Akamai's Localization Challenge

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The Internet makes it too easy to feel like you can go global.

— Charley Dublin, VP, Engineering, Intelligent Platform

Our technology works in every market, and a big part of our value proposition is that we will make the experience for the user of the Apple store in Japan comparable to the experience in the United States. We know how to sell to companies with global reach.

— *Keith Oslakovic, Senior VP*

In late 2011, Charley Dublin was a few months into his new position at Cambridge, Massachusetts-based Akamai as vice president of engineering for the company's intelligent platform. Dublin was taking on his new role while continuing to carry out his responsibilities as vice president of international support and services. In his dual role, one of Dublin's core objectives was to help solve what he had termed "Akamai's localization challenge."

Akamai was a content delivery network (CDN). The company provided customers including Apple, Amazon, and Netflix content delivery and cloud infrastructure services to accelerate and improve the delivery of content and applications over the Internet. These services included the delivery of live and on-demand streaming video capabilities, static and dynamic website content, and tools to help people conduct business and reach current and new customers. In 2011, Akamai had over 100,000 servers in 1,976 networks across 78 countries. The company was responsible for moving up to 30% of all Internet traffic and 75% of people who viewed something on the Internet came in contact with Akamai's technology every day. With 60% market share and $1.6 billion in revenue, Akamai was the largest CDN in the world (**Exhibit 1**).

This case was prepared by Cate Reavis, Associate Director, Curriculum Development, under the supervision of Professor Donald Lessard. Professor Lessard is the Epoch Foundation Professor of International Management.

Dublin was taking on new responsibilities as the company was facing increasing competitive pressure by new local entrants in non-U.S. markets where Akamai was expanding, as well as "arbitrage" by a number of its major multinational customers. Dublin had had his eye on the company's localization challenge for some time. In 2009, right as Akamai began setting financial growth goals outside of the United States, Dublin laid out the issue for senior management showing how the company's market share dropped off with distance from the United States. In certain key non-U.S. markets, Akamai's once dominant market share position was being consumed by local competitors who just four years earlier didn't exist (**Exhibit 2**). As Dublin said to senior management, "We can't say we are a global company until and unless we orient our metrics to account for the local perspective. We think of ourselves as the global leader, and are, but we are getting beat by the competition at a local level. We must orient towards the local level to maintain our global position."

Akamai's CEO charged Dublin and the international leadership team to come up with a solution.

Content Delivery Network

A CDN was a network of proxy servers[1] deployed in geographically dispersed data centers to provide Internet content to end users, ensuring that they received the information they requested in a shorter, uninterrupted period of time. For example, instead of having to route a movie download from California to a viewer in New York, a CDN would hold a copy of the movie in a server close to New York, thereby speeding up the download time and reducing loading glitches for the eager viewer.[2] As one analyst explained, CDNs were part of the road crew that worked the Internet's information superhighway.[3] In 2011, two billion people (or 29% of the world's population) were connected to the Internet.[4]

New opportunities for CDNs arose in the mid-2000s with the rise of video streaming, gaming, social media, and the growing sophistication of the smart phone.[5] Web pages were becoming more dynamic and customizable based on what a user was searching for (e.g. travel sites). CDNs began offering their distributed servers to run software that enabled websites to display dynamic elements more quickly and reliably.[6] They were also offering cloud computing services. The majority of demand for CDN services came from the ecommerce, high-tech, media and entertainment, and government sectors.[7]

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[1] A proxy server is a server (a computer system or an application) that acts as an intermediary for requests from clients seeking resources from other servers (

[2] J. Bonasia, "Going with the Data Flow," *Investor's Business Daily*, August 24, 2009.

[3] Ibid.

[4] Akamai Annual Report 2011, p. 3.

[5] 20% of traffic on Cyber Monday in 2011 came from mobile devices, Akamai Annual Report 2011, p. 3.

[6] Eric Van Den Steen, "Akamai's Edge (A)," *Harvard Business* School, Case *Study No.* 9-712-455, April 18, 2013.

[7] Ibid.

