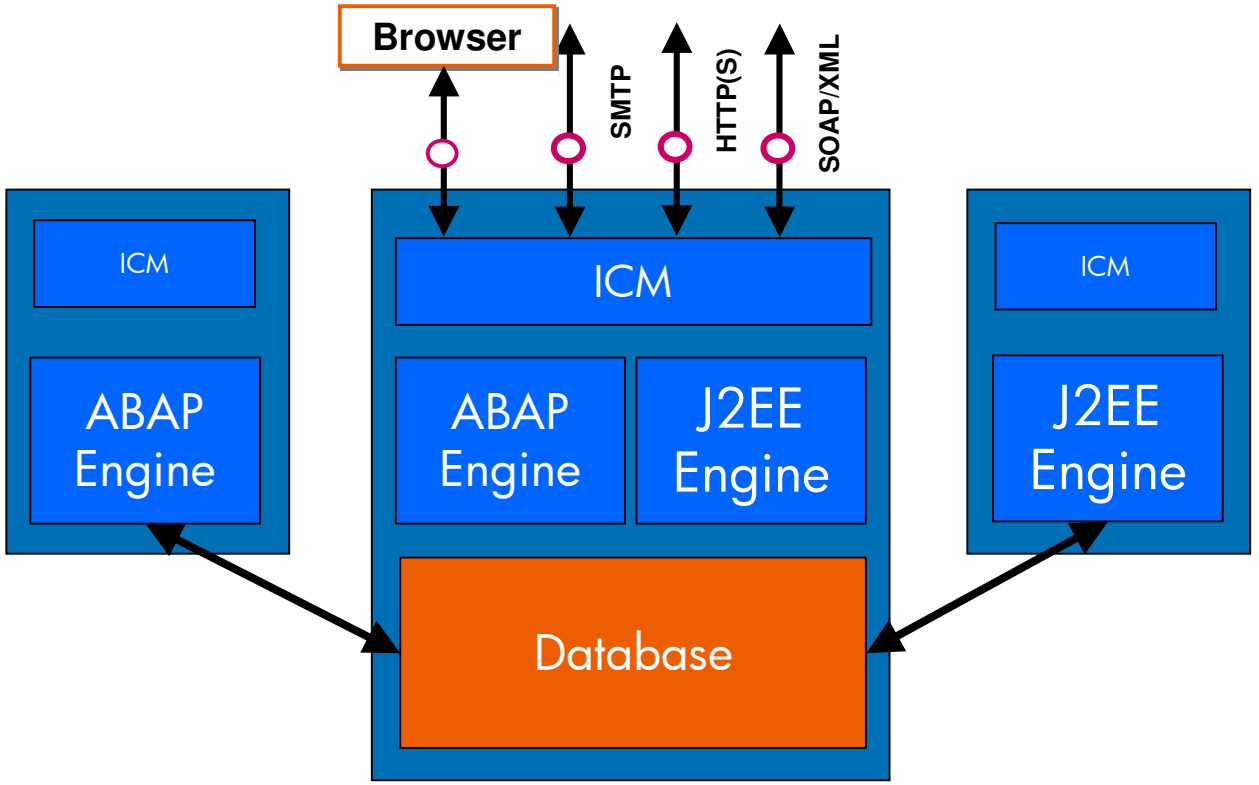
SAP NetWeaver™



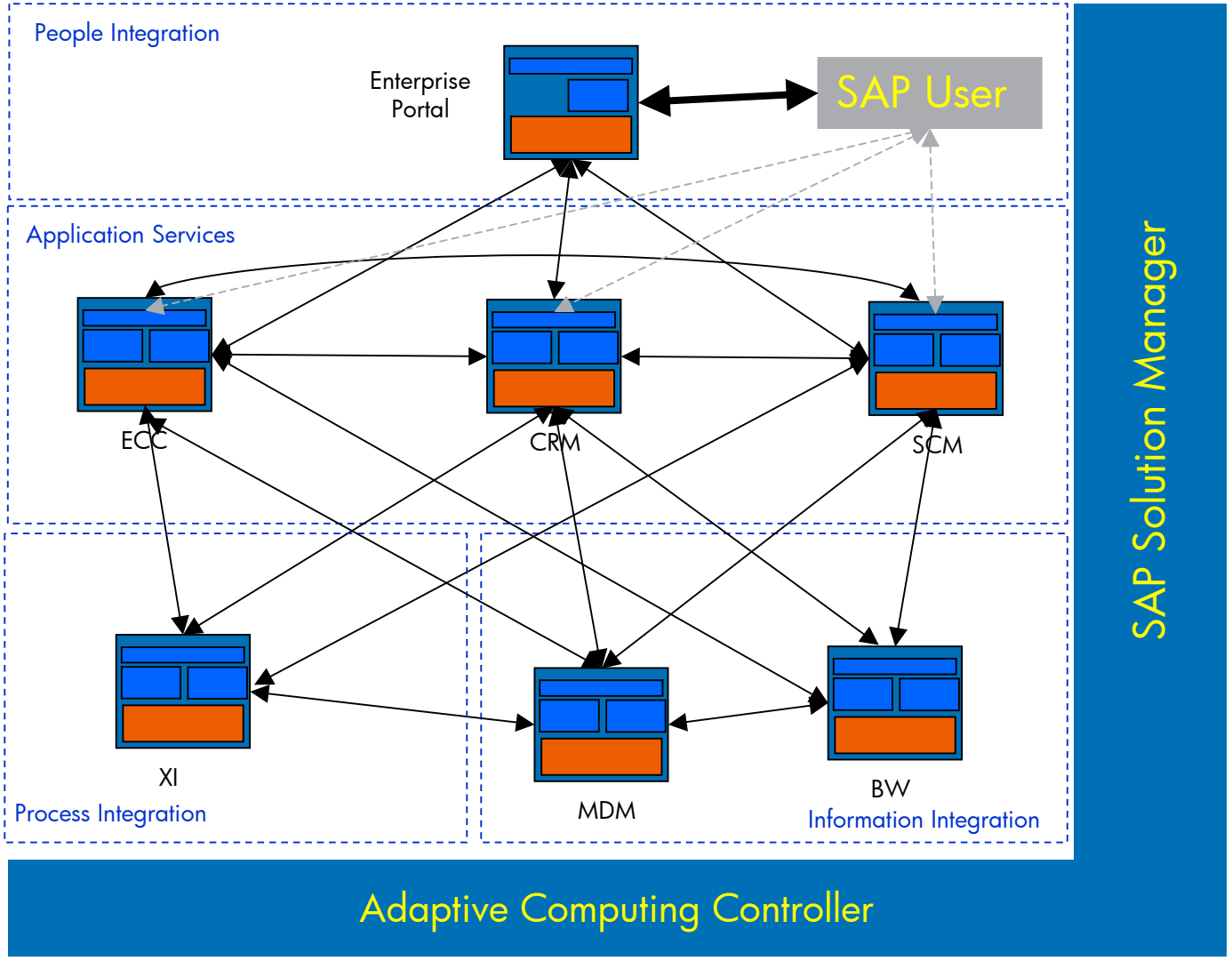
- Enterprise Services Architecture
- Service integration on 4 levels
- includes Web and JAVA technology

