

# CloudEOS™

## Highlights

### Cloud Grade Routing

- **Multi Cloud:** routing optimized for public and private clouds and available in all major public and private cloud environments including Amazon AWS, Google Cloud Platform, Microsoft Azure and Kubernetes
- **Transit Routing:** connects multiple Virtual Private Clouds (VPCs) together with a normalized connectivity pattern and the same proven Arista EOS® software used in all Arista networking platforms
- **Universal Cloud Network (UCN):** standards-based network designs within and across public clouds; for leaf-and-spine and edge-to-edge connectivity through a standards-based BGP EVPN
- **Site-to-Site WAN interconnection:** connect public clouds, data centers and campus sites with high speed IPsec encryption and dynamic path selection
- **Cloud Native:** extends CloudEOS into the Kubernetes cluster for auto-provisioning, consistent routing, improved visibility and better troubleshooting

### Key Features and Capabilities

- **Cloud Network Private Segments (CNPS):** VXLAN and IPsec based Virtual Private Networks (VPNs) spanning cloud regions and providers, to enable a secure, global and consistent segmentation model
- **Telemetry streaming:** based on open source gNMI, gRPC, and OpenConfig standards delivering greatly improved network visibility and troubleshooting
- **Network Address Translation (NAT):** provide IP address flexibility in any VPC

### Autonomic Cloud Operations

- **Easy:** reduces setup times from weeks to minutes while automating network deployment and keeping policies consistent in any cloud platform
- **Elastic:** Pay-As-You-Go (PAYG) consumption through Public Cloud Marketplaces and Service Catalogs
- **All Inclusive:** includes the right-to-use license for each CloudEOS instance for CloudVision, all EOS features, and A-care software support
- **Consistent operational model:** Arista EOS® and CloudVision® complemented with DevOps and CloudOps toolchain integration like Terraform
- **Open Programmability:** programmable via JSON API (eAPI) or EOS SDK, with support for Python, Go, Ansible, NetConf, OpenConfig, etc.

### Performance and Reliability

- **Dynamic Path Selection (DPS):** with Inband Path Telemetry for CloudEdge use cases providing reliability connectivity over diverse WAN segments
- **Cloud High Availability (HA):** utilizing Bi-directional Forwarding Detection (BFD) and multi-path routing (ECMP) for fast recovery and continuous operation
- **High Performance Data Plane (DPDK):** increases throughput while reducing latency, jitter, and CPU utilization to deliver the ultimate performance in any cloud for the most demanding network workloads
- **Latest Cloud Architecture:** utilizing Microsoft Azure Accelerated Networking and Amazon AWS Enhanced Networking for efficient operation in public clouds

*CloudEOS™ is Arista's multi cloud and cloud native networking solution supporting autonomic operation, delivering an enterprise-class, highly secure and reliable networking experience for the cloud.*

### Multi Cloud Customer Challenge

Cloud native applications need the agility to scale-up and down elastically based on real-time demand, and thus execute far more cost-effectively in public clouds than on fixed enterprise infrastructures due to the elastic nature of the public clouds and their shared global infrastructures. Elastic scaling and pricing can result in significant OpEx reductions while providing an organization with the freedom to deploy workloads instantly.

Multi cloud deployments enable the platform team to place applications and data across multiple public clouds, thus providing greater agility through the ability to consume any application across any qualified cloud platform. However, creating and maintaining a multi cloud infrastructure, as well as a hybrid distribution of application stacks and data across multiple public and private clouds, can result in a highly complex networking and security environments, requiring additional specialized expertise, and increasing operating costs.

Further, the confluence of multi cloud deployments with emerging cloud native Kubernetes and service mesh architectures, with their inherent dynamic scaling and high velocity virtualization and elasticity, creates an environment that breaks most traditional networking and security architectures.

### Introducing CloudEOS - Cloud Networking Infrastructure as Code

Arista's cloud networking strategy pivots on a foundational architecture for network reliability and scale, extending the Universal Cloud Network approach that we pioneered in high-performance enterprise and cloud data centers to public and private clouds using elastic provisioning of the networking infrastructure as code.

