Statement of
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Hearing on
"The Internet of Things: Exploring the Next Technology Frontier"
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Good morning, Chairman Burgess, Ranking Member Schakowsky and Members of the Committee. Thank you for holding this important hearing on the Internet of Things. My name is Brian Van Harlingen and I'm the Chief Technology Officer at Belkin International.

Belkin International is the maker of the WeMo home automation brand, which is at the forefront of the Internet of Things. WeMo technology allows users to remotely measure, monitor and manage their home electronics via a software suite including an application, cloud infrastructure and portfolio of more than 25 connected devices. The WeMo ecosystem includes everything from switches and lighting to home appliances and DIY maker solutions, and is available in more than 130 countries around the world. Surpassing one million activations, WeMo is a market leader in delivering exceptional experiences for the Internet of Things. Our products can save energy, help reduce water use, and generally make our lives easier to manage.

After years of talk, the Internet of Things (IoT) has arrived and the pace of innovation is accelerating at a phenomenal speed. We are pleased Congress and other policy makers have joined the conversation, as policy awareness and leadership will help to maximize the benefits of this technological revolution and ensure consumer confidence. IoT will drive economic growth and create jobs through creative consumer use of smart devices, improving productivity using advanced manufacturing capabilities, and facilitating entrepreneurship in completely new areas that rely on connected smart technology.

The Internet of Things will reinvent the way people live around the world as more everyday physical objects connect to the Internet and become intelligent. Consumers are still acclimating to the digital world controlling the physical, but platforms like WeMo will help spur the transition by helping consumers realize real and tangible benefits. Because of this, WeMo is confident in our role in IoT and will remain focused on being the most approachable entry point to the smart home, driving unparalleled user experience, and bringing value to consumers by making everyday life simpler, easier and better.

In my testimony, I will discuss three key areas in the development of IoT: consumer benefits, technological considerations, and privacy and security.

Consumer Benefits

WeMo, as a part of Belkin International, has more than 30 years of experience in the consumer electronics industry. We have seen the lifecycle of devices and technology time and time again

– from portable stereos to MP3 players, VCRs to DVD players, flip phones to smart phones. As a company, we have lived through this evolution and know how both technology and consumer adoption changes over time. This understanding, coupled with a commitment to innovation and putting the consumer first, has enabled us to develop strong consumer trust and confidence.

From the beginning, WeMo was designed as the most approachable entry point to the smart home. Affordable, easy to use, scalable and infinitely customizable, the goal of WeMo has always been to help people tailor their daily functions one solution at a time to make life easier, simpler and better. This allows consumers to scale their smart home at their own pace in an affordable, easy way.

Though the IoT has grown immensely, the reality is that the technology still does not live up to the promise of full, anticipatory automation, or automation without consumer input. WeMo is actively driving towards a more intelligent home with its new WeMo Water and Power with Echo technology that uses the home's existing infrastructure to accurately monitor, measure and manage systems such as water, electricity and natural gas. Using advanced data science and machine learning technologies, WeMo Water and Power push the boundaries of what is currently possible in IoT and have enormous potential to save both money and natural resources across a variety of industries.

As a connected solution, WeMo offers insight into how consumers are using their WeMo devices and which app features they use most often. We can then use that to provide better app experiences, as well as roadmap future products tailored directly to consumer preferences. For example, when WeMo launched an "If This Then That" or IFTTT channel, we were able to see that Sunrise/Sunset rules were especially popular and were then able to go back and build that functionality directly into the WeMo app. Additionally, we were able to see that most WeMo Switch users were using it for lighting purposes, so we changed direction and brought to market the WeMo Light Switch as our next product, directly in line with consumer desire. These are examples of how we use the data from the WeMo cloud to drive better experiences for our consumers.

Technological Considerations

IoT for the home and business cannot exist without two primary technologies: Wi-Fi and smart devices. As a company, Belkin has a deep history and understanding of both. Belkin has been making accessories for smart devices since the first iPod launched back in 2001. We also have a deep history in wireless networking, with more than a decade of experience on the Belkin side, and more than 30 years on the Linksys side. Linksys will soon ship its 100 millionth router, so it is safe to say we have significant experience in building wireless networking products. We understand the complexities of both the smart device and networking markets, and know what goes into building products that consumers want and need. IoT is at the crossroads of our two largest businesses, which places us in a unique and beneficial position among players in the industry.

