Illumos

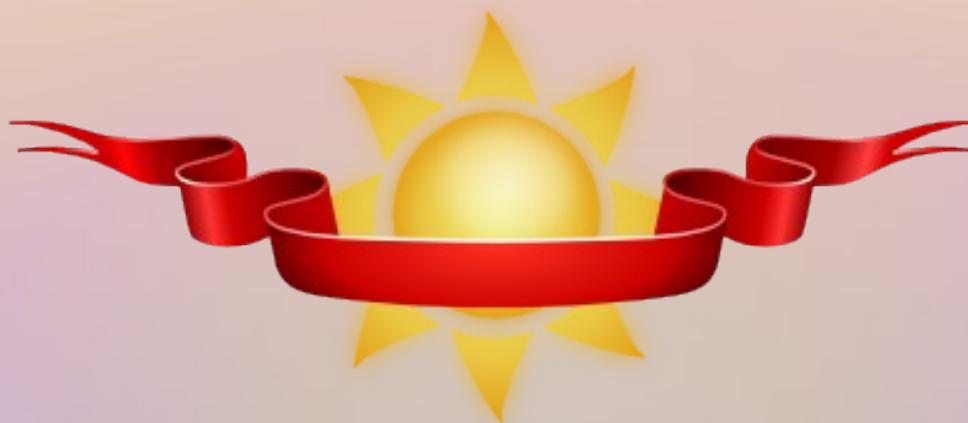## Hope and Light Springs Anew

Presented by Garrett D'Amore
Nexenta Systems, Inc.
August 3, 2010

What's In A Name?

Illumos = Illum + OS = "Light + OS"

Light as in coming from the Sun...
OS as in Operating System

Not All of OpenSolaris is Open Source

- Critical components closed source
    - libc_i18n (needed for working C library)
    - NFS lock manager
    - Portions of crypto framework
    - Numerous critical drivers (e.g. mpt)
- Presents challenges to downstream dependents
    - Nexenta, Belenix, SchilliX, etc.
    - See "Darwin" and "MacOS X" for the worst case

What's Good

- The Technology!
    - ZFS, DTrace, Crossbow, Zones, etc.
- The People
    - World class engineers!
    - Great community of enthusiasts
    - Vibrant ecosystem
- The Code is Open
    - Well most of it, at least

Illumos – the Project

- Derivative (child) of OS/Net (aka ON)

  - Solaris/OpenSolaris kernel and foundation

  - Tracks ON closely

  - 100% ABI compatible with Solaris ON

- No closed code

  - Open source libc, kernel, and drivers!

- Repository for other "experimental" innovations

  - Can accept changes from contributors that might not be acceptable to upstream

Illumos – Focus

- Illumos is just ON

- Focused on "Core Foundation Blocks"

- May expand to host other affiliated projects

  - X11 components?

  - Desktop components?

  - C++ Runtime?

  - Distributions?

Illumos – the Community

- Stands independently from OpenSolaris
    - Can't be "shut down" or subverted by any corporate master
    - We "own" our own identity
    - Nexenta a major sponsor
- Community governed and run
    - Resources distributed
    - Meritocracy
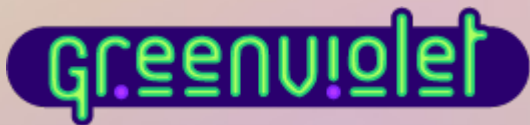   - "Just enough" governance

Illumos – the Cast

- Existing community members
    - Led by Garrett D'Amore
    - Cast of about a dozen developers right now
    - Many community leaders
    - Growing all the time
    - Anyone can join in!
    - Critical mass!

Illumos – Community Partners

The 800 Pound Gorilla

- Illumos is *not* a competitor to "Solaris"
- An open invitation has been extended to Oracle to participate as a peer
- Individual employees are welcomed to participate as well!
- We want a collaborative and cooperative relationship with Oracle and other corporate partners
- But we don't depend on it

What If the Tap is Turned Off?

- We don't think that will happen.
  - Many many business reason for *source* code to remain open.
  - Even if the "OpenSolaris" community were to be abandoned or shut down.
- We think we have critical mass to continue sustaining in that case
- Illumos would necessarily become a "fork"
- Illumos is the insurance the community needs

Major Project Goals

- Self hosting SunOS derivative

- Fully Open Source

- 100% ABI compatible with Solaris

- Legally usable by upstream

- No corporate dependencies

- Basis for other distributions

Administrative Council

- Temporarily a Benevolent Dictatorship

  - Garrett D'Amore, Chairman

- Initially appointed

  - Will select new members for itself

- Non-technical matters only

  - Resource management (servers, mailing lists, etc.)

  - To define code of conduct, etc.

  - May evolve into a full "Foundation Board" later

Developer Council

- Benevolent dictatorship for now

  - Garrett D'Amore is Tech Lead

- Initially members appointed

- Made up of developers with commit rights

- Meritocracy based

- Consensus driven

  - Tech Lead is final arbiter if consensus not possible

  - Process to replace Tech Lead TBD.

Rules for Integration

- Usual quality guidelines for ON
    - cstyle
    - lint
    - Validated/tested code
    - Code reviews

- License restrictions
    - BSD or MIT (caveats)
    - CDDL with signed SCA
    - Other possibilities under investigation

Packaging

- Illumos is not a distro.

    - There may be one at some point though

    - Binary ISO to be delivered with minimal bits needed to bootstrap a "real" distro

- Packaging "neutral"

- "IPS" manifests are "canonical" data

    - Illumos has tool to generate .deb from IPS courtesy of Nexenta

    - Extensible to generate RPM, SVR4, etc.

Supported Hardware

- x86 and amd64
  - Driver support dependent, see website for details.

- VMware and VirtualBox

- SPARC
  - Not yet, but really soon. Platforms supported as we have code or specifications

- Others
  - Anticipate integration of other architectures... s390, PowerPC, ARM are all possible.

Work Done So Far

- Replaced closed bits of libc (including full locale support)

- Replacements for most critical closed source utilities

- Replacements for some drivers

- It boots!

  - Still needs a few closed bits

  - But those will be replaced *very* soon with open equivalents

Work Remaining

- NFS/CIFS lock manager

- Full kcf module/daemon (crypto framework)

- Trusted Extensions (labeld)

- Many more drivers

- Further dependency resolution

- Probably many many other possibilities!

Resources

- http://www.illumos.org/

  - Website, defect tracking, source code, etc.

- developer@illumos.org

  - Developer mailing list

- discuss@illumos.org

  - General discussions

- #illumos

  - Illumos IRC channel (irc.freenode.net)

Demo!

Demonstration of the bits!!

Q&A

Ask away!

Thank you!

Thank you for listening and watching!
Come join us at http://www.illumos.org !