

Inflicting Denial-of-Service via Serverless Functions in the Cloud

Time: 3:00 pm – 4:00 pm, Dec 2nd, 2021

Location: Dale Hall 0206

Abstract: In this talk, I will introduce a novel attack vector that we recently discovered. The attack can cause denial-of-service between a serverless computing platform and an external content server or another cloud computing platform. The attack exploits the fact that a serverless computing platform shares the same set of egress IPs among all serverless functions, which belongs to different users, to access an external content server. As a result, a malicious user on this platform can purposefully misbehave and cause these egress IPs to be blocked by the content server, resulting in platform-wide denial of service. The discovery of this attack unveiled a potential security threat on the emerging serverless computing platform. I will also discuss potential mitigation approaches at the end of this talk.

Biography: Dr. Yao Liu is an Associate Professor in the Department of Computer Science and Engineering, University of South Florida. She received her Ph.D in Computer Science from North Carolina State University in 2012. Dr. Liu's research is related to computer and network security, with an emphasis on designing and implementing defense approaches that



protect mobile, network and computer technologies from being undermined by adversaries. Her research interests also lie in the security applications for cyber-physical systems, Internet of Things, and machine learning. Dr. Liu has served in the organization and technical program committees in premier network and security conferences, including NDSS, CCS, INFOCOM, S&P, ACSAC, WiSec, and CNS. She has also been in the editorial boards of academic journals, including IEEE Transactions on Information Forensics and Security, IEEE/ACM Transactions on Networking, and ACM Transactions on Privacy and Security. Dr. Liu was an NSF CAREER Award recipient in 2016. She received USF Outstanding Research Achievement Award in 2017. She also received the ACM CCS Test-of-Time Award by ACM SIGSAC in 2019. Dr. Liu is a member of ACM and IEEE.