

Growing CentOS as a Platform for Infrastructure Development

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whoami

Who is Johnny Hughes?

- **1980 – 1997:** United States Navy - Machinist's Mate Chief Petty Officer, Leading Engineering Laboratory Technician, Radiological Controls Shift Supervisor, AT&T 3B2 Unix SysAdmin
- **1997 – 2002:** CACI - HPUX SysAdmin, Linux SysAdmin, Windows SysAdmin, Oracle DBA, Network Engineer (DOD Contractor)
- **2002 – 4/2012:** Delphinus Engineering, Inc. - Linux SysAdmin, Windows SysAdmin, Network Engineer, CentOS Project
- **4/2012 – 8/2013:** GoDaddy.com - Architect, CentOS Linux
- **8/2013 – Present:** Red Hat, Inc – Principal Software Engineer, CentOS Project

Rebuilding RHEL

It all started with this mailing list on 2003/07/07:

<http://www.mail-archive.com/rhel-rebuild-l@uibk.ac.at/msg00000.html>

- On that list were several people who participated in many rebuild efforts, including: CentOS, WhiteBox Enterprise Linux, Scientific Linux, X/OS Linux, Tao Linux, etc.
- I initially began working on the WBEL distribution, the first info I can find shows something in December 2003 as my first community contribution there.
- I later moved to CentOS after WBEL became a private contributions only distribution.
- My first community contribution to CentOS seems to be a modified Kernel for CentOS-3 for Pentium MMX hardware, in April 2004.

How we build CentOS

It's not Rocket Science :)

- We use a program called **mock** to build CentOS. Many other groups (like Scientific Linux and Fedora) use mock to build packages.
- Mock creates a clean chroot environment with a given set of packages for building. A yum group (ours is called **buildsys-build**) is used to setup this environment.
- 23 Packages in the **buildsys-build** group
 - bash, bzip2, coreutils, cpio, diffutils, centos-release, findutils, gawk, gcc, gcc-c++, grep, gzip, info, make, patch, redhat-rpm-config, rpm-build, sed, shadow-utils, tar, unzip, util-linux-ng, which

CentOS Versions

- Major versions are how CentOS is released and supported. The currently active major versions are CentOS-5 and CentOS-6.
- Minor versions of CentOS (i.e., CentOS-5.10 and CentOS-6.5, etc.) are just point in time snapshots of a Major CentOS version.
- You should not stay on an old minor version of CentOS when a new minor version (also called point release) happens. If you stay on an outdated minor version, you will not get security (or any) updates.

This is critical to understand!

If you are running older point releases, you have security issues ... don't do it.

Don't :D

CentOS Repositories

- CentOS uses centos-release RPMs to add <name>.repo files to /etc/yum.repos.d/
- There are currently **centos-release**, **centos-release-xen**, **centos-release-SCL**, and **centos-release-cr** RPMs available for CentOS
- The following files are edited to control enabling or disabling the repos
 - CentOS-Base.repo, CentOS-CR.repo, CentOS-Debuginfo.repo, CentOS-Media.repo, CentOS-SCL.repo, CentOS-Vault.repo, CentOS-Xen.repo
- The current CentOS releases live on **mirror.centos.org**.
- Old versions of CentOS live on **vault.centos.org**.
- All Source RPMs also live on **vault.centos.org**
- Debuginfo lives on **debuginfo.centos.org**
- Wiki contains more repository information:
<http://wiki.centos.org/AdditionalResources/Repositories>

What the @%\$#* just happened!

- Red Hat and CentOS announced on January 8th, 2014 that they are **joining forces** to build a **new CentOS**, capable of driving forward development and adoption of next-generation open source technologies.
- Red Hat, by taking an active role in the CentOS Project, is once again extending its leadership in open source innovation by helping to establish a platform well-suited to the needs of open source developers that integrate technologies in and around the operating system.
- **Community integration beyond the operating system**: CentOS, a community-supported and produced Linux distribution that draws on Red Hat Enterprise Linux and other open source technologies to provide a platform that's open to variation. CentOS provides a base for community adoption and integration of open source cloud, storage, network, and infrastructure technologies on a Red Hat-based platform.

