

App Store Data Challenge

By: Jason Yang

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Introduction



Jason Yang

Data Science Manager – Urgently Roadside

- 1 year: ranking & pricing model deployment

Data Scientist – InMarket Media

- 3 years: audience segmentation, propensity models, incremental lift, campaign analytics

Product Support Engineer – OSIsoft (AVEVA)

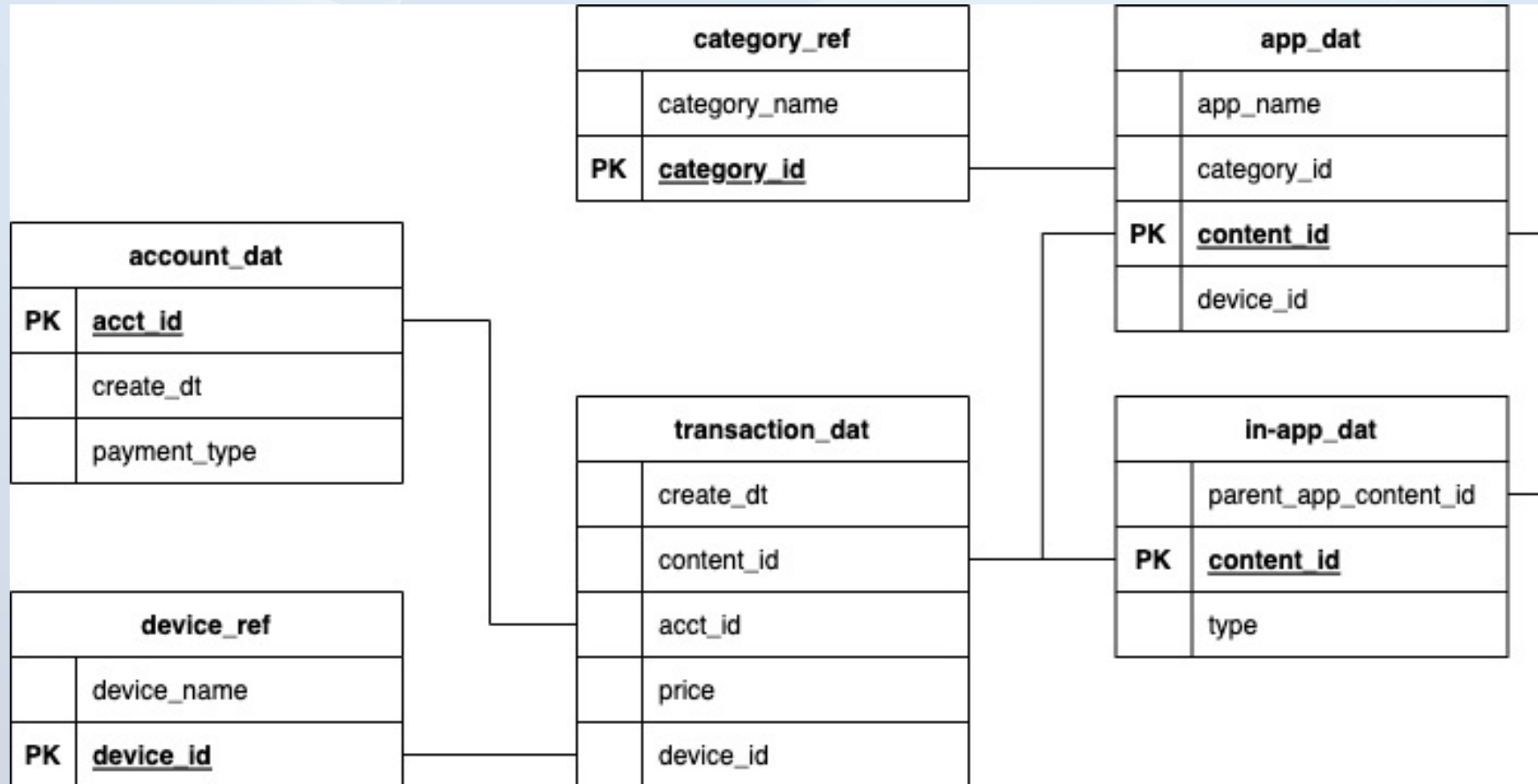
- 2 years: time-series database tech support

