[Volume 8 / Number 2]

akamai's [state of the internet]

Q2 2015 report

Over the last several years, many users have adopted mobile devices, including smartphones and tablets, as their primary means of accessing the Internet. In addition, improvements in technology and greater deployment of this technology by mobile network providers have led to mobile connection speeds that rival fixed broadband connections in some geographies.

The data published in the Mobile Connectivity section of the *State of the Internet Report* relies on the ability to identify connections as mobile, a task that is a mix of art and science. Currently, Akamai leverages several pieces of information, including (but not limited to) netblock registration data and mobile device identification data to make those determinations. However, this identification may be imperfect if providers also use these IP address blocks for other types of connectivity, including fixed or Wi-Fi. Over the next several months, Akamai is implementing a number of refinements to improve the accuracy of mobile network identification, leveraging additional data collected from the Akamai Intelligent Platform™, as well as information from mobile network providers themselves.

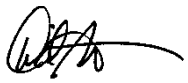
Due to these ongoing changes, we have chosen to remove the mobile connection speed data from the *State of the Internet Report* until such time that the data has stabilized. We believe this will ultimately enable us to present a more accurate representation of the state of mobile connectivity around the world, as well as how it has changed over time.

Similarly, mobile browser usage data is not included in this quarter's report, but will return in a future edition.

Starting with this quarter's *State of the Internet Report*, we have also started to filter out connections from IP address blocks associated with leading cloud services providers. These cloud services data centers generally have extremely high-speed Internet connections that are not necessarily representative of end user Internet connection speeds, and removing them from the report's underlying data set mitigates the impact they can have on speed metric calculations. Historical data has also been reprocessed to remove connections from these cloud services providers so that the quarter-over-quarter and year-over-year trending presented in this quarter's issue (and future issues) gives a consistent comparison. Because of this reprocessing, connection speed data in this issue may not match up with that found in previous reports.

We are committed to continuing to increase the granularity of the data published within the *State of the Internet Report*, while at the same time maintaining accuracy in the face of a rapidly changing Internet, including increased adoption of IPv6 and mobile connectivity.

As always, if you have comments, questions, or suggestions regarding the *State of the Internet Report*, the website, or the mobile applications, please reach out to us via email at *stateoftheinternet@akamai.com* or on Twitter at *@akamai_soti*. You can also interact with us in the *State of the Internet* subspace on the Akamai Community at *https://community.akamai.com/*.



—David Belson

Akamai's globally distributed Intelligent Platform™ allows us to gather massive amounts of data on many metrics, including Internet connection speeds, network connectivity/availability issues, and IPv6 adoption progress, as well as traffic patterns across leading web properties and digital media providers. Each quarter, Akamai publishes the *State of the Internet Report* based on this data.

This quarter's report includes data gathered from across the Akamai Intelligent Platform during the second quarter of 2015, covering Internet connection speeds and broadband adoption metrics as well as trends seen in this data over time. In addition, the report includes insight into the state of IPv4 exhaustion and IPv6 adoption, Internet disruptions that occurred during the quarter, and observations from Akamai partner Ericsson regarding data and voice traffic growth on mobile networks.

Beginning with the *First Quarter, 2015 State of the Internet Report*, security-related content that was previously included in the *State of the Internet Report*, including data on attack traffic seen across the Akamai platform and insights into high-profile security vulnerabilities and attacks, is now published in a separate *State of the Internet/Security Report*. The quarterly security report provides timely information about the origins, tactics, types, and targets of cyberattacks, including quarter-over-quarter and year-over-year attack traffic trends as well as case studies highlighting emerging cybersecurity issues. *The State of the Internet/Security Report* can be found at *http://www.stateoftheinternet.com/security-report*.

Internet and Broadband Adoption / In the second quarter of 2015, Akamai observed a 1.1% quarterly decrease in the number of unique IPv4 addresses connecting to the Akamai Intelligent Platform, falling to just under 804 million — about 8.6 million fewer than were seen in the first quarter of 2015. Belgium remained the clear global leader in IPv6 adoption, with 38% of its connections to Akamai occurring over IPv6. The global average connection speed increased 3.5% quarter over quarter, to 5.1 Mbps, while the global average peak connection speed grew 12% to 32.5 Mbps. At a country/region level, South Korea continued to have the highest average connection speed in the world, despite a 2.1% decrease from the first quarter to 23.1 Mbps, while Singapore maintained its position as the country with the highest average peak connection speed after a 12% quarterly jump to 108.3 Mbps.

Globally, 4 Mbps broadband adoption was up 1.1% from the first quarter to 64%, with South Korea and Bulgaria having the highest levels of adoption at 96%. Despite small quarterly decreases in adoption in the second quarter, South Korea unsurprisingly led the world again in broadband adoption for the 10 Mbps, 15 Mbps, and 25 Mbps thresholds, with adoption rates of 75%, 53%, and 29%, respectively. Global 10 Mbps, 15 Mbps, and 25 Mbps broadband adoption grew very modestly, posting gains of 2.1%, 2.5%, and 7.5% at each threshold and reaching adoption levels of 27%, 14%, and 4.9%, respectively.

Mobile Connectivity / Based on traffic data collected by Ericsson, the volume of mobile data traffic grew by 15% between the first and second quarters of 2015. Mobile connection speed and browser usage data are absent from this quarter's report due to ongoing changes being made to further refine Akamai's mobile network identification algorithms.

[SECTION][1] INTERNET PENETRATION

Through its globally deployed Intelligent Platform, and by virtue of the approximately 2 trillion requests for web content that it serves on a daily basis, Akamai has unique visibility into levels of Internet penetration around the world. In the second quarter of 2015, nearly 804 million unique IPv4 addresses from 242 unique countries/regions connected to the Akamai Intelligent Platform. This is a 2.8% increase in the number of unique IPv4 addresses seen by Akamai as compared with the second quarter of 2014, but represents a 1.1% drop from the number seen in the first quarter of 2015 — reflecting possible trends toward greater IPv4 conservation practices and increasing IPv6 adoption as IPv4 address space becomes depleted.

Although we saw over 800 million unique IPv4 addresses, Akamai believes that this count represents well over 1 billion web users. In some cases, multiple individuals may be represented by a single IPv4 address (or a small number of IPv4 addresses) because they access the web through a firewall or proxy server; in other cases, individual users may

have multiple IPv4 addresses associated with them due to their use of multiple connected devices. Unless otherwise specified, the use of "IP address" within Section 1.1 refers to IPv4 addresses.

1.1 Unique IPv4 Addresses / Reversing the trend seen in the first quarter, the number of unique IPv4 addresses worldwide connecting to Akamai shrank by about 8.6 million in the second quarter. As noted in last quarter's report, we expected to see this trend as carriers increase the availability of native IPv6 connectivity for subscribers and implement carrier-grade network address translation (CGN) solutions more broadly, in an effort to conserve limited IPv4 address space. As seen in Figure 1, 6 of the top 10 countries saw a quarterly decline in unique IPv4 address counts in the second quarter, compared with 3 in the previous quarter. Brazil saw the largest decline at 4.6%, while China saw the smallest at 1.5%. South Korea and Japan showed the largest quarterly gains among the top 10, at 3.2% and 2.6%, respectively.

Globally, IP address growth was lower than in the first quarter. Roughly half of the countries/regions saw a quarter-over-quarter increase in unique IPv4 address counts, with 34 growing 10% or more. Of the countries/regions that saw unique IPv4 address counts decline, 25 lost 10% or more as compared with the previous quarter.

Looking at year-over-year changes among the top 10, the United Kingdom and Japan saw the largest increases at 15% and 13%, respectively. Five other countries on the list saw yearly increases, ranging from a mere 1.7% in India to 11% in South Korea. Brazil saw no change from the previous year, while the other two countries — the United States and Germany — saw declines of 3.6%, and 3.3%, respectively. Again, the losses seen in these countries are not indicative of long-term declines in Internet usage but are more likely related to changes in IP address management/conservation practices and increased IPv6 adoption.

On a global basis, roughly 70% of the countries/regions around the world had higher unique IPv4 address counts compared with the second quarter of 2014. Yearly growth rates of 100% or more were seen in 12 countries/regions — though 4 of them had fewer than 2,000 unique IPv4 addresses, so small changes can result in deceptively large percentage shifts in these countries. In all, 23 countries saw yearly growth rates of at least 50%, while 3 countries saw IPv4 address counts decline at least 50%.

1.2 IPv4 Exhaustion / As expected, the second quarter saw continued depletion of available IPv4 address space as Regional Internet Registries (RIRs) assigned/allocated blocks of IPv4 address space to organizations within their respective territories. A reference table translating the /nn notations used below to identify unique IP address counts can be found at *https://www.arin.net/knowledge/cidr.pdf*.

Leveraging data[1] collected by Geoff Huston, Chief Scientist at APNIC,[2] the *State of the Internet Report* provides a perspective on the size of the available IPv4 address pool at each RIR and how the sizes of the available pools have been shrinking over time. In addition, the report uses data provided by the individual RIRs to highlight IPv4 address space delegation activity within each region over the course of the quarter.

Figure 2 illustrates how the size of available IPv4 address pools at each RIR changed during the second quarter of 2015, based on data made available by Mr. Huston. Once again, ARIN showed an extremely aggressive rate of depletion, delegating more than 4.6 million IPv4 addresses — nearly 1 million more than in the first quarter and more than 86% of its available IPv4 space. LACNIC handed out nearly 350,000 addresses, or roughly 11% of its available pool, while AFRINIC distributed just under 700,000 addresses, or 1.6% of its available pool. RIPE and APNIC handed out roughly 800,000 and 950,000 addresses respectively, representing 4.6% and 7.5% of their available pools. With over 43 million addresses available at the end of the second quarter, AFRINIC is the only RIR with a substantial pool of IPv4 addresses remaining. In contrast, as of the end of the second quarter, ARIN had around 700,000 addresses remaining in its available free pool, and this available address space is likely to have been completely exhausted by the time this report has been published. LACNIC, with the next smallest remaining pool, has less than 3 million available addresses remaining.

	Country/Region	Q2 2015 Unique IPv4 Addresses	QoQ Change	YoY Change
–	Global	803,802,206	-1.1%	2.8%
1	United States	148,639,332	-2.1%	-3.6%
2	China	125,177,422	-1.5%	2.7%
3	Brazil	45,956,304	-4.6%	0%
4	Japan	45,630,011	2.6%	13%
5	Germany	35,855,965	0.6%	-3.3%
6	United Kingdom	30,988,392	1.4%	15%
7	France	29,146,069	-2.6%	5.1%
8	South Korea	23,356,577	3.2%	11%
9	Russia	18,640,652	-3.0%	2.7%
10	India	17,742,759	-1.8%	1.7%

Figure 1: Unique IPv4 Addresses Seen by Akamai

As might be expected, the lack of available IPv4 address space is causing the secondary market for IPv4 addresses to heat up, and indeed, in recent months the number of IPv4 address transfers has increased significantly.[3] Even the United Kingdom government has begun selling off its unused address space after realizing it had about 5 million unneeded addresses at its disposal. The first block of 150,000 addresses was purchased for approximately £600,000 ($950,000 USD).[4] Across Europe, an estimated 2 million IPv4 addresses may be brokered or traded each month, and in the United States, address-hungry businesses like Amazon.com and Microsoft have been buying millions of IP addresses in recent months from businesses that do not need theirs.[5,6] Meanwhile, with blocks of allocated but unused IP addresses left over from an era of largely unregulated Internet growth, Romanian ISPs have become thriving

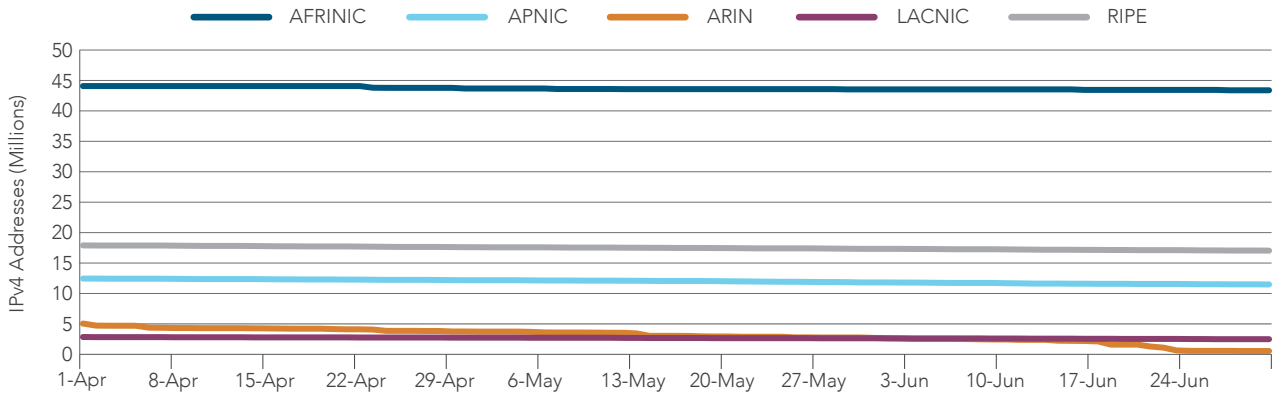


Figure 2: Available IPv4 Address Pool Size by RIR, Q2 2015

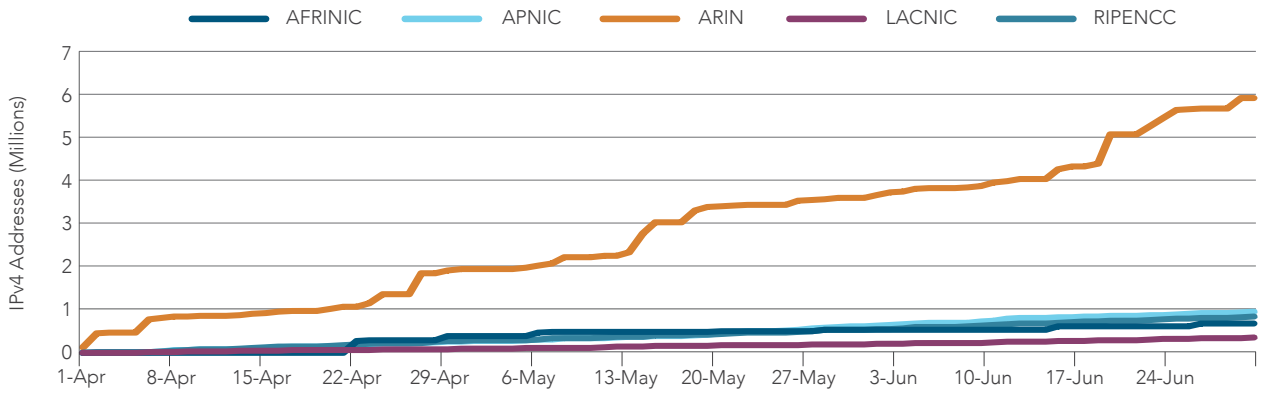


Figure 3: Total Number of IPv4 Addresses Assigned/Allocated by RIR, Q2 2015

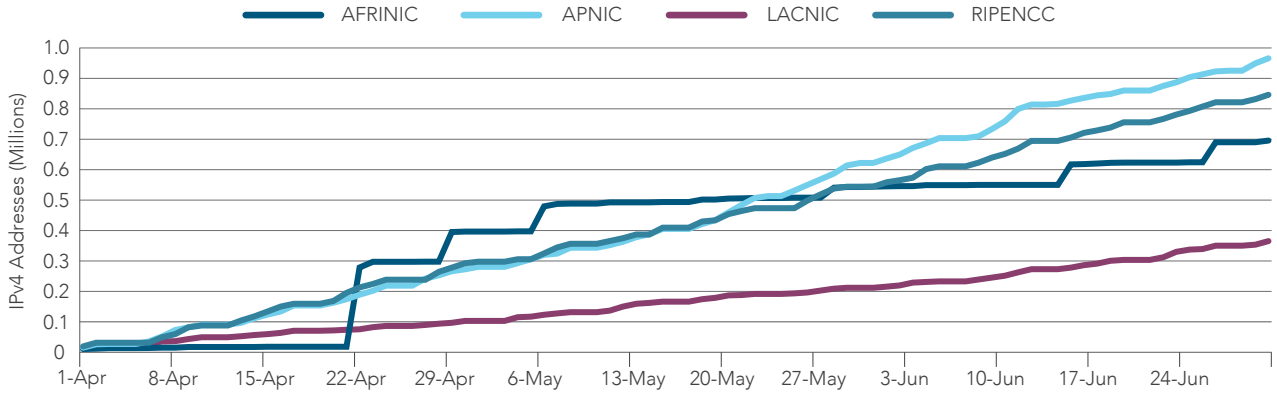


Figure 4: Total Number of IPv4 Addresses Assigned/Allocated by RIR, Q2 2015 (without ARIN)

providers of IP addresses to Europe, Russia, the Middle East, and elsewhere.[7] According to Dyn Research, the Internet monitoring arm of Internet performance company Dyn, roughly half of the IPv4 blocks transferred since January of 2014 have come from Romania.[8]

Figure 3 illustrates the IPv4 allocation/assignment activity across each of the RIRs during the second quarter. Because of the large number of addresses allocated by ARIN this quarter (relative to the other RIRs), we have added a second graph (Figure 4) to more clearly show the allocation/assignment activity across the other four RIRs, without ARIN.

