Solaris & OpenSolaris

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Solaris

- The most Powerful, Stable and Secure – Advanced Enterprise Operating System on the Planet!
  - A 10+ years suppport life cycle
  - Guaranteed compatibility for 7 years
  - Guaranteed source code compatibility
    - SPARC to x86 / AMD64
  - By design – stable, secure, reliable, scalable, observable, high performance
  - Releases extend rather than replace
  - The latest version
    - Solaris 10 5/09 (Update 7)

Evolution of a Hero!

Sun Unix 0.7	Sun OS 1.0	Sun OS 2.0	Sun OS 4.0	Sun OS 4.1
First version of Sun Unix based on 4 BSD.		•VFS and Vnode framework. •NFS implemented	•New VMS •Dynamic linking •First Sparc •Support i386	·OpenWindow graphics Environment ·Assymetric Multiprocessing
1982	1983	1985	1988	1990

SunOS+BSD+SVR3 + Xenix = SVR4 **SVR4 + Multiprocessor scalability = Solaris**

Solaris 2.0	Solaris 2.1	Solaris 2.2	Solaris 2.3	Solaris 2.4	Solaris 2.5	Solaris 2.6
Solaris was born.	4 way SMP	•Large file support •Ported to x86	•8-way SMP •Device power management	•20-way SMP •Slab allocator •Cachefs •CDE environment	•64-way SMP •Large page support •Doors •NFSv3	•Dynamic processor sets •Dynamic reconfiguration
1992	1992	1993	1993	1994	1995	1996

Evolution of a hero! (contd...)

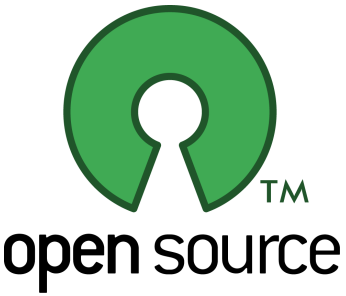
Solaris 7	Solaris 8	Solaris 9	Solaris 10
•First 64 bit UltraSPARC Release •UFS Logging	•Multipath i/o •Solaris Volume Manager •Ipv6 & ipsec •RBAC	•Resource Management •Extended File Attributes •IKE IPSec Keying •Linux Compatibility	•Zones •ZFS •SMF •Dtrace •More Platforms supported including x64
1998	2000	2002	2005

Solaris x OpenSolaris

- Operating systems, which evolves

What Does It Mean?

- Project OpenSolaris (www.opensolaris.org)
  - Source code for all major innovations in Solaris 10 is part of OpenSolaris
  - Everyone can browse the sources, compile and use them
- Development continues in open way
  - Projects and communities at opensolaris.org
- A true open source project
  - CDDL license is approved by Open Source Initiative (oss.org)