WeMo is focused on the consumer experience and the delivery of a future-proof architecture, which is why all WeMo products use Wi-Fi as the core connection standard. Wi-Fi has become ubiquitous in homes and businesses across the globe, with about a 70 percent penetration rate in US homes. Relying on Wi-Fi makes it easier for consumers and businesses to adopt new smart devices and technologies because they are already familiar with that core technology. WeMo products do not rely on hubs to connect to the network; rather they can operate in either an independent or connected manner. For example, WeMo technology can integrate directly into partner products and serve as an on-ramp to the Internet of Things for legacy products like Crock-Pot and Mr. Coffee. We can also work with existing smart devices through back-end technologies and standards to create a compatible product platform, such as our work with lighting manufacturer Osram Sylvania. Current partners and products include household and kitchen appliances like Crock-Pot Smart Slow Cooker with WeMo, Mr. Coffee Smart Coffee Maker with WeMo, Holmes Smart Air Purifier with WeMo, Holmes Smart Air Purifier with WeMo and Holmes Smart Console Heater with WeMo, as well as a variety of different lighting options from Osram Sylvania's Lightify brand. By combining our partners' user insights and market efficiencies, we are able to bring WeMo's simple, approachable platform and user experience to additional products and devices throughout the home, which helps expand the WeMo ecosystem to a new audience.

Although WeMo uses Wi-Fi as the primary method to directly connect users to the network, some industry players like Wink, Iris, and SmartThings are focusing their strategy on connecting multiple products to the network through aggregator hubs. These hubs work to integrate multiple devices that may use different standards into one control system. Hubs can be valuable for very sophisticated early adopters who own multiple IoT or home automation devices like ZigBee, Z-Wave, Bluetooth and Lutron devices. However, every wireless radio included in the hub increases the cost and complexity of the technology. Further, sophisticated hub systems require an educated sales force and technical assistance for consumers. WeMo strongly believes that our efforts are better spent on delivering delightful and uncomplicated experiences for our users that do not rely on complicated integration services. Rather, integration will happen where and when there is a clear and lasting value for consumers. Bringing together multiple systems and functions is a clear direction for the future, but we do not want to alienate the mass market with costly and complicated technology that diminishes user experience and functionality.

From a policy perspective, the government and Congress can help promote and grow the Internet of Things by making sure all the "things" can talk to each other. The evolution of IoT will add billions of new devices to our wireless networks. In other words, our airwaves will soon be very crowded and noisy. At WeMo, we are working with our corporate subsidiary Linksys to ensure the most efficient and consumer friendly use of spectrum in our products.

Wireless spectrum, already an important technology policy issue, becomes even more important as IoT adoption accelerates. Congress and the Federal Communication Commission are continually working to free up new spectrum, particularly on an unlicensed basis. Unfortunately,

the progress is slow, which is at odds with the rapid growth of IoT devices. Failure to expand available spectrum for these uses has the potential to stifle important growth in this area.

Also important to the future of IoT is research and development. WeMo recently received a grant from the Department of Defense's Environmental Security Technology Certification Program (ESTCP) to reduce facility energy costs at two test sites in the western United States using the sensor and machine learning algorithms developed by WeMo Power. We also have a close relationship with the University of Washington's Computer Science & Engineering School and its Ubicom Research Lab through our Chief Scientist and UW professor, Dr. Shwetak Patel. Through this relationship, we are able to keep WeMo on the forefront of the latest advancements in IoT technology.

Privacy and Security

One of the top policy issues in both Washington and in our industry is privacy and security. At WeMo, we share this priority. The Internet of Things in general will benefit when consumers know the whole industry is working hard to build privacy and security into IoT devices. At WeMo, we aim for the highest standard, and believe the federal government should continue with its light touch approach that will be helpful in allowing the industry to innovate while keeping consumers safe.

We applaud this Committee's effort to pass data breach legislation that would address the patchwork of state data breach laws. WeMo complies with privacy laws on the collection of personally identifiable information (PII) and has a very transparent privacy policy. The data collected from WeMo devices is aggregated and anonymized, and only non-personal information is used to identify trends, devices, network health; to improve network performance; and to provide additional benefits to consumers such as better overall experiences. We understand the importance of data security and have taken steps to protect PII from unauthorized access, use or disclosure by a combination of industry-standard security technologies, procedures and organizational measures.

In light of the recent FTC report and your efforts on data breach legislation, WeMo agrees wholeheartedly that consumer trust is an essential step in enabling IoT to reach its full potential. Like all technology systems, security for IoT devices and WeMo's own IT system is an arms race. While no system will ever be 100 percent secure, we have safeguards in place to prevent security breaches and work closely with outside security researchers to identify and address potential security vulnerabilities before they become a reality. We support the latest security applications and continuously update consumer firmware and device apps to address any vulnerabilities that may arise. We push the updates to our customers and urge them to use the latest versions to promote the best security. Security will always be a huge priority and, as the technology evolves, so will our efforts change to provide as safe and secure a network as we can for consumers.

Conclusion

As the CTO for WeMo, I spend every day thinking about delivering the best products and making sure we meet our customers' expectations. I appreciate the opportunity to testify today to share our vision of the Internet of Things and answer any questions you might have about our products or the industry.

While some innovators ignore Washington and shy away from policy questions like providing more spectrum and protecting consumer privacy, at WeMo, we believe Congress and the government can help the IoT market evolve by educating the public and continuing its light-touch regulatory approach. The Internet of Things has the potential to create jobs and drive true transformation within homes and businesses. We look forward to working with policymakers both in Congress and the Administration as partners in the future of the Internet of Things.