Technical Quarterly Report – Jul 2019 - Sep 2019

BASIC PROGRAMMATIC DATA

Performer: CAIDA, University of California San Diego (UCSD)
Project: DHS S&T cooperative agreement FA8750-19-2-0004
    Mapping DNS DDoS Vulnerabilities to Improve Protection and Prevention
Period of Performance (base): November 1, 2018 – October 31, 2022
Total Award Value: $250,000

PROJECT PROGRESS

Progress Against Planned Objectives:

UT and CAIDA have investigated the parent/child delegation TTL and NS mismatches by identifying the spread of the phenomenon, the resolvers behavior and possible solutions to the problem.
UT has expanded the work on the parent/child delegation TTL and NS mismatches by analyzing the large-scale impact through RIPE Atlas.
UT has investigated the orphan DNS records problem and started a collaboration with CAIDA and UCSD members on investigating dangling resources in the DNS.
Monthly conference calls between UT and CAIDA are taking place to discuss the project progress.

Technical Accomplishments this Period: none

Improvements to Prototypes this Period: none

Significant Changes to Technical Approach to Date: none

Deliverables: none

Technology Transition and Transfer this Period: none

Publications in this Period:
  • The Forgotten Side of DNS: Orphan and Abandoned Records (Work in progress)

Meetings and Presentations this Period: none

Issues or Concerns: none

PROJECT PLANS

Planned Activities for Year I:
  • UT and CAIDA will investigate the state of the art of DNS DDoS vulnerabilities and misconfiguration.
  • Using the data provided by OpenINTEL and combining it with other sources UT will identify possible weak points and future attacks.
Specific Objectives for Next Period:
UT and CAIDA will expand the work on the parent/child delegation TTL and NS mismatches and will submit a paper on the topic to the PAM2020 conference.

UT will continue the work on orphan records and expand it in collaboration with UCSD.