SAP Web Application Server 6.40

- Foundation for SAP Netwaver
- Services can run on 1 or more Servers



New SAP System Landscape (Netweaver)



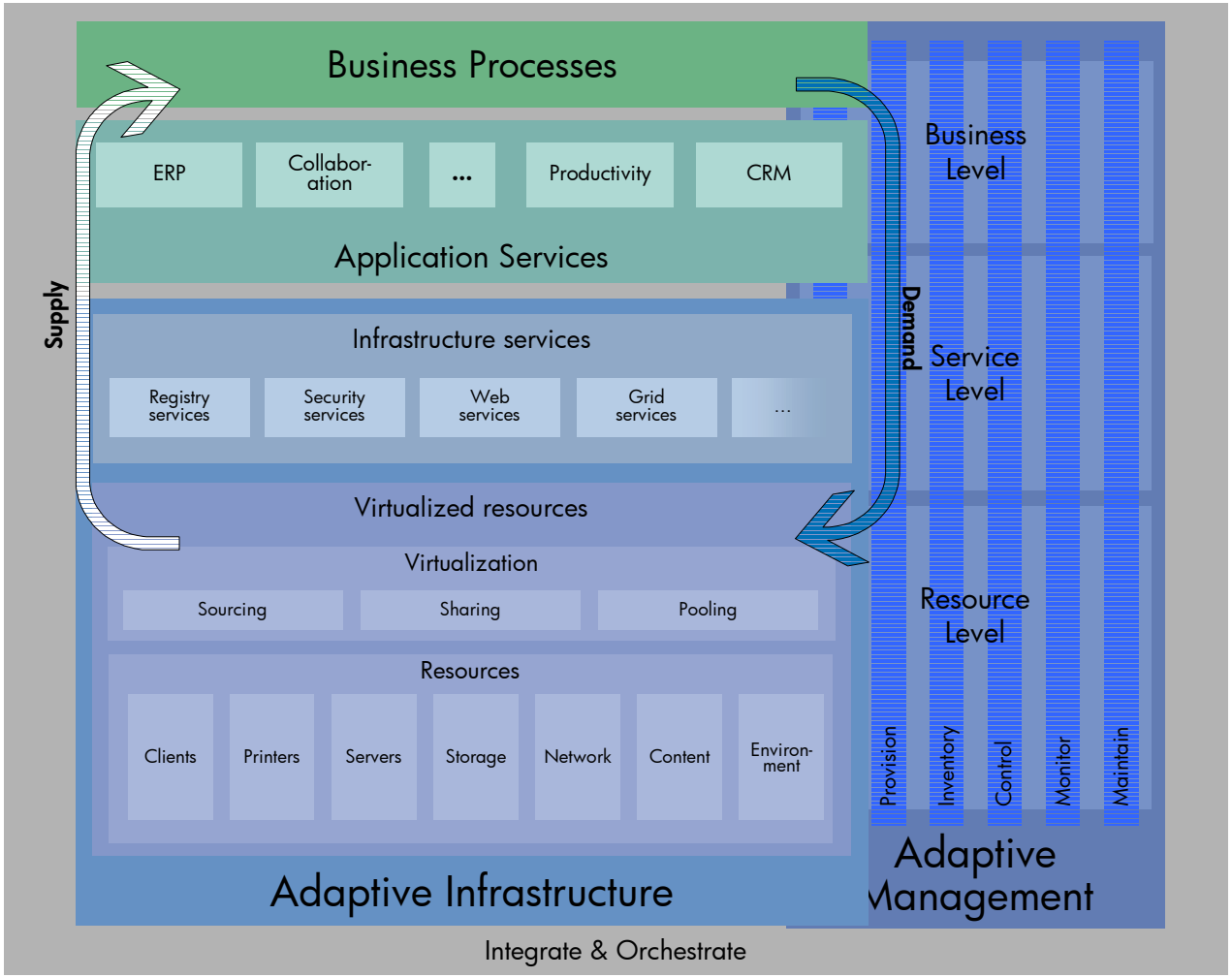
SAP Netweaver Landscape

- Enterprise Services Architecture
- Communication through Web Services
- More Servers, Smaller Servers
- Hardware Infrastructure has to be flexible
- Must be