Overall, with the dwindling available pools, there was a forced decrease in activity, with just over half as many addresses allocated in the second quarter as compared with the first quarter (8.7 million versus 15.6 million). Although ARIN was by far the most active among the RIRs in the second quarter, it was only about half as active as it was in the first quarter in terms of delegating IP addresses. The largest assignment was a /13 allocated on June 19 to Time Warner Cable Internet.[9] While there were other active days, such as May 14 and 15, no other allocations greater than a /14 were made in the second quarter.

Note that according to analysis of ARIN's data,[10] the RIR allocated or assigned more than 5.9 million IPv4 addresses in the second quarter — more than the 5.3 million addresses it apparently had available at the beginning of the quarter. This seeming paradox is due to the way IP block transfers between two third-party companies typically work: the transfer process involves the source organization's resources being returned to ARIN immediately followed by the issuance of the resources to the recipient organization of the transfer within hours. The newly assigned IP addresses get captured in the data used to generate Figure 3, but do not show up in ARIN's available pool (i.e., the data used to generate Figure 2). As available IPv4 address space becomes scarce and transfers become more frequent, we expect to see this phenomenon — where ARIN appears to be assigning more addresses than it has available — more and more often, and possibly at other RIRs as well.

The other four RIRs all saw slow, consistent delegation activity, with no significant single allocations. The largest allocation among them in the second quarter was made by AFRINIC on April 22, a /14 allocated to Ghana Accra Bharti Airtel.[11] The next largest allocations were /16's or smaller.

1.3 IPv6 Adoption / Starting with the *Third Quarter, 2013 State of the Internet Report*, Akamai began including insight into IPv6 adoption across a number of vectors based on data gathered across the Akamai Intelligent Platform. The traffic percentages cited in Figure 5 and Figure 6 are calculated by dividing the number of content requests made to Akamai over IPv6 by the total number of requests made to Akamai (over both IPv4 and IPv6) for customer web properties that have enabled Akamai edge delivery via IPv6 — in other words, for dual-stacked hostnames. This reporting methodology provides something of a lower bound for IPv6 adoption, as some dual-stacked clients — such as Safari on Mac OS X Lion and Mountain Lion — will only use IPv6 for a portion of possible requests. While not all of Akamai's customers have chosen to implement IPv6 delivery yet, the data set used for this section includes traffic from a number of leading web properties and software providers, so we believe that it is sufficiently representative. Note that in compiling the data for the figures in this section, a minimum of 90 million total requests to Akamai during the second quarter was required to qualify for inclusion.

A regularly updated view into the metrics discussed below can be found in the "IPv6 Adoption Trends by Country and Network" visualization on the *State of the Internet* website at *http://www.stateoftheinternet.com/ipv6*.

Figure 5 highlights the 10 countries/regions with the largest percentage of content requests made to Akamai over IPv6 in the second quarter. European countries continued to dominate, once again taking 8 of the top 10 spots. Belgium again maintained its clear lead, with 38% of content requests being made over IPv6. Switzerland saw the largest increase, enjoying a 168% jump over the previous quarter, moving it into second place globally with nearly a quarter of content requests coming over IPv6. Portugal continued its strong first-quarter momentum with a 66% quarterly gain in the second quarter, jumping from tenth place to fourth, while Estonia joined the top 10 this quarter with a 12% increase that enabled it to edge out Norway.

As with the previous quarter, the only two non-European countries among the top 10 were the United States and Peru, both of which saw significant double-digit quarterly improvements to adoption rates of 19% and 17%, respectively. In contrast to the first quarter where three countries saw quarterly declines in IPv6 traffic, all 10 countries saw increases in the second quarter — the smallest being the Czech Republic's 6% rise. Overall, increases were substantially stronger than in the first quarter, as might be expected given the decline in IPv4 addresses. APNIC's Geoff Huston makes the case that recent IPv6 adoption trends reveal a significant shift from small, technologically forward early adopters to large, mainstream ISPs driving IPv6 deployment — potentially indicating an acceleration in IPv6 adoption in the near future.[12]

	Country/Region	Q2 2015 IPv6 Traffic %	QoQ Change
1	Belgium	38%	16%
2	Switzerland	23%	168%
3	United States	19%	32%
4	Peru	17%	28%
5	Germany	17%	8%
6	Luxembourg	14%	23%
7	Portugal	13%	66%
8	Greece	10%	26%
9	Czech Republic	8.7%	6%
10	Estonia	8.2%	12%

Figure 5: IPv6 Traffic Percentage, Top Countries/Regions

Figure 6 lists the top 20 network providers by the number of IPv6 requests made to Akamai during the second quarter. Once again, cable and wireless/mobile providers continued to drive the largest volumes of IPv6 requests, as many are leading the way for IPv6 adoption in their respective countries.

Among this group of providers, Belgium's Telenet joined Verizon Wireless and Brutele in the second quarter in seeing more than half of their requests to Akamai made over IPv6, though Verizon and Brutele's percentages were unchanged from the previous quarter. Eleven countries in total, up from nine in the first quarter, had at least a quarter of their requests to Akamai occur over IPv6. This group includes Swisscom, which saw a particularly large gain of 28 percentage points. Three companies — Brazil's NET Serviços de Comunicação and two newcomers, pan-European provider Liberty Global Operations and Brazil's Global Village Telecom — were the only ones in the top 20 to have less than 10% of their requests to Akamai over IPv6.

In addition to the increases in IPv6 traffic seen in the major carriers highlighted in this table, the second quarter saw a flurry of activity in IPv6 deployment among other providers worldwide, some of which are noted in the World IPv6 Launch blog (*http://www.worldipv6launch.org/blog/*).

Country/Region	Network Provider	Q2 2015 IPv6 Traffic %
United States	Comcast Cable	37%
United States	AT&T	35%
United States	Verizon Wireless	71%
United States	Time Warner Cable	18%
Germany	Deutsche Telekom	23%
United States	T-Mobile	44%
Peru	Telefonica Del Peru	21%
Brazil	NET Serviços de Comunicação S.A.	6.7%
France	Proxad/Free	21%
Belgium	Telenet	53%
Germany	Kabel Deutschland	43%
Japan	KDDI Corporation	27%
Malaysia	Telekom Malaysia	13%
Pan-European	Liberty Global B.V. (UPC)	9.0%
Switzerland	Swisscom	45%
Portugal	Sapo	32%
Belgium	Belgacom Skynet	25%
Belgium	Brutele (Voo)	67%
Romania	RCS & RDS	14%
Brazil	Global Village Telecom	3.4%

Figure 6: IPv6 Traffic Percentage, Top Network Providers by IPv6 Request Volume

[SECTION]^2 GEOGRAPHY GLOBAL

The data presented within this section was collected during the second quarter of 2015 through Akamai's globally deployed Intelligent Platform and includes all countries/regions that had more than 25,000 unique IPv4 addresses request content from Akamai during the quarter. Prior to 2015, *State of the Internet* reports looked at connection speeds of these requests within three different threshold classifications — namely, 4 Mbps ("broadband"), 10 Mbps ("high broadband"), and 15 Mbps ("4K ready"). However, in its *2015 Broadband Progress Report*, the U.S. Federal Communications Commission (FCC) increased its benchmark definition of broadband Internet service to download speeds of 25 Mbps, sharply raising the bar from the 4 Mbps definition it had set in 2010.[13] Given this new standard, beginning with the *First Quarter, 2015 State of the Internet Report*, Akamai began tracking data for the 25 Mbps threshold (in addition to the three pre-existing thresholds) in both the global and United States data sets. Each threshold tier is now simply referred to by speed rather than using the stand-alone "broadband" and "high broadband" labels, as we expect that standards and definitions for such terms will continue to evolve

as technology drives ever-increasing speeds over time. Note that broadband tiers throughout this report refer to speeds greater than or equal to the specified threshold.

In addition to providing insight into adoption levels at different broadband threshold speeds, this report also includes data on average and average peak connection speeds — the latter provides insight into the peak speeds that users can likely expect from their Internet connections. (See the blog post at *http://akamai.me/sotimetrics* for more information on how these metrics are calculated.)

Traffic from known mobile networks is analyzed and reviewed in a separate section of the report. Therefore, mobile network data has been removed from the data set used to calculate the metrics in the present section, as well as subsequent regional "Geography" sections.

Beginning this quarter, we have also removed traffic identified as coming from major cloud hosting providers, as cloud services data centers typically have extremely fast Internet connections that can skew connection speed metrics. We believe that removing this data from our calculations provides a more accurate picture of the end user experience. In addition, to calculate consistent quarter-over-quarter and year-over-year results in the current report, we have reprocessed connection speed data from the first quarter of 2015 and the second quarter of 2014 with traffic from cloud hosting providers removed as well, thus giving a true apples-to-apples comparison of the changes in connection speeds over time. As such, the quarterly and yearly percentage changes may not line up with the numbers published in previous *State of the Internet* reports, which did not have the cloud hosting provider traffic removed.

2.1 Global Average Connection Speeds / The global average connection speed saw a 3.5% increase in the second quarter of 2015, to 5.1 Mbps. As Figure 7 shows, quarterly changes were positive across the board for the top 10 countries/regions, with the exception of South Korea, which saw a 2.1% decrease from the first quarter. Japan saw the largest quarterly gain at 7.8%, while the remaining eight countries saw modest gains ranging from 1.5% in Hong Kong to 4.6% in Switzerland.

	Country/Region	Q2 2015 Avg. Mbps	QoQ Change	YoY Change
–	Global	5.1	3.5%	17%
1	South Korea	23.1	-2.1%	-11%
2	Hong Kong	17.0	1.5%	1.3%
3	Japan	16.4	7.8%	7.4%
4	Sweden	16.1	1.6%	18%
5	Switzerland	15.6	4.6%	6.4%
6	Netherlands	15.2	3.4%	11%
7	Norway	14.3	1.6%	38%
8	Latvia	14.2	3.1%	4.5%
9	Finland	14.0	2.7%	27%
10	Czech Republic	13.9	2.4%	13%

Figure 7: Average Connection Speed by Country/Region

Despite its second-quarter decrease, South Korea held on to the top spot in the average connection speed metric. However, Ireland, which held the second-place spot during the first quarter, dropped to 22nd place in the second quarter. This was not due to an actual decrease in Ireland's connection speeds in the second quarter but was largely the result of the aforementioned calculation changes made this quarter, involving the removal of traffic associated with cloud hosting providers from all speed-related metrics. Because it had a large amount of such traffic, Ireland was particularly affected by this change and saw its calculated average connection speed drop from 17.4 Mbps in the first quarter to 11.0 Mbps in the second. It's worth noting that when quarter-over-quarter and year-over-year calculations were made using consistent data (i.e., removing hosting provider traffic from the previous quarters' data as well), Ireland saw positive quarterly and yearly growth of 4.6% and 10%, respectively.

Average connection speeds among the top 10 countries/regions all remained well above 10 Mbps, and like the previous quarter, 6 of the 10 had average speeds above 15 Mbps. Globally, a total of 110 out of 144 qualifying countries/regions saw average connection speeds increase from the previous quarter, with growth rates ranging from a modest 0.4% in Senegal (to 1.5 Mbps) to a substantial 67% in Tunisia (to 2.8 Mbps). Quarter-over-quarter losses were seen in 34 qualifying countries/regions, compared with only 13 countries/regions in the first quarter. Declines in connection speeds ranged from 0.1% in Israel (to 12.1 Mbps) to 20% in Saudi Arabia (to 3.0 Mbps).

Like the previous quarter, year-over-year changes were consistently positive in the top 10, except for South Korea, which saw an 11% decline compared with the second quarter of 2014. Hong Kong saw the smallest yearly increase at 1.3%, while Sweden, Finland, and Norway saw the largest, posting increases of 18%, 27%, and 38%, respectively.

On a global basis, the average connection speed increased 17% year over year. Increases were seen in 130 qualifying countries, with growth rates ranging from 0.9% in Kyrgyzstan (to 2.8 Mbps) to 129% (to 3.0 Mbps) in Madagascar — the only country to see average connection speeds more than double from the previous year. Yearly declines were seen in 14 countries/regions, with declines ranging from 3.7% in Angola (to 1.8 Mbps) to 72% in Réunion (to 4.0 Mbps).

In the second quarter of 2015, Libya was again the only country with an average connection speed below 1.0 Mbps.

2.2 Global Average Peak Connection Speeds / In the second quarter, the global average peak connection speed saw an increase of 12% to 32.5 Mbps. As shown in Figure 8, average peak speeds increased across the board among the countries/regions in the top 10, with the exception of Sweden, where speeds remained unchanged compared with the first quarter. Singapore saw the only double-digit quarterly gain, with a 12% increase, while the remaining eight countries saw increases ranging from 0.6% in

Romania to 7.8% in Macao. After showing impressive gains and entering the top 10 in the previous quarter, Kuwait and Mongolia both dropped out of the top 10 this quarter — Kuwait due to a 54% quarter decrease in average peak connection speed resulting from IP address reclassification, and Mongolia because it failed to have the requisite 25,000 unique IP addresses to qualify for inclusion in this data set. Filling the vacancies, Sweden and Macao joined the top 10, taking the bottom two spots in the list. Singapore retained its position as the country/region with the highest average peak connection speed at 108.3 Mbps. Eight of the top 10 saw average peak speeds greater than 70 Mbps, while Sweden and Macao saw speeds above 60 Mbps.

On a global basis, 107 of the 143 qualifying countries/regions saw average peak connection speeds increase from the first quarter, with growth ranging from 0.1% in Trinidad and Tobago (to 34.9 Mbps) to 100% in Egypt (to 23.4 Mbps). Other than Egypt, four countries — Uzbekistan, Mauritius, Ghana, and Tunisia — saw quarterly increases of over 50%. Thirty-five qualifying countries/regions saw lower average peak connection speeds in the second quarter, with losses ranging from 0.2% in Slovakia (to 44 Mbps) to 54% in Kuwait (to 35.0 Mbps). As mentioned earlier, Sweden's average peak connection speed remained unchanged from the previous quarter.

Looking at year-over-year numbers, all of the top 10 countries/regions saw increases in average peak connection speeds except for Israel, which posted a 14% decline compared with the second quarter of 2014. Yearly gains were more muted than in the previous quarter. Qatar and Singapore led the pack with increases of 71% and 60%, respectively, while South Korea and Romania saw the smallest gains of 12% and 17%, respectively.

Across all of the qualifying countries/regions, a total of 127 saw yearly increases in average peak connection speeds as compared with 136 in the previous quarter. Growth ranged from a negligible 0.3% in China (to 18.4 Mbps) to a sizeable 109% in Mauritius. Whereas 13 countries/regions saw year-over-year average peak connection speeds more than double in the first quarter, Mauritius was the only such country in the second quarter. Sixteen countries/regions saw a yearly decline in average peak speeds, with Réunion and Sudan experiencing the largest drops — at 53% (to 14.1 Mbps) and 55% (to 9.2 Mbps), respectively.

In the second quarter, Zambia was once again the country/region with the lowest average peak connection speed, despite a 20% quarterly gain to 7.4 Mbps. A total of four countries, all in Africa, saw average peak connection speeds below 10 Mbps in the second quarter, down from seven countries in the previous quarter — a hopeful harbinger of improving connectivity in the region.

2.3 Global 4 Mbps Broadband Adoption / In the second quarter, the global percentage of unique IP addresses connecting to Akamai with average connection speeds above 4 Mbps increased by 1.1% to 64%, as shown in Figure 9, with most of the top 10 countries/regions showing very small changes compared with the previous quarter. Thailand was the lone exception, with a 10% quarterly increase over the first quarter that vaulted it into 5th place from 27th, pushing Malta out of the top 10. The remaining nine countries saw minimal changes, ranging from Bulgaria's 0.6% decrease to Isle of Man's 1.4% increase.

South Korea and Bulgaria led the world in 4 Mbps adoption, with both countries seeing 96% of their unique IP addresses connecting to Akamai at average speeds exceeding the threshold. The remaining countries/regions in the top 10 were not far behind, with all 10 meeting the 4 Mbps average connection speed threshold for at least 93% of their unique IP addresses connecting to Akamai, up slightly from 92% in the first quarter.

