Towards Practical Privacy-Enhancing Technologies

Speaker: Prof. Thang Hoang  
Department of Computer Science  
Virginia Tech  
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Abstract

The advent of cloud computing has brought significant benefits to society. User data now can be stored and processed remotely on the cloud, thereby reducing data management and maintenance costs and increasing accessibility and flexibility. Despite its utility merits, cloud computing also brings serious privacy concerns. Once personal data is stored and maintained on the cloud, it is not clear whether it will be misused or compromised by internal/external adversaries. In this talk, I will present a series of my recently developed Privacy-Enhancing Technologies (PET) that can be used to protect personal data privacy and integrity on the cloud. These PET tools not only offer a high level of security guarantees against active threats but also provide mandatory functionalities (e.g., search, access) to preserve the utility of the cloud. I will present several challenges that occur when deploying PET in real-world infrastructure and provide potential research directions to make PETs more practical.

Biography

Thang Hoang is an Assistant Professor in the Department of Computer Science at Virginia Tech. He received a Ph.D. degree in Computer Science from the University of South Florida in 2020 and an M.S. degree in Computer Science from Chonnam National University (South Korea) in 2014. He was a Postdoctoral Fellow at Carnegie Mellon University hosted by Prof. Elaine Shi. His research interests span various domains of cybersecurity including applied cryptography, biometrics, privacy, and security.