Environmental Sustainability at Akamai

Akamai
FASTER FORWARD

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A Message from Akamai CEO, Tom Leighton

In 2009, Akamai launched its sustainability initiative designed to measure and mitigate the environmental impact of our business operations. Over this period, we have made significant progress in maturing and formalizing this initiative as well as addressing material environmental impacts of our greenhouse gas (GHG) emissions and electronic waste generation. Reducing energy and GHG impacts is of growing importance to our customers as well. Our success helps our customers achieve their sustainability goals. Looking through the lens of sustainability provides a fresh perspective that stimulates new ways of thinking about our operations, markets and supply chain, and inspires innovation.

Increasing the energy efficiency and productivity of our network is our biggest opportunity to improve the sustainability of our operations by reducing energy consumption and the associated GHG emissions. It is also an example of alignment of sustainability with key business drivers: reducing costs, stimulating innovation, and aiding customers in meeting their sustainability goals. To demonstrate our commitment and inspire thinking big, we set a goal to reduce our network energy and GHG intensity relative to traffic 30% year-over-year.

Relative to this target, over the past five years we've averaged 30% per year energy and carbon intensity reductions, and total reductions of 85% since January 2009. Even more exciting, as a result of our efforts to innovate around network productivity and efficiency, we have decoupled our absolute energy consumption and greenhouse gas emissions from network traffic growth, flattening these impacts even as our traffic continues to grow exponentially. These achievements have resulted in tens of millions of dollars in CAPEX and OPEX savings.

Beyond energy and GHG, Akamai has also taken steps to responsibly manage our large volume of decommissioned electronic equipment such as servers and laptops. In 2012 Akamai became an e-Stewards Enterprise taking a leadership role in helping to address the growing worldwide electronic-waste crisis. Consistent with the most rigorous standards program for electronics recycling practices, we now use only e-Stewards certified partners. Prioritizing resale and then recycling, we maximize the economic value of these assets. Akamai has a goal to process 100% of our electronic waste through e-Stewards certified asset management vendors or their partners. In 2013 we achieved 98%.

Transparency is a core tenant of our sustainability initiative. In addition to the information we provide on our website, Akamai publicly discloses to the Carbon Disclosure Project response since 2009 providing insights into our climate change management strategy, metrics and progress.

To ensure we achieve our goals, it is important that we approach sustainability not as a tactic or single objective, but as a way of thinking about systems and processes, uncovering more efficient and innovative ways of doing things, looking at the future landscape and markets for opportunities and risks. By working together, I believe Akamai is truly positioned to take a leadership role in minimizing the environmental impact of information technology systems.

Thank you,

Dr. Tom Leighton
Chief Executive Officer and Co-Founder

Akamai's Environmental Sustainability Policy

At Akamai, we are committed to providing services that help our customers leverage the Internet and improve their own environmental sustainability practices. Our goal is to mitigate the environmental impact of our global operations by infusing measurable sustainability practices throughout our organization, and to be a leader in environmental responsibility in the information communications technology sector. To accomplish this, we will strive to:

Sustainable Activities

- Conserve energy and improve energy efficiency throughout our operations with the goal of mitigating our greenhouse gas emissions.
- Responsibly manage and dispose of our electronic waste.
- Lease and renovate office space consistent with LEED® standards.
- Conserve natural resources through source reduction, material reuse and recycling, and the purchase of materials containing recycled and/or renewable natural resources.
- Incorporate sustainable procurement practices where possible.
- Support a distributed worker program.
- Incorporate our environmental principles into our business relationships by seeking similar commitments to the environment from our major suppliers.

Stakeholder Awareness

- Foster employee awareness and active participation through corporate communications and select training programs.
- Promote open dialogue and share best practices with our stakeholders.

Corporate Governance

- Set objectives and targets to promote improvement in our environmental performance.
- Integrate these practices into our business planning, decision-making, performance tracking and review processes to help us achieve stated goals.
- Conduct appropriate reviews of our compliance with this policy, measure progress of our performance, and report periodically to our customers, employees, the Board of Directors, shareholders, and the general public.

