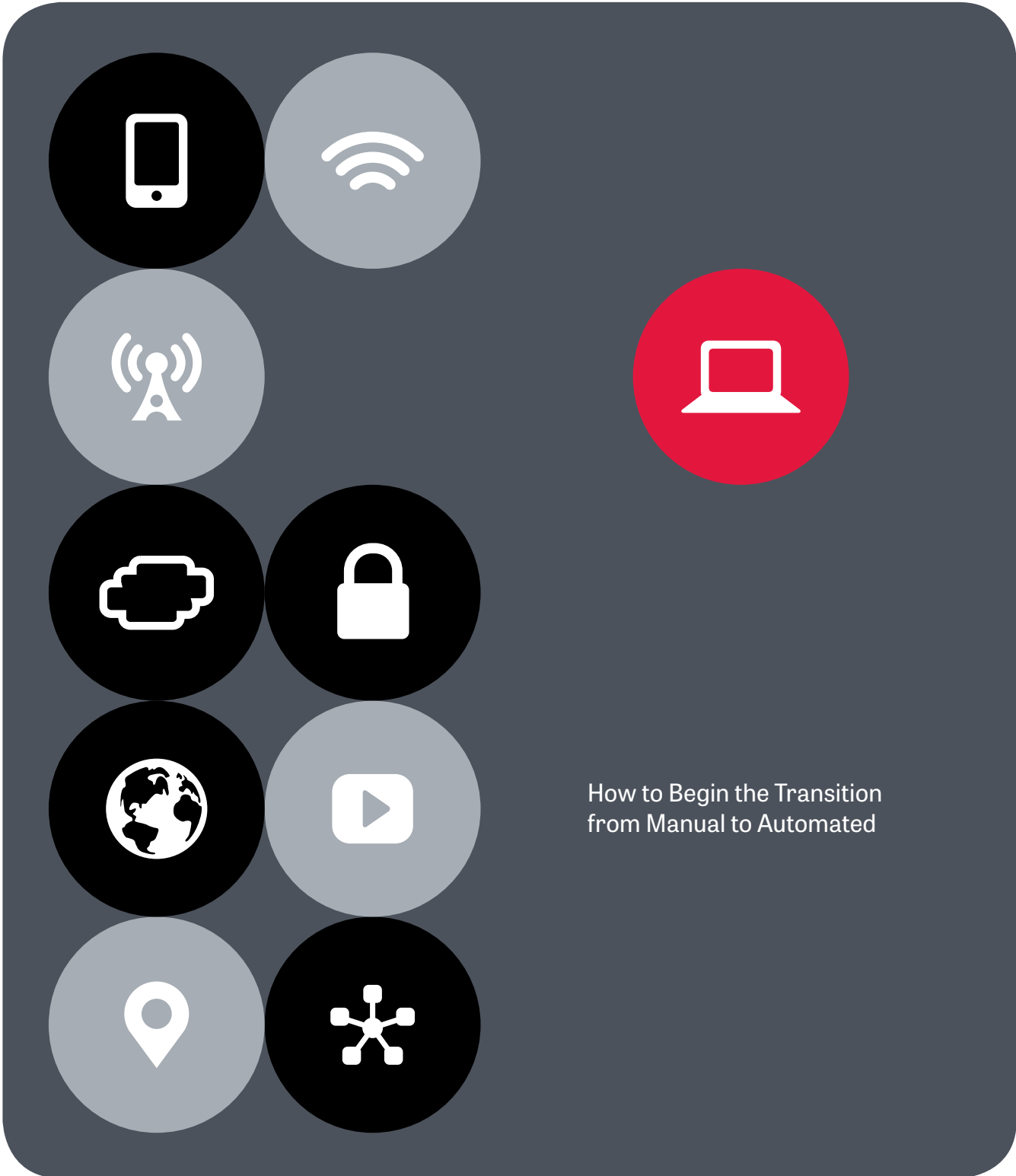


WHITE PAPER

Getting Started with DevOps





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Introduction

Businesses can no longer take an iterative approach to innovation and differentiation. It must be a continuous effort, with the ability to quickly change course when market, competitive, or customer pressures dictate. This requires better alignment between software development and infrastructure operations teams, and automation to streamline processes that have traditionally been manual.

DevOps has emerged as a viable model for faster, more agile application development and infrastructure automation, but many organizations don't know where or how to get started. Here are some approaches companies can take to move to a DevOps model and speed up their technology development, deployment, and management processes.

DevOps Is a Culture, Not a Tool

The first thing to understand when considering DevOps is that it is not a tool or a technology per se. It is a culture defined by a set of principles and practices—a fundamentally different way of developing, deploying, and managing IT resources.

Regardless of the technologies and tools utilized, DevOps requires greater collaboration between the various IT teams within an enterprise. Longstanding processes must be reconsidered and re-engineered, and the proverbial walls that separate functional silos must be torn down. The traditional daisy chain of work—with a linear series of handoffs and lots of waiting—is no longer practical.

With a cultural shift toward DevOps, these processes become more fluid, collaborative, and continuous. Instead of operating in their own distinct silos and focusing solely on their domain, IT teams are able to work in lockstep and push their business forward—without clumsy handoffs, bottlenecks, or delays.

The Pressure Is on Infrastructure Teams

In many ways, the onus for a more fluid, collaborative approach to technology development, deployment, and management is on infrastructure teams. They are often the bottlenecks that slow down software innovation and improvement—the systems guardians that satisfy move/add/change requests on their own terms and timeframe.



But these gatekeepers can no longer keep the gates closed. Cloud-based infrastructure can be attained with the swipe of a credit card, after all, and many infrastructure teams are being architected out of their company's latest applications and IT services. Developers don't want to wait, and they no longer have to.

