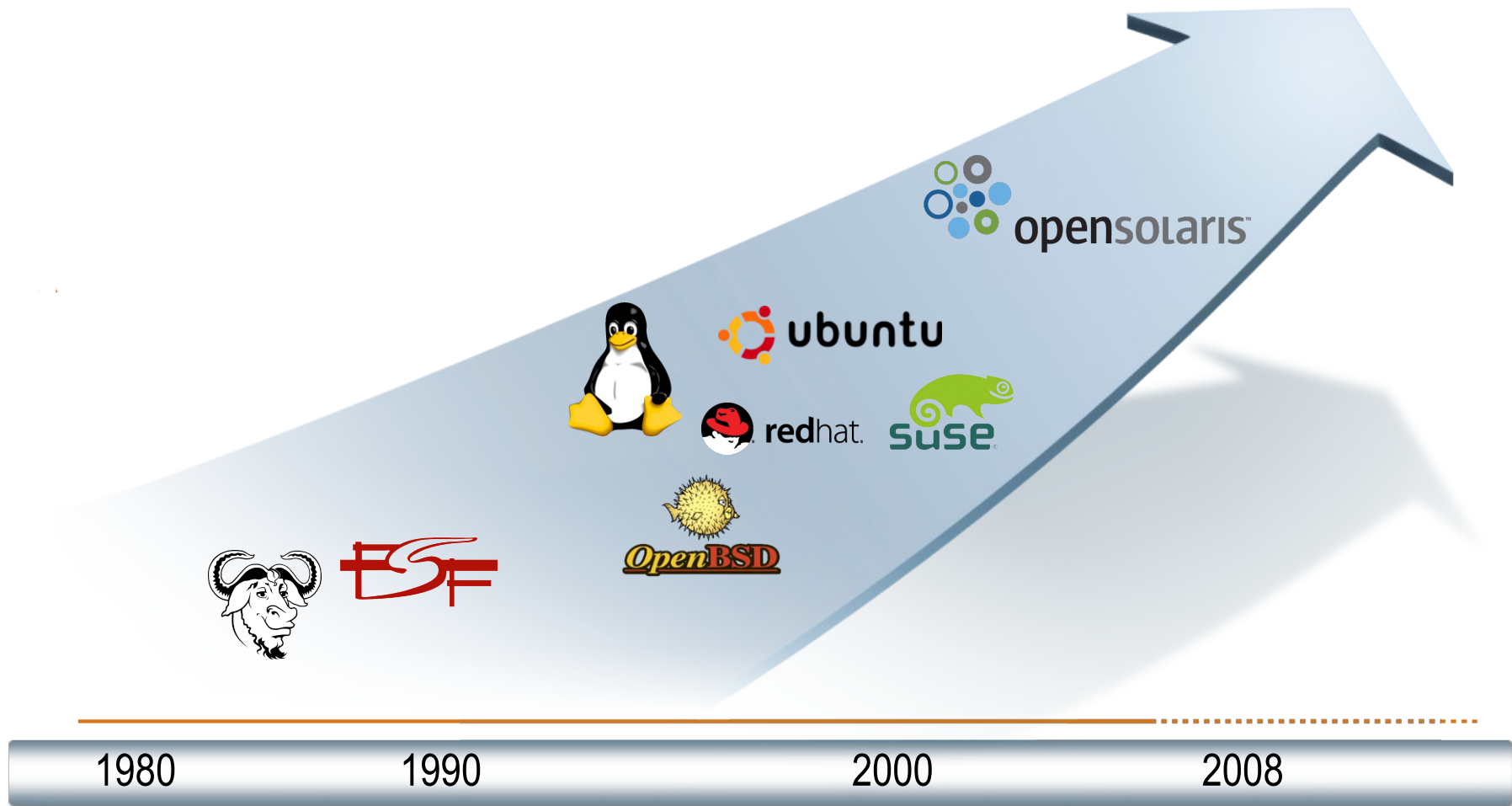




OpenSolaris

Mickey Fan
Global System Engineering
Sun Microsystems

Open Source Operating System Evolution



What is OpenSolaris?



