ARRCUS™
NETWORK DIFFERENT

AT-A-GLANCE

The ArcOS™ Network Operating System

The ArcOS Advantage

Agile

Automated processes accelerate and streamline network provisioning, operations, and deployment. Built-in YANG/ OpenConfig support simplifies integration into existing frameworks.

Elastic

Modular software on white box/ brite box network hardware maximizes flexibility in building a scale-out architecture for a variety of network environments (physical, virtual, cloud).

Cognitive

Adaptive, optimal traffic engineering combined with fabric-wide telemetry delivers actionable insights.

History has repeatedly proven that large industries transition from vertical integration to best-in-class horizontal segmentation as the urgent business need for innovation outstrips the ability/intent of the incumbents to deliver. The networking industry is in exactly such situation, but it lags the compute and, to a large extent, the storage tiers in terms of this transition. Network operations teams are hampered by inflexible, proprietary systems that are expensive to build, operate, and manage. This model does not fit well into today's digital business expectations of a more agile and innovation-friendly smart infrastructure.

Recently, there has been an explosion of networking merchant silicon options in the market that continue to redefine what is possible. Additionally, the networking hardware ecosystem continues to evolve with a proliferation of readily available leading-edge network platforms from multiple ODMs. But the fundamental problem has been the lack of a modern, scalable, and viable software network operating system that enables the transition from a proprietary, closed approach to an open integration approach.

Arrcus addresses this problem by delivering ArcOS, an independent, open, Linux-based network operating system, as a high-quality alternative to vertically integrated OEMs, to meet and exceed the modern smart network infrastructure requirements.

A Modern Network Operating System for the Data Center, the Edge, and the Cloud

ArcOS is a fully programmable, microservices-based network operating system built from first principles. Based on Debian Linux, it is an open system that can be easily integrated with other Linux distributions as well.

Key ArcOS elements include:

- Robust, resilient control plane at internet scale
- Support for IPv4/IPv6/MPLS/Segment Routing forwarding
- An intelligent Data Plane Adaptation Layer (DPAL™)
- Data model-driven telemetry for control plane, data plane, and device environmentals
- Consistent YANG/OpenConfig/REST APIs for easy programmatic access

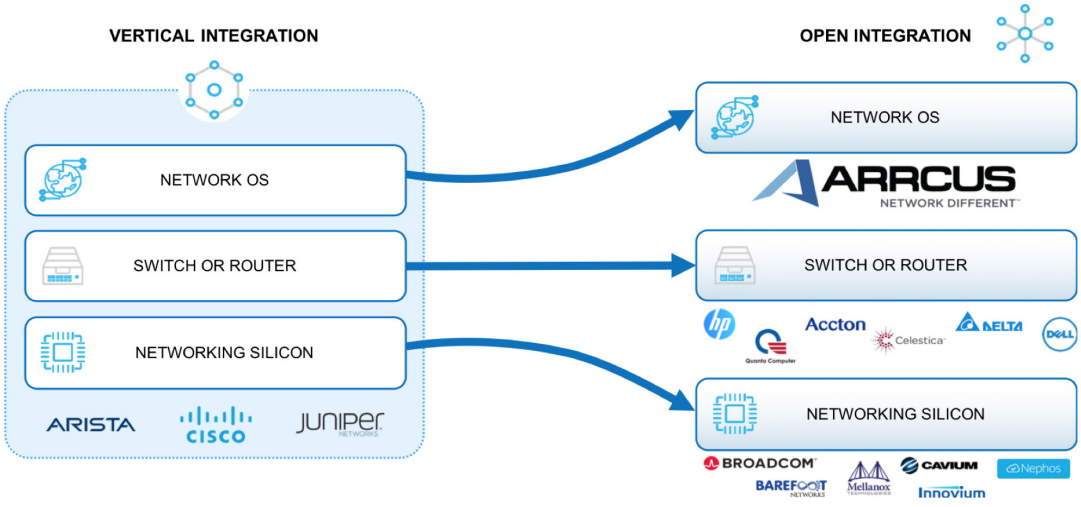
The ArcOS control plane boasts a multi-process, multi-threaded architectural design that enables independent scheduling of processes, rapid convergence, and superior performance with the ability to scale out in terms of threads per process. It also enables process re-startability, which makes ArcOS a highly robust software that keeps processes running independent of each other.