What does this mean for Core CentOS?

- Does this mean that the core CentOS distribution is Changing? ... **No !!**
- Core CentOS will remain what it is and has been ... A rebuild of Red Hat Enterprise Linux source RPMs.
- Shortly after RHEL sources are released, CentOS will build those sources and release them into either our Base, Updates, CR, or Fasttrack repos exactly like we do now.
- Red Hat needs CentOS to be what it has been to be used by the Red Hat Community projects like RDO, OpenShift Origin, GlusterFS, and oVirt (to name a few).
- If CentOS changes drastically and the core is not a rebuild of RHEL sources, the reason Red Hat wanted to work with the project ceases to exist.

Then What is Changing?

- The CentOS Project has created a Governing Board and we will use a consensus model to control the project. Meetings will have published minutes and some meetings will be held via Google Hangouts and viewable by the community.
- Special Interest Groups (SIGs) will be appointed to create software, procedures and documentation.
- Variant CentOS spins may be created by SIGs, including modified installers if necessary, for SIG software to be distributed.
- There will be a public build system for SIG software, including Mock configuration files, etc., so that the community can participate.

Special Interest Groups

Special Interest Groups (SIGs) are smaller groups within the CentOS community that focus on a small set of issues, in order to either create awareness or to focus on development along a specific topic.

- Initially controlled from the CentOS-Devel mailing list and #centos-devel IRC channel
- Some examples of SIGs that are active now
 - Xen4CentOS
 - Core
- Proposed SIGs currently acting
 - Storage
 - Cloud Instance
 - PaaS
 - Virtualization

Why Should you use CentOS?

- **Linux** is the best Operating System in the world 
 - Nearly 10,000 developers from more than 1,000 companies have contributed to the Linux kernel since tracking began in 2005
 - In the last year, more than 1,100 developers from 225 companies have contributed to the kernel
- **Red Hat Enterprise Linux** code base is the most stable Linux in the world
 - Red Hat supports their Enterprise Linux code base for 10 years
 - Red Hat backports Security and Hardware Support into their code base, while maintaining ABI and API stability

Why Should you use CentOS?

- CentOS is **Everywhere**
 - There are 517 CentOS mirrors in 79 countries on 6 continents around the world
 - CentOS is available on all major public Cloud platforms, including Amazon Web Services, Rackspace, Google Compute, Bluemix, Microsoft Azure
- CentOS runs on **Everything**
 - Several of the Top 500 supercomputers in the world (top500.org)
 - Many university supercomputers, including Texas A&M, Texas, Arizona State University .. and research projects like Pisgah Astronomical Research Institute, and the Human Genome Project
 - Millions of web servers all over the world including hosts like Digital Ocean, cPanel, GoDaddy, 1&1, HostGator, etc.
 - My laptop :)

Why Should you use CentOS?

Private Clouds

- Official CentOS images are being developed for many on site private cloud or Virtualization Hypervisor systems, including these:
 - OpenStack (via RDO)
 - HP CloudStack
 - OpenNebula
 - Eucalyptus
 - oVirt
 - Docker
 - Vagrant
 - Xen / KVM
- This work is being done by the Cloud Instance SIG and the images will live on cloud.centos.org

How to get Involved

- Join a Special Interest Group
- Browse bugs.centos.org and help with bugs (validate them, help users if its not a bug, write patches, ect.)
- Help us with our QA and t_functional process

http://wiki.centos.org/QaWiki/AutomatedTests/WritingTests/t_functional

- Join the Forums and help there

<https://www.centos.org/forums/>

- Answer Questions on our Mailing Lists

<http://lists.centos.org/mailman/listinfo>

- Help us on IRC (freenode: #centos, #centos-devel, #centos-virt, #centos-social)