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SOLARIS

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Oracle Solaris: Aktueller Stand und Ausblick

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The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions.
The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle.

Agenda

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- The Role of Solaris
- SPARC Server Development and Oracle Solaris
- Oracle Solaris: Next Generation Attributes
- Data Management
- Security
- Virtualization
- Lifecycle Management

Complete. Open. Integrated.

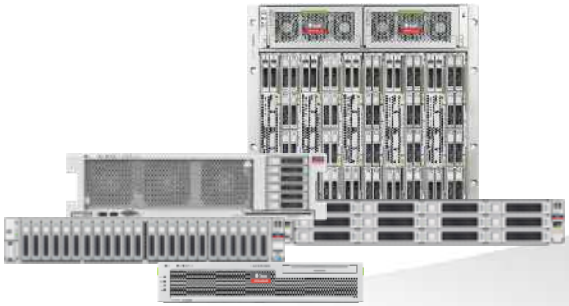
- Highest Quality
  - Test the full Oracle app-to-disk Stack Together
- Simplify Maintenance
  - Coordinate Fixes on all Layers
  - Single Patch Management Tool
- Oracle on Oracle
  - Run our own Business on our own Products
  - New Application Development on Oracle Solaris and Oracle Linux

The Operating System: Key Territory

IT Challenges

- Maximize asset utilization
- Always on, service driven
- System performance
- Manage complexity

Transforming The Technology Stack



Compute, Storage, Network
Building Blocks

SPARC SuperCluster
Optimized Systems
and Solutions

Engineered Systems

Investing in Best of Breed | **Applications Expertise** | **HW/SW Engineered to Work Together**

Silo → **Consolidated** → **Optimized** → **Cloud**

SPARC Enterprise Servers - Roadmap a year ago

Maximizing Results

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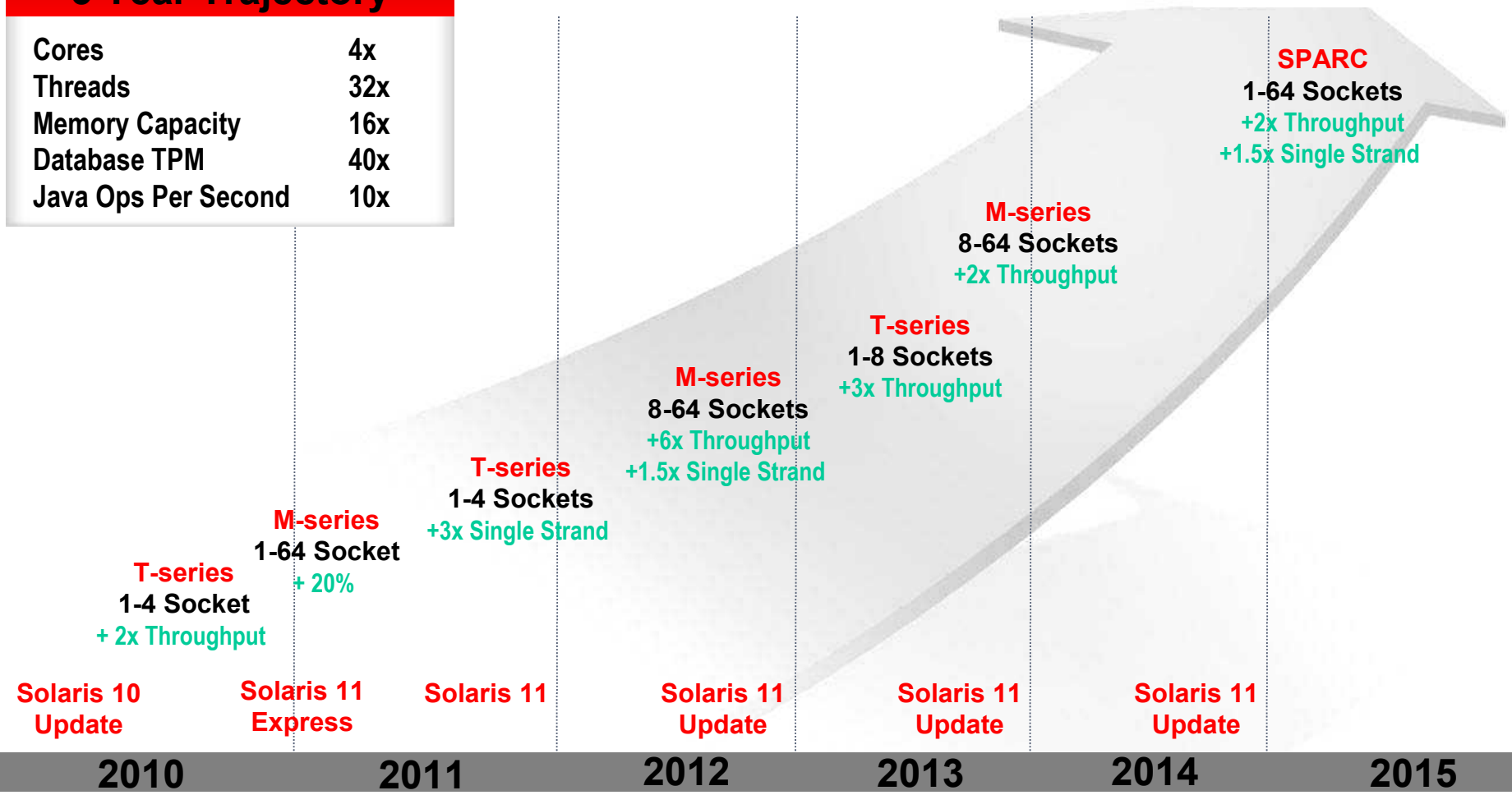
5 Year Trajectory

Cores	4x
Threads	32x
Memory Capacity	16x
Database TPM	40x
Java Ops Per Second	10x



