



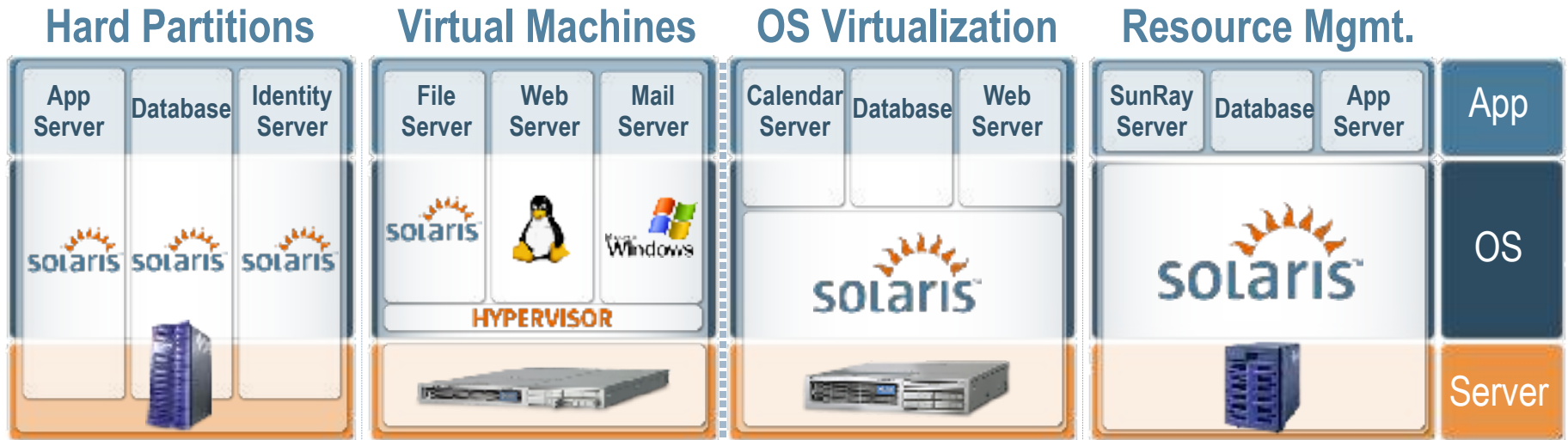
Solaris 10 & Containers

OS Virtualization

Martin de Jong

SUN Microsystems

Server Virtualization Approaches



Multiple OSes

Single OS

Trend to flexibility

Trend to isolation

- > Very High RAS
- > Very Scalable
- > Mature Technology
- > Ability to run different OS versions

- > Ability to live migrate an OS
- > Ability to run different OS versions and types
- > De-couples OS and HW versions

- > Very scalable and low overhead
- > Single OS to manage
- > Cleanly divides system and application administration
- > Fine grained resource management

