

C3iHub Distinguished Lecture

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Venue: RM 101

Creating a Quantum-Safe Internet

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Abstract: With quantum computing rapidly advancing, there is increasing concern over the security of RSA and ECC cryptography which underpin core principles of confidentiality and integrity on the Internet today. The U.S. is rapidly working to define and standardize new quantum-safe ciphers, known as post-quantum cryptography (PQC), immune to attacks from quantum computers. Independent of the cryptographic details, there are a significant number of systems-level challenges in both implementation in hardware/software and deployment in networks that will complicate PQC adoption. In this talk we will explore what we collectively need to accomplish to secure our systems from a future quantum computing threat.

Bio: Charles Clancy is a senior vice president at MITRE and heads MITRE Labs. Over 4,000 MITRE Labs scientists, technologists, and engineers deliver deeply technical capabilities and solutions to the six federally funded R&D centers MITRE operates on behalf of the U.S. government. They also conduct advanced research for MITRE's other federal, non-profit, and private sector customers. In addition, Clancy serves as MITRE's Chief Technology Officer, harnessing the company's internal R&D program for public good and working to realize a future where emerging technology is democratic, sustainable, and equitable. Before joining MITRE in 2019 as vice president for intelligence programs, Clancy served as the Bradley Distinguished Professor of Cybersecurity in the Department of Electrical and Computer Engineering at Virginia Tech and executive director of the Hume Center for National Security and Technology. There, he led Virginia Tech's research and experiential learning programs in defense and intelligence. He started his career at the National Security Agency, filling a variety of research and engineering roles, with a focus on wireless communications. He was named a Fellow of the Institute for Electrical and Electronics Engineers (IEEE) for his work in information security and digital communications and elected a member of the Virginia Academy of Science, Engineering, and Medicine. He has co-authored more than 250 academic publications and 15 patents, as well as six books. He co-founded five venture-backed startup companies that apply commercial innovation to the intersection of telecommunications and national security. Clancy sits on the AFCEA International Board of Directors' Executive Committee, the AFCEA Intelligence Committee,

the Systems Engineering Research Center Advisory Board, the Research Institute for Tactical Autonomy Advisory Board, the Alliance for Telecommunications Industry Solutions Next G Alliance, and the Center for New American Security Task Force on Artificial Intelligence and National Security. He also serves on academic advisory boards at Howard University, Norfolk State University, North Carolina A&T State University, and Virginia Tech. Clancy holds a bachelor's degree in computer engineering from the Rose-Hulman Institute of Technology, a master's degree in electrical engineering from the University of Illinois at Urbana- Champaign, and a doctorate in computer science from the University of Maryland, College Park.