



# Simplify F5 BIG-IP and Cisco ACI Operations Using HashiCorp Terraform

F5, Cisco, and HashiCorp work together to create validated use cases to enable automation for application delivery.

## Automate application delivery

Applications provide great customer experiences for their products and services. Multisite and multicloud environments offer greater scale and agility for application deployments. With that comes increased operational complexity of managing services and performance that these applications rely on.

Organizations need infrastructure and services—and the tools to provision and manage them in a repeatable way. Together F5, Cisco, and HashiCorp can help to automate and manage application workload's policy, deployment, and network optimization across multiple environments. The goal is to provide development teams with the lowest possible friction model to deploy the applications to different cloud platforms.

## Key benefits

**Speed up deployment and management at scale** - Rapidly deploy, manage, and scale your F5 BIG-IP and Cisco ACI infrastructure

**Easy-to-use workflow** - Use a unified Terraform workflow with Cisco and F5 modules for provisioning, compliance, and management

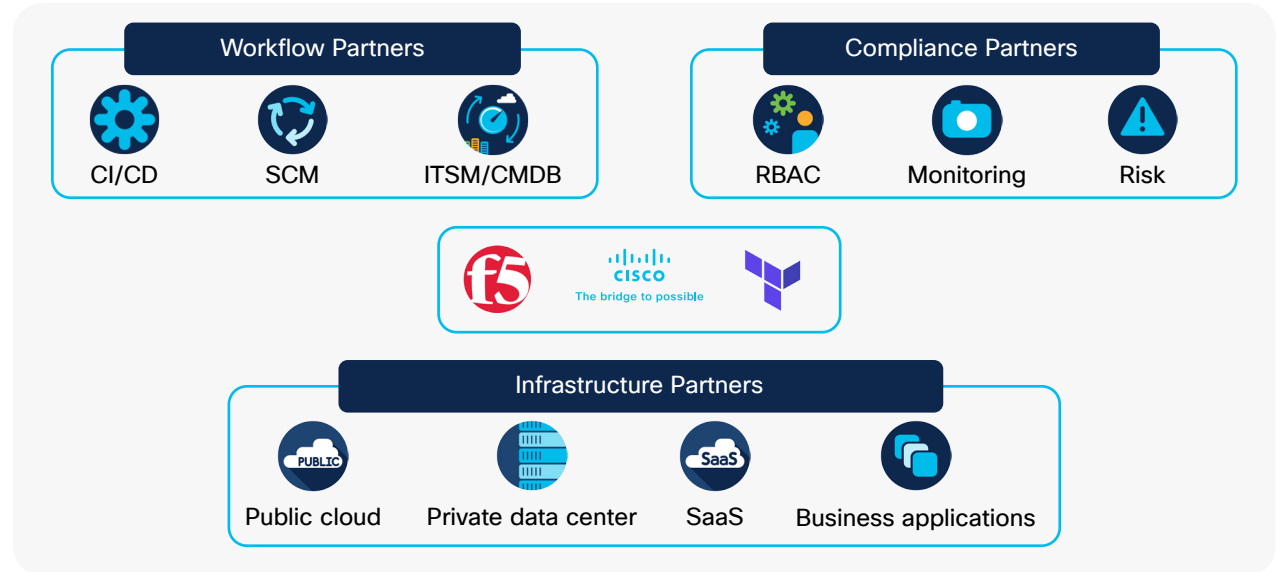
**Self-service and compliance** - Enable self-service and ensure compliance through simplified automation

**Reduce multicloud complexity** - Standardize automation across multiple regions and clouds for reduced complexity for effective application delivery

## Key features

- **Abstracted provisioning** – Provision, configure, and deploy BIG-IP and ACI networking and application services with a few lines of verified, reusable code
- **Multicloud management** – Manage BIG-IP and ACI infrastructure anywhere with one verified workflow
- **End-to-end support** – Obtain full support for the BIG-IP provisioning modules and the BIG-IP provider for Terraform

