

Akamai Solutions for Gaming:

Optimizing cloud performance, scale and security for online gaming and digital downloads



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From Disk to Digital: A World of Opportunity

The gaming industry is undergoing tremendous transformation as it makes the seismic shift from disk to digital – a change that brings with it great opportunities for innovation and market expansion. With the rise of digital gaming, it is easier than ever to get games into the hands of more players, in more places, more quickly – and as a result, gaming has gone mainstream, social, global and mobile. Thus, despite recently declining console gaming sales, overall industry numbers are strong. In the U.S., the video game industry is growing four times faster than the economy, and time spent playing games is up 40% in the last two years.^{i, ii} Worldwide, the global gaming market is estimated to reach nearly \$103 billion by 2017, up from approximately \$80 billion in 2014, with mobile games as a key driver.ⁱⁱⁱ Mobile game revenues are expected to overtake the console market in 2015, skyrocketing to nearly \$41 billion by 2017 (up from \$17 billion in 2013).^{iv}

For game developers large and small, the digital revolution brings unprecedented opportunities. For example, digital distribution makes it much easier for gaming companies to expand to global audiences. Similarly, by eliminating retail shelf space limitations, the digital channel makes it viable for smaller, independent developers to compete and succeed in the marketplace. Games have also gained a much broader appeal, attracting more women, casual and social gamers and enthusiasts across every age group.^v Globally, 40% of all Internet users play games online, and as mobile pushes gaming's reach even further, companies will enjoy significant opportunities to grow the market even more.^{vi}

Most importantly, however, the shift to digital distribution has given game developers the chance to form much stronger and more direct relationships with their customers than was possible with physical retail distribution. Through the digital channel, gaming companies can better understand and more quickly respond to evolving customer desires and habits. They have the ability to patch and update games, push out new content, test revenue models, track marketing campaigns and engage meaningfully with customers in ways that were never previously imaginable. As the industry undergoes this dynamic transformation, developers and publishers who are best able to capitalize on the untapped potential of the digital channel will have a world of opportunity at their fingertips.

Challenges for Digital Gaming

While the shift from disk to digital offers tremendous potential opportunities, it also presents a host of new challenges for gaming companies. As the online channel grows increasingly complex and the pace of innovation accelerates, many companies struggle to keep up. Not only are there websites and storefronts to manage, but also real-time gaming servers, large software downloads, and live-streamed competitions and events. Games are transforming from fixed, boxed products to dynamic, ongoing services – with frequently updated content, in-game micro-transactions, virtual goods and social interactions. Mobile adds another dimension to the trend, as consumers increasingly look to play on smart phones and tablets – or on multiple screens across devices.

To successfully navigate this complex and changing landscape, gaming companies need an agile, high-performance infrastructure that allows them to turn the Internet into a reliable and effective online distribution channel. This requires focusing on three key areas, each with its own set of challenges: the user experience, delivering at scale and online channel security.

The User Experience is Everything

Digital distribution greatly reduces the barrier to entry for gaming companies, giving developers – large and small – direct access to potential customers around the world. On the flip side, it gives consumers virtually unlimited gaming options – alternatives are always just a click away. Moreover, with the unfettered rise of the freemium or free-to-play model in gaming, consumers have no switching costs, making it easy for them to abandon a game on a whim. This means delivering a stellar user experience is paramount – all the time, every time.

Unfortunately, the sometimes unpredictable nature of Internet performance can make it difficult to offer consistently compelling experiences, creating problems for gaming companies. Whereas site slowness and delayed downloads lead to increased abandonment rates and higher new-user acquisition costs across all industries, they are particularly problematic in a highly competitive landscape like online gaming. Websites and storefronts must be rich and responsive, delighting visitors from the very first interaction, enabling frictionless transactions and engaging customers to return again and again. Game downloads need to be fast and error-free, as minimizing time-to-play is essential when customers expect instant gratification. Game servers must deliver consistent, low-latency game play – a feat that becomes even more challenging with global audiences, when the players are far away from the servers. Additionally, as more and more businesses look to add video and live-streamed events such as fan fests and competitions, they must grapple with the complexities of publishing and delivering high-quality video, at scale, to an increasingly wide array of devices.

To overcome these obstacles, gaming companies need an infrastructure that can reliably deliver the quality of experience their users expect to every device, every time – a quality of experience that is commensurate with their brand. To do any less is to risk customers abandoning before even giving their game a try.

