

Digital Publishing at the Edge

How edge computing is driving business for media companies



SOLUTIONS BRIEF

Overview

The advent of digital publishing has brought unprecedented pressures to the publishing industry. Users now demand lightning fast, personalized experiences across a growing number of devices or they quickly lose interest in your content. At the same time, the economics of publishing are changing due to new technologies like ad blockers and bots. To meet revenue goals for both advertising and subscription income, you must reevaluate your web and mobile delivery systems.

To address these challenges, digital publishers like you are joining the movement to edge computing by leveraging Content Delivery Networks (CDN). CDNs can speed up content delivery by offloading business logic at the edge, closer to readers.

Fastly is a modern CDN built on a proprietary version of Varnish. We use the built-in Varnish Configuration Language (VCL) to let you extend more application logic to the edge of our network than ever before. This empowers you to deliver exceptional user experiences across both web and mobile applications. In this brief, you will learn how you can take advantage of edge computing to optimize performance and dramatically reduce infrastructure costs with Fastly.

Modern publishing challenges

Digital publishers face a number of challenges in today's competitive environment. To set your business up for success, you must focus on optimizing the user experience, maximizing ad revenue and streamlining the delivery of premium subscriptions.

the guardian

The Guardian uses Fastly to ensure that readers see the news most relevant to them. Adding geo-location headers to requests processed by its applications, The Guardian serves one of three editions – U.S., U.K., or Australia – to visitors based on their location. The Guardian can also identify the visitor's device for each request, then serve up content for either mobile or desktop systems.

User experience rules

Today's readers have zero tolerance for poor online experiences, whether it's slow page load times or irrelevant content. Research by Quanta Computing shows that reducing page load time from 1.2 seconds to 500ms increases conversions by 20 percent, time on site by 21 percent, and pages viewed per visit by 28 percent.¹

Speed matters, and so does relevance. A study conducted by Harris Interactive reveals that 74 percent of consumers get frustrated with websites when content appears that has nothing to do with their interests.²

The implications of these findings are clear: you must continue to differentiate by personalizing content and improving your site's performance.

Ad revenue is down

With the emergence of digital publishing, U.S. print ad revenues have declined rapidly. It had been anticipated that digital ad revenues would more than make up for the loss. But this has not proven to be the case, largely due to the rise of ad blocking technologies. Ad blocking grew by 41 percent globally in the last 12 months and is estimated to have cost publishers nearly \$22 billion during 2015.³

Another factor is fraudulent traffic typically created by bots to impersonate real users. A recent study reveals that bot traffic will cost advertisers an estimated \$7.2 billion in 2016.⁴ Fraudulent traffic lowers conversion rates and hence ROI for advertisers, causing many of them to shift their budgets elsewhere.

For digital advertising to fulfill its promise of becoming a media revenue engine, you must convince advertisers that you can separate the good traffic from the bad and deliver authentic readers every time.

Paid subscriptions lead the way

In contrast to declining advertising figures, paid subscriptions for premium content are playing a bigger part in driving revenue. Most newspaper and magazine publishers have a paid subscription strategy, and report that digital subscriptions are positively impacting revenue, attracting younger audiences, garnering valuable consumer data, and enhancing ad sales.⁵ Subscription revenue for digital content is forecast to increase from \$275 million in 2012 to \$1.4 billion in 2017.⁶

The prevalence of the premium content subscription model suggests that if you continually improve subscriber experience, you will enjoy a significant competitive advantage moving forward.

Meeting the challenge at the edge

Creating a compelling user experience while efficiently optimizing revenue streams presents a huge challenge for digital publishers. Edge computing can help. Edge computing refers to moving business logic outside of your datacenter towards the edge of the network.

¹ "ETAM earns 20% of conversion by optimising its online store," Quanta Computing, June 5, 2015

² "Online Consumers Fed Up with Irrelevant Content on Favorite Websites," Janrain press release, July 31, 2013

³ "The 2015 Ad Blocking Report," PageFair, 2015

⁴ "Bot Baseline: Fraud in Digital Advertising," Association of National Advertisers, 2016

⁵ "15 Mind-Blowing Stats About Digital Publishing," CMO.com by Adobe, April 23, 2013

⁶ "Global Digital Magazine Ad Spend \$3.8 Billion by 2017," MediaPost, June 19, 2013

You may have already been exposed to edge computing without realizing it. Streetlight sensors gather data about current traffic patterns and adjust light timing accordingly. Smart meters for utility companies switch the source of power based on factors like demand, availability and pricing. A common element of edge computing use cases is collecting, processing and taking action on data at the edge instead of shipping data to a centralized location which takes time and resources.

