Boosting Agility and Performance on the Evolving Internet
Over the past decade, the Internet has evolved and expanded rapidly, today connecting over 3.3 billion people and touching nearly every facet of their lives. Now, as we look to the end of the decade and beyond, we expect the Internet to change at an even brisker pace — from the devices that access it and the software that runs on it to the fundamental technologies and protocols upon which it is built.

Such changes will offer exciting opportunities for agile businesses, but the increasing complexity creates formidable challenges as well:

**An explosion of devices and network types.**

With 13.4 billion connected devices worldwide today — a number expected to triple by 2020 — the Internet must support an increasingly diverse set of interactions, from web and mobile to wearable tech and machine-to-machine communications. Slow adoption of new protocols, meanwhile, is hindering content delivery and causing inconsistent customer experiences.

**Richer and more sophisticated content.**

*Organizations are employing complex images, video, and underlying code on their websites to create the engaging experiences consumers have come to expect.* In addition, the rising availability of last-mile broadband and high-definition devices continues to raise the bar on video quality, foreshadowing a five- to tenfold increase in video capacity requirements within the next few years.

**Attacks of increasing scale and sophistication.**

Hackers and cybercriminals are increasingly targeting websites and web applications with larger and more complex attacks. *One study estimates that by 2019, cybercrime will cost businesses $2.1 trillion globally,* roughly four times the annual estimated cost of breaches in 2015.

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4 Essentials of Superior Customer Experience

As customer interactions and transactions increasingly move to digital channels, organizations are publishing rich, interactive sites and full-featured applications accessible over a wide variety of devices. Behind the scenes, these efforts require a cloud delivery platform and services that optimize and secure transactions and content delivery.

To meet customer demands on the Internet of today and tomorrow, the cloud delivery platform behind your websites and mobile apps must have four critical capabilities:

A highly distributed architecture

For a business to deliver rich content and mobile applications with speed and consistency, the servers delivering that content must be close to the customer accessing it. The farther data has to travel, the more latency is introduced, which can have an unexpectedly severe effect on performance, particularly for “chatty” web applications and high-quality video. A highly distributed content delivery platform, with the ability to accurately map customers to nearby servers, is essential to achieving high levels of performance, reliability, and scale.

As mobile usage increases, service providers will need to extend their platform edges even further to minimize latency resulting from lower network speeds and traffic spikes.

Cutting-edge performance services

Distributed architecture provides the physical framework for optimal delivery, and intelligent software services reduce complexity and leverage advanced web technologies to deliver the most engaging internet experiences possible.

- Websites and mobile apps are getting richer, more dynamic, and more complex, often resulting in “heavier” web pages that take longer to load.
- Sites that use responsive design techniques to scale across different screen sizes may suffer from “over-downloading” of unneeded rich media assets to mobile devices.

- Devices themselves are getting more diverse, creating a hyper-fragmented landscape of form factors, browsers, operating systems, and device capabilities to support.
- By 2019, video may account for as much as 80% of all consumer internet traffic—a staggering statistic that represents both growing audiences and their increasing demand for quality. Media companies in particular may see their video capacity requirements grow a hundredfold or more.

Delivering a speedy and engaging experience to every customer in this complex and fast-evolving marketplace requires a broad set of intelligent services, such as advanced caching and dynamic site acceleration, which work in concert to optimize each customer experience.

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Sophisticated security capabilities

As the volume of high-value data and transactions on the Internet continues to grow, so do the forces of attackers looking to exploit it — and these forces are costing organizations big money. Businesses around the world suffered average losses of $9.5 million due to cybercrime in FY 2016, a 21% increase from 2015.\(^4\)

Given the increasing volatility of the internet threat landscape, organizations need to secure websites and applications with defense layers that protect against the internet-scale threats of today and tomorrow.

- Across the Akamai network, the number of distributed denial-of-service (DDoS) attacks that surpassed 100 gigabits per second (Gbps) increased by 140% from Q4 2015 to Q4 2016. These “mega attacks” have grown dramatically as amplification techniques allow hackers to create onslaughts that are hundreds of times larger than before. Attacks often come in waves and coincide with high-traffic launches and events, when infrastructure is already heavily loaded. Companies need always-on capabilities to protect infrastructure across all ports and protocols.

- Web-based attacks are among the costliest types of cybercrime, with hackers attempting to exploit website vulnerabilities in order to deface, disrupt, or steal from a site. These attacks are increasingly launched in conjunction with DDoS assaults, using the latter to divert attention while causing more serious damage with the former. Defenses should include a scalable firewall solution deployed across a highly distributed cloud platform that uses a continuously updating rule set to filter traffic accurately.

Organizations can’t defend against these attacks on their own. Comprehensive threat intelligence is necessary to distinguish bad traffic from legitimate traffic, to stay current on detection and mitigation strategies, and to identify attack trends and malicious actors in real time — all without affecting performance for your customers.

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Support to keep businesses agile

Businesses understand the need to become more agile to compete in an era of rapid change and innovation. Whether it’s flash sales and daily deals, real-time inventory and pricing changes, or promotional events and product launches, they are updating features and content on websites and mobile apps more frequently than ever — and infrastructure needs to keep up.

Many companies, however, simply do not have the in-house resources or skill sets to maintain robust site performance and security. Enlisting the support of a trusted cloud delivery platform provider gives organizations self-serviceable control and sophisticated capabilities such as advanced cache control, fast purge capabilities, and flexible content handling.

Just as critical as the ability to deploy changes quickly is the ability to test those changes in a safe and streamlined manner, particularly as organizations move toward continuous delivery methodologies and faster, more frequent release cycles. Platform management capabilities help to further streamline development processes and enhance visibility into real-time usage, performance, and security metrics.

Partnering with the right service provider on managed services to monitor content delivery, identify and resolve issues preemptively, and ward off dynamic, multivector cyberattacks will ensure optimal performance and protection. Your organization can then focus internal resources on core business competencies, enabling the business to innovate without constraint.

Summary

As the web grows more dynamic, and mobile traffic continues to increase, the ability to improve responsiveness and deliver consistently superior customer experiences will help organizations and their leadership teams stay ahead of the innovation curve. A cloud delivery platform featuring a highly distributed architecture, cutting-edge performance services, sophisticated security capabilities, and expert support will enable you to harness the Internet of today and tomorrow, propelling your business ever-faster forward.