**Testimony of**
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**Before the**
**US House of Representatives**
**Committee on Commerce**
**Subcommittee on Telecommunications and the Internet**

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Good morning Chairman Upton and Ranking Member Markey. I would like to thank you for holding today's hearing. I am excited to be with you today to help kick off the Telecom Act reform that you will lead in this Congress. This is an historic initiative, and on behalf of Motorola, I am delighted to serve with you on the front-end of this important effort.

It is an honor to be here before you with industry colleagues to discuss our technology vision. We call it Seamless Mobility. You have articulated the clear need to reform the Telecom Act to bring it into the Internet age, and I am committed to working with you to achieve this very important objective. It has been nearly a decade since the last major overhaul of the Act, and it is now time to make the necessary changes that will enable the future of communications.

Before I begin today's testimony, I would be remiss if I did not thank you, Chairman Barton as well as Congressmen Dingell, Markey, and Pickering for your tremendously successful efforts, particularly at the end of the last session, to enact the Spectrum Relocation bill as a part of HR 5419. It is an immensely important piece of legislation that will spur economic growth in the US through the deployment of powerful broadband wireless services across the nation.

## BACKGROUND ON MOTOROLA

I serve as the Chairman and CEO of Motorola, the original high-tech start-up. We have over 75 years of world-changing innovation, a rich portfolio of patents, an amazing team of technologists, and a passionate commitment to R&D.

Just look at these Motorola firsts:

- The car radio
- Walkie-talkies for the American soldiers of WWII and every major war since
- Affordable color TVs
- 1st responder mission critical radio communications technologies
- Carriage of Neil Armstrong's voice to earth from the moon
- The pager, and
- The cell phone

Motorola is unique in that the company designs consumer devices and infrastructure for virtually every communications sector. Our products include: 1st responder networks; cable infrastructure and consumer equipment; wireline and wireless communications infrastructure and consumer equipment, including both commercial and private systems; and, telematics communications equipment embedded in vehicles. Now, we are working to make the cell phone -- as we know it -- obsolete. It is becoming a much more sophisticated mobile device. We call it the 3rd screen, after the TV, and the PC.

**SEAMLESS MOBILITY**

Central to Motorola's commitment and vision for the future of communications is a concept we call "Seamless Mobility." Seamless Mobility is about the connected experience as people move between environments and switch their activities among devices and networks. It occurs transparently to the user.

Providing a Seamless Mobility experience across all user environments—home, vehicle, office, and beyond—is a key characteristic of Motorola's approach. Motorola's Seamless Mobility vision provides complete end-to-end communications that can lower communications costs, increase user efficiencies, and create new capabilities.

With Seamless Mobility, devices will adapt to their owners. Devices will know where consumers are, their preferences, their schedule, where they want to go and what they want to do when they get there. Our mobile devices will be capable of secure payments for parking with the touch of a key. Cars and homes will be capable of storing, sharing and continuously updating consumer information to make life simpler, smarter, safer,

synchronized and more fun. All the while, these communications capabilities will travel seamlessly with the consumer across domains, with the transition between networks imperceptible to the consumer.

Consumers want more mobility with the least effort possible. Seamless Mobility accelerates the intersection of these two concepts. The result is a continuity of experience which is valuable to users as they live their lives.

Seamless Mobility increases as full mobility increases and user effort decreases. By focusing on solutions that deliver full mobility with the least effort, Seamless Mobility will boost the adoption rate for mobile communications further.

Digitization is driving a number of applications, but the applications that provide a Seamless Mobility experience will drive the future. Enhanced privacy and security will also be critical to satisfy the economic interests of content owners and users' needs. The future is about full mobility, which requires mobility across different types of coexisting networks — a heterogeneous continuum of Internet Protocol (IP) packet and circuit switched networks.

The future is also about users wanting to be "always on" and needing to know what is happening somewhere else. This will require sessions that seamlessly cross networks and devices.

The device formerly known as the cell phone has come a long way from its original "portable telephone" application when Motorola created it in 1983. It has moved from a simple phone without wires to a broad ranging communications device. Technology has allowed devices to grow applications from wireless access to display, to audio, to processing power in MIPS, memory in Mbits, and faster data rates. And it is not over. Many advanced technologies have yet to be implemented. When they arrive, they will enable:

1. Continuous communications
2. Spontaneous sharing
3. Being right there — experiencing together
4. Making life simpler

5. Making life more productive
6. Personalizing experiences to desires or current situation

Motorola believes that when this occurs, the demand for mobile communications will soar. This, in turn, creates opportunities for new kinds of services, applications, infrastructure, devices, platforms, and components.