Community Participation + Solaris Innovation

What Do Developers Want?

Turbo charged development environment.... understand every unique challenge in real time

Experiment rapidly without risk

Never lose data...it must always be available

Automatic backup and consistency of data

Easy to use.....Easy to Get

Collaborate with the leading minds in the open source development world

Be Brilliant Faster.



OpenSolaris: Unlock Potential.

OpenSolaris OS Release

- Redistributable LiveCD image
- Graphical installer
- GNOME/compiz desktop
- GNU tools; AMP/MARS deployment software
- Network package repository
- Leverages unique Solaris capabilities

Easy to Get, Install, Use, Maintain

Easy to Get



opensolaris.com



DistroWatch.com

- Single LiveCD image
- Redistributable
- Available everywhere
 - Sun download center
 - Peer-to-peer
 - Mirror sites

Easy to Install

- Simplified install and upgrade
- Localized graphical installer
- Automates basic system configuration



Easy to Use

- Familiar GNU user environment
- State-of-the-art window system
- Built-in developer tools
- Optimized Web 2.0 deployment packages



Easy to Maintain

Image Packaging System

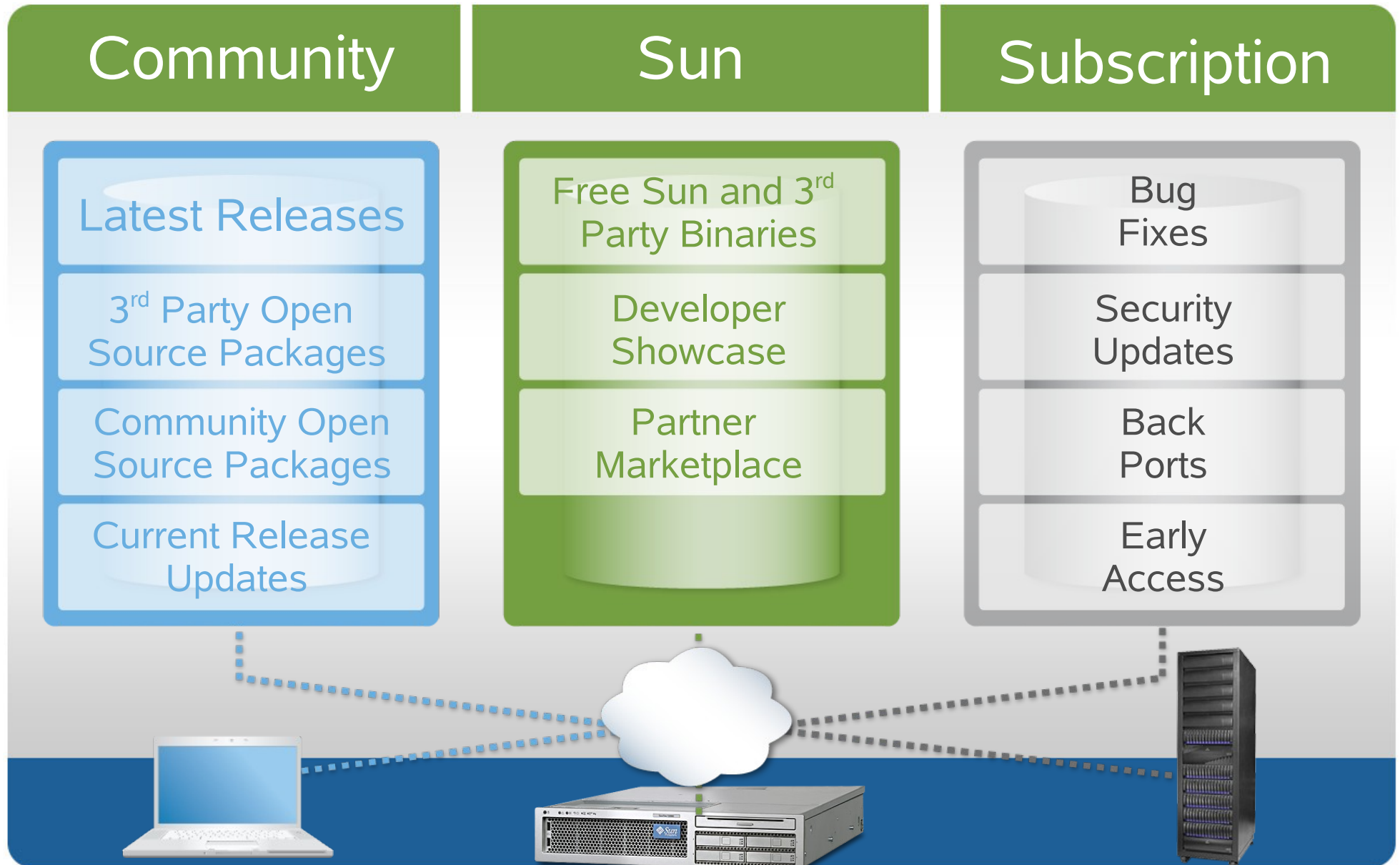
Upgradable
Frozen
Incorporated
eXcluded

```
Terminal
File Edit View Terminal Tabs Help
$ pkg refresh
$ pkg status -a | grep coreutils
pkg:/application/gnu-coreutils@6.7-0.71 uninstalled ----
$ pkg install gnu-coreutils
$ pkg status gnu-coreutils
FMRI                                STATE
pkg:/application/gnu-coreutils@6.7-0.71 installed ----
$ ls /usr/gnu/bin
basename      ...
```

```
Terminal
File Edit View Terminal Tabs Help
$ pkg refresh
$ pkg status -a gnu-coreutils
FMRI                                STATE
pkg:/application/gnu-coreutils@6.7-0.71 installed U---
$ pkg install gnu-coreutils
$ pkg status gnu-coreutils
FMRI                                STATE
pkg:/application/gnu-coreutils@6.7-0.72 installed U---
$
```

