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ANNUAL
GENERAL
MEETING

Name Collision Analysis Community Discussion



Agenda

- Brief overview of Name Collision and NCAP Proposed Name Collision Risk Assessment Framework (Ram Mohan)
- ICANN org Adopted NCAP Framework (Francisco Arias, Gavin Brown ICANN)
- Open Discussion

Name Collision and Proposed Name Collision Risk Assessment Framework

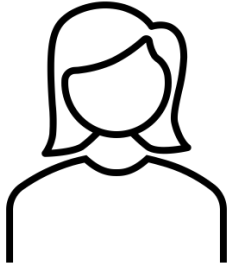
Ram Mohan, SSAC

What Is A Name Collision?

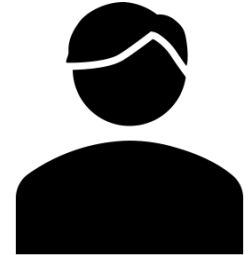
Think of domain names like house addresses.

If two houses share the same address, it becomes hard to know which one mail or deliveries should go to. There are also security issues if the mail gets delivered to the wrong address.

In the DNS, name collisions occur when a domain used in the global DNS namespace is also used in a different namespace (e.g., private enterprise), where users, software, or other functions may misinterpret it.



*Home of
Danielle EndUser*



*Home of
Steve Networks*



123 Home Ave
Example, ST USA 12345



123 Home Ave
Example, ST USA 12345

*The impact of name collisions is much
greater than this metaphor might suggest.*

Why is Name Collision Assessment Relevant?

- **Risk of unintended consequences.** Businesses have used labels as internal TLDs in private namespaces that may leak to the global internet.
- **Introduction of new gTLDs increases probability of name collisions.** A larger pool of potential names increases the possibility that a gTLD string might unintentionally overlap with names already used in private networks or internal naming systems.
- **Measuring name collisions is difficult due to evolution of technology and network infrastructure.** Privacy enhancements in the DNS and alternative naming systems have made the DNS landscape more complex and measurements more difficult.

Why is the SSAC involved in Name Collision Studies?

- The ICANN Board wanted to ensure that gTLD delegations be done in a ***secure, stable*** and ***predictable*** manner.
- Name collisions are a factor in new gTLD delegations
- The Board tasked SSAC to conduct studies to present data, analysis and points of view, and provide
 - ◆ Specific advice regarding .home/.corp/.mail
 - ◆ General advice regarding name collisions going forward
 - ◆ Studies to be conducted in a thorough and inclusive manner

Proposed Name Collision Risk Assessment Framework

NCAP Study 2 proposes a new **Name Collision Risk Assessment Framework** to address the documented limitations of the previous management framework.

Key Features:

- **Integrated Risk Assessment:** Embeds name collision assessment into the broader review process for new gTLD string applications.
- **Technical Review Team (TRT):** Introduces a dedicated team to evaluate proposed new gTLD strings based on empirical analysis.
- **Enhanced Data Collection:** Encourages the collection of additional quantitative and qualitative data from publicly available datasets for a more comprehensive risk assessment.
- **Multiple Assessment Methods:** Offers four methods for collecting and analyzing data to assess risk.

