EOS Extensibility Engineering Services - Automated Provisioning

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- Eighty percent of all downtime attributed to human error
- Manual configuration is slow and prone to error
- People and travel are expensive

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Arista EOS Extensibility Engineering Services

At the heart of Extensibility Engineering Services lies Arista Extensible Operating System (EOS), which is built on a standard Linux distribution. Arista EOS has full Linux shell access for root-level administrators, and makes a broad suite of Linux based tools available to you. Additionally, EOS has been built on a premise that encourages integration with best-in-class tools and software. All programming interfaces that Arista software developers use between address spaces within EOS are also available to third party developers, and Arista customers.

These EOS building blocks open up an array of Extensibility capabilities that allow us to customize the way you deploy, operate and interact with an Arista Network Element in your specific environment:

- Programmatic solutions via scripting to customize various provisioning, monitoring, visibility and network operations tasks
- CLI Plugins that allow you to settle for or work around vendor provided CLI and instead customize the CLI to meet your operational requirements
- Full leverage of various Linux tools that can easily be deployed on the box
- E.g. ability to use tools like Chef, Puppet empowers the DevOps community to use familiar tools for network automation
- Use of EOS API (eAPI) for complete programmatic control over EOS, with a stable and easy to use syntax. eAPI's completeness, stability, and ease of use makes it well suited for a variety of customer applications and integration with third party tools
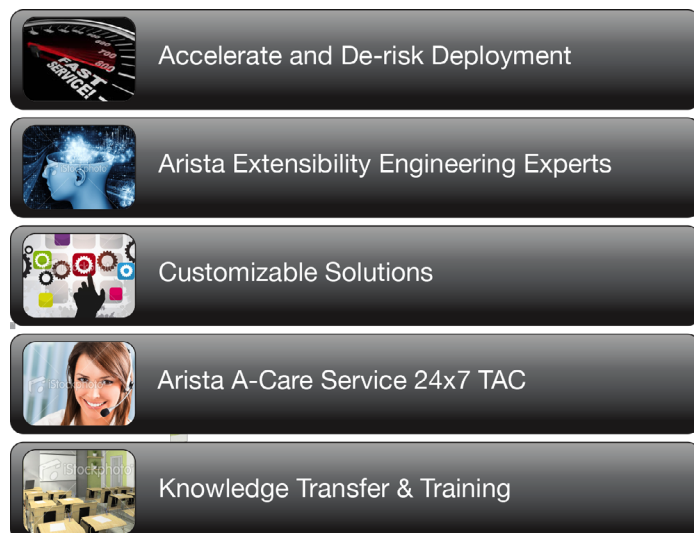

Figure 1: Extensibility Engineering Service Benefits

With the Arista EOS Extensibility Engineering Services, you get access to dedicated Arista Extensibility Engineering Experts who will collaborate with you to deliver tailor made solutions to accelerate and de-risk your deployment. In addition, with the Arista A-Care service, you will have 24x7x365 access to Arista TAC that has a great team of networking experts who can assist you with any issues you run into.

Need for Automated Provisioning Solutions

Cloud computing has rapidly evolved over the last few years. From humble origins rooted in virtualization and concepts of service-oriented architectures, it continues to emerge as a favored operational model of next- generation data center deployments. The business theory and cost savings of on-demand capacity models is sound. With virtualized hardware and operating systems production ready, what's the next step to creating a fully automated data center environment? The answer to this typically involves cost and complexity. While servers and applications have fully embraced the concepts of automation, sadly the network infrastructure, on which they all rely, is still mired in legacy technologies. Current methodology requires extensive hands-on provisioning and configuration by knowledgeable personnel, an expensive and untenable business model. In modern cloud infrastructure, network managers must be able to centralize provisioning and configuration roles to improve reliability, minimize bring-up costs, and contain the expenses of creating a cloud data center service. Whether you are looking to maximize the efficiency and reliability of your existing operations, or you are looking to take advantage of a cloud based infrastructure, fully automated provisioning is an essential capability.

Automated Provisioning Service Portfolio

Automated Provisioning Extensibility Service includes a set of tools and extensions that automate and optimize the provisioning of Arista switches in the customer network and provides custom integration with network automation tools being used in the customer premise. Arista Extensibility Engineering personnel will provide assistance throughout the project cycle from Service assessment to Delivery. This service includes project management, knowledge transfer, design, development, installation and integration of software and scripts tailored to meet the customer's deployment needs.

This Service portfolio includes the following components:

- ZeroTouch Provisioning
- Integration with Network Automation System (Chef, Puppet, Ansible, CFEngine)
- Arista CloudVision®

ZTP – Zero Touch Provisioning
Simply stated, Arista Zero Touch Provisioning (ZTP) is used to configure a switch without user intervention. Built to fully leverage the power of Arista's Extensible Operating System (EOS), ZTP provides a flexible solution, provisioning the network infrastructure without requiring a network engineer present at install. A true 'must-have' feature to contain costs and increase reliability when deploying scalable clouds and data centers. Simplify your installation process from hundreds of manual steps to three simple steps:

- Rack
- Connect
- Power-on

ZTP can be customized to any provisioning scheme that customer may be using in the Data Center. In addition, ZTP can be enhanced with boot scripts to perform more intelligent actions to address customer specific needs, be it topology aware configuration, zero-touch hardware replacement, software version checks; etc.