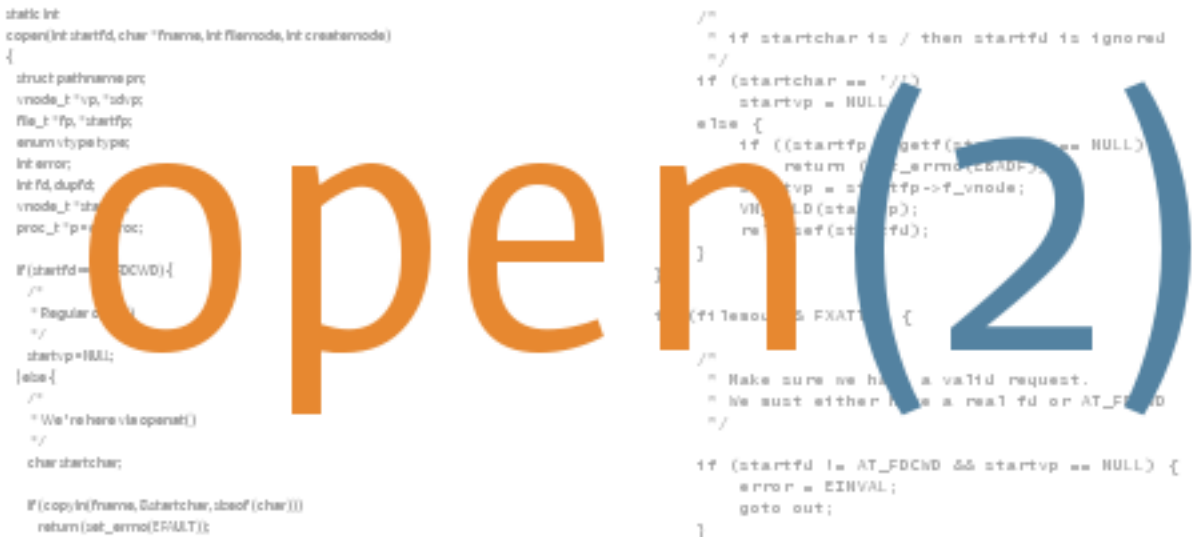


Who Knows?

- When project OpenSolaris was released?

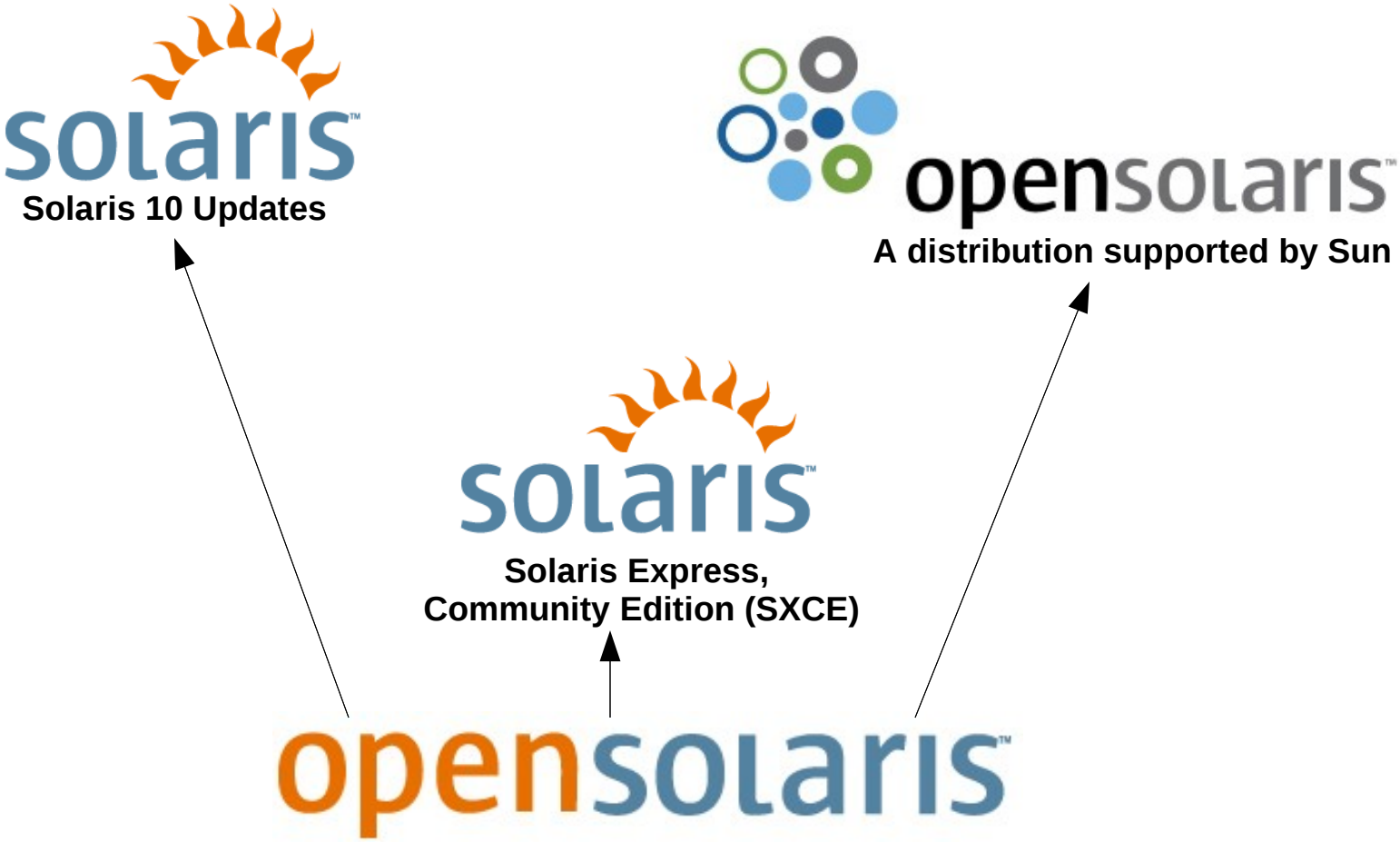
The Answer Is ...

