

Vendor Profile

Fastly: Expanding on Digital Empowerment from the Edge

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IDC OPINION

Content delivery networks (CDNs) carry a substantial portion of the world's internet traffic. CDNs have become an essential tool to handle the demands created by the massive amount of web content, live high-definition (HD) video, flash sales, and large downloads on the internet today. Enterprises turn to commercial CDNs for web acceleration and optimization, media delivery, and security services. Content providers such as media companies and ecommerce vendors pay CDN services providers to deliver content to their customers. IDC expects the CDN services market will exceed \$13 billion in 2023, representing a compound annual growth rate (CAGR) of 17.3% for the 2018 to 2023.

As a commercial CDN vendor, Fastly differentiates itself by its programmable edge cloud platform that is highly focused on enabling developers to build and run customized applications for their customers to solve everyday problems as well as bring innovation to their products and services and become digitally oriented. Fastly's 88Tbps software-centric private network includes 72 points of presence (POPs) that underpin its full-site CDN services suite and edge-enabled application services across 53 markets in the Americas, EMEA, and Asia/Pacific regions. These numbers are continuously expanding. As of March 31, 2020, Fastly has 1,837 paying customers worldwide, including widely recognized names in the fields of media and entertainment (online video, digital publishing) and ecommerce companies.

Focusing mostly on the developer ecosystem, Fastly's serverless compute environment and support of additional programming languages since 2019 has made its edge platform more accessible to a wider audience, which will also have a positive impact on its end customer use base. IDC also believes Fastly's focus on innovation, its continuous uplift in marketing and sales investments, and expansion of capacity in terms of POPs in emerging regions will help the company in the following ways:

- Raise brand awareness for its offering and services, especially its unique and value-adding services, which might still be a well-kept secret to many potential customers looking for CDN and edge services
- Bolster its position in becoming a global CDN and edge cloud player with a growing presence among the enterprise markets and a good spread across verticals
- Fastly might consider strengthening its partner base in the various categorizations it identifies. This also includes the need to explore strategic partnerships with 5G mobile providers as 5G will further increase demand for mobile content at the edge and be a large growth driver in this space.

IN THIS VENDOR PROFILE

This IDC Vendor Profile analyzes content distribution network (CDN) vendor Fastly. It provides an overview of the company, its financials, services portfolio, and business strategy, as well as IDC's essential guidance.

Note that all numbers in the document may not be exact due to rounding.

SITUATION OVERVIEW

To thrive in digital business, organizations need to understand that content has become critical to drive customer engagement, customer journey management, and overall customer experience. As a result of this hyperconnected world we live in, customers want to engage and be engaged pervasively, consuming content at a faster pace than ever before. The on-the-go nature of content consumption demands immediate output regardless of access device.

CDNs will continue to play a crucial role and grow in importance to tackle several challenges related to delivering content to the end user on time and within acceptable quality parameters. These challenges include the following:

- Massive amounts of stored and online content must be delivered to end users efficiently and cost effectively. This applies to all content types, including websites and on-demand or live video streams.
- As more content is moving to the edge, CDNs need to cache content as close as possible to the end user to reduce latency, minimize jitter, and improve quality of experience.

Company Overview

Fastly was founded in 2011 and is headquartered in San Francisco. As of March 31, 2020, the commercial CDN provider counts 685 employees and has 17 offices in key markets around the globe. Approximately 32% of its employees are based in Fastly's headquarters. As of March 31, 2020, 113 employees were located outside the U.S. and spread across multiple cities in 17 countries.

Fastly became publicly listed on the New York Stock Exchange in May 2019. Former CEO and founder of Fastly Artur Bergman transitioned into the full-time role of chief architect and executive chairperson of Fastly in February 2020. Joshua Bixby, former president of Fastly, succeeded Bergman as CEO. Fastly's private network includes 72 POPs globally (as of March 31, 2020) that underpin its full-site CDN services suite and edge-enabled application services.

Financials

In 2019, Fastly generated revenue of \$200.5 million, increasing approximately 39% year over year (YoY). This follows an annual revenue increase of 38% in 2018 from 2017, as shown in Table 1. Revenues generated in the U.S. (from customers with billing address in the U.S.) represented 78% of total revenues in 2017 and 71% in 2019. This reflects the uptake of business derived from customers outside the U.S., growing to almost 30% of total revenues in 2019.