Key Initiatives

For the greatest impact, Akamai's sustainable programs focus on several key areas – network carbon efficiency, electronic waste management and an environmentally lower-impact corporate office renovation program.

A More Efficient Network. Reducing energy consumption and associated greenhouse gas emissions of our 150,000+ servers by utilizing more efficient components, leveraging power management, consolidating services, improving asset management and maintenance procedures, and optimizing code for higher per server productivity.

Our goal is to reduce our network energy and GHG intensity relative to network traffic by 30% per year.

Reduced Electronic Waste. Managing our decommissioned electronic assets in a socially- and environmentally-responsible manner by upgrading systems for reuse, reselling, and recycling these assets in partnership with e-Stewards-certified vendors. Akamai is an e-Stewards Enterprise.

Our goal is to process all of our electronic waste through these certified vendors or their partners.

Environmentally Lower-Impact Corporate Offices. Implementing Leadership in Energy & Environmental Design (LEED®) standards for our main corporate office renovations, along with other recycling and waste reduction programs.

Our goal is that all current and future projects are designed and built to LEED standards.

Transparency and Accountability. Sharing our sustainability goals, strategies and progress on our website and through voluntary, annual reporting to the CDP (formerly the Carbon Disclosure Project).

Lower Power Consumption Corporate Computing Resources. Implementing virtualization and power management for our PC/laptop and server assets, and incorporating Energy Star and Electronic Product Environmental Assessment Tool (EPEAT®) ratings into procurement process.

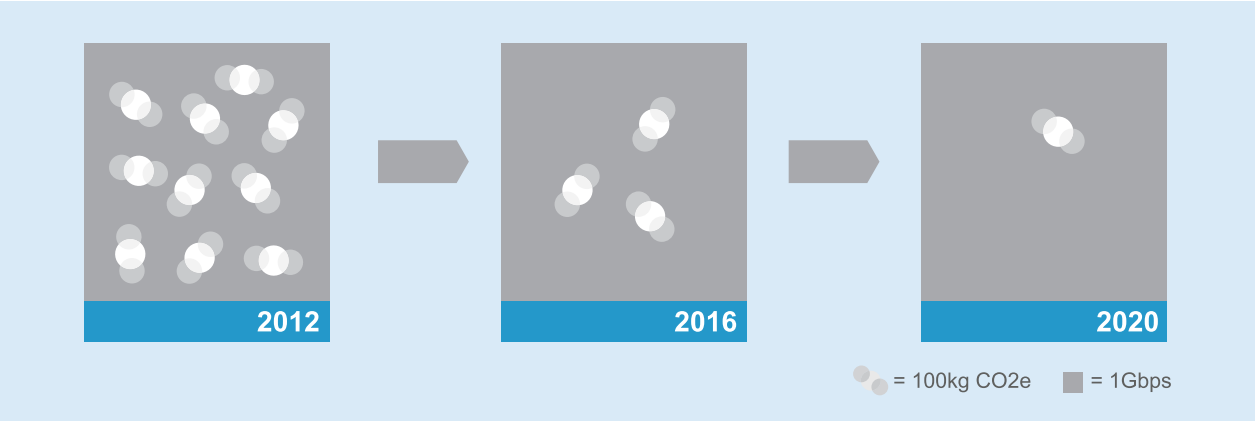
Reduced Travel. Encouraging remote collaboration and reduced travel with upgraded video conferencing equipment, remote collaboration tools, and work-from-home programs.

Extended Impact through Supply Chain Collaboration. Engaging our network data center providers to improve the energy and carbon efficiency of their operations.

Network Energy & Carbon Efficiency

Given the sheer scale, processing power and energy consumption of Akamai's global service delivery platform, it's no surprise that our engineers' focus on making the platform run as efficiently as possible also serves our long-term sustainability objectives.

Target: Reduce network energy and Scope 2 GHG intensity by 30% year over year.