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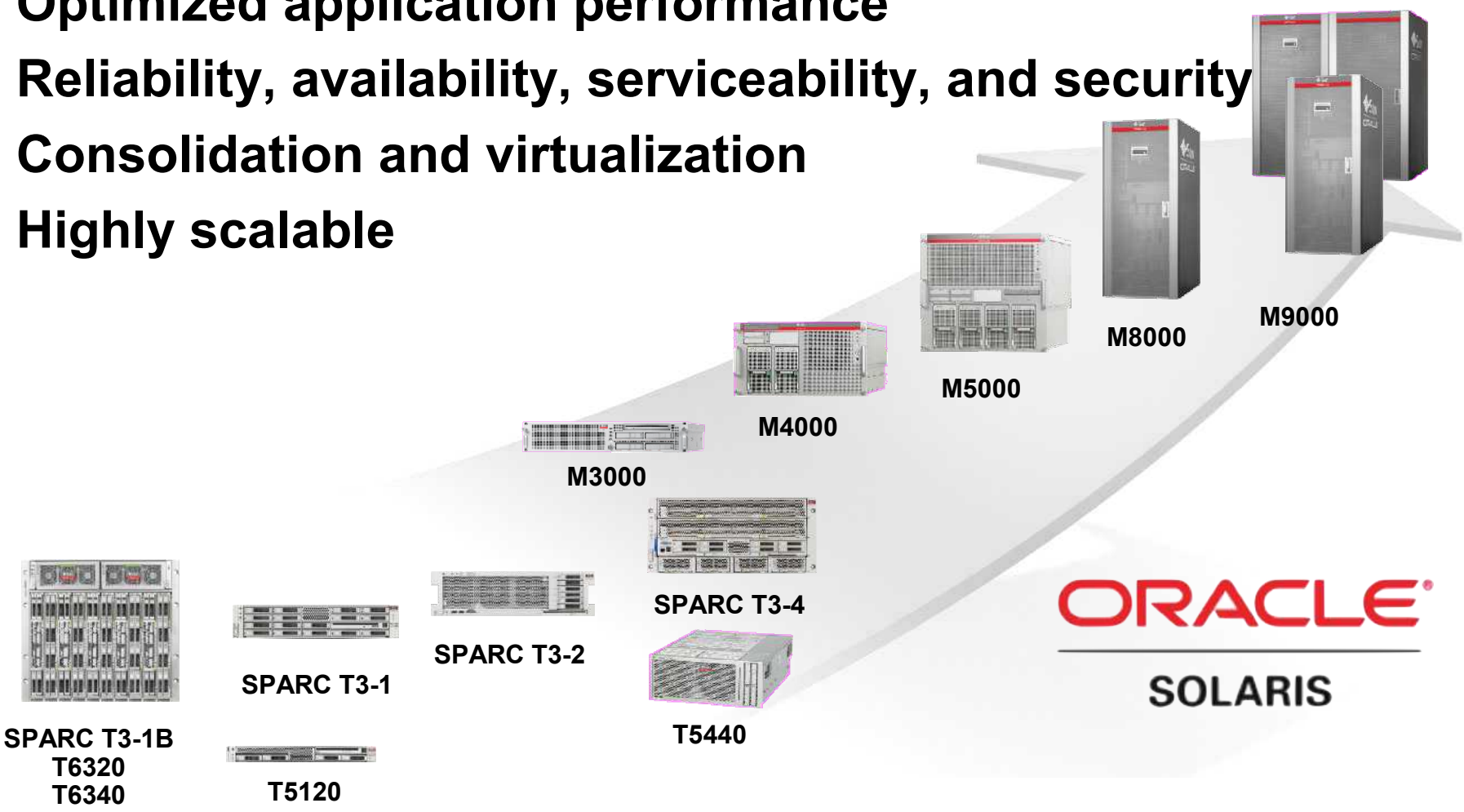
SPARC Enterprise Servers

Over 20 Years Of Mission Critical Computing

- Optimized application performance
- Reliability, availability, serviceability, and security
- Consolidation and virtualization
- Highly scalable



SPARC T3 Servers: Scaling to New Heights

Integrated, High Throughput SPARC Systems for Massive Scale

HIGH

SYSTEM THROUGHPUT

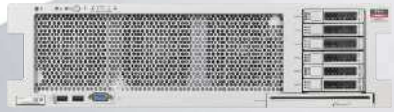
SPARC T3-1B Blade for Blade 6000

- 16 cores
- 128 threads
- Best density

SPARC T3-1

- 16 cores
- 128 threads
- Entry-level
- Price/performance
- General purpose

SPARC T3-2



- 32 cores
- 256 threads
- Medium scale
- Middleware Consolidation

SPARC T3-4

- 64 cores
- 512 threads
- Best Scale
- Most Crypto
- Best RAS

CONSOLIDATION

VIRTUALIZATION HIGH

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SPARC Enterprise Servers - Roadmap today