Goals of Proposed Name Collision Risk Assessment Framework



Goal 1: Ensure that name collisions can be assessed

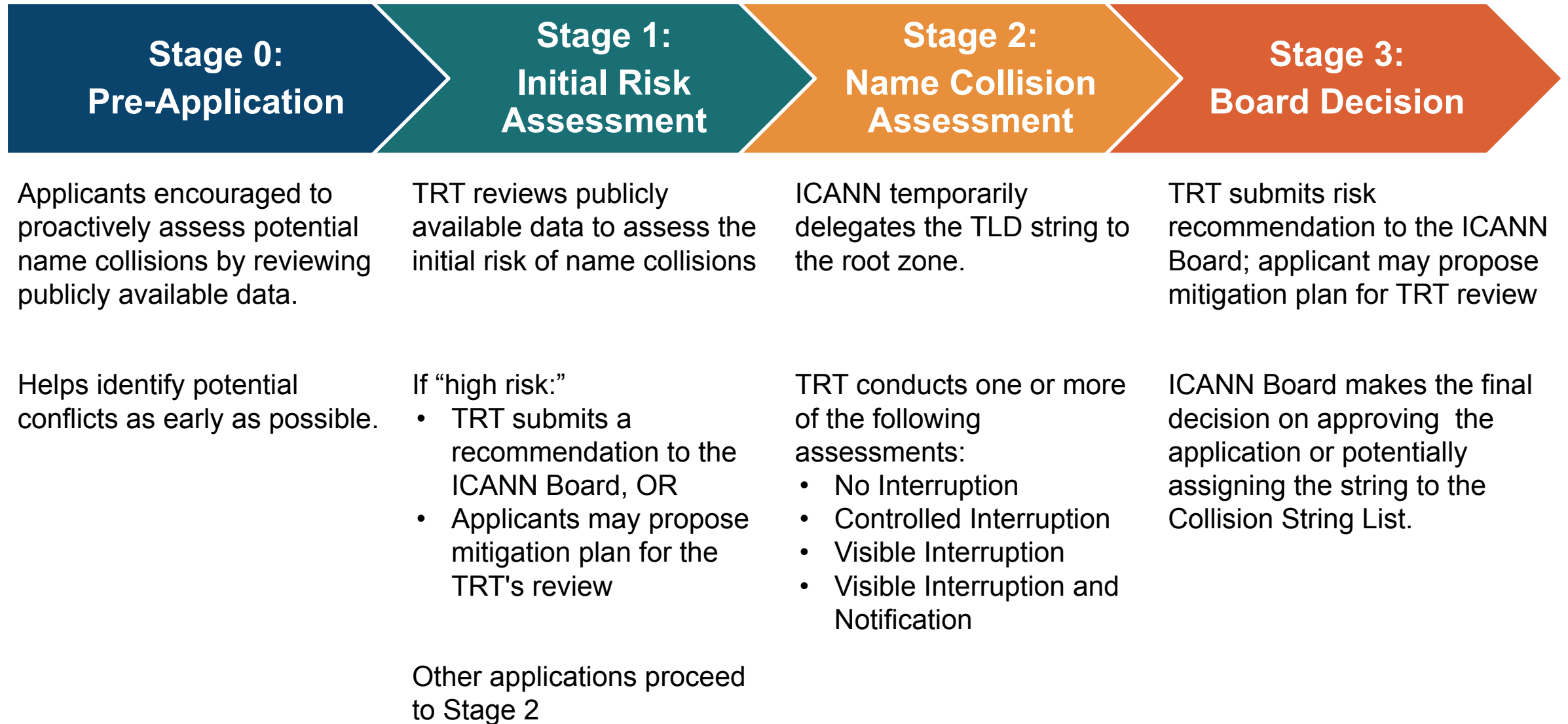
- Root zone delegation is required for empirical analysis of potential name collisions
- Requires ability to define, collect, and analyze relevant measurements (see Study 2 Report)



Goal 2: Provide a process for ICANN to evaluate mitigation and remediation plans for identified name collisions

- While known causes may inform mitigation and remediation plans, further investigation may be required for specific labels
- Ensures that a mitigation or remediation plan (or both) can be developed and assessed

Proposed Process



You can't simply re-use the Collision detection methods you used in 2012.

- Controlled Interruption as implemented in the last round does not work for IPv6
- Root servers & Resolver operators have much less data now than in 2012
 - Due to technology and regulatory changes

To seriously analyze name collisions, you must collect data from a variety of sources.

- Impossible to build a generalized case for root causes
- Impact assessment may require large amounts of data over significant periods of time
- ICANN org has expressed concerns about risks to privacy and confidentiality with some of the proposed data collection methods
 - These concerns need to be thoroughly understood and addressed as the DG recommendations move towards implementation.

Technical Review Team is Critical

Properly evaluating name collision is a highly skilled activity

- There are no generalized solutions for name collision
- The TRT needs to be able to adapt to changing internet infrastructure

To ensure TRT's success

- Building a team with the right skills to perform the assessment is critical
- The TRT needs ready access to historical as well as longitudinal data in order to perform its assessment
- TRT needs to be given the full ability to determine assessment methods and the data needs of that assessment.

