



United States Federal Communications Commission
Contribution to the
Global Symposium for Regulators
Warsaw, Poland
July 2013

As the world's oldest regulator, the United States Federal Communications Commission (FCC) is pleased to participate in the 2013 Global Symposium for Regulators (GSR) Consultation. In this contribution, we share some of the actions we are taking to stimulate nationwide broadband adoption, investment, and innovation that we believe will advance U.S. social development goals for the benefit of consumers and U.S. economic growth. We trust that some of our experience will be relevant for many of our counterparts, to reinforce their current course of action or suggest other alternatives that may be viable for a country's individual circumstances.

The United States has enjoyed significant strides in our broadband economy in recent years. Since 2009, nearly \$250 billion in private capital has been invested in our wired and wireless broadband networks, and more private investment has been made in the information and communications technology (ICT) sector than in any other sector of our economy. Annual investment in wireless networks grew more than 40% between 2009 and 2012, from \$21 billion to \$30 billion. Analysts project that this number will grow to \$35 billion in 2013.

Residential broadband adoption has increased from less than 60% in December 2008 to almost 70% today and average broadband speeds have nearly doubled since 2009. For wired infrastructure for example, broadband networks capable of very high speeds (≥ 100 Mbps) now reach more than 80% of homes, up from less than 20% in 2009. Mobile data traffic grew by over 1200% from 2009 to 2013, and the United States leads the world in moving to 4G LTE. As the first country to deploy these networks at scale, the United States, in late 2012, had as many LTE subscribers as the rest of the world combined. The GSM Association estimates that by the end of 2013, almost 19% of U.S. wireless connections will be LTE, providing an ample platform for LTE applications and services.

Between 2009 and July 2012 smartphone adoption increased from 16% to 56%, and more than 90% of smartphones sold globally in 2012 run operating systems developed by U.S. companies, up from 25% three years ago. Finally, investment in wireless broadband infrastructure alone has created more than 1.6 million jobs in the U.S. since 2007; an estimated 500,000 were generated by the new "mobile apps" economy, a U.S. phenomenon.

Fueled by the ever growing demand for broadband services, including mobility, and endeavoring to foster an environment for even greater innovation, investment, and adoption, the FCC's recent actions further several policy priorities, which we highlight for consideration: (1) releasing more spectrum for broadband; (2) removing practical barriers to broadband infrastructure deployment; (3) reforming universal service policies and mechanisms to increase broadband access to the unserved and underserved, (4) employing creative methods to advance broadband adoption, and (5)

working to ensure that persons with disabilities have access to advanced communications technology and services.

Release Spectrum for Broadband. To keep pace with demand for broadband services, the FCC aims to identify available or underutilized spectrum that can be released to market quickly. Some recent examples follow:

In October 2012, the FCC adopted rules enabling Wireless Communications Service (WCS) licensees to use a total of 30 megahertz of underutilized spectrum in the 2.3 GHz band for wireless broadband services. Of the 30 megahertz of total spectrum, 20 megahertz can be used for mobile broadband services and 10 megahertz for fixed broadband services, with possible future use as downlink spectrum to serve mobile broadband devices. In December 2012, the FCC also freed up additional spectrum for mobile broadband by adopting flexible use rules for 40 megahertz of spectrum in the 2 GHz band that was previously assigned to the Mobile Satellite Service.

In addition to releasing licensed spectrum, the FCC has seized opportunities to bring spectrum to market through new approaches. In 2010, the FCC created a new spectrum sharing paradigm by freeing up vacant spectrum between TV channels, known as TV ‘white spaces,’ and making it available for unlicensed broadband use. Unlicensed spectrum is an integral component of the wireless ecosystem; the aggregate capacity of the world’s WiFi networks, which use unlicensed spectrum, is 28 times greater than the capacity of the world’s 3G and 4G networks, which use licensed airwaves. Making spectrum available for unlicensed use also helps facilitate innovation in mobile broadband by entrepreneurs, who can provide services, make devices, or create new apps without stringent licensing requirements.

U.S. unlicensed devices currently operate in the 5 GHz band, and are used for short range, high-speed, wireless connections including WiFi enabled local networks and fixed outdoor broadband transceivers used by wireless Internet service providers to connect smart phones, tablets and laptops to the broadband network. On March 1, 2013, the FCC selected and approved white space database system administrators to begin providing nationwide service, thereby taking the final action necessary to allow nationwide roll-out of unlicensed TV white space devices. Unlicensed devices operating in this spectrum will use geo-location technology to determine their location and a database lookup to identify unused channels available in that location. The databases will also identify adjacent licensees that are entitled to interference protection, such as broadcast TV systems. The FCC has selected nine TV white space database administrators and will approve each database system following a public trial.

