# F5 Synthesis: Integration and Interoperability

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#SDN #OpenStack #Cloud #devops #SDAS #SDDC How F5 synthesizes third-party network and orchestration technologies

The silos within IT are breaking down, at least in terms of awareness of each other and the need to coordinate provisioning and orchestration of compute, network and application services. No longer is it acceptable to simply provide a solution; that solution must integrate, collaborate and interoperate with a plethora of existing and emerging data center technologies such as SDN, cloud management platforms, and virtualization frameworks.
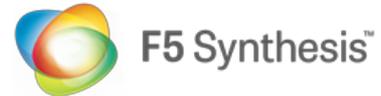
After all, part of the raison d'être for SDN is the need to enable the network with the agility and flexibility of its counterparts- devops and application development - necessary to improve service velocity. That goal cannot be realized by enabling just the underlay networks addressed by SDN architectures. The application service layers (4-7) must also support the programmability, dynamism, and flexibility promised by SDN guiding architectural principles.

F5 Synthesis follows those guiding principles, and enables the automated provisioning and orchestration of application service layers, but it does not do so in a vacuum. Careful attention to interoperability with SDN architectures, overlay network protocols, traditional network technologies and cloud environments ensures the ability to deploy the high-performance service fabric in any environment.

But more than interoperability is required today, as the need to provision and orchestrate the entire data center is the goal. That requires open APIs but it also requires integration. While there are certainly some organizations who prefer to build their own software-defined data center by leveraging open APIs, there are others who desire a more packaged approach and expect a certain level of integration work to exist already.

F5 supports both with equal alacrity. For those rolling their own systems, F5 Synthesis exposes open APIs at the fabric, platform, service and management layers. Both control and data plane are equally programmatic, with a variety of options available for automating and orchestration everything from configuration and policy management, monitoring and reporting, provisioning and elasticity to programmatically participating in the data path.
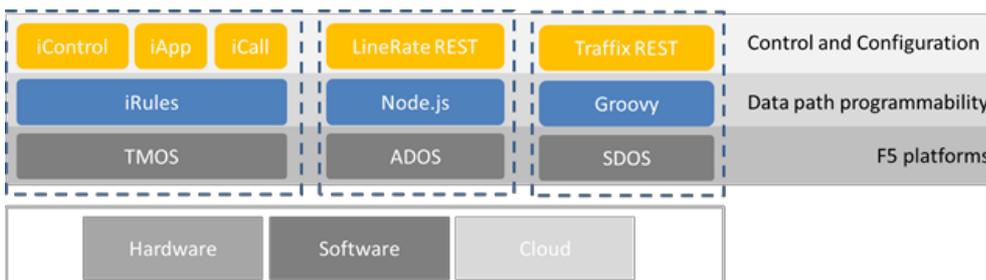

Figure 1: F5 platforms are programmatically enabled at the control, configuration and data path planes.

For those desiring a more packaged approach, F5 has paid especial attention to integration with key SDN and cloud partners such as Insieme, BigSwitch, Arista, VMware and Amazon, Rackspace and Microsoft (Azure). F5 is also an active participant in ONF, ETSI NFV ISG and IETF as well as OpenStack. F5 Synthesis' integration with these partners and support for developing standards is designed to provide a holistic, data center solution capable of automatically provisioning and orchestrating the entire data center stack from layer 2-7 networking and services to applications and compute.

For example:

- BigSwitch leverages the F5 BIG-IQ™ Cloud REST API to integrate the Big Virtual Switch network virtualization application, BIG-IP® Application Delivery Networking (ADN) services and OpenStack into a flexible and unified cloud orchestration framework.
- BIG-IQ Cloud connects with Amazon Web Services to enable provisioning and orchestration of F5 BIG-IP in AWS.
- BIG-IQ Cloud connects with VMware vCloud Director and VMware vCloud Networking and Security to enable two-

way communication between BIG-IQ Cloud and the VMware vCloud Director portal, so you can configure application networking services directly from VMware vCloud Director. BIG-IQ Cloud also integrates directly with VMware NSX, enabling automated network and service provisioning via F5 iApps.

- Arista EOS interacts with F5's iControl API to dynamically update the state of servers participating in a server load balancing pool during switch-level fault detections to ensures the highest levels of application availability and performance.
- The open API framework on the Insieme controller integrates with F5 BIG-IP via iApps to automate network and service provisioning, providing the best user experience without compromising on performance. Insieme Application-Centric Infrastructure defines a policy-based service insertion mechanism for both physical and virtual ADC appliances

The F5 Synthesis partner ecosystem include a growing number of application and security partners like WebSense and WebRoot as well. We've always believed that in order to truly help customer's succeed in delivering applications we had to play nice with both applications and the network. Our view remains the same today as it has been in that respect. We're committed to ensuring F5 Synthesis can integrate and interoperate north and south, east and west, in ways that enables organizations to realize a truly software-defined data center.

F5 Synthesis Partner Ecosystem

Additional Resources:

1. F5 Synthesis: The Time is Right
2. F5 and Cisco: Application-Centric from Top to Bottom and End to End
3. F5 Synthesis: Software Defined Application Services

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