  ADAPTIVE…

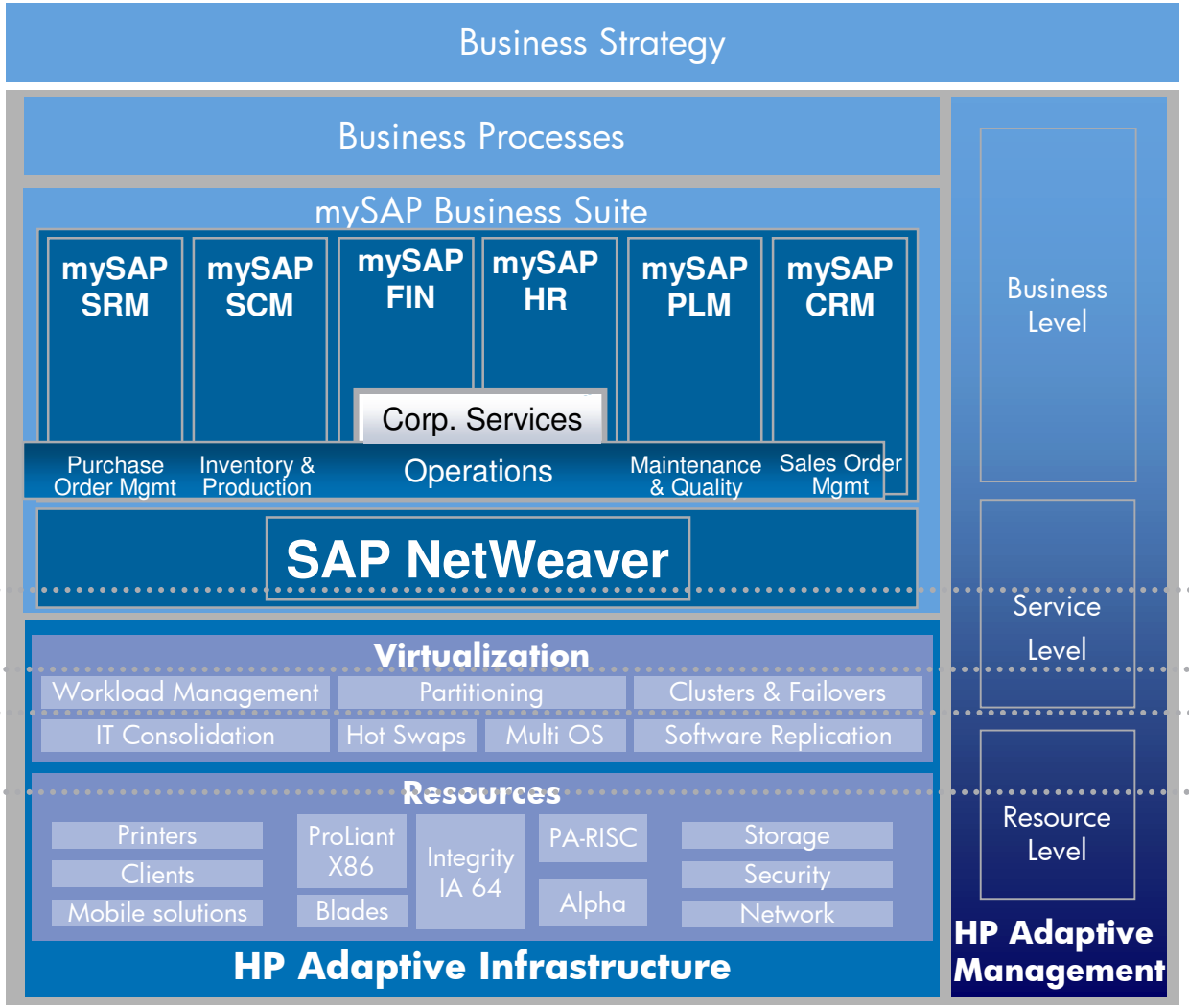
General approach for Adaptive Enterprise with SAP

HP's offerings for the Adaptive Enterprise



HP Services: design, build, integrate, manage, evolve

Darwin Reference and SAP NetWeaver



Goals for a General SAP Adaptive solution

- Virtualization of hardware resources
- Virtualization of SAP/DB services

Challenges for an adaptive infrastructure:

- Decouple logical from physical layer
- In the SAP environment: decouple OS/SAP services from underlying hardware resources
- Dynamic and automized assignment of services to resources

Basic Elements for a General SAP Adaptive Solution

- „Hard“ components
  - Disks (storage)
  - Execution units (servers)
  - Network
- „Soft“ components
  - Boot device
  - Operating system
  - Database engine
  - Database files
  - SAP executables
  - General data (eg profiles) to run an SAP service

2 Phase development

- 1. Phase
  - Create an environment based on „Virtualized Servers“ running central DB and SAP services
  - Implicit virtualization of SAP Services
  - rapid deployment of SAP application services („dialog instances“)
- 2. Phase
  - Create an environment based on „virtualized DB and SAP services“
  - Explicit virtualization of SAP Services
  - Integration with SAP‘s Adaptive Computing Controller

Implementation Windows and Linux

First Step: Virtualized Central SAP Server - Analysis

- All SAP services (database, ABAP VM, J2EE VM, etc.) are usually grouped around one unique „SID“
- database + central SAP services belonging to a SID are packed into a bootable OS image