Overview of SAC124 Findings & Recommendations

The SSAC **fully endorses and strongly recommends** the ICANN Board adopt the Proposed Name Collision Risk Assessment Framework.

Why?

- **Proactive Risk Management:** Identifies name collision risks and allows for the development and review of mitigation strategies *before* they cause harm.
- **Consistent & Effective:** Centralized approach ensures thorough risk assessment and mitigation across all new gTLD applications.
- **Data-Driven:** Enables informed decisions for secure expansion of the Internet's namespace.
- **Privacy Concerns Addressed:** While risk is inherent in assessing name collisions, the privacy risk of *not* accurately assessing name collisions is greater than the risk associated with assessment. Early risk detection and informed mitigation are crucial for the security and stability of the DNS.

ICANN org Adopted NCAP Framework

Francisco Arias, Gavin Brown

Agenda

- Overview of NCAP Study 2 recommendations
- Board resolution
- ICANN org's implementation plan
 - Implementation Bundles
 - Bundle #1: Longitudinal DNS Name Collision Repository
 - Bundle #2: High-risk string identification (Initial Review)
 - Bundle #3: High-risk string management (HRSP)
 - Bundle #4: Name Collision Risk Management
 - Bundle #5: Education and outreach
 - Bundle #6: Updates on the Name Collision Reporting webpage
 - IRT review

Overview of NCAP Study 2 recommendations

- **Recommendation #1:** ICANN should treat name collisions as a risk management problem.
- **Recommendation #2:** ICANN should adopt a consistent definition for name collision.
- **Recommendation #3:** ICANN should continue its education and outreach efforts to the community on the name-collision topic.
- **Recommendation #4:** ICANN should consider the need for mitigation and remediation efforts for high-risk strings.
 - **Recommendation 4.1:** ICANN should submit .CORP, .HOME, and .MAIL through the Name Collision Risk Assessment Process.
- **Recommendation #5:** ICANN must support the delegation of strings in order to improve the ability to conduct a name collision risk assessment.
- **Recommendation #6:** ICANN should establish and maintain a longitudinal DNS name collision repository in order to facilitate risk assessments and help identify potential data manipulation.
- **Recommendation #7:** ICANN should establish a dedicated Technical Review Team function.

Overview of NCAP Study 2 recommendations (ctd)

- **Recommendation #8:** ICANN should replace the existing Name Collision Management Framework with the recommended Name Collision Risk Assessment Framework.
 - **Recommendation #8.1:** ICANN should not reject a TLD solely based on the volume of name collisions.
 - **Recommendation #8.2:** ICANN should request special attention to strings with high-impact risks during the name collision assessment process.
 - **Recommendation #8.3:** ICANN should update its public-facing name collision reporting process.
- **Recommendation #9:** ICANN should create a Collision String List.
 - **Recommendation #9.1:** ICANN should support a mechanism that allows applicants to request a string be removed from the Collision String List
- **Recommendation #10:** ICANN must develop and document a process for the emergency change related to a temporarily delegated string from the root zone due to collision risk or harms.
- **Recommendation #11:** ICANN should not move ahead with NCAP Study Three.

- During its meeting of September 7, the Board:
 1. accepted all of the recommendations from SAC124 and all recommendations from the NCAP Study 2 report, with the exception of Recommendation 4.1 (relating to .corp, .home, and .mail), and,
 2. directed ICANN org to implement the NCAP2 recommendations adopted by the Board and in accordance with the implementation plan presented to the Board.
- In relation to Recommendation 4.1, the Board reaffirmed its previous decision that the applications from the 2012 round for .CORP, .HOME and .MAIL should not proceed.

The role of the Board

- The Board delegates decision-making authority to ICANN org regarding the Name Collision Risk Assessment Processes (e.g., when an applicant requests removal of a string from the Collision String List) to maintain consistency with the overall implementation of the New gTLD Program: Next Round.

ICANN org's Implementation Plan

Implementation Bundles

Many of the recommendations have dependencies on other recommendations, and will therefore be implemented as a group. These recommendations have therefore been grouped into “bundles”.