TABLE 1**Fastly Revenue and Growth by Geography and Market Segment, 2017-2019
(\$M)**

	2017	2018	2019
Total revenue	104.9	144.6	200.5
Growth (%)		37.8	38.7
By geography			
U.S.	82.7	110.8	142.8
Growth (%)		34.0	28.9
Outside U.S.	22.2	33.8	57.6
Growth (%)		52.0	70.7
By market segment			
Enterprise customers	86.2	121.6	174.9
Growth (%)		41.2	43.8
Non-enterprise customers	18.7	22.9	25.5
Growth (%)		22.4	11.4

Source: IDC, 2019

From a market segment perspective, the bulk of revenues in 2019 was derived from enterprise customers (87%), growing from 82% in 2017. This growth is in line with the company's aim to cultivate its enterprise customer base, which it views to be critical to long-term success. Enterprise customers are defined as customers that spend \$100,000 or more in a twelve-month period. Enterprise revenues in 2019 were generated by 288 enterprise customers. In total, GAAP costs of revenue increased to \$88.3 million in 2019 from \$48.7 million in 2017. Research and development costs increased to \$46.5 million in 2019 from \$29.0 million in 2017. Investment in sales and marketing grew fastest, rising to \$71.1 million in 2019 from \$40.8 million in 2017. The increase was primarily driven by investments in its demand generation, sales, and marketing teams to further drive enterprise customer acquisition growth. It was also due to Fastly encouraging existing customers to further use its platform.

Customers

Fastly provides a range of edge network services to customers that mainly belong to the following industries: ecommerce, travel and hospitality, digital publishing, streaming, high tech, and financial services. In addition to its paying customers, the company also has trial, developer, nonprofit, and open source programs, as well as other non-paying accounts that are excluded from its customer count metric. At the end of 2018 and 2019, Fastly counted 1,582 and 1,743 customers, respectively. Most of Fastly's revenue comes from its customer base in North America; followed by

European markets such as the U.K., Spain, and Germany; in the Asia/Pacific region (Australia and New Zealand); and Japan. At the end of 2018 and 2019, 46% and 49% of its customers were headquartered outside the U.S., respectively. As of 2020, Fastly is set to expand its customer base in the rest of Asia/Pacific as well as in Latin America.

Customer satisfaction (CSAT) ratings are done through various metrics. Fastly tracks customer satisfaction from its Zendesk workspace; after any support interaction, a follow-up survey is sent to the customer. The current CSAT rating is 95% (as of March 31, 2020). Considering Fastly's focus on self-service provisioning and developer use, it deploys the dollar-based net expansion rate (DBNER) as an indicator of increased activity from existing customer accounts and overall customer satisfaction, which were 147.3%, 132.0%, and 135.5% for the trailing 12 months at the end of 2017, 2018, and 2019, respectively. According to Fastly, the DBNER increases when customers increase their usage of the platform or purchase additional products, and declines when they reduce usage, benefit from lower pricing on existing usage, or curtail purchases of additional products.

Fastly will continue to invest in its developer outreach, leveraging it as a cost-efficient approach to attracting new customers. Fastly also plans to continue significant investments in its sales and marketing programs (such as online marketing activities and targeted account-based advertising). Its international expansion, including its global sales efforts, will add complexity and cost to the business. This will require Fastly to considerably expand sales and marketing capabilities outside of the U.S. and increase the number of POPs in select international markets to support customers in these markets.

Company Strategy

Product Strategy

Fastly's products fall in the following broad segments or categories:

- Edge delivery
- Edge security
- Edge applications
- Managed deployments
- Partner integrations

Edge Delivery

Fastly's edge delivery services consist of the following core services:

- Full-site delivery services such as dynamic site acceleration for web and mobile, origin shield, instant purge (with a mean purge time of 150 milliseconds as of December 31, 2019), surrogate keys (fine-tune purging), real-time logging, and statistics – all caching and delivery services at the edge meet data compliance and privacy regulations such as, GDPR, PCI DSS, and SOC2
- Media delivery services that consist of live streaming, video on demand, on-the-fly packager for video on demand, and media shield – it also provides live event monitoring services for large-scale live-streaming events.
- Edge computing services

Edge Security

Fastly's edge security services include core services features such as distributed denial of service (DDoS) protection, Web Application Firewall (WAF), transport layer security (TLS), and bot detection and mitigation.

Edge Applications

Fastly's edge applications (or web delivery) services that include optional add-on load balancing and image optimization services.