Maximizing Results

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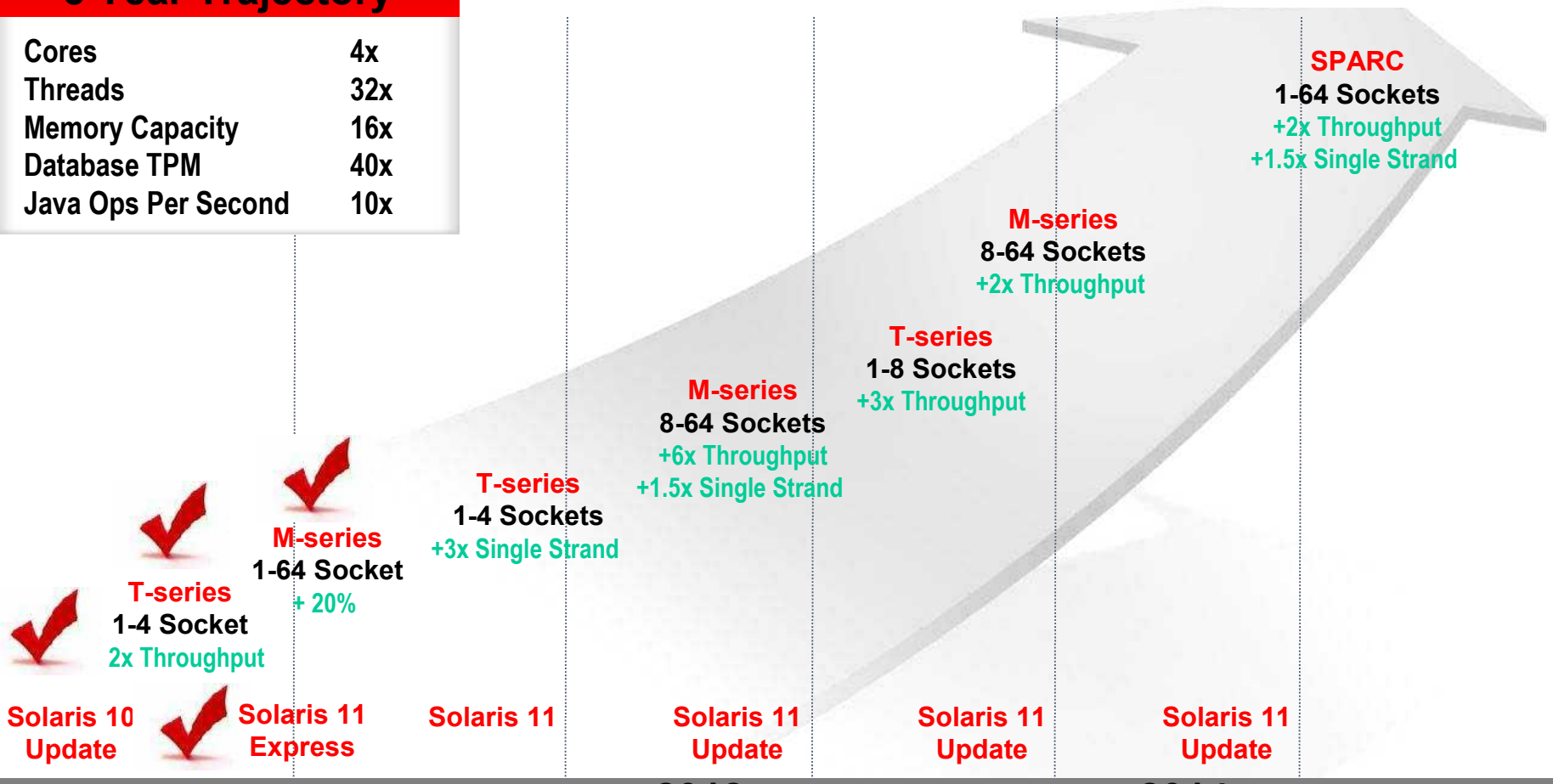

Oracle Solaris Outlook

Maximizing Integration

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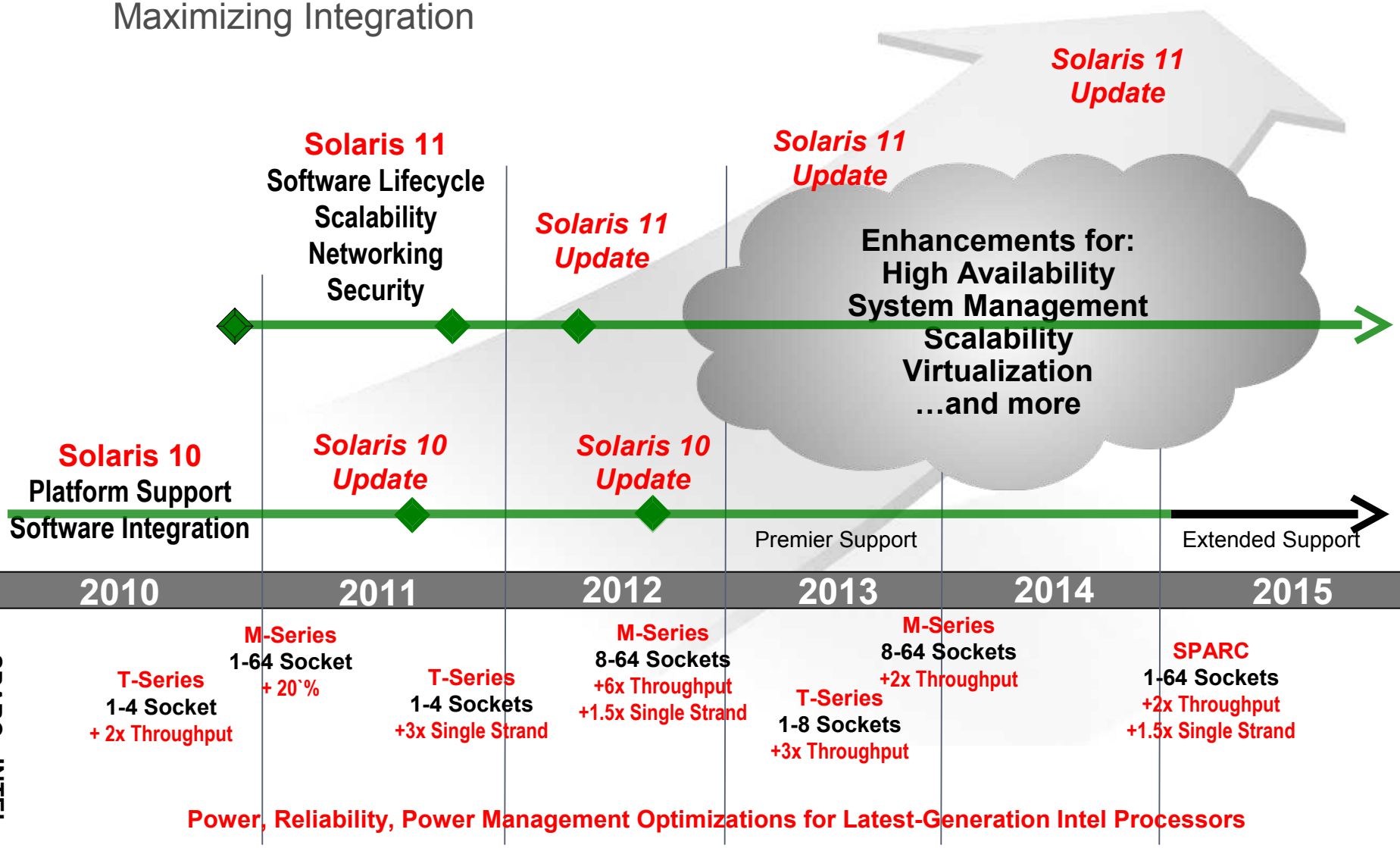

