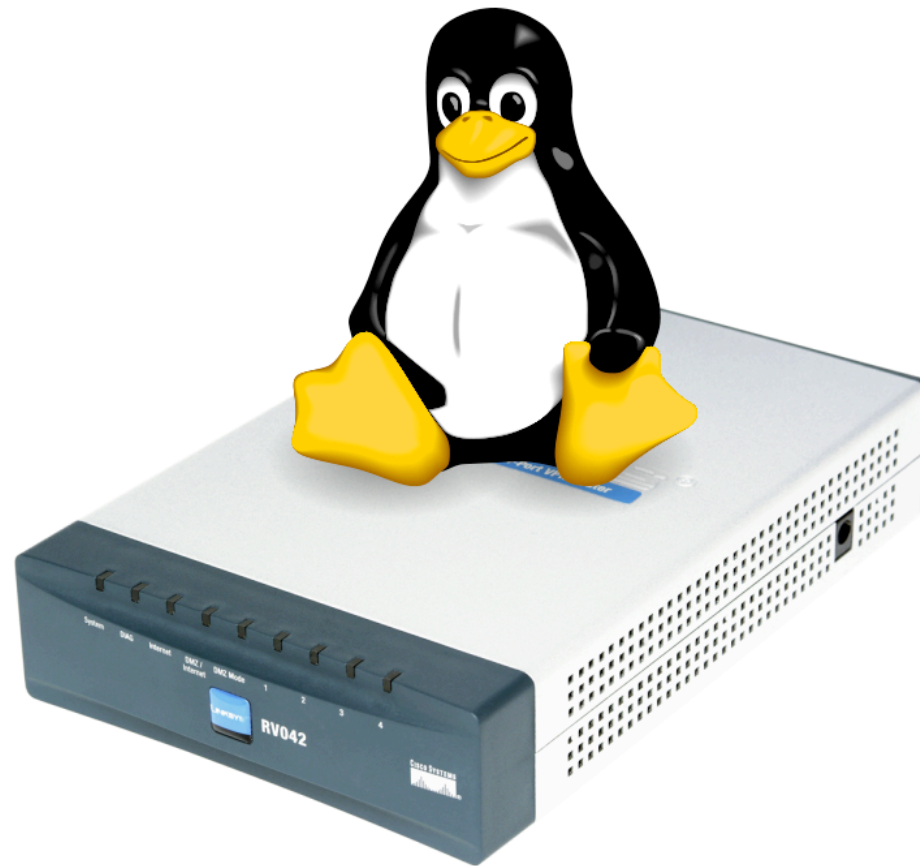


Linux on the RV042



What is the RV042?

- The RV042 is a Linksys router with dual WAN ports, and provides 4 LAN ports.
- Supports VPN (gateway, server)
- Supports fail-over and round-robin for the WAN ports.
- Web-based configuration, with telnet mode configuration possible when unlocked.

