LEAP

Lumina Extension Adaptation Platform

Model-driven software platform enables automation of heterogeneous networks.

SDN has long enabled interfaces like Netconf and OpenFlow to program network elements. Most networks, however also contain a vast amount of legacy devices that do not support these programmable interfaces. In this common scenario, network administrators are forced to use siloed and manual CLI methods or use rudimentary automation with devops tools.

LEAP is an extensible software platform that enables the automation of legacy network elements using model driven frameworks, shielding the complexity of underlying south bound interfaces and enabling northbound applications.

Benefits:

1. Improve network flexibility by making network applications aware and cloud-ready
2. Extend life of existing capex investments by enabling programmability for legacy network elements
3. Decrease service delivery times from months to minutes with one-click service provisioning and easy order management integration using model driven APIs
4. Increase efficiencies with Intent-driven network operations leveraging abstract data models
5. Continued extensibility via microservices driven framework
6. Ease of deployment for devops teams which can continue to use existing python skills—no additional programming languages are needed
7. Pure Play Open Source base enables community innovation without vendor lock-in
LEAP uses a microservices architecture to extend the capabilities of Lumina’s OpenDayLight based SDN controller to enable better integration with business layers. In a language agnostic manner, the platform promotes addition of new microservices based components. Devops operators teams leverage existing Python skills to extend their service automation frameworks in-house, based on business demands, without dependency on external vendors.

**Pure Play Open Source-Based**

SDN has long enabled interfaces like Netconf and OpenFlow to program LEAP is based on OpenDaylight which is a modular open platform for customizing and automating networks of any size and scale. OpenDaylight has long been the open source networking solution of choice by service providers controlling programmable interfaces. But the programmable network is only half the battle. Lumina Networks brings the expertise needed to extend open-source, software-defined networking into legacy networks as well. Our hardware-agnostic platform provides a comprehensive networking solution with prepackaged use cases for large-scale market adoption. We simplify the automation and digital transformation of hybrid network deployments in a way no other vendor can.

While nearly every company in the communications industry appreciates the value open source can bring, they also recognize that open source isn't easy. This is why Lumina Networks is the #1 commercially deployed OpenDaylight vendor - we have the expertise and community leadership to successfully execute open-source projects.

While LEAP delivers a pure-play open-source foundation for you to expand on, the Lumina Networks team also works with operators to promote applicable code back into the open-source community. This protects operators from being locked into one vendor’s implementation of open-source solutions—even ours.
Expanded Lumina SDN Controller & LEAP

Solution Architecture

Key

- Customer/3rd Party Extensions
- Inherited from community, hardened by Lumina
- Distributed by Lumina, Extensible by Customer
- Lumina Value Additions

UI | Orchestration Layer | CRM Applications
---|---------------------|-----------------

API Layer (REST / RESTCONF / NETCONF)

3rd Party Apps
- ODL Applications
- Lumina Node License Manager
- Lumina L3VPN Manager
- Lumina Topology Manager
- Lumina Flow Mgr / PCE Engine

DataExm | Infra | AAA | Time Series DB | JSON-RPC

Controller Applications

Platform Services

Microservices Message Bus / LEAP Core

OpenDaylight Platform (Yang Tools, MD-SAL)

OpenFlow | OVSDB | Netconf | PCEP | BGP

Programmable Network Elements

Microservices Governance
- Integrated Inventory Services
- PCE as a Service
- Lumina Service Mapper
- CLI & Engine Parser
- LEAP Services

Mapping Templates

Parsing Templates

Pub/Sub Bus

3rd Party / Service Assurance / Monitoring

CLI | TL1 | Proprietary SBI | LEAP Agents

Legacy Network Elements
# Features

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<thead>
<tr>
<th>Feature</th>
<th>Description</th>
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<tbody>
<tr>
<td>Intent to Config translation</td>
<td>Extensible framework to translate any abstract model into vendor/device configurations</td>
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<tr>
<td>South-Bound Interfaces</td>
<td>Supports an array of standard programmable south bound interfaces such as OpenFlow, Netconf, OVSDB, BGP, PCEP, gRPC and legacy interfaces such as CLI/SSH, and extensible for other legacy interfaces like TL1</td>
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<tr>
<td>North-Bound Interfaces</td>
<td>Model driven REST APIs, gRPC, gNMI</td>
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<tr>
<td>Integrated Inventory Management</td>
<td>Inventory discovery and unification of inventory across heterogeneous networks</td>
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<tr>
<td>Topology Management</td>
<td>Topology discovery, Provisioned Topology</td>
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<tr>
<td>Network Discovery</td>
<td>Auto-discover a wide variety of network elements</td>
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<td>Template support</td>
<td>Ability to define templates and perform templatized bulk config push</td>
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<tr>
<td>Transaction Management &amp; Error Handling</td>
<td>Atomic service config push and rich error handling</td>
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<tr>
<td>South bound WorkFlow integration</td>
<td>Rich framework support for defining pre-config, post-config validation hooks</td>
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<tr>
<td>Config dependency management</td>
<td>Ability to express dependency chains between configurations</td>
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# Feature Specifications - Monitoring

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<th>Feature</th>
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<tr>
<td>South-bound monitoring interfaces</td>
<td>SNMP, gRPC, streaming telemetry (like JTI)</td>
</tr>
<tr>
<td>Alarm translation</td>
<td>Extensible framework for alarms normalization</td>
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<tr>
<td>Analytics integration</td>
<td>Ability to push streaming data to analytics/time-series-db with rich dashboards</td>
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About Lumina Networks

We take supported OpenDaylight projects, vetted by the community, for safe and secure deployment into the network. Our own NetDev team works directly with internal development teams to build the tools specific to an organization which ensures secure and reliable implementation.

We believe in teaching our customers “how to fish,” sharing our best-practices and offering our expertise along the way. Companies can quickly expand the skills and abilities of their development teams while removing the reliance of outside consultants where vendors lock in to use their product. Lumina Networks and its SD-Core platform can be deployed across a wide spectrum of business verticals without hesitation. Additionally, our NetDev services combined with close relationships with the Linux Foundation means companies always have the newest and most innovative solutions available to solve critical business problems.

Ordering information

To support integration and knowledge transfer for customer sites, Lumina Networks provides NetDev services to ease the process. To order LEAP and associated NetDev Services, please contact your sales representative at:

www.luminanetworks.com/contact-us