Globally, a total of 107 countries/regions qualified for inclusion for this metric, and 85 of them saw quarterly growth in 4 Mbps broadband adoption rates, down from 100 in the previous quarter. Increases ranged from 0.2% in Switzerland to 312% in Tunisia (to 7.8% adoption). In addition to Tunisia, Iraq also saw 4 Mbps broadband adoption rates more than double in the second quarter,

	Country/Region	Q2 2015 Peak Mbps	QoQ Change	YoY Change
–	Global	32.5	12%	26%
1	Singapore	108.3	12%	60%
2	Hong Kong	94.8	2.4%	22%
3	South Korea	83.3	5.5%	12%
4	Japan	75.1	7.2%	19%
5	Taiwan	74.5	4.2%	32%
6	Romania	72.1	0.6%	17%
7	Qatar	71.7	2.6%	71%
8	Israel	71.4	6.2%	-14%
9	Sweden	62.8	0%	24%
10	Macao	62.6	7.8%	36%

Figure 8: Average Peak Connection Speed by Country/Region

	Country/Region	% Above 4 Mbps	QoQ Change	YoY Change
–	Global	64%	1.1%	8.1%
1	South Korea	96%	0.3%	0.6%
2	Bulgaria	96%	-0.6%	2.4%
3	Netherlands	95%	-0.1%	6.5%
4	Israel	95%	1.1%	5.9%
5	Thailand	95%	10%	9.3%
6	Isle Of Man	94%	1.4%	4.6%
7	Romania	94%	0.6%	4.0%
8	Denmark	93%	-0.2%	4.3%
9	Switzerland	93%	0.2%	1.4%
10	Hong Kong	93%	1.3%	3.9%

Figure 9: 4 Mbps Broadband Adoption by Country/Region

with a 202% gain (to 65% adoption), while an additional nine countries had adoption rates grow more than 50%. Quarter-over-quarter declines were seen in 22 qualifying countries/regions, compared with 7 in the first quarter. Decreases ranged from 0.1% in the Netherlands to 59% in Saudi Arabia (to 15% adoption).

Year over year, the percentage of unique IP addresses connecting to Akamai at average speeds of at least 4 Mbps increased by 8.1%, continuing the positive trend that began in the first quarter. Yearly adoption rates of 4 Mbps broadband were up across all of the top 10 countries/regions, though more muted than in the first quarter, with increases ranging from just 0.6% in South Korea to 9.3% in Thailand. The second-highest yearly increase was seen in Israel, with a 5.9% gain.

Looking across the globe, 100 of the qualifying countries/regions saw 4 Mbps broadband adoption levels increase year over year. Growth rates ranged from 0.6% in South Korea to 414% in Jordan (to 36% adoption). In total, 18 of the 107 qualifying countries/regions saw yearly 4 Mbps adoption rates grow 100% or more, compared with 28 countries in the first quarter. Seven countries saw adoption rates fall, with declines ranging from a mere 0.6% in Jamaica (to 44% adoption) to a sizable 62% in Saudi Arabia (to 15% adoption).

In the second quarter, Egypt again remained the country with the lowest level of 4 Mbps broadband adoption at 2.7%, despite an impressive 61% quarterly increase and a 128% yearly increase. Venezuela again held the second-to-last position, with an adoption rate of 3.2%, up 55% quarter over quarter and 99% year over year.

While there are still many regions of the world that have little-to-no broadband connectivity, there are ambitious projects underway to try to reach them. Perhaps the most well-known of these, Google's Project Loon, aims to reach remote and underserved areas using high-altitude balloons. In May, Google revealed that the project is making significant progress, with the potential to move beyond the trial phase and launch more widely by next year.[14] Meanwhile, in June, OneWeb announced it had raised $500 million to develop affordable satellite-based broadband services that can reach remote rural communities and other underserved areas.[15]

2.4 Global 10 Mbps Broadband Adoption / As seen in Figure 10, in the second quarter, 27% of unique IP addresses globally connected to Akamai at average speeds above 10 Mbps, an increase of 2.1% over the previous quarter. Six of the top ten countries/regions saw quarter-over-quarter increases, ranging from Sweden's 1.3% gain to Singapore's 8.4% rise — a gain that pushed Singapore into the top 10 this quarter, just ahead of Latvia. Bulgaria, the Netherlands, South Korea, and Romania all showed small quarterly declines, ranging from 1.1% to 3.5%; however, South Korea's 75% adoption rate remained far ahead of second-place Hong Kong's 62% adoption rate.

In the second quarter, there were 71 qualifying countries/regions for this metric, up from 68 in the first quarter. Among these, 46 saw quarter-over-quarter increases, ranging from 0.2% in Malta

	Country/Region	% Above 10 Mbps	QoQ Change	YoY Change
–	Global	27%	2.1%	15%
1	South Korea	75%	-2.9%	-8.3%
2	Hong Kong	62%	3.5%	9.4%
3	Switzerland	60%	3.1%	9.4%
4	Netherlands	60%	-1.8%	16%
5	Japan	60%	7.1%	8.6%
6	Romania	57%	-3.5%	16%
7	Bulgaria	54%	-1.1%	39%
8	Sweden	53%	1.3%	29%
9	Belgium	53%	3.4%	24%
10	Singapore	50%	8.4%	29%

Figure 10: 10 Mbps Broadband Adoption by Country/Region

(to 31% adoption) to 118% in Kazakhstan (to 16% adoption). While Kazakhstan was the only country to see adoption levels more than double compared with the first quarter, Indonesia and Reunion both saw adoption rates grow more than 50% — to 0.6% and 7.5%, respectively. Quarterly losses were seen in 25 qualifying countries/regions, with declines ranging from a negligible 0.1% drop in the Czech Republic (to 47% adoption) to a 42% decline in Colombia (to 2.7% adoption).

Looking at year-over-year changes, there was a 15% increase globally in the percentage of unique IP addresses connecting to Akamai at average speeds above 10 Mbps. Among the top 10, yearly growth in the second quarter was more muted than in the first quarter. South Korea saw a yearly decline of 8.3% in 10 Mbps broadband adoption, while the other 9 countries/regions enjoyed increases ranging from 8.6% in Japan to 39% in Bulgaria.

All but 5 of the 71 qualifying countries/regions saw year-over-year increases in 10 Mbps broadband adoption in the second quarter. Israel and Moldova had the smallest gains at 0.2% and 1.9%, to adoption levels of 47% and 34% respectively, while Qatar and Peru had the largest, at 258% and 278%, to adoption rates of 15% and 3.2% respectively. In total, only 10 of the qualifying countries/regions saw adoption rates more than double year over year.

Vietnam and Indonesia — two countries that did not qualify for inclusion in the first quarter — had the lowest 10 Mbps broadband adoption rates in the second quarter, at 0.4% and 0.6% respectively. China, which held the lowest spot previously, saw a 1.2% adoption rate this quarter, a 17% drop from the previous quarter.

2.5 Global 15 Mbps Broadband Adoption / As Figure 11 shows, in the second quarter, 14% of unique IP addresses globally connected to Akamai at average connection speeds of 15 Mbps or above, up 2.5% from the first quarter. Despite declining for the third quarter in a row, South Korea remained the clear leader in 15 Mbps broadband adoption with a 53% adoption rate, while second-place Hong Kong saw an adoption rate of 40%, a slight increase from

	Country/Region	% Above 15 Mbps	QoQ Change	YoY Change
–	Global	14%	2.5%	9.9%
1	South Korea	53%	-9.0%	-21%
2	Hong Kong	40%	1.5%	3.1%
3	Japan	38%	13%	12%
4	Switzerland	34%	6.7%	7.2%
5	Sweden	34%	-2.1%	30%
6	Netherlands	32%	-1.2%	11%
7	Latvia	31%	0.2%	7.8%
8	Norway	29%	0%	56%
9	Romania	27%	-4.2%	24%
10	Lithuania	27%	-6.5%	93%

Figure 11: 15 Mbps Broadband Adoption by Country/Region

the previous quarter. Gainers and decliners were almost evenly split among the top 10, with changes remaining in the single digits except for Japan, which saw a 13% jump to a 38% adoption rate after declining in the first quarter.

Across the 56 qualifying countries/regions in the second quarter, China again had the lowest 15 Mbps broadband adoption rate at 0.2%, a 15% decline from the first quarter. Colombia, Brazil, and India followed closely behind, each with 0.6% adoption rates. Overall, quarterly gains were seen in 35 qualifying countries/regions, compared with 46 in the previous quarter. Kazakhstan enjoyed the biggest quarter-over-quarter increase at 143% (to 4.5% adoption), while Latvia had the smallest rate of growth at 0.2% (to 31% adoption). Norway's adoption levels remained unchanged from the previous quarter at 29%, while the remaining 20 countries/regions saw 15 Mbps broadband adoption rates drop, with losses ranging from Taiwan's 0.6% decline (to 15% adoption) to Colombia's 43% drop (to 0.6% adoption).

Year over year, the global 15 Mbps adoption rate grew 9.9%, with gains among all of the top 10 countries/regions except South Korea, where adoption rates declined 21% compared with the second quarter of 2014. Increases among the remaining nine countries ranged from a mere 3.1% in Hong Kong to a significant 93% in Lithuania.

When looking across all of the qualifying countries, 7 countries saw a yearly decrease, ranging from 1.6% in Taiwan to 90% in Reunion (to 3.1% adoption). Ireland's 15 Mbps broadband adoption levels remained steady from the previous year at 18%, while the remaining 48 countries saw yearly gains, though increases were not as strong as those in the first quarter. Gains ranged from 0.6% in Austria (to 15% adoption) to 134% in the United Arab Emirates (to 2.8% adoption). Whereas 19 countries/regions saw adoption levels more than double year over year in the first quarter, only the United Arab Emirates, Colombia, and Thailand enjoyed gains of this magnitude in the second quarter, with adoption rates increasing by 113% and 117% to 0.6% and 6.7% for Colombia and Thailand, respectively.

2.6 Global 25 Mbps Broadband Adoption / Starting with the *First Quarter, 2015 State of the Internet Report*, Akamai began reporting on the percentage of unique IP addresses connecting to Akamai at average speeds of above 25 Mbps, the new benchmark broadband speed adopted by the United States Federal Communications Commission in January 2015. This data will be provided in the global overview, as well as in Section 3 on the United States.

Globally, 4.9% of unique IP addresses connected to Akamai at average connection speeds of at least 25 Mbps, a 7.5% increase over the previous quarter, as shown in Figure 12. The top 10 countries/regions for 25 Mbps adoption remained unchanged from the first quarter and, as might be expected, looked very similar to the top 10 for the 15 Mbps broadband adoption metric, with Finland replacing Romania. Despite a 5.5% quarterly decline to an adoption rate of 29%, South Korea again led the world in 25 Mbps broadband adoption, just as it did for all of the other broadband adoption metrics in the second quarter. Its adoption rate was still nearly double that of second-place Hong Kong, which saw adoption drop 2.9% from the first quarter to 16%. Six of the top ten countries/regions had quarterly declines, the largest being Lithuania's 9.2% drop. Among gaining countries/regions, Japan and Switzerland enjoyed the strongest showings, with 17% and 18% increases, respectively. All of the top 10 countries/regions had 25 Mbps adoption rates of at least 10%, up from 8 countries in the second quarter.

Year over year, the global 25 Mbps adoption dropped slightly by 0.5%, in contrast to the 20% yearly growth seen in the first quarter. Two of the top ten countries/regions saw losses: South Korea's adoption rate dropped 24% and Hong Kong's declined 11%. Gains among the remaining eight countries ranged from a mere 0.8% in Latvia to a sizeable 133% in Lithuania — the only country in the top 10 to see adoption rates more than double compared with the previous year. Six of the top ten had yearly gains of at least 10%, compared with eight in the first quarter.

	Country/Region	% Above 25 Mbps	QoQ Change	YoY Change
–	Global	4.9%	7.5%	-0.5%
1	South Korea	29%	-5.5%	-24%
2	Hong Kong	16%	-2.9%	-11%
3	Japan	16%	17%	12%
4	Sweden	15%	-1.8%	26%
5	Latvia	13%	6.7%	0.8%
6	Switzerland	11%	18%	4.3%
7	Lithuania	11%	-9.2%	133%
8	Norway	11%	-1.1%	58%
9	Finland	11%	-1.0%	30%
10	Netherlands	10%	11%	12%

Figure 12: 25 Mbps Broadband Adoption by Country/Region

[SECTION]^3 GEOGRAPHY USA

The metrics presented here for the United States are based on a subset of data used for Section 2 and are subject to the same thresholds and filters discussed within that section. The subset used for this section includes connections identified as coming from the United States, based on classification by Akamai's EdgeScape geolocation tool. For the purposes of this section, the District of Columbia is treated as a state.

3.1 United States Average Connection Speeds / In the first quarter, the top 10 states showed gains across the board, but in the second quarter, gainers and decliners were evenly split. As shown in Figure 13, the District of Columbia posted the largest quarterly gain at 10%, moving into the top spot in the country with an average connection speed of 19.0 Mbps. Delaware, which held the top ranking in the first quarter, slipped to second place in the second quarter with a 10% quarterly loss, the largest among the top 10. The other declining states saw fairly minimal losses of less than 3%, while increases among

	State	Q2 2015 Avg. Mbps	QoQ Change	YoY Change
1	District Of Columbia	19.0	10%	42%
2	Delaware	16.7	-10%	4.6%
3	Massachusetts	15.3	-0.3%	9.8%
4	Utah	15.2	-2.9%	18%
5	Rhode Island	15.2	-1.3%	19%
6	Washington	14.7	-0.7%	18%
7	Maryland	14.5	8.9%	24%
8	New Jersey	14.1	8.0%	19%
9	Virginia	14.1	4.7%	10%
10	New York	14.0	3.5%	14%

Figure 13: Average Connection Speed by State

	State	Q2 2015 Peak Mbps	QoQ Change	YoY Change
1	District Of Columbia	72.7	-8.0%	25%
2	Maryland	66.5	3.2%	19%
3	Washington	66.2	-0.3%	25%
4	Virginia	66.1	2.7%	15%
5	Delaware	66.0	-23%	2.2%
6	Rhode Island	65.7	-6.5%	15%
7	New Jersey	65.0	3.5%	11%
8	Massachusetts	64.3	-7.7%	6.4%
9	New York	63.3	-0.4%	16%
10	California	62.1	-1.0%	28%

Figure 14: Average Peak Connection Speed by State

gaining states ranged from 3.5% in New York to 8.9% in Maryland. Five states had average connection speeds above the 15 Mbps threshold — down from six in the previous quarter.

Looking across all 51 states, 42 saw average connection speeds above the 10 Mbps threshold, just as in the first quarter. However, unlike the first quarter when all 51 states enjoyed positive quarterly growth, in the second quarter, only 22 states saw average connection speeds increase. Gains were modest, ranging from 0.4% in Ohio (to 10.7 Mbps) to 12% in Missouri (to 11.8 Mbps). Declining states saw drops ranging from 0.2% in North Carolina (to 11.2 Mbps) to 10% in Delaware.

On a year-over-year basis, all 51 states saw higher average connection speeds compared with the second quarter of 2014, though gains were more muted than in the first quarter. Thirty-seven states saw double-digit yearly gains, with the District of Columbia having the largest at 42%. New Hampshire had the smallest yearly increase as average connection speeds rose 3% (to 13.1 Mbps).

With a 3.9% quarterly decrease to 7.9 Mbps, Alaska again remained the state with the lowest average connection speed in the second quarter. Kentucky, Arkansas, and Idaho rounded out the bottom four, each with average connection speeds just below 9 Mbps. New Mexico, which was previously in the bottom four, enjoyed a 5.8% quarterly gain to 9.2 Mbps.

3.2 United States Average Peak Connection Speeds / In the second quarter, only 3 of the top 10 states showed quarter-over-quarter growth in average peak connection speeds, in contrast to the first quarter which witnessed growth across the board. As seen in Figure 14, New Jersey, Maryland, and Virginia had average peak speeds grow modestly at 3.5%, 3.2%, and 2.7% respectively, while the remaining seven states saw declines ranging from a mere 0.3% in Washington to a substantial 23% in Delaware — the biggest quarterly drop seen across the nation.

When looking at average connection speeds across all 51 states, we see a similar trend to the top 10: whereas the first quarter saw across-the-board growth, decliners outnumbered gainers in the second quarter. Only nine states saw quarterly gains, and all were modest — ranging from 0.6% in Montana (to 48.0 Mbps) to 5.7% in New Mexico (to 41.3 Mbps). In addition to Delaware, four other states saw declines of 10% or more. Oklahoma had the smallest observed decrease, at 0.1% (to 46.9 Mbps), while Alaska saw average peak speeds remain unchanged from the previous quarter, at 41.5 Mbps.

Year-over-year changes were consistently positive within all 51 states, though less robust than in the first quarter. Delaware saw the smallest increase at 2.2%, far lower than the 65% year-over-year jump it enjoyed in the first quarter. Among the top 10, California had the largest increase, at 28%, while Wyoming saw the biggest increase across the nation at 50% (to 54.2 Mbps). Thirty-seven states had double-digit yearly increases in the second quarter, compared with all 51 in the first quarter.