Multi-CDN Focus

Fastly's Media Shield offering is key to address the pain points of multi-CDN deployments that due to different architectures and configurations can result in inefficient distribution of requests between the CDNs and the origin. Sitting in between the multiple CDN deployments and the origin and building on Fastly's origin shielding and request collapsing functionalities, Media Shield provides a way for media companies to optimize routing streaming traffic across the multiple CDNs and back to origin.

Another delivery service offering that is built specifically to tackle the challenges found in a multi-CDN architecture is Fastly's full-site delivery service called Cloud Optimizer, launched in January 2020. The same traffic routing optimization capabilities as with Media Shield applies here, albeit not purely concerning video streaming. Sitting in between a company's multi-CDN deployment and its central cloud, it can enable critical, high-traffic content delivery for companies in commerce and high-tech verticals without the need to re-architect network infrastructure.

Innovation Focus

Launched in beta in November 2019, Compute@Edge is Fastly's new serverless compute environment intended to provide developers with a new language-agnostic compute platform. From the start, developers have had the ability to use Varnish Configuration Language (VCL) to build more complex applications on Fastly's edge cloud platform. Compute@Edge is designed to support other popular coding languages and has measured a start-up time of 35.4 microseconds, which resembles an utmost fast start-up time. Compute@Edge uses the Lucet compiler technology.

Lucet is Fastly's open source WebAssembly (a technology created to enable web browsers to safely execute programs at near-native speeds) compiler. It is generally available for the company's developer audience on Fastly's edge cloud. WebAssembly is already supported by many languages, including Rust, TypeScript, C, and C++, and many more have WebAssembly support in development. Since its introduction, Lucet has supported Rust and more languages are planned to be added over time.

Lucet is the engine behind Terrarium, Fastly's experimental environment for edge computation using WebAssembly. Terrarium is a multilanguage, browser-based editor and deployment platform where users/developers can experiment with the technology to eventually use it on Fastly's edge platform. Fastly Labs is another edge innovation environment where developers can explore Fastly's latest projects and interact with experimental, in-progress ideas.

Managed Services and Support

Fastly takes pride in its self-provisioning enablement. Customer can configure or "provision" Fastly caching and video services, independent of Fastly staff, via the Fastly web interface and application programming interfaces (APIs). If self-provisioned tasks fail to operate in an appropriate or expected manner, customers can find answers to a variety of frequently asked questions in Fastly's guides and tutorials. There is no additional charge associated with these functionalities.

Fastly's managed edge delivery is the vendor's managed CDN service that provides customers with maximum flexibility and control, where Fastly deploys its edge cloud platform on dedicated POPs within customers' private network at their chosen locations. This service can be used exclusively or as part of a hybrid, multi-CDN strategy. Fastly also provides a wide range of

professional services packages that include implementation services, consulting engagement services, and live event monitoring.

Fastly's deploys a follow-the-sun operation support model and offers three key customer support packages. The more basic support packages (Standard and Gold) offer support via email and the community forum. Fastly's Enterprise Support package also includes support via phone and real-time chat (via Slack), as well as the option of a Designated Technical Specialist add-on, which provide a dedicated full-service cloud engineer with proactive health monitoring and regular business reviews.

Go-to-Market

Most of Fastly's services are deployed directly (i.e., to the 288 enterprise customers that drove 87% of revenues in 2019). Today, partner deployments account for a small portion of overall deployments. Fastly focuses its direct selling efforts on medium-sized to large organizations, as well as smaller companies that are exhibiting significant growth. Fastly engages with and supports these customers with its field sales representatives, account managers, and cloud engineers; it also has vertical industry-based sales teams that continue to enhance its value-based selling methodology. As mentioned previously, Fastly continues to expand its sales and marketing efforts, with increased focus on sales to enterprises globally. For this, it will need to invest significantly in financial and other resources for recruiting, training, and retaining of sufficient numbers of sales personnel to support projected growth.

Fastly's go-to-market model initially focuses on reaching and serving the needs of developers. The vendor reaches developers through working groups, community events, and conferences, and other means. It also leverages an annually held Customer Insights Panel (CIP), an exclusive, invite-only event with approximately 20 to 30 of its top customers. Fastly also holds another annual customer event called Altitude, which attracts around 200 attendees. Altitude Trek events are one-day events targeting a more technical audience.

