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LESSONS LEARNED FROM CYBERSECURITY TRAINING IN THE SPACE DOMAIN: IMPLICATIONS FOR FUTURE WORKFORCE DEVELOPMENT

Abstract

The space and cyber domains have developed in parallel over the past several decades, and there is growing urgency to develop best practices and awareness across the space and cyber communities to keep missions cyber secure. In the interest of building collaboration and understanding in the space and cyber communities, the authors have developed and delivered Space Domain Cybersecurity training to hundreds of space and cyber professionals over the past three years, ranging from government, academia, and industry. To provide a useful body of knowledge for training, the authors created the Space Domain Cybersecurity (SPADOCS) framework. This framework bridges the space and cyber domains with the goal of enhancing collaboration and information sharing across mission, company, international, and government boundaries.

The training classes and SPADOCS framework have been developed in coordination with the Space Information Sharing and Analysis Center (Space ISAC). The Space ISAC serves to facilitate collaboration across the global space industry to enhance our ability to prepare for and respond to vulnerabilities, incidents, and threats; to disseminate timely and actionable information among member entities; and to serve as the primary communications channel for the sector with respect to this information. The training classes address information-sharing gaps within the cybersecurity and space community in addition to supporting training and education initiatives across the private and public sectors to share critical information and best practices.

This paper presents an overview of the training delivered, then focuses on lessons learned from the training experience with conclusions about the general needs of the space/cybersecurity communities. We present analysis and insight from class surveys reflecting the experience and perspective of professionals who have completed the course. These insights highlight core competencies for workforce development which will be addressed and linked back to the SPADOCS for context. The potential for experiential learning utilizing a hands-on Space ISAC network lab will also be presented as an approach to enhance learning. Conclusions and recommendations will address how this experience can be applied to the future of space/cybersecurity workforce development challenges.