First Step: Virtualized Central SAP Server - Implementation

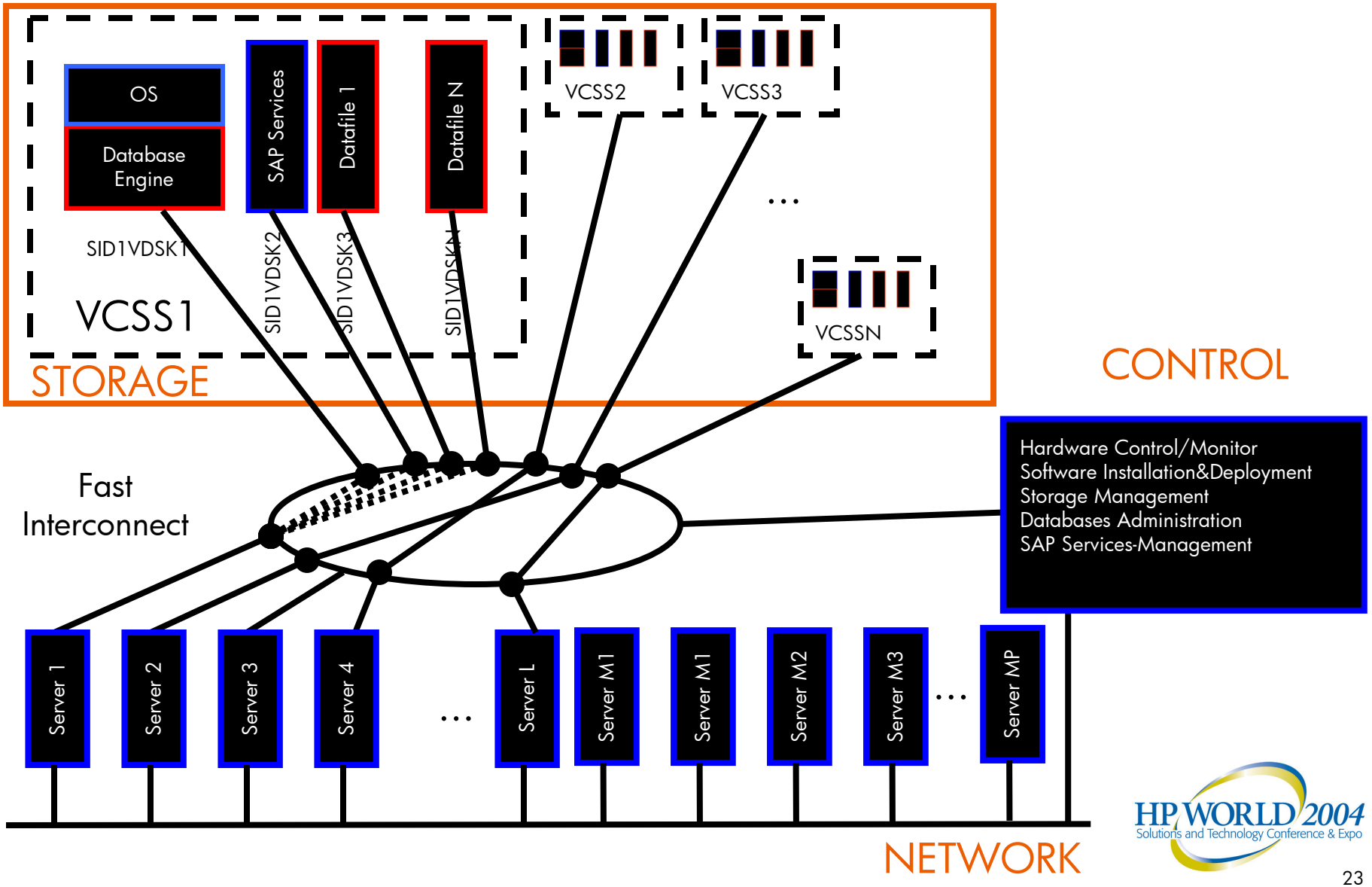
One central central SAP Server is stored on one or more dedicated (virtual) disks containing:

- 1 bootable operating system
- 1 database engine
- central SAP services
- N database files
- sapmnt directory and share

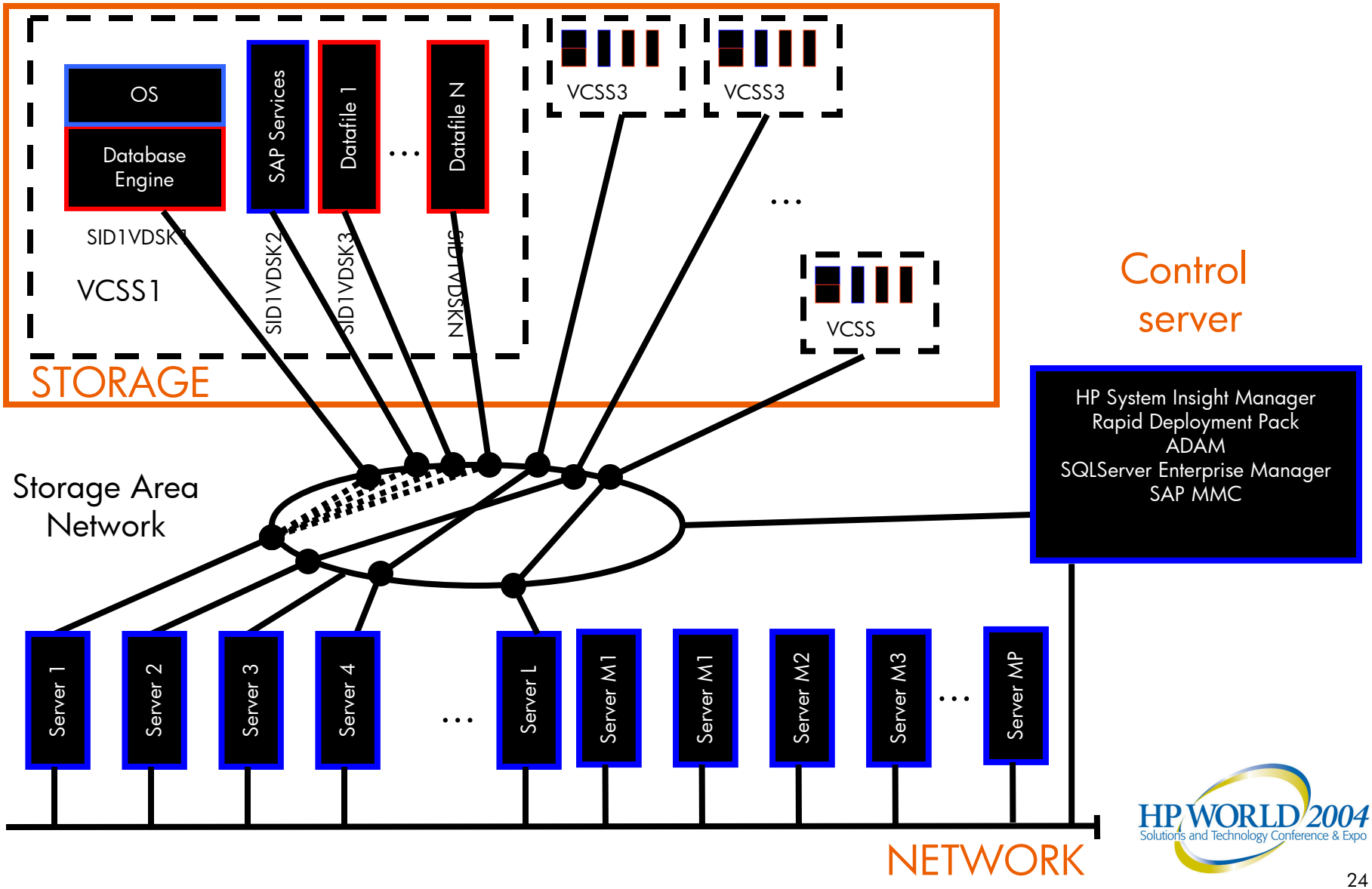
„Virtualized Central SAP Server“

- Dynamically assign (virtual) disks to servers and boot
- Booting a VCSS, brings up all SID related SAP central services and data
- Implicit virtualization of IP-address, hostname, SID, OS-image, database

