

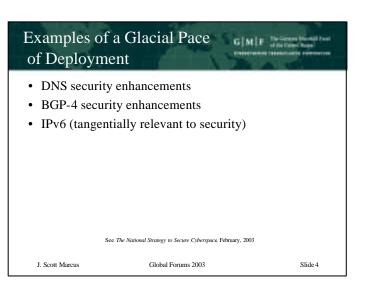
Are market incentives alone sufficient to ensure that all "necessary" enhancements to Internet security infrastructure will be deployed? If not, is it possible to identify and prioritize the set of security features that are unlikely to be deployed without "help"? What public policy measures are available to foster deployment of those security features? What are the costs and benefits of those measures? What are the prospects that they will be effective?

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Thought Questions

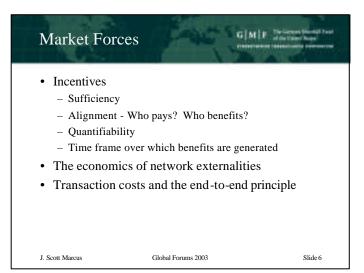
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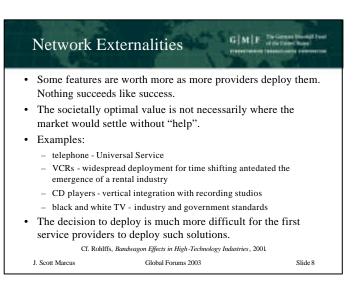
Webbed, Wired and Worried "... at least some of their libertarian, technology-will-solve-everything cockiness was gone. I found a much keener awareness that the unique web of technologies Silicon Valley was building before 9/11 - from the Internet to powerful encryption software - can be incredible force multipliers for individuals and small groups to do both good and evil. And I found acknowledgment that all those technologies had been built with a high degree of trust as to how they would be used, and that that trust had been shaken." Thomas L. Friedman, NY Times, May 26, 2002



Technology Drivers vs Business Drivers • Technology - mature standards - stable implementations - industry consensus where necessary • Business drivers - perceived tangible benefits - predictable costs - favorable cost/benefits ratio - payback within a reasonable time horizon







The End-to-End Principle



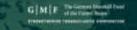
- · A guiding principle of Internet architecture.
- Certain features are best implemented, not in the network, but in the end systems that implement the application. It is counterproductive for the network to also provide those same features.
- · It is easy to incorporate new innovations at the Application Layer (e.g. the WorldWide Web).
- Innovations that are *not* end-to-end are harder.
 - Requirements for interoperability and upward compatibility.
 - Limited value until ubiquitously available.
 - Many participants -> high transaction costs.

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Slide 9

Public Policy Alternatives



- Help industry to coalesce consensus.
- · Collect relevant data and statistics.
- Provide "seed money" for research and for interoperability testing.
- Support secure services through the purchasing preferences of the U.S. Government.
- Provide remedies (e.g. under tort law) where firms fail to achieve a recognized standard of care.*
- Fund the deployment of desired services.
- Mandate the deployment of desired services.

* - Critical Information Infrastructure Protection and the Law, National Academies, 2003

Slide 11

Public Policy Considerations



Balance

- What are the risks of action?
- What are the risks of inaction?

Minimalism

- What is the least intrusive intervention that will achieve the desired public policy objective?
- "That government is best which governs least." -Thoreau

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Helping to Coalesce **Industry Consensus**



Slide 10

- Support sharing of information on best practices, while protecting sensitive information.
- Mitigate antitrust concerns when competitors discuss joint actions that are not anticompetitive.
- Stimulate standards bodies to focus on relevant problems.

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Slide 12

Impediments to Information Sharing



- Antitrust concerns
- FOIA concerns
 - Need for predictability and certainty
 - Perception versus reality
 - DHS enabling legislation
- State sunshine laws

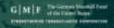
Cf. Critical Information Infrastructure Protection and the Law National Academies, 2003

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Slide 13

Sobering Case Studies



- Government OSI Protocol (GOSIP) the purchasing power of the U.S. Government and of governments worldwide was insufficient to drive global adoption of OSI protocols. TCP/IP won out, largely due to network externality advantages.
- Metric conversion A similar story. The U.S. Government has been officially committed to metric since the Seventies. Progress has been glacial.
- CALEA (lawful intercept) Funding and a mandate are achieving mixed results.

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