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Oracle Solaris 11 Express: Production Ready

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Oracle Solaris 11 Express is available and supported on hundreds of SPARC and x86 systems, including the latest Oracle engineered systems:

Oracle Exadata Database Machine &
Oracle Exalogic Elastic Cloud

The Operating System Matters

Innovation Pays

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- 20+ years development
- Leading-edge innovation
- Scalability and stability
- Get the most out of systems, applications

Next-Generation Attributes

Faster and Easier to Deploy, Configure, Update and Manage

- Dramatic reduction in Planned Downtime
- Virtualization Everywhere
- Designed for network-served Environments
- Security extends to the Cloud
- Guaranteed Compatibility

Oracle Solaris: Next-Generation Attributes

Dramatic Reduction in Planned Downtime

- Integrated online upgrade
  - Safely install software updates without bringing down production systems
  - Built-in fallback checkpointing
- Fast reboot
  - Quickly bring updates into service
  - Quick fallback if necessary
- Predictive self healing
  - Defers maintenance to fit your service windows

Oracle Solaris: Next-Generation Attributes

Virtualization Everywhere

- Optimized for Oracle VM for x86 and SPARC
- Network virtualization and resource control
  - Model a complete datacenter network topology in a single OS instance
- Storage virtualization
  - Oracle Solaris ZFS, MpxIO, integrated CIFS/Active Directory
- Oracle Solaris Zones
  - Built-in, highly efficient workload virtualization
  - P2V/V2V from older Oracle Solaris environments

Oracle Solaris: Next-Generation Attributes

Designed for Network-Served Environments

- High-performance network stack
- Fast, efficient cloned deployments
  - Leverages ZFS, Zones
- Integrated support for open and Windows-based file sharing, directory services
- Groundbreaking network virtualization
- Advanced network-based software update model
  - Automated dependency resolution
  - Custom distribution tools
  - Automated distributed installation

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Oracle Solaris: Next-Generation Attributes

Datacenter-Grade Security Extends to the Cloud

- Independently validated
  - Most comprehensive Target of Evaluation
- Solaris Trusted Extensions
  - Multi-level security, fully integrated into Oracle Solaris
- Secure by Default
  - “Just Enough OS” + “Just Enough Network”
- Root as a role
  - Configurable restricted roles
- File system crypto (ZFS)
  - Part of existing comprehensive built-in crypto framework
- Security-labeled network, file systems

Oracle Solaris: Next-Generation Attributes

Guaranteed Compatibility

- Guaranteed application binary compatibility since 2000
  - Covers any application that works on Solaris 2.6 (1997) or later—which may include applications developed in the early 1990s
- Guaranteed source code compatibility between platforms since 2005
  - Develop on x86, compile and deploy on SPARC, or vice versa
- Solaris Legacy Containers: leverage guaranteed binary compatibility to quickly and easily move entire environments to latest systems and OS releases

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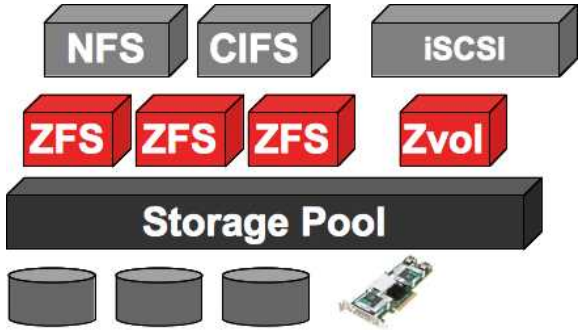
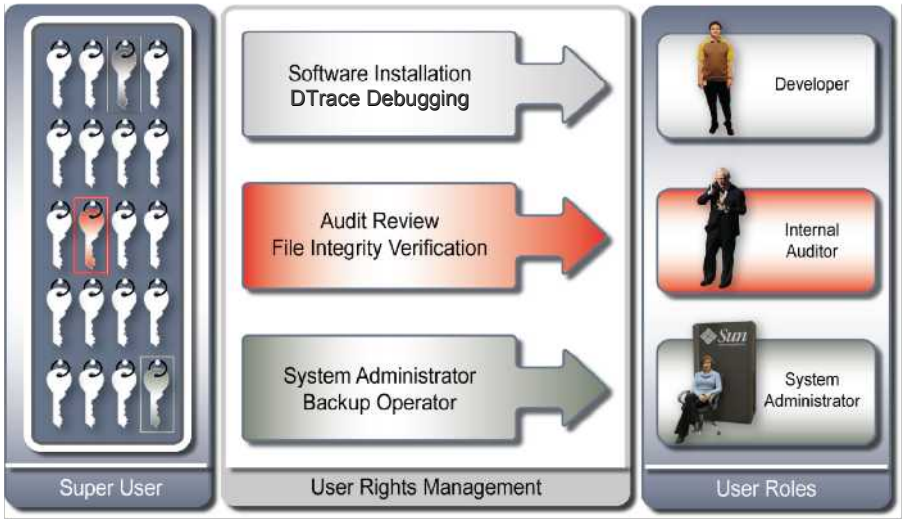
- **Data Management**
- Security
- Virtualization
- Lifecycle Management

