

Arista eAPI

Introduction

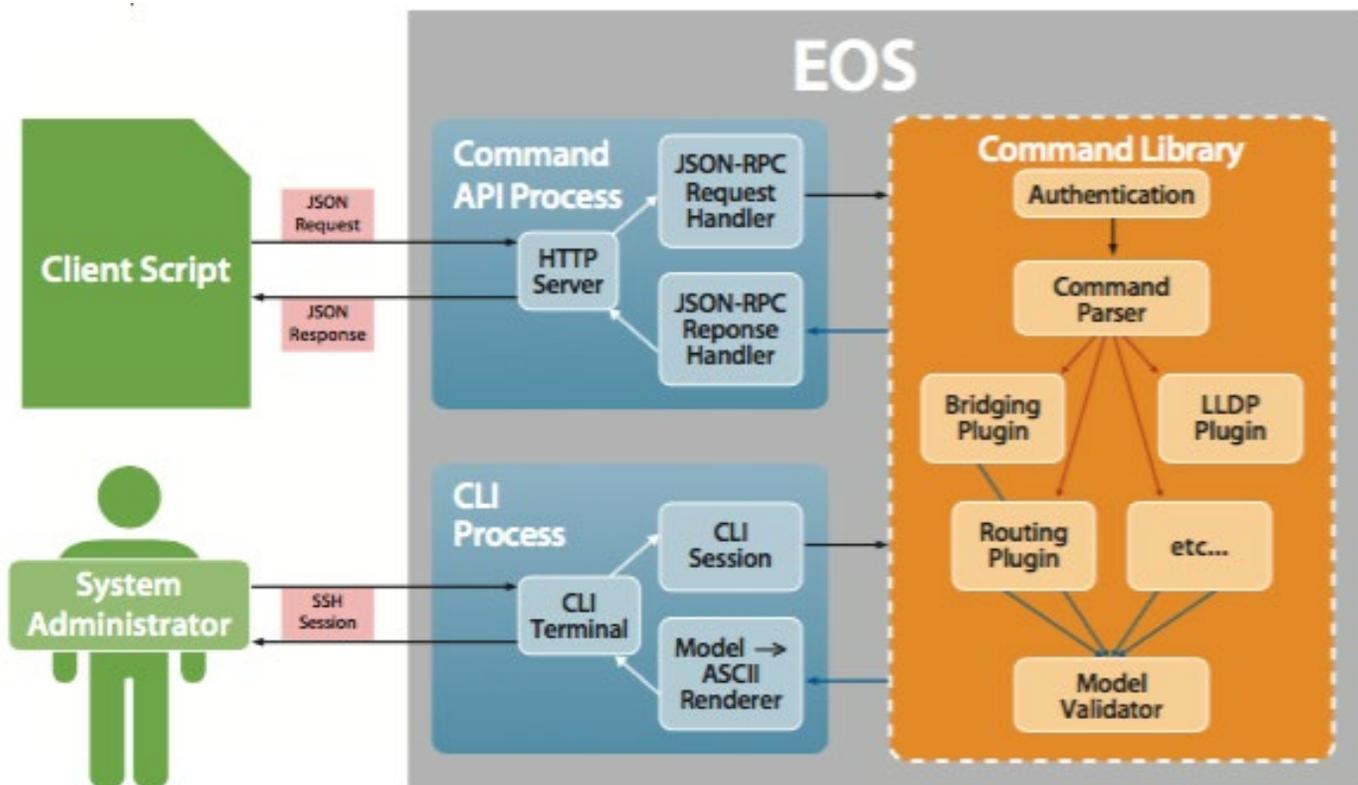
Arista EOS (extensible operating system) offers multiple programmable interfaces for applications. The applications running on the switch or external EOS applications can leverage these interfaces. For example, Arista's EOS API (eAPI) interface allows applications and scripts complete programmatic control over EOS with a stable and easy-to-use syntax. Once the API is enabled, the switch accepts commands using Arista's command line interface (CLI) syntax, and responds with machine-readable output and errors serialized in JSON, served over HTTP.

The EOS API has three major advantages:

1. **Comprehensiveness:** With Arista's eAPI, customers can access any state and configure any properties on the switch that they could otherwise do over the CLI.
2. **Ease-of-use and flexibility:** The simplicity of this protocol and the availability of third-party JSON clients means that eAPI is language agnostic and can integrate into any existing infrastructure and workflow. Additionally, on-box, interactive documentation for the API, and return values make writing new programs simple. To view, enable eAPI and visit <https://<your-switch-ip-address>/eapi> in a web browser.
3. **Stability:** Arista ensures that a command's structured output will remain compatible with multiple future versions of EOS. The compatibility allows end users to confidently develop critical applications without compromising their ability to upgrade to newer EOS releases and gain additional features. Furthermore, this enables scripts to operate cleanly in data centers running multiple versions of EOS without compromising eAPI's simplicity.

EOS architecture overview

The eAPI architecture is very straightforward, as diagrammed below:



- Clients send an HTTP POST request to the server using the lightweight JSON-RPC 2.0 protocol. Requests specify
 - » The “method” to use (at this time, always “runCmds”).
 - » A list of commands to run, for example [‘show interfaces’], or [‘configure’, ‘interface Ethernet 1’, ‘shutdown’]
 - » A “version” number specifying which revision of the model output your script expects (at this time, always “1”)
- The server processes the request and collects a structured data model for each command, which will then be converted into JSON. The JSON-RPC 2.0 ‘error’ field is set if a command returns an error. Otherwise, the response is in the ‘result’ field. You can view further documentation on response formats at <https://<your-switch-ip-address>/eapi/spec> and overview documentation at <https://<your-switch-ip-address>/eapi/overview>.

Example eAPI use cases

eAPI's completeness, stability, and ease of use make it well-suited for various customer applications. For example, traditional network configuration workflows involve connecting to nodes over SSH and setting the configuration command by command. eAPI makes this trivial and allows network operators to replace the entire running configuration for a device in one sequence. eAPI reduces the time to deploy a change and gives the operator a quick feedback loop.

eAPI excels at integrating with third-party software. For example, retrieving structured JSON data from Arista nodes allows developers and operators to easily incorporate EOS nodes into network automation workflows, monitoring, and data center infrastructure management tools. In addition, another use case is for network administrators who wish to configure many nodes programmatically. The robust ecosystem around eAPI has led to integrations with popular open-source toolings such as Arista's own [Arista Validated Designs \(AVD\) framework](#) and [Red Hat's Ansible Automation Platform](#).

Conclusion

The above examples are a small subset of possible use cases for eAPI. Because all CLI commands are accessible over an API that uses a widely accessible protocol, any task that previously required manual input can be automated with incredible ease. Furthermore, eAPI's guaranteed stability ensures network operators can programmatically control even network-critical processes. In this age of software-defined networks, eAPI gives an unprecedented ability to automate and manage your data center.

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