



# F5 Solution Definition Workshop

## Build the Right Network Architecture for Your Business

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### Introduction

Applications are the lifeblood of business.

With the ongoing digital transformation of the enterprise and the new opportunities of the Internet of Things (IoT)—combined with the demand for faster, newer, and better applications to serve their customers—businesses will be managing increasingly complex networks.

Software-defined networking (SDN) and software-defined data centers (SDDCs) offer models to help manage this complexity and accelerate the deployment of new products and services. But getting from a traditional data center design with manual provisioning processes to an agile, automated, and self-service architecture is a huge challenge for many businesses. The journey is as much about teams and organizations as it is technology.

Choosing the right architecture and the best way to manage it is a crucial first step. The F5 Solution Definition Workshop will help you assess and define the way to build an architecture that fits your business, and delivers the critical components to accelerate your digital transformation.

### Business Challenges

There are many challenges to formulating an architecture that will take advantage of SDN while also uniting networking, applications, and security teams. In addition, due to the need to move more rapidly, businesses are often hard pressed to find time to plan a suitable network architecture.

**SDN's Promise and Layers 4–7**

While SDN has the potential to provide compelling benefits, most of today's SDN solutions on their own do not address application-layer challenges. SDN focuses on network-centric challenges in layers 2–7, but ignores application-centric challenges with layers 4–7. Since a network exists to support the applications that use it, any new network architecture must address the network challenges without neglecting the application layer.

**Time Really Is Money: Planning for Data Center Growth**

The diversity of application delivery requirements and the broad fluctuations in throughput demand have made it quite difficult for businesses to plan adequately for data center growth. This situation is made worse by the pace at which Internet-based technologies are evolving, and the demand for these technologies is growing. Agility is important for IT organizations—not just for newly deployed services, but also for existing services that must continually change.

Unforeseen demand on IT resources may come from successful marketing or sales campaigns, unpredicted business growth, or even cyber attacks. In these and other circumstances, and given today's increased reliance on IT, data center agility and the resulting ability to quickly react are crucial for business continuity and brand protection.

**Time to Market: Application Service Provisioning in an SDDC**

Enterprise applications don't run in a vacuum. While server virtualization has dramatically improved application deployment times, applications still require connectivity services, switching and routing, and critical application services. These services include local and global load balancing as well as encryption, optimization, acceleration, access, and security.

Network virtualization and the tools to manage it can help to further reduce application and network service deployment times. The simplification of network design and operation inherited from an SDDC architecture enables businesses to alter network configurations and behaviors rapidly.

Even so, businesses are often required to dedicate time up front to building configurations for their applications in order to automate and orchestrate implementations. This development can take weeks or months rather than hours, slowing deployments of new applications and network services.

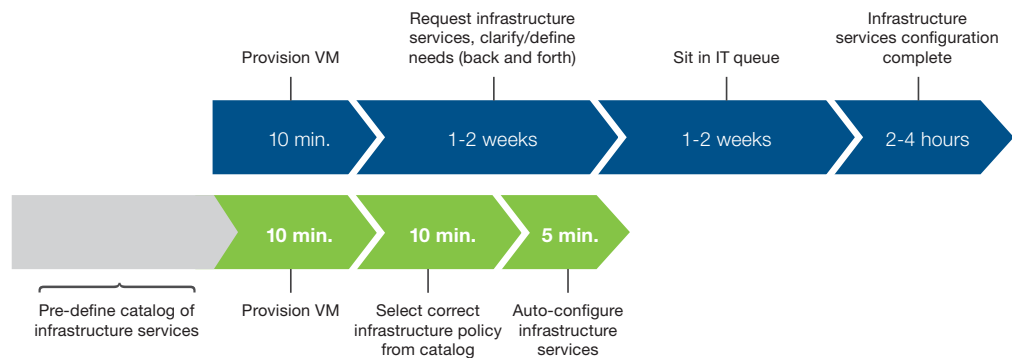


Figure 1: Application services provisioning doesn't have to take weeks.

### Uniting Network, Security, and Application Teams

Networking teams bring to life new systems and capabilities while striving to ensure that everything runs at the highest levels of availability. However, they often face the added challenges of conflicting with security and application teams.

To a networking team, a security team may seem to make the networking team's job more difficult by blocking access. From the security team's perspective, the networking team may ask for too many permissions and expose too many network architecture components to attack.