Seamless Mobility Will Enrich Our Lives And Foster Inclusion

Anyone who has ever used a personal device, such as a mobile phone, pager, PDA, or PC, has said, "This is fine, but wouldn't it be great if my device could…." We, at Motorola, are turning your personal device wishes from "wish it could" to "now it can."

Imagine if you, Chairman Upton, were able to receive your draft opening remarks on your handheld device, in the same word processing program you use on your PC, as you were flying back to Washington from Kalamazoo.

Then, imagine if you could easily review those remarks, make edits and email the document back to your staff using your handheld device. Using the same device you then send a video mail regarding today's hearing to Mr. Markey, using the airplane's onboard wireless capabilities.

After you land, imagine driving to the Hill and receiving notifications from your automobile that there are road improvements taking place on the 14th Street Bridge which are causing traffic congestion. Your car advises you to take Memorial Bridge, instead, and gives you step-by-step instructions for the detour.

As you are driving, you receive a notification in your vehicle from your home monitoring system that your home alarm had not been engaged when your kids left the house for school and you are asked whether you would like it to be turned on.

Then imagine you make a phone call in the car, using the vehicle's wireless capability. As you drive into the garage, the call transfers from the cellular network, to a Wi-Fi network. After you park the car and turn it off, the call transfers to your mobile device. As you walk into your office, the call transfers from the Wi-Fi network to your office PBX. All of this is done seamlessly, without interrupting your communication.

This is a small snapshot of what is possible in the digital age and this is Motorola's vision of Seamless Mobility.

Seamless Mobility Will Drive Economic Growth And Productivity

With full mobility, we can harness the power of technology for consumers and the economy. The actions you take, in this Telecom Act reform initiative, can drive this reality. Enacting deregulatory policies will accelerate and amplify the adoption of mobile technology and increase users from 1.5 Billion today to the next Billion. Together, we can drive the largest number of revenue generating opportunities since the early days of the Internet

Indeed, with technology solutions to interoperability among other products, appliances, equipment, and devices in our homes, offices and autos, we could become a lot more productive and stimulate significant economic growth.

With the digitization of things, the expansion of broadband, and the explosion of smart devices, Motorola is making this type of communication possible.

## Seamless Mobility in Action - Examples

Seamless Mobile Handset

Jenny has a dual mode handset and is on a cellular call. As she travels she reaches a point where her cell coverage is at risk; her handset recognizes a possible call-drop, and senses a wireless local area network access point, which picks up the call as Jenny continues talking. Her call is now being delivered via VoIP and not a cellular circuit. As Jenny's call was converted to a different network, she continued speaking, and the entire conversion remained transparent to her and the other speaker.

Seamless Video

As he commutes home from his office, Sam has a multimode handset and is participating in a video conference via a 3G data network. When he arrives home, his handset detects his home's wireless network and moves the conference to the house

network. But Sam wants to participate in this conference via his PC, which uses a broadband network and a larger screen. Transparent to Sam and the other participants, his home's network is informed of his choice and the conference is moved from the handset to the PC. Because Sam's home infrastructure includes a set-top box and television, he could have used his television and the network would still have moved the conference to his target device. This type of session handover can work in small offices, residences, hotspots, or enterprises.

Seamless Home Delivery

Serviceman Tom receives a message from headquarters that Jenny's liquid propane gas tank is below 10 percent of capacity. A text message is sent to Jenny's mobile phone while she is commuting to work, which when acknowledged, sends a message to her home network to open the gate. The service distribution center checks Tom's position, schedule, and fuel level. Delivery is set between 3:00 – 5:00 pm, after verifying Jenny's account is in good standing. Tom receives an updated route for distribution on his GPS system, minimizing the distance driven. The final estimated level in Tom's truck tank is communicated to the distribution center to set fill level for tomorrow's scheduled deliveries. An accurate level before and after fill determines the charge for delivered propane. Jenny's bank account is automatically debited, and her house is comfortably warm when she arrives home.

Seamless Business Travel

Sam is flying to Boston on a business trip. When he arrives in Boston he knows there is a multi-hour drive to reach his customer's office. He transacts an auto rental agreement remotely, using his electronic assistant and biometric authentication feature. He receives directions to the rental car via his electronic assistant, and the car door unlocks when it senses his presence. As he enters the car, his electronic assistant loads the destination into the car's navigation system to help Sam drive in a city with which he is unfamiliar. Once Sam fastens his seat belt, the vehicle's intelligence system scans metadata to locate a local radio station that meets Sam's music preferences, which are stored in his user profile at the auto rental firm.