Maximize Server Efficiency and Utilization

From an environmental standpoint, our server platform is the area where reducing waste and improving performance will pay the largest dividend in terms of reducing carbon emissions. Our network operations represent more than 90% of our overall environmental (or carbon) footprint so small gains in efficiency make a big difference in our net environmental impact.

Energy and Productivity Initiatives

Akamai has energy and productivity initiatives in place that have the potential to achieve significant efficiency improvements, including:

Code Optimizations

- Identifying and rewriting inefficient code to increase the capacity of our network without adding more servers.
- Implementing code enhancements and new infrastructure architecture to streamline intra-network data transfer.
- Improving power proportionality of servers, including minimizing CPU power consumption during idle periods.

Hardware and Infrastructure Optimizations

- Deploying less expensive, custom-designed servers that maximize performance per Watt.
- Redesigning server rack architecture to maximize utilization of power.

Process Optimizations

- Improving server management, such as quickly identifying and decommissioning or repurposing disabled servers.

Network Carbon Intensity

As shown below in Figure 1, continuous innovation in hardware, management and code efficiency since 2009 have resulted in an 85% reduction in energy consumption and carbon emissions relative to network traffic. This despite an eleven-fold increase in peak traffic in the same timeframe.

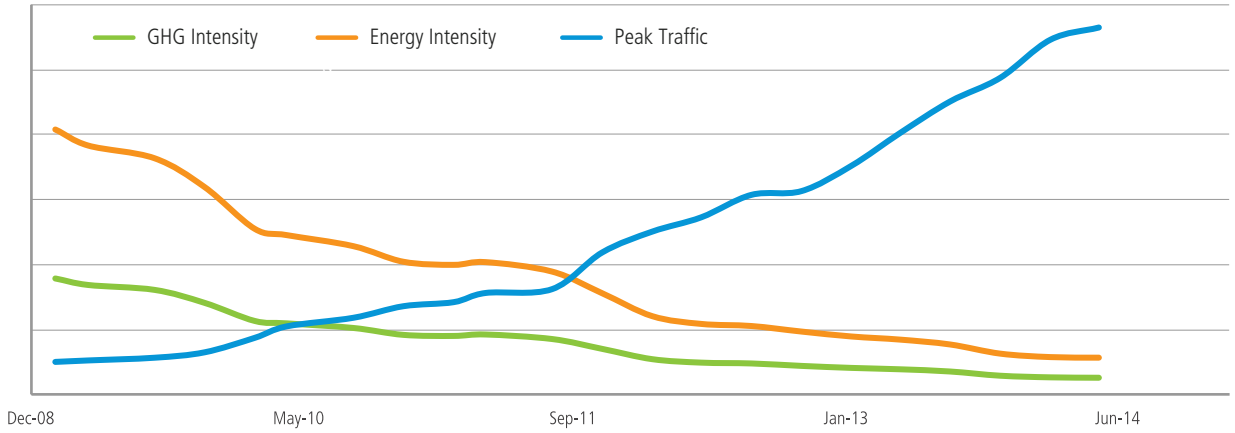


Figure 1. Network Energy and Carbon Intensity Reduction versus Peak Traffic (data plotted quarterly sum/average).

Even more relevant is our success in decoupling our absolute energy and carbon impacts from our business growth, that is, our network traffic. Despite exponential growth of our traffic these impacts have been flat for several years.

