Traffic spikes as stock market swings: How your CDN can help

Your CDN helps you keep up with static content requests, but what happens during a burst of trading? Get a faster, better user experience by caching more at the edge.
Overview

Between economic uncertainty and increased online transactions\textsuperscript{1,2,3}, COVID-19 has put the financial services industry through its paces.

Even though overall finserv traffic hasn’t changed much, stock market fluctuations drive massive traffic surges. As a result, upstart stock trading apps and multinational investment banks alike have experienced repeated outages, cutting their users off from trading and up-to-date information just when investor anxiety is highest\textsuperscript{4,5}. Consumers and investors expect the same secure, speedy experience on every platform, in every circumstance. In fact, maintaining their trust depends on it.

Financial service providers find themselves at an important choice point: meet and exceed user expectations for performance and reliability, or take a hit to reputation and customer loyalty. Fortunately, performance at scale is easier than one might think. It requires thinking differently about static and dynamic content.


\textsuperscript{2} Chandler, S. (2020, March 30). Coronavirus Drives 72% Rise In Use Of Fintech Apps.

\textsuperscript{3} MX study reveals increased mobile banking use amid COVID-19. (2020, April 3).

\textsuperscript{4} Peters, J. (2020, March 9). Robinhood experienced its third outage in a week as US stocks have plummeted.

Traffic spikes as stock market swings: How your CDN can help

Why Legacy CDNs Send So Many Requests to the Origin

First, a little history. Not long ago, if a business needed to handle periodic traffic surges, one of the few solutions was buying extra server space to accommodate them, even though that resource wouldn’t be used often. Content delivery networks (CDNs) were the solution to that problem, allowing businesses to cache content on CDN servers, ideally closer to the end user, to offload traffic from the origin server and maintain performance. The catch is that some content is easier to cache than others.

Some financial services transactions are pretty static: customers checking a balance, looking to see whether a payment went through, or getting a portfolio overview. That information isn’t changing rapidly, and it usually isn’t urgent down to the second. But big surges in financial services traffic happen when you get a mass of users: for example, investors looking to buy and sell at just the right price. That traffic is dynamic and seconds and even milliseconds can be crucial.

By traditional CDN rules, static content is easy to cache, and dynamic content is not. That’s because what can and can’t be cached by your CDN depends on how quickly it can purge content. If your CDN purges content every 7 to 15 minutes, like most traditional CDNs, content that changes more quickly is going back to your origin. With normal usage patterns, that might not be an issue, but when traffic spikes and your origin server is swamped, performance decreases and the risk of outage increases.

What If the Definition of Dynamic Was, Well, Dynamic?

Uncacheable dynamic content is really a traditional CDN problem. With an edge cloud platform like Fastly, the line between static and dynamic content—really, cacheable and uncacheable content—moves a lot. On Fastly’s edge cloud platform, purging can happen in 150 milliseconds across our global network. As long as the content stays the same for at least 150 milliseconds, it can be cached on our edge servers. In other words, almost everything that makes a trip to the origin on a traditional CDN stays at the edge using an edge cloud platform like Fastly.

That’s why Fastly’s platform enables users to cache API responses, like stock prices and financial transaction data. APIs are especially important for mobile apps, which are surging in use across industries as the coronavirus keeps consumers and investors at home. When an investor checks a rapidly changing stock price from the kitchen table, event-driven caching ensures that they get a consistently fast, up-to-date response.
So even during a huge traffic spike, your customers get the excellent user experience they expect, whether they’re on their laptop, tablet, or smartphone.

**Taming the Thundering Herd of Simultaneous Requests**

There are other ways an edge cloud platform can help you scale up quickly. For example, there will always be requested content that hasn’t been cached yet. If your site gets one request at a time for that content, no problem; a single request goes to the origin server, and is subsequently cached for all further requests. But when a thundering herd hits your servers with multiple, identical, simultaneous requests, as happens during a trading rush, a legacy CDN will not have had a chance to cache it yet, so all of those requests flood the origin.

Application delivery controllers (ADCs) and elastic load balancers are sometimes deployed to handle this problem, but they can also create availability issues and performance degradation. Especially with a legacy CDN, the effects are bottlenecks, latency, failed requests, or even outages.

There is a better way. With request collapsing, Fastly’s edge cloud platform can consolidate all cache miss requests (in other words, requests that must be sent to the origin for new content) into one, hold it until the new content is cached on a CDN server, then serve all of those requests without delay or disruption, and without a major escalation in egress costs.

**Key Takeaways**

Mastering performance at scale doesn’t mean over provisioning all the time. That’s an outdated, expensive way of handling your traffic. Instead, think about having the capability to go big when you need it, scaling seamlessly with your traffic by ensuring as much content as possible is served from the edge. With an increase in business moving online, and the financial services landscape providing more and more consumer choice, that’s the kind of advantage you need to be sure your customers have a fast, reliable user experience.

Serve more, faster, from the edge. See how Fastly can help.