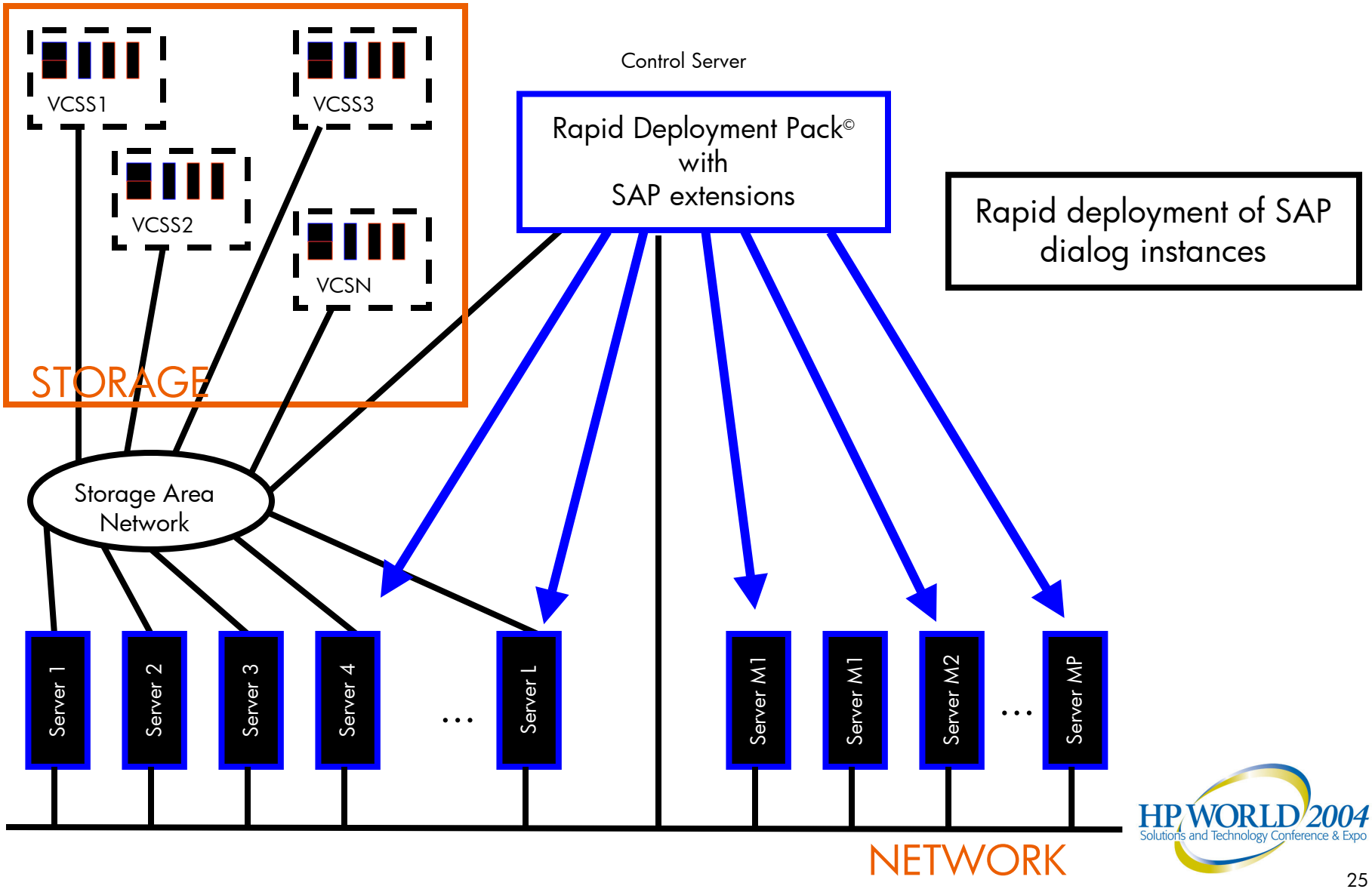
Abstract Adaptive SAP landscape with virtualized Servers



Example of Adaptive SAP landscape on virtualized Servers with SAN



Scale up with additional SAP instances



Benefits of virtualized servers approach

- No need of dynamic IP-adresses or hostname administration
- Consistency of OS configuration and data inside a VCSS package is guaranteed
- „Park“ complete consistent systems when not used
- Backup/restore is done cloning/snapshoting (virtual) disks or „VCSS packages“

