Managing Load Balancing as a Service in OpenStack

Public and private organizations are increasingly turning to OpenStack, an open-source cloud-computing platform, to help them build and manage large-scale cloud deployments. However, some features desired by large enterprises and service providers, such as carrier-class application delivery services, were not readily available for OpenStack environments. With the new F5® OpenStack plug-in, RESTful APIs, and BIG-IQ® connector, organizations can now use F5’s state-of-the-art Application Delivery Controller (ADC) services in OpenStack environments.

Challenge

OpenStack helps organizations manage computing, storage, and networking resources in private and public cloud environments. Service providers, enterprises, government agencies, and academic institutions around the world use OpenStack to power demanding production workloads. Simple to set up, easily scalable, and rich in features, OpenStack allows organizations to implement large-scale private or public cloud deployments.

Neutron, OpenStack’s networking component, provides networking services, including management of L2/L3 switching, DHCP, VPN, load balancing, firewall, and more through a pluggable infrastructure. This approach allows users of OpenStack to leverage third-party networking solutions. However, until recently, load balancing options for OpenStack were limited to HAProxy, which lacks some the features required in large enterprise and service provider environments.

Solution

Organizations can now manage their physical and virtual F5 BIG-IP® devices in OpenStack environments through OpenStack Horizon via an LBaaS plug-in, directly through F5’s comprehensive set of RESTful APIs, or through the BIG-IQ® platform, F5’s intelligent framework for orchestrating application services. Together, these new offerings from F5 extend the F5 Synthesis™ architecture into the world of OpenStack.

Manage applications anywhere

BIG-IQ provides connectors not just to OpenStack-based networks, but to traditional networks as well as to networks utilizing VMware and Microsoft network technology and to applications located in Amazon Web Services clouds. As a result, BIG-IQ offers unprecedented flexibility in building and managing hybrid data centers.

Key features

- Comprehensive Set of RESTful APIs—Manage and provision BIG-IP devices in cloud development, management, and orchestration systems such as OpenStack
- Programmatic Automation and Control of SDAS—Use Horizon, APIs, or the BIG-IQ platform
- Central License Management with the BIG-IQ Platform—Use and return BIG-IP licenses as business conditions evolve
- Utility Pricing—Service providers pay only for the licenses they use

Key benefits

- Leverage Your F5 Investment in OpenStack Environments—Use current BIG-IP and VIPRION® technology and skills in both current and next-generation networking environments
- Streamline Management With LBaaS via Horizon—Utilize OpenStack’s Horizon dashboard to manage physical and virtual BIG-IP devices
- Simplify Deployment with the BIG-IQ Platform—Deploy and manage BIG-IP devices in OpenStack, VMware, traditional networks, and the AWS cloud
Rapidly deploy application services

Using the BIG-IQ platform, organizations can deploy an F5 Software-Defined Application Services™ (SDAS) fabric in hybrid, virtual, and cloud environments. Virtual editions of all BIG-IP and BIG-IQ products make it easy to rapidly provision intelligent services across the data center and into the cloud—all with the same code, advanced application services, and breadth of features.

Scale cloud infrastructures with ease

F5 offers extraordinary flexibility and performance by deploying an SDAS fabric on a combination of physical and virtual ADCs in a hybrid data center. Adding virtual ADCs to the data center is ideal for cloud bursting, splitting large workloads, tenant isolation, and supporting tiered levels of service. Whether transitioning from a physical to a virtual deployment model or migrating from a private data center to the cloud, F5 has the physical and virtual ADCs to help you achieve your goals.

Implementing LBaaS in OpenStack

Available as a download, or with the purchase of the BIG-IQ platform, F5’s LBaaS plug-in provides management of load balancing through the OpenStack Horizon system, including:

- Local and global server load balancing
- Support for multi-tenant deployments
- Orchestration integration via iControl® and BIG-IQ
- Single-arm or dual-arm topologies
- Integrated Neutron network services
- Plugin reusability across technologies/services
- Multi-service extensibility
- Full virtual device onboarding*
- Support for physical or virtual BIG-IP devices**
- SDN gateway functionality with Open vSwitch GRE and VXLAN

Key use cases

- Extend an existing data center network into an OpenStack cloud
- Provision VLANs as a network segmentation technology for tenant virtualization
- Employ GRE/VXLAN for tenant virtualization
- Use F5’s LBaaS offering as a network services proxy between tenant GRE or VXLAN overlay networks

Learn more

For more information about F5 OpenStack solutions, please see the following resources or use the search function on f5.com.

Web page

OpenStack Partner Page

* Autumn, 2014
** Requires TMOS 11.5 or higher