

**The Importance of Wi-Fi to the U.S. Economy**  
**Testimony for Bob Friday**  
**November 13, 2013**

Chairman Walden, Ranking Member Eshoo and members of the Committee:

Thank you for the opportunity to appear before you today.

Mr. Chairman, we're in the midst of a technology revolution that is transforming the way Americans and billions of people around the globe connect, communicate, and collaborate.

- In schools, educators are incorporating video and apps into the curriculum, sometimes with 25 students per classroom accessing the network at the same time.
- Hospitals are using mobile devices for instant communication, patient education, and access to medical records.
- And in manufacturing, workers are using mobile devices to get instantaneous alerts of equipment failure, to control machines remotely and to have real time video conversations with coworkers.

What do these things have in common? They depend on Wi-Fi to connect. In these areas, and so many more, Wi-Fi has become a central way that people access the Internet.

But a new challenge has emerged due to Wi-Fi's spectacular success. There is a looming spectrum crunch, which if not addressed, will slow productivity, economic growth, and American technology leadership.

The widespread adoption of Wi-Fi began in the early 2000s and provided our mobile Internet experience at home, coffee shops, airports and hotels. Today's Wi-Fi reach has expanded into the workplace, air travel, and so many other locations.

By 2017, Cisco predicts that nearly two-thirds of all U.S. Internet traffic will start or end on Wi-Fi. And Wi-Fi will be the critical complement – a safety valve, if you will – for cellular networks, which themselves require more licensed spectrum. By 2017, 66% of the traffic from mobile-enabled devices will be offloaded to Wi-Fi.

Offloading means that mobile traffic is shifted from a licensed cellular network to a unlicensed Wi-Fi network -- to ease traffic, save minutes and reduce cost. Without offloading, licensed cellular networks would be overwhelmed.

In just over a decade, Wi-Fi has become a dynamic economic driver, generating \$37 billion of economic value for the U.S. **every year** (according to the FCC), leading to new industries, new ecosystems, and new jobs.

The development of Wi-Fi, in fact, is one of the great American innovation stories.

Thirty years ago, unlicensed spectrum was considered “junk” or “garbage spectrum,” a place for tinkerers and inventors to build low power devices of limited applicability.

Then the engineers at the FCC came up with a simple idea: Change the rules to allow ‘spread spectrum’ technologies to share unlicensed bands. The one caveat: no harmful interference to other users.

Innovators and entrepreneurs rushed in. Wi-Fi was born. And the results, breathtaking. Six billion Wi-Fi enabled devices have been shipped since 2000, and this number will grow to 15 billion by 2017. Wi-Fi has become *the* industry standard.

Wi-Fi will be a driver in the development of the next Internet as well. We’re moving to an “Internet of Everything” that will connect people, process, data and things, leading to profound changes in manufacturing, agriculture, energy, and transportation and dozens of other sectors.

But this potential is limited by the looming spectrum crunch.

So what should be done?

Industry has a major role to play, particularly in the development and deployment of next-generation Wi-Fi, known as 802.11 ac.

This technology is more efficient and can handle vastly more traffic than previous generations. It will deliver throughput speeds of 1 gigabit per second or faster – hence the name “Gigabit Wi-Fi.”

I have the first Cisco Gigabit Wi-Fi wireless access point in front of me. In June 2013 it became the first enterprise class access point to have a Gigabit Wi-Fi certification published by the Wi-Fi Alliance. It is now one of over 140 devices that have been certified.

Gigabit Wi-Fi is real, it’s here, and our customers are demanding it.

But it requires wide bands of contiguous spectrum to handle the massive increase in demand driven by video. Technological improvements aren’t enough.

So policymakers also have a major role to play and should provide more spectrum for Wi-Fi, relying on the principles of sharing and non-interference that form the foundation of unlicensed spectrum for the very beginning.

The Energy and Commerce Committee led the way in 2012 when you directed the FCC and NTIA to study the feasibility of sharing additional spectrum for Wi-Fi in the 5 GHz band, and I want to thank you for that leadership on this, as well as the effort to establish voluntary incentive auctions in the licensed area.

To be sure, there are some significant technical challenges in the 5 GHz band. It is not cleared spectrum. It contains incumbent uses important for national security and public safety. So we have to get this right.

And a successful outcome to the FCC's current examination of 5 GHz means that Wi-Fi cannot create *harmful* interference to those incumbent systems. Cisco will not settle for less.

Yet, with leadership from the FCC and NTIA and the cooperation of our industry partners, we remain confident that technological solutions to these challenges will be found.

Bottom line: Adding more spectrum for broadband and WiFi is critical for future growth of mobile networks and the American economy. It will lead to new ecosystems, new industries and new jobs, as well as help ensure American technological leadership.

We stand ready to work with this committee and other policymakers to find solutions to the important challenges before us.