Network Automation Integration
Computing in the cloud requires system administrators to manage large clusters of servers at once. Also, as clusters grow dynamically, new racks need to be deployed quickly and with ease. So, template based configuration management tools such as Chef, Puppet, Ansible, CFEngine are increasingly used by DevOps teams in cloud environments to address these challenges. Today, however, the DevOps team cannot use the same tools for automating the management of rack switches that get deployed as a rack gets provisioned. Since network automation function is not integrated with these tools, they lack visibility into the networks.
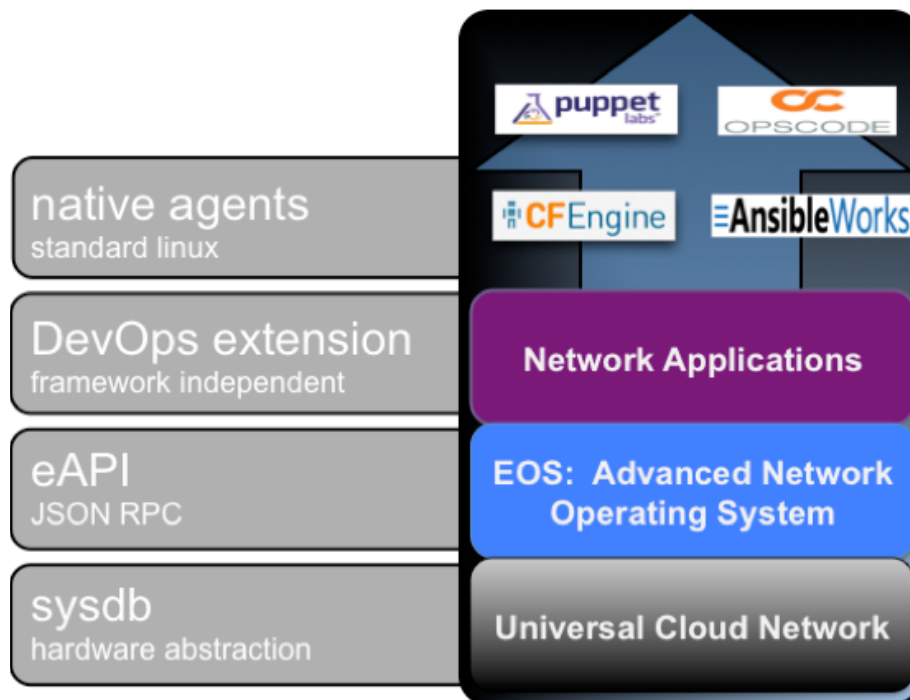
Figure 2: Network Automation with EOS

The programmability of Linux-based EOS makes it possible to leverage these DevOps tools to create templates to manage Arista switches in a similar way to other Linux-based systems in the Data Center. This allows for more seamless automation across servers, storage and network and enables collaborative operations. With the network automation integration, common network configuration on a switch can be abstracted out to represent "network resources" allowing the DevOps team to standardize network configurations across racks. Some examples of network resources include VLANs, routing policy, interface templates; etc. This results in faster deployment with high degree of automation and hence reduced errors and lower OPEX. Moreover, we provide DevOps extension, which is framework independent in that, you can easily switch from Chef to Puppet to Ansible to CFEngine and still maintain all of the same functional goodness provided by the extension, offering you flexibility, while protecting your investment.

Furthermore, by integrating this with other EOS tools such as ZTP, Advanced Event Management (AEM), we can customize your deployment to meet the needs of your specific environment.

Cloud Vision
The lack of programmatic interfaces to network elements is one of the major barriers to scalable cloud computing - the lack of positive acknowledgement on configuration and change, the lack of machine readable data structures, and the lack of a scalable and reliable multi-device message bus with presence integrated into the protocol foundation all make automating the network increasingly challenging and delay successful scalable cloud deployments.

CloudVision is a framework for creating a topology agnostic single-point of administration and management for thousands of devices based on open-source and open-standards.

- **Global configuration changes in the data center network:** CloudVision allows managers to issue commands that are replicated to the entire switched network or a cluster of switches. So as new virtual networks are deployed, VLAN provisioning throughout the data center can be distilled to a single command. Likewise, changes in security or monitoring provisioning can be normalized, automatically replicating authentication configuration, and monitoring parameters.
- **Compliance checking:** CloudVision simplifies configuration retrieval and checking. Managers can now implement schemes to retrieve and verify the configuration of the data center network in real-time.
- **Real-time change monitoring and configuration validation:** CloudVision uses real-time, publish-subscribe mechanisms that allow constant updates of changes occurring in the network. Managers can not only track configuration changes, but can also monitor network topology changes that may indicate erroneous or malicious configuration changes that may compromise performance and stability.

Location of Services

This Service will be delivered on-site only in US, CAN and EU countries. In all other regions, this Service will only be available remotely. Please contact your local Arista Networks Sales representative for more details.

Ordering Information

Automated Provisioning Extensibility Engineering Service is available worldwide. Please contact your local Arista Networks sales representative for details regarding pricing and quoting.

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