Hobbies: marathon, tennis

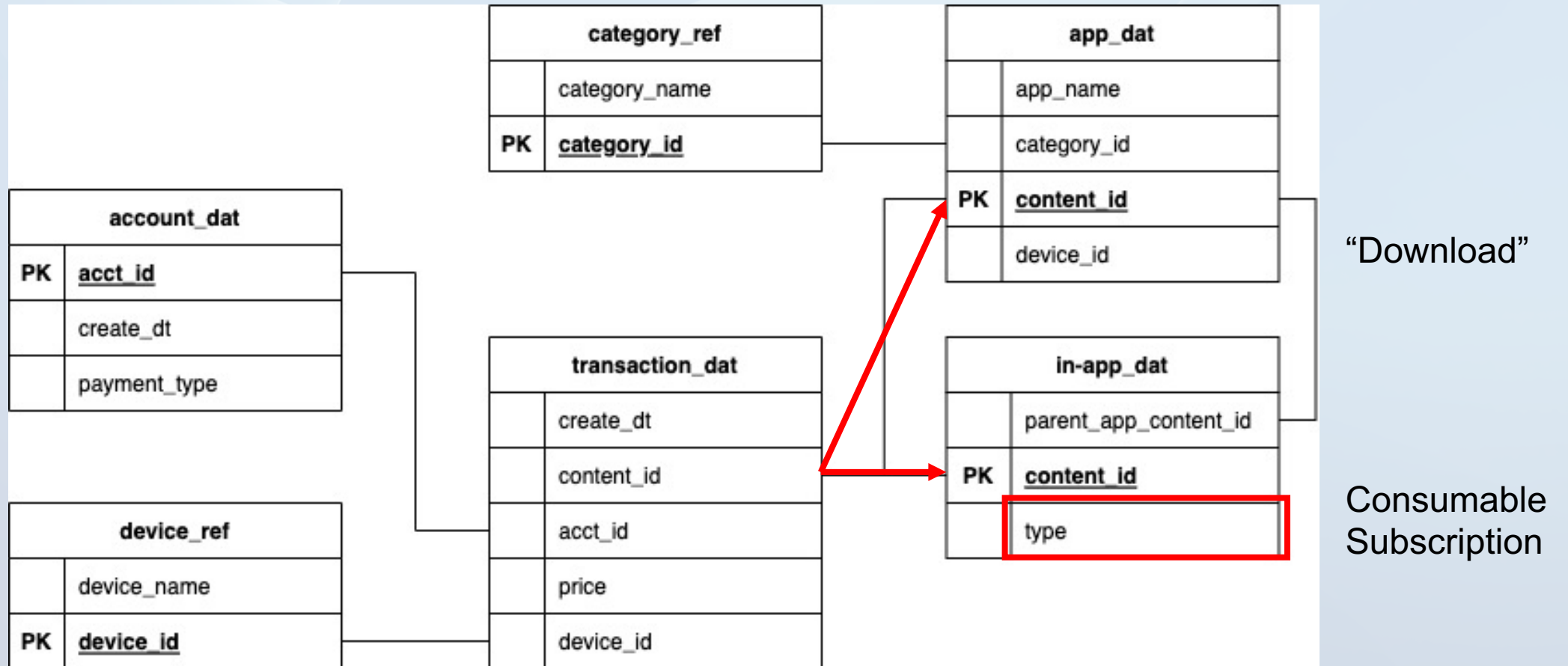
Executive Summary

- Background on data
- Recommendation: Opportunity to lower or eliminate the cost barrier to PMOF apps, especially for Games category
- July 4th increased consumable transaction by 12.1%
- Data quality: “unknown” payment type & data gap
- Extra
 - PMOF & Free only account creations
 - Unsupervised account clustering