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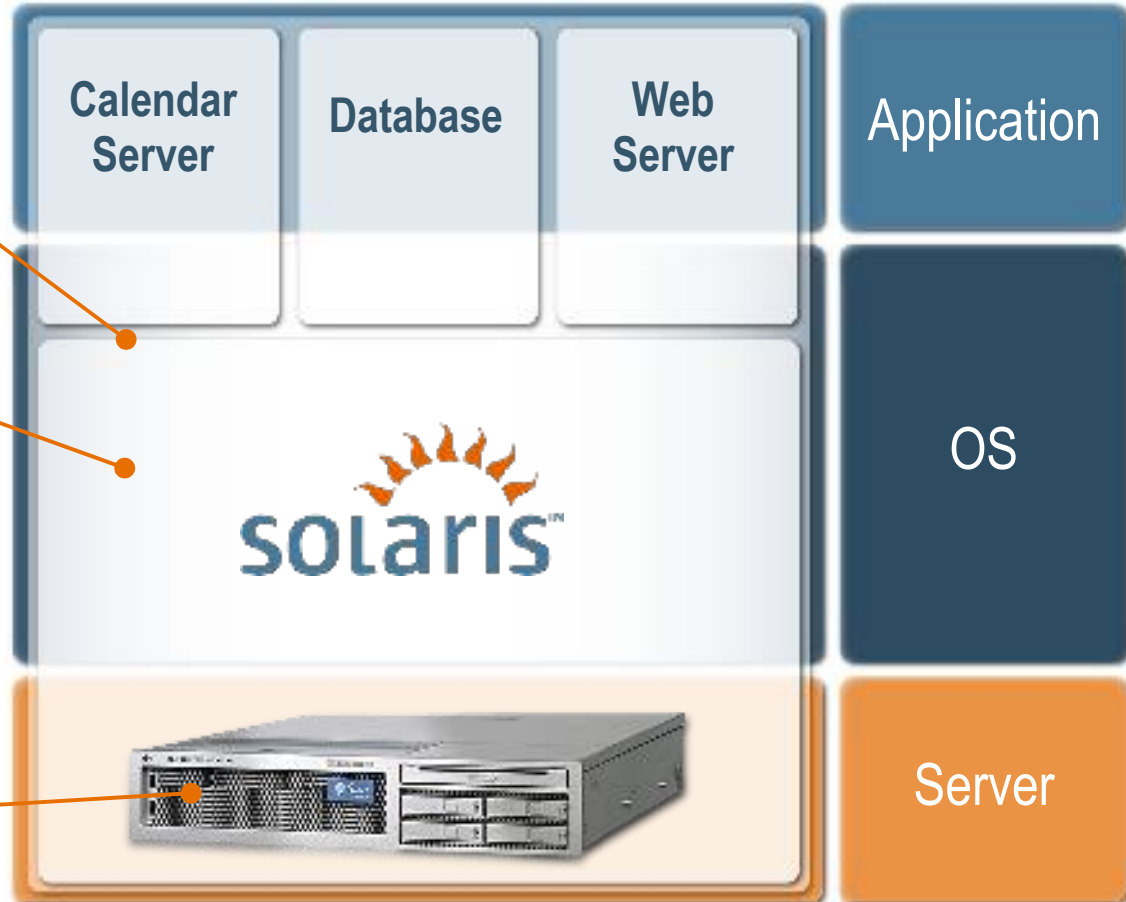
OS Virtualization (1)