- Easy to administer
- Easy to package for the developer
- Rapid delivery of fixes
- Upgrade and rollback with ZFS snapshots

OpenSolaris Repositories



OpenSolaris 2008.05

- First release of the OpenSolaris OS
 - First OS with ZFS as default file system
 - Enhanced DTrace with D-Light
 - Fast in kernel CIFS server
- New OpenSolaris package repositories
 - Integrated & optimized AMP/MARS stack
- Fully supported for production deployments

Solaris ZFS



End-to End Data Integrity

64-bit checksums
Copy-on-write
transactions

Easier Administration

Pooled storage model—
no volume manager
Move volumes between
systems

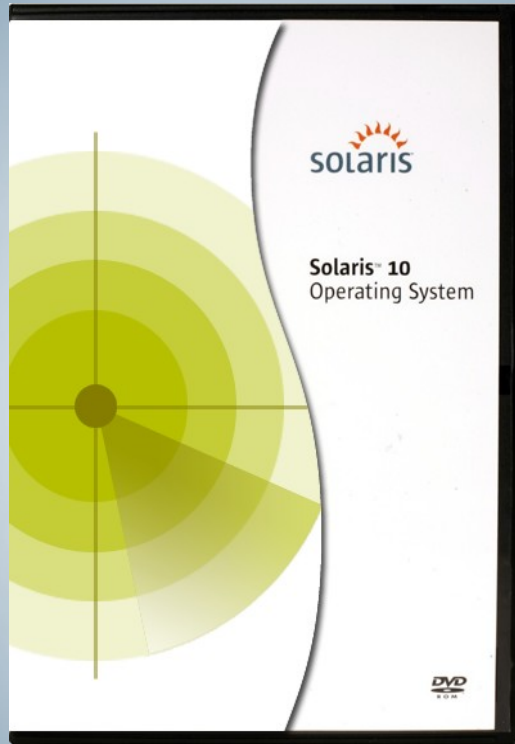


Immense Data Capacity

World's first
128-bit file system

Huge Performance Gains

