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Trade and National Security Implications

IPv6: the World's New Internet Protocol —
Is America Ready to Defend its Leadership of the Internet Universe?

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Today's Internet is not an endless frontier. A new protocol, IPv6 is the next evolution, offering significantly improved security and interaction with mobile devices. This "new" protocol was actually developed several years ago to meet growing US and international needs for IP addresses as the proliferation of Internet-capable devices in Asia, India, Europe, and Australia shrinks the pool of available addresses. In addition to providing a substantial increase in IP address availability, IPv6 offers greater security, easier multicasting, interactivity with mobile devices, and the ability for new kinds of applications, including surveillance.

However, as a result of other investment priorities and general comfort with the current IPv4 Internet, the US Government and most US businesses have not assumed the leadership role for the next generation internet IPv6. This absence of leadership and investment has led to Japan, Korea and most recently China investing over 850M in IPv6. The potential implications to the US economy and to national security are substantial.

The Eurasia Center/Eurasian Business Coalition (EBC) and the ***INTERNATIONAL INVESTOR*** television program partnered with the World Future Society United States National Capital Chapter (NatCapWFS) to sponsor a Global IPv6 Forum in September 2005. This internationally televised Global Forum was held in Washington, D.C., the epicenter of the world's Internet, military-industry complex,

and the Global War on Terrorism infrastructure, to educate key leaders of high technology, business, banking, investment firms, global traders, and government officials on IPv6 and its impacts on communications, trade, and national security. Participating as panelists on this Forum were: Mark Bayliss, President, Visual Link Internet; Joel B. Coulter, President, Mobile Sciences Consortium; Chris Harz, Program Director, IPv6 Summit; Louis McDonald, Chief Technology Officer, Virginia Center of Innovative Technology and Yurie Rich, Business Director, North American IPv6 Task Force. The panel was moderated by Eric Garland, Futurist and Program Chair of the NatCapWFS. Robert Sherretta, President/Producer of the *INTERNATIONAL INVESTOR* and Dr. Samuel Lee Hancock, Executive Director, The Eurasia Center conducted the broadcast interviews.

YOUR ADDRESS OR MINE?

IPv4, the current global Internet infrastructure, was developed by the leaders of America's Internet at the cost of some US$15billion invested over the past 30 years. IPv6 is a quantum Internet protocol upgrade to replace the current antiquated IPv4. The new protocol will allow true point-to-point secure global communication across digital devices and will alleviate the worldwide IP address shortages. Under IPv4, the US currently uses over 50% of all the IP addresses available worldwide. Even though IPv6 was developed in the United States, the new protocol and solutions it provides is experiencing rapid growth in Korea, Japan, and China in Asia and France and the Netherlands in Europe.

TRADE IMPLICATIONS

These Asian and European nations realize that the countries which take the lead on setting the next generation global Internet standards, policies, and producing the next generation digital solutions, will greatly enhance their GDP (gross domestic product). It has been estimated by some economists in the United States Federal Reserve Bank and the World Bank that as much as one-third of the United States GDP is generated through the Internet and related products and services. This is an amount of some US$3.376 trillion annually and rising.   It was reported in the Global IPv6 Forum that if the US does not leverage its Internet investments, it will lose some 50% of its current Internet revenues to Asia, Europe, and Russia. Such a dire situation could further increase the balance of trade debt and lower the US standard of living.

NATIONAL SECURITY IMPLICATIONS

An eye-opening topic was the implications of the seeking of control or influence over global IPv6 standards, policies, and networks by non-democratic countries, dictatorships, and the al-Qaeda terrorist network. Seeking such control for their own purposes currently leaves the US government, industry, banking, and education networks vulnerable to hidden IPv6 denial-of-service attacks, cyber warfare, Internet surveillance, identify theft, and actual shutdown of the Internet. Terrorism is a global war that requires all enlightened, progressive, and democratically functioning countries to work together to secure critical government, energy, health care, economic, and social infrastructures. Regressive governmental regimes could implement repressive IPv6 standards and polices to inhibit open collaborative communications are key to individual freedom, sustainable growth, disaster response, and democracy if the US does not keep its global Internet leadership position.