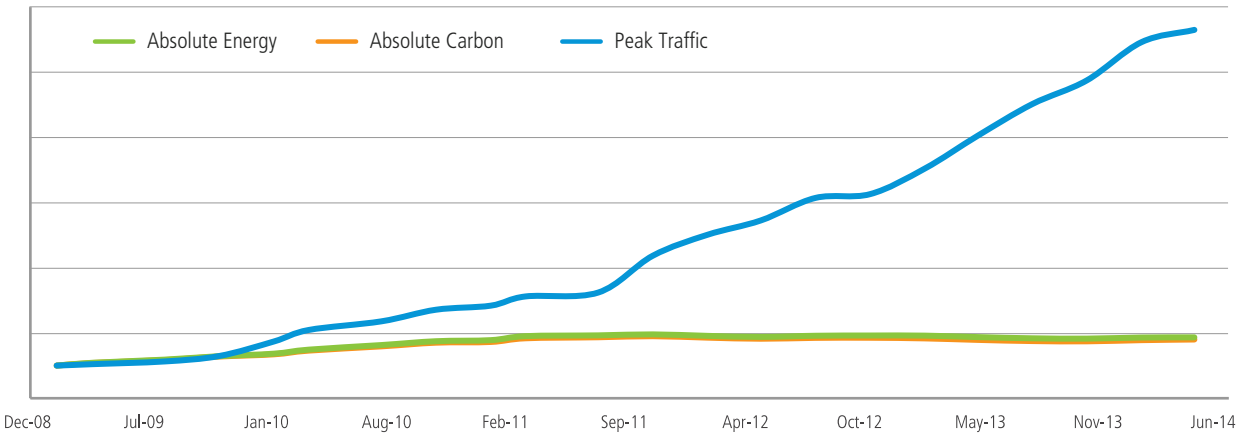


Figure 2. Akamai Network Normalized Absolute Energy and Carbon versus Peak Traffic.

Supply Chain Collocation

Another major component of Akamai's carbon footprint is the energy consumption from our third-party data center ollocation providers that house Akamai servers. Ancillary services provided by these vendors such as cooling and power redundancy adds significant power consumption on top of actual server power utilization, increasing total power consumption and carbon emissions. Furthermore, while energy efficiency is a key mechanism to decrease our carbon footprint, our network will always consume energy. Therefore, decarbonizing the electricity used by these collocation data centers is also an important focus. We are engaging with our collocation data center providers to pursue increased energy efficiency and decarbonization of their data center energy.

Akamai annually conducts a sustainability survey of our collocation data centers, tracking KPI's such as Power Usage Effectiveness[1], Carbon Usage Effectiveness[1], Water Usage Effectiveness[1], integration of renewable energy and environmental sustainability management practices. These metrics are used to more accurately quantify Akamai's network supply chain sustainability impacts, and monitor the progress of these facilities.