Following a 3.8% quarterly loss, Kentucky once again held the spot for lowest average peak connection speed in the country, at 35.7 Mbps. Arkansas remained in the second-to-last spot with a 1.2% quarterly decline to 36.8 Mbps.

The second quarter saw numerous announcements of new gigabit-level service rollouts across the United States, accelerating the trend seen over the past year and pointing to a strong likelihood of positive growth in average peak connection speeds as well as an increased level of broadband adoption across all threshold speeds. Credited by some as the instigating force behind this trend, Google Fiber continued expanding in the second quarter as it began construction in Atlanta[16], Nashville[17], Charlotte[18], and Raleigh[19] — the four metropolitan areas it announced upcoming support for in January 2015.[20] Meanwhile, leading telecommunications provider Comcast announced immediate availability of a faster 250 Mbps service tier as well as a roll out of its Gigabit Pro service — with symmetric (upload and download) speeds of up to 2 Gbps — in multiple states across the country, including California, Colorado, Florida, Georgia, Illinois,

Indiana, Michigan, Minnesota, Oregon, Tennessee, Texas, Utah, and Washington.[21, 22, 23] In addition, Comcast revealed it had started to test its multi-gigabit DOCSIS 3.1 technology in the field. This technology, which is slated to launch on a broad scale in 2016, would enable ultra-high speed services to millions of customers across Comcast's nationwide footprint.[24] In May, Cox Communications, another major telecommunications provider, also announced that it had expanded its GIGABLAST residential gigabit Internet offering to service areas in Arizona, California, Nebraska, and Nevada, and was currently deploying infrastructure to bring the service to customers in Arkansas, Kansas, Louisiana, Rhode Island, Oklahoma, and Virginia by the end of 2016.[25] In light of these announcements, many states across the U.S. could see sizeable boosts in average peak connection speeds over the next year as well as potential increases in the broadband adoption metrics Akamai currently tracks.

There have also been a number of government programs and proposals to support broadband rollout, particularly for underserved communities such as those in rural and low-income areas. At the national level, the U.S. Federal Communications Commission has proposed extending its telephone services subsidies program for low-income Americans to cover broadband service as well.[26] At the state and local levels, numerous projects — including many previously reported on in the *State of the Internet Report* — are in the works to increase broadband availability and speeds.[27] In Massachusetts, an eight-year, $90 million fiber-optic backbone built to bring broadband to 45 rural towns in the western part of the state was recently completed.[28] In a similar effort, New York City announced it would spend $70 million towards its goal of universal Internet access, with a focus on bringing access to low-income homes and improving public wireless networks.

3.3 United States 4 Mbps Broadband Adoption / In the second quarter, Rhode Island and Delaware led the country with 96% 4 Mbps broadband adoption, virtually unchanged from the first quarter. As seen in Figure 15, New Jersey saw an impressive 9.8% quarterly increase in adoption, pushing it into the number 3 spot in the country from its number 36 position in the first quarter. Hawaii, as well as the other three states just mentioned, had 4 Mbps broadband adoption levels above 90%, with the other states in the top 10 not far behind.

Nationwide, 36 of the 51 states saw quarterly growth in adoption rates, with Michigan and North Carolina seeing the smallest gains, at 0.1% each (to 86% and 81% adoption, respectively). Maryland, Georgia, and Missouri all saw double-digit gains, with Missouri leading the pack at 14% (to 81% adoption). Losses ranged from 0.1% in Oregon (to 84% adoption) to 2.7% in Maine (to 75% adoption).

Like the first quarter, yearly changes were positive across all 51 states in the second quarter. Delaware saw the smallest growth in the country (and in the top 10), with a modest 0.8% gain. Maryland saw the largest gain among the top 10, at 19%, while Wyoming and Missouri led the nation, increasing adoption levels by 33% and 39% to rates of 79% and 81% respectively. In total, 27 states saw double-digit yearly increases in 4 Mbps broadband adoption in the second quarter, up from 20 in the first quarter.

For the seventh consecutive quarter, West Virginia remained the state with the lowest 4 Mbps broadband adoption rate at 64% — up 2.3% from the previous quarter and up 20% from the second quarter of 2014.

3.4 United States 10 Mbps Broadband Adoption / Just as it led the country in 4 Mbps broadband adoption, Delaware once again held the top spot in 10 Mbps adoption, despite a 6.9% quarterly drop in adoption levels to 69%. Unlike the first quarter's consistent gains across the top 10, in the second quarter, only four states saw increases in adoption while six saw declines, as shown in Figure 16. Maryland and the District of Columbia enjoyed the largest gains, at 14% and 13% respectively, putting them into the top 10 this quarter — and pushing out Michigan and North Dakota. New York saw the smallest decline at 2.1%, while New Hampshire suffered the largest quarterly drop among the top 10 at 8.5%. Once again, all of the top 10 had more than half of their unique IP addresses connecting to Akamai at average speeds above 10 Mbps.

	State	% Above 4 Mbps	QoQ Change	YoY Change
1	Delaware	96%	-0.7%	0.8%
2	Rhode Island	96%	0%	4.7%
3	New Jersey	92%	9.8%	15%
4	Hawaii	90%	-0.9%	2.9%
5	Maryland	89%	11%	19%
6	Massachusetts	89%	1.2%	7.5%
7	New York	88%	1.6%	7.2%
8	North Dakota	87%	-1.1%	6.3%
9	Connecticut	87%	0.3%	4.2%
10	Florida	87%	1.0%	6.8%

Figure 15: 4 Mbps Broadband Adoption by State

	State	% Above 10 Mbps	QoQ Change	YoY Change
1	Delaware	69%	-6.9%	6.4%
2	Rhode Island	67%	-4.6%	24%
3	New Jersey	65%	11%	30%
4	Massachusetts	63%	-2.5%	14%
5	Maryland	62%	14%	39%
6	District Of Columbia	58%	13%	47%
7	Virginia	56%	1.3%	18%
8	New Hampshire	56%	-8.5%	6.7%
9	New York	55%	-2.1%	17%
10	Connecticut	54%	-7.5%	9.3%

Figure 16: 10 Mbps Broadband Adoption by State

The second quarter offered a mixed bag of changes across the nation as well, as 14 states saw quarterly gains in adoption rates and 37 saw losses. Idaho posted the smallest gain, a 0.3% increase (to 24% adoption), while Hawaii had the largest, a 19% gain (to 31% adoption). Seven states in all enjoyed double-digit growth rates. On the declining side, Wyoming had the smallest loss with a 0.9% decline (to 40% adoption), and Maine had the largest, with a 20% drop (to 31% adoption). Sixteen states in all had 10 Mbps adoption rates of at least 50%, down from 19 states in the first quarter.

Similar to what we saw with 4 Mbps broadband adoption, year-over-year changes in 10 Mbps adoption were positive across all 50 states in the second quarter, but not as strong as in the first quarter. The District of Columbia led the country in yearly growth, posting a 47% increase over the second quarter of 2014. Missouri followed closely behind with a 46% gain to 42% adoption, and a total of 45 states enjoyed double-digit growth compared with the previous year. Delaware had the smallest yearly increase at just 6.4%.

Seeing only a modest 0.3% quarterly growth in its 10 Mbps broadband adoption rate, Idaho remained in last place across the country as the state with the lowest adoption rate, with fewer than one in four IP addresses connecting at or above the threshold speed. Arkansas remained in second-to-last place with a 26% adoption rate also shared by Iowa and Alaska. All three states saw adoption levels decline in the second quarter.

3.5 United States 15 Mbps Broadband Adoption / After seeing significant growth in 15 Mbps broadband adoption during the first quarter, the top 10 states showed more volatility in the second quarter, with gainers and losers evenly split as seen in Figure 17. Just as in the 10 Mbps adoption category, Maryland and the District of Columbia led the gainers, as both enjoyed 17% quarterly increases. This jump allowed Maryland to join the top 10 in the second quarter, and combined with Delaware's 14% quarterly decline, allowed the District of Columbia to take the top spot in the nation for 15 Mbps broadband adoption, with 39% of its unique IP addresses connecting to Akamai at or above the threshold speed. New York and Virginia had the smallest gains among the top 10, at 3.6% and 5.8% respectively. Declines among the top 10 ranged from 2.9% in Pennsylvania to 14% in Delaware.

	State	% Above 15 Mbps	QoQ Change	YoY Change
1	District Of Columbia	39%	17%	57%
2	Delaware	38%	-14%	12%
3	Massachusetts	33%	-8.2%	14%
4	Rhode Island	33%	-7.0%	43%
5	Maryland	33%	17%	51%
6	New Jersey	32%	12%	41%
7	Washington	30%	-4.3%	38%
8	Virginia	30%	5.8%	27%
9	Pennsylvania	27%	-2.9%	23%
10	New York	27%	3.6%	30%

Figure 17: 15 Mbps Broadband Adoption by State

Across the country, changes at a state level were mixed as well, with only 16 states seeing quarterly gains, down from 50 states in the first quarter. Florida had the smallest increase, with a 0.1% gain (to 24% adoption), while Hawaii had the largest with an impressive 57% gain (to 11% adoption). Five other states had double-digit increases in the second quarter, with New Mexico being the next largest, gaining 26% (to 13% adoption). On the declining side, Idaho had the smallest loss, at 0.6% (to 11% adoption), while Maine had the largest at 26% (also to 11% adoption). Nineteen states in all had double-digit quarterly decreases. In the second quarter, 17 states had at least one-quarter of their unique IP addresses connecting to Akamai at average speeds of 15 Mbps or faster, down from 21 in the first quarter.

Year over year, all 51 states again saw increases in 15 Mbps adoption rates in the second quarter, just as they did in the first quarter. Among the top 10 states, the District of Columbia led with a 57% jump, followed by Maryland with a 51% increase. Delaware and Massachusetts had the lowest yearly increases among the group, with adoption rates growing 12% and 14%, respectively, over the previous year.

Across the nation, Arizona had the highest annual increase in 15 Mbps broadband adoption rates, seeing a gain of 62% over the second quarter of 2014 (to 23% adoption). The smallest gain was seen in New Hampshire, with a 3.0% annual growth rate. Forty-seven states saw double-digit yearly growth in the second quarter, but only four grew by more than 50%, compared with 22 states in the first quarter.

Kentucky and Alaska ranked last in the country for 15 Mbps broadband adoption in the second quarter, with adoption levels of 8.4% and 9.2% respectively. They were the only two states with adoption rates below 10%. Hawaii, which held the last-place spot the previous quarter, moved ahead to the fifth-lowest spot with an 11% adoption rate, also seen in Maine and Idaho.

3.6 United States 25 Mbps Broadband Adoption / Just as it led the country in 15 Mbps broadband adoption, the District of Columbia held the top spot again this quarter in 25 Mbps broadband adoption, with one in five of its unique IP addresses connecting to Akamai at average speeds of at least 25 Mbps — a 20% increase from the first quarter. As seen in Figure 18, the District of Columbia held a sizable lead over second-ranked Delaware, which saw a 19% quarterly drop in adoption levels to 12%. In all, 6 of the top 10 states enjoyed quarterly growth, ranging from 1.9% in Rhode Island to 20% in the District of Columbia. The other four states saw adoption levels decline, with Washington and Massachusetts seeing modest drops of less than 2%, while Utah and Delaware posted double-digit

decreases. Just as in the first quarter, only five states had at least one in ten of their unique IP addresses connecting to Akamai at average speeds of 25 Mbps or more.

Across the nation, second quarter results were mixed, with 28 states showing quarterly growth and 23 showing declines. Nevada had the smallest gain at 0.8% (to 6.8% adoption), while Hawaii had the largest by far, with a 104% increase (to 3.1% adoption). New Mexico had the next-highest gain at 30% (to 3.5% adoption), and 12 states in all enjoyed double-digit gains, compared with 43 in the first quarter. Among decliners, Texas and Washington saw the smallest decreases, at 1.5%, while Maine and Wyoming saw the largest quarterly declines, at 28% each.

Year over year, all of the top 10 states saw double-digit growth in 25 Mbps broadband adoption rates. Gains ranged from 11% in Delaware to 65% in the District of Columbia, with 7 of the 10 states seeing quarterly increases of at least 30%. Across the country, all but three states saw yearly gains, led by Nevada with a 74% jump (to 6.8% adoption). The smallest increase was seen in Vermont, which grew 0.2% (to 5.7% adoption), but 38 states saw double-digit increases and 4 states had gains of at least 50%. On the losing side, New Hampshire dropped a modest 2.6% (to 6.3% adoption), while Wyoming and Maine fell 11% each (to adoption levels of 5.1% and 2.9% respectively).

Adoption rates for 25 Mbps broadband remain fairly low nationwide, with 46 states seeing levels below 10% — the same as in the first quarter. Alaska and Kentucky had the lowest adoption rates in the country, at 1.9% each, and 16 states had adoption levels below 5% — down from 17 in the first quarter.

	State	% Above 25 Mbps	QoQ Change	YoY Change
1	District Of Columbia	20%	20%	65%
2	Delaware	12%	-19%	11%
3	Utah	11%	-11%	30%
4	Washington	10%	-1.5%	48%
5	Massachusetts	10%	-1.8%	12%
6	Maryland	9.2%	16%	40%
7	Virginia	8.9%	18%	19%
8	California	8.5%	9.6%	45%
9	New York	8.5%	16%	35%
10	Rhode Island	8.4%	1.9%	51%

Figure 18: 25 Mbps Broadband Adoption by State

[SECTION]4 GEOGRAPHY AMERICAS

The metrics presented here for the Americas region (North and South America) are based on a subset of data used for Section 2 and are subject to the same thresholds and filters discussed within that section. The subset used for this section includes connections identified as coming from networks within North and South America, based on classification by Akamai's EdgeScape geolocation tool.

4.1 Americas Average Connection Speeds / In the second quarter, the United States again had the fastest average connection speed among surveyed Americas countries, although Canada was just 0.5 Mbps behind. As shown in Figure 19, the United States and Canada remained well ahead of the other countries in the region, with Canada staying more than 5 Mbps ahead of third-place Uruguay. Quarterly changes were mixed, with 10 of the 15 surveyed countries seeing increases and 5 seeing declines. Bolivia had the largest quarterly gain at 27%, continuing the momentum seen in the first quarter, while the remaining growth countries saw far more modest gains, ranging

Global Rank	Country/Region	Q2 2015 Avg. Mbps	QoQ Change	YoY Change
20	United States	11.7	1.0%	2.2%
21	Canada	11.2	-3.3%	6.9%
59	Uruguay	5.9	-11%	30%
63	Chile	5.6	-2.4%	32%
64	Mexico	5.5	11%	27%
74	Argentina	4.7	2.0%	14%
75	Peru	4.7	5.3%	52%
79	Colombia	4.5	-0.2%	35%
84	Ecuador	4.0	-1.1%	12%
90	Brazil	3.6	7.6%	25%
96	Panama	3.3	3.3%	17%
99	Costa Rica	3.2	4.8%	29%
123	Bolivia	1.9	27%	82%
135	Venezuela	1.6	7.9%	16%
137	Paraguay	1.5	6.9%	20%

Figure 19: Average Connection Speed by Americas Country

Global Rank	Country/Region	Q2 2015 Peak Mbps	QoQ Change	YoY Change
24	United States	50.4	-3.7%	11%
30	Canada	48.1	-2.7%	7.9%
33	Uruguay	47.7	-6.9%	-0.7%
54	Chile	37.0	0.8%	34%
73	Peru	28.5	10%	48%
76	Colombia	27.8	-3.1%	36%
78	Mexico	27.3	-1.9%	21%
80	Brazil	27.0	12%	32%
83	Argentina	25.6	4.6%	10%
88	Ecuador	24.9	8.4%	16%
117	Panama	17.6	-7.3%	29%
118	Costa Rica	17.3	18%	45%
122	Bolivia	16.8	40%	89%
126	Paraguay	15.0	30%	51%
131	Venezuela	13.9	30%	42%

Figure 20: Average Peak Connection Speed by Americas Country

from 1.0% in the United States to 11% in Mexico. Losses in declining countries were also fairly modest, ranging from 0.2% in Colombia to 11% in Uruguay.

All of the surveyed Americas countries saw positive yearly growth in the second quarter, though more muted than in the first. Bolivia posted the largest gain at 82%, followed by Peru at 52%. The United States saw the smallest annual increase at just 2.2%. Nine of the surveyed Americas countries had an average connection speed at or above the 4 Mbps threshold — the same as in the first quarter — although only the United States and Canada had speeds above the 10 Mbps broadband threshold.

