Beyond Init: systemd

linux.conf.au 2011

Lennart Poettering

January 2011
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init(8)
Parallelization
Socket-Based Activation
Socket-Based Activation

The kernel orders and buffers requests for us!
Socket-Based Activation

The kernel orders and buffers requests for us!

Implicit dependencies!
Socket-Based Activation

The kernel orders and buffers requests for us!

Implicit dependencies!

Patching daemons
Bus-Based Activation
Starting Less: On-Demand Loading
Parallelizing File System Jobs
Parallelizing File System Jobs

autofs!
Shell is evil
Shell is evil
Move to systemd, daemons, kernel, udev, . . .
Shell is evil
Move to systemd, daemons, kernel, udev, . . .
Provide proper debugging facilities
The best babysitter.
The best babysitter.

Control Groups!
The best babysitter II
The best babysitter II

Environment, resource limits, working directory, chroot(), umask, OOM adjustment, nice level, IO priority and class, CPU scheduler priority and policy/reset-on-fork, CPU affinity, timer slack,stdio to syslog/tty/null/kmsg, uid, gid, supplementary groups, file system namespacing (r/o file systems, inaccessible systems, mount propagation, private /tmp), capabilities (inherited set, bounding set, secure bits), . . .
Unit types: service, socket, device, mount, automount, target, snapshot, timer, swap, path
Don't reinvent the wheel:
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Read SysV/LSB init script headers, read `/etc/fstab`, support traditional inetd modes, support `/dev/initctl`, `utmp`, `wtmp`, support double-`fork()`ing daemons.
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.desktop files.
Snapshots
Transaction System
D-Bus!
systemadm
systemd as basic OS building block
systemd as basic OS building block
systemd for cross-distribution standardization
Status: almost made Fedora 14.
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Substantial coverage of basic OS boot-up tasks,
Status: almost made Fedora 14.
Substantial coverage of basic OS boot-up tasks, including fsck,
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Substantial coverage of basic OS boot-up tasks, including fsck, mount,
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Substantial coverage of basic OS boot-up tasks, including fsck, mount, quota,
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Substantial coverage of basic OS boot-up tasks, including fsck, mount, quota, hwclock,
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Substantial coverage of basic OS boot-up tasks, including fsck, mount, quota, hwclock, readahead, tmpfiles,
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Substantial coverage of basic OS boot-up tasks, including fsck, mount, quota, hwclock, readahead, tmpfiles, random-seed,
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Substantial coverage of basic OS boot-up tasks, including fsck, mount, quota, hwclock, readahead, tmpfiles, random-seed, console,
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Substantial coverage of basic OS boot-up tasks, including fsck, mount, quota, hwclock, readahead, tmpfiles, random-seed, console, static module loading, early syslog, plymouth,
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Substantial coverage of basic OS boot-up tasks, including fsck, mount, quota, hwclock, readahead, tmpfiles, random-seed, console, static module loading, early syslog, plymouth, shutdown,
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Substantial coverage of basic OS boot-up tasks, including fsck, mount, quota, hwclock, readahead, tmpfiles, random-seed, console, static module loading, early syslog, plymouth, shutdown, kexec, SELinux, initrd+initrd-less boots,
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Status: 7s on openSUSE. Less than 14s on fully-featured Fedora. (SSD)
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Lots of room for improvement.
Adoption: Fedora, openSUSE, Mandriva, Debian, Gentoo, ArchLinux, ...
Next: Fedora 15.
Next: Fedora 15. read-only root,
Next: Fedora 15. read-only root, session manager,
Next: Fedora 15. read-only root, session manager, automatic initrd fallback.
Say No! to Copyright Assignment.
That’s all, folks.
That’s all, folks.

Any questions?
systemd

http://www.freedesktop.org/wiki/Software/systemd
http://0pointer.de/blog/projects/systemd
git://anongit.freedesktop.org/systemd
#systemd on irc.freenode.org