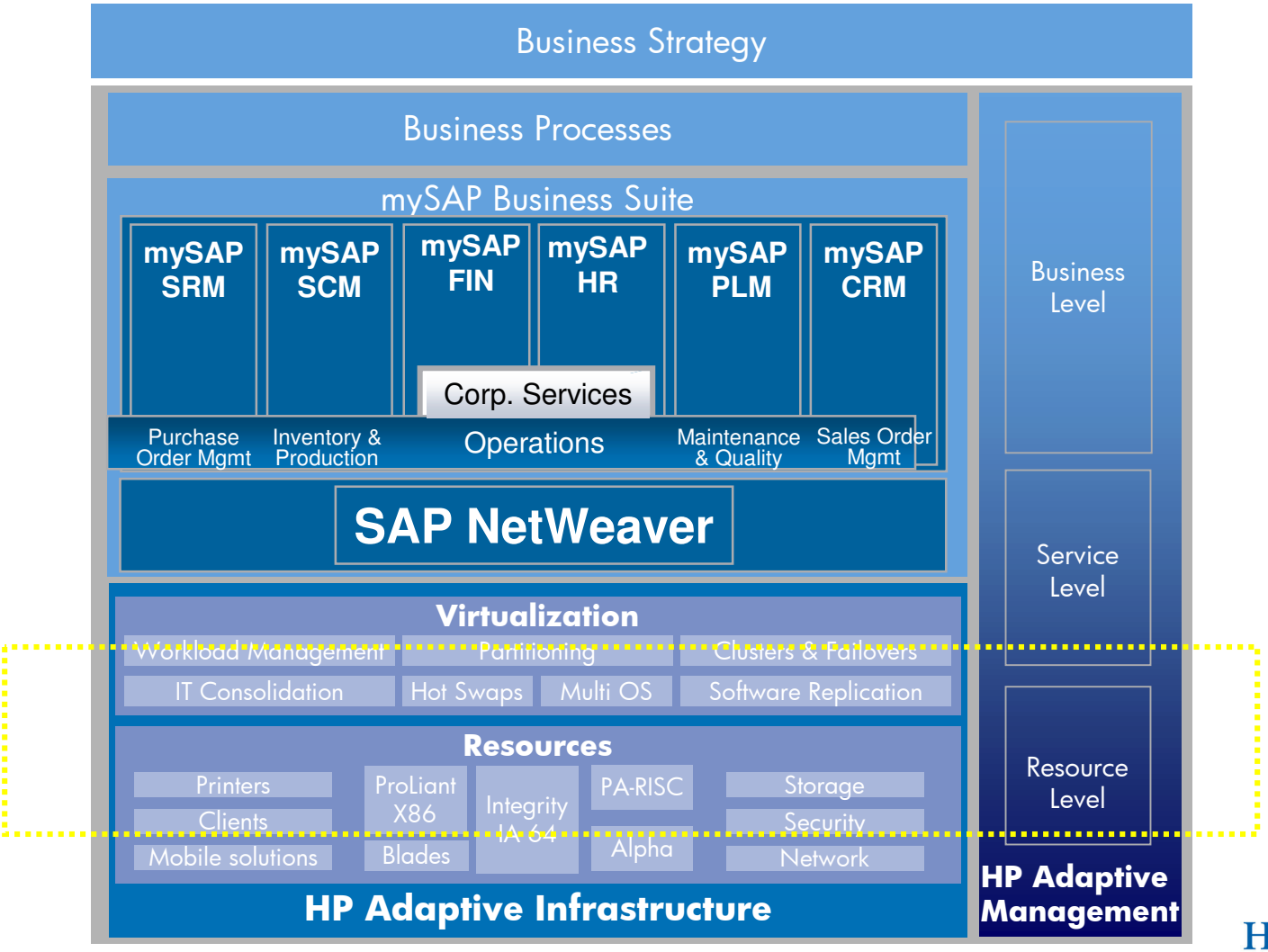
Benefits of virtualized servers approach (continued)

- VCSSs don't share OS image-> no OS-contamination of configurations of other VCSS
- Completely separated security domains on OS level
- Implicit High Availability
- The adaptive SAP landscape can be multi-OS!

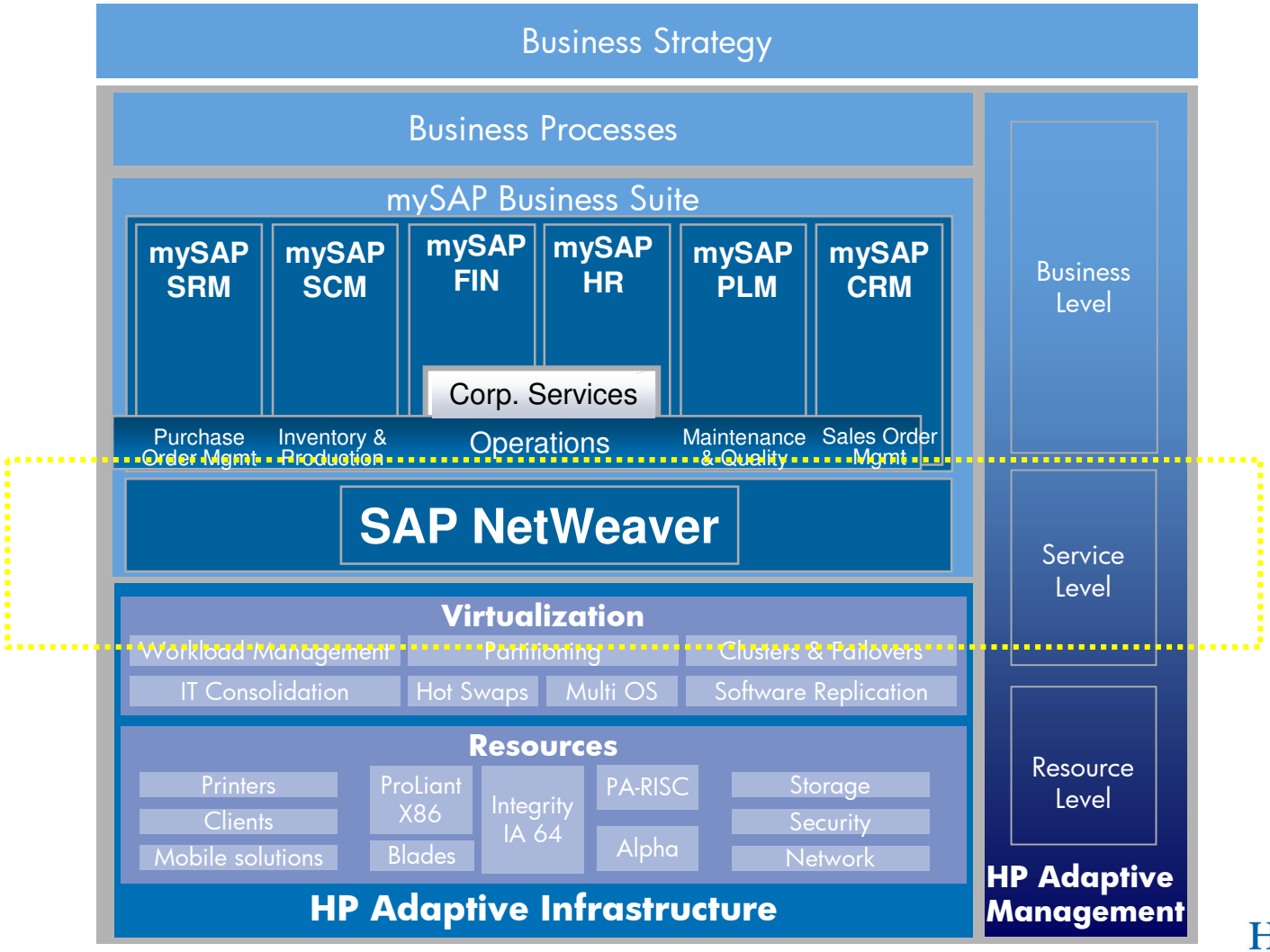
Technolgies and versions supported for first prototype