Solaris zones

Resource and namespace isolation

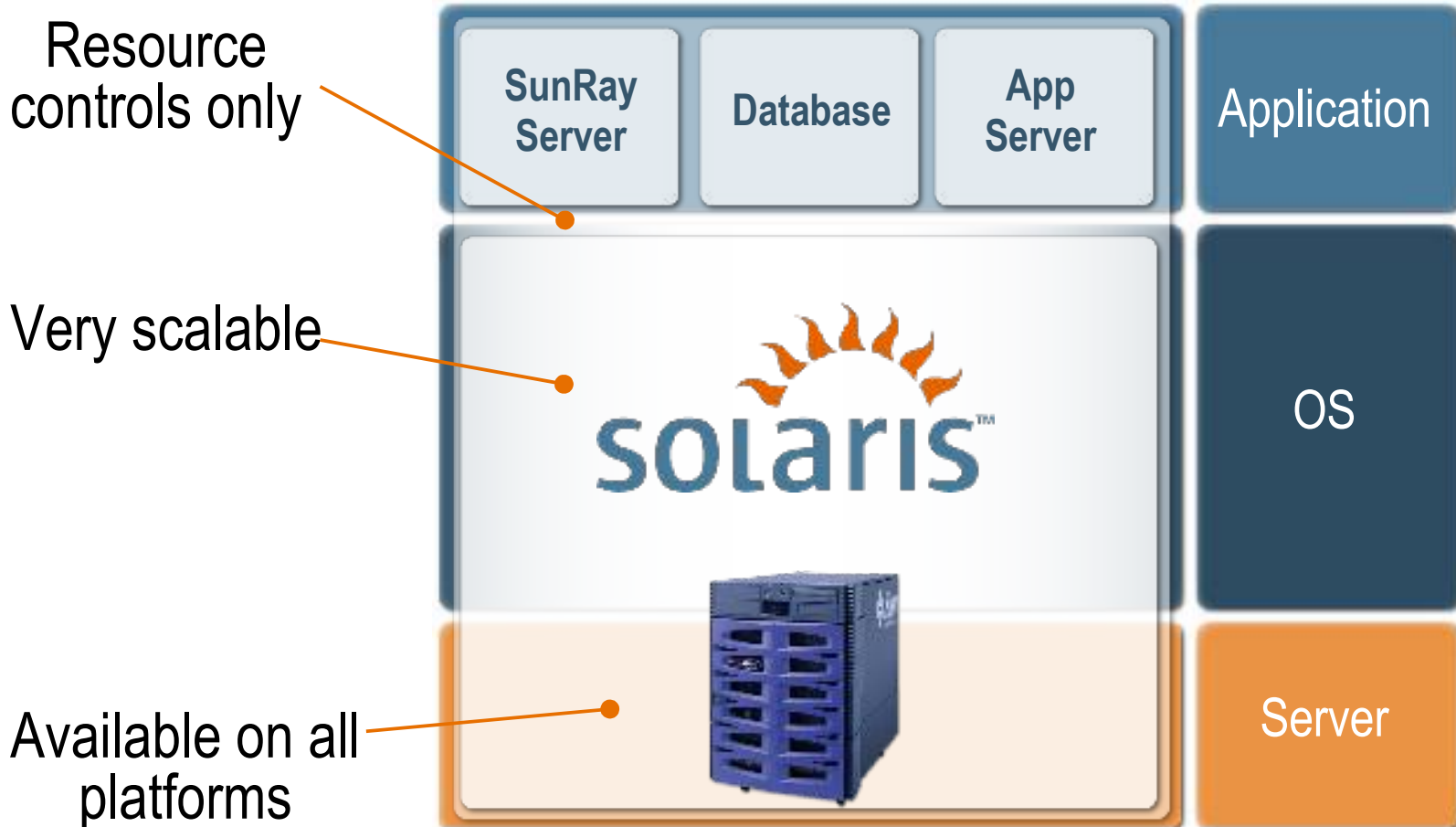
Very scalable

Available on all platforms



OS Virtualization (2)

