APPLICATION NOTE

Simplify Integration and Reap Cost Savings with Ciena's Emulation Cloud

Ciena's Emulation Cloud™ is designed to help network operators exploit the potential of open Application Programming Interfaces (APIs), which are a foundational element of Software-Defined Networking (SDN). Emulation Cloud provides customers, partners, and system integrators a software integration environment—remotely accessible 24 x 7 through a Web portal—so they can rapidly develop, test, and integrate new applications with Ciena's open APIs without investing in their own IT and network infrastructure. The two case studies below demonstrate the tangible cost and efficiency benefits realized by using Emulation Cloud.

The Emulation Cloud gives network operators access to Ciena's product-based open Representational State Transfer (REST) APIs, along with information and tools that help developers quickly get started on the creation and testing of applications that become the glue between Ciena products and Billing/Operational Support Systems (B/OSS). Network operators can use Emulation Cloud to develop holistic solutions that integrate Ciena's products into their business operations—providing automated equipment commissioning and service provisioning, enhanced network visibility, real-time fault event notification, detailed performance monitoring, and utilization and capacity management.

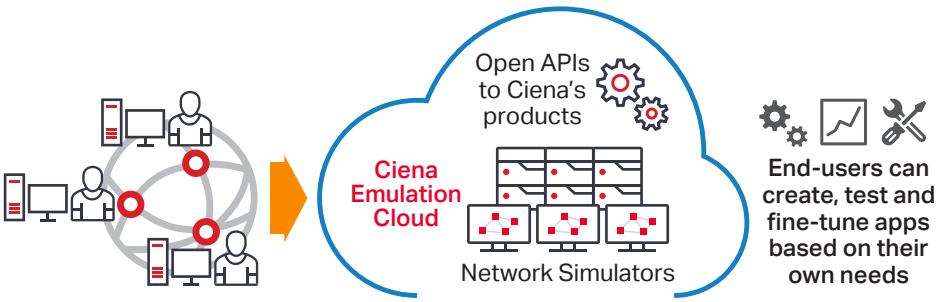

Figure 1. Ciena's Emulation Cloud: Global sandbox for test and innovation

Question:
What if a company could start network integration projects without spending valuable resources on equipment and physical lab space? What if it could complete the integration of new Ciena technologies with operational support systems quickly?

Answer:
Ciena's Emulation Cloud™ takes the complexity out of application development and integration testing, to help network operators save on costs and accelerate time to revenue.

As a replacement for an in-house physical hardware lab, the Emulation Cloud can yield integrators **capital and operating savings of $1 million.**[1] By enabling more rapid integration testing, companies can achieve **labor cost reductions of $1,000 per labor day saved.**[2] Furthermore, end-customer services can be deployed earlier, resulting in **accelerated revenue of hundreds of thousands of dollars.**[3]

1. Based on a representative simple lab environment, which includes two Ciena 6500 NEs, controlled by a Ciena's Manage, Control and Plan (MCP) domain controller. Savings depend on lab configuration and number of months of use.
2. Based on estimated loaded labor rate of $200,000 per year.
3. Based on example $3,000/month Ethernet service that can be deployed 10 days earlier, equating to $1,000 per service, per customer advance revenue, across hundreds of customers.

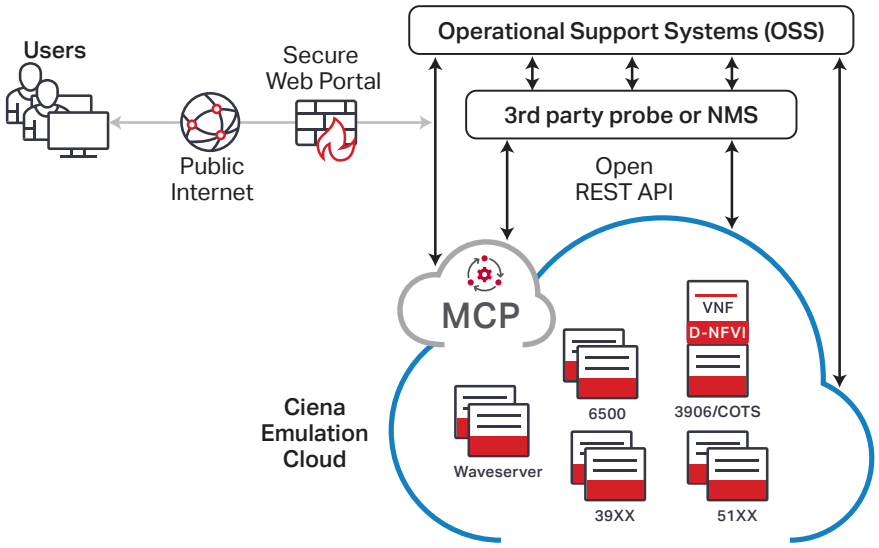

Figure 2. Ciena's Emulation Cloud—integration made simple

The Emulation Cloud business case

Because it is hosted in the cloud, the Emulation Cloud provides network operators, third-party developers, and system integrators the ability to access Ciena's open APIs for testing and development purposes, without first having to build up their own physical lab integration environment. This allows them to get a head start on integrating new Ciena network products with their own back-office B/OSS, without spending a dime. Nor do they need to worry about the logistical complexities of setting up and securing VPN access, or scheduling access to a physical lab for their remote personnel, especially across geographies. Even once their own internal lab environment is established, network operators can still leverage the Emulation Cloud to bolster productivity.