Infrastructure

Most CDNs centralized their servers at important nodes (connection points) of the Internet, renting space in data centers, paying for power, cooling, security, and network connections (bandwidth) linking fiber optic lines from thousands of carriers.[8]

Akamai, which pioneered the CDN industry, took a different approach. By operating a decentralized system of servers that were located as close as possible to the end user – what the company referred to as being at "the edge of the Internet"[9] – Akamai enabled a more efficient transfer of locally-cached data, therefore a superior experience for the user. (**Figure 1**)

Figure 1   Akamai Content Delivery Network
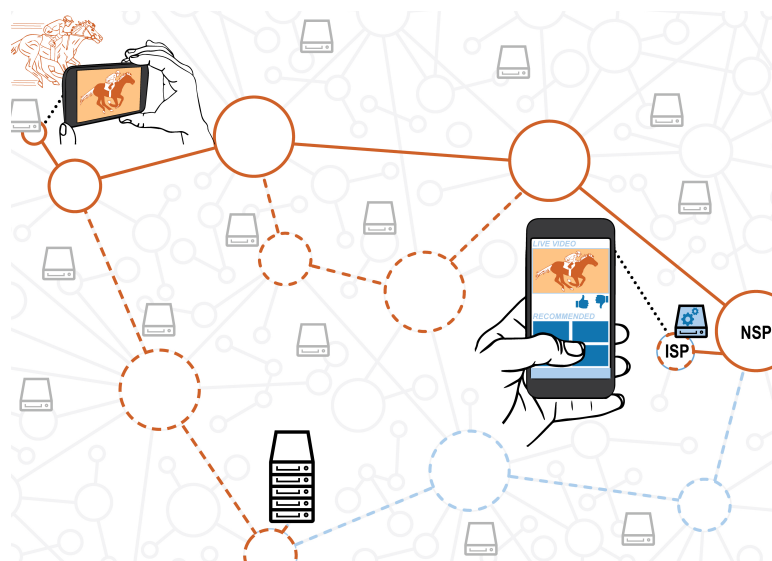
4. A streaming ·············· mobile experience relies on a blend of services:

Static content can still be cached on the local edge server

Dynamic content can also be assembled on the edge server

Live Streaming is directed through the network
with multiple paths to safeguard against down or lossy paths,
and to origin servers for storage.

Source: RJ Andrews, info we trust.

Akamai's decentralized approach required it to have many more servers than its competitors. (Limelight Networks, for example, had 15,000 servers.[10]) The company co-located as many servers as

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[8] J. Bonasia, "Going with the Data Flow," *Investor's Business Daily*, August 24, 2009.

[9] Eric Van Den Steen, "Akamai's Edge (A)," *Harvard Business* School, Case *Study No.* 9-712-455, April 18, 2013.

[10] http://investors.limelightnetworks.com/sites/limelightnetworks.investorhq.businesswire.com/files/event/additional/LLNW_Q42011.pdf.

it could at Internet Service Providers (ISPs), which was also advantageous for ISPs because it allowed them to provide more reliable services to end users. Co-location was also financially advantageous for ISPs. With other CDNs, if a user requested a movie through their Verizon network, it was likely that Verizon would have to leave its network and go to another network, for a fee, to fulfill the request. With Akamai, the user's request would be filled from an Akamai server in the Verizon network.

Players

There were roughly 50 CDNs in the world. After Akamai, the largest standalone CDNs were U.S.-based Limelight with operations in 55 countries and revenue of $171 million, and South Korea's CDNetworks which operated in 31 countries and recorded $99 million in revenue.[11] In 2008, Wall Street was predicting that the CDN space would be challenged by telecoms, which, after all, owned the last mile to content consumers and had the financial means to acquire CDNs if it turned out they were unable to compete.[12] Indeed, in 2011 Japan's telecom KDDI purchased CDNetworks for $167 million.[13]

However, in 2011, industry observers were buzzing about the Operator Carrier Exchange (OCX), founded by a group of telecommunication companies.[14] OCX would eventually connect members' networks in an attempt to compete directly with CDNs without requiring members to build out their respective network infrastructures. While the business model had yet to be developed, a CDN federation was expected to pose a significant threat to standalone CDNs.[15]

But Akamai found itself less threatened by telecoms and more by key customers. Amazon moved into the CDN space in 2006 after it developed its own server network and began offering a simple CDN service as part of its cloud services through its Amazon Web Service (AWS) subsidiary.[16]

The CDN industry was also witnessing a growing number of companies building in-house capabilities, doing away with vendors like Akamai. In 2009 Microsoft, which had been one of Akamai's most lucrative customers, began deploying server farms around the world to bypass Akamai's content delivery services. In addition, large IT companies began to realize it was more advantageous to develop in-house capabilities than outsource their content delivery needs.