Resource Management

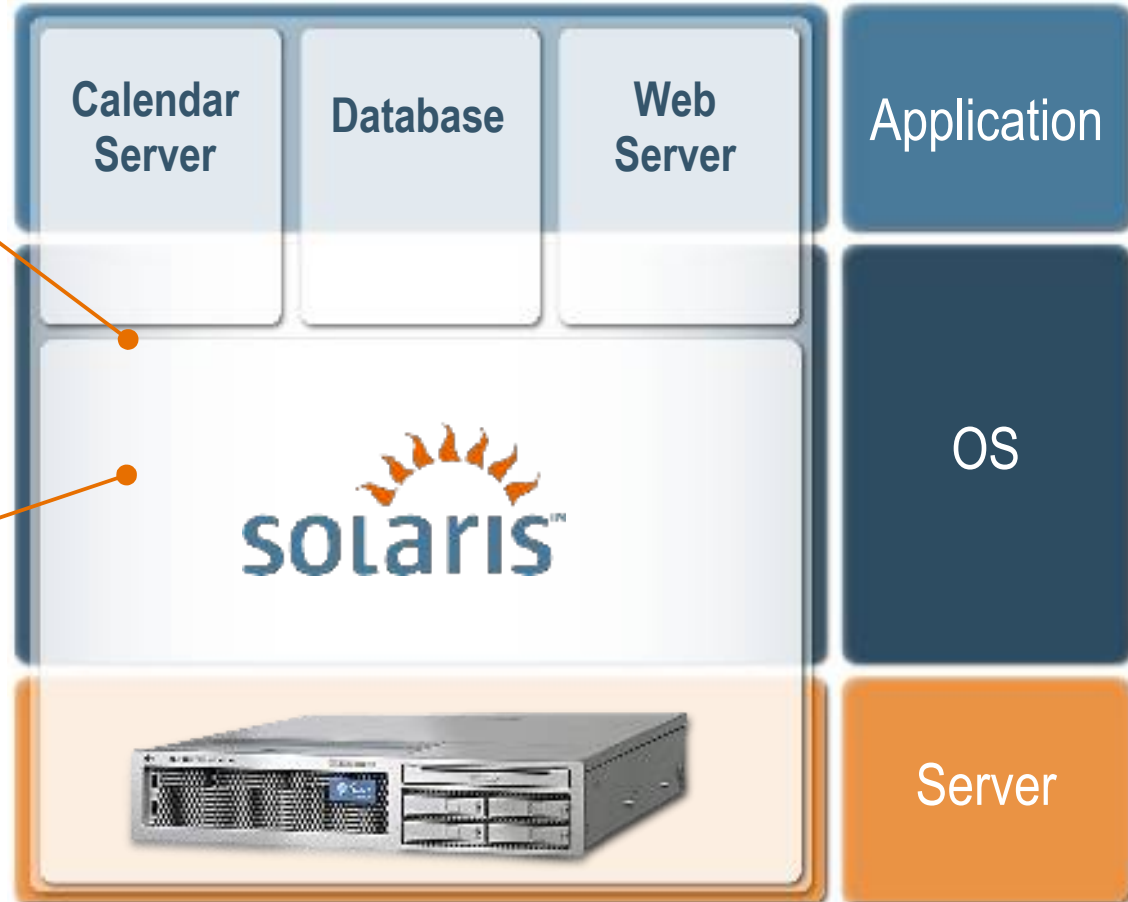


OS Virtualization (3)

Solaris Containers

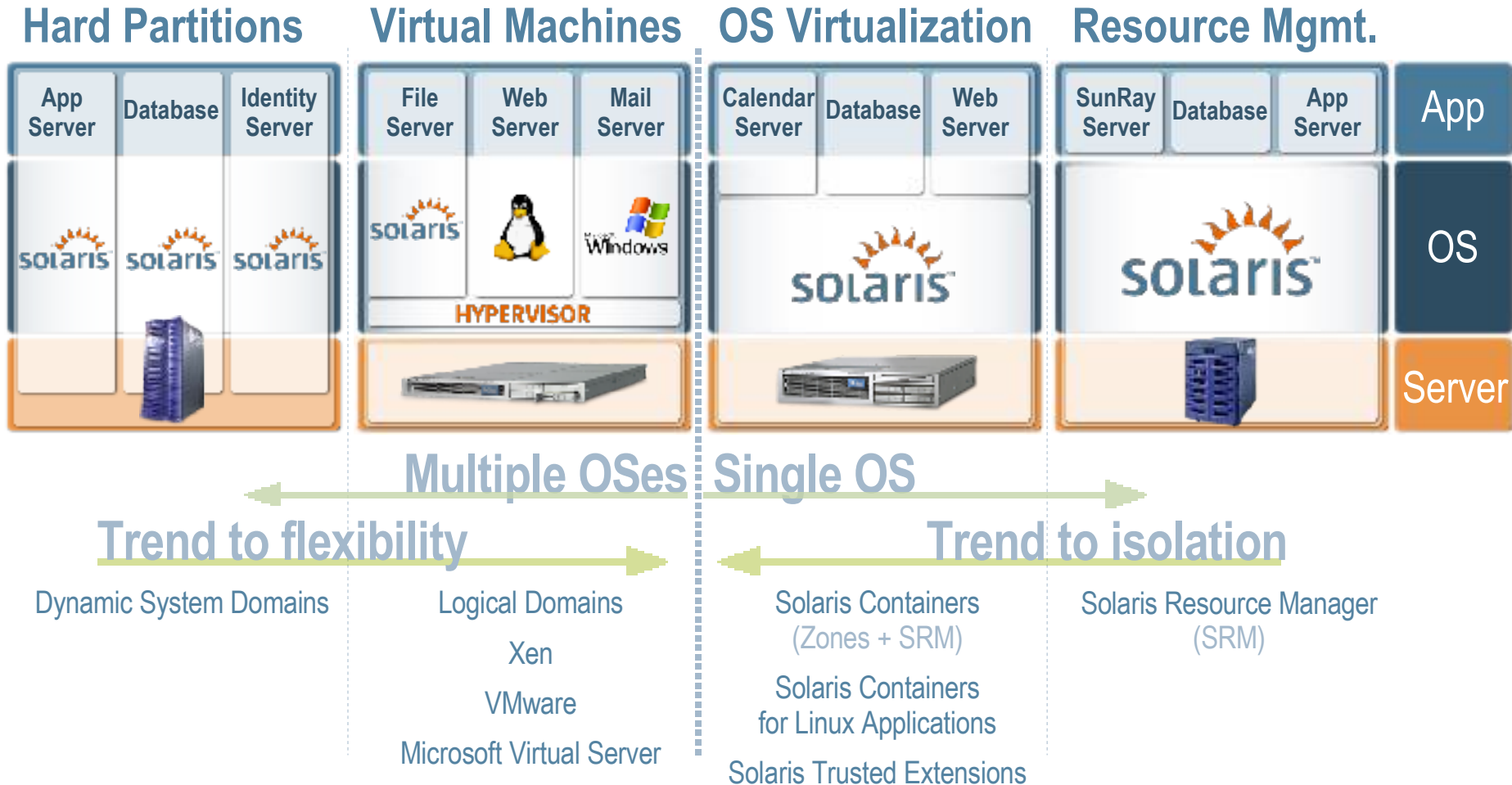
Resource and namespace isolation with Resource Controls