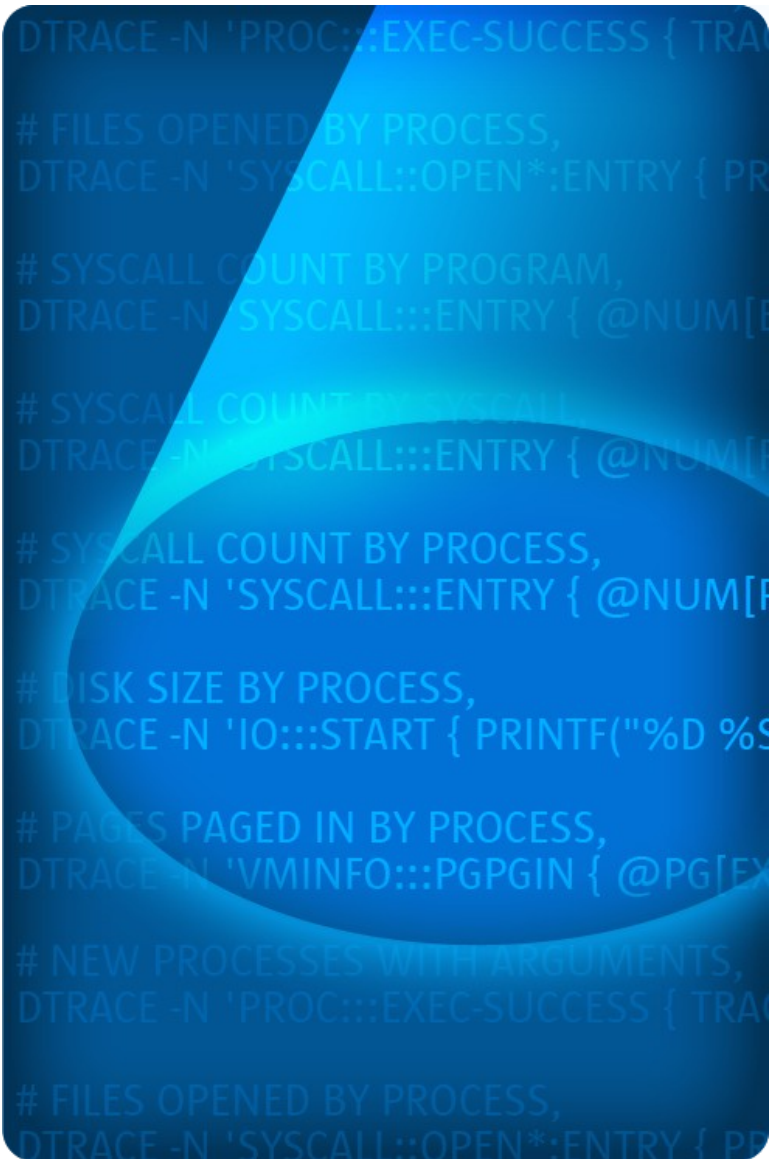
Especially architected
for speed



- Designed for use on production systems
- Problems solved in minutes, not days
- Instrument every line in every application
- Massive performance opportunities
- No code changes required

Extreme Observability: DTrace

Innovate in Real Time with DTrace



“ [expletive deleted] It’s like they saw *inside my head* and gave me the One True Tool.”

- View everything—from high level scripts to low level hardware
- Solve the gnarliest problems on the fly
- Safe enough to use in production, any time
- Serious fun for developers

System Virtualization Solutions

Hard Partitions



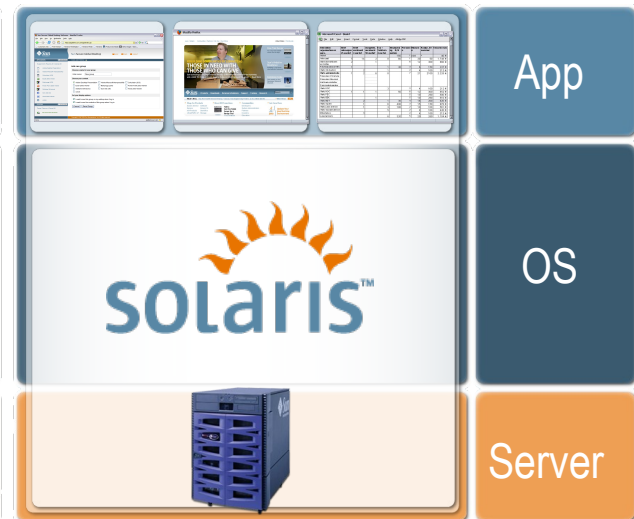
Virtual Machines



OS Virtualization



Resource Mgmt.