Similarly, because networking teams are typically staffed with many fewer people than application teams, tensions may arise if application teams experience long delays in response to their network-building requests. Such bottlenecks may occur, particularly if networking teams are not comfortable with making many changes to the web acceleration layer, or are concerned about the application logic moving into the network.

### Business Solution: The F5 Solution Definition Workshop

The two-day F5 Solution Definition Workshop (SDW) is designed to help your business fully identify and implement a suitable and customized network architecture. The workshop will help you capitalize on the promise of SDN without compromising your mission-critical application services.

In building the proposed architecture, the SDW takes into consideration your business and technical requirements and goals, which are closely scrutinized by all workshop participants.

The SDW's key deliverable is a network solution architecture in the form of a detailed report for all of your business stakeholders. The workshop and its report identify what is within the realm of possibility by leveraging F5, in association with that of any major SDN vendor. The SDW and report also identify all high-level steps required to migrate to your new architecture.

A professional workshop facilitator leads several phases of the SDW, with key assistance provided by:

- An on-point F5 solution architect with expertise in service insertion and orchestration—as well as a subject matter expert from your SDN vendor
- Your F5 field sales engineer
- An F5 consultant with field-based implementation experience related to SDN migration

### Workshop Schedule

The SDW is made up of four phases and a report.

#### Phase 1: Prepare

F5's SDW team assembles weeks before the workshop to meet with your subject matter experts and stakeholders. Together, they analyze existing F5 customer architectures, along with their history and performance, and gather as much information as possible. This information may include analysis of specific topologies of your network and other relevant data. To better understand these architectures, the team analyzes existing applications and planned application rollouts.

### Phase 2: Analyze

A professional facilitator conducts the SDW onsite over two consecutive days.

On the first day of the workshop, the F5 experts collaborate with your team to discover the key drivers and identify options for architecture change in your environment.

Discussions during this phase typically focus on the following topics regarding your current architectures:

- Reasoning behind their current design
- Their history and growth
- Their current performance
- End-user and IT personnel perceptions
- Identification of known areas of improvement, consolidation, or optimization

Through these discussions, all SDW participants and stakeholders arrive at a solid understanding of your current architectures.

### Phase 3: Discuss Future-State Architecture to Prepare for Application Services Provisioning

This phase begins on the second day of the workshop.

Participants look at what is possible in the future, namely how your architectures could change and how these specific changes might serve your business.

Led by the F5 solution architect, these discussions include but are not limited to the following topics:

- Possible improvements to the existing architectures
- Steps to improve the current network's performance, availability, and security
- Guidance on fulfilling network application requirements, with the understanding that these requirements will consistently become more numerous and complex

The F5 solution architect will then walk you through the potential design and benefits of a new architecture and how these map to your business needs.

During this phase, the solution architect will also discuss the acceleration of deployment of applications in next-generation networks based on all SDN vendors. The architect will work with you to draft and adopt an appropriate "service catalog" approach, based on needed services, tenancy, priority, and F5 automation parameters.

Service Name	Tenancy	Priority	Future	F5 Automation (ACI unmanaged) – partial, yes and no
Layer 4 load balancing	Provider	September		Yes — lbaasv2 + heat
Reverse proxy	Provider	September		Yes — lbaasv2 + heat
Layer 7 load balancing	Provider			
SSL offload	Provider			Yes (certs and keys must be present prior to deployment) via barbican - certs/keys stored in OpenStack/for F5 BIG-IP Application Security Manager (ASM) use case could use internal CA signed certs
SSL re-encrypt	Provider			Yes (DMZ ASM -> OpenStack vCMP LTM -> Back-end Instance), end to end encryption
Note about DMZ				Will not be automated
SSL inspection	Provider		Phase 3	Depends on future meetings with security team
HTTP persistence	Provider	September		Yes, jsessionid
Custom F5 iRule for maintenance	Provider		Phase 2	Due to lack of control of back-end servers: may not be required?
Custom HTTP monitor	Provider		Phase 2	When special header is presented, trigger maintenance page
Developer access to services	Provider			Ability to target individual servers on backend servers
Option A: as-is			Phase 2	Custom iRules that can examine cookie/headers to access individual pool members
Option B: new OpenStack method				Ability to create resources dedicated to dev (i.e., new VIP)
Option C: rolling updates?		September		Insert new/remove pool members running different version of code
Test plan for application deployment (customer/F5)			Phase 2	
HTTP manipulation	Provider		Phase 2	Yes (L7 policy), HTTP header insertion, cookie modification, content routing, source a/b testing — requirements TBD
Reverse proxy	Provider	September		Yes
Add app description to virtual server in OpenStack	Provider	September		
IPAM workflow	Provider	September		Existing IPAM system: Option #1: Manually grab from IPAM and enter as part of lbaasv2/heat, allocated range to subnet, or OpenStack
fastL4 TCP (possible DB)	Provider	September		Database or pass-through for BIG-IP ASM
DNS services	Provider			