These advanced capabilities enable organizations to cost-effectively build massively scalable infrastructure across physical, virtual (VM and container), and cloud network environments while delivering superior performance, security, and deployment flexibility.

Freedom of Choice

The ArcOS modular software delivers superior flexibility by allowing customers to have choice at every level:

1. **Control/Data plane** (Routing Protocols, IPv4/IPv6, MPLS/Segment Routing, VXLAN)
2. **Hardware plane** (Chipset, ODM frameworks)
3. **Management/Orchestration plane** (OpenConfig/YANG APIs, Ansible, Puppet, Chef, etc.)



As shown above, Arrcus is partnering with leading Original Device Manufacturers (ODM) to deliver a multitude of hardware options in terms of form factor, chipsets, speed, and port types. This provides customers the flexibility of deploying at various places in a network (Datacenter, Edge, Cloud, Central Office, Mobile back office, etc.)

Real-Time Visibility and Security

Whether the networks are managed on-premise or in the cloud, operators need to visualize the entire network through real-time analytics with deep visibility. The ArcOS software provides many management operations automated through FCAPS (Fault, Configuration, Accounting, Performance, Security) controls available out of the box. In addition, it offers native streaming telemetry capabilities that allow the streaming of control plane, forwarding plane, and device environmental data. All the streaming telemetry data are secured through TLS connections.

Security is in the ArcOS DNA and has been built into the product from inception. Every software image is private key signed by Arrcus to assure end-user image authenticity. Critical infrastructure resources such as CPU, memory, process, ports, and users are monitored through a NetOps toolkit (ArcOpsTM). Alerts are issued when unauthorized use pattern is detected. The ArcOS access and management plane is secured by SSH, TACACS+, and secure REST calls. The management VRF enables clear separation between out-of-band management network and in-band data plane network.

About Arrcus

Arrcus was founded to enrich human experiences by interconnecting people, machines, and data. Our mission is to provide software-powered network transformation for the interconnected world. The Arrcus team consists of world-class technologists who have an unparalleled record in shipping industry-leading networking products, complemented by industry thought leaders, operating executives, and strategic company builders.

The company is headquartered in San Jose, California.

For more information, go to www.arrcus.com or follow @arrcusinc.

www.arrcus.com

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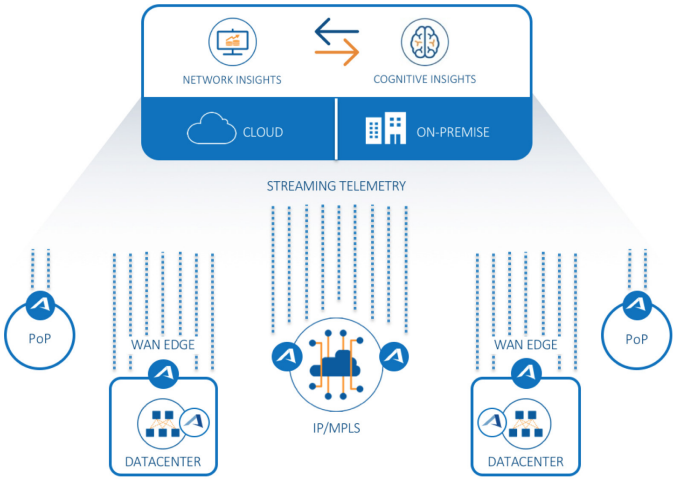

The control plane is secured with the Control Plane Policing (CoPP) capability natively available in the software. Its protocol stack is further protected to accept only uncompromised protocol messages from its authorized peers. Routing Protocols such as BGP, OSPF, IS-IS, etc. provide all currently operationally deployed authentication and integrity mechanisms to protect against on-the-wire attacks. The current deployed state-of-the-art mechanism is MD5 with semi-manual rekeying. E.g., see RFC 4808 - Key Change Strategies for TCP-MD5.

Businesses today are demanding high-performance, resilient network software as they build out their smart network infrastructure. If you are looking for a state-of-the-art network operating system to support your organization's network transformation initiatives, visit www.arrcus.com

Network Different – with Arrcus