Multiple OS's
Trend to flexibility

Single OS
Trend to isolation

Dynamic System
Domains

Logical Domains

NEW
11/06
Xen
VMware

Solaris Containers
(Zones + SRM)

Solaris Containers
for Linux Applications

NEW
11/06
Solaris Trusted
Extensions

Solaris Resource
Manager (SRM)



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

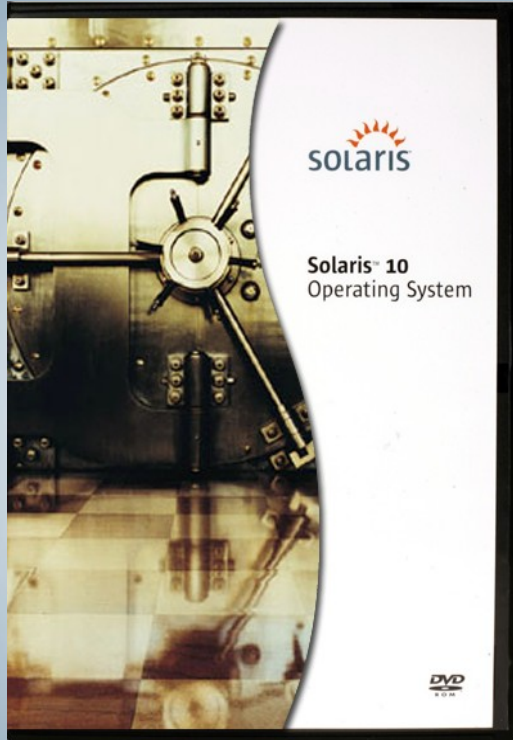
NEW
11/06



Run Multiple OS Instances on CoolThreads Servers

- Up to 32 Logical Domains per system
- Dynamic resource allocation
- Isolation via hardware/firmware
- Logical Domain Channels for fast domain communication
- Predictive Self-Healing integration

Logical Domains

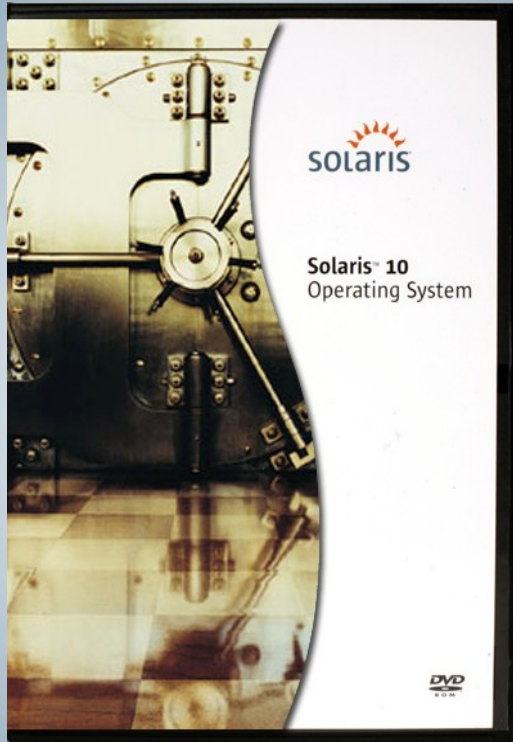


NEW
11/06

NEW
11/06

- Digital Certificates Everywhere
- IP Filter Firewall
- Secure Execution
- User Rights and Process Rights Management
- Cryptographic Infrastructure
- Secure by Default Networking
- Solaris Trusted Extensions