Data Management



- Oracle Solaris ZFS:
  default file / storage management system
  - New services: deduplication and encryption
  - Manages both file and block data with tunable performance
  - Integration with installer/boot environment
- Hybrid storage pools: flash + traditional disk
- Support for use as SCSI target
  - Multiple transport protocols (iSCSI, Fibre Channel, InfiniBand...)
- Complete Windows file sharing interoperability
  - Fully integrated CIFS; Active Directory integration

Security and Naming Services



- Secure By Default
  - Network services disabled or local-only
- Root as a role
  - Users never log in directly to 'root'
  - Create custom roles
- Trusted Platform Module (TPM)
  - Hardware verification of OS at boot time
- ZFS cryptography
  - Protect data on a per-pool basis
  - Oracle Solaris Cryptographic Framework automatically uses acceleration features of SPARC and x86 processors

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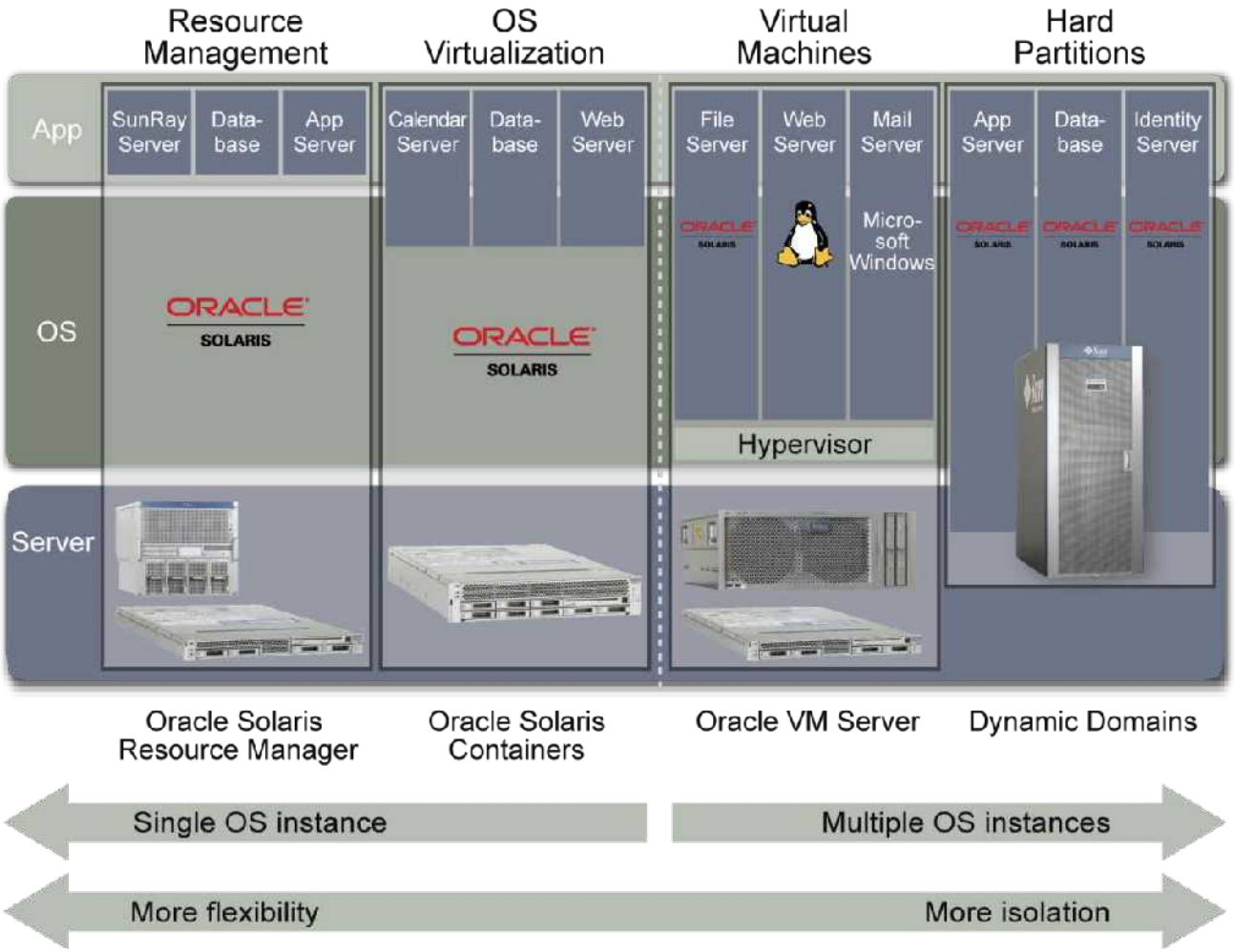
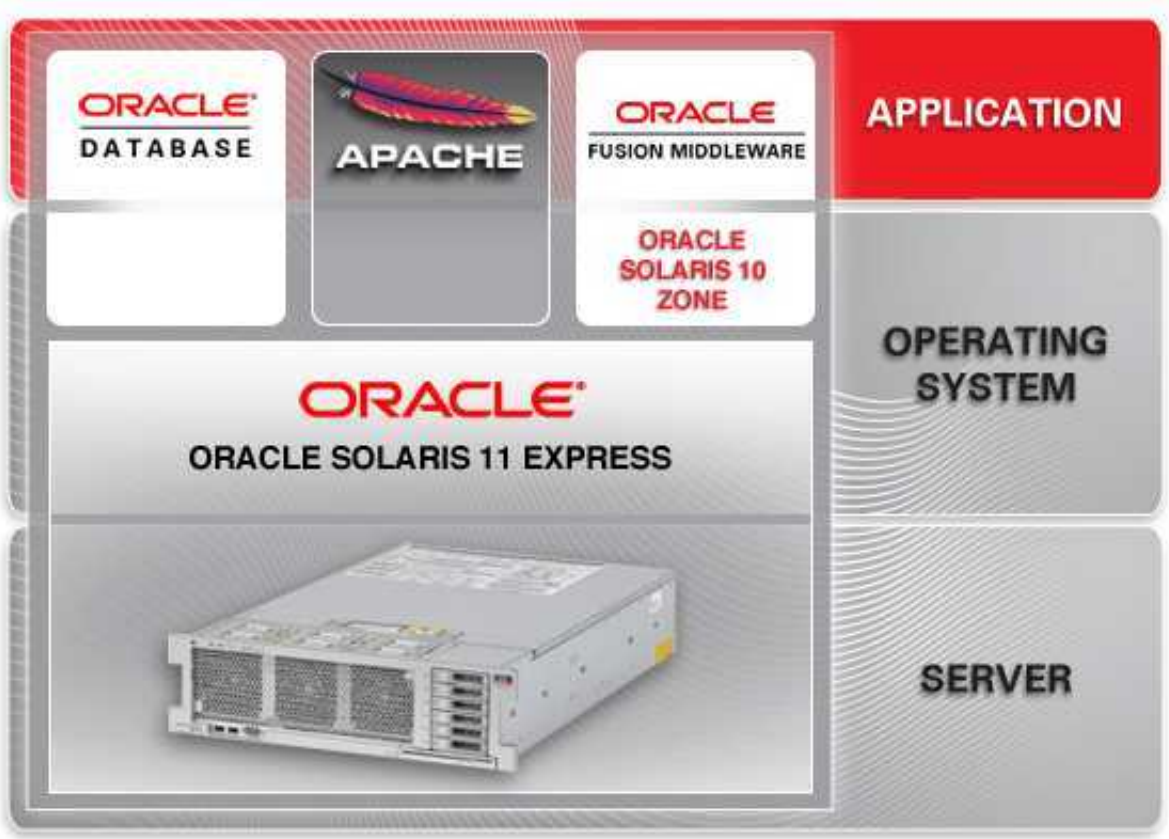
Virtualization Technologies