Finally, there were dozens of local CDNs in small, non-U.S. markets where Akamai operated that focused on distributing locally-created and -curated content. They typically offered simpler, less expensive solutions than a global CDN like Akamai.

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[11] "KDDI Announces Strategic Investment in CDNetworks Co., Ltd." *Business Wire*, October 14, 2011.

[12] Scott Morrison, "Web Booster Akamai May Be Takeover Target," *Dow Jones News Service*, March 16, 2009.

[13] "KDDI Announces Strategic Investment in CDNetworks Co., Ltd." *Business Wire*, October 14, 2011.

[14] Members included British Telecom, France Telecom, Telstra (Australia), Telecom Italia, Telefonica (Spain), KPN (Netherlands), TeliaSonera (Sweden and Finland), Polska Telekom (Poland), Bell (United States), and Verizon (United States).

[15] Dan Rayburn, "Telcos and Carriers Forming New Federated CDN Group Called OCX," *StreamingMediaBlog.com*, June 27, 2011.

[16] Eric Van Den Steen, "Akamai's Edge (A)," *Harvard Business* School, Case *Study No.* 9-712-455, April 18, 2013.

For the first five years of its existence, Akamai was the CDN industry.

Akamai

Akamai, the Hawaiian word for "smart" or "clever," was founded in 1998 by Tom Leighton, a professor of applied mathematics from MIT, and Danny Lewin, a recent graduate in computer science from the Israel Institute of Technology (Technion). The company's founding came after Tim Berners-Lee, the "father" of the World Wide Web, challenged his MIT colleagues to come up with a solution to what would soon be the Internet's congestion problem. It was widely known in computer-science circles that the Internet was not designed to be a fast-performing service, especially over long distances. Leighton took on Berners-Lee's challenge and in 1998 launched Akamai. The company went public the following year.

Global expansion began in 2000 when Akamai opened sales offices in the United Kingdom, Germany, and France; over the next 11 years, the company grew its footprint around the world (**Figure 2**). By 2011, 29% of total revenue came from outside of the United States, up from 22% in 2006; 18% came from Europe. With the exception of Brazil, Akamai operated in all markets without a local partner.

Figure 2   Akamai's Global Expansion

Year	Location
2000	United Kingdom; Germany; France
2003	Japan
2004	India; China
2005	Netherlands
2006	Spain; Singapore
2008	Sweden; South Korea; Italy
2009	Switzerland
2010	Hong Kong
2011	Poland; Czech Republic; Brazil

Solutions and Services

Relying on specialized technologies such as advanced routing, load balancing, data collection, and monitoring, Akamai provided a host of customizable solutions with the intent of ensuring website users a superior Internet experience (**Exhibit 3**). A video service provider, for example, might look to Akamai to provide on-demand streaming services, cloud-based storage, data analytics, and a dedicated team to monitor and troubleshoot live events. Customers paid a monthly usage fee as well as a fixed fee based on feature utilization. Products were developed at company headquarters in

Cambridge, Massachusetts. The global product business unit set prices including the "field empowerment" price which dictated how far off the list price local sales teams could negotiate before triggering a deal desk approval. This process often resulted in pushback from local sales teams when, for example, they felt that they would not be able to reach their targets based on the set prices. According to Dublin, it wasn't entirely clear who ultimately owned pricing decisions. As one Akamai executive observed, the company operated without a "U.N. of pricing as a business process." There was no way to adjudicate pricing disagreements between the product and sales teams. Sales teams were compensated on a revenue basis and the product business unit on both revenue and volume.

Alongside its core solutions, Akamai offered customers support services for product configuration, integration, and monitoring which included 24/7 telephone support as well as on-site consulting resources. Customers paid for these support services either by the hour or a fixed customized fee.

