

YOTTAA

Edge Acceleration with Multi-CDN

Harness the power of edge acceleration to unlock lightning-fast 'Instant On' page loading, regain control over third-party apps, fortify your defenses against malicious bots and DDoS attacks, and leverage a specialized content delivery network tailored to the dynamic demands of digital commerce experiences. The outcome? Experience an impressive 30-40% boost in page load speed and a remarkable 5-15% increase in conversion rates, translating into substantial incremental revenue for your business.

Whether coming from an email, ad, search engine, app, or typed into a browser, how long it takes from that initial request to the moment something first displays on the shopper's screen and the point where they can interact with a shopping experience, largely determines conversion rates and online sales (YOTTAA data).

There are many ways to accelerate the request from a browser to the origin web application (often a commercial storefront from platforms such as Salesforce, SAP, Shopify). Traditionally this has been done by attempting to cache content closer to the requestor and adding computational power to the application servers themselves along with additional tools to balance the load. YOTTAA's edge acceleration capability acknowledges that the customer experience for a modern e-commerce storefront is made up of both the

Key Features

InstantON

The average digital commerce storefront attempts to load on 227 objects with 45 being first party and 182 third parties and has an average page size of 2.62MB (Source: YOTTAA's 1,500+ sites optimized). Most of these objects are third-party resources that are full applications that play a large role in the customer experience along with other documents and JavaScript that create today's interactive and personalized shopping experience. These objects are typically loaded in the HEAD of the HTML, contributing to slower start render times, and can appear in the Body of the HTML document. Before the shopper sees the store start to render, browsers must begin to download and parse the objects on the HEAD and BODY elements, and calculate the initial layout before content can show up on the screen.

YOTTAA's InstantON also uses metadata about HTML page structure to automatically differentiate between static and dynamic elements on any given page. The page is then fragmented to separate the static (cacheable)

Content Delivery Networks (CDNs) were built for Web 1.0. Today's highly personalized and dynamic online stores assemble content from hundreds of resources, mostly from third-party applications, and need to be stitched together quickly for the optimal customer experience before the shopper bounces. While conventional CDNs excel at caching static content in edge locations, serving content from the closest point, and mitigating geographical latency, their primary focus remains on static elements.

The challenge emerges with dynamic, personalized content, prevalent in modern e-commerce. These pages feature real-time shopping cart updates, user-specific logins, dynamic session journeys, and martech applications delivering unique content based on user data. These dynamic elements cannot be efficiently cached, posing a bottleneck in the era of an increasingly interactive and personalized web. Traditional CDNs struggle to meet these evolving demands.

source web application (e.g., e-commerce platform) as well as many innovative third-party applications that enable discrete parts of the customer experience such as ratings and reviews, chat and personalization engines. As sites become more relevant to each individual shopper, that personalized content is often not cached within the CDN. Similarly, protecting these multi-architecture experiences that often cross different domains and SaaS providers infrastructure is complex without creating further performance challenges.

