Highlights from a recent webcast on a holistic and automated approach to IaC cloud management

MEETING THE CHALLENGES OF THE IaC-ENABLED, HIGH-VELOCITY, DYNAMIC CLOUD ERA

What are the top priorities for infrastructure decision makers? No one would be surprised to learn that getting to the cloud and security are the most important issues they're focusing on, according to a 2016 Forrester Research survey.

But right up there with these must-do items is the goal to automate everything, adopting infrastructure as code (IaC) for building, managing, and provisioning IT environments. The reason is that all three are interlinked: Ambitions to realize the business potential of a secure, cloud-at-scale enterprise can't be realized without automation.

But automation should be holistically enacted and executed if infrastructure professionals are to truly realize the increased flexibility and agility that programmable infrastructure promises to bring. In the world of the cloud, where microservices and continuous delivery rule, it's critical to avoid configuration drift and consistency nightmares that threaten fast application releases and efficient rollbacks when problems do occur.

Islands of automation, which can form when change and configuration management point solutions don't seamlessly cooperate with each other, can contribute to these problems. Gluing these solutions together with in-house code isn't the answer, but rather an additional complication that for all practical purposes leaves the enterprise with no single source of truth and trust.

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With the right automation tool in place, however, a live CMDB can be a reality, letting IT build out a system that models and stays current with the actual infrastructure layout in realtime. That's critical to the concept of IaC and the power it gives infrastructure pros to tie software to business objectives in a way that wasn't possible with the static, monolithic hardware of the past. Yet it remains unattainable when environments are provisioned and modified indiscriminately or disjointedly.

New Complexity Calls for a New Strategy

A holistic automation solution for cloud infrastructure and IaC is desperately needed for companies dealing with new levels of operational complexity as the scale of these environments expands and the risk increases of some instances going off-spec among the hundreds or thousands running. Along with this, IT pros are grappling with what is still a new paradigm, and there are few individuals who deeply understand the cloud just hanging around in the talent pool.

The prescribed cloud model rests on microservices architecture and distributed applications, and leads to a lot of acceleration in software deployment velocity. A large institution could process hundreds of software releases (usually components of systems vs. an entire stack) in a single day. A business

that might have had 10,000 lines of code to deal with in-house a few years ago could be dealing with five, seven or even ten times that amount in the cloud today.

Release velocity as well as the management of many small components that compose web-scale apps is a challenge intimately connected to the frequency at which infrastructure is changing. Today, it's not uncommon for a business to spin up a whole new infrastructure in the cloud, from networking through security through compute, in minutes, and destroy it just as quickly. On top of that, the number of new cloud services from cloud providers that businesses tap into to build new applications is rising, extending system boundaries in new directions.

This level of dynamism in the cloud demands that companies be able to have a radically simple way to address the problems they're facing, including monitoring, managing, controlling, and securing their programmable infrastructures. True cloud maturity will come with infrastructure programmability that allows businesses to build, enforce, replicate, and terminate their workloads at scale, continuously, automatically, securely, and comprehensively.

Help on the Way: Infrastructure Stack Simplification

Without active management that automatically handles cloud orchestration and enforcement of the entirety of the infrastructure stack throughout its lifecycle, IaC plans falter. If active management is missing, it will be impossible to prevent sprawl and its consequences—like compliance gaffes and security vulnerabilities—at cloud-scale. Active management must be more muscular and intelligent than what mere templates can provide, but also must make it easy to execute infrastructure programming and allow visual abstractions to make it simple to follow the flow from development to test to production.

That's the rationale behind Fugue Inc., which today works with Amazon Web Services (AWS) but is adding on support for more cloud platforms.

The logic is simple: IT infrastructure professionals declare the desired state of the cloud infrastructure to build—the network, compute resources, and so on. These compositions pass on to Fugue's Conductor, which understands how to turn them into infrastructure and enforce that infrastructure. It also handles all API interactions with the cloud platform. It's the key to getting to the state where the workload is running.

The approach is profound: Uniquely, Fugue offers a compilation capability that tells the user if the declaration submitted will work and if it conforms to the organization's and the cloud provider's rules and requirements. Anything that makes it through the compiler is almost sure to pan out as working infrastructure in the cloud. Fugue also supports a continuous cloud loop that consists of configuration, run, enforce and adapt processes updated every 30 seconds to ensure that what's in your Git Repository describing your infrastructure is what is actually running there. Moreover, Fugue's validations execute policy-as-code, setting restrictions on what can be done and programmatically assuring compliance with organizational standards and regulatory demands at design time. Feedback is immediate for quick error correction (no audit paths required), and, when the process runs, any configuration drift is booted back by automated enforcement. Many validation capabilities are baked into Fugue's standard libraries, such as those that reflect AWS constraints.

As long as Fugue is not reporting errors, IT knows its IaC-enabled infrastructure is operating correctly.

In essence, Fugue becomes your live CMDB, with the composition describing running infrastructure 100% accurately. As long as Fugue is not reporting errors, IT knows its IaC-enabled infrastructure is operating correctly. Not only that, but Fugue is built to be a cloud-native, best practice system. If, for example, a Conductor instance dies, another one fires up and picks up right where the previous one left off.

With Fugue, IT infrastructure professionals can prepare their organizations to meet the challenges of the IaC-enabled, high-velocity, dynamic cloud era. It's the ticket to the much faster, more secure, and drift-free cloud demanded by today's enterprise.