An Analysis of Parking-Adjusted Registrations

According to data compiled by nTLDstats, about 60% of registrations in new gTLDs are currently parked.[1] Although exact definitions of parking vary, the general idea is that parked domains are not currently being used as the primary identifiers for Internet resources. Halvorsen et al ascribe parking to: (1) speculation in order to sell the domain later at a profit; (2) plans to develop the domain at a later date; or (3) unsuccessful development.[2] Examples of behaviors that could be considered parking include:

- The domain name does not resolve.

- The domain name resolves but attempts to connect via HTTP return an error message.

- HTTP connections are successful but the result is a page that displays advertisements, offers the domain for sale, or both. In a small number of cases, these pages may also be used as a vector to distribute malware.

- The page that is returned is empty or otherwise indicates that the registrant is not providing any content.

- The page that is returned is a template provided by the registry with no customization offered by the registrant.

- The domain was registered by an affiliate of the registry operator and uses a standard template with no unique content.

- The domain redirects to another domain in a different TLD.

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1 https://ntldstats.com/parking/tld (viewed on March 21, 2017).

2 T. Halvorson, M.F. Der, I. Foster, S. Savage, L.K. Saul, and G.M. Voelker, "From .academy to .zone: An Analysis of the New TLD Land Rush," Proceedings of the 2015 ACM Conference on Internet Measurement Conference Metric.

Because the percentage of registrations in new gTLDs is so large, the Review Team sought to understand whether this phenomenon would effectits conclusions regarding the impact of the introduction of new gTLDs on the marketplace. For example, one possible reason for taking parking rates into account is that registration renewal rates may be negatively correlated with parking rates so that the current market shares of TLDs with relatively high parking rates may overstate their long run competitive significance. If this were the case, taking parking rates into account would affect our estimates of the share of registrations captured by new gTLDs if the parking rates of new gTLDs differ from those of legacy gTLDs and could affect our concentration measures if there are differences in parking rates among individual gTLDs.

In order to better understand this topic, the Review Team used parking data for new gTLDs that nTLDstats routinely calculates and contracted with nTLDstats to develop with parking data for legacy gTLDs that ICANN contracted with nTLDstats to develop especially for this project.[3] We used registration data for December 2016, the same month for which other statistics in this report are based, and the most comprehensive parking measure provided by nTLDstats, the aggregate of the 7 separate sources of parking that it identifies.[4].

Using this data, we made an initial comparison of overall parking rates between legacy and new gTLDs. nTLDstats has estimated that the weighted average parking rate for legacy gTLDs in that month was approximately 56 percent and that the weighted average parking rate

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3 nTLDstats applied its parking analysis to each legacy gTLD based on the number of names in its zone file. For TLDs with 10,000 names or fewer, nTLDstats analyzed all registered names, for TLDs with 10,001-100,000 names, nTLDstats analyzed 10% of registered names, and for TLDs with more than 100,000 names, nTLDstats analyzed 1% of registered names. nTLDstats also conducted a manual review of 10% of the total sample to check for false positives.

4 Specifically, we adjusted the number of registrations for each gTLD to reflect the number of registrations that were not parked, i.e., we calculated (1 minus the parking rate) times the number of registrations for each gTLD, and then calculated market shares based on the adjusted data. We used the most comprehensive parking measure calculated by nTLDstats.

for new gTLDs in the same month was approximately 68 percent, about 20 percent higher. If we were to exclude parked registrations from our market share analysis to measure a *parking-adjusted* share of all gTLD registrations accounted for by new gTLDs, we find that the new gTLD share was 10.9 percent, approximately 23 percent lower than previously indicated share of 14.2 based on unadjusted registrations.[5] Making a similar adjustment in our market share calculations did not result in a meaningful difference between parking-adjusted and unadjusted calcuations.[6]

Because these parking-adjusted calculations are based on the hypothesis that parking rates and renewal rates might be negatively correlated, we attempted to determine whether there was a relationship between parking and renewal rates. In order to perform this analysis, we compared parking rates in each TLD as of December 2016 with a renewal rate commputed based on registries' monthly transaction reports[7] for the period of July – December 2016[8]. Using a

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5 Looked at another way, when parking is not taken into account, new gTLDs accounted for about 61 percent of the increase in all gTLD registrations between the start of the new gTLD program and December 2016 but only about 34 percent of the increase when parking is accounted for.