Partnerships

Fastly integrates with other CDNs with Media Shield product and Cloud Optimizer. OEM partnerships account for a fair share of the channel business. Fastly's partners and strategic alliances include the following categories:

- Integration partners
- Referral and reseller partners
- Central cloud partners
- Solutions partners

The company has partnerships with colocation providers such as Equinix, Digital Realty, CoreSite, and Interxion. The edge provider also partners with carriers (incumbents and smaller operators), being part of its integration partners, and reseller partners. Its central cloud partner base includes key hyperscalers such as Google Cloud Platform (GCP), Microsoft Azure, and AWS.

Fastly's edge cloud platform is often being the back end of choice for many key platform-as-a-service (PaaS) providers that in turn serve the developer community. Hence, PaaS providers make up a large part of its solution partner base. Current examples include Brightcove, Shopify, Drupal, Magento, Wix, and Adobe Portfolio. Fastly also has partnerships with niche players such as PerimeterX, DataDome, Mux, Bitmovin, and Nice People At Work (NPAW).

Competition

Fastly segments the competitive landscape into four key categories:

- Traditional CDN providers such as Akamai, Limelight, EdgeCast (part of Verizon Digital Media), CenturyLink (formerly Level 3), and Imperva (for security)
- Smaller, niche-focused CDNs such as Cloudflare, StackPath, and Section.io
- Cloud providers offering compute functionality at the edge such as Amazon's CloudFront, AWS Lambda, and GCP
- Traditional datacenter and appliance vendors such as F5, Citrix, A10 Networks, Cisco, Imperva, Radware, and Arbor, as well as networks that offer a range of on-premises solutions for load balancing, WAF, and DDoS

Pricing Models

Fastly charges for CDN services based on two usage metrics: bytes delivered (bandwidth) and requests processed. Both bandwidth and requests have regional pricing based on where in the world the service is delivered (pricing for CDN varies geographically). The company also deploys flat fees for certain products and services. Fastly also offers several bundled services; it prices security services both separately and bundled based on customer preference. The vendor also offers free developer trials that enables customers to test its services free of charge. They can simply sign up for a trial and begin testing. Fastly enables these customers to test up to \$50 of traffic for free to ensure everything fits their requirements.

Fastly generates most of its revenue from charging its customers based on usage of the platform. Initially, customers typically choose to become platform customers, for which Fastly charges fees based on customers' committed or actual use of the platform (as measured in gigabytes and requests). Many customers have tiered usage pricing, which reflects discounted rates as usage increases. For most contracts, usage charges are determined on a monthly basis based on actual usage within the month and do not impact usage charges within any other month.

Larger customers often enter into contracts that contain minimum billing commitments and reflect discounted pricing associated with such usage levels. Most of these customers generate billings in excess of their minimum commitment. Fastly also generates revenue from additional products as well as from professional and other services, such as implementation. The vendor charges a flat one-time or recurring fee for these additional products and services. Customers are generally invoiced in arrears on a monthly basis.

Geographic Coverage

Fastly operates its CDN network according to a consolidated CDN topology rather than a scattered CDN topology. Compared with many other CDN networks, it deploys fewer POPs but has them strategically positioned at the center of the highest-density internet exchange points around the world for maximum coverage and effect. In addition, it advocates the enriched compute power per POP due to, for example, 100% SSD server deployment and extra RAM for storage.

The vendor's current peak capacity reached 88Tbps as of March 31, 2020. Fastly's private network includes 72 POPs globally (as of March 31, 2020) that underpin its full-site CDN services suite and edge-enabled application services. In the second half of 2019, Fastly entered into two new strategic markets in Asia/Pacific and Latin America by adding POPs in Delhi, India, and Bogota, Colombia. The company also upgraded an existing POP in Singapore.

Key Differentiators

Underpinned by its software-centric and serverless platform, Fastly's programmable edge focuses highly on enabling developers to build and run customized applications for customers to solve everyday problems, bring innovation to their products and services, and become digitally proof businesses. Among Fastly's key differentiators are:

- **Scalable, agile platform.** Its CDN and edge applications services offerings are highly programmable, agile, and easy to scale for customers. In addition, it is easy to integrate with other multi-CDN/edge services offerings.
- **Self-provisioning.** Fastly's approach to self-service and provisioning is attractive for many companies that want to leverage edge features and functions at their own pace. Fastly also plugs into continuous integration/continuous delivery (CI/CD) pipelines for automated provisioning and configuration.
- **Cost-effective pricing.** Free trial services, attractive price/quality ratio, and fast purge are among differentiating benefits and features that will fuel more demand for this type of CDN offering and feature set.
- **Services and support.** The smaller size of the vendor (compared with larger CDN providers) and the composition of its technical support workforce fuels easy and direct access to technical support that can handle complex queries.
- **Customer focus.** Fastly's focus on customer experience is reflected by an excellent CSAT score.

