



Indigo

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Indigo



- Overview
- High Level Architecture
- The Web Interface
- The CLI
- Lua and Hacerl
- Future Plans

Overview



- Indigo is:
 - An open source, hardware accelerated OpenFlow switch implementation
 - Currently targeted to Broadcom switch silicon: 56514, 56314, 56634, 56534, 56840
 - OpenFlow based on 1.0 Stanford Reference
 - Linux based 2.6.27 (mostly) + Busybox + Utilities

Overview: Features



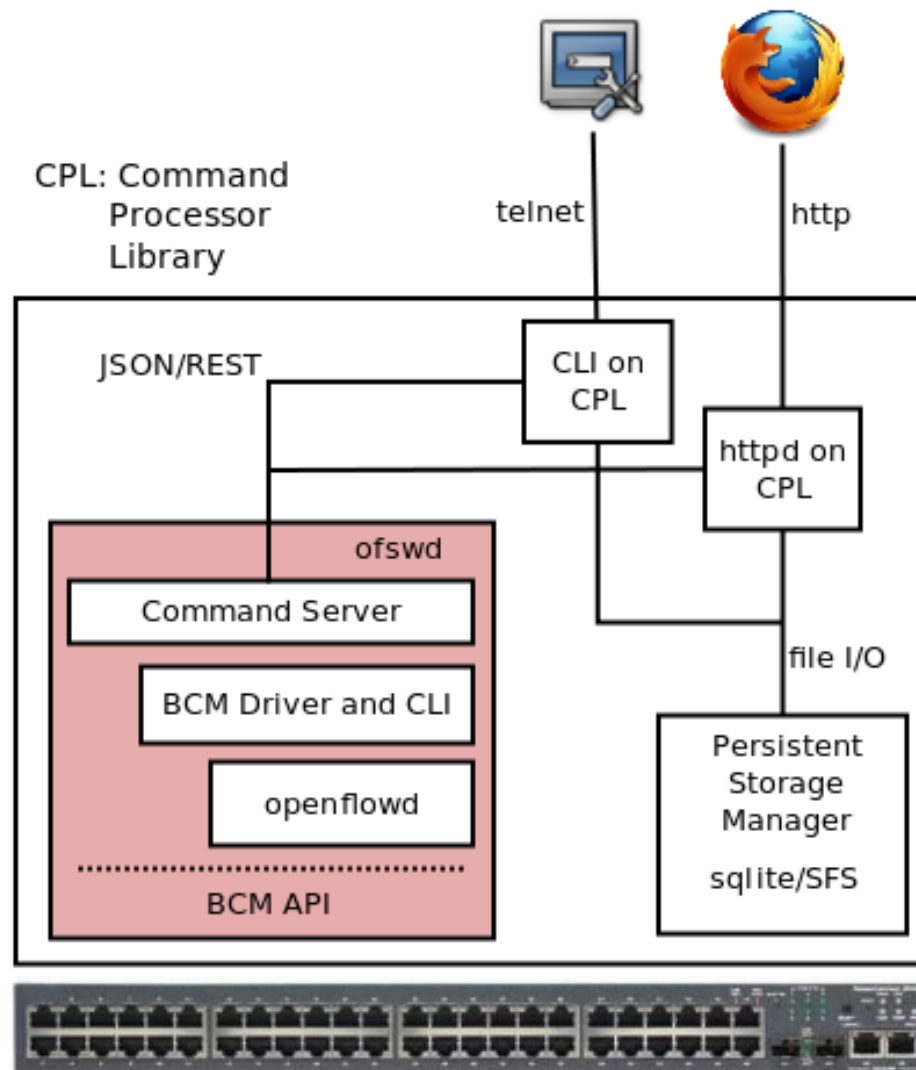
- Full OpenFlow 1.0 support, exact match and arbitrary wildcards
- Defines API between OpenFlow and Hardware
- Roadmap to OpenFlow 1.1 using Open vSwitch
- Binary images released
- Development environment planned
 - Binary hardware drivers
 - OpenFlow source code
 - Cross compilation environment provided
- Web UI and CLI

Supported Platforms



- Netgear GSM 7328 S: 24 x GE + 2 x 10gig
- Netgear GSM 7352 S: 48 x GE + 2 x 10gig
- Pronto 3290: 48 x GE + 4 x 10gig
- Pronto 3240: 48 x GE + 4 x 10gig
- Pronto 3780: 48 x 10gig (in development)

OpenFlow Switch Software Architecture



High Level Architecture

- Command Server integrated with driver
- Command Processor Library written in Lua
- CLI and Web UI based on CPL
- Haserl CGI scripting

The Web Interface



- Uses Javascript and JQuery
 - For menus and tabs
 - For sortable/searchable tables
- Uses Haserl for CGI glue to Lua
- httpd
 - Using busybox httpd
- Provides only basic services
 - Configuration of system parameters
 - Monitoring flow table entries
 - Monitoring port stats
 - Monitoring logs
 - Download new image, reset switch

The CLI



- Provides same functionality as Web UI
- Intended to be “Cisco-like”
- Currently implemented in Lua
 - Uses the same library as Web UI
- Plan is to make this a set of shell scripts
 - Use the Linux command line facilities
 - Continue to use same backend library

Lua



- Small, efficient scripting language (200K)
- Only one data abstraction: Table
- Object oriented, but gently
- Functions as first class citizens
- Reasonable core library (os, re, string...)
- Easily extensible (socket...)

Haserl



- PHP like CGI scripting mechanism
- Integrated tightly with Lua
- Lua code is escaped with `<% -- some code %>`
- Multiple code instances make up a single script
- All other text forwarded as HTML

Future Plans



- Support 3780: 48 x 10-gig platform
- Provide “Dev Edition”
 - OpenFlow and executable source
 - Compilation environment to produce images
 - Binary libraries for hardware driver
- CLI as set of shell scripts

Rough Edges



- Real time clock not working on all platforms
- VLAN tag processing issues
- CLI is a work in progress



Indigo

For more information visit
<http://openflowhub.org>