

Cache Quality and Health

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Questions raised by the Product Team:

The Product Team recently approached the Data Team with a series of questions related to cache quality and health, including:

- **How many caches are published by inexperienced owners?**
- **How many caches are owned by inactive owners?**
- **What constitutes a good cache owner?**
- **Are we bringing joy to the game?**
- **How many caches are there per active user?**
- **What are the cache publishing trends and health over time?**
- **What are cache finding trends and health over time?**
- **Do we have too many caches?**
- **Should we enforce high-quality caches?**
- **What is the impact of poor caches?**

How many caches are published by inexperienced owners?

Inexperienced Owners

For this analysis, an inexperienced cache owner was considered an account with 50 finds or fewer and a creation date less than 3 months in the past.

Since 2010, the absolute numbers as well as relative percentage of inexperienced cachers publishing caches has dropped overall, with the slightest of upticks in percentage in 2018. Overall, inexperienced cachers account for 4.2% of all caches published and 10.2% of all accounts having caches published.

Cache owners with a cache published in the past year by account age. A total of 6.6% of all caches and 13.5% of all CO accounts involve an account that is less than 3 months old.

When it comes to the find counts of the accounts publishing caches in the past year, a total of 15.6% of all caches and 26.1% of all CO accounts involve an account with fewer than 50 finds.

Even more striking is the proportion of caches that cannot be published that are submitted by inexperienced owners. As seen in these charts, 14.9% of all unpublished caches submitted in the past year and 18.7% of all CO accounts involve accounts younger than 3 months of age.

Most striking of all is the fact that a whopping 41.1% of all unpublishable caches and 47.7% of all of the accounts submitting unpublishable caches involve COs with 50 or fewer finds.

How many caches are owned by inactive owners?

Inactive Owners

For the purposes of this analysis, "active" was defined as having posted any log of any type within the past year.

13.6% of the active caches today are owned by accounts that have not posted a log in over a year, while almost 40% of all current COs are inactive.

This map gives an indication of how the distribution of the caches of active (green) versus inactive (red) owners plays out in Washington.

What constitutes a good cache owner?

This is a difficult question to answer, as the number of opinions on this likely matches the number of cachers there are. However, based on the results of the 2018 Cache Quality Survey, these are the things that our users found that a cache owner could do to improve cache quality:

1. Be more thoughtful about cache location and container
2. Maintain geocaches more regularly
3. Hide the kind of geocaches you would like to find
4. Provide mentoring to new cache hidiers
5. Host workshops to teach about hiding and finding geocaches

Are we bringing joy to the game?

Bringing Joy

One measure of how we are doing with our customers is the Community Pulse Survey that has been conducted by the Community Team every quarter beginning in June of 2017. These graphs show the change of Net Promoter Score (NPS) and the levels of satisfaction with HQ broken out by membership level.

As indicated, NPS and satisfaction levels have remained fairly stagnant since we started tracking these numbers.

Compiled data including qualitative comments provided by our users are available in this Google Doc.

In addition to looking at input from the community, we can take a measure of our progress by reviewing how many features or products we have given to the community that we feel are worthy of Release Notes threads in the forums and what the response has been to those releases. Chris Ronan offers an insightful assessment of the 11 releases that we have posted in the past year:

- 4 of these threads relate to the same project (the new Search/Map), which even the most positive person would not term "joyful"
- 2 are related to the app, but only one of those had any real consequence (the new navigation)
- 2 were to announce that we were taking something away (send to GPS, JavaScript on profile pages)
- 1 was a beta project (Adventure Labs)
- 1 was essentially bookkeeping (updating region names in our database)
- 1 was something that did bring some added value (Event start and end times on cache pages)

His summary, and one that I would agree with as a long-time geocacher, is that while we have brought some joy to the game, any objective review of our product releases would indicate that we're not bringing enough of it.

How many caches are there per active user?

Caches per Cacher

The number of caches per cacher varies widely depending on the area, of course. When looking at the average per country, worldwide rate is about 1.55 caches per cacher, with the US sitting at about 1.74 caches per cacher.

What are the cache publishing trends and health over time?

Cache Publication

Publication peaked in 2012 in terms of both total published caches and number of accounts hiding them. The reasons for the recent decline might be partially blamed on lagging interest, but cache saturation in many areas is often pointed to as a source.

Regarding our measure of Geocache Health, we have seen a very gradual upward tick in this since implementation, with some larger steps along the way due to changes in the way the score is calculated.

What are cache finding trends and health over time?

Cache Finds

When it comes to cache finds, the trend does not appear to be as dire as it looks with cache hides. Total finds and accounts participating peaked in 2015, but both saw an uptick last year relative to 2017.

Do we have too many caches?

Cache Saturation

The question as to whether or not we have too many caches is a complex one. It of course depends on where you are looking, how active the community is in that area, et al. This image shows Seattle with proximity circles around all of the physical caches and waypoints within it. In terms of area, 25% of the city area is currently occupied by caches. If you factor out private land, waterbodies, etc. that percentage is much higher.

Here is a closer view of the downtown core and Fremont areas of the city. If you were a new cacher living in this area, would this be a frustrating obstacle?

This is the city of Köln (Cologne), which is the most populated city in the most active region of Germany, Nordrhein-Westfalen. Overall, the saturation here is similar to Seattle at about 27%.

However, this is a bit misleading,. As seen here, the city core of Köln is much more densely populated with caches than Seattle. In addition, a much larger percentage of these are puzzle and multi finals, which users are not able to see by default. We don't want to give away the

"answers" to the stages and final locations of these caches, but on the other hand they create significant challenges for the new player who wants to hide a cache.

When looking at a state-wide degree of saturation, there is of course a lot more room. Caches naturally collect in the cities and are more sparsely located in rural and wilderness areas. Overall, only about 1.3% of Washington State's area is saturated.

That saturation percentage, however, does not take into account areas off-limits to caches such as National Parks, official Wilderness Areas, military installations, etc. There is also the issue - at least for app-oriented cachers - of a lack of good cell coverage in many areas. The areas shaded on this map are those with no LTE cell coverage in Washington. The saturation levels of caches in areas with coverage is 7 times that of areas with no coverage.

Washington is a fairly typical western state when it comes to cache density, but Germany and especially Nordrhein-Westfalen are another animal entirely. This is one of the densest cache areas in the world. The saturation level for the entire region is 13.9% - 11 times that of Washington - and like Washington that does not factor in areas off-limit to caching (although the LTE coverage of the area is approaching 100%).

Does this mean that we have too many caches? I don't know.

Should we enforce high-quality caches?

The easy answer here would be to say "yes", but there are some challenges with that. A couple of things to consider:

- **How do we define quality?**

- **Who enforces it?** (Note that one reason virtual caches were grandfathered is that enforcing quality with them placed undue burden on community volunteers.)

What is the impact of poor caches?

We do not have data on this. Past investigations of Fun Score indicated no correlation between high fun caches and the likelihood that an account finding one on their first outing would convert, but that might be due to signal obfuscation due to the high rates of new accounts converting on day one before ever finding a cache. It would be challenging to determine the effect on the other end of the lifecycle, i.e. when cachers quit, as the cumulative effect of bad caches is hard to measure even if you can accurately identify them.

Conclusion

The questions asked here are complex and have complex answers. What analyses should we undertake to help unravel them?