FUTURE OUTLOOK

IDC projects the CDN market to reach \$13 billion by 2023 at a five-year CAGR of 17.3%. CDNs have become an essential tool to handle the demands created by the massive amount of web content, live HD video, flash sales, and large downloads on the internet today. CDN traffic is expected to grow at around 35% CAGR for the next five years, but revenue growth is challenged with price erosion and moves by major content providers to build private CDNs.

Market developments such as continued growth of over-the-top (OTT)/real-time video and the Internet of Things (IoT) are driving higher demand for performance and low latency. The commercial CDN market is evolving with the advent of a new breed of competitors that capitalize on emerging technologies such as virtualization, DevOps, and peer to peer (P2P) along with simplified pricing models to compete against established legacy players. Virtualization is ushering in a new breed of software-dominant players.

Content providers, especially hyperscalers, are setting up their own private CDNs to lessen dependence on commercial CDN providers. This is happening against a backdrop of accelerated demand for CDNs to distribute real-time video, handle increasing number of static and dynamic web transactions, shift to online multiplayer gaming, and proliferation of IoT devices.

CDN providers also face new challenges related to the transformation of the edge as an emerging hub for distribution of content and a control center for global ecommerce. In addition, CDN security services are emerging as an important revenue driver for CDN providers, fueling many players' product strategies and focus to add more security features in their offers going forward.

CDN providers with differentiated networking services, hosted software CDN services, and the ability to capitalize on edge opportunities will continue to thrive despite competitive pressures. Strategic partnerships with hyperscalers, service providers, and technology providers will stimulate the overall market and are needed to address the global nature of CDN.

ESSENTIAL GUIDANCE

Advice for Fastly

- Further expand your capacity in regions such as Asia/Pacific and Latin America since these are important growth markets. Fastly is currently often part of a multivendor CDN

deployment, which is certainly a way to expand business, but more capacity capabilities (geographically) would enable it to grow its positioning beyond multivendor deployments.

- It seems Fastly is on the right track in terms of increasing sales and marketing budgets for 2020 to execute on increasing brand awareness to a larger base of potential customers. We advise Fastly to continue this investment trend in sales and marketing to improve messaging and brand awareness and be able to execute on it with a larger pool of sales executives.
- Increase efforts to expand support for more popular languages such as TypeScript, C, and C++ beyond Rust, which is supported by Fastly's Lucet WebAssembly compiler today.
- Expand your marketing message beyond developer focus to incorporate business benefits fueled by Fastly services and demonstrated by digital use cases.
- Even though Fastly's edge cloud platform provides near-real-time visibility and control to users, it would be good to see more entrenchment of advanced technologies such as artificial intelligence (AI) and machine learning (ML) to provide in-depth insights into customer behaviors, as well as rich and real-time advanced analytics complemented by AI/ML tools to extract maximum benefits from data.
- Fastly mostly goes direct to market through its developer base, which is indeed a viable model. That said, Fastly will need to further build out strategic partnerships. It has partnerships in place, but in IDC's opinion, this strategy needs to be bolstered in all partner categories it identifies. This also includes the need to explore strategic partnerships with 5G mobile providers as 5G will further increase demand for mobile content at the edge and become a large growth driver in this space.

Taking the above into consideration IDC believes Fastly can continue a growth path that leverages its agile, scalable edge cloud platform to a larger base of developers, partners, and businesses that can benefit from the provided digital-proof applications and workflows. If it continues investment patterns in the right areas, keeps up its innovation pace, and executes well on its laid-out strategies, Fastly will be well under way in further strengthening its position in the edge cloud and CDN marketplace.

LEARN MORE

Related Research

- *European Enterprise Communications Survey, 2019: Attitudes Toward Content Delivery Networks* (IDC #EUR145716519, December 2019)
- *IDC MarketScape: Worldwide Commercial CDN 2019 Vendor Assessment* (IDC #US44842119, August 2019)
- *Worldwide Content Delivery Network Services Forecast, 2019-2023* (IDC #US44057419, May 2019)

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