Achieving Quality and Reliability at Scale

Another key challenge for gaming companies is the ability to consistently deliver high-quality user experiences in the face of highly variable levels of demand, as game launches reach ever higher orders of magnitude. In terms of revenue, Activision Blizzard's *Destiny* recently grossed over \$500 million on release day, while Rockstar's *Grand Theft Auto V* sold \$800 million on its first day – far overshadowing the box office's biggest opening day at a mere \$91 million, for example.^{vii} As game distribution moves increasingly online, game day launches, patch releases and marketing promotions have the potential size and scale to rival any of the largest Internet events to date. Valve saw 3.5 Tbps of traffic during their last *Defense of the Ancients 2* update, for example.^{viii}

Capacity planning for these spikes – both expected and unexpected – is challenging, but failure is costly. If a website is unable to handle the demand during these spikes, or if downloads become intolerably slow, then game creators become unable to capitalize on the tremendous investment they have put into developing their game. They have not only lost sales and customers but their brand reputation has taken a hit, with potentially long-lasting effects. Thus, it is essential in this industry for companies to have a proven platform that can reliably scale to meet any level of demand. Even for smaller companies, the importance of such an infrastructure – that gives them the freedom to grow as quickly as needed, or enables them to capitalize on an unexpected hit – cannot be understated.

Finally, as more and more publishers take advantage of the online channel to expand into fast-growing overseas markets, the global scale of their delivery infrastructure becomes critical as well. Having servers located as close as possible to gamers around the world is vital to offering high levels of performance, reliability and availability for those gamers, in turn leading to increased download completion rates, longer online play times and higher conversion-to-paid rates. With parts of Asia, Europe and Latin America

representing some of the biggest potential growth markets today, companies will need infrastructure solutions that have the worldwide performance, reach and scale to enable them to achieve their strategic, global business goals.

Protecting the Online Channel

As the industry has moved increasingly online, video gaming companies have become some of the most visible enterprises on the Internet, causing them to face increased cybersecurity threats in recent years. While certainly not alone in this, gaming companies are targeted with alarming frequency, and the attacks can be extremely costly in terms of lost revenue, business continuity and brand reputation.

In 2014 alone, there were numerous high-profile Distributed Denial-of-Service (DDoS) attacks against well-known gaming companies, some of which left gaming networks out of service for days. Attackers' motivations range widely, from political motivations and disagreements with corporate actions to those hoping for a ransom payday. Sometimes the attackers are disgruntled gamers frustrated with a game outcome – other times, hackers attack just because they can. In a growing number of cases, the DDoS attacks are also used as a distraction, allowing hackers to undertake further security breaches: according to a recent survey, more than half of DDoS-attacked companies experienced theft of data, funds, or intellectual property.^{ix}

DDoS attacks have grown massively in frequency and scale, making them particularly difficult to defend against. Whereas just a couple of years ago, such attacks might have been as large as 25 Gbps, nowadays attacks above 100 Gbps are fairly common, due in part to the use of DNS- and NTP-based amplification techniques. Such attacks can peak at 300 to 400 Gbps and beyond, a size that can easily shut down entire data centers and is virtually impossible for even the largest of organizations to handle on their own.^x Even worse, because botnets-for-hire and tailor-made DDoS attack services are now both inexpensive and easily accessible, just about anyone with the desire to launch an attack would have little trouble gaining the means to do so.

The cost of these assaults is staggering as well. In a recent survey, more than 40% of attacked companies estimated that losses from DDoS attacks exceeded \$1 million per day.^{xi} Costs include not only the significant IT resources required to fight the attack itself, but also customer support and call center costs, loss of sales revenue during downtime, and the damage to customer confidence and brand credibility as frustrated gamers flood support channels and vent loudly on social media. Additionally, where theft of data has occurred, costs can be astronomically higher. A leading console maker estimated a loss of \$170 million for the combination DDoS attack / customer data theft they suffered in 2011, for example.^{xii}

Unfortunately, gaming companies make attractive targets for hackers, with customers' passwords, email addresses and credit card information at risk.^{xiii} Given both the frequency of and costs associated with such attacks, gaming companies simply cannot afford to leave their online presence inadequately secured; they need to consider multi-layer cloud defenses that can offer protection at scale.