6 Because the parking-adjusted concentration measures depend on the percentage of parked registrations of each separate gTLD, we (1) calculated the parking- adjusted number of registrations separately for each gTLD, (2) added together the parking-adjusted registrations of all gTLDs controlled by the same operator, (3) used the results of (2) to calculate the parking-adjusted share of registrations of each operator, and (4) used these shares to calculate the respective concentration measures. The following table compares the registry operator concentration measures for December 2016 based on unadjusted registrations with the same measures based on parking-adjusted registrations for the same month:

Registry Data for December 2016

	Unadjusted Registrations	Parking-Adjusted Registrations
4-firm concentration ratio	99.4%	99.5%
8-firm concentration ratio	99.9%	99.9%
HHI	7739	7851

7 Registries do not calculate or submit to ICANN a renewal rate calculation. Given that second level domains auto-renew, though, we computed a renewal rate for each TLD by dividing the number of renewal transactions by the sum of the deletion transactions (outside of the add grace period) plus renewal transactions.

Perason linear correlation analysis, we were unable to find a statistically significant correlation between renewal rates and parking rates in either new or legacy gTLDs. While this initial analysis is somewhat simplistic and based on only a single point in time, we do not currently have any evidence of a relationship between parking and renewal rates. More study on this topic may be appropriate in the future to better understand whether such a relationship may exist.

Geographic Differences in Parking Behavior

The Review Team also sought to determine whether the quantity of parked domains varied based on region. For example, *Latin American and Caribbean DNS   Marketplace Study* (LAC Study) reports that "across the entire region, 78% of the gTLD domain names are active, and 22% are not in use (either timing out, or no active services). By comparison, according to nTLDstats, across all new gTLDs approximately 33% of domains had no valid DNS or returned invalid HTTP responses.

> **Comment [JB1]:** This should probably be recomputed based on December 2016 data across all TLDs.

Although the Review Team did not have the ability to directly correlate registrant addresses with parked domains, we did identify six of the top 50 largest new gTLDs that were in the Chinese language. According to data from nTLDstats, all of these Chinese language domains showed markedly higher parking rates than the average across all new gTLDs, with parking rates ranging from 71% for .wang to 93% for .xin. Table XX below indicates the parking rate for each of the six Chinese language TLDs in the top 50.

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8 Monthly renewal rates can be quite volatile and represent only the portion of domains eligible for renewal that month, whereas parking rates are calculated across all domains in a TLD. Therefore, we used a six month period to calculate renewal rates in order to minimize sample errors in our analysis.

PARKING RATE (%)

ALL NEW GTLDS	58.97
.wang	71.29
.xin	93.49
(xn-ses554g)	82.57
(xn-p1acf)	76.49
(xn-vuq861b)	86

These initial analyses of geographically-based parking rates are quite cursory and based on limited data, but they do seem to indicate that regional variations in parking rates exist and can be quite significant. [9][10]

Recommendations

These results suggest that measures of the impact of the entry of new gTLDs may be sensitive to whether or not they take registration parking into account. As a result, we recommend that ICANN consider undertaking further research into whether registration renewal rates are correlated with parking rates and to use the results of that research to improve its analysis of developments in the DNS marketplace. In addition, we recommend that ICANN consider using data on upcoming registration deletes, which nTLDstats routinely collects for new gTLDs, for the same purpose.

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9   The parking-adjusted registrations of a gTLD equal (one minus its estimated parking rate) multiplied by its unadjusted registrations.

10   These calculations were performed by the Analysis Group at the request of the CCT RT.