

UNIVERSITY OF SOUTH FLORIDA

Major Research Area Paper Presentation

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

by

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For the Ph.D. degree in Computer Science and Engineering

The Warmonger attack is a newly discovered attack vector that can lead to denial-of-service between a serverless computing platform and an external content server or another cloud computing platform. This attack takes advantage of the fact that all serverless functions on a platform share the same set of egress IPs, which belong to different users, to access external content servers. A malicious user on the platform can exploit this vulnerability and intentionally cause the egress IPs to be blocked by the content server, resulting in denial-of-service across the platform. To verify this attack, extensive experiments were conducted over several months, which involved collecting and analyzing the egress IP usage patterns of four major serverless service providers (SSPs). In addition, an in-depth evaluation of an attacker's potential strategies for inflicting an external server and causing IP-blockage was carried out. The study showed that some SSPs use a surprisingly small number of egress IPs (as few as four), which they share among their users. Furthermore, the serverless platform provides a malicious user with enough leverage to conduct well-known misbehaviors and cause IP-blockage. The findings of this study highlight a significant security threat in the emerging serverless computing platform and suggest potential mitigation strategies.

Wednesday, April 19th, 2023

3:00 PM

Online ([Microsoft Teams](#))

THE PUBLIC IS INVITED

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