Very scalable



Server Virtualization

Solutions from Sun





NEW
11/06

- Limitless partitioning – one license
- Thousands of applications on one system
- Ultimate consolidation tool
- Container Cloning and Container Migration
- Instant restart

Solaris Containers

Solaris Containers

Business Value

- Higher utilization
- Single OS to manage
- Free, no additional license
- Limits required licenses

- Resource Controls
- Fault Isolation
- Security Isolation



LOWER TCO



**Predictable
Service Levels**

Solaris Container

New Management and Security Features



Container Cloning

Container Migration

Per-Container Security Privileges

Simplified Resource Pool
Management

Solaris Container

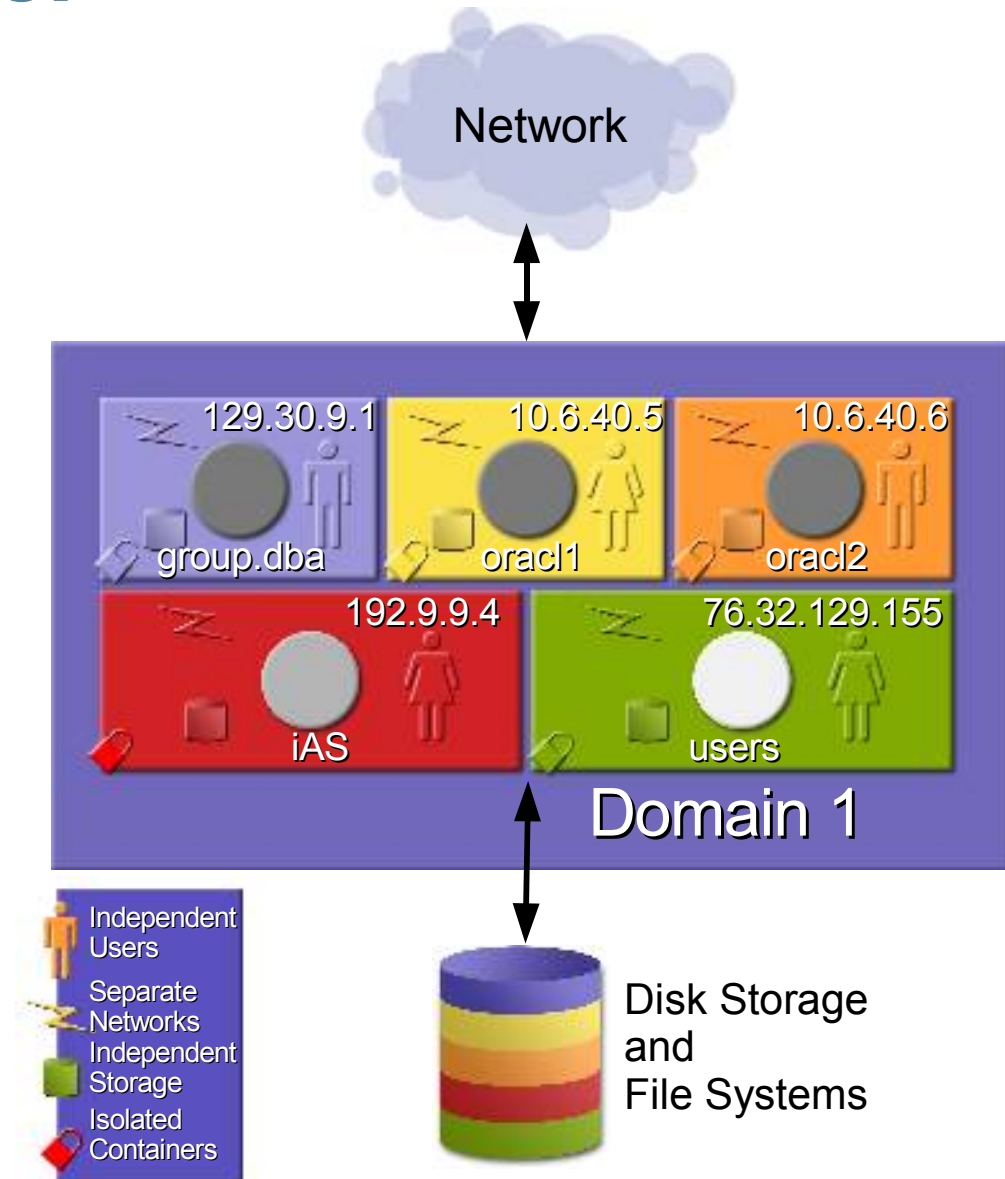
Components

- Full Resource Containment
 - > Provide predictable service levels – Solaris 9
- Security isolation
 - > Prevent unauthorized access – Solaris 10
- Fault isolation
 - > Minimize fault propagation and unplanned downtime – Solaris 10
- Service Management Application
 - > Ease of management – Container Manager

Solaris Container

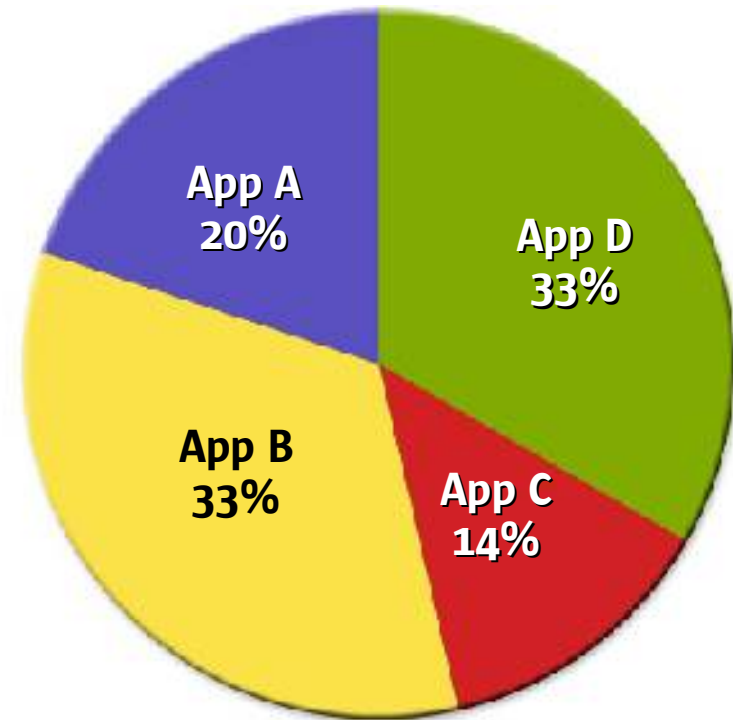
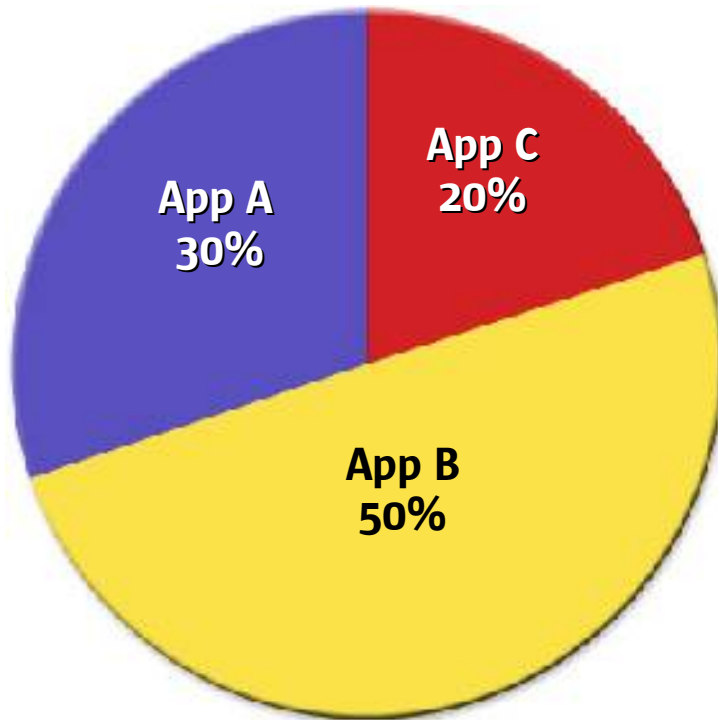
Solaris Zones

