

Open Router Platforms: Is it time to move to an open routing infrastructure?

Thomas Woo

Bell Labs

Disclaimer

- Opinions expressed here are my own and do not necessarily reflect official Alcatel-Lucent position

What is an Open Router?

- Open ≠ Open Source
- Open Source Router
 - Open source routing/networking stack + commoditized HW
 - E.g., Linux router
- Open Router
 - Ability to extend system functionality by users via fully specified API/behavior + SDK
 - E.g., win32, java
 - Include both control & data plane
 - Open source router is a open router, but a bad one
 - Open router can be built on proprietary platform
 - E.g., Game console, Java phone

Drivers

- Service providers
 - Need to differentiate
 - Vendor provided features are available to all users
 - Service providers can differentiate by providing unique features
 - Higher revenue
 - Accelerate innovation/competition
 - 3rd party market for new features
 - Lower cost
- System vendors
 - Reduce cost of development
 - Rapid changes in data path, e.g., 4G

Obstacles

- Technical
 - Reliability + stability
 - Standardized API – from who?
 - Proprietary data path implementation
 - Need equivalent of DX10, OpenGL
- Non-technical
 - Most service providers are conservative
 - How to develop a 3rd party market
 - Small market
 - Intelligence in end system vs network

My View

- Open Source Routers
 - Limited to commoditized HW
 - At best applicable to home/small enterprises
 - Lack of momentum behind open source
 - Too specialized, little fame
- Open Routers
 - Strong value proposition, paradigm changing
 - Forward looking service providers
 - Google?
 - May start in niche areas, e.g., security, govt
 - Not ready for prime time, but right time for research

Promising Trends

- Rise of value-added applications
 - Traditional routing is not interesting
 - Media, security, network control
 - Richer set of packet processing apps
 - Mix & match
- Standardized platform (e.g., ATCA) and multicore network processors
- Forward looking service providers