

# OmniOS: Enterprise Open-Source Unix Operating System

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CyHub Armenia — Feb 8, 2024

# Agenda

- History of Unix
- History of Sun Microsystems
- Creation of illumos
  - illumos distributions
- History of OmniOS
- OmniOS (and illumos) Technologies
  - ZFS
  - DTrace
  - Crossbow
  - SMF
- OmniOS Demo
  - For Operators
  - For Developers
- illumos.am, The Armenian Mirror!

# If you want to do the workshop live with me...

- Download OmniOS from the Armenian mirror...
- `downloads.omnios.illumos.am`
- <https://downloads.omnios.illumos.am/media/r151048/>
  - `omnios-r151048.iso` for installation in a VM (VirtualBox, QEMU)
  - `omnios-r151048.cloud.vmdk` for Cloud Deployment Image
- We will start our demo after the history lecture...

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# History of Unix

In the beginning when God created the hardware and the software, the software was unportable, hard to use and “academic”.

Then God said “Let there be Unix!” and there was Unix.

And God saw that Unix was good, and God separated Unix from the hardware and made it portable...

And Unix was everywhere, so God ported himself in order to make Unix the standard on all hardware and bring the joy to software

## But Unix was not one

- Unix
  - Developed at AT&T Bell Labs
- BSD (Berkeley Software Distribution) Unix
  - Developed at Computer Systems Research Group (CSRG) at UC Berkeley
- SunOS
  - Developed at Sun Microsystems (we'll get there)
- And many more, because Open-Source was common before it was cool

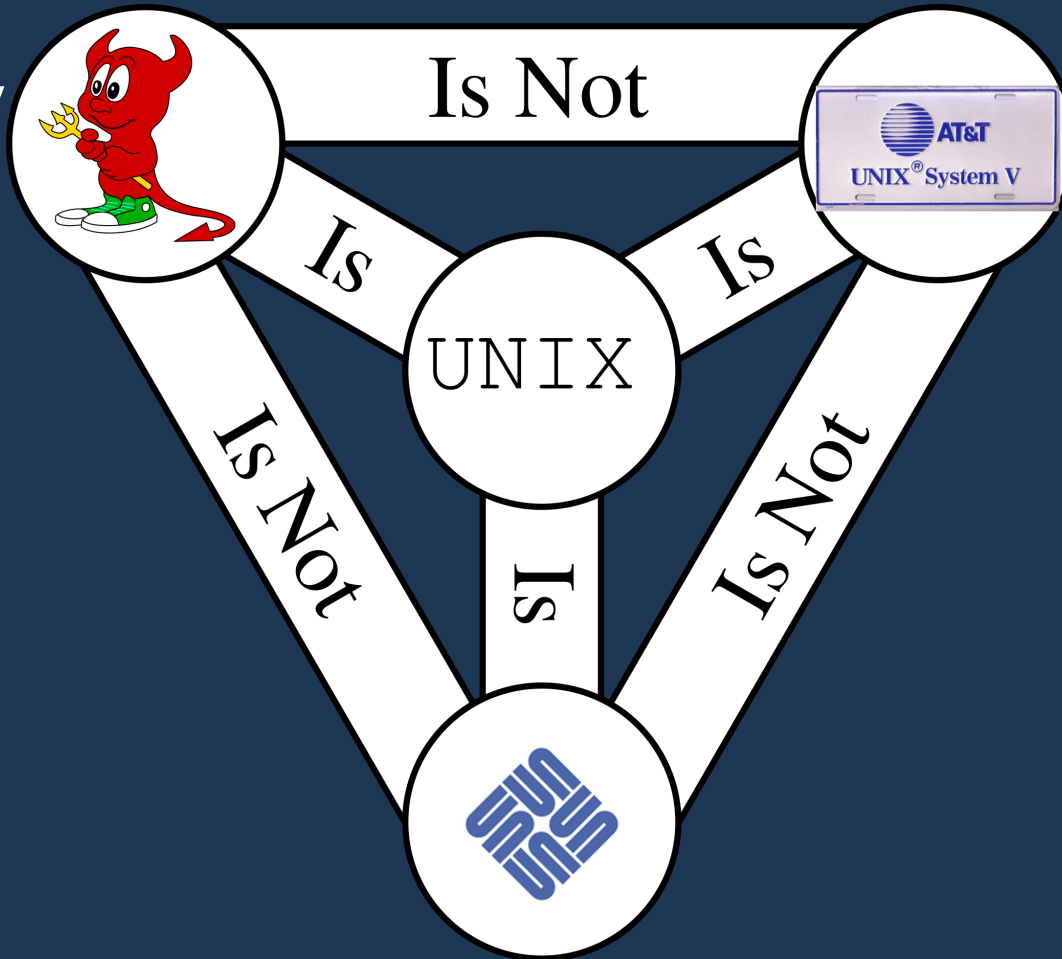
# Unix at AT&T

- Unix System V
  - System Five
  - Commercial Unix from AT&T
- Competing with BSD
- Multiple iterations
  - SVR1 (System V Release 1), SVR2, SVR3, SVR4, SVR4.2, SVR5, SVR6

# History of the Sun

- Scott McNealy, Andy Bechtolsheim and Vinod Khosla co-founded Sun Microsystems at February 24, 1982
- Bill Joy (primary developer of BSD) joined later
- SUN meaning the Stanford University Network
- Sun release **SunOS** (based on BSD)
- Sun was “the open company”
  - Created, open-sourced and ported NFS everywhere
    - for me to suffer optimizing it 25 years later :)
- Sun did much more
  - Java, RISC, SPARC, RPC, etc...

