



**U.S. House of Representatives**

**Committee on the Judiciary**

**Subcommittee on Intellectual Property, Competition, and the Internet**

**Hearing on:  
Cloud Computing:  
An Overview of the Technology and the Issues Facing American Innovators**

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Chairman Goodlatte and Ranking Member Watt, thank you for holding this hearing today and for inviting me to testify. My name is Robert Holleyman. I am the president and CEO of the Business Software Alliance (BSA). BSA is an association of the world's leading software and hardware companies. BSA's members create approximately 90 percent of the office productivity software in use in the United States and around world.<sup>1</sup>

Increasingly that software is offered through "the cloud" – a model that enables flexible, on-demand access over the Internet. BSA member companies are early leaders in cloud computing technology, and they are leaders in the global cloud computing market as a result.

Leadership in the cloud is not assured, however. Countries around the world desperately hope to copy the model of technology-driven economic growth that powers the US economy. Far too often they would do so by throwing up protectionist barriers aimed to hurt international cloud providers and by adopting policies that would chop the cloud into country-sized pieces. Such policies would make it difficult for data to flow across international borders and to power the cloud. And such policies would come at the expense of a truly global cloud economy. Cloud computing technology won't scale to its full potential behind a series of walls. Countries need to adopt more harmonized policies – policies that will both promote user trust and help spur economic growth.

The importance of such policies points to the vital need for Congress and the United States to lead in the cloud. Toward that goal, BSA has outlined a seven-element "policy blueprint" for maximizing the economic opportunity that cloud computing presents. Following this blueprint is important internationally to ensure the cloud operates on a global scale. Closer to home, it also is vital that the United States follow these policies and avoid protectionist measures of our own. Doing otherwise would both undermine the global cloud and give cover to other countries that would do the same. Several of those elements – including key data privacy and cybercrime laws and intellectual property protections – fall under the jurisdiction of this Committee.

### **What Is Cloud Computing?**

Cloud computing is not any one thing. It is a mix of software-enabled resources and services that can be delivered to the user on an "as needed" basis. Technically speaking, the National Institute of Standards and Technology's definition provides a widely accepted foundation:

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<sup>1</sup> *The Business Software Alliance ([www.bsa.org](http://www.bsa.org)) is the leading global advocate for the software industry. It is an association of more than 70 world-class companies that invest billions of dollars annually to create software solutions that spark the economy and improve modern life. Through international government relations, intellectual property enforcement and educational activities, BSA expands the horizons of the digital world and builds trust and confidence in the new technologies driving it forward.*

*BSA's members include: Adobe, Apple, Autodesk, AVEVA, AVG, Bentley Systems, CA Technologies, CNC/Mastercam, Intel, Intuit, McAfee, Microsoft, Minitab, Progress Software, PTC, Quest Software, Rosetta Stone, Siemens PLM, Sybase, Symantec, and The MathWorks.*

“Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.”

For individual consumers, cloud computing may most easily be understood as it is consumed: through the online services that enable users to create, manage, and store documents, spreadsheets, photos or other digital content so that they can be accessed from any computer over the Internet. But that is just the beginning. Cloud computing enables transformative possibilities for businesses as well.

The economic and social benefits inherent in cloud computing are important for enterprises of all sizes, for governments and for consumers. Cloud computing levels the playing field for access to technology. It allows single customers to enjoy the benefits that have long been enjoyed by major users. It opens the door to tremendous gains in efficiency, productivity and competitiveness for businesses in the global marketplace. For governments, cloud computing presents a two-fold opportunity: the chance to improve productivity and citizen engagement through IT procurements as well as the benefit of encouraging economic growth, sustainable job creation and higher wages and standards of living by encouraging the IT economy.

Cloud computing is a technological paradigm that is certain to be a new engine of the global economy. But attaining those benefits will require governments around the world to establish the proper legal and regulatory framework to support cloud computing. And it will require the US to continue to lead the way. Governments must provide a solid legal and regulatory framework.

### **Ranking the Cloud**

The move to the cloud and capitalization on its benefits across the board is hardly inevitable, and an urgent task lies ahead for governments. To obtain the benefits of the cloud, policymakers must provide a legal and regulatory framework that will promote innovation, facilitate an infrastructure to support it, and promote confidence that using the cloud will bring the anticipated benefits without sacrificing expectations of privacy, security and safety.

