ICANN NCAP Meeting #40 (2021-02-03) Report Recap

**Introduction.** This meeting continued the analysis of undelegated TLDs that have been seen in significant volume at the roots.  This week Matt Thomas led the analysis for *.local* and *.lan* queries see nat A &  root.   The sheer volume of name diversity limits some analysis, but since the overall trends were familiar only the loss of fidelity appears as a result.  The analysis for these names was not markedly dissimilar from analyses presented in the past few sessions, but this week saw the start of deeper discussion on the implications of this group's work.  The meeting concluded with questions about the group's current inability to provide guidance or recommendations to the ICANN board in deciding future delegations.

**.LOCAL Analysis.** Matt Thomas took the group through a series of graphs and tables showing query data from A, J, and old J root over the past year for *.local*.  IANA has made a special assignment of .local for use by [IETF RFC 6762 - Multicast DNS](#) and some the analysis, such as a significant portion of queries being of type SRV, suggests that many of the queries are a result of leaks from this technology.

> *[Editor's note: It might be useful to provide some background on the mDNS specification and an evaluation of implementations that make use of this technology.  This TLD is widely and most prominently used by Apple devices when issuing special DNS queries to a link local IP multicast destination for service discovery.  Label analysis strongly*

*suggests these queries leak to the roots and it might be worth a separate exploration to*

*search for answers on when and why that occurs.]*

Like other names there was a noticeable increase in query volume in March 2020 attributed to the shift in network traffic due to COVID-19. One anomaly compared to prior names examined is that the volume of distinct source IP addresses does not show the same upward shift although it has begun to rise in the past few months. One possible reason proposed is that the *.local* names were already very prevalent from most resolvers so there were few new sources from which queries can originate. For example, *.corp* names might not have been common on residential networks until users brought their work home.

**.LAN Analysis.** Overall traffic volume trends for .lan followed the usual pattern of growth in March 2020 attributed to COVID-19. Like .home there was a noticeable decrease in December 2020 and this was attributed to Chromium.

*[Editor's note: this decrease was not as pronounced as .home and seemed poised to*

*recover a few weeks later. Some decrease may be attributed to often seen overall drop in*

*traffic the last couple of weeks in a year as users and businesses tend to be on vacation.]*

The QTYPE distribution follows a familiar pattern with a noticeable portion of SRV queries, although not quite as much as .local. PTR queries are more popular for this name than most analyzed thus far, but the reason for this was not explained. The geographic distribution of this name is more widespread than some of the others, with a high proportion of the traffic attributed to use by consumer premise equipment such as those running OpenWRT (popularly used in home WiFi router/gateways).

**Discussion.** The remaining time was spent discussing a taxonomy Matt Thomas proposed after having gone through a number of these analyses. This included query traffic attributes, the structure of the qname or individual labels, and a miscellaneous other category to include properties such as server catchment and name squatting by vendors and applications. Everyone found the analysis done so far both interesting and worthwhile, but had trouble coming up with concrete proposals on how to leverage it for decision making by the ICANN board. So far there are no hard and fast rules on what constitutes the decision to delegate a name or not. There was insufficient time to have a complete discussion on this topic and was carried over to the next meeting.

> *[Editor's note: One proposal to help measure the potential harm would be to conduct an active experiment where a label is delegated. This could be conducted in partnership with a resolver operator or network, which would provide an incomplete but potentially helpful evaluation of the impact of providing answers other than NXDOMAIN. In addition, a series of proposals could be solicited seeking ideas on how to limit the damage by the operator of newly delegated names.]*

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