Akamai's customers included providers of globally-consumed content such as Apple, Amazon, Microsoft, Samsung, and Netflix; large government agencies such as the U.S. Department of Defense; and, small, non-U.S. customers such as local sports television broadcasters. No one customer accounted for more than 10% of revenue. In an industry where many technology firms were attempting to enter the cloud computing market, including Amazon and Apple, Akamai had to keep on top of its customers' strategies around the world.
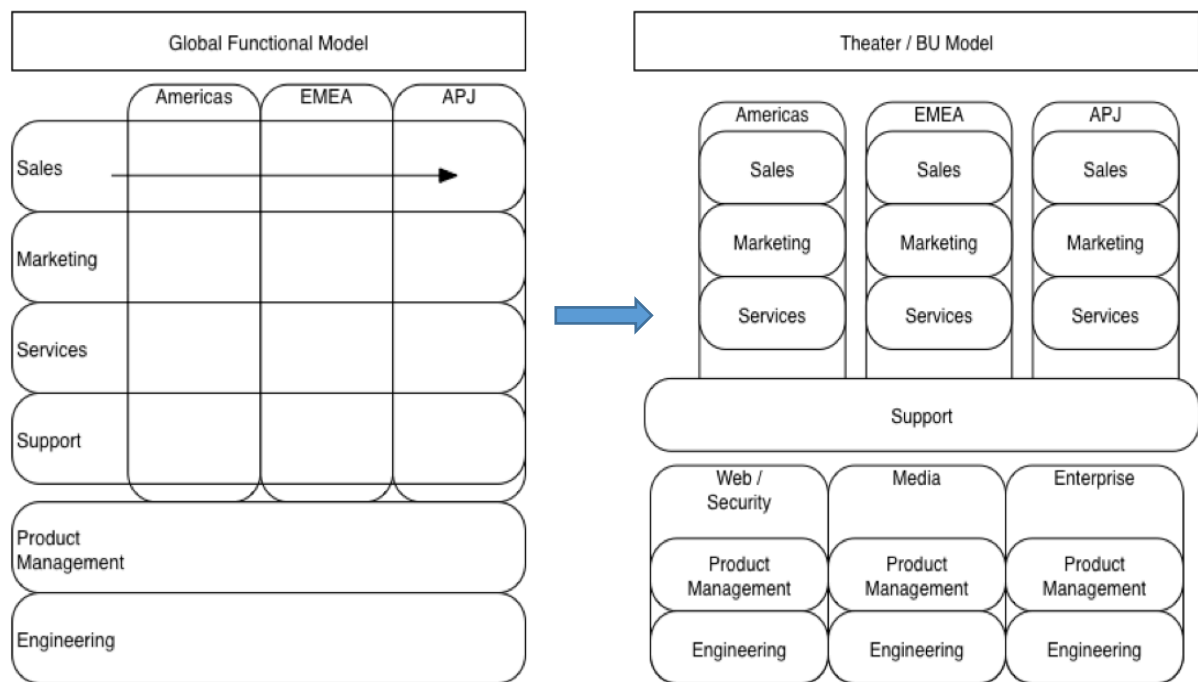
Organization

Akamai employed 2,380 full- and part-time employees of which 46% worked in sales and services and 25% in R&D. In 2011, the company moved to a business unit organizational model dedicated to web experience, emerging products, and media in order to improve organizational efficiency and productivity, and increase organizational focus on innovation, agility, and consistency of execution. The head of the three business units reported to the head of the Product Development Group.

The company also reorganized its field operations into three geographic theaters (Americas, EMEA, APJ) that covered business in 35 countries. The head of the geographic theaters reported to the head of Sales, Services, Support, and Marketing global function. Before 2011, Akamai was organized solely along functional lines, with Cambridge-based senior managers responsible for global sales, services, and marketing, and with non-U.S. local managers in each of these functions reporting up to Cambridge. As a result, the resolution of a conflict between, say, sales and services had to go through Cambridge, which often reduced the exchange of information and delayed decisions. With the new regional organization, field managers could coordinate at a lower level, though decisions involving products and pricing remained within the global functions.

Figure 3

Pre-2011 Reorganization   *Post-2011 Reorganization*

Source: Akamai.

It was hoped that the reorganization would help alleviate confusion between the global functions and local offices as to who owned the customer. As Badii Kechiche, the director of global operations, explained,

> As we started to open countries we faced challenges where things were not clearly defined in terms of where the responsibility and accountability would fall. Say you opened a market and then all of a sudden there's a regulatory issue that touches our ability to deploy our platform or certain aspects of our product. Who owns that? That's a cross-functional kind of issue and it needed an owner.

Dublin provided another example, "If a customer in Germany is doing an event in Brazil and it has to work with a design firm in United States, who owns the customer? Who supports them? How do you staff that support? Who does the contracting? Who decides? These decisions were bubbling up to me."