Earlier this year, BSA released its inaugural Global Cloud Computing Scorecard.<sup>2</sup> The Scorecard analyzes the laws and regulations of 24 countries in seven separate policy areas: data privacy; security; cybercrime law; intellectual property protections; support for industry-led standards and international harmonization of rules; efforts to promote free trade; and, ICT readiness and broadband deployment. It is well established that each of the individual elements of the scorecard is critical to economic growth and job creation; taken together they provide the full foundation for a robust cloud economy.

The Scorecard is a first-of-its-kind ranking of the “cloud readiness” of 24 countries that account for 80 percent of the global ICT market. But, even more importantly, the Scorecard provides a policy roadmap

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<sup>2</sup> Business Software Alliance, *BSA Global Cloud Computing Scorecard: A Blueprint for Economic Opportunity* (2012), available at [www.bsa.org/cloudscorecard](http://www.bsa.org/cloudscorecard).

for the initiatives and measures that all countries can — and should — implement to ensure that they reap the full economic and growth benefits of cloud computing.

They are especially critical in the context of cloud computing because the cloud provides a positive multiplier opportunity. Continued innovation requires the adoption of these policies. In return, cloud computing will ensure that innovation is fully harnessed and realized.

The United States finishes in fourth place globally in the Cloud Scorecard. Congress can improve on that ranking by taking steps that are widely supported in the tech community. For example, Congress should take steps to update the Electronic Communications Privacy Act (ECPA) to better reflect the changes in technology since that law was passed in 1986. BSA and a range of both industry and civil liberties groups have been calling for ECPA reform for several years. In addition, lawmakers should update laws such as the Computer Fraud and Abuse Act that are aimed against hackers and those who would attack computer networks.

It should be noted, of course, that the benefits of these updates are not limited to cloud computing. They accrue to the benefit of all technology firms — and users.

### **BSA's Full Blueprint for Cloud Policy Includes Seven Factors**

The economic growth predicted to flow from cloud computing — and the resulting transformation of both businesses and national economies — is predicated on the proper policies being in place in each of the seven areas used in the BSA index:

- Ensuring privacy: The success of cloud computing depends on users' faith that their information will not be used or disclosed in unexpected ways. At the same time, to maximize the benefit of the cloud, providers must be free to move data through the cloud in the most efficient way.
- Promoting security: Users must be assured that cloud computing providers understand and properly manage the risks inherent in storing and running applications in the cloud. Cloud providers must be able to implement cutting-edge cybersecurity solutions without being required to use specific technologies.
- Battling cybercrime: In cyberspace, as in the real world, laws must provide meaningful deterrence and clear causes of action. Legal systems should provide an effective mechanism for law enforcement, and for cloud providers themselves, to combat unauthorized access to data stored in the cloud.
- Protecting intellectual property: To promote continued innovation and technological advancement, intellectual property laws should provide for clear protection for user interfaces and other advances reflecting innovations in cloud technology.
- Ensuring data portability and the harmonization of international rules: The smooth flow of data around the world — as between different cloud providers — requires efforts to promote

openness and interoperability. Governments should support voluntary industry-led efforts to develop standards, while also working to minimize conflicting legal obligations on cloud providers.

- Promoting free trade: By their very nature, cloud technologies operate across national boundaries. The cloud's ability to promote economic growth depends on a global market that transcends barriers to free trade, including preferences for particular products or providers.
- Establishing the necessary IT infrastructure: Cloud computing requires robust, ubiquitous and affordable broadband access. This can be achieved through policies that provide incentives for private sector investment in broadband infrastructure and laws that promote universal access to broadband.

### **Foreign Governments Raise Barriers to the Global Cloud**

In recent weeks, BSA released a report entitled "Lockout" that examines a new wave of IT-focused market-access restrictions that are spreading through key emerging markets.<sup>3</sup> The report covers five types of such restrictions. One of these, in particular, threatens to undermine the global cloud economy. This particular category of restrictions involve regulatory obstacles that nations invoke in what they say are the interests of protecting data privacy or ensuring security. Far too often, though, these are purely pretextual barriers designed to benefit domestic cloud providers. For example, the report examines efforts to inhibit multinational cloud service providers with barriers including data-location requirements or restrictions on cross-border transactions.

Taken together, these barriers hinder the IT industry's ability to grow and contribute to the US and global economies. These IT-focused market obstacles can be hard to recognize. They frequently are disguised as policies to promote innovation, enhance security, or advance other domestic priorities.

