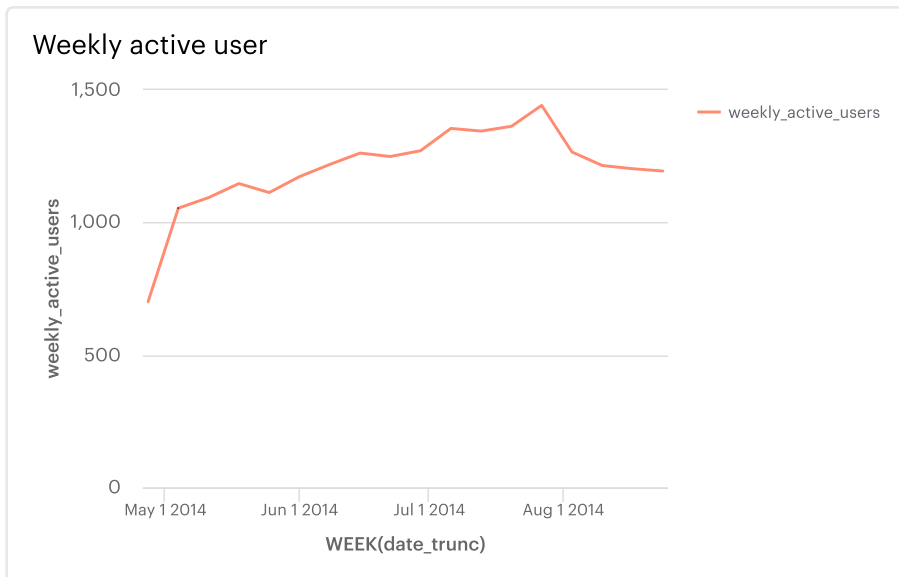


Yammer project

Case study: investigating a drop in user engagement

Yammer is a social network for communicating with coworkers. Individuals share documents, updates, and ideas by posting them in groups. Yammer is free to use indefinitely, but companies must pay license fees if they want access to administrative controls, including integration with user management systems like ActiveDirectory.



The plot on the left shows the number of engaged users each week. Yammer defines engagement as having made some type of server call by interacting with the product (shown in the data as events of type “engagement”).

Any point in this chart can be interpreted as **“the number of users who logged at least one engagement event during the week starting on that date.”**

Problem:

As we can see there is a drop in weekly active user at July 27th 2014. This report is about finding the reason.

Data:

Table 1: Users - This table include one row per user, with descriptive information about that user's account.

Table 2: Events - This table include one row per event, where an event is an action that a user has taken on Yammer. These events include login events, messaging events, search events, events logged as user progress through a signup funnel, events around received email.

Table 3: Email events - This table contains events specific to the sending of emails and is similar to the events table.

Investigation:

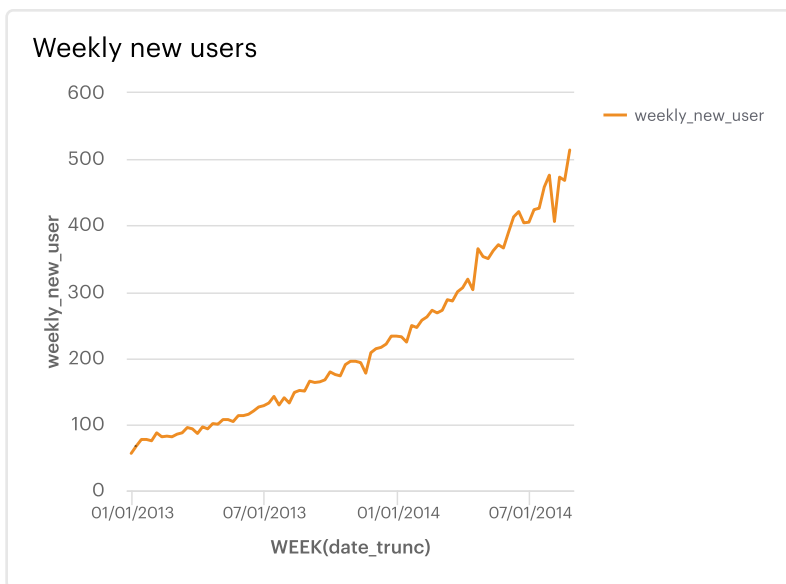
Before writing queries, I explored the possible reasons why there is a drop on the weekly active users. Then I will check those reasons one by one.