In February 2012, President Obama signed a new law, first proposed in the FCC’s National Broadband Plan, giving the FCC the authority to conduct the world’s first incentive auctions. A major policy innovation, incentive auctions are a market-based tool that will enable spectrum used by TV broadcasters to be repurposed for wireless broadband. First, a reverse auction will be held, in which TV broadcasters submit bids to voluntarily give up their spectrum rights in exchange for payment. Then a forward auction will be held in which the surrendered broadcast spectrum will be auctioned for flexible use. The FCC sought comment on a detailed proposal for

the auctions on September 28, 2012, and estimates that final rules will be issued in late 2013 for incentive auctions to be held in 2014.

Remove Practical Barriers to Broadband Deployment. In 2011, the FCC launched its **Broadband Acceleration Initiative**, a comprehensive effort to remove barriers to broadband infrastructure build-out. Initiatives have included facilitating access to utility poles, promoting faster tower siting approvals and more recently, allowing the use of smaller antennas in certain microwave bands, to achieve significant cost savings. Additionally, in June 2012, President Obama issued an Executive Order to ease access to federal roads, land and buildings for broadband infrastructure. Among other things, the Order directed the U.S. Department of Transportation to review its “Dig Once” policy to ensure that it is flexible enough to both accommodate changes in broadband technology and minimize excavations consistent with competitive broadband deployment.

Modernize Universal Service Programs to Maintain Voice and Extend Broadband to High Cost Areas. In tandem with the above actions to promote broadband, the FCC enacted comprehensive universal service reform to include support for voice and broadband-capable networks. Specifically, the FCC replaced its ‘High Cost Fund’ with the **Connect America Fund**, through which up to \$4.5 billion a year will be available to preserve voice and extend broadband in high cost areas. In 2012, targeted Connect America Phase I funding was provided to spur broadband build out, and recently the FCC concluded there should be another round of Phase I funding by September 2013. Build out requirements for some smaller carriers that operate in some of the country’s most difficult and expensive to serve areas, known as rate-of-return carriers under FCC rules, will only be upon their customer’s reasonable requests.

The Connect America Fund includes a **Mobility Fund**, which supports mobile voice and broadband services, and a **Remote Areas Fund** to support alternative platforms (e.g., satellite, unlicensed wireless services) for areas where it would be very expensive to deploy traditional terrestrial broadband networks.

Initial mobility funds were awarded through a nationwide reverse auction held in September 2012 and winners were announced in October 2012. Carriers specified the amount of support they would need per road-mile to provide 3G or better voice and broadband mobile service to a previously un-served area, and support was awarded to the bidders making the lowest per-road-mile bids. Most winning carriers choosing to deploy 3G-based services must complete their project within two years of receiving funding; those providing 4G services must do so within three years. A second phase of the Mobility Fund will provide \$500 million annually for ongoing support of mobile services.

Activities are underway at the FCC to distribute support through the Remote Areas Fund, which was created to have a budget of at least \$100 million annually. In March 2013, the FCC sought a second round of public comment to address further eligibility issues, public interest obligations and other administrative issues.

Modernize Universal Service Programs to Extend Broadband to the Un-served and Underserved. In January 2012, the FCC adopted comprehensive reforms to its **Lifeline** universal

service program, to ensure that both broadband and voice services are available to all low-income Americans. The FCC also announced a Broadband Adoption Pilot Program to test how Lifeline can best be used to increase broadband adoption among low income consumers, and sought comment on using universal service funds for expanding digital literacy training.

In December 2012, the FCC announced the selection of 14 pilot projects that will field test various approaches to using Lifeline to increase broadband adoption and retention among low income Americans. Located in 21 states and Puerto Rico, the pilots will also provide broadband for nearly 75,000 low-income consumers who currently lack such service. The pilot program began in February 2013 and will run for 18 months.

In September 2010, the FCC adopted an order modernizing its **E-rate** Program, which provides funding for broadband in schools and libraries. Under this program, schools and libraries receive discounts on eligible telecommunications services, Internet access and internal connections such as inside wiring. The discounts range from 20 to 90%, depending on the household income level of students in the community, and whether the facility is located in an urban or rural area. The order also allows schools to open their computer labs to the local community after school hours.