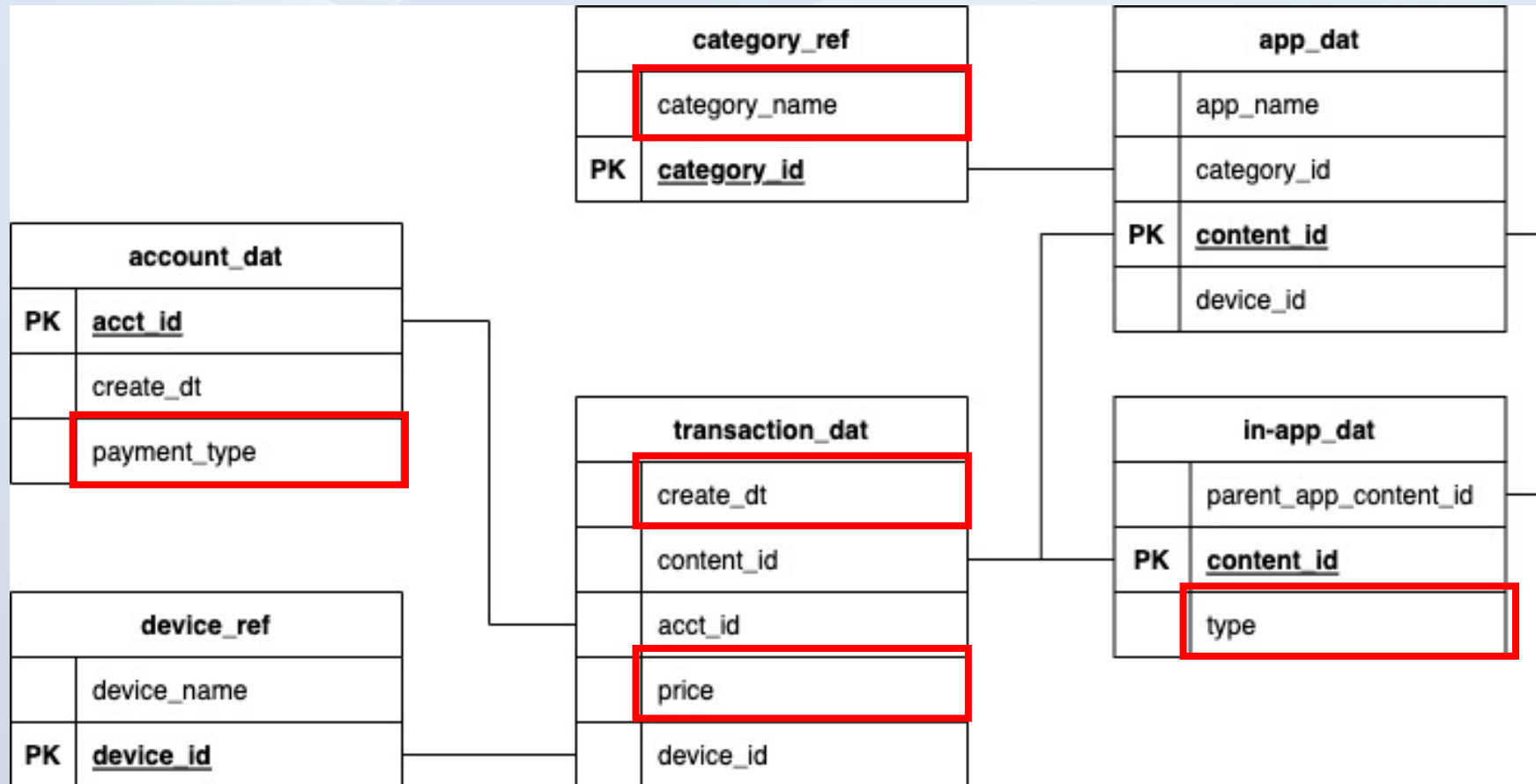
Data



Data



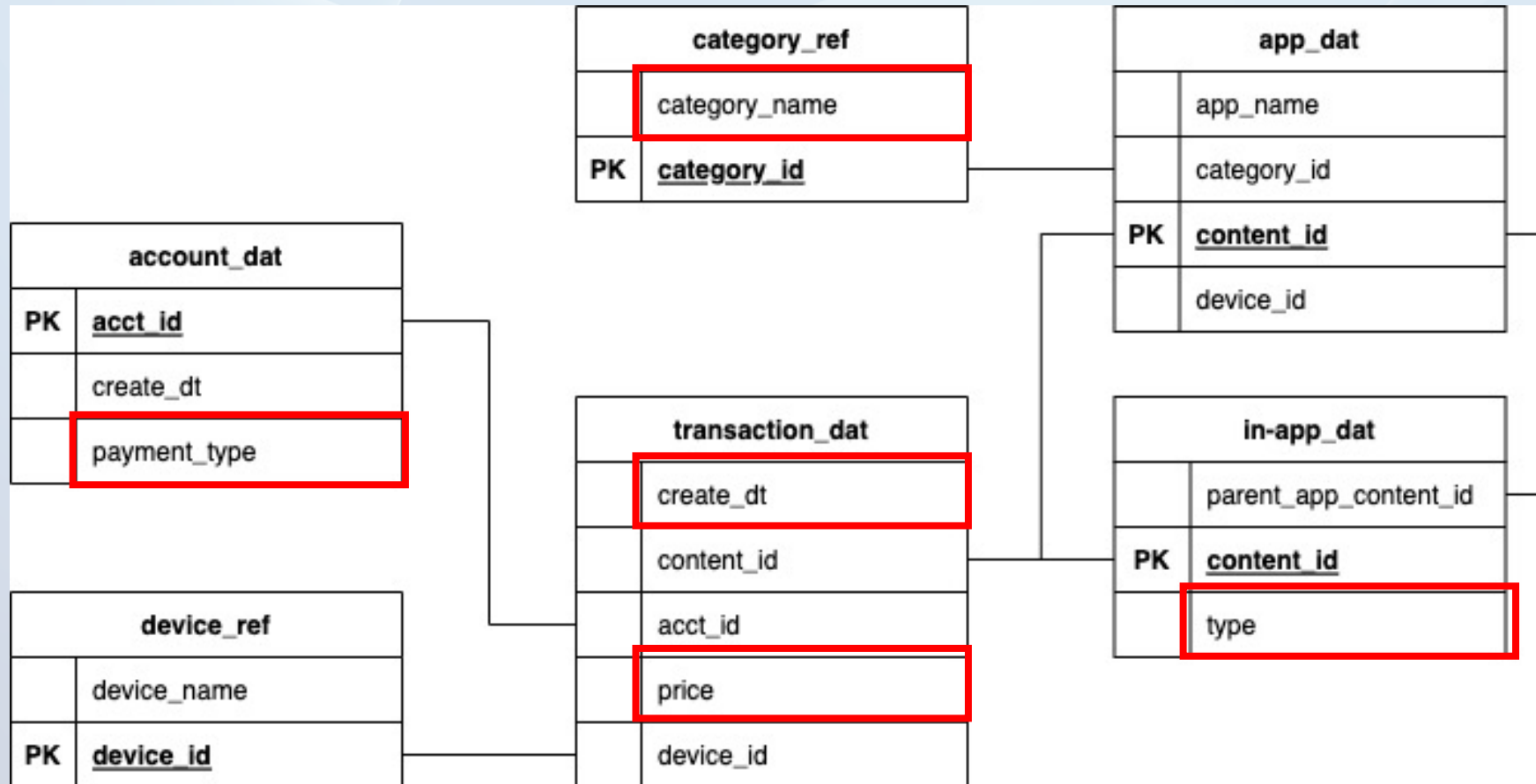
Data



Data

Entertainment
Games
Photos & Videos
Social Networking
Utilities

Free only
PMOF
“unknown”



Assumptions

- Real App Store data from June 2016 to September 2016
- Apple Arcade (2019) subscription not available
- “Price == 0” app transactions by PMOF accounts are part of a pilot project
 - Term: “free app download”