- … June 14th, 2005



So, How Does It Work?

- Innovation in OpenSolaris



But Wait, There Is More ...

- Innovation in OpenSolaris drives other projects
  - OpenSolaris based distributions
    - BeleniX, Nexenta, SchilliX, marTux, MilaX…
  - Technology ports
    - ZFS – Mac OSX, FreeBSD, Linux
    - Dtrace, Mac OSX, FreeBSD

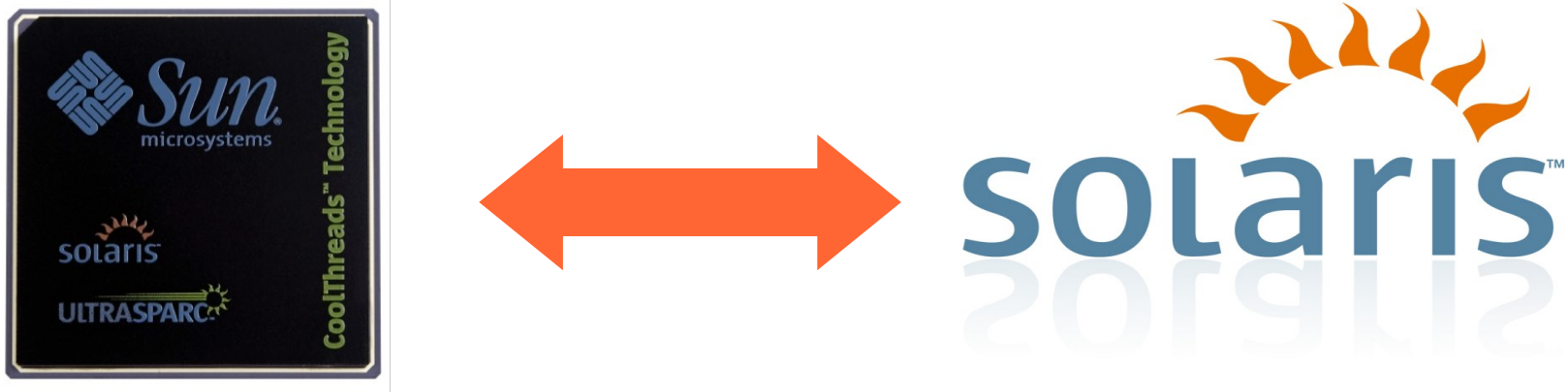
SchilliX

Important Solaris 10 Features

- Reliability
- Scalability
- Observability
- ZFS
- Service Management Facility (SMF)
- Virtualization
- Solaris Containers (Zones)

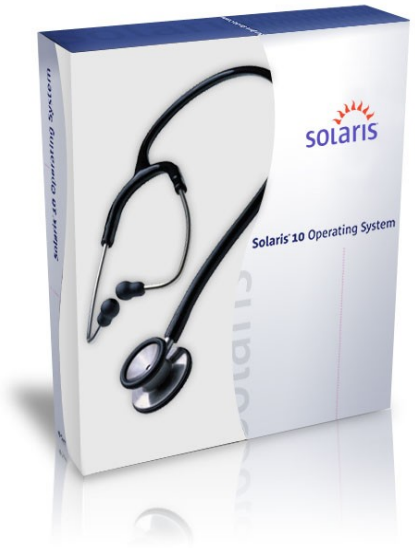
Scalability

- Scales from single processor to multi-processor / multi-core machines
- Multithreaded kernel
  - User threads are mapped directly to kernel threads – ideal for multicore processors



