

Mobile Web Insights

October 6, 2009

Since our inaugural report earlier this year, our Mobile Analytics team has been working with a number of operators across North America, Europe and Asia to help them dig deeper into their subscriber data and understand the full impact of unprecedented mobile data usage.

In this report, we analyze data from a tier-one mobile operator, using data traffic, device, subscriber and error reports to consider the implications of social networking, bandit devices and the impending data tsunami on the operator business. The data sample was taken from a five-day period in September, 2009.

Operator Profile

“Operator X” is a large North American operator offering mobile communication services to consumers and businesses. This operator has a strong consumer proposition, offering a wide range of mobile services, devices and data plans. It also has mobile email and mobile broadband services targeted towards small businesses and large enterprises.

Online Communities Continue to Grow

Operator X’s site-based reports show four of the top ten domains by page impressions being social networking sites (fig. 1). These results are confirmed in a recent study from the Internet Advertising Bureau (IAB) that show a one-year increase of 179% in the number of subscribers accessing social networking sites from their mobile devices, compared to a 10% traffic increase on the PC versions of the same sites.

This trend presents a great opportunity for Operator X to add value to a very popular part of the user experience.

One option could be to offer a mobile social networking aggregation service for the top sites like MySpace, Facebook, Myxer and Plenty-of-fish, which could be accessed from Operator X’s own portal through a single log-in. Furthermore, Operator X can build propositions and tariff plans around social networking devices such as the INQ or Samsung Corby.

Another option is to capture new revenues through SMS alerts for specific social network activity events: pokes, friend requests, status notifications, even the sending and receiving of messages.

Craigslist attracted the second highest number of impressions over the period. One reason could be that the site’s simple design makes it easy to navigate on handheld devices. The down economy could be a factor as buyers are searching for bargains on classified ad sites like Craigslist. Operator X could consider promoting Craigslist as an on-deck partner.

Child protection issues also need to be considered with these type of sites, as some parents may wish to restrict their children’s access while allowing them full access to other sites.

Focus on Devices

As device interfaces improve, subscribers tend to consume richer, more compelling content and services. These changes in user behavior can have a tremendous impact on the operator network.

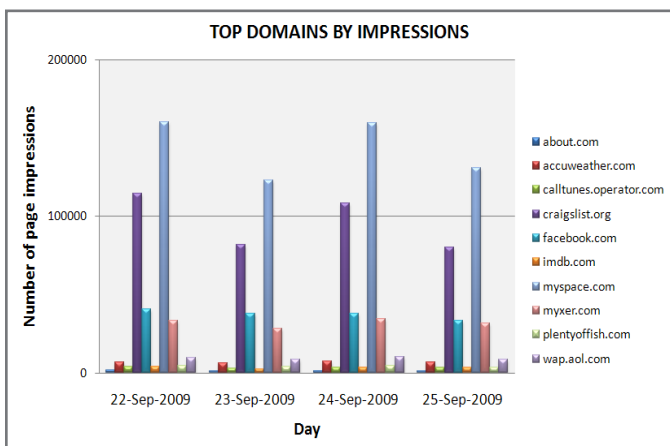


Figure 1: Top domains by impressions

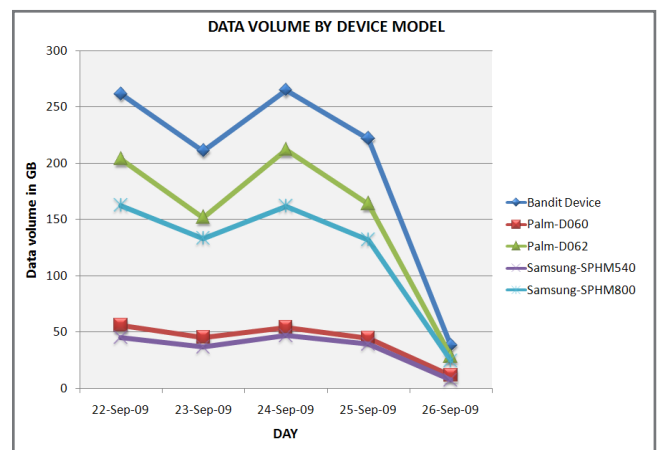


Figure 2: Data volume by device model

A device-based report for Operator X shows smartphone devices such as the Palm D062 and Samsung-SPHM800 are consuming at least three to four times more data volume compared to other, less sophisticated smartphones (Palm D060) and feature phones (Samsung-SPHM540), (fig. 2).