CloudEOS™ is Arista's multi cloud and cloud native networking solution supporting autonomic operation, delivering an enterprise-class, highly secure and reliable networking experience for the cloud. As part of the Arista EOS® and CloudVision® product family it delivers consistent segmentation, automation, telemetry, provisioning and troubleshooting for the enterprise edge, WAN, campus, data center and multiple public and private clouds.

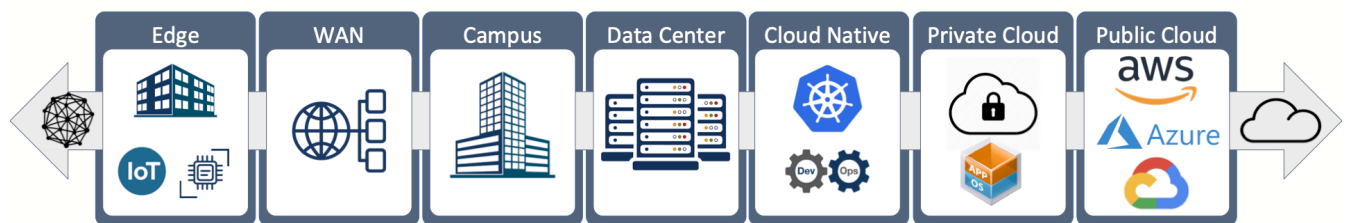


Figure 1: Universal Cloud Network - Networking Infrastructure as Code

To provide a scalable and automated network experience, CloudEOS fully integrates its automated operational features with Arista CloudVision® to simplify the operators experience of interconnecting and managing multi cloud, cloud native and on-premises enterprise networks. Leveraging a network-wide approach for workload orchestration and workflow automation, together with advanced network telemetry and standards-based programmability, CloudEOS and CloudVision provide a seamless and universal approach to multi-cloud networking.

CloudEOS enables the integrated delivery of a fully software-defined infrastructure by combining the power of network automation with the cloud consumption and elastic scaling features of public cloud, private cloud and cloud native platforms, using HashiCorp Terraform and cloud provider toolsets to deploy directly from public cloud provider marketplaces.

A foundational network construct to enabling our vision of highly reliable cloud operations and concurrent isolation for sensitive workloads is the delivery of Cloud Networking Private Segments (CNPS). The CNPS is a standards-based multi cloud network segmentation method that provides several key capabilities in the increasingly complex enterprise environment for segmentation within and across public and private clouds using a BGP based EVPN.