4.2 Americas Average Peak Connection Speeds / As shown in Figure 20, the United States remained in the top spot for average peak connection speeds among surveyed Americas countries in the second quarter, despite a 3.7% quarterly decline to 50.4 Mbps. Canada and Uruguay, in the second and third spots, also saw quarterly decreases — of 2.7% and 6.9% to 48.1 Mbps and 47.7 Mbps respectively — but all three countries' average peak connection speeds stayed more than 10 Mbps faster than the remaining surveyed countries in the region.

Three other countries in the group also saw quarterly declines in average peak connection speeds in the second quarter, the largest being Panama's 7.3% decrease. The remaining nine countries saw increases, ranging from 0.8% in Chile to 40% in Bolivia. Six countries had double-digit gains.

Looking at year-over-year changes, all of the surveyed countries saw improvements in average peak connection speeds except for Uruguay, which saw a small 0.7% decline. Canada had the smallest yearly gain at 7.9% while Bolivia had the largest at 89%. Gains were mostly double-digit but were generally more muted than in the first quarter, with Paraguay being the only other country to see an increase of more than 50% compared with the second quarter of 2014.

4.3 Americas 4 Mbps Broadband Adoption / The sizeable difference in 4 Mbps broadband adoption rates between the top and bottom qualifying Americas countries narrowed ever so slightly in the second quarter, as first-place Canada declined slightly (to 86% adoption) and last-place Venezuela gained 55% (to 3.2% adoption), as seen in Figure 21. As noted before, it is likely that this gap will remain quite large for the foreseeable future. Besides Canada, Uruguay was the only other qualifying surveyed country in the Americas to see a decline, and its decrease was also minimal at 0.4%. Venezuela's gain was by far the largest among the qualifying countries, with others in the group posting increases that ranged from 0.5% in Ecuador to 18% in Mexico. Most of the quarterly gains were under 10%.

Year-over-year changes were all positive in the second quarter, though varying widely in magnitude. The United States and Canada once again saw the smallest increases — at 5.9% and 4.2%, respectively — while Argentina posted the next smallest yearly gain at 18%. Peru saw the largest yearly increase among the qualifying countries, with a 186% jump to 55% adoption, while Chile, Mexico, Costa Rica, Colombia, and Venezuela all saw 4 Mbps adoption levels grow more than 50%.

4.4 Americas 10 Mbps Broadband Adoption / As shown in Figure 22, the United States and Canada remained the clear leaders in 10 Mbps broadband adoption among the surveyed Americas

Global Rank	Country/Region	% Above 4 Mbps	QoQ Change	YoY Change
31	Canada	86%	-0.5%	4.2%
45	United States	77%	2.3%	5.9%
61	Chile	62%	0.8%	56%
62	Mexico	62%	18%	71%
66	Uruguay	61%	-0.4%	45%
71	Peru	55%	9.8%	186%
73	Colombia	50%	8.5%	95%
77	Argentina	42%	1.7%	18%
82	Ecuador	33%	0.5%	36%
83	Brazil	32%	5.5%	26%
88	Panama	23%	9.8%	48%
90	Costa Rica	19%	10%	80%
106	Venezuela	3.2%	55%	99%
–	Bolivia	3.9%	60%	224%
–	Paraguay	1.6%	-18%	57%

Figure 21: 4 Mbps Broadband Adoption by Americas Country

countries in the second quarter, with third-place Uruguay seeing adoption levels nearly 30 percentage points behind second-place Canada. Only four of the nine qualifying countries saw quarterly increases in adoption, led by Mexico with a 33% increase and Peru with a 25% increase. Colombia and Uruguay saw sizeable declines, of 42% and 37% respectively, while the United States had the smallest decrease at 1.1%.

Global Rank	Country/Region	% Above 10 Mbps	QoQ Change	YoY Change
18	United States	43%	-1.1%	10%
21	Canada	40%	-9.0%	14%
51	Uruguay	11%	-37%	128%
55	Argentina	7.7%	7.5%	42%
57	Chile	7.4%	-18%	61%
61	Mexico	6.2%	33%	67%
64	Peru	3.2%	25%	278%
65	Colombia	2.7%	-42%	172%
67	Brazil	2.4%	7.4%	18%
–	Ecuador	2.5%	-24%	-2.2%
–	Panama	1.2%	13%	32%
–	Costa Rica	1.1%	17%	56%
–	Bolivia	0.3%	56%	144%
–	Venezuela	0.3%	13%	9.7%
–	Paraguay	0.1%	-24%	76%

Figure 22: 10 Mbps Broadband Adoption by Americas Country

From a year-over-year perspective, all of the qualifying surveyed countries in the region showed gains during the second quarter, though less pronounced than those seen in the first quarter. The United States again had the most modest increase at 10%, with Canada and Brazil following at 14% and 18%, respectively. The remaining six qualifying countries posted more substantial yearly gains in 10 Mbps adoption levels, ranging from 42% in Argentina to 278% in Peru.

4.5 Americas 15 Mbps Broadband Adoption / As Figure 23 shows, nearly half of the surveyed countries in the Americas region again failed to qualify for inclusion in the 15 Mbps broadband adoption metric in the second quarter—although all of the countries that qualified for the 10 Mbps adoption metric qualified here as well, with the exception of Peru. Just as with the other broadband adoption metrics we have examined thus far, the United States and Canada continued to have adoption levels well above those seen in the remaining countries. However, both saw quarterly declines in adoption rates in the second quarter, as did three other qualifying countries. The declines ranged from 1.9% in the United States to 43% in Colombia. Only three countries saw gains in 15 Mbps adoption during the second quarter, with Argentina, Brazil, and Mexico posting increases of 20%, 26%, and 42% respectively.

Year-over-year numbers showed adoption growth across all of the qualifying surveyed Americas countries, but again the increases were more muted than in the first quarter. Colombia had the largest increase at 113%, but its low adoption rate (0.6%) means that even small shifts in the underlying data can appear as large percentage changes. Uruguay saw the next largest yearly increase at 64%, while the United States had the smallest increase at 7.6%.

Global Rank	Country/Region	% Above 15 Mbps	QoQ Change	YoY Change
18	United States	21%	-1.9%	7.6%
24	Canada	17%	-12%	8.0%
45	Uruguay	2.8%	-36%	64%
49	Mexico	1.7%	42%	41%
50	Chile	1.5%	-15%	20%
52	Argentina	1.5%	20%	19%
54	Brazil	0.6%	26%	14%
55	Colombia	0.6%	-43%	113%
–	Peru	0.6%	26%	206%
–	Ecuador	0.5%	-24%	-32%
–	Costa Rica	0.4%	5.6%	18%
–	Panama	0.3%	13%	16%
–	Venezuela	0.1%	-1.7%	4.5%
–	Bolivia	0.1%	60%	91%
–	Paraguay	<0.1%	11%	82%

Figure 23: 15 Mbps Broadband Adoption by Americas Country

[SECTION]5 GEOGRAPHY ASIA PACIFIC *(APAC)*

The metrics presented here for the Asia Pacific region are based on a subset of data used for Section 2 and are subject to the same thresholds and filters discussed within that section. The subset used for this section includes connections identified as coming from networks in the Asia Pacific region, based on classification by Akamai's EdgeScape geolocation tool.

5.1 Asia Pacific Average Connection Speeds / As shown in Figure 24, the top three countries/regions in the world for average connection speed in the second quarter were all found in the Asia Pacific region: South Korea, Hong Kong, and Japan. South Korea remained the clear leader despite a 2.1% quarterly decrease, but Hong Kong and Japan closed the gap with gains of 1.5% and 7.8%, respectively. Besides South Korea, the only other surveyed Asia Pacific country to see a quarterly decline was China, with a 7.1% decline to 3.4 Mbps. The remaining countries saw quarter-over-quarter gains ranging from 0.8% in New Zealand to 18% in Malaysia.

Global Rank	Country/Region	Q2 2015 Avg. Mbps	QoQ Change	YoY Change
1	South Korea	23.1	-2.1%	-11%
2	Hong Kong	17.0	1.5%	1.3%
3	Japan	16.4	7.8%	7.4%
14	Singapore	12.7	6.8%	22%
26	Taiwan	10.6	1.1%	6.5%
42	Thailand	8.6	17%	28%
43	New Zealand	8.4	0.8%	18%
46	Australia	7.8	4.8%	8.0%
65	Sri Lanka	5.3	10%	50%
70	Malaysia	5.0	18%	17%
92	China	3.4	-7.1%	-8.6%
95	Vietnam	3.3	3.0%	29%
101	Philippines	3.1	13%	23%
116	Indonesia	2.4	11%	-24%
117	India	2.4	5.8%	22%

Figure 24: Average Connection Speed by APAC Country/Region

Global Rank	Country/Region	Q2 2015 Peak Mbps	QoQ Change	YoY Change
1	Singapore	108.3	12%	60%
2	Hong Kong	94.8	2.4%	22%
3	South Korea	83.3	5.5%	12%
4	Japan	75.1	7.2%	19%
5	Taiwan	74.5	4.2%	32%
20	Thailand	51.5	1.7%	19%
47	Australia	40.3	0.3%	10%
50	New Zealand	38.1	3.7%	12%
57	Malaysia	36.5	16%	19%
67	Sri Lanka	31.4	1.9%	30%
84	Philippines	25.6	26%	15%
98	Vietnam	22.7	6.8%	29%
106	Indonesia	21.0	20%	-31%
112	India	18.7	7.6%	31%
113	China	18.4	-5.2%	0.3%

Figure 25: Average Peak Connection Speed by APAC Country/Region

Just as in the first quarter, in the second quarter, 10 of the 15 surveyed Asia Pacific countries/regions had average connection speeds above the 4 Mbps broadband threshold, and 5 of these exceeded the 10 Mbps threshold. Indonesia and India had the lowest average connection speeds among surveyed countries in the region, both at 2.4 Mbps.

Twelve of the fifteen surveyed countries/regions in the Asia Pacific region showed year-over-year growth in observed average connection speeds in the second quarter. Hong Kong had the smallest increase at 1.3%, while Sri Lanka had the largest at 50%. Eight countries in total enjoyed double-digit quarterly growth. The three declining countries — Indonesia, South Korea, and China — had decreases of 24%, 11%, and 8.6%, respectively.

5.2 Asia Pacific Average Peak Connection Speeds / In the second quarter, the top five global leaders in average peak connection speeds were all in the Asia Pacific region, as shown in Figure 25. Top-ranked Singapore broke through the 100 Mbps threshold in the second quarter, as its average peak connection speed increased 12% over the first quarter. With the exception of China, the rest of the countries in the region all saw average peak speeds increase as well, with quarterly gains ranging from 0.3% in Australia to 26% in the Philippines. China saw a 5.2% decrease from the first quarter, pushing it down to last place among the surveyed Asia Pacific countries/regions.

Year-over-year changes in the Asia Pacific region were mostly positive as well, with Indonesia posting the only loss — a 31% decline, again due mostly to a large, unexplained drop in the fourth quarter of 2014. The other 14 countries all saw yearly gains, ranging from 0.3% in China to 60% in Singapore, and five countries had yearly growth rates greater than 25%.

5.3 Asia Pacific 4 Mbps Broadband Adoption / In the second quarter, South Korea once again led the Asia Pacific region in 4 Mbps broadband adoption, with 96% of its IP addresses connecting to Akamai at average connection speeds above this threshold, as shown in Figure 26. Thailand jumped from fifth place in the region to second place after a 10% quarterly increase. Seven of the surveyed Asia Pacific countries/regions enjoyed 4 Mbps broadband adoption rates of 80% or higher, while Indonesia — the lowest ranking surveyed Asia Pacific country — had an adoption rate of just 9.0%, despite an impressive 51% quarterly increase. China was the only country to see a quarterly decline; its 4 Mbps adoption rate dropped 14% from the first quarter. The remaining surveyed countries/regions posted gains ranging from 0.3% in South Korea to 51% in Indonesia and the Philippines. Seven countries in total enjoyed double-digit quarterly gains.

Looking at year-over-year numbers, both Indonesia and China saw declines — of 61% and 16% respectively — while the rest of the surveyed countries/regions saw growth. South Korea had the smallest gains at 0.3%, while Vietnam and Sri Lanka posted the largest, with jumps of 121% and 223%, respectively.

Although China saw 4 Mbps broadband adoption decline in the second quarter, a number of recent announcements made by its government point toward a potential reversal of this trend in the medium-to-long term. In April, Chinese Premier Li Keqiang identified the Internet as a key driver for China's economy and introduced an "Internet Plus" plan to enable faster and cheaper broadband and mobile Internet access throughout the country.[29] This was followed by China's State Council announcing in May that the government had earmarked more than $180 billion to

Global Rank	Country/Region	% Above 4 Mbps	QoQ Change	YoY Change
1	South Korea	96%	0.3%	0.6%
5	Thailand	95%	10%	9.3%
10	Hong Kong	93%	1.3%	3.9%
16	Taiwan	90%	2.1%	14%
17	Japan	90%	0.7%	3.6%
26	New Zealand	87%	1.7%	15%
29	Singapore	87%	3.0%	7.4%
47	Sri Lanka	77%	18%	223%
50	Australia	74%	3.4%	14%
72	Malaysia	55%	27%	34%
84	Vietnam	32%	26%	121%
87	China	28%	-14%	-16%
96	Philippines	15%	51%	66%
99	India	11%	13%	58%
101	Indonesia	9.0%	51%	-61%

Figure 26: 4 Mbps Broadband Adoption by APAC Country/Region

Global Rank	Country/Region	% Above 10 Mbps	QoQ Change	YoY Change
1	South Korea	75%	-2.9%	-8.3%
2	Hong Kong	62%	3.5%	9.4%
5	Japan	60%	7.1%	8.6%
10	Singapore	50%	8.4%	29%
28	Taiwan	33%	-5.3%	19%
40	New Zealand	21%	-0.4%	40%
41	Thailand	20%	47%	99%
44	Australia	18%	4.8%	13%
62	Malaysia	4.5%	19%	-22%
68	India	1.6%	-7.0%	34%
69	China	1.2%	-17%	-28%
70	Indonesia	0.6%	76%	-64%
71	Vietnam	0.4%	-1.3%	3.0%
–	Sri Lanka	3.2%	105%	348%
–	Philippines	0.6%	8.5%	-30%

Figure 27: 10 Mbps Broadband Adoption by APAC Country/Region

increase broadband and mobile Internet speeds over the next three years, including investing roughly $70 billion on network infrastructure in 2015.[30]

Likewise, Indonesia — the other country to see broadband adoption decline in the second quarter — had encouraging news in its quest to achieve nationwide broadband coverage, a particularly ambitious goal due to the country's many remote islands and sparsely populated locales. In May, Indonesian satellite Internet provider BigNet announced plans to bring affordable broadband coverage across the country's 17,000 islands starting in 2017, through a long-term partnership with Singaporean provider Kacific Broadband Satellites.[31] Although this announcement may not have any short-term impact on Indonesia's broadband adoption rates, it offers hope for the future.

5.4 Asia Pacific 10 Mbps Broadband Adoption / Despite a 2.9% quarterly decrease in adoption levels in the second quarter, South Korea unsurprisingly led both the region and the world in 10 Mbps broadband adoption once again, with three-fourths of its IP addresses connecting to Akamai at average connection speeds above this threshold. However, with a 3.5% quarterly increase (to 62% adoption), second-place Hong Kong closed the gap with South Korea to 13 percentage points, down from 17 in the first quarter. At the other end of the spectrum, Indonesia and Vietnam joined the group of qualifying countries/regions this quarter, but both had adoption levels below 1.0%, as seen in Figure 27.

Like the first quarter, changes in adoption levels were mixed in the second quarter, with seven qualifying countries/regions seeing increases and six seeing declines. China had the only double-digit decline at 17%, while the remaining losses were small. India had the next largest decline — a modest pullback of 7.0% after its stunning 60% growth in the first quarter. Second quarter gains were varied, ranging from 3.5% in Hong Kong to 76% in Indonesia.

Year-over-year changes were mixed in the region as well. Nine qualifying Asia Pacific countries/regions saw adoption rates increase, led by Thailand, where adoption nearly doubled compared with the second quarter of 2014. Five other countries saw double-digit growth, while Vietnam saw the most modest increase in the region at 3.0%. Four qualifying countries saw adoption levels decline year over year, with Indonesia seeing the biggest drop at 64% and South Korea seeing the smallest at 8.3%.

5.5 Asia Pacific 15 Mbps Broadband Adoption / Given its substantial lead in the 4 Mbps and 10 Mbps broadband adoption metrics, it is not surprising that South Korea was once again the global leader in 15 Mbps broadband adoption as well, despite a 9.0% quarterly decline. As seen in Figure 28, 53% of the unique IP addresses from South Korea made requests to Akamai at average speeds of 15 Mbps or higher. Second-place Hong Kong saw a 1.5% quarterly increase in adoption to 40%, closing the gap with South Korea to 13 percentage points, down from 19 points in the first quarter. Third-place Japan closed the gap in the second quarter as well, with a 13% quarter-over-quarter increase to 38% adoption.