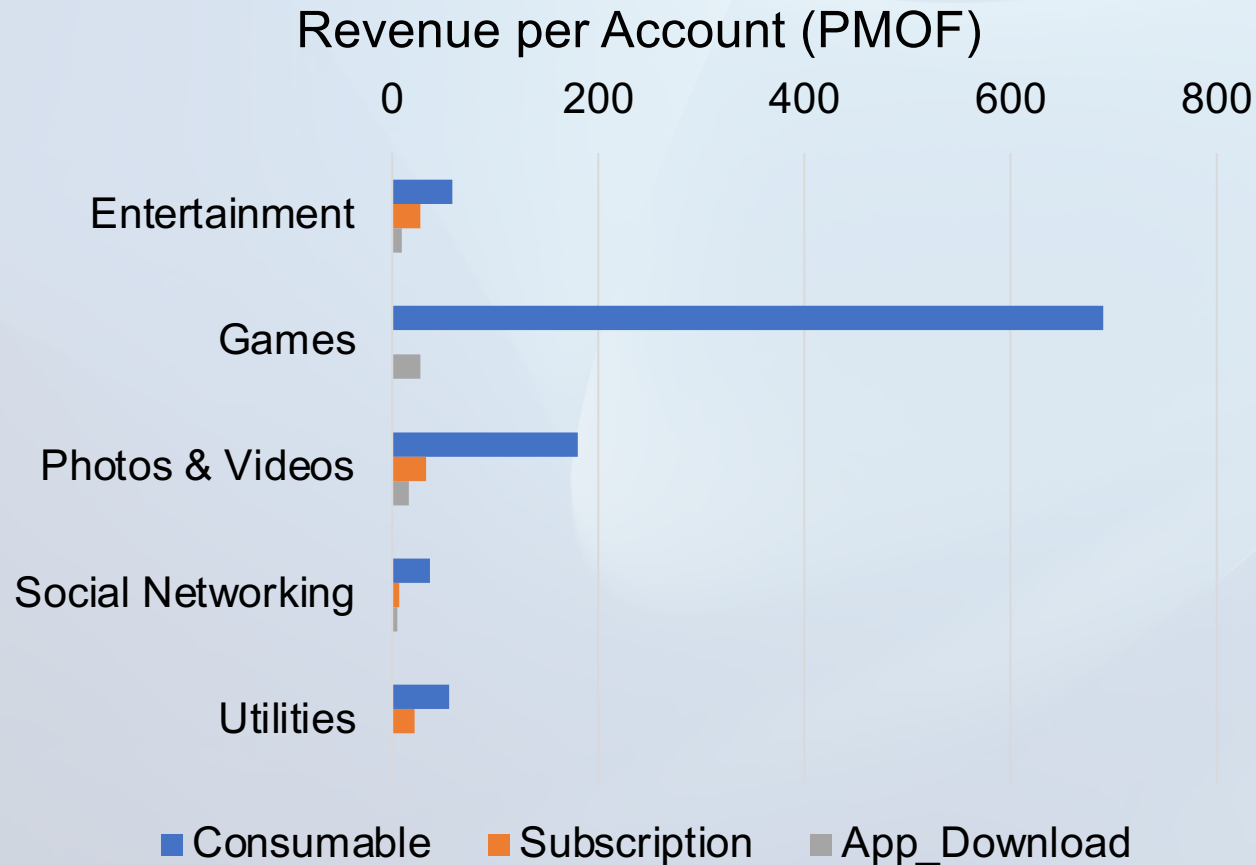
Objective:

Increase access to great apps and content at an affordable price

Why?

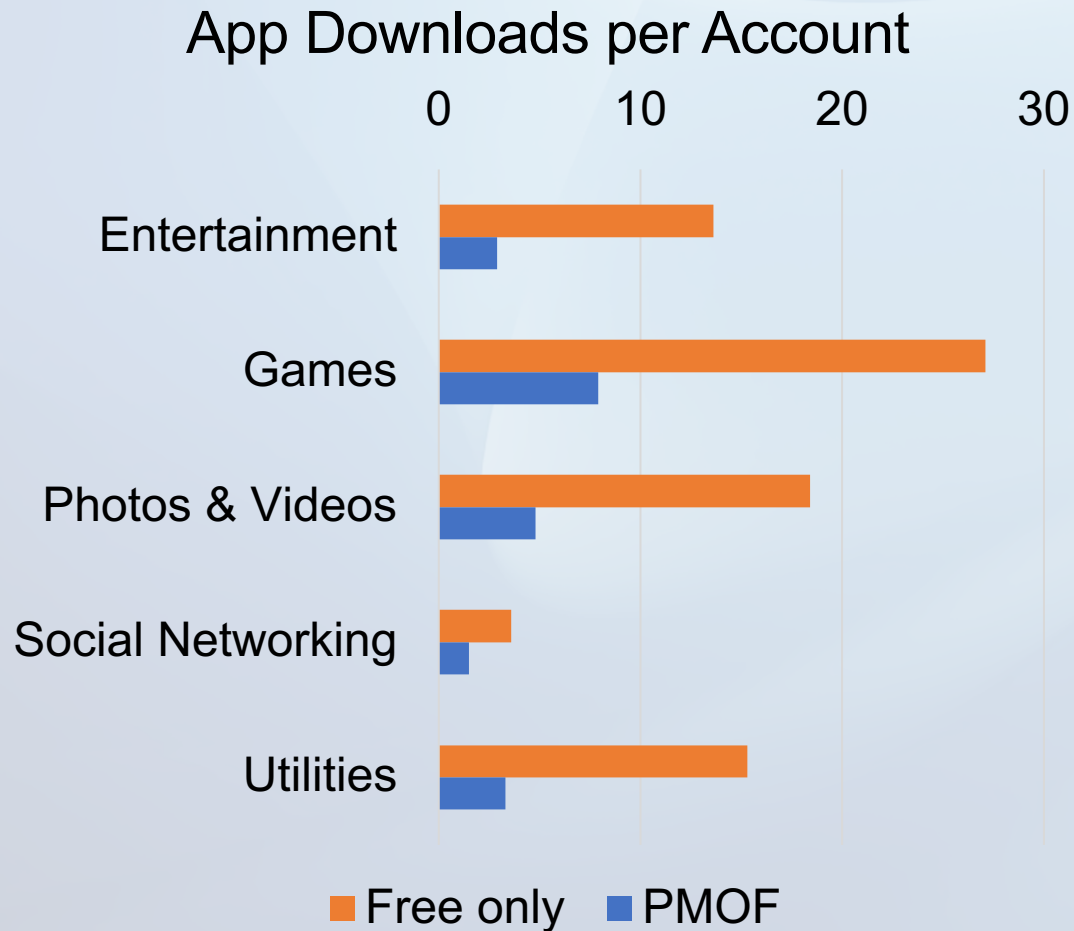
- Great user experience
- Support developers to create great apps