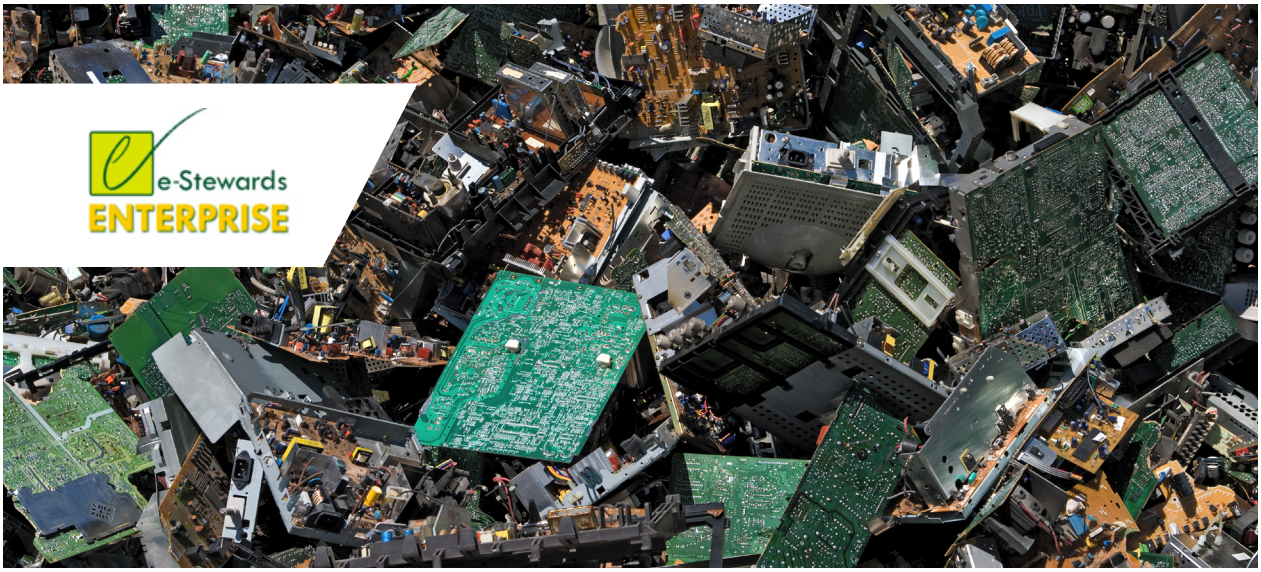
Electronic Waste Management Program

Akamai maximizes the use of its electronic equipment by upgrading systems for reuse, reselling, and finally recycling and disposal of end-of-life equipment.

Target: Process 100% of our electronic waste at e-Stewards certified facilities.

In 2011 Akamai began a program to prioritize socially- and environmentally-responsible disposal of our decommissioned electronic assets, often called "electronic waste (e-waste)". In addition to our office electronic waste such as laptops, desktops, and monitors, supporting 4,300+ employees, the Akamai Intelligent Platform™ consists of 150,000+ servers. Over time we replace older servers with more powerful and efficient servers. Some decommissioned electronic assets and components are still useful and can be resold or recycled. Because electronic components can be hazardous to one's health and the environment, it's important to Akamai that useful components are reused and the remainder is recycled so that no content ends up in landfills or contaminates the environment or communities.

While there are laws regulating how e-waste is processed, currently these laws do not completely ensure socially and environmentally responsible processing of electronic waste. To fill this gap, the *Basel Action Network* (BAN) developed a rigorous certification program for asset management companies that process electronic waste. This certification program through BAN's *e-Stewards* initiative helps Akamai verify that our vendors and their many downstream vendors comply with a set of standards designed to ensure the secure and socially- and environmentally-responsible disposal of our e-waste. The U.S. EPA has a similar certification program called *Responsible Recycling Practices* (R2). Both of these program certifications are voluntary. The e-Stewards certification seal-of-approval has been invaluable to Akamai because we do not have the resources to conduct this level of due diligence, vetting multiple tiers of vendors in the asset management supply chain. After a thorough evaluation process, we selected several e-Stewards certified e-waste partners that best meet our business needs. We have developed internal procedures and training materials to ensure that all of our electronic waste is processed through these certified vendors or their partners.



Akamai is an e-Stewards Enterprise committed to socially- and environmentally-responsible processing of our electronic waste.

LEED® Office Renovation Program

As part of our commitment to minimize Akamai's environmental impact, we have embarked on an ongoing effort to improve efficiency and reduce consumption in our offices.

Target: To adhere to sustainable building practices such as LEED for all current and future projects.

Starting in early 2007, Akamai began a major, multi-year office renovation project for our leased Cambridge and San Mateo offices with the goal of obtaining LEED [Leadership in Energy and Environmental Design] certification for these renovations, demonstrating our commitment to best-of-breed sustainable building practices. The LEED Green Building Rating System is the nationally accepted benchmark for the design, construction, and operation of high performance green buildings.

Akamai has developed LEED-CI building specifications for corporate interiors that have been successfully implemented in both the Cambridge headquarters, San Mateo, and other offices since 2007. The standards are monitored and improved as needed on a project by project basis. Though not every floor undergoes certification, the standards are abided by and as the LEED system upgrades, the certification process is implemented to ensure our specifications are still current. The Cambridge office has received LEED-CI Silver certification for four separate renovation projects to date, and its Executive Briefing Center achieved LEED-CI Gold certification in 2013. San Mateo achieved LEED-CI Gold certification for a similar 3-floor corporate interior fit-out project. The project in San Mateo in 2010 was one of the first in the area to follow the city of San Mateo's newly established Green Building Guidelines. The Krakow office opened in 2012 and the landlord provides an environmental policy manual for tenants to follow in the energy efficient building. The Munich office was relocated in 2012 to a building slated for LEED Gold for Business Campus Certification.