Bandit Devices Drive Data Volumes

Perhaps more interesting is that the report uncovers a category of unknown device type classified in the reports as “bandit.” These bandit devices generate between 1.25 and 1.5 times more traffic than the powerful smartphones and almost 5.5 times more traffic than feature phones.

Deeper research shows that this new category of bandit devices consists of unidentified, unlocked iPhones, USB modems or netbooks from other networks being used on Operator X’s network. This raises concerns about the lack of visibility operators have when it comes to planning and mitigating the effects of high data volumes consumed by these devices.

The traffic generated by bandit devices not only impacts the network in terms of congestion and latency problems, but they also have associated financial implications in terms of increased CAPEX costs due to additional network capacity upgrades in congested areas.

Unique Subscribers by Device

Another powerful device-based report shows that the bandit device issue is more complicated. Unique Subscribers by Device (fig. 3) reveals that the number of unknown devices being used on the network is almost four times higher than the most popular device (Samsung-SPHM800).

Besides separate bandit devices, the high number of unique unknown users might indicate the presence of data-consuming applications which, once downloaded to devices, access the network directly, not via the built-in browser on the phone.

These “bandit applications” might be perfectly harmless or they could also indicate virus activity or other risks to the user experience that Operator X could address using an anti-abuse solution.

A good traffic management solution paired with mobile analytics would enable Operator X to separate the bandit apps from the bandit devices. Careful monitoring of ports and protocols used by bandit apps allows Operator X to control the usage of these types of apps. Managing the issue of bandit devices is easier. Here are three alternatives:

Alternative 1: Offer exclusive content and device bundles with advanced personalization and service discovery features, thereby controlling the user experience and attracting bandit device users to change their devices.

Alternative 2: Using bandwidth/traffic management software, enforce fair usage policies for bandit device users who exceed their monthly data limits, and encourage them to switch to high usage plans.

Alternative 3: Offer SIM-only plans with attractive bolt-on offers for data bundles to increase the customer lifetime value of bandit device users and create loyalty in this segment.

Using HTTP Success/Failures to Diagnose Network Health

Since user experience problems can be attributed to gateway operational problems, network congestion, limitation of client and server bandwidth and random user browsing behavior, it is important to have the clearest view of your network to spot anomalies or trends quickly.

As the threat of overtaxed networks grow, Operator X can measure the health of their mobile data network by monitoring the number of HTTP success/failure transactions. Preventative network measures help in maintaining a good user experience and improving customer satisfaction.

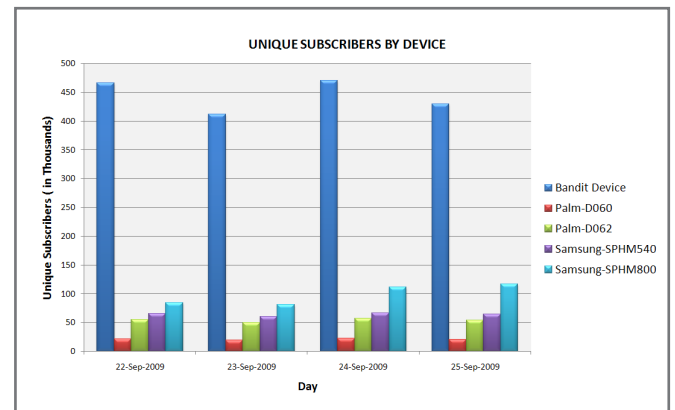


Figure 3: Unique subscribers by device

The time-based report below (fig. 4) shows a low number of HTTP failures from September 22-26, while the number of successful HTTP transactions drops steeply between September 25-26, probably because of network congestion.

