

# Akamai Ion



Akamai's industry leading scale, performance & intelligence solution makes web experiences fast, reliable and secure across all end-user situations, while maximizing infrastructure offload and operational agility.

Customers and prospects expect fast, quality web experiences independent of their browser, location, device or network. Failure to deliver fast, scalable and engaging web experiences can result in lower revenue and higher cost. According to the Aberdeen Group a 1-second delay in web page load time can mean 11% fewer page views, a 16% decrease in customer satisfaction, and a 7% loss in conversions.<sup>1</sup>

The web has changed. The proliferation of connected devices and the rise in application complexity required to deliver fast, secure, quality web experiences demands an intelligent performance optimization solution that will meet the rising expectations of always connected end-users.

It's no longer enough to accelerate dynamic web content in a homogenous way. Intelligence and interoperability are necessary to deliver an effective set of real-time, interrelated and layered optimizations that result in an optimal end-user experience based on the end-user's unique situation and context. Akamai refers to this intelligent, responsive, real-time optimization as "situational performance".

Akamai Ion is the first and only situational performance solution – a tightly integrated suite of scale, performance, and intelligence technologies required for real-time web experience optimization based on end-users' situations across devices, locations, browsers and networks.

For best-in-class performance Ion's intelligent, layered approach to scale, performance and intelligence is tailored to the end-user's situation – backed by Akamai's industry leading performance and availability Service Level Agreement.

“The implementation of Ion, including the Front End Optimization capabilities, has meant that our internal IT team do not need to become browser optimization experts. Instead, they can concentrate on the site's functional components, safe in the knowledge that Akamai will take care of the performance elements of the site.

— **Graham Benson**, IT Director, MandM Direct

## Scale

Ion enables organizations to offload expensive web infrastructure, including bandwidth, compute and storage while providing web and mobile application availability and scalability. Key capabilities include:

- **Caching:** Ion continuously pulls and caches fresh content onto servers that are closest to end users. 90% of the world's Internet users are within a single "network hop" of an Akamai server
- **Advanced Offload:** Ion enables more granular and intelligent caching of dynamic and personalized content based on user segmentation. By conditionally caching these objects, Advanced Offload can improve performance and significantly decrease infrastructure spend
- **Site Failover:** Ion helps web and mobile application availability with comprehensive failover capabilities where Akamai monitors the availability of your origin infrastructure and reroutes requests when the origin is not available

## BENEFITS TO YOUR BUSINESS

### Better business results through fast, secure and scalable web experiences

- Deliver rich, engaging web experiences that exceed user expectations for speed and availability across devices, networks, browsers and locations
- Increase conversions and engagement while reducing abandonment across mobile and desktop web experiences
- Increase transactions and engagement through uninterrupted availability
- Achieve application scalability and performance under peak traffic conditions

### Reduced complexity of delivery web experiences

- Reduce the cost and complexity of developing, delivering and optimizing rich, engaging experiences to any device, on any network, anywhere
- Gain key insights into how your audiences connect and engage with your brand, across devices, browsers, networks and geographies
- Gain greater agility with self-service configuration and intelligence

### Reduced cost of operations and infrastructure

- Reduce operational cost and maximize infrastructure offload and application availability by leveraging the scalability and security of the Akamai Intelligent Platform
- Focus development efforts on business requirements and competencies, rather than on optimization overhead
- Deliver quality experiences across all geographies without infrastructure build-out

<sup>1</sup> <http://www.aberdeen.com/aberdeen-library/5136/RA-performance-Web-application.aspx>

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## Performance

Ion offers a fully-automated solution for situational performance which enables organizations to deliver faster web application responses, anticipate requests in fewer round trips and bytes, all while improving the performance audiences experience. Ion applies optimizations adaptively based on sophisticated analysis of the web application, as well as real-time conditions specific to the end-user's environment such as browser, device, network speed and presence of third-party services. Key capabilities include:

- **Fast DNS:** Akamai Fast DNS leverages a globally distributed and highly scalable Anycast DNS network to act as either Primary or Secondary DNS. Fast DNS support tiles zone apex records thus eliminating costly redirects that reduce page load times
- **Enhanced Akamai Protocol:** Ion provides significant enhancements to increase efficiencies at the TCP layer when networks are congested. With Enhanced Akamai Protocol, customers can take advantage of the most aggressive mapping and network protocol optimizations Akamai has to offer, helping further improve performance
- **SureRoute:** Akamai route optimization – known as SureRoute – can identify the fastest, most reliable path to your origin to retrieve and deliver dynamic/interactive content. Inside the Akamai network proprietary techniques are used to accelerate content delivery and avoid Internet congestion points and unnecessarily long routes
- **Page Prefetching:** Page Prefetching retrieves the next pages most likely to be requested to the Akamai Edge before the user selects it for viewing
- **Adaptive Image Compression:** Adaptive Image Compression is designed to vary the level of compression for JPEG images based on real-time network conditions, meaning pages load faster and more consistently - even when network conditions are poor
- **Adaptive Consolidation:** Ion uses Adaptive Consolidation to fetch multiple files with one request, but cache each resource separately in the browser, thus avoiding redundant downloads
- **On-demand Image Loading:** On-demand Image Loading will cause a page to only load the images that are visible within the current browser view, or "viewport". As the user scrolls down, new images are loaded on-demand
- **Browser-specific Image Optimizations:** New browser specific image formats such as Google's WebP or Microsoft's JPEGXR allow the same quality of experience to be delivered in a reduced payload size, when compared to standard JPEG. Ion dynamically identifies situations where JPEG images can be replaced by browser specific image formats resulting in fewer bytes to deliver a better web experience
- **EdgeStart:** EdgeStart is a powerful optimization that reduces the time to deliver the first part of the HTML response, which allows the browser to download important resources such as JS, CSS and some images earlier to enhance the user experience
- **Asynchronous JavaScript and CSS:** Asynchronous JavaScript and CSS modifies the way scripts and stylesheets are embedded into the page, making the browser process scripts, style sheets and other resources in parallel

## Intelligence

Ion provides unprecedented insight into the web experiences of your actual customers while empowering the Akamai edge or your origin infrastructure to make decisions based on that intelligence. Key capabilities include

- **Real User Monitoring:** Real User Monitoring (RUM) provides key insight into individual end-user experiences by monitoring web pages and collecting performance data from real end-users
- **Mobile Detection and Redirect:** Using a constantly updated user agent database hosted on the Akamai Edge, incoming HTTP requests are evaluated and, optionally, device characteristics are discerned. Redirection responses can then be issued from the Akamai Edge close to the end-user, to the appropriate mobile site for smartphones, feature phones, and tablets, dramatically improving response times



Akamai® is the leading provider of cloud services for delivering, optimizing and securing online content and business applications. At the core of the company's solutions is the Akamai Intelligent Platform™ providing extensive reach, coupled with unmatched reliability, security, visibility and expertise. Akamai removes the complexities of connecting the increasingly mobile world, supporting 24/7 consumer demand, and enabling enterprises to securely leverage the cloud. To learn more about how Akamai is accelerating the pace of innovation in a hyperconnected world, please visit [www.akamai.com](http://www.akamai.com) and follow @Akamai on Twitter.

Akamai is headquartered in Cambridge, Massachusetts in the United States with operations in more than 40 offices around the world. Our services and renowned customer care are designed to enable businesses to provide an unparalleled Internet experience for their customers worldwide. Addresses, phone numbers and contact information for all locations are listed on [www.akamai.com/locations](http://www.akamai.com/locations).