

Mission, System, Information, Cyber Assurance

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Cyberspace

- A new warfighting domain
 - The traditional domains: Land, Sea, Aero (air, space)
- A unique AOR
 - All other AORs operate, execute missions, through cyberspace
 - Completely man-made: so an opportunity to re-engineer it?
 - Borderless: "There is no 'there' [in cyberspace]"

-Donald Proctor

- A key front in today's irregular conflicts
 - US warfighter is no longer network enabled; he/she is network dependent





The Confluence of Space & Cyberspace



- Space is increasingly being contested
 - By nation states
 - Cyberspace is increasingly being contested
 By nation states, terrorists, organized crime, individuals

Space and Cyberspace are entangled

- Capabilities in both are:
 - Information technology based
 - Provide asymmetrical advantages offensively and defensively
 - Lucrative targets to military, finance, transportation, telecommunications, …



National Security Perspectives

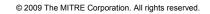
Director of National Intelligence Dennis Blair

- We face nation states, terrorist networks, organized criminal groups, individuals, and other cyber actors with varying combinations of access, technical sophistication and intent
- Many have the capabilities to target elements of the U.S. information infrastructure for intelligence collection, intellectual property theft, or disruption

Quadrennial Defense Review, February 2010

- DoD is investing in and developing the latest technologies to enable our forces to operate in cyberspace under a wide range of conditions, including in <u>contested and degraded environments</u>
- DoD can no longer afford to [treat] ... its information technologies and networks as simply benign infrastructure that facilitates their work







Architecting NSS Ground Systems

 Attractive target for affecting space and cyberspace missions and capabilities



Assurance challenges

- Mission Assurance: How to achieve mission resiliency? How to enable operating in, and through, contested environments?
- System Assurance: How to build trusted systems? How to sustain trustworthy systems?
- Information Assurance: How to assert confidentiality, integrity, and availability when constructing IT-based systems and missions?



The Simplicity of Information Assurance

