Gentoo Linux

First Impressions of Gentoo

Purpose

- Give an idea of some of the advantages of Gentoo
- Provide suggested requirements for installing and running a Gentoo system
- Inform about some differences with other distributions
- Warn about some of the shortcomings of Gentoo

Notes

- Based on several installations of Gentoo including server, workstation and laptop
- All installations were done using Stage1 install and have all packages compiled (no binary packages used)

My Background

- Using Linux for over 6 years
- Distributions tried
  - Mandrake 9.x – 10.x
  - Red Hat 7.x
  - Slackware (early versions)

Why Gentoo

- Latest Software
- Stable
- Great Performance
- Customizable
- Easily maintained / updated
- Good support and documentation
- Completely free and open

Latest Software

- Packages (ebuilds) are easy to create (they are simple shell scripts)
- Packages are tested and quickly moved into stable tree
- Packages are not heavily customized from the original source (other than patching)
- A central list of all packages (ebuilds)
- Ability to selectively install “testing software”

Stable

- Personal experience – no vital systems problems in total 14 months run time (xine and evolution2 have had small problems on the desktops)
- Several ISPs offer servers with Gentoo loaded and some use it for their backend systems as well
- Gentoo Server Project is working toward a more stable branch indicating there are some concerns at the enterprise level

Great Performance

- Considerably faster than Mandrake 10 on similar systems (some package differences but same hardware and basic functions)
- NPTL - Native POSIX Thread Library support
- Install only what you want and need producing a leaner system
- Software compiled and optimized for your specific architecture

Customizable

- Can choose different base components (such as syslog and cron daemons)
- Load only packages you need or want
- Can easily see what packages will be loaded to install each package (emerge --pretend)
- Much quicker and leaner package selection than Mandrake

Easily Maintained / Updated

- Portage (Gentoo's package management system) handles updating of one package or all packages
- The system is a collection of packages so by updating all the packages you update your system
- System upgrade: emerge --update world
- Portage has been a one-stop shopping source for me (no looking for RPMS)
- Lowest maintenance system I've used yet

Good Support and Excellent Documentation

- Gentoo Handbook
- Forums (forums.gentoo.org)
- Irc, bug tracking database, mailing lists
- Gentoo.org (excellent portal)
- Lots of other sites (google provides a lot of good links)

Completely Free and Open

- There is no charge and the packages can be freely distributed
- Community organized similar to Debian
- Free support through forums and excellent free documentation

Questions??

What You Need for Gentoo

- Broadband internet connection
- Willingness to use the command line
- Willingness to learn
- Patience

Broadband Connection

- Gentoo packages are automatically downloaded and installed so access to a broadband connection is essential
- Documentation and Support are accessable via the internet

Command Line Necessities

- Package management tools (emerge, etcat, equery)
- Installation is done from the command line (step by step instructions are provided)

Willingness to learn

- Gentoo does some things differently, if you are willing to work with them they can be a great plus, if not they can cause problems

Patience

- Each system install took 2 – 3 days (from a stage 1 install)
- Updates and installs of large packages can take some time (need to download and compile)
- Support via forums can take several days or more to get an answer (especially for more difficult questions)

Questions??

Gentoo Differences

- Package management
- RC scripts
- Config file management

Package Management

- Portage keeps a local view of the package tree
- The local Portage tree can be synced with the global one (emerge --sync)
- emerge is used to add / remove packages
- etcat and equery (from gentoolkit) are used to provide information about packages
- Dependencies are automatically resolved (except when something blocks an install)

RC Scripts

- RC scripts are used to determine what services are started for each runlevel
- Gentoo does not use number prefixes as other distros do, their system is a bit more complex but is managed through a tool
- rc-update handles rc script management
- Gentoo's rc system allows for faster boots because some services can load concurrently and more reliable service loading

Config File Management

- When installing or updating packages some changes to the config files are sometimes made
- etc-update handles this function by showing which config files have a new version installed and offering options to handle the changes

Questions??

Gentoo Shortcomings

- Uninstalling packages is not as mature as installing (I have not thoroughly tested this but there are warnings in emerge about it)
- Little niceties sometimes missing (default prompt is basic, xine not configured to use alsa, file associations not set)
- No commercial support (as far a I can tell)

Questions??

Some suggestions

- Emerge gentoolkit (contains equery and etcat)
- Install NPTL
- Use -O2 user flag (not -O3) for USE flag
- Emerge --sync before emerging new apps to get the latest stable versions
- Install only what you need (uininstall is not as mature as install)

Questions??

Impression

- Overall I find Gentoo a goodfit for the way I work
  - Fast and Lean
  - The way I want it
  - Reliable
  - A good productivity system

Resources

- Gentoo portal: http://gentoo.org
- Gentoo Handbook: http://gentoo.org/doc/en/handbook/index.xml
- Forums: http://forums.gentoo.org
- Gentoo Server Project: http://www.gentoo.org/proj/en/server/
- Gentoo packages: http://packages.gentoo.org

Resources

- NPTL: http://people.redhat.com/drepper/nptl-design.pdf
- Trev Peterson: trev<at>advanced-reality.com