Six of the ten qualifying countries/regions in Asia Pacific saw gains in 15 Mbps adoption in the second quarter, with the largest increase — a 54% jump — occurring in Thailand. Among the four declining countries, losses ranged from 0.6% in Taiwan to 15% in China. China and India remained in the two bottom positions among the qualifying surveyed countries/regions, both with adoption levels below 1%.

Year-over-year changes in the 15 Mbps broadband adoption metric were mixed as well, with seven qualifying countries seeing adoption growth. With a 117% growth rate, Thailand was the only qualifying country to see adoption levels more than double. Yearly gains among the other qualifying countries ranged from 3.1% in Hong Kong to 49% in Singapore. Taiwan saw a small 1.6% loss, while adoption levels in China and South Korea both declined 21% compared with the second quarter of 2014.

Global Rank	Country/Region	% Above 15 Mbps	QoQ Change	YoY Change
1	South Korea	53%	-9.0%	-21%
2	Hong Kong	40%	1.5%	3.1%
3	Japan	38%	13%	12%
12	Singapore	26%	10%	49%
29	Taiwan	15%	-0.6%	-1.6%
38	New Zealand	7.2%	4.9%	48%
39	Australia	7.2%	6.0%	4.6%
40	Thailand	6.7%	54%	117%
53	India	0.6%	-6.3%	24%
56	China	0.2%	-15%	-21%
–	Malaysia	1.0%	0.7%	-38%
–	Sri Lanka	0.7%	106%	193%
–	Indonesia	0.2%	92%	-51%
–	Philippines	0.2%	1.4%	-27%
–	Vietnam	0.1%	-9.5%	-21%

Figure 28: 15 Mbps Broadband Adoption by APAC Country/Region

[SECTION]6 GEOGRAPHY *EUROPE, MIDDLE EAST, AND AFRICA (EMEA)*

The metrics presented here for the EMEA region are based on a subset of data used for Section 2 and are subject to the same thresholds and filters discussed within that section. The subset used for this section includes connections identified as coming from networks in the EMEA region, based on classification by Akamai's EdgeScape geolocation tool.

6.1 EMEA Average Connection Speeds / As noted previously, Ireland, which held the top spot among the surveyed EMEA countries in the first quarter, saw its average connection speed drop substantially in the second quarter with the removal of high-speed traffic from major cloud hosting providers. As shown in Figure 29, under the revised calculations, Sweden regained the top spot in the region with a 16.1 Mbps average connection speed, up 1.6% from the first quarter.

Of the 25 surveyed countries, 18 in total had average connection speeds at or above the 10 Mbps threshold, up from 14 in the first quarter. All of the surveyed countries except South Africa again saw average

connection speeds above the 4 Mbps broadband threshold. While three countries — South Africa, Turkey, and Israel — saw quarterly decreases in connection speeds, the declines were minimal (1.2% or less). The remaining countries all posted gains in the second quarter, though as seen with other world regions, the gains were more muted than in the first quarter. Increases ranged from 0.5% in Romania to 14% in Portugal. With a 12% gain, the United Arab Emirates was the only surveyed EMEA country besides Portugal to see a double-digit increase in the second quarter, whereas 10 countries enjoyed such gains in the first quarter.

Year-over-year changes in average connection speeds were again consistently positive for EMEA, although weaker overall than in the first quarter. Israel and Russia saw the smallest increases at 4% and 5% respectively, while Norway and the United Arab Emirates posted the largest gains, at 38% and 47%, respectively. Six surveyed countries saw yearly gains of at least 25%, down from 15 in the previous quarter. Still, the long-term growth trends across the EMEA region point to continued improvements in Internet connectivity within the surveyed countries.

6.2 EMEA Average Peak Connection Speeds / The EMEA region saw mixed changes in average peak connection speeds during the second quarter, as shown in Figure 30. Ten countries saw quarterly declines — compared with just one in the first quarter — though the decreases were small, ranging from 0.2% in Slovakia to 3.7% in Norway. Sweden remained unchanged, while 14 countries saw increases, with the United Arab Emirates seeing the only double-digit gain at 14%. The remaining increases ranged from 0.2% in Turkey to 7.1% in Belgium.

Eleven of the surveyed EMEA countries had average peak connection speeds of at least 50 Mbps, compared with twelve in the first quarter, but several countries were not far behind and could easily join the group in upcoming quarters. Just as in the first quarter, Romania held its spot as the regional leader, with an average peak connection speed of 72.1 Mbps, while South Africa continued to trail the pack at 16.8 Mbps, just over half the speed of the next-lowest country, Italy.

Year-over-year changes for the surveyed EMEA countries were all positive with the exception of Israel, which saw the smallest yearly growth in the first quarter and a 14% yearly decline in the second quarter. Norway and the United Arab Emirates had the largest year-

Global Rank	Country/Region	Q2 2015 Avg. Mbps	QoQ Change	YoY Change
4	Sweden	16.1	1.6%	18%
5	Switzerland	15.6	4.6%	6.4%
6	Netherlands	15.2	3.4%	11%
7	Norway	14.3	1.6%	38%
9	Finland	14.0	2.7%	27%
10	Czech Republic	13.9	2.4%	13%
12	Denmark	12.9	1.0%	14%
13	Romania	12.8	0.5%	9.6%
17	Belgium	12.4	4.2%	11%
18	Israel	12.1	-0.1%	4.0%
19	United Kingdom	11.8	1.4%	7.6%
22	Ireland	11.0	4.6%	10%
23	Austria	10.9	5.3%	6.4%
24	Germany	10.7	5.8%	21%
27	Portugal	10.4	14%	31%
28	Slovakia	10.3	9.9%	34%
31	Hungary	10.0	6.8%	14%
32	Poland	10.0	1.7%	25%
34	Spain	9.7	8.6%	22%
36	Russia	9.6	1.6%	5.0%
45	France	7.9	5.0%	12%
48	United Arab Emirates	7.0	12%	47%
54	Italy	6.4	4.1%	12%
56	Turkey	6.3	-0.2%	20%
94	South Africa	3.3	-1.2%	7.7%

Figure 29: Average Connection Speed by EMEA Country

Global Rank	Country/Region	Q2 2015 Peak Mbps	QoQ Change	YoY Change
6	Romania	72.1	0.6%	17%
8	Israel	71.4	6.2%	-14%
9	Sweden	62.8	0%	24%
12	Netherlands	60.9	2.1%	16%
14	Switzerland	59.4	-0.6%	11%
15	Belgium	57.3	7.1%	10%
17	Russia	54.2	1.9%	19%
18	Finland	53.2	0.5%	31%
19	Hungary	51.7	2.7%	17%
23	United Kingdom	50.9	-1.2%	8.5%
25	Norway	50.0	-3.7%	34%
27	Czech Republic	48.7	-1.6%	11%
29	Portugal	48.2	3.0%	9.1%
31	Denmark	48.1	0.6%	20%
32	United Arab Emirates	47.7	14%	35%
34	Spain	47.4	6.4%	27%
36	Germany	46.8	0.6%	12%
37	Ireland	46.4	-1.2%	9.5%
40	Slovakia	44.0	-0.2%	22%
41	Poland	43.5	-1.6%	22%
42	Austria	43.5	-1.1%	4.1%
52	Turkey	37.5	0.2%	21%
53	France	37.2	6.1%	24%
69	Italy	30.2	-0.3%	12%
123	South Africa	16.8	-0.3%	26%

Figure 30: Average Peak Connection Speed by EMEA Country

over-year growth, with increases of 34% and 35% respectively over the previous year. The remaining countries posted gains between 4.1% (in Austria) and 31% (in Finland), with 20 of the 25 surveyed countries seeing double-digit gains.

6.3 EMEA 4 Mbps Broadband Adoption / The second quarter saw mixed growth in 4 Mbps broadband adoption across the surveyed EMEA countries, as seen in Figure 31. Six countries saw quarterly losses in adoption, ranging from 0.1% in the Netherlands to 3.8% in South Africa, while 19 countries saw gains, ranging from 0.2% in Switzerland to 15% in the United Arab Emirates. With 95% adoption rates, the Netherlands and Israel led the EMEA countries in this metric in the second quarter, while a total of nine countries — up from seven in the previous quarter — enjoyed 4 Mbps adoption rates above 90%. The United Arab Emirates again led the group in quarterly growth rates, while 18 other countries saw gains ranging from 0.2% in Switzerland to 9.5% in Portugal. Six countries saw quarterly declines in the second quarter, though losses were small, ranging from 0.1% in the Netherlands to 3.8% in South Africa. South Africa once again had the lowest 4 Mbps adoption rate in the group by far, with fewer than one out of five IP addresses connecting to Akamai at or above the threshold speed. The remaining countries had much higher levels of adoption, with at least 7 out of every 10 unique IP addresses connecting to Akamai at average speeds of 4 Mbps or greater.

All of the surveyed EMEA countries once again saw 4 Mbps broadband adoption increase on a year-over-year basis. As with the previous speed metrics, the United Arab Emirates led the pack in yearly growth in the second quarter, posting a 67% gain over the previous year. The other countries saw more modest growth, ranging from 1.4% in Switzerland to 36% in South Africa, with a total of 13 countries seeing growth of more than 10%.

6.4 EMEA 10 Mbps Broadband Adoption / In the second quarter, Switzerland and the Netherlands led the EMEA region, both achieving 60% 10 Mbps broadband adoption, as seen in Figure 32. In addition to these two countries, Romania, Sweden, and Belgium all had more than half of their unique IP addresses connecting to Akamai at average speeds of at least 10 Mbps, while several other countries were close behind. Only three countries — Italy, Turkey, and South Africa — continued to see 10 Mbps broadband adoption rates below 10%, as the United Arab Emirates' quarterly gain of 24% pushed its adoption rate to 11% in the second quarter.

Global Rank	Country/Region	% Above 4 Mbps	QoQ Change	YoY Change
3	Netherlands	95%	-0.1%	6.5%
4	Israel	95%	1.1%	5.9%
7	Romania	94%	0.6%	4.0%
8	Denmark	93%	-0.2%	4.3%
9	Switzerland	93%	0.2%	1.4%
12	Sweden	92%	0.7%	9.6%
13	Belgium	91%	2.7%	7.6%
15	Austria	90%	-0.2%	8.4%
18	Finland	90%	1.7%	19%
22	Hungary	88%	1.0%	17%
23	Poland	88%	0.9%	20%
25	Portugal	87%	9.5%	18%
27	Germany	87%	0.7%	11%
30	Norway	87%	1.2%	22%
32	Czech Republic	86%	-0.8%	3.9%
33	United Arab Emirates	86%	14%	67%
34	United Kingdom	85%	0.6%	5.9%
35	Spain	84%	2.1%	13%
36	Russia	84%	-0.6%	9.2%
38	Slovakia	81%	8.4%	22%
42	Turkey	80%	5.2%	31%
49	France	75%	3.0%	9.8%
51	Ireland	72%	0.7%	14%
52	Italy	70%	1.5%	13%
94	South Africa	19%	-3.8%	36%

Figure 31: 4 Mbps Broadband Adoption by EMEA Country

Global Rank	Country/Region	% Above 10 Mbps	QoQ Change	YoY Change
3	Switzerland	60%	3.1%	9.4%
4	Netherlands	60%	-1.8%	16%
6	Romania	57%	-3.5%	16%
8	Sweden	53%	1.3%	29%
9	Belgium	53%	3.4%	24%
12	Denmark	49%	-1.2%	23%
13	Finland	48%	3.4%	41%
14	Norway	47%	3.9%	57%
15	Czech Republic	47%	-0.2%	15%
16	Israel	47%	-5.0%	0.2%
20	United Kingdom	41%	0.9%	17%
23	Portugal	38%	21%	60%
24	Ireland	36%	-0.1%	9.3%
25	Hungary	35%	12%	23%
27	Germany	34%	9.4%	40%
29	Russia	33%	1.4%	8.2%
30	Poland	33%	1.7%	49%
31	Austria	31%	5.6%	16%
32	Spain	31%	14%	55%
35	Slovakia	27%	12%	50%
42	France	20%	8.1%	30%
50	United Arab Emirates	11%	24%	179%
53	Italy	8.7%	19%	35%
60	Turkey	7.0%	-22%	55%
66	South Africa	2.7%	-11%	7.4%

Figure 32: 10 Mbps Broadband Adoption by EMEA Country

Quarterly changes in adoption rates were highly mixed across EMEA, with 17 countries seeing gains. The United Arab Emirates' gain was the largest, while other countries saw increases ranging from 0.9% in the United Kingdom to 21% in Portugal. Six countries in total had double-digit gains. On the flip side, eight countries had losses, with Ireland's 0.1% being the smallest. Only Turkey and South Africa suffered double-digit declines, at 22% and 11% respectively.

Yearly gains were achieved across all of the surveyed EMEA countries in the second quarter, and the United Arab Emirates led the region with a 179% increase in 10 Mbps adoption rates compared with the second quarter of 2014. The remaining countries saw gains ranging from 0.2% in Israel to 60% in Portugal. These gains were more muted than those in the first quarter, when the smallest annual increase was a robust 20%.

6.5 EMEA 15 Mbps Broadband Adoption / In the second quarter, 10 of the surveyed EMEA countries had at least one of five IP addresses connecting to Akamai at average speeds above 15 Mbps, down from 12 in the first quarter. As seen in Figure 33, Switzerland and Sweden led the group with 34% adoption rates, followed closely by the Netherlands with a 32% adoption rate. On the other end of the spectrum, South Africa remained the country with the lowest adoption level in the region, with a mere 1.5% of unique IP addresses connecting to Akamai at average speeds of 15 Mbps or more. As in the first quarter, five surveyed countries had adoption rates below 10% in the second quarter. Quarterly growth was mixed across the region, with 15 countries seeing increases, 1 remaining unchanged, and 9 seeing declines, whereas in the first quarter, only Turkey experienced a quarterly loss. In the second quarter, Turkey again had the largest decline at 28%, while other losses in the region ranged from 0.8% in Ireland to 9.2% in South Africa. Gains in the second quarter ranged from 0.7% in Poland to 28% in Portugal, with eight countries seeing increases of at least 10%.

Year over year, 22 of the surveyed EMEA countries enjoyed increases in 15 Mbps broadband adoption, led by Portugal and United Arab Emirates with increases of 92% and 134% respectively. Austria saw the smallest yearly gain at 0.6%, but 18 countries had double-digit gains. Two countries — Israel and Russia — saw declines of 10% and 3.6% respectively, while Ireland's adoption rate remained unchanged from the second quarter of 2014.

As with previous quarters, the second quarter saw a number of announcements underscoring the continued growth of fast broadband connectivity in Europe. In Ireland, major broadband provider Eircom is making a €2.5 billion (roughly $2.8 billion) infrastructure investment to deploy gigabit-speed services across the country — including its hard-to-reach rural communities. Having successfully trialed a rollout in the village of Belcarra, Eircom is holding a competition to find the next village to light up.[32] By 2020, Eircom plans to deliver gigabit speeds to 1.9 million homes and businesses, including 300,000 homes across 1,000 rural communities.[33] In the United Kingdom, a number of announcements were made as well. In May, the government announced that its Broadband Delivery U.K. program had enabled an additional 2.5 million premises — in areas that would otherwise not be viably served by the major telecommunications companies — to achieve broadband levels of at least 24 Mbps.[34] In June, Virgin Media announced the expansion of its 152 Mbps broadband services to 150,000 new homes in Manchester.[35] The expansion is part of Virgin Media's "Project Lightning", which ultimately expects to bring high-speed cable broadband to an additional 4 million homes in the next five years.

Global Rank	Country/Region	% Above 15 Mbps	QoQ Change	YoY Change
4	Switzerland	34%	6.7%	7.2%
5	Sweden	34%	-2.1%	30%
6	Netherlands	32%	-1.2%	11%
8	Norway	29%	0%	56%
9	Romania	27%	-4.2%	24%
11	Finland	26%	2.9%	36%
13	Czech Republic	26%	3.3%	16%
14	Denmark	24%	-1.2%	23%
16	Belgium	24%	4.5%	14%
17	United Kingdom	23%	-3.5%	14%
19	Israel	19%	-6.2%	-10%
21	Ireland	18%	-0.8%	0%
22	Portugal	18%	28%	92%
26	Germany	15%	13%	46%
27	Austria	15%	7.3%	0.6%
28	Poland	15%	0.7%	48%
30	Hungary	15%	22%	22%
31	Slovakia	15%	16%	55%
32	Spain	14%	27%	60%
33	Russia	13%	5.0%	-3.6%
37	France	7.5%	13%	29%
44	Italy	3.0%	20%	17%
46	United Arab Emirates	2.8%	13%	134%
47	Turkey	2.3%	-28%	63%
51	South Africa	1.5%	-9.2%	4.3%

Figure 33: 15 Mbps Broadband Adoption by EMEA Country

[SECTION]7 MOBILE CONNECTIVITY

The source data in this section encompasses usage from smartphones, tablets, computers, and other devices that connect to the Internet through mobile network providers. As noted in the Letter From The Editor, this quarter's report does not include mobile connection speed data or mobile browser usage data due to ongoing changes in Akamai's mobile network identification algorithms. However, it still includes insight into mobile voice and data traffic trends contributed by Ericsson, a leading provider of telecommunications equipment and related services to mobile and fixed operators globally.

