DNS Collision - Neustar Analysis:
ICANN Study Overstates Risk of Harmful DNS Collision

When ICANN received more than 1,900 applications for new top-level domains (TLDs), some people expressed concern about "DNS collision," which is what happens when domain name queries get an unexpected response. Using an overly broad model for assessing the risk of such "collisions," ICANN proposed halting all new TLDs for at least three months to reassess the risk involved.
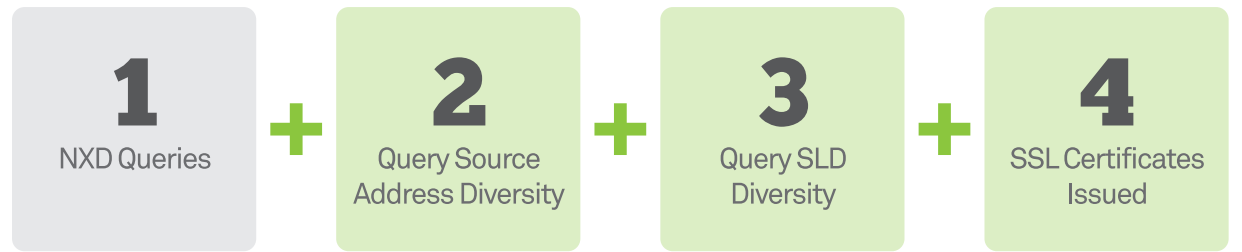
Neustar agrees with ICANN that it is important to identify and mitigate the collision risk associated with new TLDs. However, Neustar believes the risk associated with 99 percent of the new TLDs can be mitigated and, therefore, most domain names should proceed without delay. Here's why.

ICANN's RISK MODEL:
NARROW & SOLELY FOCUSED

1
FACTOR:
NXD Queries

ICANN used one factor only in evaluating risk: the number of NXD (non-existent domain) queries a TLD received during two three-day periods. While NXD queries are an accurate indication of the possibility of DNS collision, they don't reflect its potential impact. Risk is defined too narrowly.

OUR RISK MODEL:
COMPREHENSIVE, WITH IMPACT ASSESSMENT

1 NXD Queries **+** **2** Query Source Address Diversity **+** **3** Query SLD Diversity **+** **4** SSL Certificates Issued

Neustar proposes a four-factor model that includes NXD queries to show the possibility of collision, plus three additional factors to gauge the consequences.
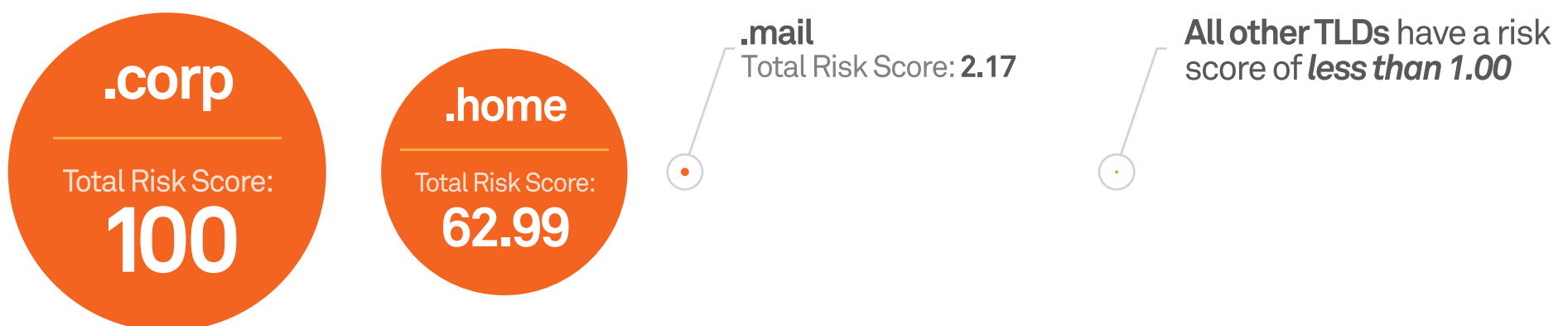
Query Source Address Diversity: How many different source addresses are querying a TLD. More source addresses could mean higher collision risk.

Query Second-Level Domain (SLD) Diversity: More SLDs may mean more usage by more organizations and thus higher potential risk.

SSL Certificates Issued: SSL certificates issued may indicate increased usage and higher value systems configured with proposed TLDs.

BASED ON THE MORE THOROUGH MODEL, THE RISKS CAN BE CLEARLY CALCULATED – AND MITIGATED
In fact, only three new TLDs have risks that merit further study.

.corp
Total Risk Score:
100

.home
Total Risk Score:
62.99

.mail
Total Risk Score: **2.17**

All other TLDs have a risk score of *less than 1.00*

Using one of Neustar's four factors as an example, you can see the dramatic difference between **two TLDs** and **everyone else**.

> **2 TLDs:** 29.80%   **1,300+ TLDs:** 70.19 %

Number of **SSL Certificates** Issued

MITIGATION RECOMMENDATIONS
Based on the model above, **Neustar recommends:**

2
Risk categories only: High Risk and Low Risk. There is no need for the Uncalculated Risk category to which ICANN had assigned numerous TLDs.

3
TLDs should be classified as High Risk and studied further:
.Corp, .Home and .Mail.

1,300+
TLDs should be classified as Low Risk. Neustar proposes a simple plan to mitigate risks for these TLDs. Read it in our full report:
www.neustar.biz/DNScollision

TIME TO MOVE FORWARD
In collaboration with the CAB Forum, ICANN should work to begin the revocation of certificates for applied-for TLDs immediately. It's time to green-light TLDs with minimal risk of DNS collision – the vast majority ready to make the Internet better.

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