One other common tactic is to question the US legal system and important US laws in order to create fear and confusion. The Patriot Act is frequently – and ominously – invoked by foreign governments and international competitors. Its powers are exaggerated and misconstrued, leaving the impression that the US government has far greater ability to access data in the cloud than any other government. This simply isn't true. But that hasn't stopped others from using the Patriot Act as a weapon against US cloud providers. Some European Union officials have expressed concern and outrage over US companies' responsibilities under the Patriot Act, and the Canadian government has asserted that organizations should avoid using services hosted outside of its territory partially because of the Patriot Act. This type of fear-mongering has had a very real – and harmful – impact on US cloud providers.

There are legitimate needs for government access to information in the cloud to protect national security, but to date it isn't clear how laws governing government requests will impact cloud service

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<sup>3</sup> Business Software Alliance, *Lockout: How a New Wave of Trade Protectionism Is Spreading Through the World's Fastest-Growing IT Markets – and What to Do About It* (2012), available at [http://www.bsa.org/~media/Files/Policy/Trade/BSA\\_Market%20Access\\_Report\\_FINAL\\_WEB\\_062012.ashx](http://www.bsa.org/~media/Files/Policy/Trade/BSA_Market%20Access_Report_FINAL_WEB_062012.ashx).

providers. As data moves off-premises to cloud providers, potential adopters of the cloud are concerned about if and how information may be shared with the government, creating a barrier to adoption for the US cloud especially for foreign consumers and enterprises.

US cloud providers are working diligently to ease these fears and blunt these attacks. Efforts have been made to point out the critical privacy protections in US law and to point out that all countries have such laws to protect their citizens' safety. The US government can help in this effort as well. The State Department has taken the lead in working with foreign officials to clarify the reach and scope of US privacy protections. We applaud this work and urge the State Department to continue its advocacy. The Justice Department can aid in this effort as well by increasing transparency around the Patriot Act.

### **What Lies Ahead: Piracy in the Cloud?**

Finally, for all the excitement and possibility that cloud computing presents, it brings challenges as well. BSA has long worked on behalf of our members to reduce traditional PC software piracy. Looking ahead to the next generation of computing, BSA is examining how piracy might occur in the cloud.

In late 2010 and early 2011, BSA interviewed industry experts and frontline technologists from our member companies and from other market sectors. We determined that cloud piracy could take at least four forms:

- End users could abuse their licenses for cloud services by sharing their account credentials.<sup>4</sup>
- An unscrupulous business could set up a “dark cloud” to deliver illegal software or offer software as a service without a license for redistribution.
- An enterprise could set up a private “dark cloud” for its own use — that is, to provide pirated software to its employees.
- An enterprise could use a private “gray cloud” to provide legally purchased software to more users than the license allows.

Of these four types of cloud-related IP theft, the threat of “dark clouds” and “gray clouds” in private cloud environments hosted by enterprises might prove to be the greatest long-term threat. That is because private clouds are merely efficient, scalable architectures for delivering traditional IT tools — which are typically licensed the same way whether they are installed locally for each individual user, or deployed through traditional networks or clouds.

For decades now, the most common form of enterprise software piracy has occurred when an otherwise legal company buys a license to install a program on one computer but then installs it on tens, hundreds, or thousands of additional machines. Today, in a private cloud environment, a company can centrally

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<sup>4</sup> More recent research has found that credential sharing is common in the cloud — particularly in emerging economies where recent adopters of computers and information technology frequently move directly to cloud services. See, Piracy in the Cloud: A Picture Is Starting to Emerge, BSA TechPost, Robert Holleyman, July 19, 2012 (available at: <http://blog.bsa.org/2012/07/19/piracy-in-the-cloud-a-picture-is-starting-to-emerge/>).

serve the software to all of its users rather than install it on their individual hard drives. But the end result is the same: The company pays for fewer licenses than it should.

Ultimately, certain things can be counted on: Piracy will not go away in the cloud. And as cloud services continue to grow at a tremendous clip, ensuring that measures exist to protect innovators become more and more vital.

### **Conclusion: Ensuring a Future in the Cloud**

Every day, more and more evidence points to the importance of cloud computing to the US economy and to global growth. One recent study found that public and private IT cloud services will produce nearly 14 million jobs worldwide by 2015 – and more than half of those will come from small and medium-sized businesses.<sup>5</sup> It goes on to predict that in that time cloud computing will generate as much as \$1.1 trillion in annual revenue.

The future is clearly in the cloud, and ensuring that leadership in the cloud continues will require implementation of the right policies at home and working to ensure that other nations do the same. This is now in our hands.

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<sup>5</sup> IDC, *White Paper: Cloud Computing's Role in Job Creation* (March 2012).