Possible reasons for the drop:

1. There is not as many new users registered. For example, people may registered in competitor's website. Other reason may come from the too complicated signup process.
2. Holidays and vacation time. For example, people may having a vacation and do not have time to login.
3. Maybe the content is not interesting enough. For example, people find the the content in the email not interesting enough so don't click the links in the email.
4. Yammer may not have enough features to keep old user come back to Yammer. For example, after the user have their account for a while, they found they do no have a lot of friend in Yammer, they may lost their interest to come back.
5. Technical issues such as the features in the website is broken or blocks from the web server or the interface in the app is not easy to use.

INVESTIGATION #1:

To answer if there is a drop in new users, we plot the weekly new user plot.



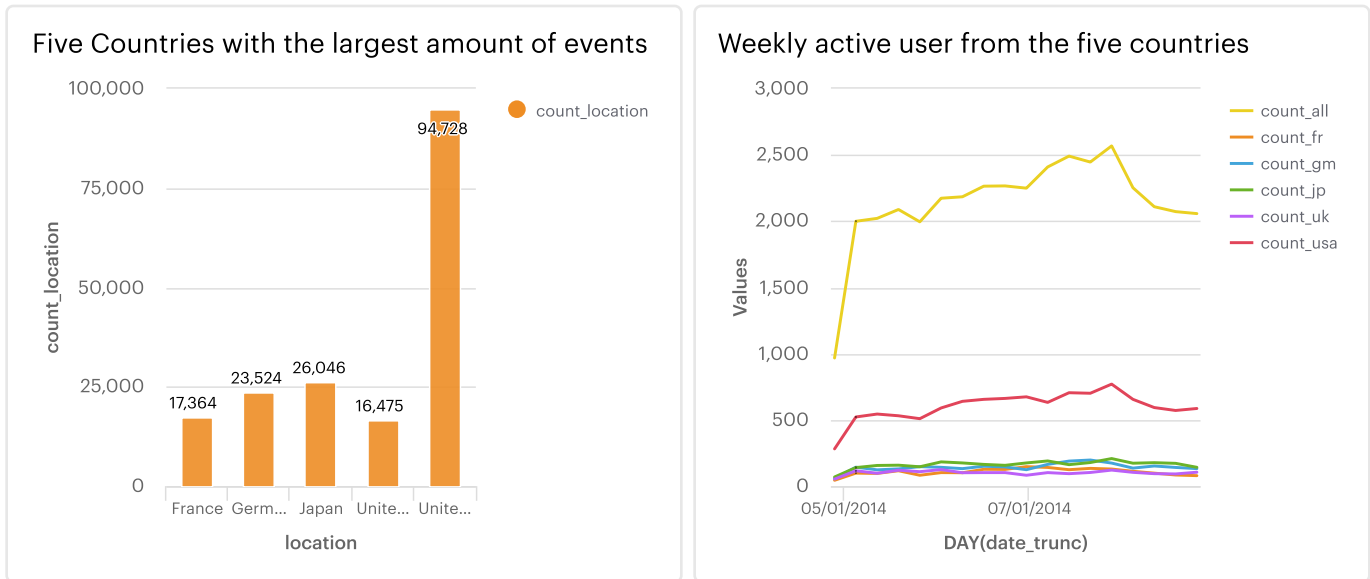
From the plot on the left, we found that there is a sharp decrease of new users from 07/27/2014. This is the same data as we found in the weekly active user curve. So the problem of this case study may have something related the decrease of new users.

RECOMMENDATIONS:

- Improve the process of new user signup. Yammer can do some A/B testing to optimize the process.
- Analyze Yammer's competitors to see if there is new competitors or if there are new events in competitors, which causes the lose of new users.

INVESTIGATION #2

Since different country have different national holidays, we may find if there is a difference in the weekly active user from different country. We select the five countries which have the largest number of events in the event table, and plot the number of weekly active user.