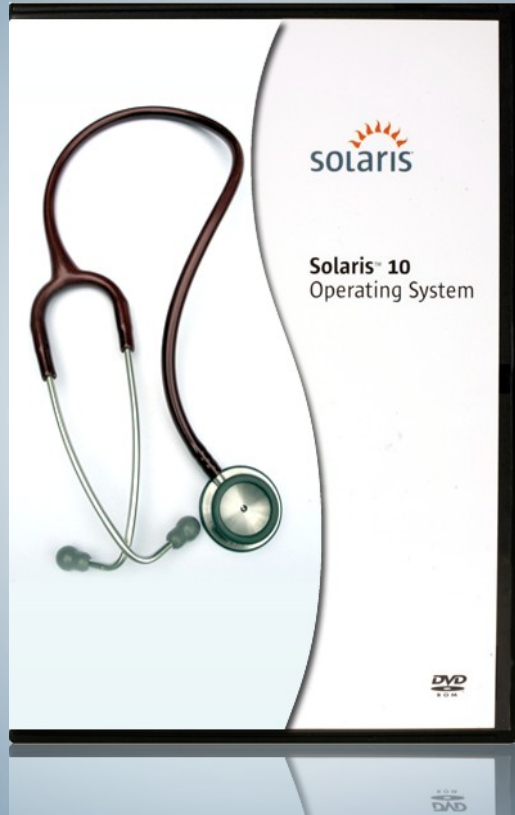
Solaris 10 Security



- Adds labeled security to Solaris 10
- Multi-level networking and printing
- Multi-level GUI
- Leverages existing privilege model
- Uses Solaris Containers
- Runs all Solaris applications
- High level of certification

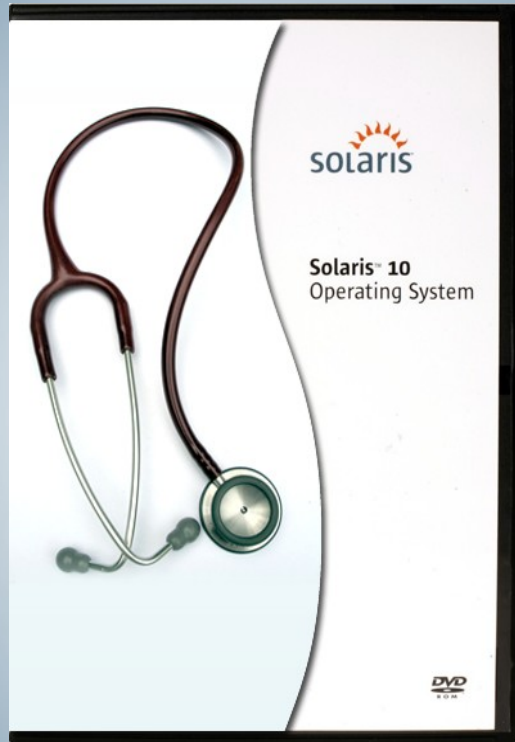


Solaris Trusted Extensions



- Stops problems before they happen
- Self-diagnosis in milliseconds
- Fine-grained recovery
- Zero source code changes required
- Solaris Fault Manager
- Solaris Service Manager

Predictive Self Healing



Solaris Memory Diagnosis and Retire

- **46%** reduction in annual downtime
 - System: 6 CPU, 12 core, 192 GB memory
 - **42%** reduction in annual interruption rate
- **32%** reduction in annual downtime
 - System: 4 CPU, 16 GB memory
 - **44%** reduction in annual interruption rate

Predictive Self Healing

World Class Support

	OpenSolaris Essentials	OpenSolaris Production
Telephone, Online Tech Support	Email only 48-hour Response	24/7 P1 Live Transfer
OpenSolaris full release and major updates	✓	✓
Knowledge base access	✓	✓
Sun alerts and notifications	✓	✓
Installation assistance	✓	✓
Sun Spectrum eLearning Library	✓	✓
Administration support*	✓	✓
Solaris fix and errata patch updates		✓
OpenSolaris Features		
OpenSolaris 6 month releases	✓	✓
Free Sun and OpenSolaris Community IPS server	✓	✓
Sun OpenSolaris Premium IPS Server	✓	✓
OpenSolaris Bug Logging	✓	✓
OpenSolaris Bug Escalation		✓
Open Stack and Postgres Support		*promo inclusion