Seamless Auto Service

While driving home one night, Jenny's car operates poorly. The on-board diagnostics system decides that the problem requires dealer attention, and communicates this to Jenny via the car console. When she arrives home, Jenny's car connects with the manufacturer's service website via her home broadband connection, and reports the symptoms. It consults Jenny's appointment calendar in her mobile phone, and schedules an appointment convenient for her. It confirms the appointment in her calendar and arranges a reminder for her on the car console the next time she turns it on. Apprised of the appointment via a diagnostic signature passed from the manufacturer's website to Jenny's dealer, the dealer orders the correct parts and they await her arrival for the appointment.

Seamless 1st Response

A joint federal, state, and local taskforce targeting a terrorist cell in the U.S. is planning a series of simultaneous raids that must be carefully coordinated. A federal SWAT team is preparing to move into a residence in the Washington, D.C. suburbs and is communicating via two-way radio with state and local police who will assist in sealing off the area. The taskforce virtual command center is tying together all agencies involved in the event, including DHS and DOJ. It is also communicating with undercover agents who are using covert radio gear while they follow suspects en route to the house. Simultaneously, a law enforcement agent traveling to the scene in a vehicle on I-95 is talking to the command center on a public carrier's push to talk phone. Down in Richmond, Virginia, agents are collecting evidence from a storage facility and are communicating by voice with the command center by means of a second carrier's push to talk phone and uploading pictures and other data by means of dedicated high speed, broadband spectrum. All voice communications are interoperable with one another because all the devices comply with the national standard for public safety radio interoperability - the Project 25 Standard.

## The Architecture

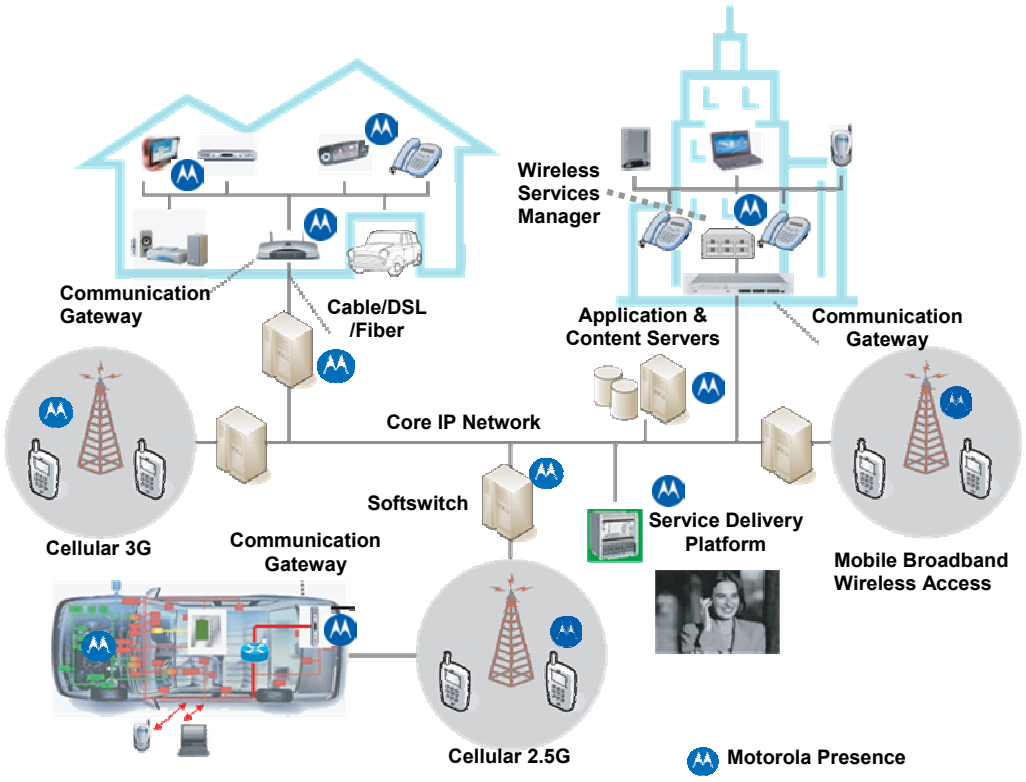
Motorola has identified four elements of a basic, conceptual architecture, spread across homes, vehicles, workplaces, and public spaces between them:

1. Devices
2. Heterogeneous networks
3. Local servers/gateways
4. Global servers/services.

This architecture builds on Motorola's strengths in traditional and evolving mobile devices, infrastructure, in-vehicle, and home communications. It incorporates a continuum of existing and emerging wide-area systems, including CDMA, GSM, 3G, 802.16, and 4G. It also includes the co-existence of shorter range systems, such as 802.11 and ultra-wide band wireless (UWB) that may be deployed in homes, vehicles, enterprises, or hot spots. All of these systems are connected to a common IP core network through a gateway.

