RADWARE AND CISCO: ENABLING APPLICATION DELIVERY & SLA ASSURANCE IN THE APPLICATION CENTRIC INFRASTRUCTURE

Introduction

The demand from modern IT organizations to transform the infrastructure and enable rapid application rollout while controlling application quality of experience (QoE) and guaranteeing service level assurance (SLA) poses new and significant challenges. Cisco's application-centric approach to rolling out new network silos is a significant improvement, however, IT departments still struggle to continuously deliver applications and guarantee SLA.

Cisco Application Centric Infrastructure (ACI) integrates Radware's Service Fabric to bring customers the benefit of deploying ACI as a dynamic and automated service-aware datacenter infrastructure. It continuously delivers applications without any adverse impact on application SLA. Regardless of the application location of application, or the form factor chosen to deploy Radware services (physical, virtual, on cloud), the solution makes application delivery and security services available while automating application delivery functionality throughout the application lifecycle. Applications can move, scale-out and be dynamically spun up while retaining the services without any location constraints and application policies. Application policies can be optimized to best address the changing SLA requirements. ACI enables Radware services to apply resources and policies throughout the network. Additionally, while traffic classification remains a function of Radware services, application traffic steering based forwarding can dynamically be offloaded to Cisco ACI.

By integrating Cisco ACI and Radware Service Fabric via the Cisco Application Policy Infrastructure Controller (APIC), IT organizations can deliver an agile datacenter network without compromising application SLA and continuously delivering applications.

About Cisco ACI

ACI in the data center is a holistic architecture with centralized automation and policy-driven application profiles. ACI delivers software flexibility with the scalability of hardware performance.
Key characteristics of ACI include:

- Simplified automation by an application-driven policy model
- Centralized visibility with end-to-end real-time, application health monitoring
- Open software flexibility for DevOps teams and eco-system partner integration
- Scalable performance and multi-tenancy hardware

The future of networking with ACI is about providing a network that is deployed, monitored, and managed in a way that supports DevOps and rapid application change. ACI does this by reducing complexity and instilling a common policy framework that can automate provisioning and management of resources.

Challenges

Applications are critical to the success of any business and organizations are looking to leverage their IT infrastructure to increase application development velocity and focus more on differentiation and less on infrastructure management.

As a result, the need for resilient application delivery in cloud environments increases.

There are several challenges associated with ensuring high SLA and delivering applications over a dynamic IT infrastructure.

- **Decoupling services from the physical network location of the applications** - Network services are currently attached to network ports, and traffic to these network ports have been predefined by network engineers. The process of adding new applications has been coupled with a follow up process or plan to design the network and application policies and provide adequate services to these applications. Since applications are added, scaled-out and moved dynamically throughout the datacenter, this approach is not a solution.
- **Selectively applying policies and services to different applications** – Due to the manual process involved in building applications and the effort involved in configuring network services to match the requirements of these applications, organizations custom designed services as part of the overall application introduction process. In an environment where applications are dynamically deployed, the need to manually configure services inhibits the benefits of a dynamic infrastructure.
- **Changing and optimizing application delivery services throughout the application lifecycle** – Due to the ticket-system based process used by organizations to request service changes from IT departments, application owners have grown accustomed to plan for lag time involved with updating applications or making service changes. Any operation that involves manual change will hinder the overall process of orchestrated application changes in automated environments.

The joint solution comprised of Cisco ACI and Radware Alteon ADC Fabric addresses the above challenges, enabling IT managers to extract higher value from their ACI deployment.

Radware and Cisco Joint Solution Overview

Cisco ACI APIC Controller automates the provisioning of Radware service engines for application delivery and security, automates the configuration, and offloads service related L4 functionality to the network by leveraging Cisco ACI to insert Radware service functionality into application service chains.

By leveraging the Radware service fabric, various services are supplied with telemetry information from the network in order to best assess application behavior and optimize existing or spin-up additional Radware service resources per service chain. The following image illustrates the placement of various Radware elements on Cisco ACI.

