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Fastly steps forward as a developer platform for application delivery

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Introduction

The major content-delivery networks (CDNs) have evolved into full-blown edge clouds. At Altitude, Fastly Inc.'s annual customer event held recently in New York, officials explained that the company has long believed its platform has distinguishing features that make material differences to application delivery and hosting.

It is now being more aggressive in delivering that message. Fastly was a platform built with application developers in mind, first aiming to make applications run faster, and now acting as a platform for building and hosting those applications. With competitors having made the same shift, Fastly is leaning on its engineering culture and developer-driven heritage as differentiators, asserting that a good developer experience is crucial to producing a good experience for an app's end users. Recent acquisitions, especially Glitch, have pointed the company in that direction.

The Take

A year ago, we observed a "bravado gap" between Fastly and its competitors. A year into his tenure, CEO Todd Nightingale has worked to close that gap. The company's strength is its technological foundation. Importantly, it now articulates that strength in business-outcome terms significant to CxO types. Consider, for example, the marketing executive relying on app performance as a competitive lever. Another facet of the story is that DevOps has taken hold in most enterprises, and Fastly can help serve DevOps' ultimate goals of improving user experience. Akamai Technologies Inc. and Cloudflare Inc. still have more service breadth, and Fastly has needed to patch product gaps such as bot management. Such catch-up items are important, but they should not distract from the company's message of improving the developer experience.

Context

Founded in 2011, Fastly made a name for itself as a CDN built with developers in mind, based partly on the founders' own frustrations with application delivery. As with other major CDNs, the platform has expanded in scope during the past several years. Fastly offers products in four categories: network services, security, observability and computing. The latter category involves serverless functions based on WebAssembly, representing a next-generation step beyond containers and virtual machines.

Arguably, Fastly's two most notable acquisitions have been Signal Sciences and Glitch. Signal Sciences, a web application firewall (WAF) acquired for $775 million in 2020, is the cornerstone of Fastly's security portfolio. Glitch, a 2022 pickup, offers a browser-based tool that lets even nondevelopers quickly build a full-stack web application, but is also useful to large organizations such as Google. Glitch has fostered a community that now numbers over 2.5 million developers who share code, work collaboratively, and exchange tips and techniques.

Technology

With Fastly and other CDN-based edge clouds, the developer does not have to think about "where" an application is running, in a geographic sense. Rather, the platform spins up an application instance where necessary, ideally at the location closest to a given end user. Unlike hyperscale public clouds, which group entire datacenters into availability zones, these edge clouds operate points of presence in strategic markets. Fastly has 98 super POPs worldwide, connected by a network with 291 Tbps of capacity.

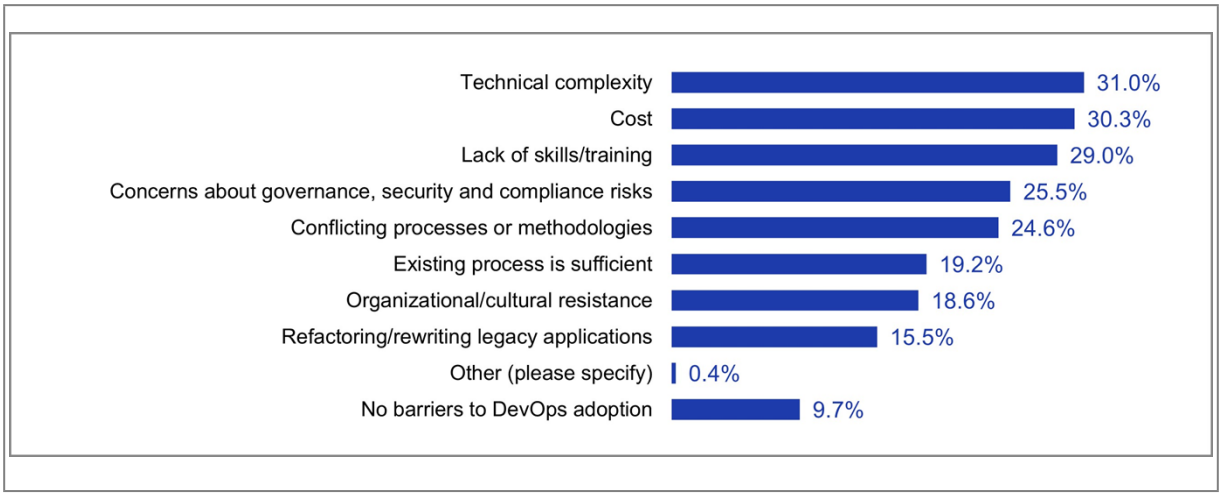
True to its name, Fastly's calling card is speed. Since inception, Fastly's signature feature has been the ability to purge a customer's caches globally within 150 milliseconds. Purges help CDNs be more relevant to dynamic applications by guaranteeing that outdated information is removed; it is a useful feature for developers and one that Fastly claims remains unmatched among its peers. That speed applies to any changes, and helps Fastly provide a uniform experience across the platform. For example, a customer can update WAF rules at the speed of an instant purge, and those changes are sent to all Fastly POPs simultaneously. It is one of the qualities that has always existed on the platform, but Fastly did not tout it until recently.