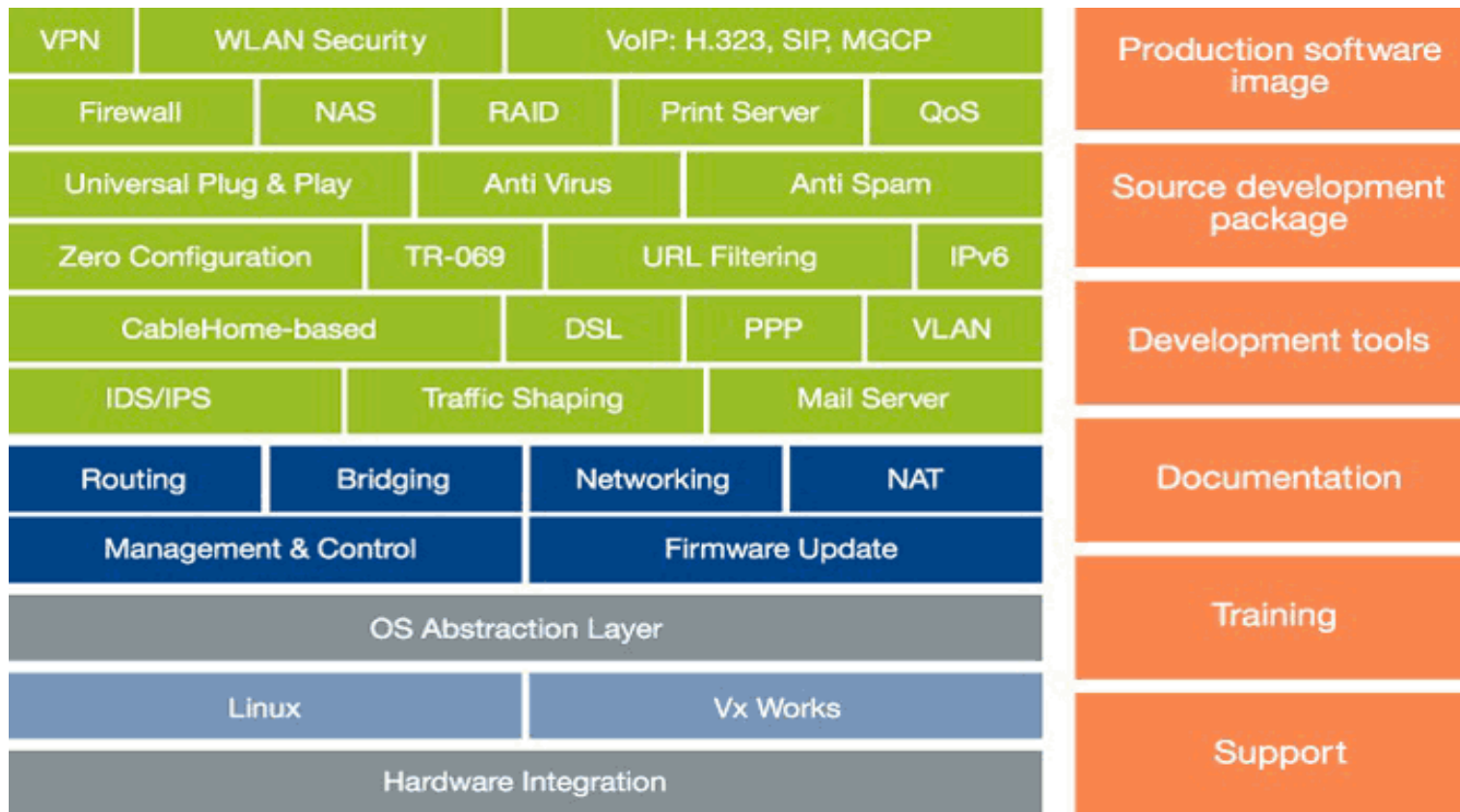
Platform

- Linux can run on any platform as long as the following requirements are met:
 - Protected mode
 - Memory management unit
 - Has enough memory for the kernel to load itself, plus extra memory for buffers.

Platform

- RV042 uses a Linux 2.4 kernel compiled with a custom configuration
- Most functionality provided through non-GPL binary kernel modules and customized user-space processes.
- Uses Busybox for the shell and other userspace tools such as ls, mount, etc.

RV042 OS Layer



Users

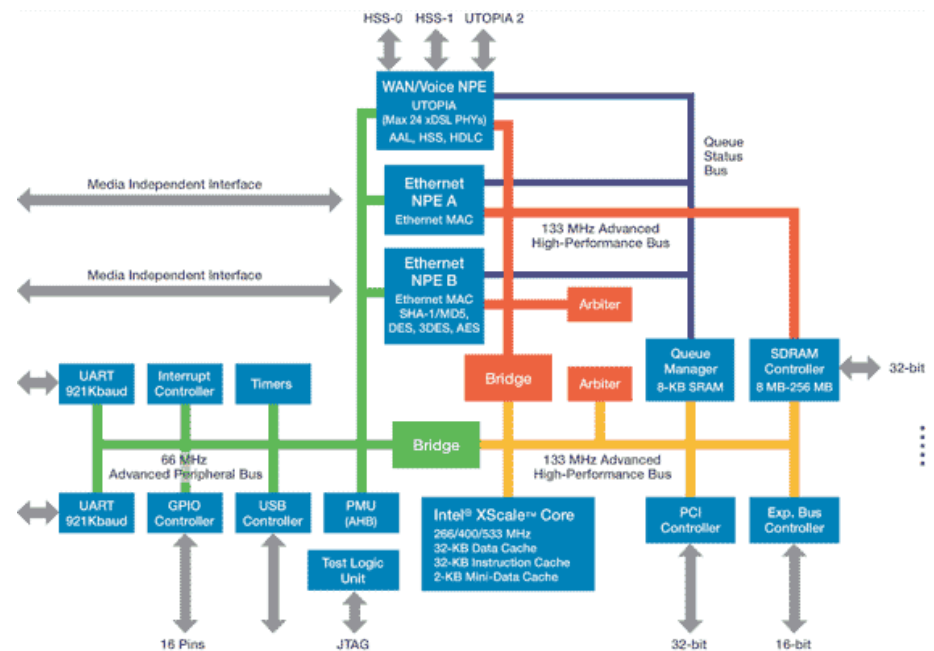
- Consumer product
- Configured to operate without user interaction except through web applications

Features

- Easy to develop for
 - Most Linux programs and libraries will compile unchanged
- GPL
 - Kernel and tools can be modified by end users

Platform

- RV042 uses an Intel Xscale IXP425 CPU with 32MB RAM and 8MB Flash memory
- Xscale is an implementation of the ARM v5TE architecture



Operation

- RedBoot bootloader loads image from flash
 - Also handles writing a new image to flash
- Linux kernel is started
- main_task is run
 - Single process providing most of the router's functionality including:
 - Firewall
 - Webserver
 - DHCP server
 - DNS server

Development

- Development is done on a separate build machine usually running Linux
- gcc has to be compiled to cross-compile for armv5te architecture

Conclusion

- Many routers out there run Linux and could be modified to do things other than what they were intended for.
- Any questions?