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Broadband Infrastructure Deployment
Policy Perspective of A Broadband Technology Supplier

Malcolm R. Lee
Senior Representative
Worldwide Government Affairs
Cisco Systems, Inc.

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- Mr. Tiger, thank you for the introduction, and thanks to the OECD for your good work in this area. Governments and communities around the world are grappling with how to empower their citizens and economies through access to and use of information.

- The OECD's work is important in identifying both the state of markets and the role that governments can play in this regard. I want to thank you for including the private sector in your discussions.

- I would also like to thank the Government of Korea, in particular the Ministry of Information and Communications, for hosting this important event. Korea has shown enormous leadership on broadband. The world has much to learn from your experience.

- Today, I would like to provide the <u>policy</u> perspective of broadband infrastructure supplier.

- I will discuss four things: why broadband matters, why broadband speed matters, the importance of government leadership, and finally, a few broad policy principles that a significant portion of the U.S. technology industry believes are useful in advancing broadband deployment.

Why Does Broadband Matter?

- It is about closing time and distance for information in an age when information is changing the way we live, learn, work and play.

- It is about efficiency, productivity and economic growth in a competitive global economy.

- It is about a better quality of life: improved health care, expanded educational opportunities, working from home with the same experience as the central office, richer entertainment, and increased responsiveness by governments to the needs of their citizens.

- Let's look for a moment at one of the benefits: productivity.

- Productivity is clearly rising. The U.S. Bureau of Labor Statistics currently reports that manufacturing productivity in most rich

countries, as measured by output per hour of labor, grew faster in 1999-2000 than in previous years. America's productivity in 1999 and 2000 climbed thanks to a combination of rising output and a fall in the number of hours worked. (Economist, May 30, 2002)

- In the first quarter of this year, America's productivity rose at an annual rate of 8.6 percent, its fastest growth in 19 years. Granted, quarterly figures are volatile, but year on year growth in productivity was also impressive, at 4.2%. (Economist, May 9, 2002)

- Can increased IT spending account for these productivity increases? To a large degree, we believe they do.

- The Economist estimates that perhaps two-fifths of the acceleration in productivity growth between the first and second halves of the 1990s is explained by companies increased spending on information technology.

- A study of Internet use by businesses conducted by scholars at the Brookings Institute and U.C. Berkeley found:

  o 61 percent of U.S. businesses are currently using Internet business solutions while 46 percent of European businesses have adopted them.

  o U.S. organizations currently realizing 2 to 4 percent average cost savings annually due to use of the Internet are expecting 5 to 9 percent average cost savings annually in the future.

  o European Union organizations currently realizing .2 to 6 percent average cost savings annually are expecting 5 to 16 percent average annual costs savings in the future.

  o By 2010, business adoption of network-enabled applications could account for 48 percent of projected productivity increase in the U.S. economy and 30 percent of the projected productivity increase in the EU.

(Net Impact Study: Robert Litan of Brookings Institution and Hal Varian, Dean of the School of Information and Management Science at U.C. Berkeley. http://www.netimpactstudy.com)

- Let me also relate some recent comments by the Chairman of the U.S. Federal Reserve, Alan Greenspan.

- On April 22 of this year, Chairman Greenspan made the following observations:

  o The U.S. is emerging from the mildest recession on record.
  o Credit goes to technology, which allows business to adjust quickly to changing economic conditions.
  o Jolted by the September 11 attacks, the U.S. has shown "impressive ability" to withstand hard knocks, including a drop in the stock market and a sharp cutback in capital spending by business.

- o Such resilience reflected U.S. companies' use of computer and other technology providing them with real-time information.
- o Information was used to help companies better respond to a changing business climate.
- o For instance, moving to whittle stockpiles of unsold goods at early signs of a slowdown, rather than adding to them.

(Full remarks:
http://www.federalreserve.gov/boarddocs/speeches/2002/20020422/default.htm)

- Who benefits from increased productivity? Certainly enterprises in terms of increased efficiency. But also workers in the form of big boosts to real income, consumers in the form of lower prices, and ultimately governments and nations in the form of increased global competitiveness.

- Yesterday the OECD Working Group discussed broadband deployment by businesses. There were questions raised as to the value of broadband deployment by large businesses, and about the value of broadband deployment to the home. Let me relate part of the experience Cisco has gained. We are an enterprise of nearly 36,000 employees.