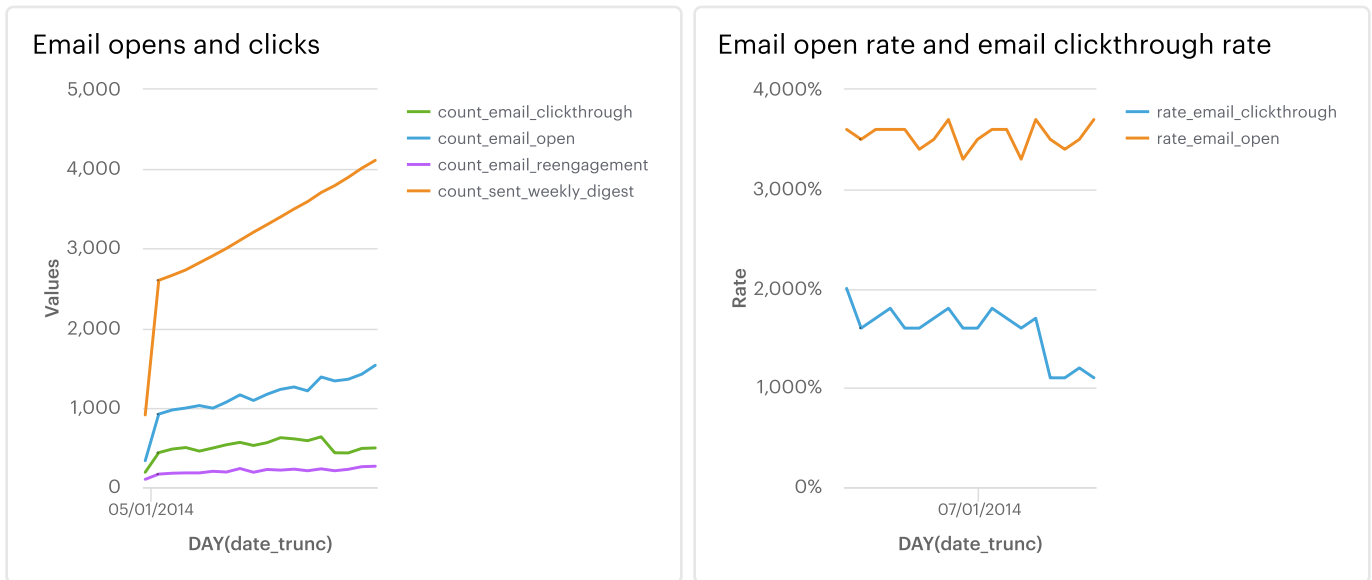
From the right plot above, we can see there is a big drop on July 28th in the United States. Then in Japan, there is also a drop on July 28th, but it is not as obvious as what is in the United States. This may be because of the holiday in the United States.

RECOMMENDATIONS:

- Check if there is a special event like a national holiday in the USA affect the drop of active users.

INVESTIGATION #3

The content of the website is a big reason why people be active in Yammer. We can investigate if the content in the email is interesting or not from the behavior of email-related events.



From the plot on the up left, the total amount of opened emails increased, but the clickthrough decreased.

However, by taking the total number of emails sent into account, the rate for email-open keep the same, and the rate for email_clickthrough decreased. So there is less likely for the users to click the links in the emails.

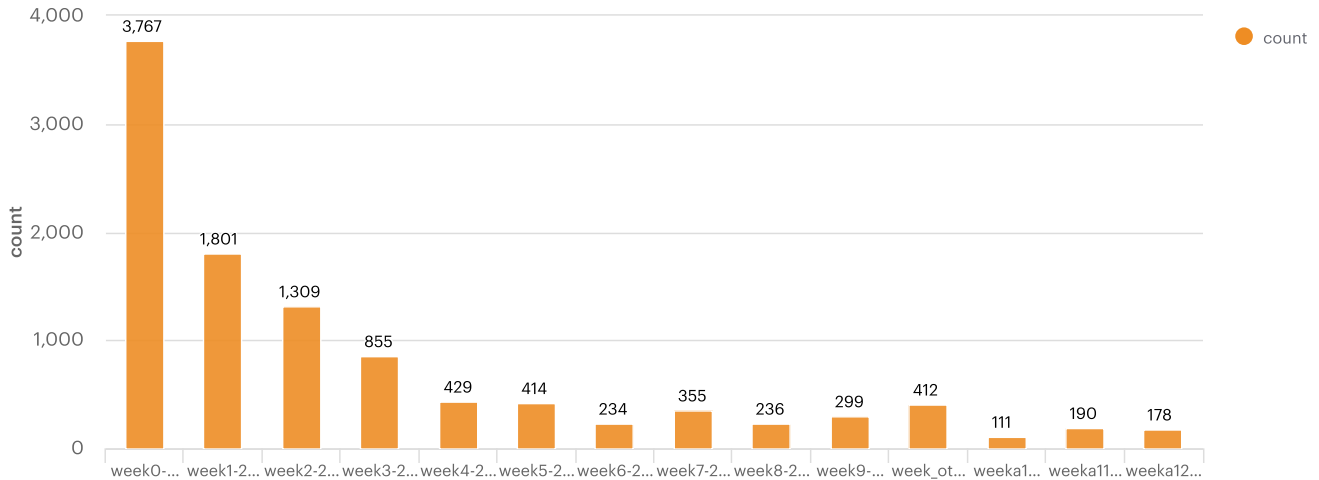
RECOMMENDATIONS:

- Decrease the amount of emails sent to the users at certain amount to get more people click through the links in the email. There is a trade off between the number of opened email and the number of links in the email clicked through.