Pay to Win



- Users are paying a lot of money in Games apps
- Pay-to-Win mechanisms:
 - Tasks take a long time
 - Pay-only content
 - Unable to make progress
- Impossible to without paying
- Great content, but not affordable

Free, But Not as Good?

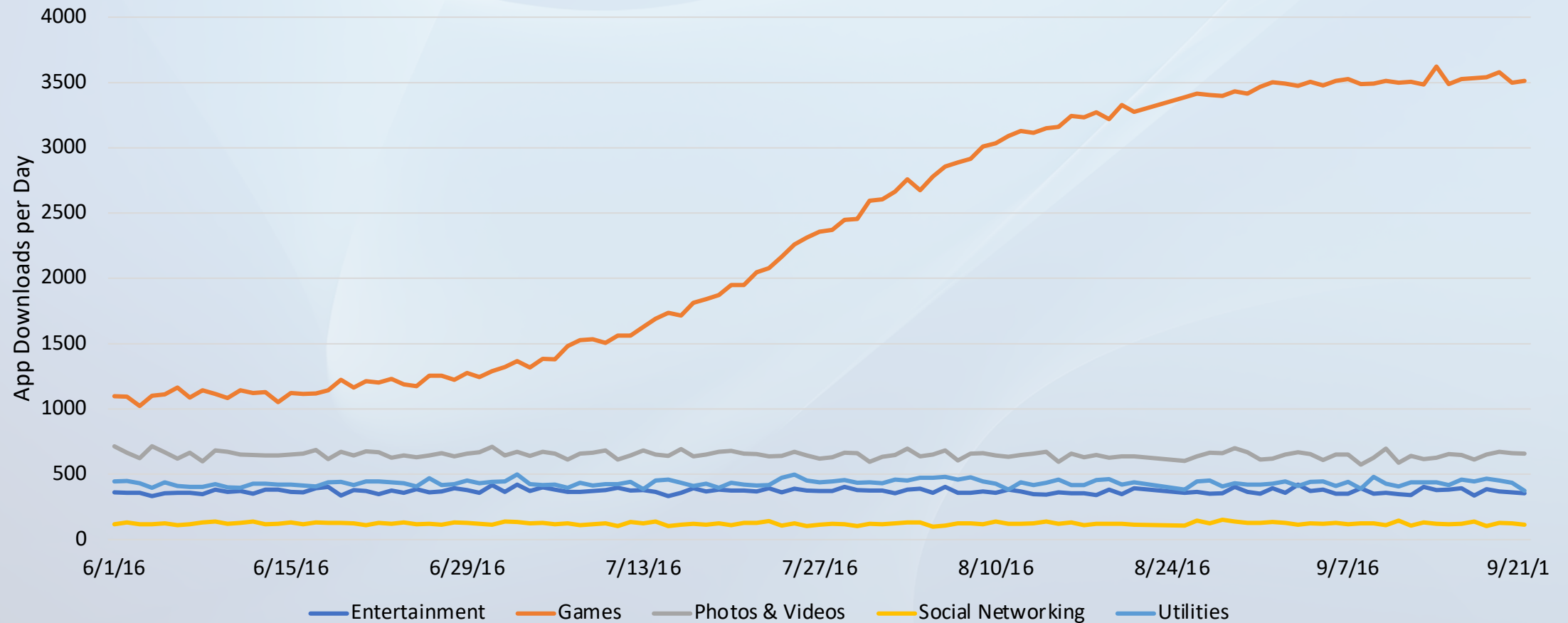


- Free accounts download at least 2x more apps than PMOF accounts
- Potential bad experiences:
 - Lots of Ads
 - Unsupported App (no revenue)
 - Bad App
- Affordable, but mediocre