7.1 Mobile Traffic Growth Ovserved by Ericsson / In mobile networks, the access medium (spectrum) is shared by different users in the same cell. It is important to understand traffic volumes and usage patterns in order to enable a good customer experience. Ericsson's presence in more than 180 countries and its customer base representing more than 1,000 networks enable it to measure mobile voice and data

volumes. The result is a representative base for calculating world total mobile traffic in 2G, 3G, and 4G networks (not including DVB-H, Wi-Fi, and Mobile WiMAX).

These measurements have been performed for several years. It is important to note that the measurements of data and voice traffic in these networks (2G, 3G, 4G/LTE) around the world show large differences in traffic levels between markets and regions and also between operators due to their different customer profiles.

Figure 34 shows total global monthly data and voice traffic. It depicts a strong increase in data traffic growth and almost flat voice traffic. The number of mobile data subscriptions is increasing rapidly and driving growth in data traffic along with a continuous increase in the average data volume per subscription. Data traffic grew around 15% between the first and second quarters of 2015, and increased 55% between the second quarter of 2014 and the second quarter of 2015.

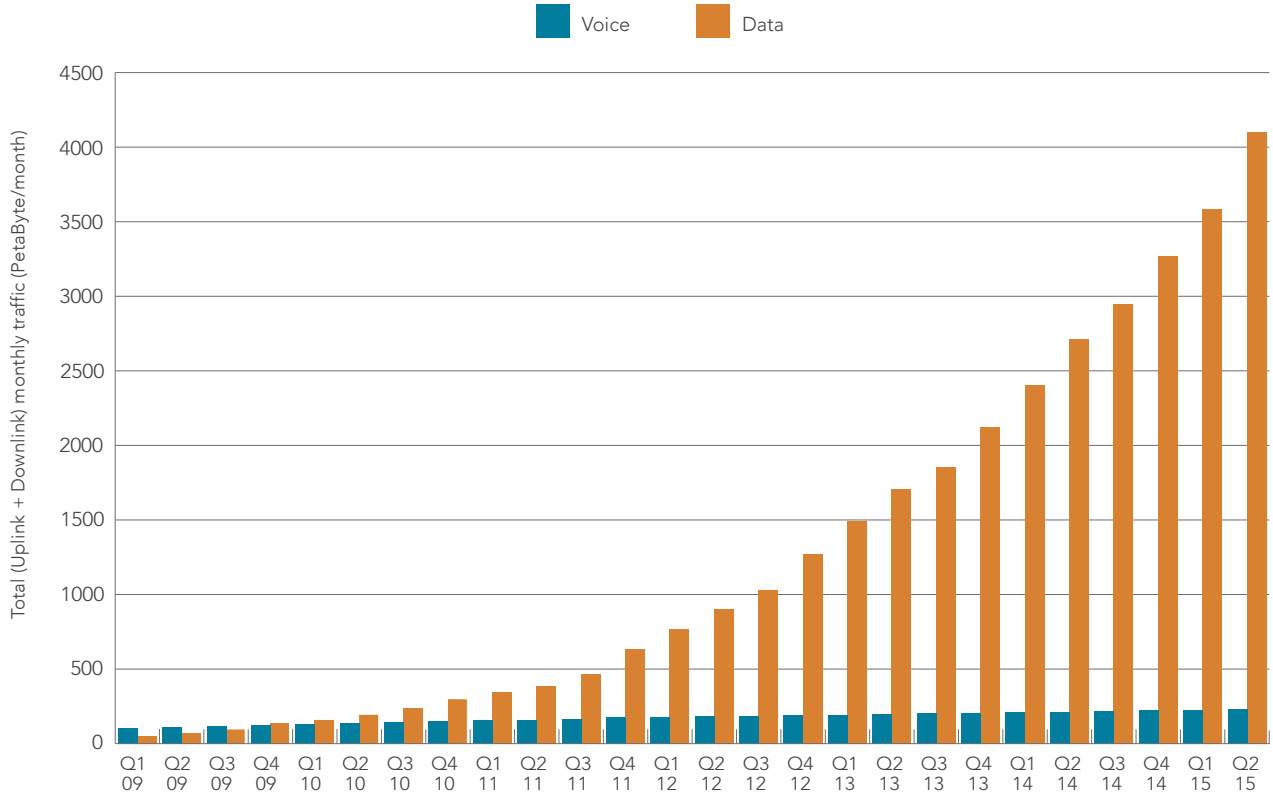


Figure 34: Total Monthly Mobile Voice and Data Traffic as Measured by Ericsson

[SECTION]8 SITUATIONAL PERFORMANCE

The metrics presented here are based on data collected through Akamai's Real User Monitoring (RUM) capabilities, which take passive performance measurements from actual users of a web experience in order to provide insight into performance across devices and networks. RUM is a complementary capability to synthetic testing, and the two can and should be used in conjunction to gain a comprehensive picture of user experience.

There are a few different RUM measurement methodologies. The first is using what is known as navigation timing[36] (or "navtiming"), which allows JavaScript to collect page load time component information directly from the user agent (browser) through an API. The second is to use a framework for timing web pages, like Web Episodes,[37] that leverages JavaScript events such as "onload." While navtiming is the preferred methodology for collecting RUM measurements, not every user agent supports it at this time.[38] Apple's Safari browser only began supporting it in version 8 on OS X and support is reportedly coming to mobile devices with iOS 9.

Android first added navtiming support in version 4.0 ("Ice Cream Sandwich") of the operating system, and Microsoft's Internet Explorer began support in version 9 of the browser.

Figure 35 shows average page load times for users on both broadband and mobile connections, based on RUM data collected by Akamai during the second quarter of 2015. The underlying data was collected with navtiming; therefore, as noted above, it does not include measurements from users of Safari on iOS devices or older versions of Android, Internet Explorer, or Safari on OS X. The countries included within the table were selected based on several criteria, including the availability of measurements from users on networks identified as mobile and those identified as broadband as well as having more than 90,000 measurements from mobile networks during the second quarter data collection period. In the second quarter, we include 69 countries in our analysis, up from 46 countries in the first quarter. Note that the inclusion criteria are subject to change in the future as we expand the scope of RUM measurements included within the *State of the Internet Report*.

In reviewing the average page load time measurements for broadband connections shown in Figure 35, we find the lowest values (i.e. fastest page load times) in Iran with a 1.1 second average load time, followed by Cambodia and Mexico, with 1.5 and 1.6 second load times, respectively. The country with the slowest broadband page load time was again Brazil, where pages took 6.4 seconds to load on average — roughly six times as long as Iran. Kenya and Venezuela rounded out the bottom three in terms of broadband measurements, with average load times of 5.9 and 5.7 seconds respectively. Note that these measurements do not just reflect broadband network speeds, but are also influenced by factors such as average page weight and page composition.

Looking at mobile networks, a surprising ten countries — dominated by the Asia Pacific region — posted extremely fast, sub-second average page load times. Laos had the fastest time, at 444 ms, followed by Bolivia and Panama, with average page load times of 533 ms and 569 ms, respectively. Note again that these measurements are affected by average page weight and page composition as well as mobile network speeds, and these fast times may reflect content that is lightweight and/or mobile-optimized. At the other end of the spectrum, Taiwan, Kenya, and Brazil had the highest average load times for mobile connections, at 9.5 seconds, 8.9 seconds, and 7.3 seconds, respectively.

In comparing the average broadband page load times to those observed on mobile connections, we again find significant variance in what we have dubbed the "mobile penalty" — that is, the ratio of average page load times on mobile connections versus average load times on broadband connections. As stated previously, this ratio should not be taken as a pure comparison of mobile versus broadband network speeds, as these speeds are just one factor in the overall user experience; average page weight — which is dependent both on the type of content requested as well as potential mobile-specific content optimizations — is another significant factor.

In the second quarter, the mobile penalty across surveyed countries ranged from 0.2x in Laos and Panama to 2.6x in Hong Kong, a slightly smaller variance than was seen in the first quarter. Of the 69 countries/regions surveyed, 31 had a mobile penalty lower than 1.0x, meaning that average page load times were faster on mobile connections than on broadband connections. This is approximately the same percentage of low mobile penalty countries/regions as seen in the first quarter. In the second quarter, eight countries had average mobile page load times that were less than half of their average broadband page load times. On the other end of the spectrum, Hong Kong and Taiwan, the two countries/regions with the highest mobile penalties, both had pages load at least twice as fast, on average, over broadband connections compared with mobile connections.

As more customers integrate Akamai's RUM capabilities and as more platforms support the navigation timing API, we expect that we will be able to expand the scope of the Situational Performance measurements presented within future issues of the *State of the Internet Report*.

Region	Country/ Region	Avg. Page Load Time Broadband (ms)	Avg. Page Load Time Mobile (ms)	Mobile Penalty
APAC	Australia	4407	4020	0.9x
APAC	Bangladesh	3420	3278	1.0x
APAC	Cambodia	1450	826	0.6x
APAC	China	3049	2955	1.0x
APAC	Hong Kong	2085	5382	2.6x
APAC	India	3805	5669	1.5x
APAC	Indonesia	2591	1458	0.6x
APAC	Iran	1097	881	0.8x
APAC	Israel	2727	1467	0.5x
APAC	Japan	2125	3810	1.8x
APAC	Kuwait	3185	2388	0.7x
APAC	Laos	2633	444	0.2x
APAC	Lebanon	2021	609	0.3x
APAC	Malaysia	3781	4457	1.2x
APAC	Myanmar	1911	1116	0.6x
APAC	New Zealand	2632	3085	1.2x
APAC	Oman	2458	759	0.3x
APAC	Pakistan	3188	1202	0.4x
APAC	Qatar	3279	2528	0.8x
APAC	Singapore	2877	3585	1.2x
APAC	South Korea	1727	3115	1.8x
APAC	Sri Lanka	4032	3945	1.0x
APAC	Taiwan	4009	9462	2.4x
APAC	Thailand	3002	2042	0.7x
APAC	United Arab Emirates	3250	4116	1.3x
APAC	Vietnam	2371	602	0.3x
EMEA	Austria	1871	2371	1.3x
EMEA	Belgium	1933	1977	1.0x
EMEA	Czech Republic	2037	2346	1.2x
EMEA	Denmark	1943	2708	1.4x
EMEA	Egypt	2377	1631	0.7x
EMEA	France	2576	2865	1.1x
EMEA	Germany	1971	1778	0.9x
EMEA	Greece	3200	4783	1.5x
EMEA	Hungary	1748	1993	1.1x
EMEA	Ireland	3099	3906	1.3x
EMEA	Italy	2717	2976	1.1x
EMEA	Kenya	5927	8914	1.5x
EMEA	Morocco	2177	858	0.4x
EMEA	Netherlands	1941	2500	1.3x
EMEA	Norway	2026	2850	1.4x
EMEA	Poland	2184	2603	1.2x
EMEA	Romania	2201	2073	0.9x
EMEA	Russia	2267	2428	1.1x
EMEA	Slovakia	2170	2356	1.1x
EMEA	South Africa	4777	5514	1.2x
EMEA	Spain	2494	3685	1.5x
EMEA	Sweden	1745	3056	1.8x
EMEA	Switzerland	2064	2519	1.2x
EMEA	Turkey	2226	2509	1.1x
EMEA	Ukraine	2429	2342	1.0x
EMEA	United Kingdom	3138	4724	1.5x
N. America	Canada	2788	4629	1.7x
N. America	Dominican Republic	2738	1732	0.6x
N. America	El Salvador	3706	2120	0.6x
N. America	Jamaica	3591	2932	0.8x
N. America	Mexico	1623	946	0.6x
N. America	Panama	2585	569	0.2x
N. America	Puerto Rico	3079	2191	0.7x
N. America	United States	2643	4241	1.6x
S. America	Argentina	3915	2320	0.6x
S. America	Bolivia	1908	533	0.3x
S. America	Brazil	6410	7324	1.1x
S. America	Chile	2630	2471	0.9x
S. America	Colombia	2653	1712	0.6x
S. America	Paraguay	4615	3032	0.7x
S. America	Peru	3247	2288	0.7x
S. America	Uruguay	3466	3806	1.1x
S. America	Venezuela	5662	3789	0.7x

Figure 35: Average Page Load Times Based on Real User Monitoring

[SECTION]9 INTERNET DISRUPTIONS +EVENTS

Internet disruptions are unfortunately still all too common — occurring in some countries/regions on a frequent basis. These disruptions may be accidental (backhoes or ship anchors severing buried fiber), natural (hurricanes or earthquakes), or political (governments shutting off Internet access in response to unrest). Because Akamai customer content is consumed by users around the world, the results of these disruptions — whether brief or spanning multiple days — is evident in the levels of Akamai traffic delivered to the affected country/region.

The content presented in this section provides insights into how Akamai traffic was impacted by major Internet disruptions and events during the second quarter of 2015.

9.1 Gabon / Following closely on the heels of a couple of Internet outages in March 2015 (discussed in the *First Quarter, 2015 State of the Internet Report*) that were purportedly caused by striking Gabon Telecom workers, Gabon experienced a number of additional

connectivity failures in April. The most notable was a three-day outage from April 3 to April 6 that took out 65% of the routed networks in the country.[39] Akamai saw a sudden, near-90% drop in traffic to Gabon around 12:25 A.M. UTC on April 3, with traffic remaining unusually low until roughly 3:45 A.M. UTC on April 6. The outage was reportedly due to sabotage of the underwater fiber-optic cable providing connectivity to Gabon and may have been connected to the Gabon Telecom strikes, although the workers have denied involvement. [40]

9.2 Cameroon / As seen in Figure 37, Akamai observed traffic to Cameroon fall precipitously to 1% of previous levels around 10:40 P.M. UTC on April 10. Traffic remained at these suppressed levels for about two and a half hours. Dyn Research, the Internet monitoring arm of Internet performance company Dyn, noted that 152 networks, representing 84% of the routed networks in Cameroon, experienced an outage at this time, though the cause has not been reported on.[41]