Akamai Solutions for Gaming

Built to help video game developers, publishers, and distributors fully capitalize on the opportunities enabled by the industry's shift to digital, Akamai's Solutions for Gaming transforms the Internet into a secure, reliable, high-performance distribution channel that makes it easy for gaming companies to delight their customers from the first interaction, and at every interaction. By enabling consistently stunning user experiences across all online channels, Akamai helps gaming businesses minimize time-to-play, decrease abandonments, and increase playtime per player and lifetime revenue per user. By ensuring that games get into gamers' hands quickly and reliably – every time – regardless of location or scale of demand, Akamai helps companies fully leverage the tremendous investment they have made into their core competencies of game development and marketing.

Akamai's Solutions for Gaming include products from Media Delivery Solutions, Cloud Security Solutions and Web Performance Solutions, highlighted below.

[Akamai Media Delivery Solutions](#) enable game developers to fully capitalize on every event, promotion and launch day – regardless of scale – providing peace of mind with the knowledge that games, videos and live streams will be delivered to customers smoothly, securely and reliably. With performance-optimized game downloads, Akamai helps minimize the time-to-play metric that is so critical to success in today's freemium-powered world, while intelligent features like geo-targeting, IP-based reputation scoring, token authentication, identity services and SSL delivery help protect against content theft.

For companies wanting to offer video events such as fan fests and tournaments, Akamai also provides a turnkey solution for ingesting, publishing, delivering and archiving highest-quality live and on-demand streams to audiences worldwide.

Akamai Media Delivery Solutions product offerings include:

- **Download Delivery** – Improving download completion rates with fast, reliable and secure delivery of gaming software and patches. By leveraging Akamai's wide-reaching global footprint, along with special acceleration technologies, Akamai Download Delivery is the fastest way of getting software into the hands of customers around the world.
- **Adaptive Media Delivery** – Battle-tested, highly-scalable live and on-demand streaming platform, with adaptive technology to deliver the best possible experience for every viewer, in every location, across every device and network.
- **NetStorage** – High availability hot storage solution for gaming software, patches and videos, with 34 geographically distributed locations to provide maximum levels of performance and resiliency even for long-tail and rarely accessed games, videos and other content.
- **Media Analytics** – Actionable insight into download performance, audience demographics, viewer behavior and engagement, and video quality of service, enabling gaming companies to optimize service offerings and better understand their customer experiences.
- **Media Services** – Turnkey solution for live and on-demand media preparation and packaging. With Akamai Media Services, gaming companies have an easy, highly scalable, end-to-end solution for video, including transcoding and digital rights management.

[Akamai Cloud Security Solutions](#) provide multi-perimeter defenses to help gaming companies adapt to a changing threat landscape and defend against today's Internet-scale attacks. With the Intelligent Platform™ constantly monitoring network traffic and performance conditions across the globe, Akamai is able to more quickly detect, identify and absorb attacks, allowing its customers greater peace of mind and continuity of business.

Akamai Cloud Security Solutions product offerings include:

- **Kona Site Defender** – Protecting websites against Internet-scale DDoS and application-layer attacks by leveraging the massive reach, capacity and intelligence of Akamai's global platform.
- **Prolexic** – Sophisticated defenses against complex and large scale DDoS attacks for both Web servers and IP-based game servers.
- **Kona Web Application Firewall** – Intelligent application-layer security against data theft through cross-site scripting, SQL injection and similar attacks.
- **Site Shield** – Protecting origin servers through cloaking, making them "invisible" to the Web while continuing high-performance delivery of content and applications.
- **Fast DNS** – Highly scalable and reliable DNS resolution to boost web and game server response times and availability, including protection against DNS-based DDoS attacks.

[Akamai Web Performance Solutions](#) are designed to help gaming companies decrease abandonments and increase revenue per user by delivering secure, seamless transactions and rich, responsive experiences to gamers around the world and across every screen – from console to PC to smart phone and tablet.

With unique offerings such as Fast DNS and IP Application Accelerator, Akamai can also improve performance and consistency for live-game servers, helping companies increase playtime per user, as well as providing a cost-effective and quick-to-market way of expanding real-time gaming and digital distribution to global locations without having to manage expensive local server deployments.