  - o Cisco pays for its employees to have broadband at home. Cisco anticipated that one additional hour of work from the each a month employee from home would pay for Cisco's investment.

  - o Cisco discovered that the average employee with always on high speed Internet access at home will put in 1 extra hour of work a day, not a month!   And Cisco works hard to walk the talk with opportunity for more flexible hours and telecommuting, a necessity in traffic congested areas like Silicon Valley but also a necessity for a company that has grown not only internally but also through acquisitions of companies with employees located all over over the globe.

  - o We think that if governments and enterprises followed our lead that broadband would be deployed much quicker and productivity would increase precipitously.

  - o And what will broadband at home mean to me? It means, quite frankly, that I will be coming home earlier more often, eating more dinners with my family, and reading my young daughters a story before they go to bed, rather than my habitual practice of coming home after they have gone to sleep. If I need to, I can put those work hours in later in the evening.

- And I must note that broadband technology provides enormous opportunities for developing countries as well, not just the wealthy nations of the OECD.

- Developing countries with low teledensity can leapfrog into the newest technologies. There is no need for them to go through all of the technology evolution steps that OECD countries took to get to where they are today. Thus, the productivity increases in LDCs may

be even more dramatic. There is no greater example of that today than China, which is deploying state-of-the-art networks where previously no networks existed at all.

Does Speed Matter?

- Yes. Broadband is defined as always-on, high-speed Internet access. Another way to define broadband is the speed you require to seamlessly run the applications that need it.   Higher speeds will generate even greater productivity and quality of life. Applications that will likely revolutionize how consumers, businesses and governments use the Internet require high-speed connectivity.

- Providing homes with data speeds comparable to those available in offices in order to facilitate telecommuting will require speeds of up to 10Mbps.

    o Telecommuting, video for e-learning and virtual attendance at events/activities along with the multiplicity of other applications such as file transfers (storage networks), e-mail with attachments, web based processes, will increase the residential speed requirements.

- High definition video requires around 19Mbps. DVD quality video requires 4-6 Mps. Broadcast television requires 750 Kbs or more.

- While current generation broadband has theoretical speeds in the 6-10 Mbps range, the actual speed received by current U.S. consumers is often far less, usually under 1Mbps. The U.S. Federal Communications Commission actually defines broadband at 256Kbps, which we think is well below where true broadband is.

- While 256K is much better than 56K dial-up, people need 6-20 Mbps now.

The Importance of Government Leadership

- National Goals: Cisco believes strongly that governments should make broadband a national priority and set specific goals in terms of speed and availability.

    o Historically national goals like putting a man on the moon serve to focus the mind, raise the level of debate and analysis, and can mobilize a nation through a common and coordinated purpose.

    o The success of ambitious goals depends upon many "partners": government policy makers, equipment suppliers, service providers, applications developers, and end users.

    o Many governments formulating national broadband policies have assembled useful "stakeholder" advisory groups.

- A wide range of governments around the world <u>have</u> recognized the importance of broadband, and <u>have</u> established ambitious goals and

> programs. They should be complemented for their vision, and many, such as Korea, for their successful execution. Here are just a few:
> - o eKorea: broadband service to anyone, anywhere by 2010.
> - o France and Sweden: universal broadband access by 2005.
> - o eEurope 2005, announced last week, will aim to promote widespread broadband use.
> - o Italy is moving forward with its national program
> - o Canada: broadband to all communities by 2005.
> - o eJapan: enable all people who need it to have ultra high-speed access (30-100 Mbps as a standard) by 2005

- The United States Government recognizes the importance of broadband deployment, yet is alone among the G-7 nations in not announcing a national broadband plan. A national plan is, we understand, forthcoming, and we look forward to it.

- The Government of Australia is also evaluating steps to move forward.

- TechNet, a national network of CEOs from the America's leading technology companies, has called upon the U.S. Government to set a goal of making an affordable 100-megabits per second broadband connection available to 100 million American homes and small businesses by 2010.

  - o We recognize that this ambitious goal will be achieved incrementally. We believe policies should encourage the availability of affordable broadband at speeds of at least 6 Mbps from two or more service providers to at least 50% of households by 2004. This goal will enable high bandwidth applications including DVD-quality video, file-sharing and peer-to-peer computing.