- Namespace isolation
- Virtualized OS
- Sharing for better utilization
- Application fault containment



Solaris Container

Resource Management – Fair Share Scheduler



■ App A (3 shares)

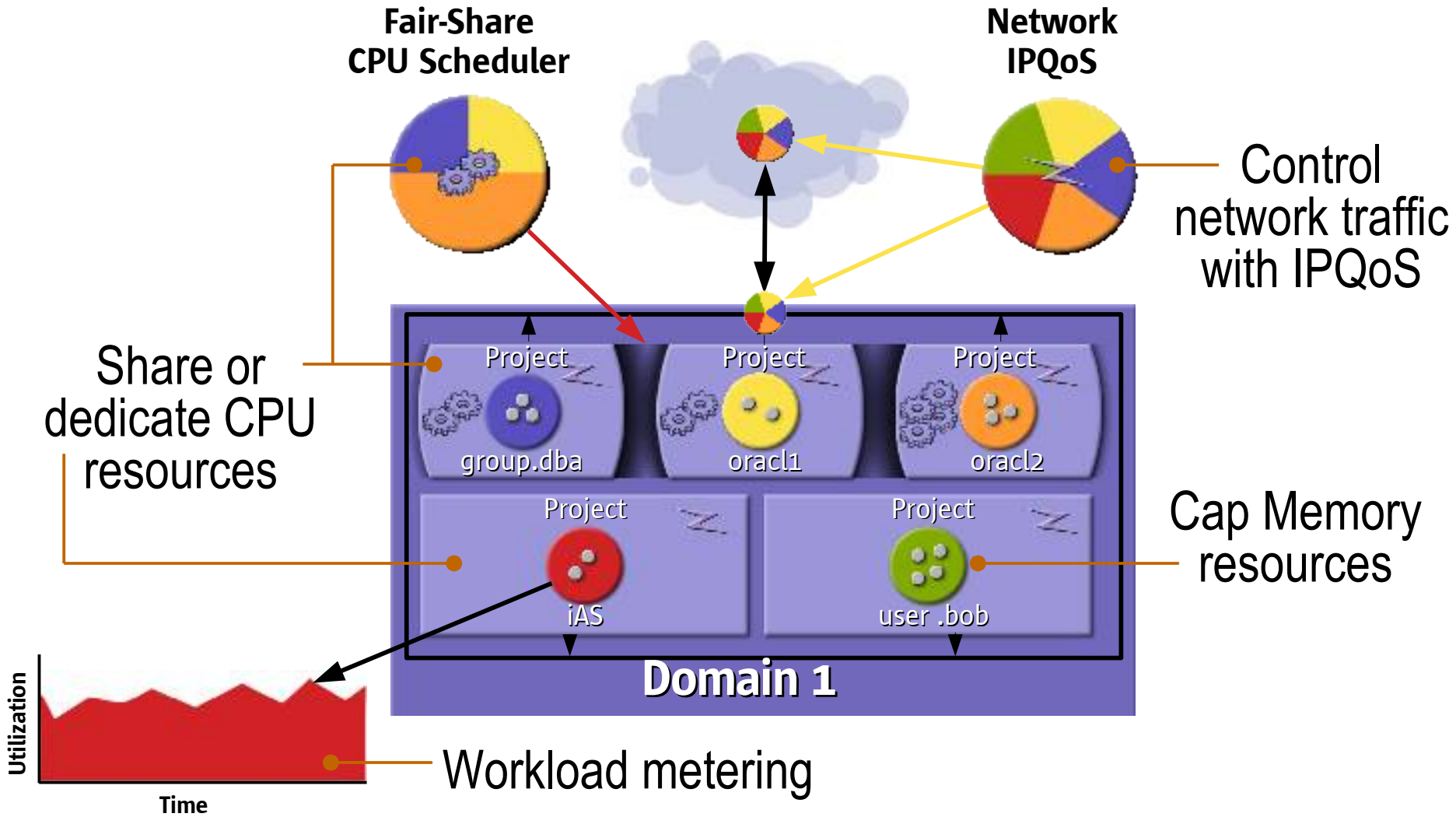
■ App B (5 shares)