Akamai Web Performance Solutions product offerings include:

- **Ion** – Accelerating web and mobile interactions. Ion's exclusive performance-boosting capabilities like SureRoute, Enhanced Akamai Protocol, EdgeStart, Advanced Offload and Adaptive Image Compression deliver unmatched speed and reliability, with dynamic optimizations applied intelligently based on device, network and browser. Sophisticated analytics and Real User Monitoring (RUM) capabilities provide actionable insight into optimizing the online distribution channel.
- **IP Application Accelerator** – Improves game server performance and reliability. IPA significantly enhances throughput and reduces error rates for game servers and other IP-enabled services, using routing and transport layer optimizations made uniquely possible through Akamai's global and far-reaching Intelligent Platform.
- **Fast DNS** – Ultrafast, highly reliable DNS resolution, boosting web and game server response times for an even better user experience.
- **Global Traffic Management** – Intelligent multi data-center load balancing to improve site response times and availability in cloud environments while reducing IT costs and complexity.

Together, these offerings form a comprehensive portfolio of fully integrated solutions to meet the needs of gaming companies – allowing them to navigate the online digital world easily, confidently and successfully.

Why Akamai

In order to fully take advantage of the vast opportunities in today's fast-evolving market, gaming companies need the ability to deliver high-quality, compelling experiences to every user, every time, across every touch point – whether it be browsing a storefront, downloading a game, purchasing premium content or viewing a live tournament. With over a decade of proven expertise in delivering fast, reliable and secure online interactions, Akamai is uniquely positioned to help gaming companies succeed.

Handling more than two trillion interactions a day, Akamai is trusted by the world's leading brands, including all of the top 30 media companies, 97 of the top 100 online retailers, and 19 of the top 25 gaming companies. These enterprises rely on Akamai to secure and accelerate their businesses because they know that when the user experience is everything, they can count on Akamai to deliver. With Akamai, businesses get:

- **Superior performance.** Powered by the world's largest globally distributed computing platform, Akamai has servers in far more locations and countries in the world than any other competitor. By being only a single hop away from 90% of Internet users, Akamai can deliver games, content and streams with unparalleled performance and reliability.
- **Proven scale.** With its unmatched global reach, the Akamai Intelligent Platform has successfully delivered many of the world's largest Internet events. These include the 2014 Sochi Olympic Games, with 3.5 Tbps single event peaks, and the 2014 World Cup, where 200+ Petabytes were delivered across more than 80 countries and traffic peaked at nearly 7 Tbps. The massive size and intelligence of Akamai's network also provides superior protection against today's Internet-scale cyberattacks.
- **Peace of mind.** Because there are no do-overs on launch day, gaming companies can't afford to be caught short-handed. With unrivaled depth of experience and a proven history of rock solid reliability, Akamai provides companies with the peace of mind that their game development efforts will not be wasted due to an inability to deliver through an unpredictable online channel. Instead, by transforming the Internet into the fast, secure and reliable distribution channel gaming companies need it to be, Akamai enables them to focus on core proficiencies and continue delivering the truly engaging gaming experiences their fans desire and expect.

i <http://www.gamesindustry.biz/articles/2014-11-11-game-industry-growing-four-times-faster-than-us-economy-esa>

ii <http://fortune.com/2015/01/15/mobile-console-game-revenues-2015/>

iii <http://www.newzoo.com/insights/global-games-market-will-reach-102-9-billion-2017-2/>

iv <http://www.newzoo.com/insights/global-mobile-games-revenues-top-25-billion-2014/>

v <http://www.bigfishgames.com/blog/2014-global-gaming-stats-whos-playing-what-and-why/>

vi <http://www.marketwatch.com/story/global-online-gaming-market-2014-2014-06-25>

vii Harry Potter and the Deathly Hallows: Part II grossed \$91 million on opening day

viii <http://www.pcgamer.com/gabe-newell-valve-steam-bafta/>

ix <http://www.neustar.biz/resources/whitepapers/ddos-protection/2014-annual-ddos-attacks-and-impact-report.pdf>

x <http://www.techradar.com/news/internet/web/new-ddos-attack-breaks-spamhaus-records-1223956>

xi <http://www.neustar.biz/resources/whitepapers/ddos-protection/2014-annual-ddos-attacks-and-impact-report.pdf>

xii <http://www.forbes.com/sites/insertcoin/2011/05/23/sony-pegs-psn-attack-costs-at-170-million/>

xiii For regularly updated data and trends relating to Internet security issues, including reports on the size and frequency of DDoS attacks, as well as network, DNS and web application security trends, please see <http://www.stateoftheinternet.com/security-cybersecurity.html>.



Akamai® is the leading cloud platform for helping enterprises provide secure, high-performing online experiences on any device, anywhere. 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 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.