Priority is given to buildings with sustainable infrastructure and policies when relocating or opening new offices. The Facilities Management team frequently assesses and improves upon green building standards and implements appropriate practices in all offices.

Here are a few highlights of the sustainable building features of these facilities:

- Improved energy efficiency of heating, cooling and ventilation systems and implemented high-efficiency filters
- Energy-efficient lighting achieving a 35% reduction in power consumption and maximizing the use of day-lighting
- >50% of wood products are from sustainable forest sources certified by the Forest Stewardship Council (FSC™)
- >20% of products contained recycled material including cork flooring, carpeting, interior glass, paint and insulation
- High-efficiency toilets, sinks, urinals and showers achieving a 50% reduction in water use
- Recycling collection program
- Default duplex (two-sided) printing to minimize paper waste and increase utilization

Material and Waste Reduction Program

Recognizing that material consumption and non-hazardous waste are also significant aspects and impacts Akamai has several initiatives focused on these areas.

Akamai's corporate IT organization incorporates Energy Star and *EPEAT®* requirements into our purchasing criteria for office equipment and supplies. The U.S. government Energy Star program rates the energy efficiency of electronics and appliances. EPEAT® rates select categories of off-the-shelf electronic products based on their environmental attributes such as recyclability, energy efficiency and toxic material content.

The corporate IT organization also implements server and desktop virtualization that enables multiple applications to run on the same machine, significantly reducing the number of machines required. To date we've decommissioned or avoided the purchase of over a thousand servers and desktops, saving over $150,000 in annual energy costs, and more than a million dollars in avoided server and desktop-related costs.

Where supported by the property management company, Akamai's leased offices have implemented office waste recycling programs. In addition to standard recycling many of our offices also recycle batteries, small electronics, compost organic waste, replace paper cups with mugs, and implement duplex printing.

Server productivity gains achieved as part of Akamai's network efficiency initiative, through code optimization and deploying higher-performance hardware, commensurately reduces the number of servers required to support a given target network capacity. This material savings is significant with a network server count of 150,000+.

Akamai is committed to following sustainable building practices such as LEED whenever we undertake renovations of our leased offices. More details about this initiative can be found elsewhere in this document.

Transparency, Accountability and Collaboration

Transparency

Transparency and accountability are core tenants of Akamai's sustainability initiative. Our environmental management system is structured on the *ISO 14001* standard of plan, do, check and act. Our significant aspects and impacts are energy consumption, greenhouse gas emissions, material consumption and hazardous and non-hazardous waste.

Accountability

We disclose our targets, strategies and progress here and on our *website*. In addition to this information, Akamai is committed to publicly, annually disclosing to the CDP (formerly the Carbon Disclosure Project) providing insights into our climate change management strategy, metrics and progress. These disclosures are also available on our website.

Collaboration

Because we believe that great solution arise from collaboration, Akamai is a member of the following organizations whose primary goals are to promote sustainability best practices and collaboration.

MEMBER OF
Dow Jones Sustainability Indices
In Collaboration with RobecoSAM

GreenBiz EXECUTIVE NETWORK

the green grid®
get connected to efficient IT

e-Stewards ENTERPRISE

Targets and Progress at a Glance

Network Energy and Carbon Efficiency Targets:
30% reduction in network energy and Scope 2 GHG intensity per unit traffic per year.

	2009	2010	2011	2012	2013	2009 – 2013
% Reduction GHG/Traffic YoY	31%	34%	24%	32%	37%	85%
% Reduction Energy/Traffic YoY	32%	35%	24%	33%	32%	85%

Electronic Waste Management Target:
Process 100% of our electronic equipment at e-Stewards certified facilities.