In each space there is a local area network and a communications gateway. The LAN provides connectivity in the space that may be wired or wireless. The gateway permits mobility within a space as well as assists with seamless transitions between spaces.

# Seamless Mobility Architecture




To enable the user experiences, devices run client software to connect via gateways and/or directly to networks that find their way through other networks to a converged core, and ultimately to common user services. The network is IP-based with gateways to legacy networks. For example, a communication starts with VoIP across a wireless LAN with a handover to a legacy cellular network.

## IP-ENABLED SERVICES & MOTOROLA

The Committee has begun to explore the new, advanced types of Internet-enabled communications that are increasingly being introduced. IP-enabled services, including VoIP, are truly transformative and will offer consumers a number of important benefits including lower prices and cutting-edge products and services. Your policy leadership can support and expedite this transition.

Motorola is at the forefront of these technologies and we are dedicating substantial resources toward bringing the promise of IP to the marketplace. We are working with

cable operators, wireline, and wireless service providers to roll out VoIP products and services as quickly as possible. Motorola is advancing the deployment of VoIP in every industry sector with specific products, services, and resources.

For example, last year, Motorola and Verizon announced a multi-year contract for Motorola to provide digital video network infrastructure and digital video consumer premise equipment in support of Verizon's launch of video service on the company's new Fiber to The Premises (FTTP) network next year. Verizon's plans for new FTTP deployment to homes and businesses include California, Florida, Texas, Delaware, Maryland, Massachusetts, New York and Pennsylvania. Verizon plans to pass some 1 million homes and business with new technology this year, and some 2 million additional in the next.

Motorola also supplies solutions to major cable operators in the U.S. including Comcast, Time Warner, Cox, Charter, and Adelphia. These operators are moving from traditional video services to other innovative services, including VoIP, in scores of major markets.

Motorola also manufactures data networking and VoIP products for both network operators and retail customers. For instance, from our full line of retail products for home data networking, Motorola supplies the telephony adapter used by a number of independent VoIP service providers. In addition, Motorola has begun to distribute VoIP products. Last year, we announced an agreement with WorldGate Communications to begin distribution of the Ojo personal video phone. The Motorola Ojo personal video phone is expected to be available to consumers and businesses in the fall of this year.

## IMPORTANCE OF IP TO SEAMLESS MOBILITY

As I've stated, providing a Seamless Mobility experience across all user environments—home, vehicle, office, and beyond—is a key characteristic of Motorola's approach to its development of VoIP products and services. In our vision of Seamless Mobility, wired and wireless communications networks will converge and be accessed by a single device providing wireless VoIP telephony services that extend to the wide area cellular network outside -- without dropping calls. User services connected and transported by Internet protocols are a key facilitator of a Seamless Mobility experience. Among these

Internet-based services, the advancement of VoIP is a critical element in making this vision a reality.

The effective use of these Internet protocols that are so critical to the Seamless Mobility experience depends primarily on the continued evolution of networking technology. As Congress examines VoIP services, the decisions this Committee makes can help establish a framework for the future stages of this evolution. VoIP applications will be among the first applications deployed to consumers as they move to Seamless Mobility.

Including this hearing, Motorola is encouraged by the high level of government interest in the treatment of IP-enabled services. During his recent technology briefing at the Commerce Department, President Bush saw innovative uses of new IP-enabled products, such as Motorola's home monitoring system and the Ojo personal video phone.

The President experienced how a consumer can activate the monitoring system in his or her home using a mobile phone, and receive a text alert back to the handset if a motion sensor is triggered. Using an ordinary high-speed broadband Internet connection, the President was able to use the Ojo videophone to make a face-to-face conversation with remote individuals, complete with streaming full-motion video and high-fidelity audio. These are just a few examples of some of the exciting new products and services that IP technology is bringing to the marketplace.