Available with Oracle Solaris and Oracle's Sun servers



Oracle Solaris Containers

Reduce Risk And Increase Security By Isolating Applications

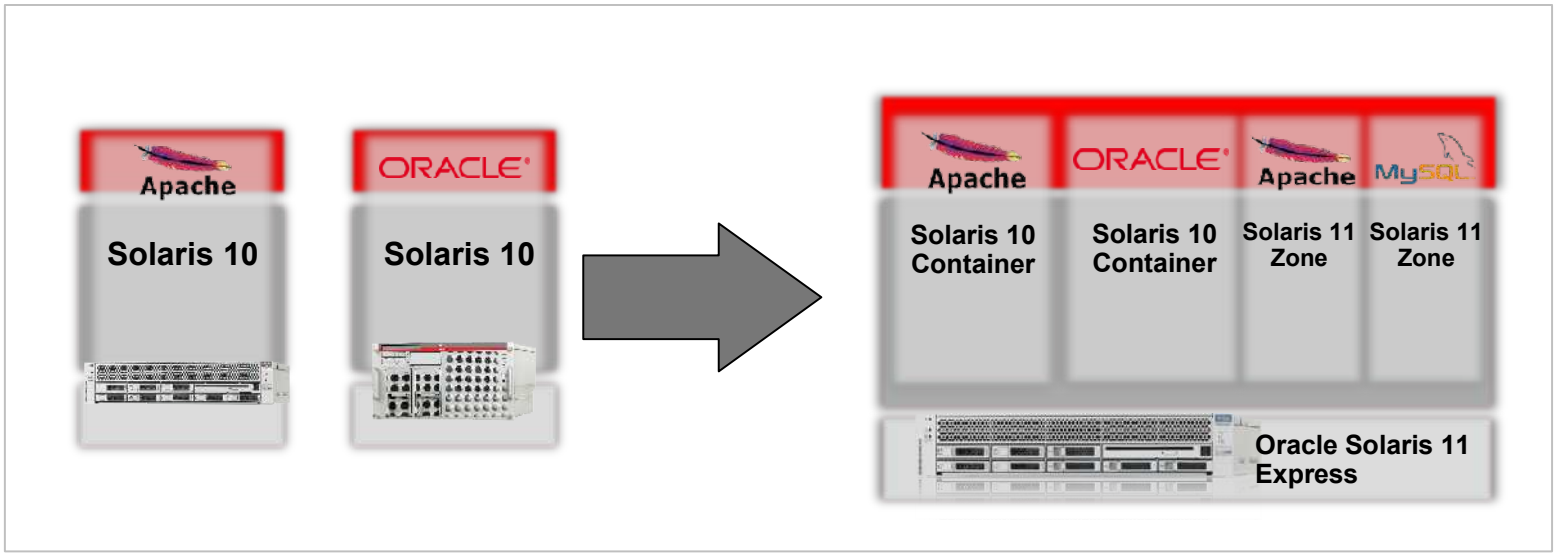


Oracle Solaris Zones

Recent Enhancements in Oracle Solaris 11 Express

- Integrated with ZFS boot environments and IPS
  - Sync software instead of patch
- Delegated administration model per zone
- Enhanced observability within a zone
  - Memory and CPU utilization
  - Total utilization and per-zone breakdown
- Integrated with network virtualization and resource control
  - Give Zone administrators complete control over the network stack
- Oracle Solaris 10 Container
  - P2V, V2V