Market Awareness

In addition to clarifying questions involving customer ownership, senior management hoped that Akamai's new organizational structure would help address a mutual lack of market awareness

between the global functions and non-U.S. markets. The global functions based in Cambridge were generally unaware of the local realities of selling and servicing Akamai products in non-U.S. markets, while non-U.S. markets didn't have a good understanding of what it meant to manage a globally-focused customer like Apple. As Dublin explained,

> Headquarters largely focused on the major markets, particularly the United States, in terms of their product and pricing decisions and investment choices. Meanwhile, sales people in local markets would explain that they weren't meeting their targets because they didn't have the right products or the right price while the product people felt sales people had the right products but they weren't selling them effectively.

Each had something to learn from the other, particularly as it related to products, and sales targets, pricing, and brand recognition.

Products and Sales Targets   As Akamai continued expanding globally, a misalignment between the company's global product team and local sales people began to surface. As Dublin explained, the company didn't have proper systems or processes in place to be able to vet or evaluate the likelihood of success before it entered into certain markets or introduced new products. "The mental model for everything," Dublin explained, "was build or buy the technology in the U.S. then pitch it to local markets."

In some cases, sales people in local markets found that they didn't have the right products to serve the local content delivery needs of their customers. In others, products were being deployed in markets where there was little or no demand. Meanwhile, local sales teams were measured on targets set by the product team in Cambridge and based on a 40-hour work week, and compensated based on revenue and productivity (committed amount). Having sales targets set by headquarters proved challenging if not impossible to meet in certain markets. In Germany, for example, the work week was 37.5 hours. How could someone in Germany be expected to meet the same sales targets as someone in the United States? Sales people in France, where the work week was also shorter, encountered an additional challenge. The ISP market had recently consolidated from four dominant players to just two, and Akamai had a network relationship with just one. Dublin recalled one French engineer explaining that the company was getting killed by the local competition which was in both networks and that meeting sales targets would only be possible if Akamai was also in both ISPs operating in France.

A lack of local market awareness also meant that Akamai missed local developments in non-U.S. markets that might be relevant across the entire company. In 2010, for example, Akamai spent $12 million acquiring Velocitude, a U.S. company that specialized in transforming website content into user and viewer friendly content for mobile devices. Soon after the acquisition, a product manager from Cambridge introduced Velocitude's technology to Akamai's Japan unit and pushed it to accept a

set of pre-determined sales targets. The response of the general manager (GM) of Japan was, "Sorry, I'm not taking any sales targets for this product." In fact, a technology similar to and, by many accounts, superior to Velocitude's had existed in Japan for nearly 10 years. As Japan's GM told Dublin, "We've had this technology since 2002. We don't need it." This was not welcome news for the product manager in the United States who had to meet a global sales target. Not only did Japan not need the technology but, as Dublin explained, if Akamai had known that such a technology existed in Japan, it could have purchased a Japanese company and brought the technology to the U.S. market much earlier. It was a lesson in "just because you build it, doesn't mean you'll sell it," Dublin noted.

Pricing   Another area indicating a lack of market awareness involved pricing. Akamai's prices were set globally, and only localized to the extent to which the global U.S. dollar prices were converted into local currency. This limited Akamai's ability to effectively meet local competition. As written in its 2009 Annual Report, some of Akamai's competitors, particularly at the local level, "attract[ed] customers by offering less-sophisticated versions of services than we provide at lower prices than those we charge."

South Korea, where Akamai's customers included big global content creators and curators like Samsung and many smaller customers that focused on Korean-specific content for a Korean audience and where it held a 10% market share to CDNetworks's 70%, was a case in point. While CDNetworks was a global player, the general opinion at Akamai was that its own technology was far superior and that CDNetworks, with prices one tenth of those of Akamai's, didn't pose too much of a competitive threat. When it tested CDNetworks's global reach across the entire Internet, Akamai found its capability quite weak. The picture changed, however, when Akamai conducted simple tests. When localizing content and the user base (i.e., Korean content being routed to a Korean audience), Akamai discovered that CDNetworks's technology was comparable and even better particularly when comparing on price. As Dublin noted, "We didn't have a local view of network performance that could help us evaluate our products on a local basis. If Akamai can't beat a small CDN in Korea where 70% of a customer's users are, why would they trust us with serving the other 30% on a global scale?"