INVESTIGATION #4

This part investigate whether the user in Yammer continue to create events after they create their account. We selected a group of users created their account between 2014-05-05 and 2014-05-13. The bar plot is the total number of this group of user's event for each week period. For example, the first bar "week0-2014-05-13" is the total number of events from a week before 2014-05-13.

User's event after they create their account



From this bar plot, we found that the users create less events as time goes by. This may due to a large amount of users lost their interest to Yammer since they do not create events related with their account.

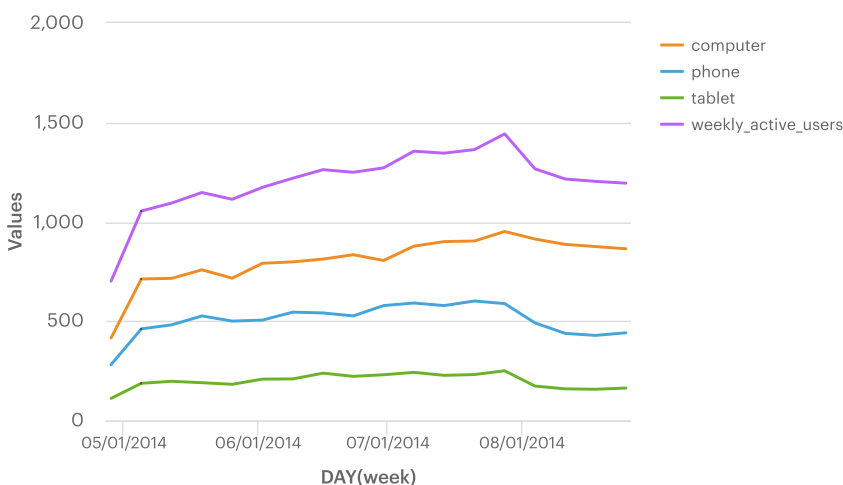
RECOMMENDATIONS:

- When the user created their account, recommend friends to the user, and let the user quickly been explored to the features they may like.
- Send survey to old users who do not come back to Yammer.

INVESTIGATION #5

This part investigate if there is a technique issue related with Yammer. For example, if the web version of Yammer have some bugs and people can not sign into their account, there will have less active user event from Yammer's website.

Weekly active user by device



The plot on the left shows the trend of weekly active user divided by computer, phone and tablet.

We can see there is a obvious bigger amount of active user in the phone category than that in the computer and tablet category. This may due to some features of the app in phones may not work well.

RECOMMENDATIONS:

- Optimize the app in mobile devices and make it more user-friendly.

FUTURE WOKR:

This report provide some analytical study on the data available. There are many other factor may affect the drop of active user account. Those factors include those from the Mode community:

- **Traffic anomalies from bots:** Most major website see a lot of activity from bots. A change in the product or infrastructure that might make it harder for bots to interact with the site could decrease engagement (assuming bots look like real users). This is tricky to determine because you have to identify bot-like behavior through patterns or specific events.
- **Traffic shutdown to your site:** It is possible for internet service providers to block your site. This is pretty rare for professional applications, but nevertheless possible.
- **Marketing event:** A Super Bowl ad, for example, might cause a massive spike in sign-ups for the product. But users who enter through one-time marketing blitzes often retain at lower rates than users who are referred by friends, for example. Because the chart uses a rolling 7-day period, this will register as high engagement for one week, then almost certainly look like a big drop in engagement the following week. Most often, the best way to determine this is to simply ask someone in the Marketing department if anything big happened recently.
- **Bad data:** There are lots of ways to log bad data. For example, most large web apps separate their QA data from production data. One way or another, QA data can make its way into the production database. This is not likely to be the problem in this particular case, as it would likely show up as additional data logged from very few users.
- **Search crawler changes:** For a website that receives a lot of traffic, changes in the way search engines index them could cause big swings in traffic.