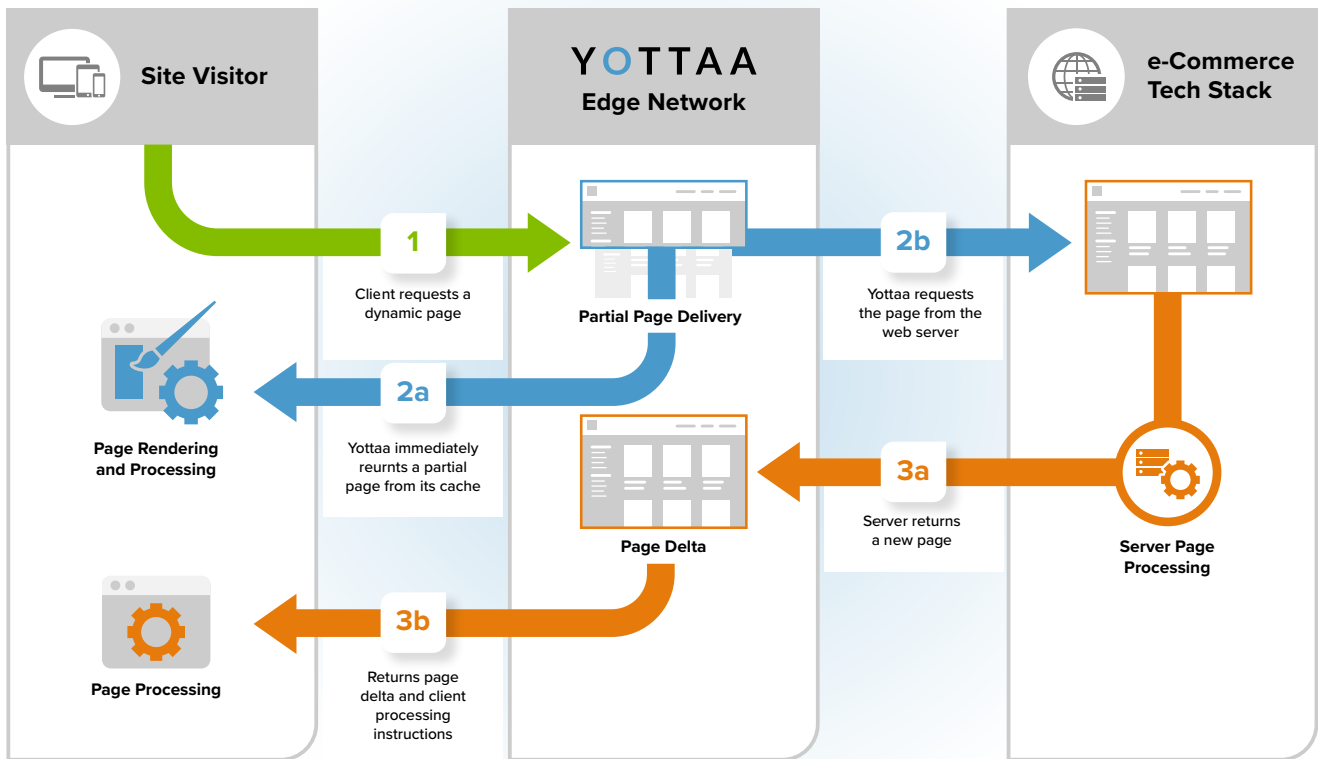
YOTTAA's edge acceleration capability leverages multiple global content delivery networks (CDNs) and optimizes, protects and monitors the digital experience for metrics such as: Start Render Time, Time to First Byte (TTFB), Google Core Web Vitals, Time to Interaction and Page Load Time.

YOTTAA InstantON is our patented technology for accelerating non-cacheable objects such as HTML pages. It caches a dynamic object, identifies the static portion of the object, serves it instantly with injected intelligence to speed up the browser processing and user experience. In parallel, InstantON retrieves the full object from the origin server and delivers the delta later.

elements from the dynamic elements (which are replaced with configurable placeholders) so the entire page can be cached and sent to the Visitor. This dramatically increases First Byte transfer times by breaking the critical rendering path and allows us to serve entire pages before any dynamic content has been requested from the origin server – for any page. It will also speed up Start Render Times by sending a part of the HTML document to the client even before the entire HTML document is ready.

This is accomplished by breaking the HTML page into small cached pieces. When a page is requested, YOTTAA delivers some pieces to the client instantly (response times typically under 200 milliseconds) while

simultaneously fetching dynamic content from the origin server. Once the origin server produces the dynamic content (e.g., cart contents), YOTTAA delivers those pieces to the client with the intelligence to properly integrate them with the existing page. The result: the browser can kick off the time-consuming process of rendering the page while the dynamic pieces are still en route. When the dynamic content arrives, most of the page will already be rendered in the user's browser; the browser only has to position the dynamic content in its proper location. Every performance metric is positively affected by the head start provided by InstantON and more importantly the user experience begins to feel like magic.



