F5 APPLICATION DELIVERY SERVICES IN THE GOOGLE CLOUD

Public cloud vendors offer enterprises increased scalability and flexibility, along with a reduction in infrastructure and operational costs. As a result, 89 percent of companies are housing part of their application portfolio in the public cloud.[1] Whether located in the public cloud, private cloud, or an on-premises data center, applications require specific services to ensure their security, availability, and performance. F5® BIG-IP® virtual editions (VEs) provide all of these benefits. Now fully integrated into the Google Cloud Engine, BIG-IP VEs extend F5's application delivery capabilities beyond that of the traditional data center perimeter.

CHALLENGE

Infinite scalability, unmatched flexibility, and reduced overheads make computing in the public cloud seem like the perfect IT solution. However, many enterprises making the shift to the cloud do so amidst concerns that their applications' security and performance may be diminished, or that they'll fall victim to vendor lock-in and incur large re-architecting costs. This is a common fear, with a recent study finding that 78 percent of IT decision makers worry about the portability of their workloads in the cloud.[2] Increased network segregation and inconsistent application services across hybrid cloud architectures are also placing additional strain on IT departments while generating new security vulnerabilities for attackers to take advantage of. But it doesn't need to be this way.

SOLUTION

Following continued adoption of the Google Cloud among enterprises, F5 has made BIG-IP virtual editions available in the Google Cloud Launcher, which deploys VEs directly into a virtual cloud environment. Because VEs are built on the same base code as BIG-IP hardware, they can offer complete feature parity with their physical counterparts. This allows you to take advantage of the scalability and flexibility of the public cloud without jeopardizing application performance and security. Whether you decide to run your applications entirely in the Google Cloud or across a hybrid cloud architecture, F5 will protect your applications and data. F5's application services can also be quickly and easily replicated across data centers and all leading cloud environments—reducing re-architecting time and costs, should you ever need to relocate your application workloads.

EMPLOY ENTERPRISE-CLASS SECURITY FOR GOOGLE CLOUD APPLICATIONS

Public cloud security can be broken down into two distinct categories: security of the cloud and security in the cloud. The first relates to the security of the underpinning infrastructure including compute resources, databases, and networking, which is the sole responsibility of the cloud provider. On the other hand, security in the cloud implies the security of any applications and their supporting data, which is ultimately the responsibility of the application owner.

Running BIG-IP VEs in your Google Cloud environment and taking advantage of F5's advanced L4–7 security services is the easiest and most effective way of ensuring your applications and network are continuously protected. At the network level, BIG-IP® Advanced Firewall Manager™ Virtual Edition (AFM VE) defends against large volumetric based DDoS attacks. At the application level, BIG-IP® Application Security Manager™ Virtual Edition (ASM VE) mitigates against common application vulnerabilities and L7 DDoS attacks, while providing protection against all OWASP top 10 threats. Should you already have BIG-IP security modules elsewhere within your hybrid-cloud infrastructure, it's simple to replicate the custom security policies you currently employ onto BIG-IP VEs in the Google Cloud—ensuring consistent security across your architecture.

- Consistent application services across Google Cloud and on-premises data center

- Web application security and L4–7 DDoS protection

- Secure, policy-driven single sign-on (SSO) and federated access

- High availability of both Google cloud-based and on-premises applications

- SSL offloading and stateful L4–7 traffic management
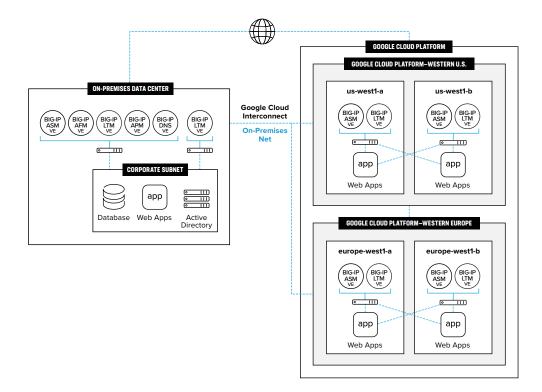
- Automation and programmability tools

Figure 1: F5 offers consistent enterprise-class application services to applications located anywhere within hybrid-cloud architectures.

INCREASE FLEXIBILITY AND SCALABILITY WITH CLOUD BURSTING

The promise of limitless scalability causes many to move applications entirely to the public cloud, but for those who are still wary of the cloud, this scalability be exploited in another way: cloud bursting. This deployment model allows an application to run primarily within a data center or private cloud, and suddenly burst into the public cloud when the demand for computational resources spikes. Designing a federated cloud in this way has many benefits from an economic standpoint, and deploying BIG-IP VEs into this arrangement enables fast, seamless, geolocation-based redirection of application users over secure SSL VPN connections. The user experience remains unaffected regardless of whether your application is located on premises or in the Google Cloud.