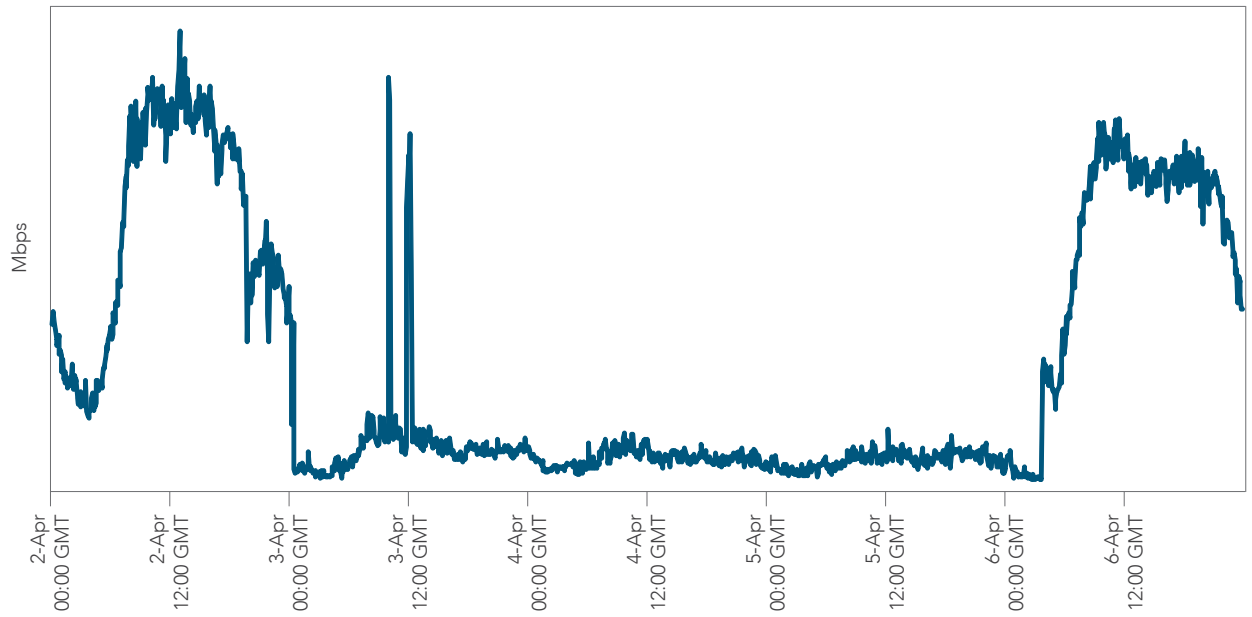


Figure 36: Akamai Traffic Served to Gabon, April 2–7, 2015

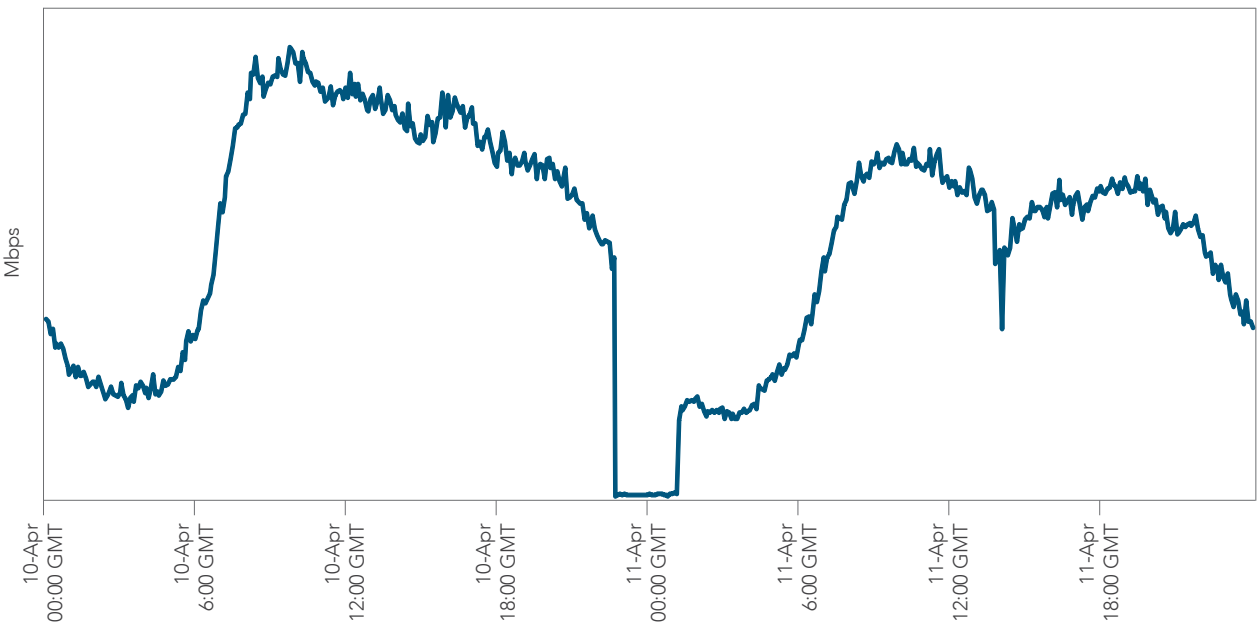


Figure 37: Akamai Traffic Served to Cameroon, April 10–11, 2015

9.3 Nepal / On April 25, Nepal endured the deadliest earthquake in its history, killing many thousands and injuring tens of thousands more. Though far overshadowed by the unimaginable loss of life and the devastation of its physical infrastructure, damage to Nepal's Internet infrastructure hindered one of the key communication mechanisms for relief and aid efforts in the region following the disaster. Immediately after the quake hit at 6:11 A.M. UTC, Akamai saw traffic to Nepal drop to 11% of previous levels. As shown in Figure 38, traffic levels recovered gradually over the next several days, returning to more typical levels after four or five days. Dyn Research reported that Nepal did retain much of its international Internet access after the quake, but local power outages and damaged fiber cables meant that many consumers, enterprises, and smaller ISPs throughout the country lost connectivity.[42]

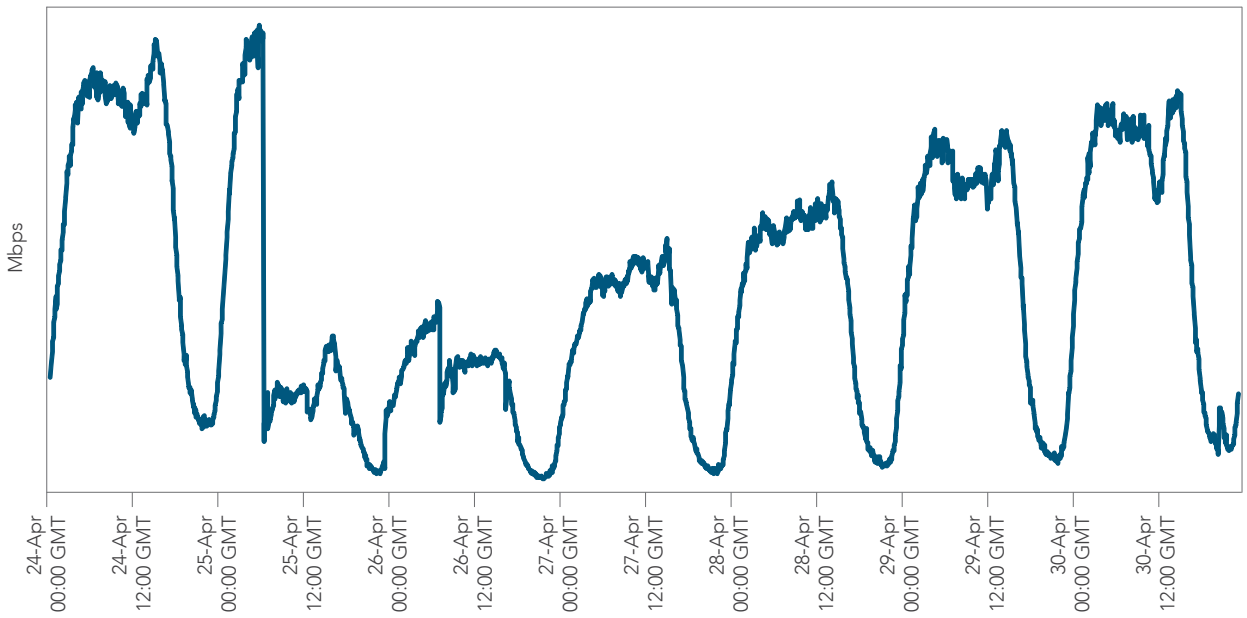


Figure 38: Akamai Traffic Served to Nepal, April 24–May 1, 2015 (Earthquake)

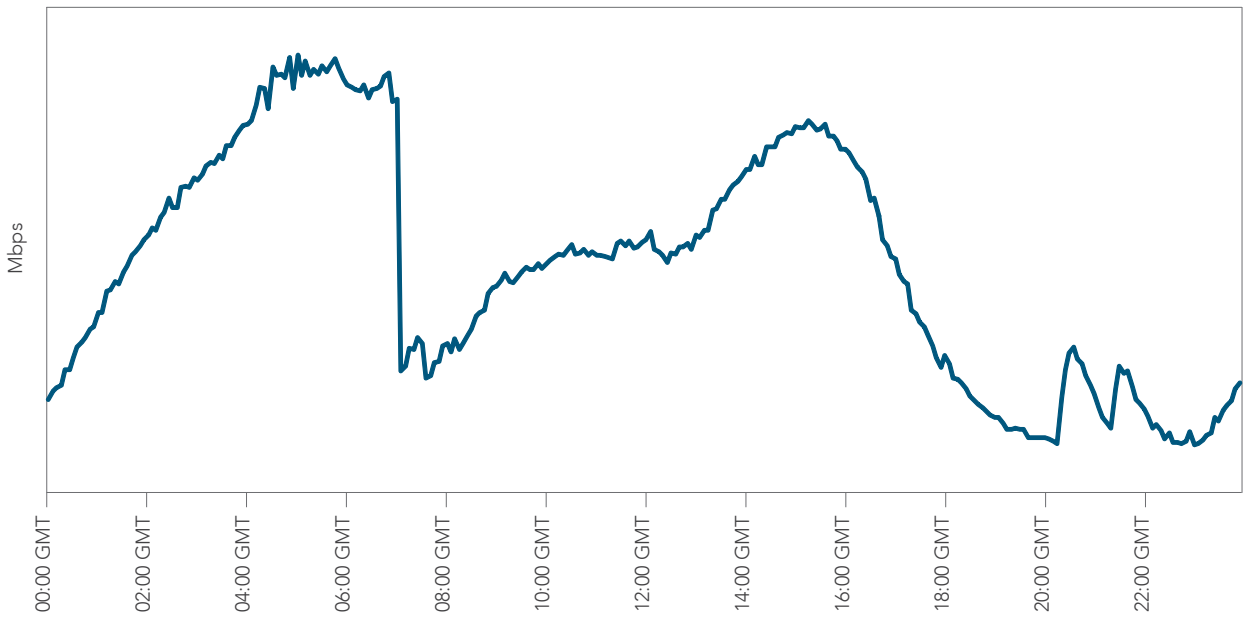


Figure 39: Akamai Traffic Served to Nepal, May 12, 2015 (Aftershock)

On May 12, Nepal suffered a severe 7.3-magnitude aftershock to the April 25 earthquake, causing additional Internet connectivity problems. As seen in Figure 39, Akamai saw traffic to Nepal drop to about one-third of previous levels at 7:05 A.M. UTC, when the aftershock hit. Traffic levels recovered back to normal over the next several hours.

9.4 Iraq / On June 27, Akamai observed traffic to Iraq fall off sharply between approximately 1:00 A.M. and 2:00 A.M. UTC, with traffic levels dropping more than 80% over the course of the hour then continuing to drop gradually until about 5:00 A.M. Later, around 4:30 P.M., another brief dip occurred as traffic to Iraq dropped nearly 50%, but it recovered within half an hour or so. As shown in Figure 40, this pattern repeated itself with uncanny similarity two days later, on June 29. Dyn Research corroborated the outages, noting that the Iraqi government reportedly ordered the shutdowns to prevent cheating on national school exams.[43, 44]

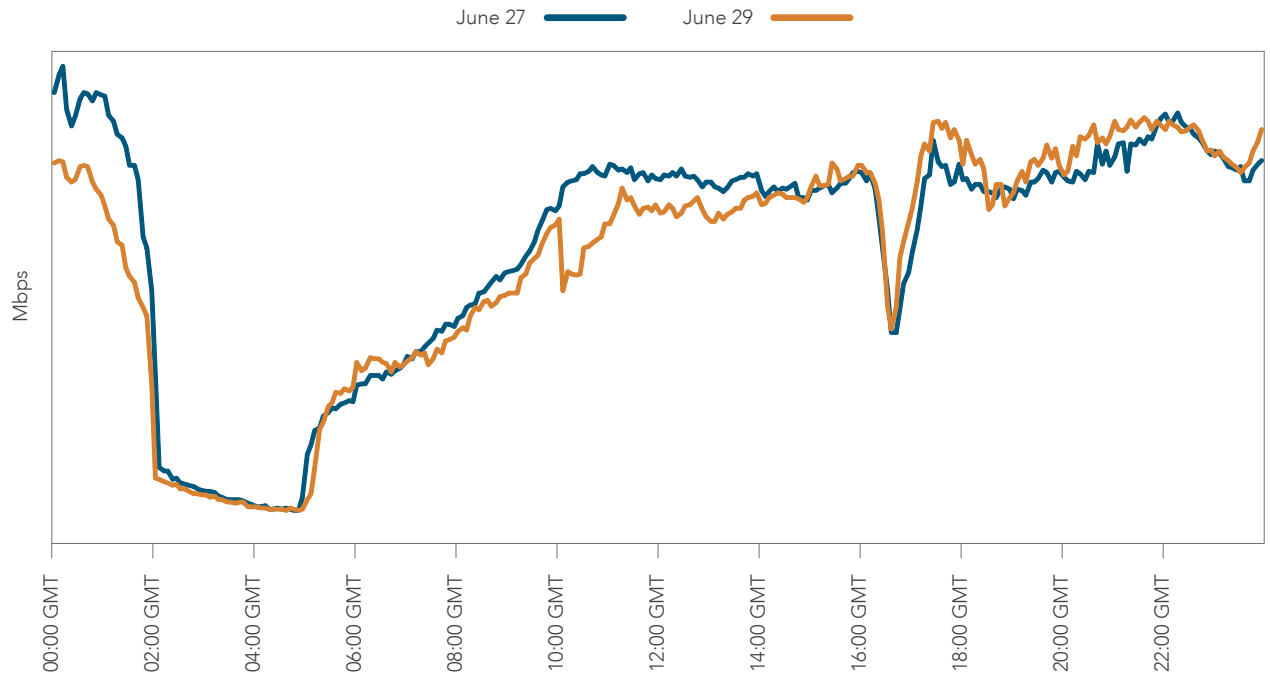


Figure 40: Akamai Traffic Served to Iraq, June 27 & 29, 2015

Region	Unique IPv4 Addresses	Average Connection Speed (Mbps)	Average Peak Connection Speed (Mbps)	% Above 4 Mbps	% Above 10 Mbps	% Above 15 Mbps
AMERICAS						
Argentina	7,911,581	4.7	25.6	42%	7.7%	1.5%
Bolivia	294,008	1.9	16.8	3.9%	0.3%	0.1%
Brazil	45,956,304	3.6	27.0	32%	2.4%	0.6%
Canada	14,575,081	11.2	48.1	86%	40%	17%
Chile	4,146,700	5.6	37.0	62%	7.4%	1.5%
Colombia	10,810,727	4.5	27.8	50%	2.7%	0.6%
Costa Rica	493,869	3.2	17.3	19%	1.1%	0.4%
Ecuador	988,123	4.0	24.9	33%	2.5%	0.5%
Mexico	14,171,388	5.5	27.3	62%	6.2%	1.7%
Panama	498,012	3.3	17.6	23%	1.2%	0.3%
Paraguay	171,478	1.5	15.0	1.6%	0.1%	<0.1%
Peru	1,075,890	4.7	28.5	55%	3.2%	0.6%
United States	148,639,332	11.7	50.4	77%	43%	21%
Uruguay	1,150,495	5.9	47.7	61%	11%	2.8%
Venezuela	4,249,646	1.6	13.9	3.2%	0.3%	0.1%
ASIA PACIFIC						
Australia	9,386,951	7.8	40.3	74%	18%	7.2%
China	125,177,422	3.4	18.4	28%	1.2%	0.2%
Hong Kong	3,129,383	17.0	94.8	93%	62%	40%
India	17,742,759	2.4	18.7	11%	1.6%	0.6%
Indonesia	5,737,700	2.4	21.0	9.0%	0.6%	0.2%
Japan	45,630,011	16.4	75.1	90%	60%	38%
Malaysia	2,017,720	5.0	36.5	55%	4.5%	1.0%
New Zealand	2,114,807	8.4	38.1	87%	21%	7.2%
Philippines	1,390,409	3.1	25.6	15%	0.6%	0.2%
Singapore	1,761,875	12.7	108.3	87%	50%	26%
South Korea	23,356,577	23.1	83.3	96%	75%	53%
Sri Lanka	217,896	5.3	31.4	77%	3.2%	0.7%
Taiwan	11,044,378	10.6	74.5	90%	33%	15%
Thailand	3,384,477	8.6	51.5	95%	20%	6.7%
Vietnam	5,915,660	3.3	22.7	32%	0.4%	0.1%
EUROPE, MIDDLE EAST & AFRICA						
Austria	3,123,998	10.9	43.5	90%	31%	15%
Belgium	5,060,660	12.4	57.3	91%	53%	24%
Czech Republic	1,907,726	13.9	48.7	86%	47%	26%
Denmark	3,003,494	12.9	48.1	93%	49%	24%
Finland	2,660,519	14.0	53.2	90%	48%	26%
France	29,146,069	7.9	37.2	75%	20%	7.5%
Germany	35,855,965	10.7	46.8	87%	34%	15%
Hungary	2,845,709	10.0	51.7	88%	35%	15%
Ireland	1,995,304	11.0	46.4	72%	36%	18%
Israel	2,441,920	12.1	71.4	95%	47%	19%
Italy	17,412,163	6.4	30.2	70%	8.7%	3.0%
Netherlands	9,171,094	15.2	60.9	95%	60%	32%
Norway	3,961,721	14.3	50.0	87%	47%	29%
Poland	8,095,977	10.0	43.5	88%	33%	15%
Portugal	3,585,997	10.4	48.2	87%	38%	18%
Romania	3,370,097	12.8	72.1	94%	57%	27%
Russia	18,640,652	9.6	54.2	84%	33%	13%
Slovakia	1,037,901	10.3	44.0	81%	27%	15%
South Africa	5,654,248	3.3	16.8	19%	2.7%	1.5%
Spain	15,020,699	9.7	47.4	84%	31%	14%
Sweden	6,147,053	16.1	62.8	92%	53%	34%
Switzerland	3,855,306	15.6	59.4	93%	60%	34%
Turkey	9,004,912	6.3	37.5	80%	7.0%	2.3%
United Arab Emirates	1,465,659	7.0	47.7	86%	11%	2.8%
United Kingdom	30,988,392	11.8	50.9	85%	41%	23%

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