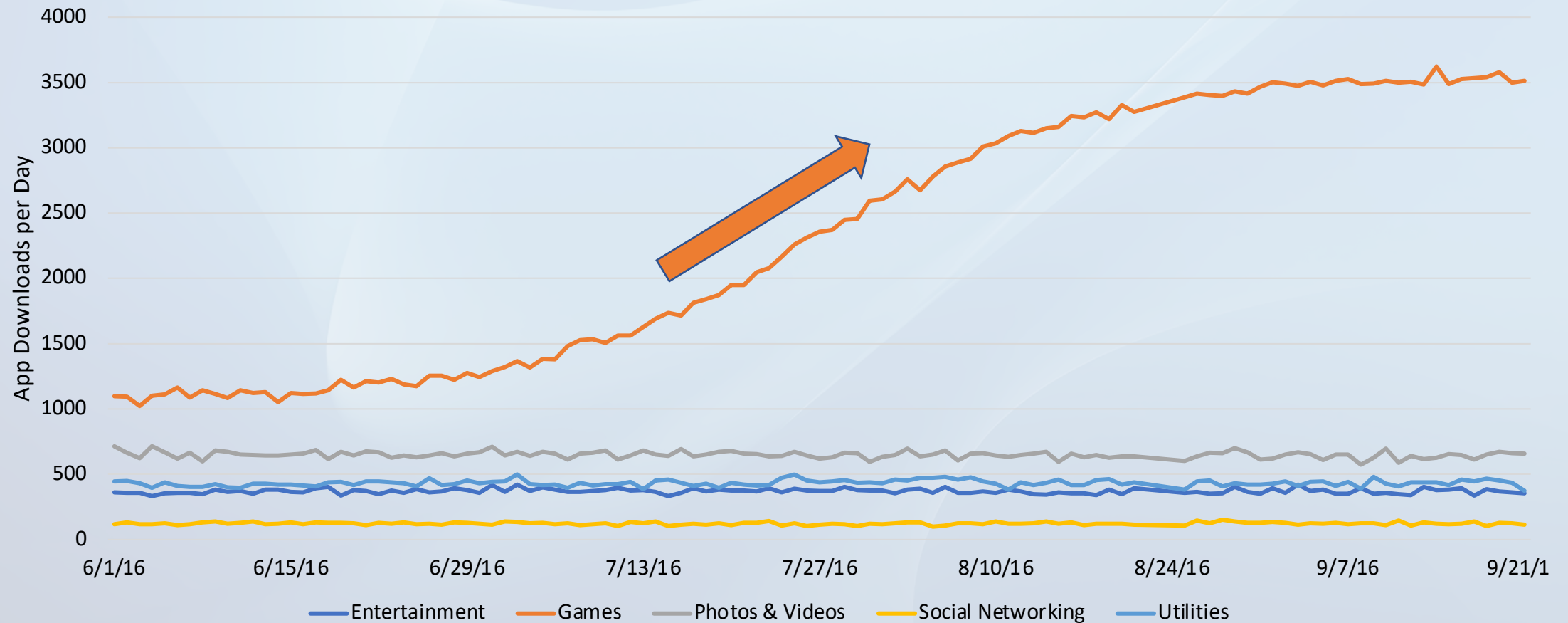
Pilot Project

- Remove the download cost barrier to 13 Games apps for PMOF accounts
- Why? Cost limits both developers and users. Removing the download cost will help us observe the potential of paid apps
- Create an environment to
 - Access great apps at an affordable price
 - Support developers to create great apps

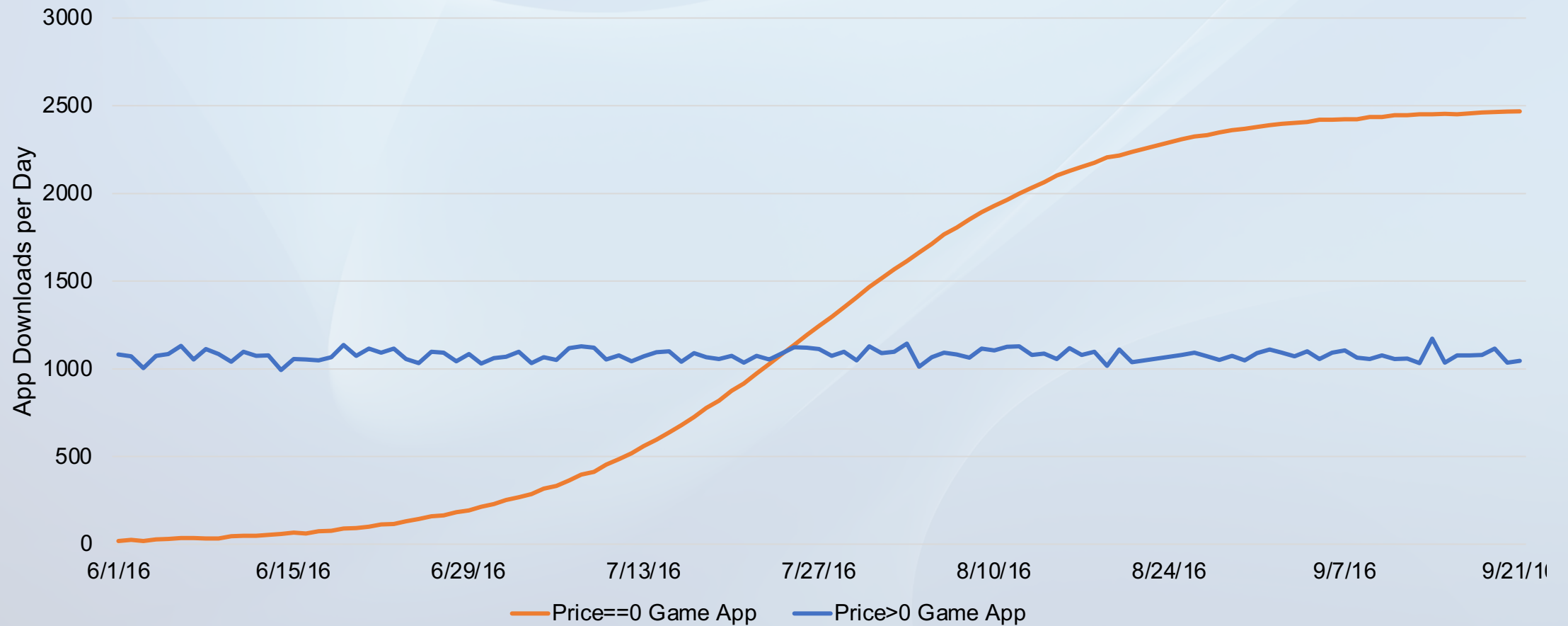
Daily Downloads Time Series (PMOF)