Fastly helps developers with the process of building applications as well. Glitch, as noted, provides a web interface for coding. It is simple enough for amateurs, and powerful enough to suit experienced developers. Prior to acquisition, Glitch had already fostered a community of nearly 2 million developers who share code and discuss best practices online. Fastly has simplified the purchasing process too. This year, the company introduced free services and tiers of flat-rate pricing, giving developers more options for trying out the platform and using it long term. (Free services were key to Cloudflare's early growth.)

One goal of all these features is to create a better developer experience, which Fastly believes will translate into a better user experience. Another way to consider this is that developers that are given freedom, power and easy tools can better refine applications to meet user needs. This message arguably addresses a gap in enterprises' DevOps implementations. Our research shows that 42% of organizations cite user experience as the desired outcome behind DevOps, and yet those same organizations still measure developer productivity not by the efficacy of an app, but by pace of releases.

Tellingly, enterprises cite their biggest barriers to DevOps success as technical complexity (31%), cost (30%) and lack of skills/training (29%), according to our DevOps, Developer Experience 2023. Fastly has moved to address all three, and in so doing can make itself relevant to a wider range of enterprises, including those that do not consider themselves application-development experts.

What is holding DevOps back?



Source: 451 Research.

Products

At Altitude, Fastly announced or updated products across its portfolio. Some key examples are discussed below.

Observability. A new product called Edge Observer provides performance metrics for a customer's services, and can also feed log data to third-party observability tools. Edge Observer was launched into public beta in June and is now generally available. In a different angle on observability, Fastly now provides sustainability data, showing customers how much energy their deployments are using, and how much of it comes from renewable sources.

Security. Bot management has been a significant gap in Fastly's security portfolio and has been the top feature request among customers. The company has been testing a bot management product in beta with select customers, providing multiple challenges to identify malicious bots (and approve-list beneficial ones). Fastly announced new threat research based on its Network Learning Exchange, giving users access to security intelligence observed across the company's global network. The company also launched its own certificate authority, named Certainly, which can issue and manage certificates for any website or API endpoint served by Fastly.

Storage has become an important aspect of edge clouds, and Fastly is building up its story here as well with a key value store, a configuration store and a secrets store, with more advancements promised, so that apps can access data at the edge rather than going back to origin servers in the cloud.

Compute. Fastly executes customers' applications in WebAssembly, which compiles code into an isolated sandbox. The WebAssembly runtime was created for browsers, but Fastly and others saw the potential to use it for running applications in the cloud and at the edge. The sandbox process means WebAssembly can accept code in multiple languages, making it flexible for a variety of developers. It also provides inherent security by keeping code shielded from the outside. At Altitude, Fastly spotlighted the proposed component model for WebAssembly, where modular blocks of code can be assembled dynamically, at runtime, to form applications — even if the blocks are written in different languages. This is the concept behind microservices, but WebAssembly's component model would likely be more dynamic than container-based models, and easier to operate than Kubernetes.

The component model is still a work in progress among the WebAssembly community. Fastly anticipates supporting it beginning in 2024.

Competition

While we continue to stress that Cloudflare is not a one-to-one competitor of Fastly, the two do intersect on many fronts, including running serverless applications on the edge network. Fastly also competes with Akamai as both a CDN and an edge cloud. Edgio (the rebranded combination of Limelight and EdgeCast) is another contender in this space, and is trying to gain its footing after a rebranding.

Front-end application platforms such as Netlify and Vercel do not offer a full breadth of cloud services, but use infrastructure resembling that of Fastly and Cloudflare. The front-end platforms are CDNs by nature, using a well-networked set of edge caches, but they are built to deliver web applications, not media content. Moreover, they run on partners' infrastructure and networks. Along similar lines, multiple startups provide PaaS for WebAssembly applications. Examples include Cosmonic, Fermyon, Mycelial, SecondState and Suborbital.

SWOT Analysis

Strengths	**Weaknesses**
Fastly operates a highly performant global platform fed by the company's obsession with engineering. Its software plans target a long-term future of microservices that will likely be more dynamic, more secure and easier to operate than today's options.	In cybersecurity, Fastly does not match the breadth of Akamai and Cloudflare. The introduction of bot management fills a crucial gap, but some customers that seek out security first will be attracted to Fastly's rivals.
Opportunities	**Threats**
Many platforms cater to developers, but Fastly has a strong community spirit thanks to the Glitch acquisition. The company's participatory vibe welcomes all, from novices needing hand-holding to experts wanting to exchange ideas. This could be important as developers gain more political pull within enterprises.	Hyperscale public clouds' edge efforts are not equivalent to Fastly's edge cloud, but this could eventually change. WebAssembly shows signs of breaking out of its niche and finding a higher profile, but if this does not happen, it will limit Fastly's computing ambitions.

Source: 451 Research.