Principles to Guide National Plans

- What should be in those national plans? There is no silver bullet, and one size certainly does not fit all.

- The U.S. technology industry has attempted to develop a few broad principles that we believe should guide national broadband policies in the United States.

- A similar coalition of companies formed in Europe to develop broad principles as well.

- Each market is different, and the history of proactive government action differs from country to country. But we believe some of these principles have global applicability.

- The principles developed by the U.S. technology group TechNet include (http://www.technet.org/news/newsreleasees_2002-01-15.62.html):

1. **Government policies should foster innovation and reduce regulations – especially with respect to broadband applications and services (such as VoIP and DRMs) that will drive consumer demand.**

   - Policy makers can learn a great deal about nascent applications by allowing them to begin to identify their potential without constraints that could limit that potential.

   - Government can also play a vital role in driving consumer demand by through effective use of their procurement power, through aggregating demand, and e-government.

2. **Public policy should encourage new investment in broadband infrastructure through competition and removal of regulatory barriers and uncertainties.**

   - As you all know well, the most critical broadband policy issue is how to drive investment in the last mile to bring high speed Internet access to the home. In the United States, uncertainty over regulatory treatment of investment in new broadband networks and facilities is a disincentive to new infrastructure investment by incumbents and new entrants. Cisco recommends a market-based approach in which broadband deployment in driven by market competition unencumbered by excessive regulation. The goal should be to create a competitive deregulated environment in which market forces and facilities-based competition drive investment.

   - Cisco does not believe there is a single regulatory formula or silver bullet that will ensure effective competition in every market, but does believe that competition facilitates broadband infrastructure deployment at affordable rates. The facts, circumstances and competitive conditions of each market differ.

3. **Subnational governments should promote streamlined laws and regulations that encourage broadband investment, and consistency between subnational governments should be achieved wherever possible.**

   - Excessive regulatory requirements, delays and monetary costs on broadband providers at the subnational level impede broadband deployment and should be removed.

4. **More proactive government measures will be required to facilitate broadband deployment to underserved communities and businesses.**

   - The OECDs new report on the Role of Government Assistance in Broadband Infrastructure Deployment is a very useful review of possible actions, with their pros and cons. The challenge here is determining where the market will not serve a community, and creating the proper incentives to promote connectivity.

   - Allow me to note also that a large number of governments have provided incentives and funding to connect schools, universities, research institutions to drive broadband use and demand.

5. **National Spectrum Policy should utilize market-based approaches that reduce the artificial scarcity of spectrum for valuable broadband applications.**

6. **Broadband policy should encourage innovation and government should not pick winners and losers.**

   - Cisco supports facilities based competition that spurs accelerated and affordable deployment of a variety of broadband technologies (DSL, cable modem, wireless, WiFi, satellite). Competition and the marketplace should drive deployment of a range and technologies and services to consumers, and the government should not pick winners and losers.

   - On this point let me quote FCC Chairman Michael Powell:

     "…the Commission will conceptualize broadband broadly to include any platform that is capable of fusing communications power with computer power to provide high bandwidth intensive content to meet the broad needs and demands of consumers. That is, we recognize that broadband is not just cable modem service or DSL. We look to empower any technology that will help close the gap of time and distance in acquiring information."

   - And Commissioner Liikanen stated last week in rolling out the eEurope 2005 that "governments need to let markets operate and remain technology neutral."

   - From the perspective of a technology supplier, this is extremely important. Governments cannot predict where technologies will go, and must allow them to compete to allow for innovation.

The EC Broadband Principles developed by the European-based industry association EICTA, of which Cisco is a member, recommended:

   - Public sector promotion and aggregation of demand for content and services;

   - Cooperation with local governments and private sector to build primary infrastructure;

   - Lower VAT rates to broadband services.

   - Fiscal incentives for broadband users (teleworkers, tele-learners and SMEs); and

   - Regulatory reforms to stimulate broadband investment.

(http://www.eicta.org/)

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- Mr. Chairman, let me close by saying that it essential that governments move quickly to formulate and implement national broadband action plans.

- The details of these plans will have to be tailored to the conditions of each market, but it is clear that widespread and affordable broadband access is essential to economic productivity, growth, and competitiveness.

- Like the introduction of the railroads and highways, we believe that broadband will bring revolutionary change to the way we live, learn, work, and play.