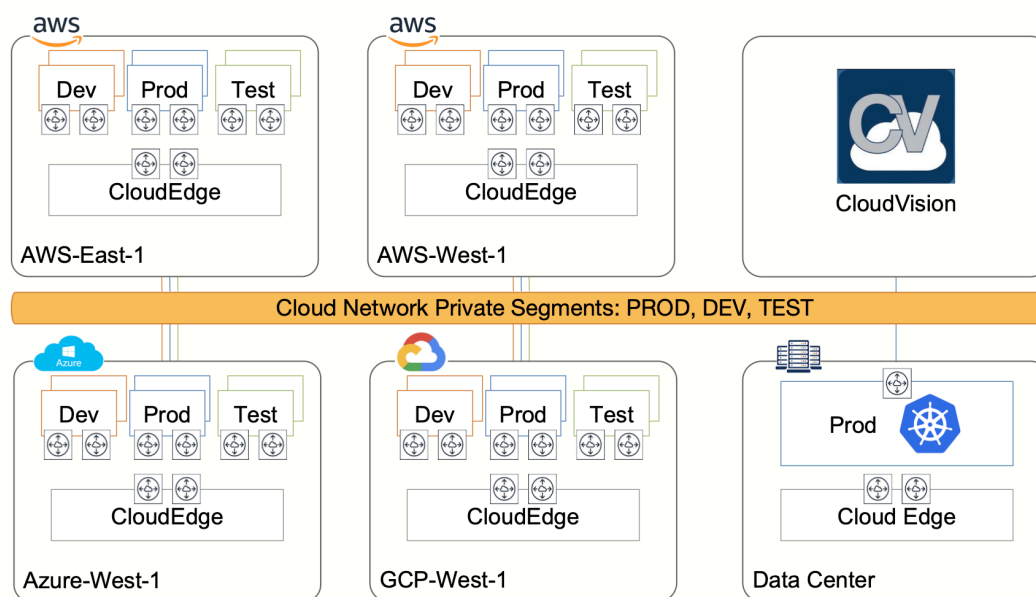


Figure 2: Multi Cloud Networking with Cloud Network Private Segments

CloudEOS is based on the same network operating system already proven in the most demanding public cloud, government and enterprise infrastructures, and it utilizes the exact same binary image and release trains as all Arista EOS platforms. Arista CloudEOS extends the Arista EOS platform from Arista's award-winning physical switching and routing platforms into the virtualized and containerized environment with a powerful and elastic automated deployment model. This approach ensures that the CloudEOS platform will always support the latest EOS features, with the same high quality and platform compatibility as the entire Arista networking portfolio.

CloudEOS provides the vital missing element required for building multi cloud connectivity with consistent isolation across the entire enterprise environment. It delivers high-performance virtual and container-based instances of EOS software that simplify network operations with declarative cloud provisioning tool chains like Terraform, Ansible and other popular CloudOps and DevOps solutions that are used to deploy the entire application stack.

### CloudEOS Deployment Experience

CloudEOS supports fully elastic pay-as-you-go consumption and scaling in the public cloud, with automatic deployment and provisioning based on real-time application demand. In addition it provides the key features required to achieve integration of network operations with the dynamic cloud operational models required to sustain the benefits of a multi cloud infrastructure, while minimizing operating costs.

With CloudEOS, customers can take full advantage of their multi cloud and cloud native investments without compromising on the network reliability, security and predictability that they expect from Arista.

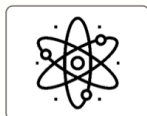
**Declarative Cloud Provisioning** - using the popular Terraform application a platform engineering team can stand up virtual private cloud instances in multiple public cloud providers and with a single additional line of code per VPC. Terraform will automatically deploy an Arista CloudEOS Leaf Router, or a high availability pair of routers, and establish secure connectivity to a CNPS for each connected VPC.



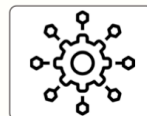
**Declarative Provisioning and Deployment**



**Global Multi-Cloud Network**



**Dynamic Path Selection**



**Consistent Network Segmentation**



**Network Elasticity**



**Container Network Visibility**

**Multi Cloud Reachability and Scale** - any resource elastically scales up/down within the public cloud its instantiation and real-time addressing are maintained coherently across the entire CNPS segment, even across cloud providers in high-velocity environments like Kubernetes.

**Elastic Scaling and Consumption** - for cloud delivered functions like segment control points, edge transit routers, and cloud spine nodes the architecture is designed to enable these nodes to be procured in and through the public cloud providers and billed based on the actual consumption in a pay-as-you-go model.

**Enhanced Visibility and Analytics** - each networking node within the CNPS streams telemetry data back to Arista CloudVision which can be deployed in the public cloud in a VPC or on-premises. This enables a digital replica of the network state to be available for analytics or as training data for supervised machine learning models.

### Where to get CloudEOS

CloudEOS is offered on Amazon AWS, Microsoft Azure, and Google public clouds via their marketplace and service catalogs, and it is also available as cloud native instance for deployment in Kubernetes clusters. With CloudEOS, customers can now deploy networks across multiple public cloud providers and on-premises environments in minutes, without ever touching the network CLI.

For more information or to obtain a free trial of CloudEOS please visit your public cloud marketplace or contact [sales@arista.com](mailto:sales@arista.com) for more information.

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