	2012	2013
Total* (mton)	542	509
% e-Stewards Processed	98.4%	97.5%

** Includes electronic components that were resold.*

Targets and Progress at a Glance (Continued)

Absolute GHG Emissions

	2009	2010	2011	2012	2013
Scope 1 $CO2_e$ (metric tons)	108	366	385	353	502
Scope 2 $CO2_e$ (metric tons)	55,417	71,370	84,834	87,532	85,260
Scope 3 $CO2_e$ (metric tons)	43,809[2]	62,938[3]	76,646[4]	101,356[5]	92,071[5]

Akamai uses the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard to estimate our Scope 1, Scope 2 and Scope 3 emissions. A proxy method is used to estimate the electricity consumption associated with Akamai's globally-distributed network servers and third-party data center infrastructure operations. This method is described in detail at: *www.akamai.com/sustainability/methodology*

Network Energy & GHG Methodology

This page describes the methodology used to estimate the energy consumption and GHG emissions of Akamai's server network and outsourced collocation data center operations.

Comprehensive, direct energy consumption data are not available for Akamai network servers, switches, routers, or the third-party data center infrastructure in which they are hosted. There is no established protocol available today that we felt would provide an accurate accounting of our network GHG emissions. Using existing internal data we developed the following methodology to estimate the monthly Akamai network-wide energy consumption and associated GHG emissions:

Server and networking equipment energy estimate:

- Power draw (Watts) is measured in the lab at peak load for each server type and configuration (e.g., # of disks). It is assumed that this peak power consumption is the same for a given server type and configuration. This is also done for network switches, routers and PDU's.
- At the end of each month an equipment inventory is taken for each data center (including switches, routers and PDU's) for equipment that is powered on. The number of each server type and configuration is summed for each data center. It is assumed that this equipment has been resident in the data center for the entire month.
- Each data center's server type and configuration total is multiplied by the peak power consumption (from #1), multiplied by 24 hours, multiplied by the number of days in the target month, and divided by 1,000 to convert to total KWH for that server type and configuration in a target data center.
- The total kWh is reduced by a percentage for each server type that reflects the findings from production data of average daily variation of server power draw relative to peak load (from #1). For example, the percentage reduction could range from 15-40%.
- This per data center server network monthly energy consumption is uploaded into Akamai's energy and carbon management system.
- The energy and carbon management system converts the energy usage into GHG emissions by applying emission factors that are a function of each data center's location, either state, in the U.S., or country, outside the U.S., to convert total KWH to GHG emissions. State-level carbon emission factors (CEF) for data centers within the U.S. are based on current EPA eGRID data. For data centers outside the U.S. we used country-level CEF's sourced from current IEA CO2 Emissions from Fuel Combustion Highlights.
- The Scope 2 GHG emissions for each data center are then summed for total GHG emissions across the Akamai server network.

Collocation data center energy estimate:

Collocation data center infrastructure includes but is not limited to backup power supply (UPS), power distribution units (PDU's), transformers, cooling units, chillers, fans, and lights.

For the estimation of the Scope 3 GHG emission attributable to our third-party data center hosting operations, we rely on the estimated Scope 2 emissions of our server network, as detailed above, and the power usage effectiveness (PUE)[6] of these data centers to arrive at estimated Scope 3 emissions of these data centers. Where available the PUE[7] reported by a data center provider for a facility is used. Where not available, the average of reported PUE values is used.

- For each data center the monthly total server network electricity consumption is multiplied by one minus the data center PUE value:
  Data Center Monthly Electricity Consumption = Server network monthly electricity consumption x (data center PUE - 1)
- This per data center monthly electricity consumption is uploaded into Akamai's energy and carbon management system.
- The energy and carbon management system converts the energy usage into GHG emissions by applying emission factors that are a function of each data center's location, either state, in the U.S., or country, outside the U.S., to convert total KWH to GHG emissions. State-level carbon emission factors (CEF) for data centers within the U.S. are based on current EPA eGRID data. For data centers outside the U.S. we used country-level CEF's sourced from current IEA CO2 Emissions from Fuel Combustion Highlights.
- The Scope 3 GHG emissions for each data center are then summed for total Scope 3 GHG emissions across the Akamai network.

