Name Collision Analysis Workflow

As of 6 April 2022

Goals of the Workflow

- To ensure that name collisions can be assessed
  - Requires name collisions to be visible, if they exist
- To ensure there is an opportunity for a mitigation or remediation plan to be developed
  - Requires the root cause of name collisions be investigated

Critical Diagnostic Measurements

- Query Volume
- Query Origin Diversity
  - IP distribution
  - ASN distribution
- Query Type Diversity
- Label (at least second level) Diversity
- Other characteristics
  - Open Source Intelligence (OSINT) of string (and labels) used

- *Case Study focused on DNS queries*
  - *Queries other than DNS should be considered*

Name Collision Analysis Workflow

PREVIOUS:

1. Applicant prepares initial assessment of collision risk
2. Applicant submits application
3. Active Collision Assessment
4. Enhanced Controlled Interruption
5. Board gets final package for review

REVISED:

1. Applicant reviews public data
2. Applicant submits application
3. Passive Collision Assessment
4. Active Collision Assessment
5. Board gets final package for decision

1. Applicant Reviews Public Data

- *Objective: Applicant gets an indication of the presence of name collisions*
  - *This is not definitive*
  - *If collisions are present this is likely indicative of further scrutiny*
  - *Roughly equivalent to the publication of a "do not apply" list*
- Assumes passive data publicly available
  - ICANN will likely be source of passive, factual data
- Likely DNS-based only
  - ICANN has this readily available from l-root

- *Applicant prepares and submits this initial assessment with application*

2. Applicant Submits Application

- *Out of scope for NCAP*

3. *Passive Collision Assessment*

- Goal is to make name collisions visible
  - Pull from throughout the DNS infrastructure
  - Visibility allows for a more accurate assessment of impact and potential harm
- Passive provides very low risk to clients - not disruptive to existing behavior
- Execute with a "Trial Delegation"
  - *Required of all applications*
  - Proposed TLD added to root zone
  - Deploy a TLD authoritative service with "no content", i.e., "no resource records"
  - Collect CDMs
- Assess risk of name collisions
  - Both Applicant and *Technical Review Team* (TRT) review usage of TLD and assess
  - Review the risk of the impact of delegation based on volume and diversity of CDMs
- ***Initial Risk Assessment - both Applicant and TRT***
  - *Influence decision regarding need for mitigation or remediation*

4. Active Collision Assessment

- Goal is to support preparation of a mitigation or remediation plan (or both)
  - Seek additional data in support of investigating root cause of name collision
  - Required based on results of "Initial Risk Assessment"
- Active is a risk to clients because it is disruptive to existing behavior
- Execute with a "Trial Delegation"
  - Proposed TLD added to root zone
  - Deploy a TLD authoritative service
    - Include real wildcard IP addresses (IPv4 and IPv6)
  - Collect CDMs - discuss collection of additional protocol activity
- Assess risk of name collisions
  - Both Applicant and *Technical Review Team* (TRT) review usage of TLD and assess
  - Both review the risk of the impact of delegation based on volume and diversity of CDMs
  - Both develop a risk assessment
- Applicant investigates root cause of name collisions
  - Applicant develops either or both a mitigation plan and a remediation plan
- Applicant submits addendum to application
  - TRT adds an assessment of addendum for Board consideration

5. Board Reviews Complete Application

Discussion