IMPROVE PERFORMANCE AND AVAILABILITY WITH GLOBAL TRAFFIC MANAGEMENT

The ability to replicate applications throughout multiple geographical regions across the Google Cloud empowers application owners to improve redundancy. It also reduces the physical distance between an endpoint device and an application server, thus providing lower-latency access to device users. Implementing BIG-IP® DNS Virtual Edition in your cloud network enables you to go one step further, by using global server load balancing to make informed routing decisions based on either the physical proximity of a server, or the real-time performance and health of a server. This ensures an optimized user application experience, regardless of the user's location.

PROVIDE FEDERATED ACCESS TO YOUR GOOGLE CLOUD NETWORK AND APPLICATIONS

Installing BIG-IP VEs into your hybrid cloud environment solves the problem of federating access, network, and application resources across your data center and Google Cloud environments. BIG-IP® Access Policy Manager® Virtual Edition (APM VE) uses Security Assertion Markup Language (SAML) to enable web browser SSO, multi-factor authentication, geolocation restricted access, and device inspection. SAML also eliminates the need to manage independent user accounts across Software-as-a-Service (SaaS) providers.

OPTIMIZE AND SECURE GKE AND GKE ON-PREM CONTAINERS

Applications are being deployed in container environments more often to facilitate the development of microservices and other modern application architectures. You can use F5 Container Ingress Services (CIS) in conjunction with BIG-IP Virtual Edition to provide north-south ingress control, robust security, and performance optimization for containerized apps in GKE and GKE On-Prem. CIS integrates natively with Kubernetes to automate app services insertion for containers as they are created, so you can seamlessly move and scale your containers across a hybrid architecture with consistent, advanced L4–7 app services. CIS is free, open-source, and available on Docker Hub and GitHub.

BOOST DEPLOYMENT AGILITY IN THE GOOGLE CLOUD WITH AUTOMATION TOOLS

Deploying applications in the cloud should always be a fast, effortless process. However, this is only achievable if the supporting application services can be fabricated in a similar fashion. With F5-generated Google Deployment templates, the latest versions of BIG-IP VEs can be up and running in your Google network in a matter of minutes. Using these templates, located in F5's GitHub repository, everything from the deployment of essential cloud resources to the configuration of the BIG-IP VE is performed autonomously in just a few clicks.

Alternatively, F5 iApps® Templates can rapidly configure BIG-IP VEs to best suit the requirements of a specific application—based on a few simple checkbox inputs provided by the user. These can then be re-used to configure any BIG-IP device to replicate the configuration settings across a hybrid-cloud architecture. In this way, iApps Templates reduce IT time consumption and ensure policy consistency across your deployments.

IMPROVE EFFICIENCY OF GOOGLE CLOUD APPS WITH ADVANCED PROGRAMMABILITY

F5 iControl® is an open web- based API that provides complete dynamic control of F5 configuration objects. You'll have the power and flexibility to ensure that applications and their underpinning network—whether in the Google Cloud or in a data center—work together efficiently to simplify management of complex architectures. In addition, you can use the F5 iRules® scripting language to provide complete programmatic access to traffic flowing between hybrid-cloud applications. iRules allows you to inspect, analyze, and redirect traffic entirely based on your custom ruleset.

ENJOY FLEXIBLE LICENSING AND CONSUMPTION MODELS

To better align with public cloud-based usage models, BIG-IP VE offers four different options that give you the flexibility to meet operational needs.

- Google's Pay-As-You-Go (PAYG) is available for those looking to leverage F5 application delivery controller (ADC) services on a per-hour basis; this option is perfect for dev/test or short-term projects.

- F5's subscription licensing lets you purchase 1-, 2-, or 3-year BIG-IP VE license subscriptions that can be deployed in any supported environment. You can self-license additional BIG-IP VE licenses as needed with fees co-termed to a subscription contract period.

- F5's Enterprise Licensing Agreement (ELA) provides you with the architectural flexibility to deploy however many VE's you want, wherever you want, and whenever you want with no retroactive penalties that can wreak havoc on budgets.

- F5's bring-your-own-license (BYOL) option is a perpetual license that lets you amortize acquisition costs over a longer period of time.

CONCLUSION

The process of migrating to, or developing in the Google Cloud can be greatly simplified and accelerated with F5's application delivery services—dramatically increasing security, performance, and availability of applications. F5 provides a single application services tier for use across hybrid cloud architectures, eliminating the need for multiple disparate solutions and the resulting IT strain. This deployment approach enables enterprises to seamlessly and confidently extend private data centers into the cloud.

[1] rightscale.com/blog/cloud-industry-insights/cloud-computing-trends-2016-state-cloud-survey

[2] logicworks.com/blog/2016/08/vendor-lock-in-is-big-roadblock-to-cloud-success-survey-finds

FOR MORE INFORMATION ON HOW F5 AND THE GOOGLE CLOUD CAN HELP YOUR BUSINESS, PLEASE VISIT THESE RESOURCES ON THE WEB.

F5 in Google Cloud Marketplace

Google Technology Alliance

F5 Public Cloud