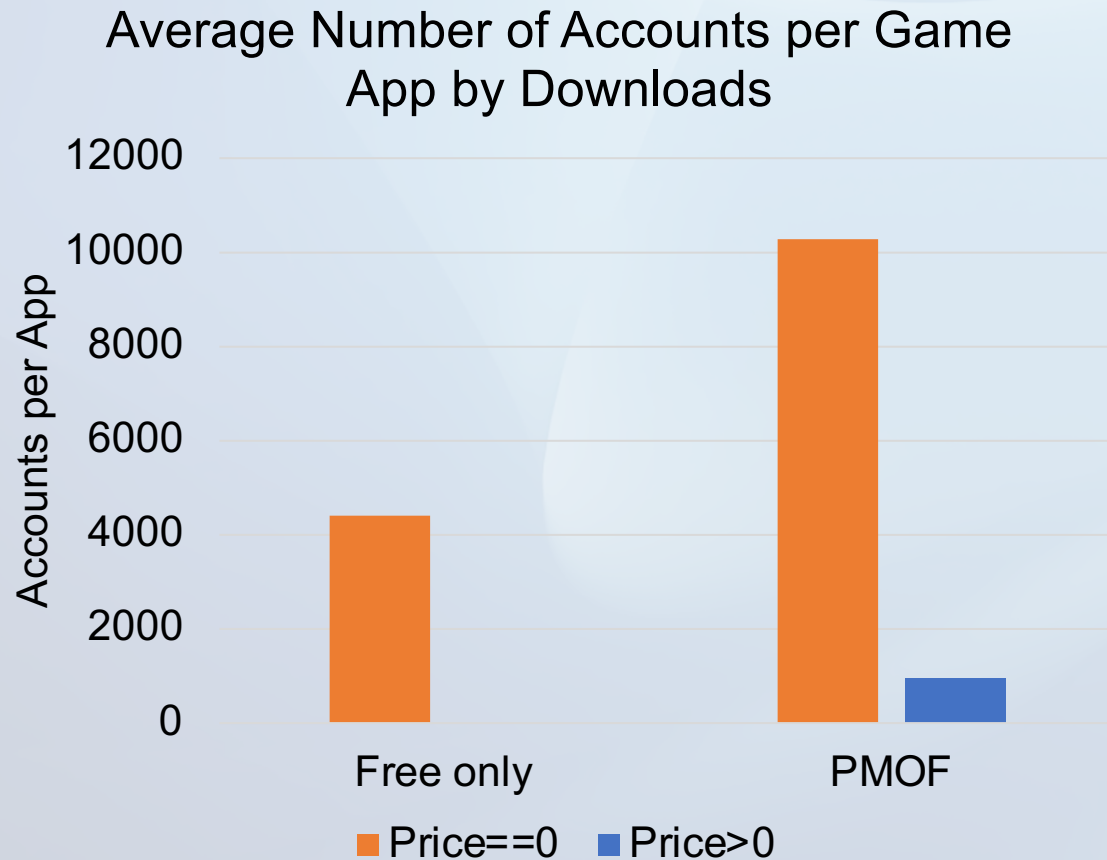
Daily Downloads Time Series (PMOF)



Game App Daily Downloads (PMOF)



Game App Comparison



- A PMOF app without cost barrier has 10x more accounts
- Lowering cost barrier to PMOF apps can increase usage to be above Free only apps