CDNs are a great way to get started with edge computing. They have global networks with large amounts of computing resources, two key ingredients for making decisions at the edge. CDNs use their geographically distributed servers to cache web and mobile content physically closer to your end users. This lets you deliver content from cache instead of routing requests all the way back to your datacenter to retrieve files, resulting in significant performance gains. That means CDNs can fundamentally change the way you deliver content to end users. Instead of relying on your datacenter or origin to process information, you can extend that logic to a CDN's network and take action at the edge.

A simple example of edge computing with a CDN is redirecting a URL at the edge of the network. This is a much better way of processing redirects instead of going back to origin just to be told you need to load a different page. By leveraging CDNs, you can quickly and efficiently realize the benefits of edge computing, primarily speed and cost reduction.

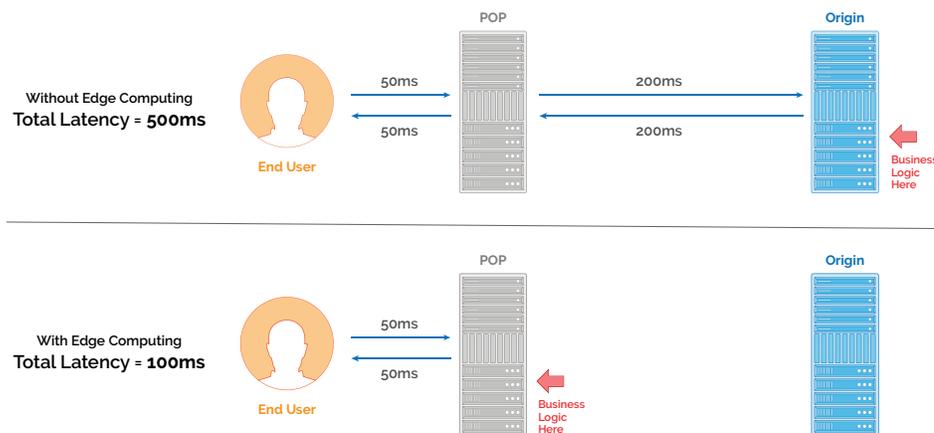
Speed

When logic executes physically closer to your users, you can return the results of requests a lot faster. For example, if a user in Tokyo accesses a site hosted in New York, and the request must process logic before completing, that request must go to New York, and will therefore take longer to complete. With a CDN, the logic can be processed at the closest point of presence (POP) so the result is returned faster.

FASTCOMPANY

Fast Company plans to further personalize the user experience by letting readers log in to receive customized recommendations based on past articles they've enjoyed as well as their behavior on FastCompany.com. Fastly's edge computing allows the site to offer this level of personalization without sacrificing performance by serving both cacheable and uncacheable content (such as user-specific information) at the edge.

The impact of edge computing on latency

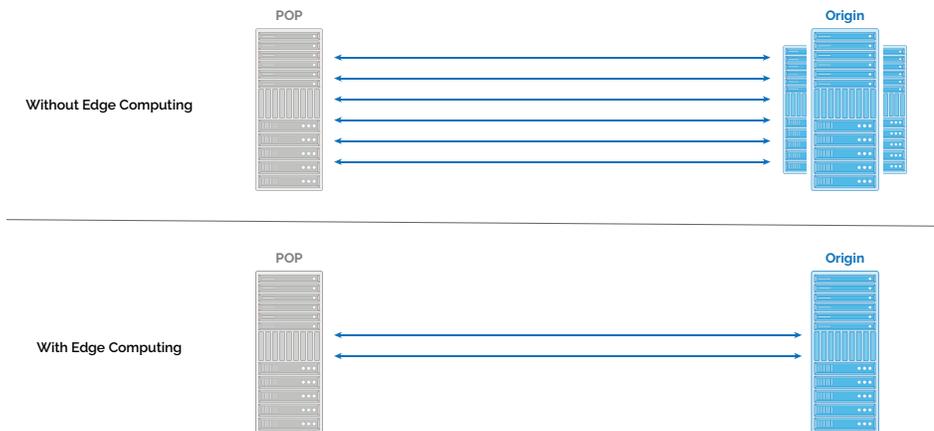


The business benefits are huge. Faster performance leads to increased engagement and more time spent on your site.

Cost reduction

Edge computing via CDNs also helps reduce infrastructure expenses. Requests going to your origin need hardware resources, such as memory and CPU, to process and complete. With fewer requests hitting the origin, you can eliminate or repurpose hardware for other projects. In this way you can scale your site and grow your readership without requiring frequent purchases of additional hardware.

Hardware savings with edge computing



Why Fastly?

Fastly's edge computing capabilities let you offload more business logic to the edge of our network, closer to your readers. This allows your organization to address the many challenges of today's digital publishing environment. With Fastly, you can deliver a faster, more personal user experience, drive incremental revenue and lower infrastructure costs.