■ App C (2 shares)

■ App D (5 shares)

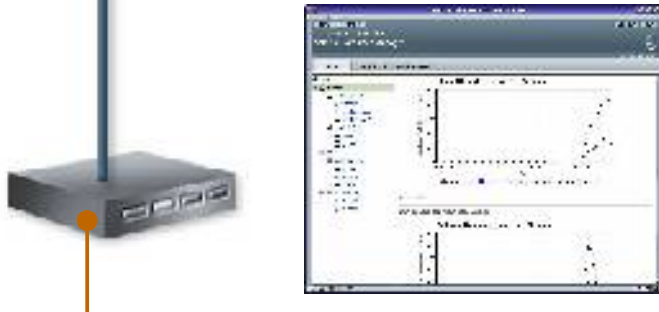
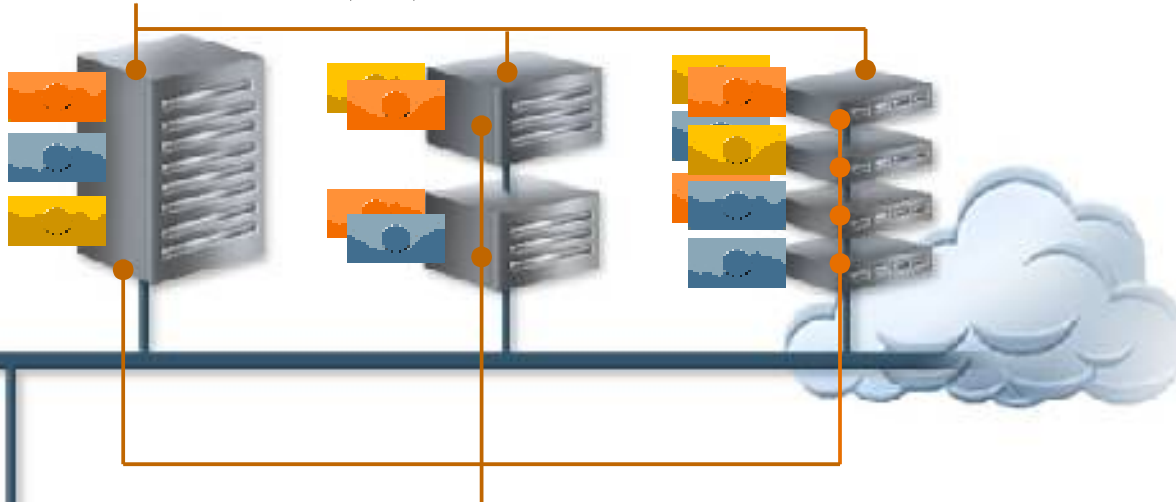
Shares describe relative ratio...

Resource Management



Sun™ MC – Solaris Container Manager

Manage systems that run
the Solaris 8, 9, and 10 OS



Manage Solaris Containers
across many systems

Uses Sun Management
Center 3.5 Update 1b

Solaris 10 Addresses IT Challenges

Maximize Asset Usage

Always On



* Research sources included CIO & Computer World Magazine, Gartner 2005 CIO Survey, Gartner Predicts 2005, Info-Tech Research Group 2005 IT Priorities Survey.

System Performance

Manage Complexity

Addressing Business and IT Needs

Maximize Asset Usage

Use one OS on industry's most popular platforms

Broad application portfolio
on both SPARC and x64/x86 systems

Guaranteed compatibility

Unlimited software-based virtualization

Highly efficient hardware-based virtualization

Safe optimization in production environments

Highest security levels



Solaris 10 & Containers

OS Virtualization

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