InstantON Configuration Options

- Cache and deliver HTML or CSS fragment to clients instantly by specifying the page element that differentiates static vs. dynamic content on your site. Specify the tag or element in the body of your page that identifies where dynamic content begins and what should be temporarily delivered while waiting for dynamic content (e.g., Shopper Name in Welcome back messaging)
- Prefetch JavaScript, CSS, fonts and image resources – You can improve DNS resolution on cross-origin resources by automatically inserting the 'dns-prefetch' hint into the link element for specified resources or pages. Images and fonts can also have the 'preload' hint added to schedule them with higher priority to be downloaded and cached by the browser.
- Dynamic Content - When using the Dynamic Content functionality within InstantON, YOTTAA will cache all HTML on the page, except for the pieces which are specified. Once the origin server (e.g., e-commerce API or platform) responds with the dynamic pieces, that HTML will be injected back into the browser (similar to how client-side AB test engines work). This will help reduce the effect to the end user of a long last byte time. You can add dynamic content by specifying content via an HTML ID or class attribute.

Multiple Content Delivery Networks (CDN)

There's not a single CDN capable of guaranteeing 100% uptime, nor any that consistently provide the best coverage to every single city in the world. YOTTAA's edge acceleration capability provides a redundant solution in the event of an outage or slowdown with one CDN provider, ensuring that content delivery continues without disruption.

Multiple CDNs are a way to combine the strengths of different CDN vendors, while minimizing the weaknesses of each. A single CDN provider, for example, might have great coverage in Asia, while another CDN vendor might have great coverage all over the USA and Europe. YOTTAA allows its customers to use the best CDN provider for each location, ensuring that content is delivered efficiently and effectively to users around the world. This is particularly important for organizations with a global customer base, as it helps to ensure that users have a consistent and high-quality experience, no matter where they are located. When you use a multi-CDN service, you can route traffic to different CDNs in a way that makes the most sense when it comes to performance and availability and to improve the reliability, performance, and resilience of content delivery.

In addition to the YOTTAA global edge network, our acceleration capability can also use Fastly, Edgestream (now Edgio) and Amazon Web Services.

Cache Control Options:

- Static caching at global edge locations honoring HTTP caching header instructions and ability to set any default Time-to-Live (TTL)
- Query string cache controls: Unique Cache: requests with different query strings will be cached separately; Shared Cache: query strings are ignored from cache processing. No Cache: if there is a query string, do not cache the response

- Exceptions are configurable by request URL with containment operators and RegExp support along with Boolean operators for Client user agent, HTTP request/response headers, timestamp or request URL.
- Manipulate HTTP headers on objects in cache (e.g., remove set-cookie or add rule to cache by geography feature)
- HTML Caching additional configuration rules
 - Cache until HTTP request or response headers contain or don't contain any or specific cookies.(Use cases: Cache html snippet of a blank mini cart to minimize API requests, Cache html for campaign or offer that is relevant to a specific location or localization
 - Same URL can have different cache versions served from different origin servers (Use cases: home page template change
 - Prefetch HTML and cache in local browser storage (Client-side deployment required.)
- Headless commerce server-side cache aggregation for pages composed from different sources such as a CMS and an e-commerce platform through configurable rules and accommodation for multiple origin servers
- Content partitioning or grouping content by type (HTML, JS, CSS, images, video, API, etc.) and serving content types by specific CDN.
- Cache by device type (User-Agent header)
- Flush cache (purge) by specific URL or whole site
- Specific CDN's can be utilized for a given profile level that can be based on URL, geographic region, or device type.

Traffic Management

Traffic Management is a core component to YOTTAA's edge acceleration. When your traffic is proxied through YOTTAA, your site traffic is analyzed for security vulnerabilities and optimized for e-commerce performance. YOTTAA's traffic manager is uniquely designed for modern store-fronts that might leverage a combination of an e-commerce platform's templates, a custom front-end using a public framework or library and that might span across multiple origins. Core features that are provided through our traffic management system: Global Server Load Balancing, CDN Routing, Transparent Proxy/By-pass, A/B Testing, Layer 7 Security (See Web Application Firewall Datasheet for more info), Multi-origin support.



