MADDVIPR: Deliverable D3.1

Describe actionable information to be provided as output

Collaboration with industry (DNS and network operators) represents a pillar of the MADDVIPR project, validating our inferences regarding misconfigurations and vulnerabilities in the DNS ecosystem. Communication with practitioners also helps us understand resilience mechanisms and technical decisions that embody tradeoffs among resilience, performance, and cost.

An explicit goal of this project is to convey knowledge we obtain back to operators, to inform their strategies, policies, and operations to improve DNS resilience. We use well-attended technical forums as a channel for this knowledge transfer. For example, we presented our 2020 work on parent-child DNS misconfiguration at RIPE80 and our work on orphan and abandoned record misconfiguration at DNS-OARC33. We also published two studies at the premier scientific conference on Internet measurement: "Unresolved Issues: Prevalence, Persistence, and Perils of Lame Delegations", and "Manycast2 – Using Anycast to Measure Anycast".

We also reached out directly to DNS operators with actionable knowledge to ameliorate vulnerabilities that arise from misconfigurations we discover. For our work on orphan and abandoned records, we reached out to Afilias, helping them out to fix the misconfiguration on their zone files. Afilias immediately published a response: http://www.circleid.com/posts/20200811-afilias-to-protect-tlds-against-potential-orphan-glue-exploits

Our work on parent-child misconfigurations (incongruity between parent and child zone configurations) led to a publicly available Testbed (https://superdns.nl/), and suggestions for an Internet Draft that aims to solve the problem [draft-huque-dnsop-ns-revalidation-01].

Finally, we shared the results of our most recent publication and evaluation of a scalable method for identification of anycast prefixes with the community via APNIC's Blog. https://blog.apnic.net/2020/12/15/manycast2-using-anycast-to-measure-anycast/.

These are examples of the types of actionable knowledge we envision coming out of the MADDVIPR framework as we design and implement it this year.

We have gained valuable experience in sharing data, information and best practices with operators. We will continue to present our work at scientific and technical conferences, and transfer actionable knowledge and measurement technology to operators, notifying them of potential resilience problems and misconfigurations.