Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
International Comparison and Consumer Survey Requirements in the Broadband Data Improvement Act	)	**GN Docket No. 09-47**
	)	
A National Broadband Plan for Our Future	)	**GN Docket No. 09-51**
	)	
Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act.	)	**GN Docket No. 09-137**

To the Commission:

Comments – NBP Public Notice #25
from Nickolaus E. Leggett

I am one of the original petitioners for the establishment of the Low Power FM (LPFM) radio broadcasting service (RM-9208 July 7, 1997 subsequently included in MM Docket 99-25). I am also a certified electronics technician (ISCET and iNARTE) and an Extra Class amateur radio operator (call sign N3NL). I hold an FCC General Radiotelephone Operator License with a Ship Radar Endorsement. I am an inventor holding three U.S. Patents. My latest patent is a wireless bus for digital devices and computers (U.S. Patent # 6,771,935). I have a Master of Arts degree in Political Science from the Johns Hopkins University. I am also one of the petitioners in the docket to establish a low power radio service on the AM broadcast band (RM-11287). I have filed petitions and comments on the impacts of electromagnetic pulse (EMP) and solar storm

events on communications infrastructure.

I am commenting on the need for a Notice of Inquiry (NOI) on the transition from circuit-switched networks to all-IP (Internet Protocol) networks. My comments are directed at the impact of this transition on national security and personal privacy.

Circuit-switched vs. All-IP Communications

Circuit-switched communications use specific physical communications paths owned or leased by the communications provider. These communications paths are controlled by the communications provider and the communications provider is accountable for what happens on the paths. In this regard, the circuit-switched communications system is like a railroad for the transfer of information.

All-IP communications sends the communications in packets that are relayed to their destination by the general "cloud" of the Internet. There is very little accountability for the handling of this information on the Internet and for any possible copying or modifying of this information. All-IP communications is like driving on a huge and largely uncontrolled road system.

Security Aspects

Circuit-switched communications can be physically protected by protecting the physical integrity of the specific communications cables and microwave links used by the communications. The security of the Public Switched Telephone Network (PSTN) benefits from this traditional technology.

In addition, this basic security is specifically enhanced if the communications paths are routed through fiber-optic cables which are inherently difficult for unauthorized organizations to tap and monitor. A similar but not as secure protection is provided by

millimeter-wave point-to-point communications beams.

In contrast, the all-IP communications are relayed by the free-wheeling general Internet where almost anything can happen to the transmitted information. Encrypting the information does not prevent it from being copied by hostile parties and later de-encrypted by large capacity computers (which can be physically compact). The Internet cloud allows a huge number of access points where the information can be accessed. The very flexibility of the Internet makes security breaches much more likely.

Privacy and Security

The contrast of the circuit-switched and all-IP network technology also impacts citizens' privacy as well as national security. People can make conventional circuit-switched telephone calls without any serious risk of identity theft. However, they cannot send the same information through the Internet without a significant risk of identity theft. This is due to the basic openness of the all-IP technology as compared to the basically closed structure of the circuit-switched technology.

Any and all migration of telephone service to the all-IP networks could potentially be accompanied by some mandatory protections of subscriber privacy. These protections can be discussed in the NOI on the transition from circuit-switched to all-IP communications.

Security Topics for the NOI

The NOI should include the following security topics:

1. Technical and operational comparisons of the national security and privacy aspects of circuit-switched vs. all-IP communications. Is one technology radically better than the other in terms of security?

2. Should specific steps be taken to preserve and retain circuit-switched technology in the public telephone network and in other communications systems?

3. If the answer to Question number 2 is yes, what means should be used to preserve circuit-switched technology? Should this include regulatory mandates, government subsidies, tax benefits, and/or independent government circuit-switched networks?

4. What steps are possible to provide very thorough security for public telephone networks (and other networks) that are using the all-IP technology? Would these steps eliminate any security and privacy differences between circuit-switched and all-IP networks?

5. What are the potential impacts of private (non-state) hackers on national security communications conducted on all-IP networks including but not limited to the public telephone network?

Proposed Procedure for the NOI

Since the NOI would include discussion of matters related to national security, it would be desirable to have a robust classified process for comments from the intelligence community and defense contractors who would not want to discuss these issues in a public forum.

In addition, there should be a public forum for comments from civilians such as myself, and for comments from public interest organizations.

Requested Action

The Commission should definitely establish an NOI on the transition from circuit-switched networks to all-IP networks. This new NOI should include questions on the national security and privacy aspects of these networks.

Respectfully submitted,

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