More recently, in June 2013, President Obama called on the FCC to modernize and leverage the E-rate Program to connect 99% of America's students to the Internet through higher speed broadband, using fiber and wireless technologies, and within 5 years. As part of this initiative, entitled **ConnectED**, to benefit America's students, the President also directed the federal government to make better use of existing funds to provide technology in classrooms, and for teachers trained on its advantages. The Department of Education will work with states and school districts to use existing funding available through the Elementary and Secondary Education Act to invest in training and professional development to help teachers keep pace with changing technological and professional demands.

In December 2012, the FCC adopted comprehensive reforms to its universal service program for rural health care and created a new **Healthcare Connect Fund**. The new Healthcare Connect Fund provides support for high-capacity broadband connectivity to eligible health care providers and encourages the formation of state and regional broadband health care provider networks. Under the program, eligible health care providers can receive a 65% discount on the costs to purchase services and equipment, as well as construct their own broadband infrastructure where it is shown to be the most cost effective option. The Healthcare Connect Fund also gives participants the flexibility to choose the type of technology and communications provider that best meets their needs. Both rural and non-rural health care providers will be allowed to participate in the new program, though non-rural providers may join only as part of a consortium in which the majority of members are rural health care providers. The new Healthcare Connect program is expected to begin accepting applications by the end of August 2013. The cap on total funding for the healthcare program will be \$400 million annually.

Employ Voluntary Strategic Partnerships to Bring Comprehensive Solutions to Low Income Consumers. In addition to its universal service programs, the FCC helped create **Connect2Compete (C2C)**, a \$4 billion public private partnership that encourages broadband

adoption by low income students and their families, at no cost to U.S. taxpayers. As part of this program:

- participating cable companies agreed to offer two years of broadband service to eligible families for \$9.95 per month;
- a computer refurbishing company will offer a computer with standard software and phone tech support for \$150; and
- a major financial company will offer microfinance loans to help families cover the cost of the computer.

A successful pilot was completed in the San Diego area and the program began a nationwide roll-out in 2012, and is expected to be available in all 50 states by the end of 2013.

Several complimentary initiatives support C2C's efforts and the goal of increasing broadband adoption, including a digital literacy ad campaign and training program. Several organizations have also agreed to provide free digital literacy training at schools, libraries and community and job training centers. In addition, a PC Pledge 100 Campaign urges corporations to donate at least 100 surplus used computers so they can be refurbished and made available to needy families, schools and community organizations.

Ensure that Persons with Disabilities Have Access to Broadband Technology. In January 2012, the FCC implemented the 21st Century Communications and Video Accessibility Act (CVAA) to enhance communications access for those with disabilities. The law required the FCC to establish closed captioning rules for the owners, providers, and distributors of IP-delivered video programming, and for certain apparatus on which consumers view video programming. The latter include all physical devices designed to receive and play back video programming, including smartphones, tablets, personal computers, and television set-top boxes, all recording devices and removable media players, and all "integrated software" in these devices.

Additionally, the FCC recently adopted rules requiring that emergency information provided in video programming by programming providers, distributors, and owners be made accessible to individuals who are blind or visually impaired, and that certain apparatus be capable of delivering video description and emergency information to those individuals in a manner accessible to individuals who are blind or visually impaired. Examples of the emergencies covered include tornadoes, hurricanes, floods, earthquakes, icing conditions, heavy snows, widespread power failures, school closings, and warnings of impending changes in weather.

As indicated above, the United States has taken a number of concrete steps to advance the national broadband economy. FCC actions have been enhanced by private industry, enriched by public comment, and reinforced by Executive Orders issued by President Obama. With these experiences in mind, to stimulate broadband adoption and services, and to help achieve social inclusion, GSR participants are invited to:

Release spectrum for broadband. *Identify all available or underutilized spectrum; take steps to release it to the market quickly; consider innovative methods to allocate and use spectrum for new broadband services: e.g., unlicensed spectrum; evaluate database-enabled dynamic sharing, white spaces and incentive auctions as options for handling incumbent and other spectrum holders.*

Reduce or remove practical barriers to broadband deployment. *Consult local government and other interested stakeholders; streamline procedures for tower siting, etc.*

Modernize universal service programs to maintain voice and extend broadband to high cost areas, the un-served/underserved and low income population. *Impose build-out schedule and service speed conditions via quasi-public/private partnerships.*

Employ voluntary, strategic, public-private partnerships to bring comprehensive solutions to low income citizens. *Promote, coordinate/facilitate multifaceted access solutions for connectivity, literacy training and equipment.*

Ensure that persons with disabilities have access to new technology. *Find ways to make advanced technology available and accessible to individuals with disabilities, including the blind or visually impaired, deaf or hearing impaired, and physically challenged.*