The Emulation Cloud offers a one-stop shop full of tutorial videos, documentation, expert advice, sample code, and other information to help network operations engineers and other software developers familiarize themselves with the inner workings of open APIs and get started quickly.

The benefits of the Emulation Cloud are many:

- Allows remote access to Ciena hardware and software-based APIs
- Available at no charge to Ciena customers, partners, and system integrators
- Offers 24 x 7 access to development teams via secure Web portal
- Accelerates integration testing, removing dependency on own physical lab
- Provides early exposure to Ciena's Manage, Control and Plan (MCP) functionality and APIs for OSS integration
- Reduces time required to perform final in-house integration testing
- Leverages developer community expertise to aid application development
- Improves API skills development
- Accelerates use of DevOps methodologies for web-scale IT integration

Access to Ciena's open APIs any time, from anywhere

The Emulation Cloud helps network operators test applications that will interface with Ciena's MCP software, or to Ciena Network Elements (NEs) directly.

In particular, the Emulation Cloud users have access to Ciena's MCP open APIs to control the Ciena domain of packet-optical NEs, leveraging a common interface for network and service lifecycle operations. They can develop, test, and fine-tune application software for a variety of use cases, such as creation of new services, resolution of customer service requests, or integration into network-wide monitoring systems.

Learn more about
Ciena's MCP domain controller

Case study #1: Integration of third-party controller

The Emulation Cloud has been used effectively to integrate MCP with third-party controllers, such as an ONOS controller. In one scenario, a network operator's development team used Ciena's Emulation Cloud to test integration of MCP with a third-party network controller, where MCP was controlling a network of Waveserver® devices and 6500 packet-optical devices. Their goal was to develop and test API calls to perform automated tasks such as obtaining inventory information, provisioning new network services, and conducting path calculations.

In this scenario, the Emulation Cloud virtual lab eliminated the need to invest in physical or virtual NE infrastructure, enabling the development team to start full integration testing much earlier than anticipated. In addition to providing access to MCP APIs, Emulation Cloud also enabled developers to make direct API calls to the NEs by exposing the associated NETCONF/YANG models. The cloud-based testing environment also helped Ciena's customer book long-duration tests—which eliminated the need for repetitive network configuration at the beginning of each lab session—further expediting testing. Ultimately, **the team of two to three developers started integration testing six weeks sooner than was previously possible, logging over 40 hours a week of Emulation Cloud use. This advance testing mitigated risk on the integration plan, and kept the project on schedule.**

Case study #2: Alarm management integration

In another use case scenario, a network operator and third-party software developers used the Emulation Cloud to expedite integration of Ciena NEs within a comprehensive alarm management system. The team of developers used the Emulation Cloud to develop and test a third-party network probe that would relay alarms from MCP to the back-office alarm management system, where MCP was controlling a Ciena 6500 network. In this scenario, the developers were located around the globe, and needed 24 x 7 lab access. Their goal was to remotely integrate MCP REST APIs with their software and test MCP connections via WebSocket to the network probe.

With no need to ship 6500 equipment, and offering the ability to perform around-the-clock live testing, the Emulation Cloud eliminated prior testing delays. The team worked effectively across time zones, as members on opposite sides of the globe could address queries and continue testing during their regular work hours. Without Emulation Cloud, the productivity window had been reduced to two hours per day due to time zone limitations, whereas now, there were **ten hours per day of productivity—a five-fold improvement. In total, a team of three developers advanced integration testing by three months, shortening the critical path of the entire project schedule.**

Learn more about
Ciena's Emulation Cloud

Save time and money in integration testing

The above case studies highlight how Ciena's Emulation Cloud can help network operators gain greater flexibility and programmability within their network operations, at significantly reduced integration cost. By using the Emulation Cloud, network operators can ensure proper integration of Ciena software and hardware with back-office B/OSS quickly and efficiently, and more rapidly develop new services to serve their customer base. Ciena's Emulation Cloud also helps network operators accelerate their use of DevOps and web-scale IT integration by encouraging innovation through experimentation and testing—all from the safety of a virtual cloud environment.

Was this content useful? Yes No