[See Traffic Management Datasheet for more detail.](#)

Image Optimization

Diverse techniques optimize web image loading, adapting to device and browser factors. Optimization choices should factor in image quality and load speed. Cached images are customized for guest devices (phone, tablet, desktop), quickening page loads for improved browsing. YOTTAA enhances this through compression, resizing, and format shifts, further boosting speed. Default settings improve performance, while specific rules optimize or swap images for a better shopper experience. Included are lossless/lossy compression, lazy-loading, transcoding, and resizing.



[See Image Optimization Datasheet for details.](#)

Content Optimization

In addition to InstantON, YOTTAA has content optimization features built in that can be enabled for an entire site or applied to individual page's images, CSS, JavaScript and HTML. These include compression (Brotli and gzip), auto minification of JavaScript, CSS, and HTML along with URL rewrites. CSS and JavaScript requests can also be automatically combined to reduce HTTP requests.



[See Content Optimization Datasheet for more info.](#)

Application Sequencing (Third-party Tags & Scripts)

Customers that utilize YOTTAA edge acceleration capability can also optimize how any third-party JavaScript is loaded via the Application Sequencing capability that can be injected into each page via a content transformer. The page performance lift, as measured by the Load metric, is often is greater than 30%. Application Sequencing provides rulesets to manage all third-party apps, whether they are loaded via a tag manager or website source, accelerating the time to shopper interaction. Sequencing tag scripts also can optimize third-party feature loading in the most efficient way along with other resources such as JavaScript and CSS files.



[See Application Sequencing Datasheet for more info.](#)

Embedded Security

Beyond accelerating the delivery of highly personalized digital shopping experiences, YOTTAA embeds security protection at multiple levels of the solution. A Web Application Firewall (WAF) that includes advanced threat detection, protection against DDoS (OSI layers 3, 4, and 7) and can include bot mitigation, runs hundreds of regex-based rules against each request with a focus on acceleration at each tier. The capability includes unlimited customized rule sets that can be managed by YOTTAA Customer Support or directly within the configuration tool. These can include customization of the OWASP core rule set or blocking of targeted traffic based on user agents such as geography or IP. YOTTAA updates rules and policies automatically in the face of emerging threats and gives customers control of how to accept and apply new rules. Security anomaly detection is included with YOTTAA's Anomaly AI.



[See Web Application Firewall \(WAF\) Datasheet for more info.](#)

Switching to YOTTAA – CNAME Record

In order to benefit from YOTTAA edge acceleration and multi-CDN network, you'll be provided a CNAME for your site's sub-domain that is an alias for the storefront (e.g., www.yourbrand.com or shop.yourbrand.com) and you simply create a CNAME record with your DNS provider and provide YOTTAA with your origin server(s). YOTTAA can accommodate more than one origin server for multi-architecture sites that might be mid-way through a migration of one platform to another or leveraging different front-ends (e.g., headless commerce) YOTTAA's solution also includes an automatic generation and renewal process for digital certificates (SSL/TLS).

Once traffic is directed to the YOTTAA Edge Network, a reverse proxy, customers can leverage three different modes for each site:

Transparent Proxy mode, Bypass mode, and Live. For purposes of testing, experimentation, or troubleshooting, customers can use Transparent Proxy mode to remove all optimization techniques without removing embedded security or load balancing features and a Bypass mode that will route requests for your site directly to the origin server, bypassing all of YOTTAA's services (with the exception of YOTTAA DNS, which is necessary to initiate this routing change).

Designed to integrate seamlessly with commerce platforms such as Salesforce Commerce Cloud, SAP Commerce Cloud and others, this approach enables fast and efficient interaction with your storefront.

Patented Edge Acceleration Innovation

Patent: System and method for website performance optimization and internet traffic processing

[US Pat. 8,112,471](#)

Patent: Systems and methods for dynamically modifying a requested web page from a server for presentation at a client

[US Pat. 10,984,175](#)

Patent: Systems and methods for handling a cookie from a server by an intermediary between the server and a client

[US Pat. 10,771,581 B2](#)