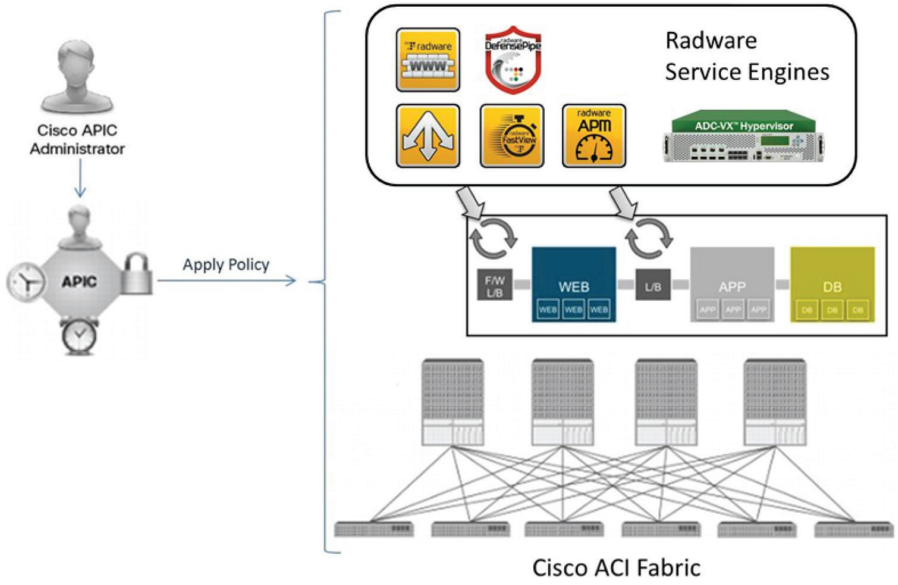

Figure 1: Radware Alteon and Cisco ACI

There are several Radware services that can be streamlined via ACI in order to accelerate all application lifecycle related operations.

1. The programming of ACI to distribute traffic across multiple Radware resources deployed in the Cisco ACI network. Different ADC resources are associated with specific ACI service chains so each service chain has sufficient resources and traffic is forwarded appropriately.

2. Radware resources can be dynamically provisioned and de-provisioned per the service scale requirements. APIC controller uses information about network topology in order to properly configure Alteon VA instances that are provisioned.

3. Steering functionality is enabled throughout the ACI by continuously synchronizing network traffic forwarding policies between Alteon VA which perform new session traffic classification and dynamically associates and disassociates traffic flows with existing and newly created service chains.

Radware's services are integrated with Cisco's ACI by implementing the Radware device package for Cisco APIC. The device package is a software plug-in, developed by Radware in adherence with Cisco APIC guidelines, and used as the gateway for all of Radware service provisioning and configuration workflows.

The Radware services are controlled by the APIC controller in order to selectively associate resources that are located across the entire ACI fabric to specific APIC service chains per application policy. Additionally, due to the communication between Radware services and the APIC controller, the services continuously evaluate the state of business applications and optimize application delivery policies and network forwarding paths accordingly.

Together, Cisco ACI and Radware services provide organizations with a dynamic network that integrates the ability to assure SLA delivery and significantly streamline the process of introducing new applications.

Solution Benefits

The Radware-Cisco joint solution offers the following unique benefits:

- **Best SLA assurance solution for dynamic networks** – Radware's market leading next generation ADC solution, delivering real-time application visibility and acceleration, powers dynamic Cisco ACI environments and deploys business critical applications while maintaining SLA.
- **Application centric networking** – the automated capabilities and programmable nature of Cisco ACI reduces the operational overhead associated with application upgrade and the introduction of new applications and presents an application centric network.
- **Dynamic, scalable multi-tenant service infrastructure** – by leveraging the telemetry information that is pulled from the APIC controller, dynamically provisioning ADC resources and programing service chains, organizations can scale their service infrastructure to match the evolving requirements of applications and clients with minimal human intervention.
- **Cost effective & ultra-scalable traffic steering** – by leveraging the smart traffic classification capabilities of Alteon ADC, and the rapid programmable nature of the Cisco ACI network, routine traffic forwarding rules can be programmed to the network relieving the ADC from performing basic traffic forwarding functionality and scaling the overall steering capabilities to the entire network.
- **Flexible service policy management** –the highly programmable nature of the Cisco APIC controller, ability to selectively associate service chains with specific applications and data flows, and flexibility of applying application delivery policies to different applications far exceeds a traditional network based ADC.

Summary

With the advances in network automation in Cisco ACI, and the ever growing requirements to run business critical applications in the datacenter network, Radware services enable organizations to safely benefit from ACI. Together the Cisco ACI and Radware service based solutions offer the most advanced resource orchestration, traffic distribution, application visibility, security and optimization capabilities on the market. It guarantees SLA for applications running in the ACI network.

About Radware

Radware (NASDAQ: RDWR), is a global leader of application delivery and application security solutions for virtual and cloud data centers. Its award-winning solutions portfolio delivers full resilience for business-critical applications, maximum IT efficiency, and complete business agility. Radware's solutions empower more than 10,000 enterprise and carrier customers worldwide to adapt to market challenges quickly, maintain business continuity and achieve maximum productivity while keeping costs down. For more information, please visit www.radware.com.

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