OpenSolaris.com

○ Learn

- Explore the learning opportunities
- Get the guides and videos

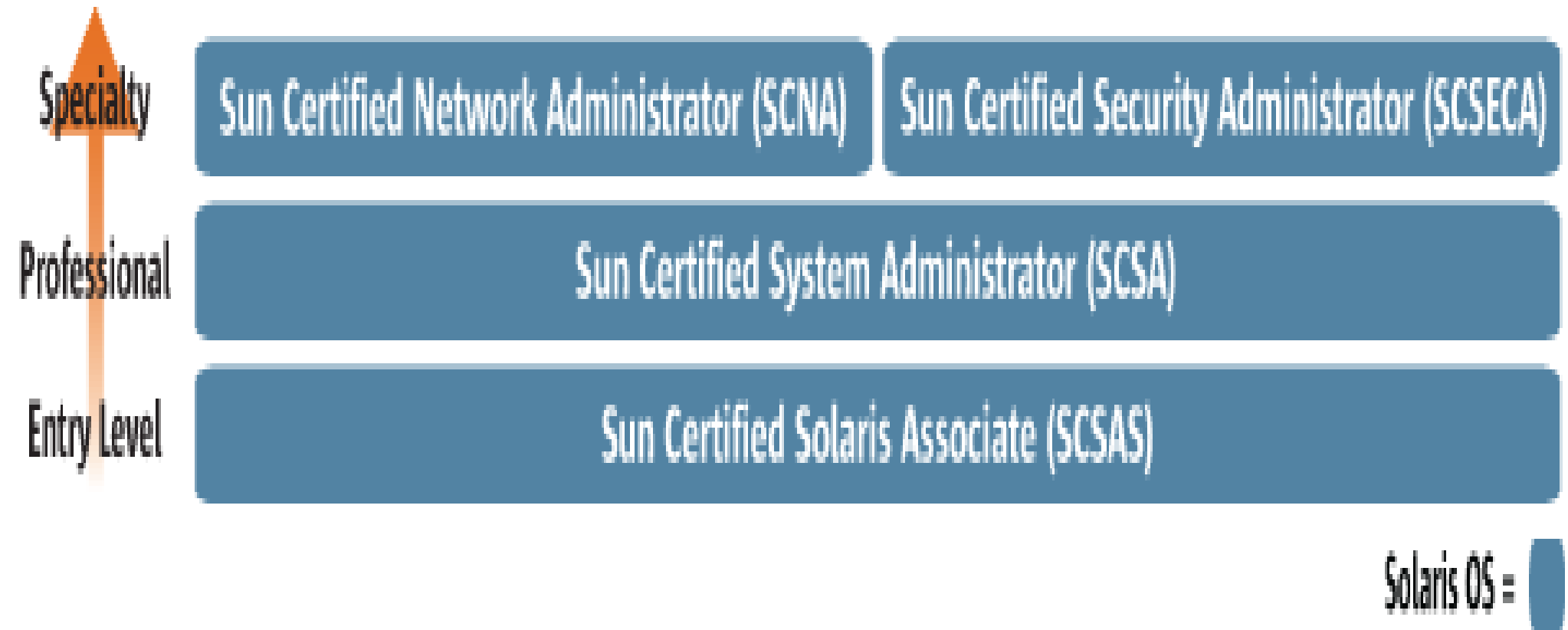


○ Collaborate

- Join the communities
- Make your mark; help shape the next generation of the Solaris OS
- Connect with Sun distinguished engineers and other leading lights of the OpenSolaris community



Solaris Certification Program



OpenSolaris Unlocks Your Potential



opensolaris.com/get

OpenSolaris: Get it. Use it. Learn it. Be Brilliant.



Thank You.

Mickey.Fan@sun.com

Demo List

- ZFS – RaidZ & Rollback
- Dtrace – JavaScript tracing & Chime
- Container - Creation