Service Name	Tenancy	Priority	Future	F5 Automation (ACI unmanaged) – partial, yes and no
GSLB static	Provider	September		Point existing Bell GTM to OpenStack LTM as a “generic” server (no bigip_add) — executed by customer’s telco provider
GSLB dynamic	Provider		Phase 3	Depends on OpenStack defining standard
Resolver/caching	Provider			no
Perimeter firewall	Provider			
L1- L4 policy	Provider			Managed by Cisco ASA by customer security
SSL inspection	Provider		Phase 2	Partial
Firewall (intra-tenant)	Provider			Managed by Cisco ASA by customer security
L4 policy	Provider			N/A for F5
SSL inspection	Provider		Phase 2	Partial
Remote access	Provider			
SSL VPN	Provider		Phase 2/3	Existing will provide remote access, future SDN may require
SAML/Federation	Provider			Partial
2FA/Network HSM	Provider			N/A for F5
WAF	Provider			
Negative/Signature policies	Provider		Phase 2	Yes
Positive/Custom policies	Provider		Phase 2	Partial
XSS/CSRF/BOT	Provider		Phase 2	Yes
L7 DDoS	Provider		Phase 2	Yes
Data loss prevention	Provider		Phase 2	Partial
Fraud protection service	Provider			
Credential protection	Provider			No
“Man in the browser” malware detection	Provider			No
SWG/Outbound URL filtering	Provider			No
Customer-specific policy	Provider			No
Bypass categories	Provider			No
Site-to-site VPN	Provider			N/A for F5
F5 BIG-IP Access Policy Manager (APM) web access protection that is customized	Provider		Phase 3/4	Global customization for “AD auth” vs. “employee only”

Figure 2: Discussions of a future-state architecture help build up the service catalog.

#### Phase 4: Plan

In this final phase of the SDW, the F5 consultant facilitates a discussion on the steps required to make the transition to the proposed architecture, discussed in the previous phase.

Topics may include software-level standardization (i.e., to avoid mismatches in software levels across the enterprise), geographical, or other approaches to data center migration—and any other issues that may impact the upcoming migration.

To help you with planning of the migration to the proposed architecture, a variety of questions will be asked and discussed. These include:

- How do you know whether you've performed a sufficient level of testing?
- What barriers to migration might you face?
- What might a very high-level project plan (within your current governance structure) look like—and what are its dependencies and risks?
- What technical resources are at your disposal and are there gaps in technical knowledge that need be closed in order to move forward?

This phase concludes the on-site portion of the SDW.

#### Report

Following the SDW, the F5 team presents a summary report to you, detailing the proposed solution architecture. It includes business goals, technical requirements, and constraints on which the recommended design is based. It also includes a high-level plan for implementing the new architecture.

Typically, your project manager or a third-party project manager receives the SDW report and uses it to define and construct budgets for a project to achieve the new architecture. The report is designed to help the project manager understand the technical aspects of the new architecture and the high-level steps required to implement it. This will help determine the total potential costs involved, not just that of implementing the new technology.

On completion of the SDW, F5 Professional Services can be requested to draft and submit a fully customized Statement of Work (SoW) for you. This SoW assists in planning the implementation of the proposed architecture identified in the SDW report.

#### Conclusion

Ultimately, the F5 Solution Definition Workshop is intended to mitigate risk and bolster confidence for you and your business. This will help you to press forward with an improved network architecture that allows you to achieve your desired goals.

For further information or to discuss the SDW in more detail, please contact your regional sales manager or visit [f5.com/support](https://f5.com/support) for F5 Professional Services.