Unix Trinity



# Where are they now?

- BSD vs AT&T
  - BSD got a lawsuit from AT&T for using AT&T's code
  - BSD's changed the final code resulting in a win
  - Many BSD-based operating systems are alive and kicking
    - FreeBSD
      - HardenedBSD
    - NetBSD
      - OpenBSD
  - FreeBSD is the base of macOS/iOS/tvOS/etc, PlayStation 3+, Netflix's CDN and much more (including illuria's LureOS!)

# More FreeBSD?

- Check out my talks
  - [FreeBSD: Not a linux distro](#)
  - [Building a cloud in 360 seconds with FreeBSD](#)
  - [Personal Server 101](#)

# SunOS + System V = Solaris + SVR4

- SunOS got rebranded to Solaris
- 1990s, Sun had a painful transition from SunOS 4.x to Solaris
- But Solaris 2.4 was a nightmare
- However... Solaris 2.5 got things right, thanks to Jeff Bonwick being the BDFL of the OS
- Solaris 2.5 was released on time and with good quality!

# The Bonwick Youth and the Dark Ages

- Dark Ages has arrived...
  - *“Windows NT is the future of computing!”*
- Everyone moved to Microsoft and Sun was left alone
- Sun’s best decision: Operating System level innovation!
- Sun at the 90s was the Xerox of the 70s
- Revolutionary ideas
  - ZFS
  - DTrace
  - Zones
  - FMA
  - SMF
  - Crossbow

# Open Source?

- Solaris was NOT Open-Source at the time
- Rise of Linux and the cost of Operating Systems being almost zero made Sun decide to Open-Source Solaris
- Turns out Open-Sourcing 30+ years of code is... *hard!*
- For more details, check ["Fork Yeah!"](#) by Bryan Cantrill

# Open-Source!

- DTrace was Open-Sourced in January 2005
- The rest of the OS in June 2005
- And everyone was open...
- Helloooooooo *OpenSolaris!*

## The sad news...

- The world was having a hard time in 2008
- Sun was part of the world
- Sun was sold to Oracle
- Oracle decided to stop shipping OpenSolaris...

## The birth of illumos

- Coolest logo ever!
- Garrett D'Amore, Rich Lowe, Jason King and many more rewrote the closed parts from scratch or by porting it from BSD counterparts
- illumos was released on August 3, 2010





# Some of illumos distros

- OpenIndiana
  - The continuation of OpenSolaris (aka Project Indiana)
- OmniOS
  - Enterprise Operating System for servers
- SmartOS
  - hypervisor-style OS
- NexenStor
  - NAS solution
- Tribblix
  - by Peter Tribble, retro style Unix
- and many more... <https://illumos.org/docs/about/distro/>

# OmniOS

- Released at LISA12 by OmniTI
  - [OmniOS: Motivation and Design](#)
- Just Enough Operating System
- In 2017, OmniTI passed OmniOS Community Edition to... the community
- *Andy Fiddaman (www.citrus-it.net), Tobias Oetiker (www.oetiker.ch) and Dominik Hassler have spent some quality time setting up the systems and procedures allowing us to take over maintenance and development of OmniOS*
- Can be self-hosted (OmniOS building OmniOS)

# OmniOS Demo!

- Installation
- ZFS
- Zones
  - zadm
- Crossbow
- DTrace
- IPS



# Armenian Mirror!

- `illumos.am` as the main domain
  - Domain hosted on Hurricane Electric and Signed with DNSSEC
- `omnios.illumos.am` for OmniOS things
- `pkg.omnios.illumos.am` as IPS/pkg mirror for
  - Stable (Done!)
  - LTS (still downloading)
  - Bloody (Coming next week)
- `pkgsrc.illumos.am` as mirror for `pkgsrc.SmartOS.org`
- Hopefully... more to come!
- THANK YOU CyHub Armenia!

## Be part of the illumos community!

- Armenian members talk illumos at Sarian forum and XMPP/Telegram chat
  - սարեան.ցանցառնէր.հայ
  - sarian@conference.jabber.am
  - [https://t.me/sarian\\_netters](https://t.me/sarian_netters)
- The larger illumos community at
  - Mailing Lists: <https://illumos.topicbox.com/>
  - Telegram: <https://t.me/illumosDistros>
  - IRC: #illumos #omnios #smartos at Libera.Chat
- Come and say hi!

*That's all folks...*

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*Q&A*

<https://antranigv.am> | <https://անդրանիկ.հայ>