ESG Brief

Cisco APIC-EM

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Abstract: *Cisco made Application Policy Infrastructure Controller Enterprise Module (APIC-EM) generally available on November 3rd, 2015. It is an SDN controller that supports apps that make WAN and access networks easier to deploy and manage. Cisco's focus on a low-risk, incremental approach to adopting SDN will appeal to its user-base. Cisco needs to describe the policy control capabilities benefits of APIC-EM, and also highlight its power as a platform and its ability to distinguish apps from point solution offerings from many other companies with competitive features.*

Cisco, after an extensive beta test, has made APIC-EM generally available. This product is an SDN controller that supports apps for use within WAN and access networks, such as:

- **Intelligent WAN (IWAN):** Maps business app SLAs to network behavior and configuration such as path selection, DMVPN, QoS, and application visualization and control (AVC).
- **Plug and Play:** Automatically pushes configuration templates to provide zero-touch deployment of routers, switches, wireless controllers, and wireless access points.
- **Path Trace:** Provides improved path visibility to help with troubleshooting.

The important aspect is that APIC-EM is not a product that provides direct end-user control, but it is an SDN controller that is an application *platform* and provides mechanisms for automating policy. Applications may range from those that provide for orchestration and automation to collaboration, security, and virtualization. The first apps available from Cisco in version 1.0 include intelligent WAN, path trace, and plug and play.

Analysis

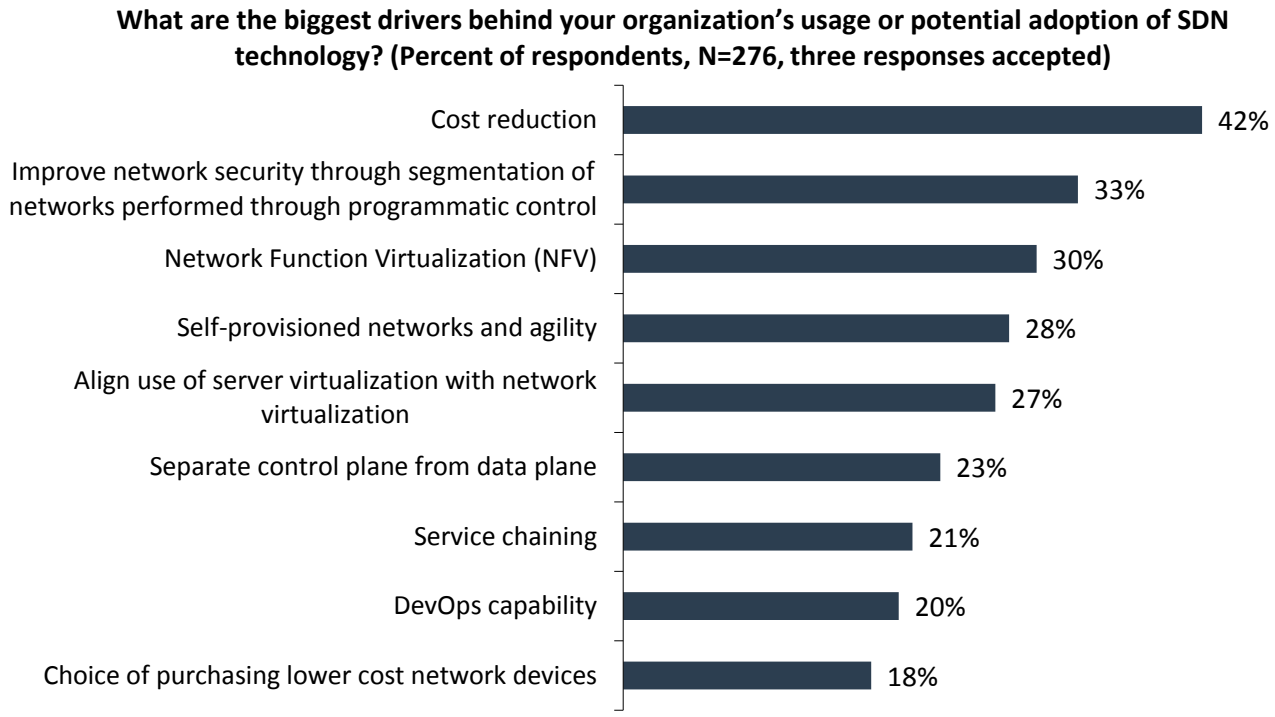
This product is well timed, as interest in network automation and policy control increases in the market. Cisco has released APIC (part of ACI) for data center use and customers are seeking a complementary solution for the WAN and access networks. ESG believes that the diversity of use cases in WAN and access networks will benefit from such a controller and its range of app solutions to be made available. The capabilities are well suited for modern enterprise deployments because:

- WAN requires modernization. The availability of IWAN as an early application is important since ESG has observed a rise of interest in using SD-WAN solutions to reduce networking OpEx and CapEx for branch offices. However, the requirements for working with existing brownfield deployments has demonstrated a need for a solution that enables an incremental upgrade for existing WAN users to adopt modern configurations. IWAN fulfills that need to avoid disruptive changes.
- There is demand for network policy systems. The adoption of Cisco ACI shows that network policy systems are increasingly accepted by enterprise customers. APIC-EM's ability to take business intent and render it into actual network controls will enable customers to have a common end-to-end policy system in the data center as well as WAN and access networks.
- Open API is a requirement. A controller with an open API is a requirement to enable third parties to create apps, and this continues Cisco's commitment to making APIs across a wide variety of products. Competitors such as AeroHive have released controllers with open APIs for their wireless AP controllers, and customers will seek a similar app ecosystem from Cisco.

This product also meets the need for improving the agility of businesses that find that operating expenditures are exceeding capital expenditures for networks and that slow deployment speeds for networking—compared with computing infrastructure—are impeding the ability to deploy new solutions within the enterprise. This leads to the businesses seeking a modernized networking solution. Automated policy rendering will also help with an IT skills

shortage by reducing tedious and error-prone manual procedures. Many of these needs are considered drivers for the adoption of SDN technology as shown in a survey of 306 IT practitioners involved in planning, implementation, or operation of enterprise networks (see Figure 1).[1]

Figure 1. Biggest Drivers of Usage or Potential Adoption of SDN Technology



Source: Enterprise Strategy Group, 2015.

To Do

Cisco

Cisco understands the need to modernize the WAN and access networks. Any new platform takes time for widespread adoption, and the driver for deployment is to get a rich set of applications that highlight the capabilities of the underlying platform. Cisco's use of its DevNet to court developers and to create a third-party app ecosystem with members such as IBM or Citrix is a good move. Once a critical mass of apps is onboard, creating a solution set of multiple applications that is based on enterprise-specific use cases or industry verticals will be useful. Since Cisco has a broad range of products, showing that it can provide an end-to-end solution that spans wireless access points to the access switch will eventually show the true power of this solution.

Customers

Vendors have provided a wide range of architectures for access networks that indirectly compete with APIC-EM. Some are architectures with a unified common control or management plane. Other offerings tie together products from a variety of partners with interoperability and management. Customers need to understand that Cisco is unique in tying a controller for WAN and access networks into a strong policy system with a similar heritage as ACI.

As customers work with vendors that provide applications, or perhaps embark on creating their own application that exploits APIC-EM's APIs, they need to be aware of the power of the policy system necessary to take advantage of this system. Unless APIC-EM's policy abstractions are effectively used, it will only serve as a simple app platform for control and device abstraction. The policy system provides the capabilities that will provide the greatest amount of OpEx

[1] Source: ESG Research Report, *Trends in Data Center Networking*, to be published.

reduction, since the business will describe its business needs to the policy model, as opposed to providing device-specific settings. This will help tie business goals closer to the network infrastructure.

The Bigger Truth

Cisco understands the need for customers to gain better agility in the data center as well as in the WAN and access networks. Creating an SDN controller for WAN and access networks with a common policy framework with ACI in the data center will assist in creating an end-to-end enterprise solution that translates business policy into actual network infrastructure control.

Its approach to creating an application ecosystem is timely since Cisco needs to leverage the expertise of a wide range of software providers to provide solutions to address multiple use cases, which Cisco cannot provide alone. The compatibility with brownfield deployments aligns well with Cisco's goal to help its existing customers modernize their network with minimal disruption.

There is a demand to modernize WANs and rising interesting in adopting SDN systems, and APIC-EM can provide a platform that meets both of these needs.