## CONCLUSION & RECOMMENDATIONS

The continued progress of these and other new IP-enabled products depends upon the legal approach Congress adopts for IP-enabled services. Manufacturers, service providers and investors need legal and regulatory certainty in order to aggressively ramp up deployment of these new services. Industry needs decisive action by Congress preempting state regulation of IP-enabled services. We simply cannot fully invest in the design, manufacture, distribution and promotion of IP-enabled products while unsure of whether or which State or Federal regulations apply.

While we applaud the FCC's decision establishing federal jurisdiction for Vonage, that decision is now being litigated. Motorola and other companies not only struggle with

uncertainty, we spend time, money and other resources in state and federal regulatory proceedings and multiple rounds of litigation in order to establish what the rights and responsibilities are for IP-enabled services. These resources could be much better deployed crafting technology solutions to the wants and needs of all users of mobile technologies.

The Congress must act to preempt state regulation of VoIP. With this legal clarity IP-enabled products will launch from technology demonstrations to the homes of American consumers. Because VoIP will be one of the first widely available IP-enabled services, it is especially important that Congress act to establish the proper regulatory framework for VoIP quickly.

To realize our vision of Seamless Mobility, Motorola is encouraged that the Committee has considered legislating a light regulatory touch for IP-enabled technologies. Congressmen Pickering, Boucher, and Stearns are to be commended for their leadership efforts in this area.

The Congress must clarify the jurisdictional nature of IP-enabled services, beginning with VoIP, and establish a unified and rationalized regulatory paradigm for new advanced IP-enabled services that are agnostic to the platform. Such transformative transmissions should not be subject to each of the differing sets of legacy regulations that apply to each platform subset of the Seamless Mobility experience. That approach may have been needed in the analog world, but it is inappropriate for the new Internet economy.

A unified, deregulatory approach for these new services will provide needed certainty and pour rocket fuel on the investment fire that is burning in our industry.

For example, a discrete communication that originates, traverses, and or terminates on a variety of different platforms such as wireless, broadcast, fiber, traditional telephone lines, or satellite, should not be subject to disparate and multiple regulatory treatments. With the advent of Seamless Mobility, the network supports the consumer no matter where they are -- the law should not impose artificial physical constraints either. The consumer's IP-enabled device allows them to move freely between networks to the

platform that can do the job best, most efficiently, and cost-effectively. The law ought to align with this vision.

Another recommendation I would urge the Congress to consider is establishing a requirement that the FCC must provide an annual report, for the next 5 years, identifying regulatory actions it has taken to break down the competitive barriers between services, and the status of competition between various IP-enabled platforms whether they be cable, wireline, wireless or broadcast. The report should also identify any roadblocks to cross competition and provide recommendations to eliminate such roadblocks, either through regulatory actions or through legislation. Such analysis by an expert agency will be useful in identifying areas for action.

Seamless Mobility will keep the US apace with competition and innovation in other parts of the world. Without changes in US policy, Seamless Mobility will not reach its most robust deployment. The European Commission is examining these very same questions and is expected to conclude a light regulatory touch for Internet-based services within the year. Thereafter, member countries will follow on with their policies in a consistent manner. Meanwhile, administrations within Asia have promoted national policies to support the fullest deployment of these advanced technology solutions for the betterment of their citizenry. From a competitiveness standpoint, Motorola applauds this Committee for its commitment to pursue appropriate policies to ensure domestic leadership in the global race for technology dominance in the Internet Age.

Finally, Mr. Chairman, spectrum is a foundational resource needed to deliver Seamless Mobility. Motorola greatly appreciates the focus that you and the Committee leadership are placing on ending the Digital Television transition by a fixed date. Such certainty is critical to planning for valuable subsequent uses for the spectrum, such as the mission critical homeland security communications needs of our 1st Responders across the country and the deployment of advanced high-speed mobile broadband technologies. The discussion around fixing the date at December 31, 2006 and providing a technology solution to ensure that every household continues to enjoy access to free over-the-air television is a powerful plan that will work.

## SUMMARY

Seamless Mobility is about simplifying our lives as we communicate with business colleagues, friends, and family while on-the-go. Motorola's innovations will improve communication and interactions, and will enrich our lives as technology becomes even more widespread and indispensable. Decisions made by Congress as it examines VoIP services and beyond will establish a framework for the future stages of this evolution.

With Seamless Mobility, we can harness the power of technology for all Americans and our economy. This is a truly historic initiative before us today. Your leadership and the decisions you make throughout the reform of the Telecom Act can change the Internet from one people must seek out to one that seeks us and surrounds people with productivity, enrichment, inclusion, and innovation. I commit Motorola to work with you to make the Internet Age powerful for us all.