Bundle #	Recommendation(s)	Topic
1	6	Longitudinal DNS Name Collision Repository
2	9, 8.1, 8.2	High-risk string identification (Initial Review)
3	4, 9.1	High-risk string management
4	1, 5, 7, 8, 10	Name Collision Risk Management
5	3	Education and outreach
6	8.3	Updates on the Name Collision Reporting webpage

Bundle #1: Longitudinal DNS Name Collision Repository

- ICANN will launch the **Name Collision Observatory** (NCO) to provide access to datasets that may help applicants, analysts and researchers to assess the risk of name collision for any undelegated TLD string.
- The analytical basis of the NCO will be the “DNS Magnitude” (Mayrhofer, Braunöder and Kaplan, 2020).
 - See <https://magnitude.research.icann.org>
- In addition to data from IMRS*, ICANN org will engage with root and recursive server operators to explore providing data.

** ICANN-Managed Root Server*

Bundle #2: High-risk string identification (Initial Review)

- After reveal day, each applied-for string will undergo a preliminary risk assessment.
- The purpose of this assessment is to identify high-risk strings: those determined to be high-risk will be placed on the **Collision String List**.
- The assessment will include a review of quantitative and qualitative data.

Bundle #3: High-risk string management

- A string may be classified as “high-risk” during the preliminary assessment or during temporary delegation, and be placed on the Collision String List.
- Applications for strings on the Collision String List will not proceed until a Risk Mitigation Plan has been submitted by the applicant, reviewed, approved, and potentially executed.
- The Collision String List will initially be empty.
- Review of Risk Mitigation Plans will be carried out by an external panel of experts.
- Applicants will have to pay an additional fee for this review.
- Implementation of measures outlined in the Mitigation Plan may be incorporated into the Registry Agreement for the given string.

Bundle #4: Name Collision Risk Management

- Strings that pass preliminary assessment will be queued for temporary delegation.
- ICANN org will request delegation of the string to nameservers operated by ICANN org (or a designated vendor) in order to collect data about the volume and nature of DNS traffic for that string.
- The rate at which strings will be temporarily delegated will be limited to ensure that the DNS root zone does not grow by more than 5% per calendar month.
- Following temporary delegation, the Technical Review Team (an internal ICANN org technical experts) will determine if the string evaluation process can safely continue.
- ICANN will incorporate emergency response to Name Collision reports into its existing 24x7 incident response function, so that temporarily delegated strings can be removed from the root zone if required to mitigate a threat to human life.

Bundle #4 (ctd): Study to find a solution for IPv6 Controlled Interruption

- ICANN org will conduct a study to determine if an IPv6 address may be found that would be suitable for carrying out Controlled Interruption.
- If the study produces a result, then a wildcard AAAA record will be added to temporarily-delegated strings undergoing Controlled Interruption.

Bundle #5: Education & outreach

- ICANN org will review and refresh existing Name Collision support documentation.
- ICANN org will develop and execute a new advertising campaign, similar to that carried out for the 2012 round, to ensure that internet users who are affected by the temporary delegation of a gTLD and perform internet searches are directed to the ICANN website. This campaign will begin just before temporary delegation of applied-for strings commences, and will continue until all applied-for strings have undergone a Name Collision Risk Assessment (NCRA).
- ICANN org will carry out proactive outreach to the technical and infosec communities to raise awareness of Name Collision as an issue, and ICANN org's activities in relation to Name Collision in the New gTLD Program: Next Round.

Bundle #6: Updates to the Name Collision Reporting webpage

- ICANN org will update the Name Collision report intake form on its website to reflect the recommendations made by the NCAP Study 2 report.
- The changes will aim to reduce the abandonment rate by making currently mandatory fields optional, and by lowering the threshold of harm required for report submission.
- ICANN org will also set out how the collected data may be used and shared, and for what purposes (subject to applicable data protection measures).

- ICANN org will be presenting the Applicant Guidebook (AGB) module on Name Collision during the Subsequent Procedures Implementation Review Team (SubPro IRT) meeting on December 17th.
- More information about the SubPro IRT may be found on the Community wiki.

<https://community.icann.org/display/SPIR>

Discussion

Moderator: Ram Mohan, SSAC