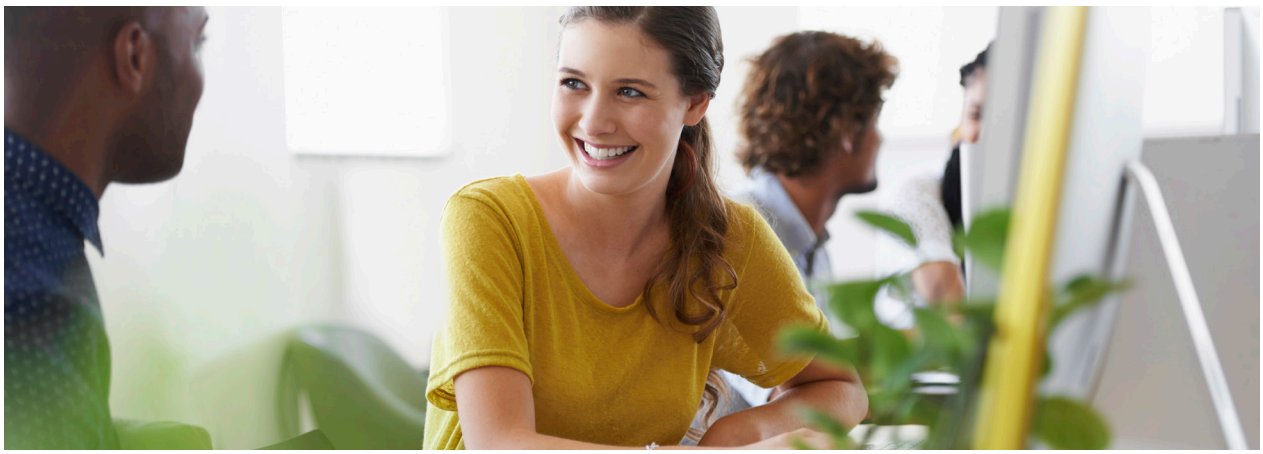
Categorization of GHG Emissions

Under the Operational Control consolidation approach, Akamai categorizes as Scope 2 the GHG emissions associated with the electricity consumption of our server and network equipment:

- Akamai is directly involved in the design of our network server equipment, including efficiency.
- Akamai purchases, owns and has sole control over this network server infrastructure.

We categorize as Scope 3 the GHG emissions associated with the support services provided by our third-party data center hosting providers, including cooling, lighting, power backup and conditioning, and building operations:

- Akamai has no direct operational control over these operations or their efficiency.
- These support services are paid for indirectly as part of our data center hosting agreement.



For More Information:

Akamai is interested in learning about our customers' sustainability programs and how we can collaborate to help you further your goals. For more information please contact Nicole Peill-Moelter, Senior Director of Environmental Sustainability, at *npeill@akamai.com*.

Sources:

[1] *These KPI's were developed as an industry standard by The Green Grid.*

[2] *Scope 3 includes GHG associated with outsourced data center operations and employee air travel.*

[3] *Scope 3 includes GHG associated with outsourced data center operations; shipping; and employee air travel.*

[4] *Scope 3 includes GHG associated with outsourced data center operations; shipping; network server embedded carbon; waste generation; and employee air travel.*

[5] *Scope 3 includes GHG associated with outsourced data center operations; shipping; network server embedded carbon; electricity transmission and distribution losses; waste generation; and employee air travel and commuting.*

[6] *PUE, as defined by The Green Grid, is the ratio of the total data center energy consumption and the IT equipment energy consumption (i.e., our servers and switches). Ideally PUE measurements are time averaged.*

[7] *Reported PUE's are sourced from an annual survey that Akamai conducts of major collocation data centers representing >75% of Akamai's network server deployment.*

Akamai® is the leading cloud platform for helping enterprises provide secure, high-performing online experiences on any device, anywhere. At the core of the company's solutions is the Akamai Intelligent Platform™ providing extensive reach, coupled with unmatched reliability, security, visibility and expertise. Akamai removes the complexities of connecting the increasingly mobile world, supporting 24/7 consumer demand, and enabling enterprises to securely leverage the cloud. To learn more about how Akamai is accelerating the pace of innovation in a hyperconnected world, please visit www.akamai.com and follow @Akamai on Twitter.

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