Observability

- DTrace is designed for use on production systems
  - Problems solved in minutes not days
  - Instrument every line in every application
  - No code changes required
- Many other tools for monitoring
  - CPU's, processes, disk behavior, file systems, memory, kernel



Many Other Observability Tools

- CPU's
  - vmstat, psrinfo, uptime, mpstat, prstat, ...
- Processes
  - prstat, ps, ptree, pstat, pmap, truss, pgrep, …
- Disk behavior, file systems
  - iostat, sar, nfstat, …
- Memory
  - kstat, pmap, mdb, prstat, vmstat, …
- Networks
  - Netstat, kstat, nicstat, ping, traceroute, snoop, …
- Kernel,
  - Lockstat, mdb, ...

ZFS

- Rock Solid stability & reliability
- Pooled storage
  - No need for a separate volume manager
- Always consistent on disk
  - Copy-on-write transactions, checksums, self-healing in replicated configurations

- Snapshots (read-only) on clones (writable)
- Built-in compression
- Simplified adiministration

Who Knows?

- What “ZFS” used to stand for?

The Answer Is ...

- … “Zettabyte File System”

Service Management Facility (SMF)

- Replaces traditional start-up scripts
- Infrastructure for running services, support of depenedences
- Automated restart of services
- smf (5) – simple user interface for service management, configuration and observation
  - Easily enable and disable service
  - Takes care of dependences

Supported Virtualization Types

- Hardware Partitions
  - Dynamic System Domains
- Virtual Machines
  - Logical Domains (LDOMs) – UltraSPARC
  - xVM (Xen) – x86, OpenSolaris only
- OS Virtualization
  - Solaris Containers (Zones)
- Resource Management
  - Solaris Resource Manager (SRM)

OpenSolaris

- Binary distribution created and supported by Sun (www.opensolaris.com)
- 6-8 months release cycle
- Contains the latest features, technologies, HW support
- Two support levels (Production, Essential)
- Basis for Solaris Next

Who Knows?

- When was the last version of OpenSolaris released?

The Answer Is ...

- … OpenSolaris 2009.06 was released on June 10, 2009

OpenSolaris Features

- Recall … OpenSolaris provides all the S10 features + there is much more
  - New installer, live CD
  - New packaging system (IPS)
  - Improved desktop based on the latest GNOME, Compiz, multimedia support
  - Time Slider
  - Networking – Crossbow, NWAM
  - xVM – hypervisor based virtualization (Xen)
  - Many FOSS packages ported on OpenSolaris

Package Repositories

- Everyone has access to:
  - http://pkg.opensolaris.org/release
  - http://pkg.opensolaris.org/webstack
  - http://pkg.opensolaris.org/dev
  - http://pkg.opensolaris.org/contrib
  - http://pkg.opensolaris.org/pending
- Registered users have access to:
  - http://pkg.sun.com/opensolaris/extra
- OpenSolaris customers have access to:
  - http://pkg.sun.com/opensolaris/support

Subscription Support Levels

- Production
  - Telephone support
  - On-line and e-mail
  - Package updates
  - Error escalation
  - Error logging
  - Knowledge base access
  - Sun alerts and notifications
- Essential
  - Not provided
  - 8x5, 48 hrs response
  - Package Updates
  - Error escalation
  - Error logging
  - Knowledge base access
  - Sun alerts and notifications

Support Details

- Standard escalation process
  - Service case logged, if needed an error is escalated, solved, relief and final fix is provided
- Support Repository Updates (SRU)
  - Available to OpenSolaris customers
  - Based on top of the latest 6 monthly release
- After 6 months (a release N+1 is available)
  - Only IDR (Interim Diagnostic Relief) is provided
  - Customers must upgrade to the latest OpenSolaris release to get the final fix

Czech OpenSolaris Users Group

- CZOSUG
  - Established in October 2005
  - Many meetings and all-day events
  - http://www.opensolaris.org/os/project/czosug
  - ug-czosug@opensolaris.org
- Members
  - People working with Solaris and OpenSolaris
  - Students
  - Sun employees

Demo, demo, demo, ...

Solaris & OpenSolaris

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