Brand As Akamai began to ramp up its non-U.S. operations, it soon became apparent that while the Akamai name was well known in the United States and in certain parts of Europe, in other parts of the world the company had little if any recognition. The lack of brand awareness proved an obstacle for many local sales teams. As Mike Afergan, who in 2011 was the GM of the Web Experience business unit, recalled: "I was on a sales call with a customer from China and after spending 15-20 minutes pitching our services, trying to do our very best to explain our business to them, the customer said to me 'Oh, so you're like a CDN.' So here we were in China and not only did customers not know who we were but they actually knew about our industry and still had not heard of us."

Conclusion

In developing a localization proposal for senior management, Dublin had to help determine where Akamai had to be "local", how quickly the company needed to become local, and the extent to which Akamai needed to be local in the places it operated. Answering all of these unknowns would require obtaining a clear understanding of all the markets in which Akamai operated, while keeping in mind that large global customers like Amazon were aiming to become competitors. As Dublin's colleague Kechiche explained:

> We had to think really hard because from a sales perspective you want everything to be local and you want to prioritize all of your markets and you want to make sure your clients have the support they need. But from a centralized function perspective, we needed to figure out how to make the best decision around where to put our money and where it is actually needed. Potential revenue does not necessarily justify a full level of investment around localizing support services.

But Akamai's challenges went beyond recognizing and responding to localization needs, which the recent reorganization sought to address. Dublin knew that because Akamai had many global customers and there were some operational processes and structures that needed to remain global. The question was which ones? And how should the company think about effectively integrating its global core with its effort to become more locally-focused? What was the right balance?

Exhibit 1   Akamai Statement of Operations, 2007-2011

in '000s	2011	2010	2009	2008	2007
Revenues	1,158,538	1,023,586	859,773	790,924	636,406
Cost and operating expenses					
Cost of revenues	374,543	303,403	249,938	222,610	167,444
Research and development	52,333	54,766	43,658	39,243	44,141
Sales and marketing	227,331	226,704	179,421	164,365	147,556
General and administrative	191,726	167,779	146,100	136,028	121,101
Amortization of other intangible assets	17,070	16,657	16,772	13,905	11,414
Restructuring charge (benefit)	4,886	—	454	2,509	(178)
Total cost and operating expenses	867,889	769,309	636,293	578,660	491,478
Income from operations	290,649	254,277	223,480	212,264	144,928
Interest income	10,670	12,163	15,643	24,792	25,815
Interest expense	—	(1,697)	(2,839)	(2,825)	(3,086)
Other income, net	6,125	(2,468)	163	461	527
Gain (loss) on investments, net	(249)	396	785	(157)	24
Loss on early extinguishment of debt	—	(299)	—	—	(3)
Income before provision for income taxes	307,195	262,372	237,232	234,535	168,205
Provision for income taxes	106,291	91,152	91,319	89,397	67,238
Net income	200,904	171,220	145,913	145,138	100,967
Net income per weighted average share:					
Basic	$1.09	$0.97	$0.85	$0.87	$0.62
Diluted	$1.07	$0.90	$0.78	$0.79	$0.56

Source: Akamai 2011 Annual Report.