- Hardware:
  - StorageWorks EVA 3000/5000 (SAN based)
  - any x86-based ProLiant server able to host a FC HBA
- Software Windows:
  - Windows 2003 Enterprise Server
  - MS SQL Server 2000
  - Active Directory
  - ADAM 2.5
  - Rapid Deployment Pack 1.6
  - WAS 6.20 based SAP applications
  - MMC snap-in for management and monitoring of SAP
- Software Linux:
  - SUSE SLES8 SP3
  - RedHat EL 3.0
  - Oracle 9.2 / MAX-DB
  - ADAM 2.5
  - Rapid Deployment Pack LE 1.1
  - WAS 6.20 based SAP applications
  - NAGIOS snap-in for management and monitoring of SAP

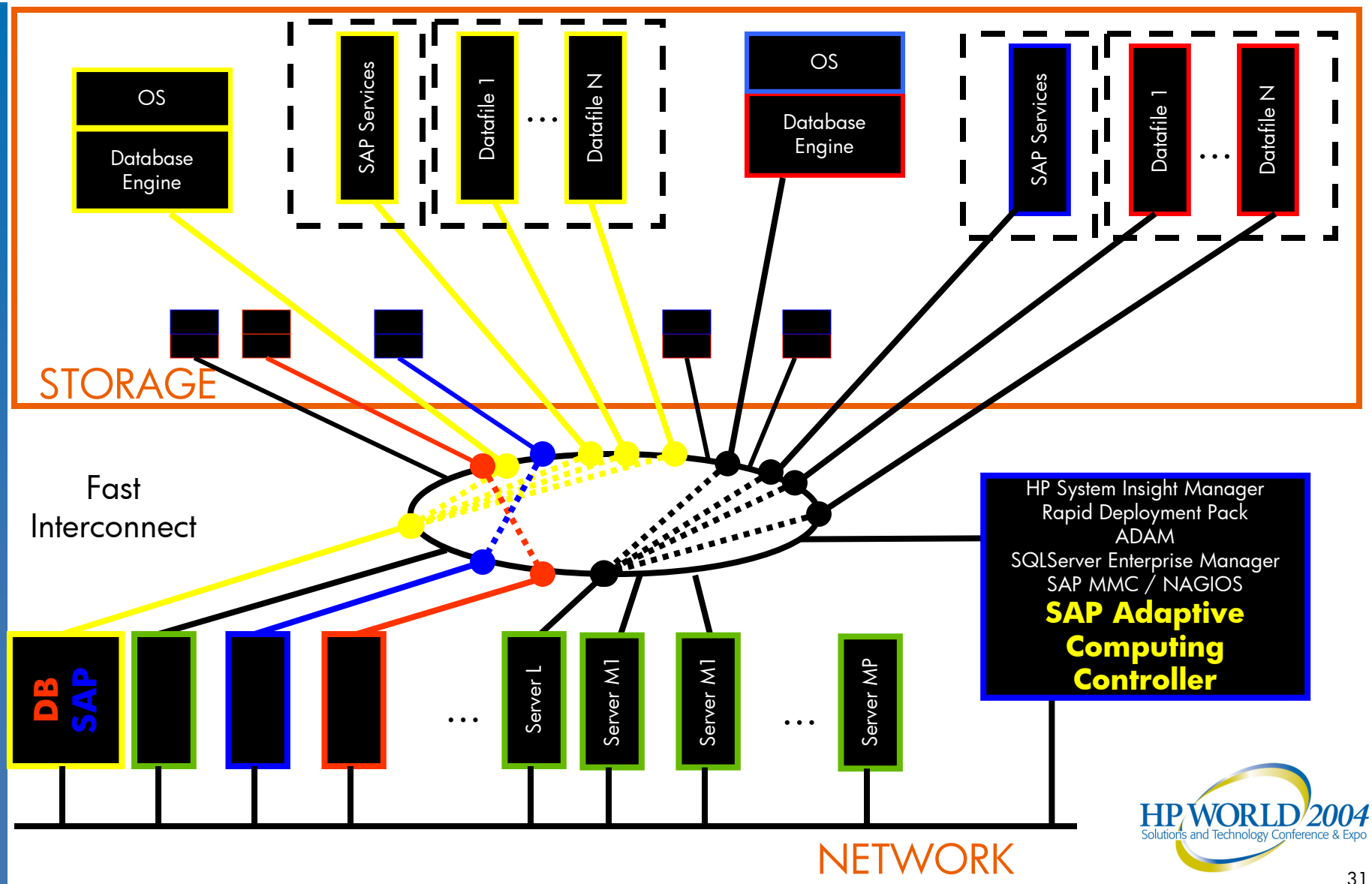
First Phase - Virtual Servers running central SAP SID Services