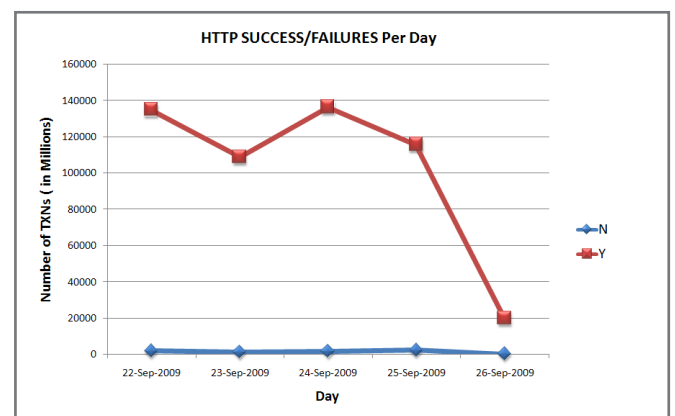


Figure 4: HTTP Success/Failures per day

Digging Deeper: HTTP Error Codes

Figure 5 shows four common errors which occur on Operator X's network. While Error 404 and Error 503 remain flat, Errors 403 and 504 spike on September 25.

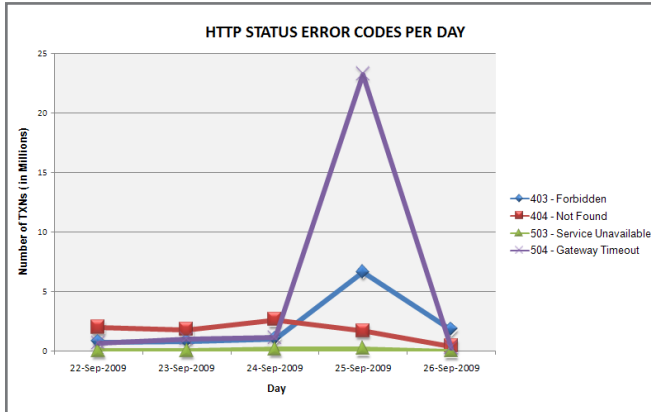


Figure 5: HTTP Status Error Codes

Error 403 could be a website maintenance issue (not Operator X's problem), or it could indicate authentication issues in Operator X's infrastructure: a user that cannot be identified by the gateway or a distant application that refuses to provide the service.

In this latter case, Operator X has an opportunity to redirect the subscriber back to its own portal or replace the Error 403 page with a more user-friendly message to avoid a negative user experience.

In the case of Error 504, the gateway request has timed out, possibly due to network congestion, latency or insufficient bandwidth. If Operator X notices this trend repeating itself over the next few weeks, then it would need to mitigate network congestion with the following alternatives:

Alternative 1: Implement a traffic/bandwidth management solution as a preventative measure to ensure subscriber usage is monitored and controlled through defined traffic management policies. Rigorous policy control can effectively defer investment in network capacity.

Alternative 2: Implement a network compression and caching solution as a preventative measure to reduce data volume going through the network, and place rich content closer to the network edge. This technique also helps defer investment in network capacity.

Alternative 3: Invest in additional network capacity to relieve congestion and improve latency. Obviously this alternative is costly and in most cases inevitable, but software solutions are a smart way to alleviate immediate congestion problems and protect future investments in network upgrades.

Conclusion

Operator X used mobile analytics to monitor data network traffic, track emerging trends, extract actionable insights and realign its content and device portfolios to turn the large numbers of bandit device users into loyal subscribers.

Operator X also analyzed user behaviors to provide additional services and understand how its subscribers are influenced by social media. By offering more targeted services, operators can facilitate new revenue opportunities and alternative business models to position themselves as important players in the mobile ecosystem.

The mobile analytics reports we have examined in this report are just a fraction of what Openwave Mobile Analytics can offer operators to help them optimize network usage and confidently predict user behavior patterns to help them prepare for the data tsunami.

Stay tuned for another edition of *Insights into the Mobile Web* featuring real data from real operators across the world.



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