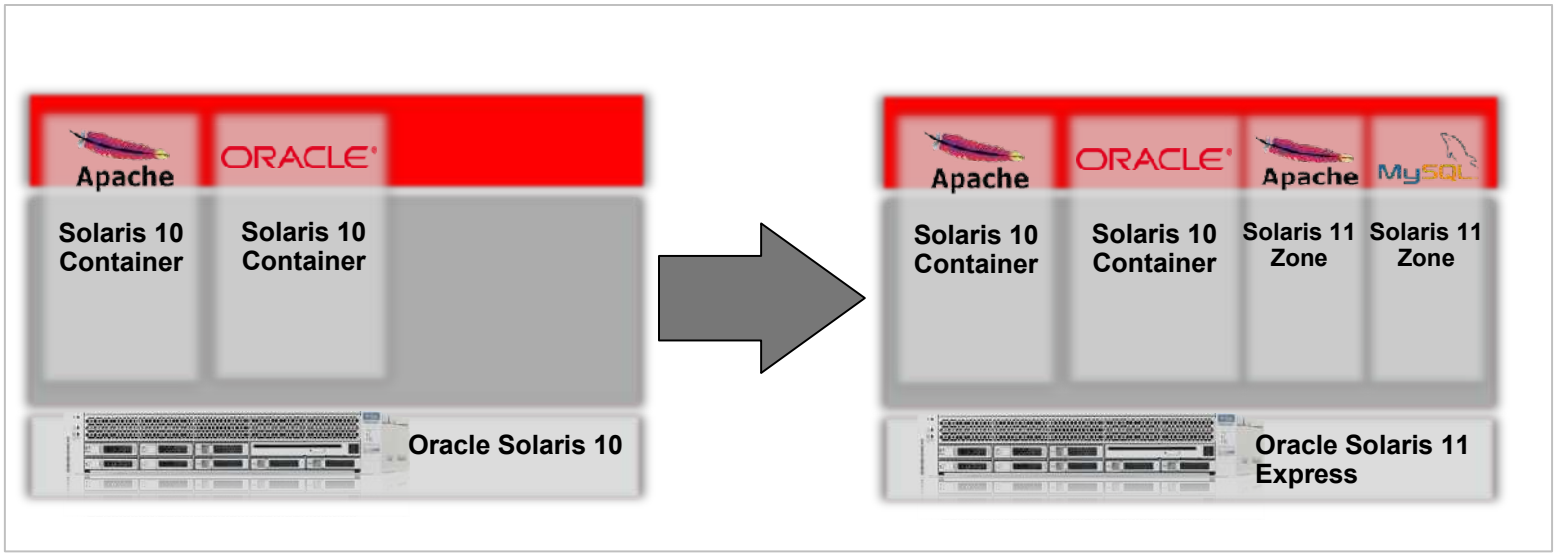
Investment Protection



P2V

Consolidate Oracle Solaris 10 systems into Containers running on Oracle Solaris 11 Express

