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Server use case

Alternatives

Feature:

Questions

NetworkManager on servers

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42. konference EurOpen.CZ, Třešť

http://data.pavlix.net/europen/42/

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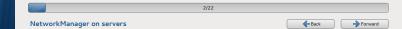
Server use case

Alternatives

Feature

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Would you use NetworkManager on servers?



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Feature

Question

Why would you want to do that?



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Server use case

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Question

Unified network configuration API

- Desktops and laptops
- Servers and virtualization
- Embedded and initramfs
- Multipurpose systems
- Event-based API
- Runtime and permanent configuration (devel)

Imagine a development laptop with VPN and virtualized servers, connected to various networks with autoconfiguration.

Server use case

Independent network interface configuration

- Each interface configuration is handled separately
- Configuration files and runtime information
- Data from configuration protocols DHCP and RA
- All information sources taken into account
- LAN connectivity and split DNS
- Default route and default DNS

Multi-interface dynamic configuration needs a coordination point.



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Alternatives

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Question:

Alternatives?

Alternatives

Network configuration scripts

- ifcfq variants Fedora, openSUSE, Mandriva
- ifupdown Debian, Ubuntu
 - ifnet Gentoo
- UCI-based network scripts OpenWRT
- Custom scripts using iproute tool

Static-only configuration unless a daemon is involved.







Alternatives

Misused DHCP clients

- Support for multi-interface configuration
- Some configuration daemon features
- Integration suffers
- IPv4-only configuration

Neither fish nor fowl.







Alternatives

Network configuration daemons

- connman came from Intel's Meego project
- Wicd a network daemon written in Python
 - netcfg Archlinux
- netifd OpenWRT
- wicked is not Wicd

OpenWRT netifd is not ported to other distributions.







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Features

...

Talk is cheap, show me the features!

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Alternative

Features

Question

Supported connection types

- Wired and wireless Ethernet connections (including 802.1x)
- ADSL connections, mobile broadband and bluetooth PAN
- OLPC mesh
- Wimax connections
- Infiniband
- VLAN interfaces
- Bridges and bonds for wired Ethernet
- Team driver integration (wishlist)
- Macvlan, macvtap and more \rightarrow 0.9.10
- VPN plugin interface + several plugins available
- Generic device support → 0.9.10
- lacktriangle Extensive refactoring, port to nm-platform ightarrow 0.9.10

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Server use case

Features

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Address and route configuration

- Consolidated IPv4/IPv6 format
- Dynamic IPv4 with DHCP
- Dynamic IPv6 configuration with RD and DHCP
- ullet Removed time-based polling in IPv6 ightarrow 0.9.10
- lacktriangle DUID from /etc/machine-id or similar ightarrow 0.9.10
- ullet DHCPv6 info-only soft failure ightarrow 0.9.10
- Using dhclient \geq 4, stale support for dhcpcd
- Switching from kernel autoconf to libndp (wishlist)

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DNS configuration

- resolvconf/netconfig support (to be removed)
- Split DNS using dnsmasq
- Split DNS and DNSSEC using unbound (wishlist)
- Arbitrary scripts for DNS management (wishlist)

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Features

Question

Customization (aka server features)

- ullet Configuration autoload optional ightarrow 0.9.10
- lacktriangle Autocreated connections optional ightarrow 0.9.10
- lacktriangle Default route management optional ightarrow 0.9.10
- Carrier detection optional \rightarrow 0.9.10
- ullet /etc/resolv.conf management optional ightarrow 0.9.10



Features

Temporary connections / connection take over

- Separate runtime and persistent configuration (wishlist)
- Save, restore and modification APIs (wishlist)
- Accepting modifications from other tools (wishlist)
- Taking over connections during startup (to be improved)
- Explicit take-over at runtime (wishlist)



Features

Command-line interface and API

- Library and dbus API improvements
- CLI redesign \rightarrow 0.9.10
- Connection add \rightarrow 0.9.10
- Guided configuration \rightarrow 0.9.10
- Proper line between connection and device \rightarrow 0.9.10
- Extensive documentation (not only for nmcli)

https://bugzilla.gnome.org/show_bug.cgi?id=682056



Features

NetworkManager in distributions

- Integration with network scripts
- Native configuration using keyfiles
- Reads ifcfq, ifupdown and ifnet
- Writes ifcfq and ifupdown
- Special DNS/hostname handling for SUSE
- Service management
- Session management
- Patch-free packaging



Features

Notable dependencies

- Linux \geq 3.1 (3.9 recommended)
- libnl \geq 3.2.8
- qlib ≥ 2.32
- dbus-qlib ≥ 0.100 (daemon optional)
- gudev ≥ 165
- polkit-gobject ≥ 0.97 (optional)
- dhclient > 4







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Features

Testing strategy

- Code coverate and valgrind integrated to autotools
- New nm-platform layer \rightarrow 0.9.10
- Kernel and libnl workarounds centralized or removed
- Tests for the nm-platform, kernel and libnl
- Tests for NetworkManager core behavior (wishlist)
- Possible separate library or contribution to librol
- Possibility of using LNST for network tests

https://fedoraproject.org/wiki/Features/NetworkManagerTestSuites



Features

Open issues

- Connection sharing is IPv4 only
- IPv4 and IPv6 autoconf scheduling
- Cleanup level on exit/unmanage/disconnect
- Persistence of networking and radio switches
- /etc/init.d/network style boot process
- Proper autoconnection of VPNs
- Multiple VPN support



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Server use case

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Questions



Every presentation needs a cat, right?

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Questions

Questions?

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http://fedoraproject.org/wiki/Networking