Figure 1. F5, Cisco, and HashiCorp Terraform for end-to-end application lifecycle management in Cisco ACI® deployments



## F5 BIG-IP, Cisco ACI, and HashiCorp Terraform

F5 BIG-IP and Cisco ACI have been pivotal for organizations needing to secure, scale, and deliver enterprise-ready applications rapidly and reliably. Leveraging the BIG-IP and ACI provisioning modules and their respective providers, customers can use HashiCorp Terraform to provision and manage the infrastructure and application services as code. Operators configure the desired state of their network in validated configuration files and then submit that file to Terraform through the command line or user interface. Terraform interprets the configuration and makes the required API calls to F5 BIG-IP and Cisco® APIC to construct the state. As changes are made, Terraform checks against existing configurations and only makes the necessary changes. These configuration files can be shared across the organization, making it easier to deploy at scale.

### Terraform Automation for F5 BIG-IP

By leveraging the BIG-IP provisioning modules and the F5 BIG-IP provider, customers can use terraform to provision and manage BIG-IP infrastructure and application services as code.

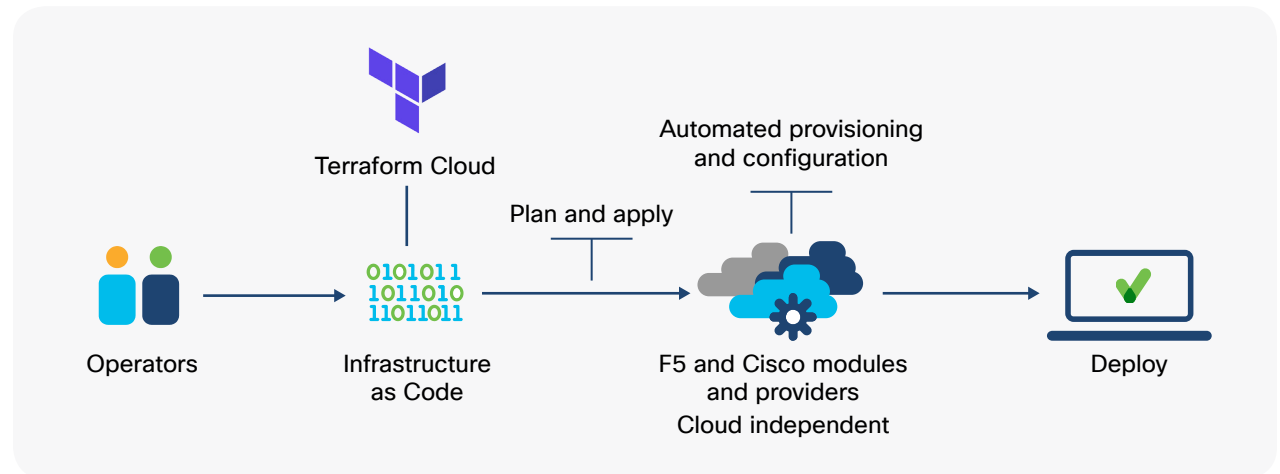
## Conclusion

F5 BIG-IP has been pivotal to our joint Cisco customers who have deployed ACI with a need to rapidly and reliably secure and deliver applications. Terraform automation for BIG-IP, coupled with ACI automation of Infrastructure-as-Code practices, can greatly simplify application lifecycle management.

## How it works

The F5 validated Terraform provider communicates with F5 BIG-IP supporting resources validated with BIG-IP v13.0 and above. The Cisco ACI provider for Terraform, using Terraform's plug-in extensibility, supports more than 90+ resources and data sources. This joint solution leverages the providers to provide its users a single workflow to manage both infrastructure networking and application services. Users can use Terraform to manage the workflow lifecycle, including provisioning, onboarding, and configuration expressed as code. These configurations are sent from Terraform to the user's BIG-IP devices and APIC controllers, and the corresponding changes are made. Operators can also version these changes in the version control system of their choice to enable better collaboration among team members.

Figure 2. Configure F5 BIG-IP and the APIC as using the validated providers



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