How can infrastructure teams catch up?

First, they must open themselves and their systems up to their IT counterparts. They can no longer focus solely on "their" domains and tasks. And they can no longer force other teams to adhere to outdated processes, handoffs, and delivery schedules. They must think holistically and work collaboratively to address developer and business needs—not the needs of the devices they deploy and the silos they maintain.

Second, they need to venture beyond their comfort zones and embrace developer models. In an increasingly software-driven world, they have to learn some new tricks. This means getting proficient with application programming interfaces (APIs), writing some code, and adopting new tools. Software-defined architecture and operating models will soon become the norm for every hardware pro.

Six Steps for Getting Started with DevOps

Here are some initial steps infrastructure teams can take when considering, testing, and adopting a DevOps model.

1. **Align IT teams**

As previously stated, DevOps is a collaborative culture and set of practices requiring buy-in and participation from all IT groups within an enterprise. To get started, these groups must come together, create a shared vision, and have collective ownership over the new practices.

2. **Get involved with the DevOps community**

DevOps has an active and helpful community of users and evangelists, and infrastructure teams have an opportunity to get involved. Read more, learn more, and talk more with those who have already adopted DevOps models. Tribal knowledge and best practices are invaluable when considering new technologies and processes.

3. **Experiment with APIs and code development**

Infrastructure teams should start experimenting with APIs, code development, and scripting. Practice increases understanding, comfort, and proficiency, and will help inform technology adoption and process development decisions.



4. Standardize on development tools and languages

Make sure the entire organization is using a common set of tools and languages. It's often best to align with the development team and adopt the tools they are already using. Then integrate those tools with software-defined networking (SDN) and infrastructure systems so everyone can use them.

5. Start automating routine processes

Pilot projects are valuable learning opportunities and can showcase the value of DevOps. Start small by identifying one or two processes to automate—preferably routine, well understood, low-risk processes. Document and map every step that would be in the command line interfaces (CLIs), and then automate those commands with SDN tools and APIs.

6. Create a catalog of infrastructure packages

Identify the most common deployments and create a catalog of standard infrastructure packages for developers. Leveraging newly automated processes, these packages can provide simple choices and flexibility for developers while hiding infrastructure complexities and the millions of commands in the background.

These are the foundations of DevOps, where the infrastructure team automates infrastructure configuration, deployment, and change processes and then hands them to developers in simplified, self-service fashion—making everyone faster and more efficient.

Better Together: How F5 and Cisco Can Help

F5 and Cisco have come together to fulfill the promise of DevOps. With the integration of F5® iWorkflow™ virtual appliance, F5 BIG-IP® products, and Cisco ACI, the two companies are delivering a unique and powerful SDN solution that provides automation and orchestration up and down the networking stack.

Here's how it works. L4–7 services are defined in F5 iWorkflow using easy-to-understand templates called F5 iApps®. iWorkflow then creates a Dynamic Device Package for each application. These Dynamic Device Packages are loaded into the Cisco Application Policy Infrastructure Controller (APIC), where L2–3 services—including servers, firewalls, and load balancers—are defined. A policy is then created for each application, and used by iWorkflow and the APIC to automatically configure the network, Application Delivery Controllers (ADCs), and service levels.

All application policies are managed from the Cisco APIC, providing a centralized controller for L2–7 infrastructure automation and orchestration.



The F5 and Cisco solution is integrated, flexible, and controllable. It exposes granular service levels and choices, which can be tailored for each application. Different policies can be established for different application types, for example, or even for different groups in a multi-tenant framework. And these policies can be easily updated at any time through the Dynamic Device Package.

Three Common Deployment Use Cases for the F5 and Cisco Solution

1. Network automation

The benefits of automating network processes are twofold. Automation allows network operations teams to do more work at a faster pace, while reducing human errors and operational risk. Once implemented, network automation turns highly skilled engineers from “button pushers” to “button creators,” allowing them to develop and support routine processes instead of being a necessary cog—and bottleneck—within those processes. Automating network processes reduces manual tasks, minimizes exposure to risk, and replaces redundant, project-based work with an iterative approach focused on continuous improvement.

2. Service automation

Developers automate everything. Their focus must remain on revenue-generating or productivity-improving software development. Anything that gets in the way can have a negative impact on business performance. To avoid interrupting valuable development time, IT operations teams must present infrastructure resources as “services” that exist to support the developers’ automation tool chain. Creating a service catalog that abstracts underlying complexity from validated capabilities is the first step in removing IT configuration, deployment, and move/add/change bottlenecks.

3. Application-centric automation

Applications and services generate revenue and improve productivity, not infrastructure components. Therefore, an application-centric approach to architecture is the key tenet to removing operational barriers. This cultural change in operational focus—from configuring devices to coexist under a system to architecting iterative processes that operate as part of the system—is critical. Application-centric automation can help break down operational silos and enable organizations to increase productivity and agility.

Summary

There is no defined path for adopting a DevOps model, and no technological panacea. As a culture and set of practices, DevOps will be different for every organization. There are ample resources and communities from which to learn, however, and preliminary steps that can be taken.

Many of these steps involve SDN platforms and application-centric technologies that help begin the transition from manual to automated IT operations.

F5 and Cisco have worked together for years to engineer, integrate, and optimize one of the industry's best SDN solutions. The combination of F5 iWorkflow, F5 BIG-IP, and Cisco ACI delivers policy-based automation and orchestration from Layer 2 through Layer 7. In doing so, it speeds up technology development, deployment, and management processes and provides a powerful foundation for a cultural shift toward DevOps.

Learn More

[White paper: Super-Charging IT Operations with Full-Stack SDN](#)

[Blog: Programmability Is the Future of NetOps](#)

[Web page: F5 and Cisco Partnership and Solution Integrations](#)