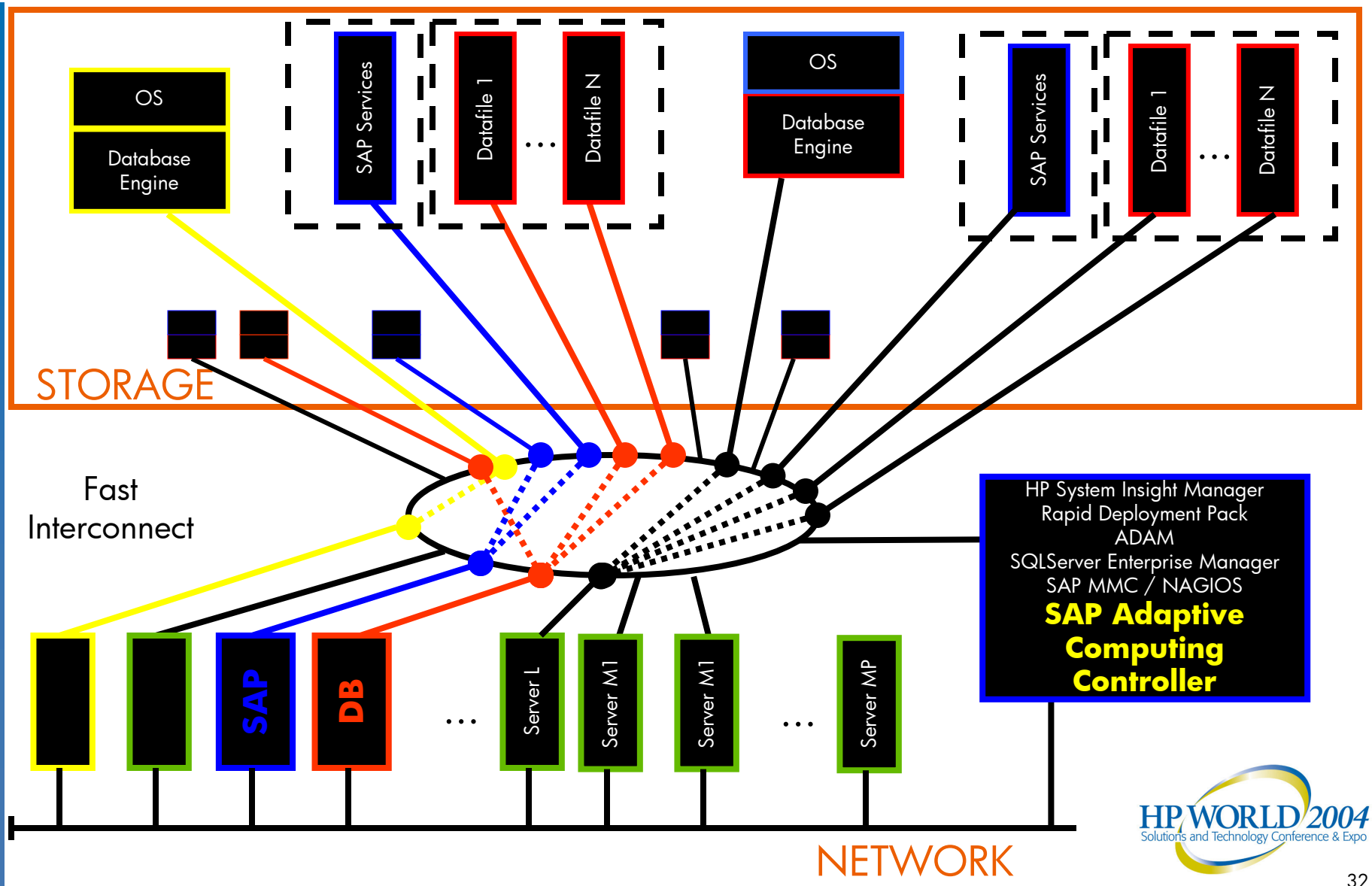
Second Phase – Virtualized SAP Services



Abstract Adaptive SAP landscape Virtualized Services" (integrated with SAP's ACC)



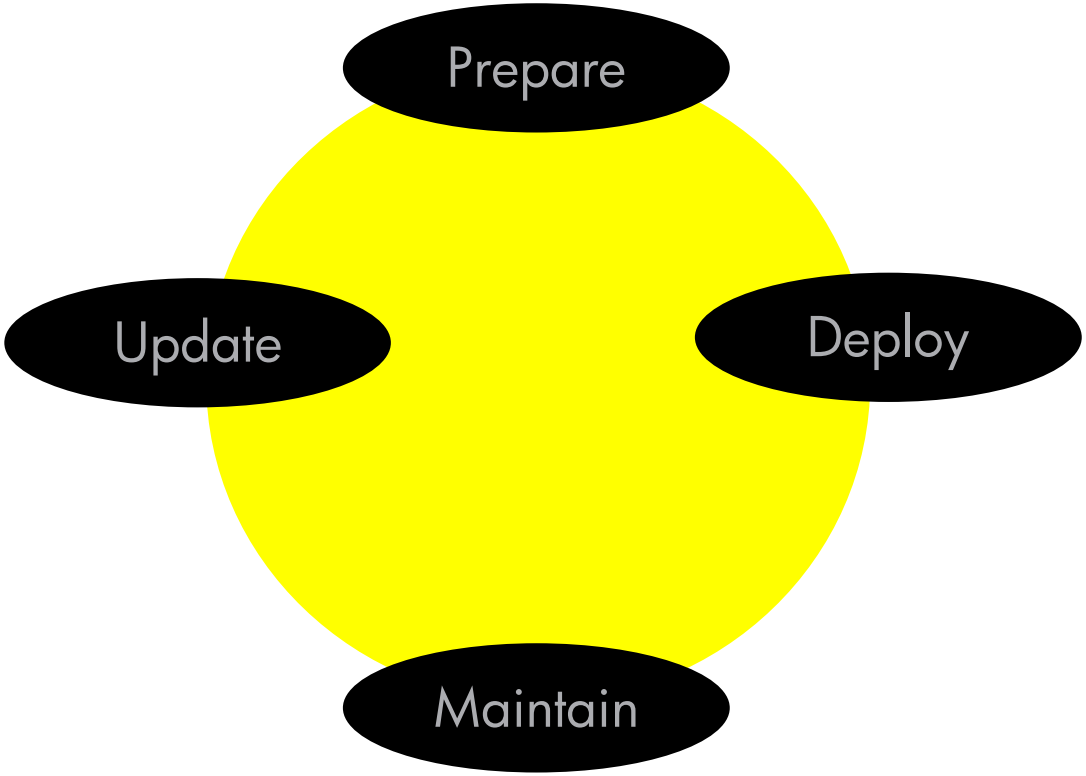
Abstract Adaptive SAP landscape Virtualized Services" (integrated with SAP's ACC)



Application Services

- Activated centrally on request by SAP's ACC through local SAP daemon *sapacosprep*
- Services adressed through virtual IP addresses
- Can be easily relocated in the managed pool

HP-UX Deployment by Ignite/UX



Future steps

- Integration with SAP's Adaptive Computing Controller in cooperation with SAP
- Integration with UDC
- General availabilty on HP-UX, Windows, Linux

Benefits

Benefits

- Better ROI
  - Better utilization of existing resources
  - Flexibility
  - Quick reactions to changing business needs
  - Single point of maintenance for complete System Landscape
  - In general lower TCO!!


hp
invent

HP WORLD 2004

Solutions and Technology Conference & Expo

Co-produced by:

interex

shared knowledge • shared power

encompass

AN HP USER GROUP

RECOMMENDED TRAINING VENUE FOR THE

HP Certified Professional