Varnish

Because Fastly is built on Varnish, we can use Varnish Configuration Language (VCL) to perform intelligent caching and push application logic to the edge. VCL gives you granular control over many aspects of a user request, including where content is fetched from and how it's cached and served. We can automatically generate VCL for you, or you can write your own Custom VCL and activate it instantly. VCL's flexibility empowers you to define and move more advanced business logic out of your datacenter and execute it at the edge of Fastly's network.

Personalization

By automatically detecting unique user variables embedded in each request, Fastly enables you to personalize content at the edge according to each reader's geography, language, device and role.

Geography

Fastly uses edge computing to automatically expose and process GeoIP variables such as continent, country, city, postal code, telephone area code and metro code. You can specify latitude and longitude values to create a virtual boundary

(geo-fencing) and send users localized content. Fastly also enables versioning for different regional audiences, a strong benefit to publications with international readership.

Language

Fastly supports all translations of your site at the edge, including your site's default language and the user's preferred language. If a native Brazilian is traveling in the U.K., you can create rules that serve content in Brazilian Portuguese rather than English, based on the user's preferred language setting.

Device

Fastly can optimize your site for multiple platforms and serve content from the edge based on each user's device, whether desktop, tablet or smartphone. Add a splash page pointing readers to your mobile app and serve different images based on device type. Serve smaller, higher resolution images for iPhones with retina displays, and lower resolution images to save bandwidth for other smartphones.

Roles

With Fastly you can personalize the user experience from the edge based on designated roles. For example, you can deliver one type of content to an internal editor and another to an external reader. Or serve different content for logged-in versus logged-out users.

Fraudulent traffic filtering

Fake traffic from bots lowers conversion rates, skews campaign results and reduces ROI. It also threatens relationships between publishers and advertisers. With Fastly, you can maintain and automatically update a blacklist at the edge that filters bot traffic in real-time without having to deploy a new configuration. You can add or remove entries from the blacklist as needed and propagate changes across Fastly's network instantly. By filtering out bad traffic, Fastly helps publishers maintain quality ad campaigns, improving relationships with advertisers and bolstering advertising value.

Enhanced subscriber experience

Fastly provides full control and flexibility so you can optimize the subscriber experience. This results in increased content consumption and engagement across this valuable customer segment.

Full control

Thanks to Fastly's Varnish platform, you gain several advantages over other CDNs, including the ability to fully control how your content is delivered. Fastly lets you deploy and activate new configurations yourself instantly from the user interface or via our application programming interface (API). Since it's so easy to deploy and rollback configuration changes, your team can easily make iterative enhancements to your service. And with our real-time logs, you can analyze how users interact with your content so you can fine-tune your configuration settings over time.

A/B testing

Fastly enables you to test and optimize relevant content through the use of A/B testing from the edge of our network. With Fastly you can route traffic randomly

BUSINESS INSIDER

Business Insider serves personalized content to individual users, ensuring their editors, logged-in readers, and visitors each have a unique experience on BusinessInsider.com. This enables editors to see the content uncached, and gives them the ability to publish and update content instantly, while readers see the latest content in real time.

between two different versions of your page and analyze the impact of the variations in real-time. And because Fastly doesn't use third-party tags in your HTML, which requires sending requests back to origin, your site serves variations faster. Now you can test different versions of ad copy placement or design, and serve different headlines or sharing-button locations to compare engagement. You can also offer different content for different traffic sources. Optimize your reader experience based on empirical data, not personal hunches.

Paywall authentication

Fastly helps publishers differentiate and compete by speeding paywall authentication. Requests requiring authentication, such as visits by subscribers to premium content, typically incur slower performance as calls to authentication servers must first be processed. Fastly speeds performance by extending your authentication logic to the edge and enabling you to cache authentication responses, which reduces latency. This ensures your premium subscribers have first class experiences with your gated content.

The Fastly way

For digital publishers who need to provide high-performance web and mobile experiences and premium content, Fastly delivers all of the benefits of edge computing. By moving your business logic to the edge, Fastly helps improve user experience, drive revenue and reduce infrastructure costs.

Don't look for additional hidden costs — all Fastly edge computing functionality comes included at no extra charge. Our real-time, flexible platform enables leading digital publishers like About.com, Business Insider, BuzzFeed, Drupal Association, Fast Company, The Guardian, Hearst Inc., Vox Media, Wikia and WIRED to improve their user experience and optimize their opportunity for digital revenue at the edge.

Go to www.fastly.com/signup to register for a free account and try Fastly for yourself. For more information about our edge computing capabilities, email: sales@fastly.com.