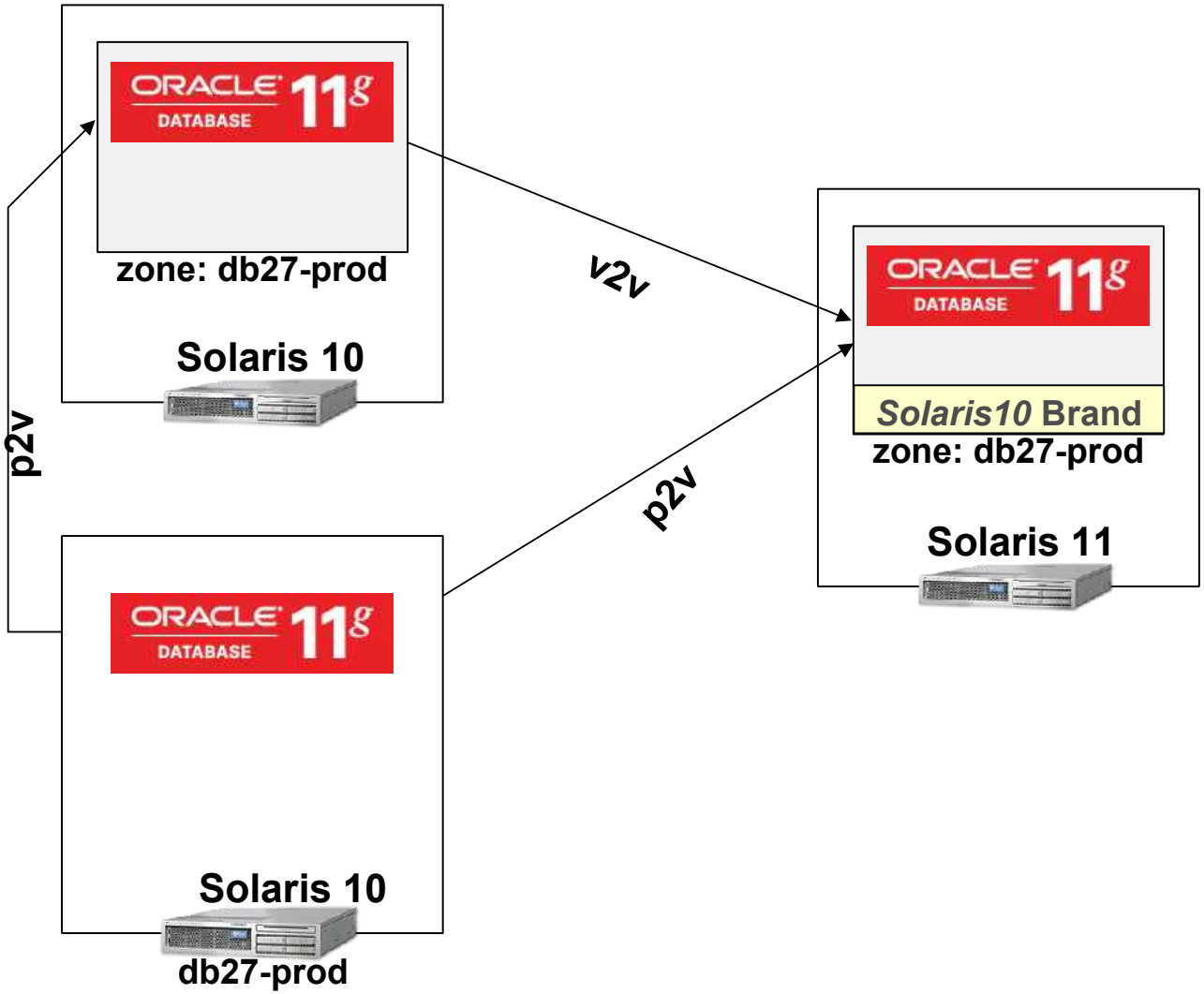
Investment Protection



V2V

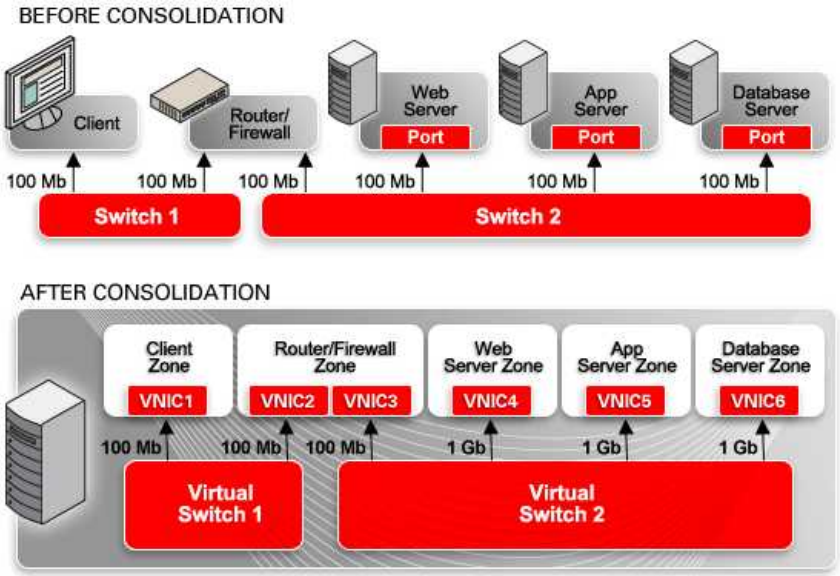
Consolidate Oracle Solaris 10 Zones into Containers running on Oracle Solaris 11 Express

Application Migration Path



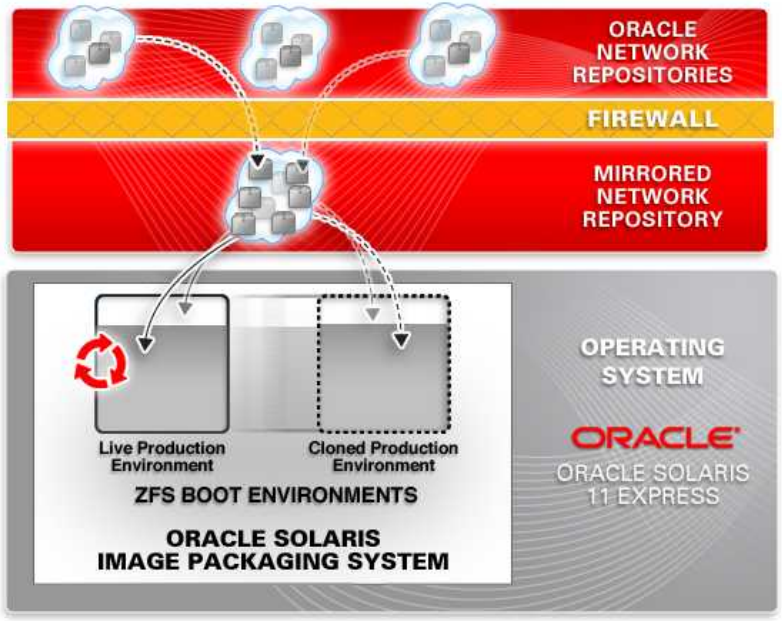
Network Virtualization and Resource Control

- Virtualized NICs
- Fine-grained monitoring and control
  - Set priority, bandwidth
  - Isolate traffic
  - Performance and utilization enhancements
- Model your datacenter networking topology in one OS instance
- Integrated with Oracle Solaris Zones
  - Gives zone administrators complete control over their network stack



Software Lifecycle Management

- Image Packaging System
  - Dependency checking, package versioning, updates not patches, OS minimization
- Network-based repositories
  - Get just what you need
  - Establish local repositories
  - Multiple repository support for updates
- Snapshot rollback
  - Oracle Solaris ZFS as root/boot filesystem
  - Safe online updates
  - Fast, “free”
- Distro Constructor, Automated Install



Hardware and Software, Engineered to Work Together

- **Highest quality**
  - **Test** the full Oracle app-to-disk stack **together**
- **Simplify maintenance**
  - **Coordinate** fixes on all layers
  - **Single patch** management tool
- **Oracle on Oracle**
  - **Run** our own business on our own products
  - New application **development** on Oracle Solaris and Oracle Linux

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- Join the conference to get the latest news after OOW
  - November 15th-17th, 2011 in Nuremberg, Germany
  - http://doag.de/konferenz/doag/2011/

Hardware and Software
Engineered to Work Together


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