Novarq

The Power of Open Source Networking – Switches in Data Centers & IXPs

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Peering days 2025 - Split

Current State of Networking

- Rich history of enterprise networking solutions
- Growing demand for flexibility and customization
- Increasing focus on transparency and control
- Rising importance of community-driven innovation
- Emerging opportunities in open architectures

The Power of Choice in Modern Networks

Opportunities in Open Source

- Full control over network infrastructure
- Customizable solutions for specific needs
- Transparent operations and management
- Community-driven innovation cycles
- Cost-effective scaling options
- Freedom to innovate and modify

Open Source Network Operating Systems Landscape

SONiC (Software for Open Networking in the Cloud)

- Container-based architecture for modularity
- Advanced Layer 2/3 networking features
- Zero-touch provisioning
- Telemetry and monitoring
- BGP EVPN support
- VXLAN overlays
- Broad ecosystem support
- Modern management frameworks
- Used by Microsoft Azure
- Increasing support from switch vendors

Open Source Network Operating Systems Landscape

DENT

- Specialized for distributed enterprise edge networking
- switchdev-based architecture
- Native Linux networking stack
- Disaggregated design & enterprise-focused features
- Simplified management
- Mainline Linux kernel integration
- Standard Linux tools support
- Community-driven development
- Linux Foundation backing
- Major vendor participation

Open Source Network Operating Systems Landscape

OpenWrt

- Versatile network operating system with proven track record
- Modular package management
- Advanced routing capabilities
- Firewall and security features
- QoS support
- Custom build system
- Wide hardware support
- Easy package management
- Large developer base & active user community
- Extensive documentation

switchdev: The Game Changer

- Linux kernel's native switch abstraction layer
- Hardware-agnostic network configuration
- Standardized approach to switch management
- Benefits of mainline kernel support
- Integration with existing Linux networking stack

Real-world Implementation: Datacenter Perspective

Key Considerations

- Hardware compatibility and support
- Performance requirements
- Scalability needs
- Management and monitoring
- Integration with existing infrastructure

Real-world Implementation: Datacenter Perspective

Benefits for Datacenters

- Customizable networking stack
- Enhanced visibility and control
- Reduced operational costs
- Future-proof infrastructure
- Vendor independence

IXP Use Case

Specific Requirements

- High availability and reliability
- Traffic monitoring and analysis
- Route server integration
- Member port management
- Performance monitoring

IXP Use Case

Open Source Advantages

- Customizable routing policies
- Flexible traffic management
- Transparent operation
- Community-driven improvements
- Cost-effective scaling

Quantum SONiC: A Practical Example

Features and Capabilities

- Enterprise-grade switching capabilities
- Marvell Prestera compatibility
- Centralized management
- State-of-the-art orchestration
- Seamless integration options

The Economic and Social Impact

Beyond Technical Benefits

- Democratization of networking technology
- Knowledge sharing and community building
- Reduced barrier to entry for innovation
- Sustainable long-term solutions
- Local talent development opportunities

Future Outlook

Emerging Trends

- Growing adoption in enterprise networks
- Increased hardware vendor support
- Enhanced automation capabilities
- AI/ML integration possibilities
- Expanded community contributions

Novarq – Pioneering Open Network Innovation

- Comprehensive enterprise-grade solutions
- Building networks designed for you and built to last
- Providing quantum leap in manageability, observability, and usability
- Linux-based Network Operating System customization

Open Network – The Journey Forward

- Evaluate current network infrastructure
- Identify potential Open Source solutions
- Engage with the community
- Plan pilot implementations
- Consider hybrid approaches

THANK YOU

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