According to the panelists, the United States must actively work with its Eurasian partners to ensure that the global Internet standards are set by those nations dedicated to free, open, and transparent governments. If these nations, in concert with the United States, do not protect the next generation Internet, islands of communication isolation will continue in such areas as Africa, the Caribbean, Middle East, South America, and Central Asia. Such pockets promote the growth of terrorism, significantly slow global economic expansion, and inhibit emergency response to natural or man-made disasters. The

current lack of IPv6 collaboration and agreement on IPv6 standards can have dire consequences, for example, in the event of a rapid spread of the Asian Bird Flu in isolated socio-economic regions with limited emergency communication capabilities.

IPv6 supports global collaboration and communication for joint Defense and Homeland Security systems at ports, national borders, and critical business/energy infrastructure. The enhanced interoperable communication and multimedia multicast streaming capabilities across mobile devices offers First Responders the ability to intelligently share vital situational awareness, medical, and disaster data with other local, state, federal and international disaster response agencies. Emergency response teams with IPv6 have real-time access to maps, portable video monitors at crisis sites, medical services, and disaster data that improves their actions and decisions to prevent further property losses, streamline evacuations, and reduce the loss of life. IPv6's new features also allow for digital/mobile communications, multimedia content streaming, IPTV entertainment, and eCommerce.

WHERE DO WE GO FROM HERE?

As these facts have become clearer, leaders of the US Congress, the Office of the President, and the Department of Defense have issued mandates to transition all Government agencies' Internet network infrastructure to IPv6 by 2008. These mandates have established a Government/Industry leadership team. This "Team" is to advance America's transition to this next generation Internet infrastructure and solutions. The United States is just now beginning to significantly invest in IPv6.

Through active participation by the influential community of IPv6 evangelists in multiple conferences and meetings with Congress, Department of Defense (DOD), and Department of Homeland Security officials, the following outcomes are possible:

- Maintaining ICAAN (Internet Corporation for Assigned Names and Numbers) leadership, as opposed to ceding Internet leadership to governments that are less open,
- Insisting on "First Responder Communications and International IPv6" protocols as a priority focus;
- Establishing a partnership for a new IPv6 Test & Standards Center in Northern Virginia, USA to accelerate Government transition to IPv6,
- Creating a Science of Information Institute to allow nations to share their IPv6 Research and Development (R&D), solution development, testing, and applications through the World Wide Web. Such new international partnerships allow for US IPv6 standards, policies, IP communications, and security firewalls to be developed in collaboration with strategic energy partners in Africa, Eurasia, and Russia.

In light of these many intrinsic benefits all speakers on the Panel emphasized that the United States must continue its leadership for the new IPv6 generation as it did under the current IPv4.   Various speakers highlighted IPv6 features and functions that can be used as catalysts for global public/private development partnerships.

A 30 minute edited broadcast is available by satellite television networks in 132 countries and 55 major American cities through www.international-investors.com.

THE EURASIA CENTER AND THE INTERNATIONAL INVESTOR

The Eurasia Center/EBC and the **INTERNATIONAL INVESTOR** take great pride in cooperating with the WFS US National Capital Chapter to educate the world through next generation technology forums. Such forums offer technology entrepreneurs a global education and communication channel to Government, industry, and investment leaders in 55 American cities and 132 nations. These channels can launch world-wide technology convergence partnerships that will bring great promises for many generations to come through the new IPv6 connectivity around the globe.

This article was developed with the collaboration of:
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POINTS FOR THE CLASSROOM *(send comments to forum@futuretakes.org):*
- o It has been envisioned that someday data will be organized before we get it to alleviate "drowning" in information overload. How will data be organized, and with what implications?

- o Another prediction – every appliance in your home will have its own IP address. Then your appliances can talk to you and to each other. For example, your refrigerator will tell you what is running out or stale, and it will talk with your TV. Manufacturers will be in contact with each component of your car, even each tire. Auto companies will know what kind of gasoline is going into each vehicle. What will your home and car look like in 2020, and what else will be different if every appliance has its own IP address?

- o Some have suggested that perhaps even every shirt (or equivalently, the person wearing it) will have its own IP address. People will be locatable in real time. Your shirt can monitor your vital signs and call an emergency number if needed. Discuss other implications of individual IP addresses.

- o How will various industries be impacted when everything has its own IP address – for example, banks, hospitals, and shipping companies?

- o Will the society of 2030 be an information-based, mobile society that wants information on a mobile basis, or will it be very different?

- o What will be the next major Internet upgrade after IPv6, and with what implications? Or, will the upgrade be such a quantum leap that it takes us "beyond the Internet" – and if so, to what?