Exhibit 2   Akamai's Local Competition
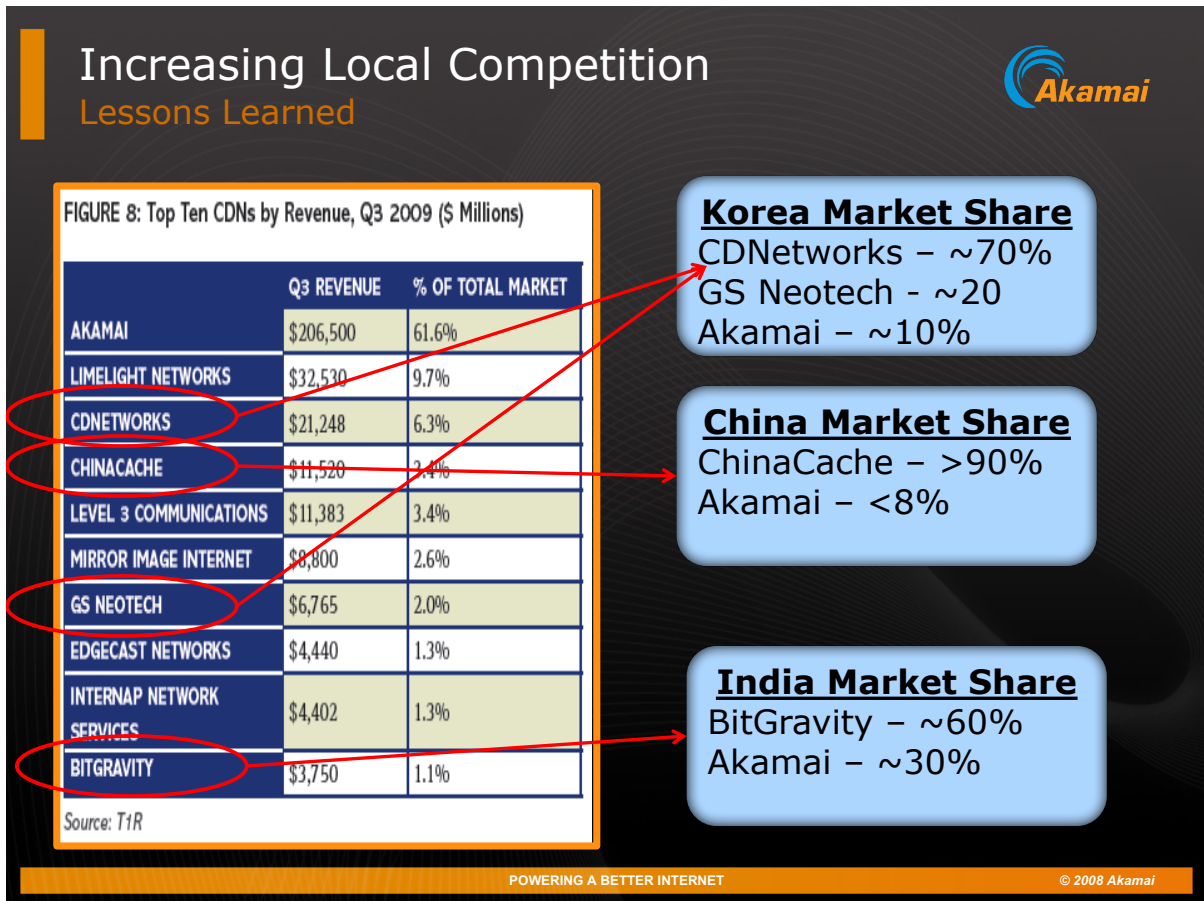
Source: Akamai.

Exhibit 3   Akamai's Core Solutions

Akamai Web Performance Solutions   Connected audiences expect instant, reliable, secure access to websites and applications – from any device, anywhere. Akamai Web Performance Solutions help you engage consumers with fast, personalized online experiences, enabling you to increase revenue opportunities, gain IT agility and scale globally.

Akamai Media Delivery Solutions   Consumers expect a flawless viewing experience and instant access to high definition video content on any screen. Delivering software updates, games, social media, news and other content must also be seamless, fast and scalable. Akamai Media Delivery Solutions help you engage audiences globally by delivery content at the highest quality wherever and whenever users want — without having to build out costly infrastructure — to scale with the growth and complexity of different connected device types.

Akamai Cloud Security Solutions   Online threats are constantly changing. Offering protection against the largest and most sophisticated attacks, Akamai helps you safeguard your websites and other Internet-facing applications from the risks of downtime and data theft. Built on the Akamai Intelligent Platform™, Akamai Cloud Security Solutions provide the scale to stop the largest Distributed Denial-of-Service (DDoS) and web application attacks without reducing performance, as well as intelligence into the latest threats and the expertise to adapt to shifting tactics and attack vectors.

Akamai Cloud Networking Solutions   Business and consumer users expect fast, high-quality application and video experiences, regardless of location or device. Akamai Cloud Networking Solutions help boost enterprise productivity and revenue by accelerating in-branch applications, reducing enterprise network costs and successfully bringing the Internet and public clouds into the enterprise network.

Akamai Network Operator Solutions   Subscribers expect a broadcast quality experience with engaging video content on any device. Akamai Network Operator Solutions help providers operate a cost-efficient network that capitalizes on traffic growth and new subscriber services by reducing the complexity of building a Content Delivery Network (CDN) and interconnecting it across providers.

Akamai Services & Support Solutions   Akamai's Services & Support team inspires innovation and removes complexity as your online strategies evolve, integrating and deploying solutions with ease and keeping online business running smoothly 24x7. Our Internet experts around the globe are an extension to the enterprise, leveraging more than a decade of experience to provide world-class support, problem resolution and customized service – ensuring optimized online success for all of our customers.

Source: Akamai.