

**Joint public hearing of the Senate Communications & Technology, Law and Justice,
Transportation, and Veterans Affairs and Emergency Preparedness Committees**

On the Issue Of

Pennsylvania's Statewide Radio System

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**Written Testimony of behalf of Dr. Kenneth Budka, CTO – Strategic Industries
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On behalf of Alcatel Lucent, I would like to thank the Chairmen and Chairwomen of standing Senate Committees for the opportunity to submit written testimony on this very important and successful safety initiative. My name is Kenneth Budka, Chief Technology Officer – Strategic Industries for Alcatel-Lucent. Alcatel-Lucent is a global manufacturer of communications equipment. Our wireless, optical, data networking, and microwave products power the communications networks deployed by commercial service providers, enterprises, and government agencies throughout the Commonwealth of Pennsylvania and the world. Our research and development arm Bell Labs research is continually inventing novel technologies and techniques to make communications networks faster, smarter, more reliable and greener.

In my current position for Alcatel-Lucent, I am responsible for the development of mission-critical communications systems and technologies for public safety, energy, transportation and government agencies. Beginning in 2002, I led a research team developing interoperable, next-generation public safety communications systems based on open-standard, commercial broadband wireless technologies. Our team's early work paved the way for the introduction of 4G wireless technologies which will transform the way our nation's first responders communicate. I recently served as Vice-Chair of the 15-member Technical Advisory Board for First Responder Interoperability, a board established by the U.S. Congress to set

minimum technical interoperability requirements for the United States' Nationwide Public Safety 700 MHz Broadband Network, FirstNet.

I am pleased to talk to you today about a major success story in the Commonwealth of Pennsylvania —the partnership between Alcatel-Lucent and the Commonwealth of Pennsylvania in the construction of statewide communications backbone network known as StarNet. This shared communications network is a strategic asset for the Commonwealth – an asset that will help Pennsylvania evolve its 911 systems, continue to lower communications costs for state and local agencies, help provide communications services to citizens in underserved areas, and provide a platform for Pennsylvania's next-generation public safety systems.

Our partnership with the Commonwealth of Pennsylvania began approximately 15 years ago, when it chose Alcatel-Lucent to build a new microwave system. This microwave system, one of the largest private systems in the world, became the communications backbone of Pennsylvania's state-wide public safety network, one of the first state-wide public safety networks in the Nation. Working with the Commonwealth, we have since transformed StarNet - a network originally intended for public safety radio - into a network that serves multiple state and county agencies for their voice and data needs, and also offers broadband connectivity to a wide array of customers and communities throughout northern Pennsylvania's underserved regions.

The key to this transformation was introduction of a technology known as Multi-Protocol Label Switching, or MPLS. MPLS allows network bandwidth to be shared in a secure, controllable and predictable manner. It is not uncommon for agencies today to use separate circuits for voice, separate circuits for video and separate circuits for data. This siloed approach

is a very expensive way to provide communications. Thanks to the security, controllability and predictability provided by MPLS, the silos can be consolidated: voice, video and data applications can be carried simultaneously over a single communications link with no degradation in quality. As a result, StarNet's network bandwidth can be shared among all agencies using its service, significantly lowering costs.

MPLS's prioritization and reliability features ensure that public safety and other high priority traffic carried over StarNet gets the bandwidth it needs, and that traffic gets safely rerouted in the event of an equipment failure, fiber cut, or other outage. MPLS's security features ensure that voice, video and data only flows to its intended destination. Because of all these features, MPLS has been one of the foundational technologies of commercial service provider networks and military networks worldwide for over the past decade. With this technology, the Commonwealth has the flexibility to permit a vast array of exciting uses for StarNet without compromising the network's core mission: public safety communications. Further, it has the ability to lower communications costs across the commonwealth by replacing leased circuits with StarNet microwave or fiber links.

Perhaps most important for the future of Pennsylvania broadband communications, StarNet now has the capability to not only serve first-responders and state and local agencies with best in class communications services, but also to serve the broader citizenry of the Commonwealth. Under an American Reinvestment and Recovery Act Broadband Technology Opportunity Program grant, the state's backbone network was extended to supply bandwidth to the underserved portions of northern Pennsylvania.

The Commonwealth's ability to grow this network – in geographic coverage as well as functionality – is virtually limitless and Alcatel-Lucent can help achieve these goals much more cost-effectively than other routes the Commonwealth may take.

As Pennsylvania transforms its 911 system, StarNet provides a platform to link Public Safety Answering Points with other resources across the state. The significant economies of scale already provided by StarNet will be enhanced as new links and assets are added, benefiting all. This is currently occurring in the western region of the Commonwealth where 14 counties are building an emergency services internetwork, or ESINet. This ESINet leverages portions of StarNet to provide network connectivity. This sharing of resources sets the stage for the Commonwealth to be prepared for the next chapters in public safety communications – next-generation 911 and public safety broadband.

The United States will soon begin deployment of a nationwide, 4G public safety network known as FirstNet. This network will give first responders and the extended public safety community new tools to safeguard life, health and property. In preparation for deployment, FirstNet is working with states to identify existing communications assets. Reuse of existing assets will significantly reduce the costs of deploying and maintaining this network. The Commonwealth's StarNet is an ideal asset for providing connectivity to FirstNet base station equipment. Taking advantage of FirstNet's State and Local Implementation Grant program, the Commonwealth can identify additional state and local communications assets that can be added to StarNet that will benefit both FirstNet and the Commonwealth of Pennsylvania. Alcatel-Lucent can assist in such a state-wide network assessment and has submitted to StarNet officials an unsolicited proposal to do so.

As the Senate continues its deliberations on enhancing emergency preparedness in the Commonwealth, including the rewrite of Pennsylvania's 911 statute, we urge it to maximize the assets, investment and infrastructure of one of the largest public safety communications systems in North America. By tying together disparate public safety networks and leveraging existing communications assets across the Commonwealth, all participants in StarNet benefit, and the costs of providing services are lowered. State leaders must leverage the success and investment in PA StarNet and take an active role in planning, designing, and building activities for Pennsylvania's portion of the nationwide public safety broadband network, FirstNet. This engagement, advanced during the rewrite of Chapter 53, will help achieve the goals set forth in the federal act that established FirstNet, as well meet Pennsylvania's and its local government's specific emergency response needs.

Alcatel Lucent stands ready to partner with the members of your Committees and the Commonwealth to advance these extremely important public safety goals. Please feel free to contact me should I be of assistance in answering any questions you may have.