Takeaway 1

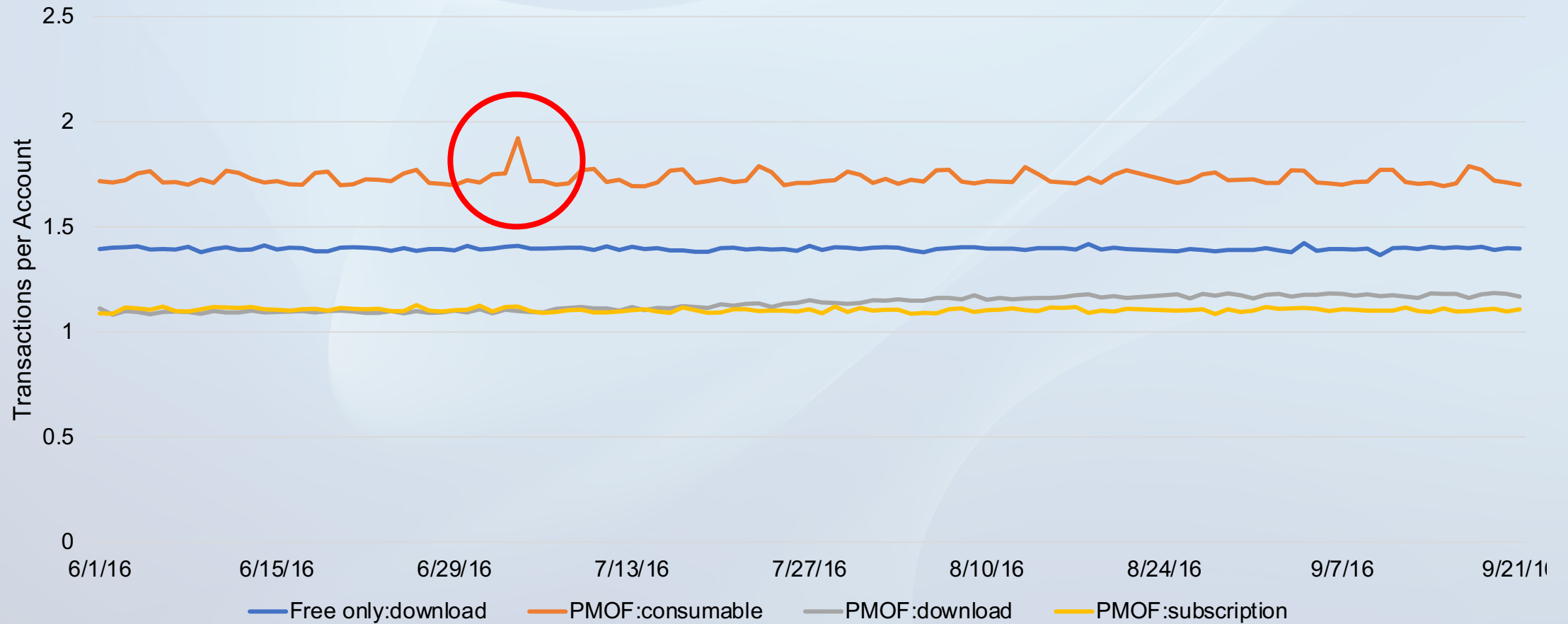
- Objective: Great apps deliver great content at an affordable price
- PMOF apps have great content with high usage cost
- Free only apps have mediocre content

Recommendation

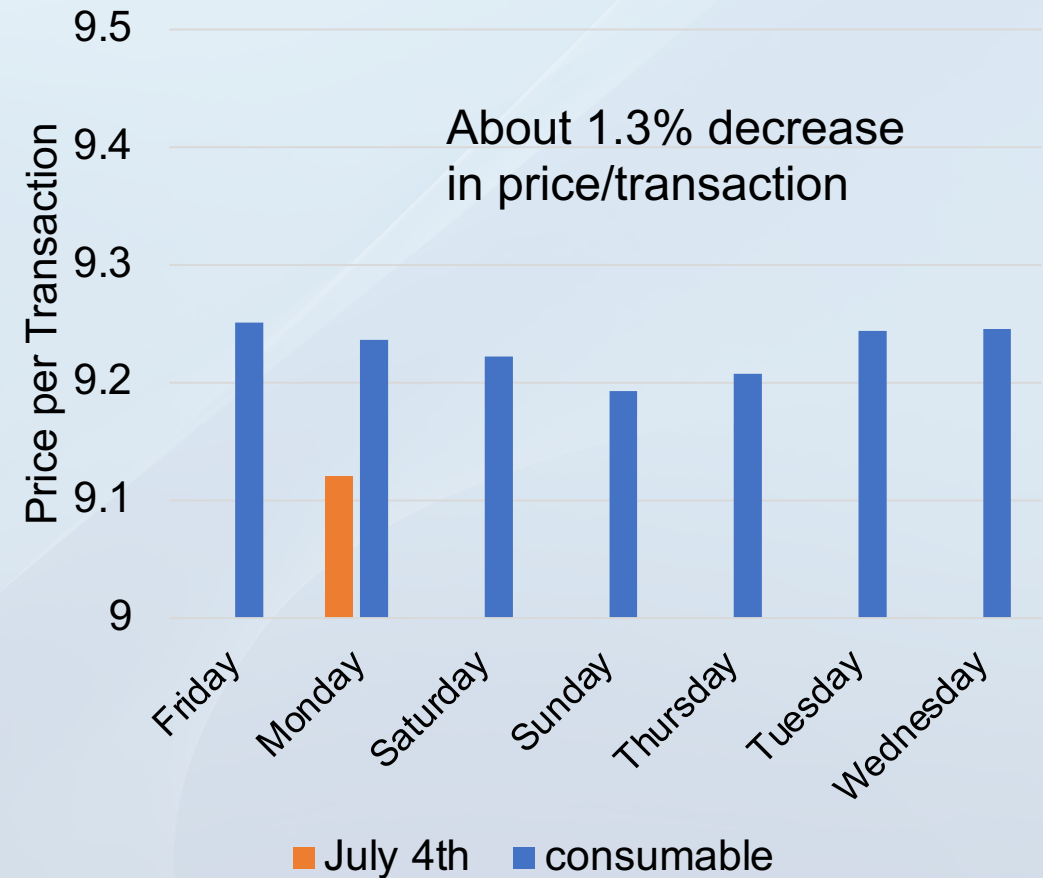
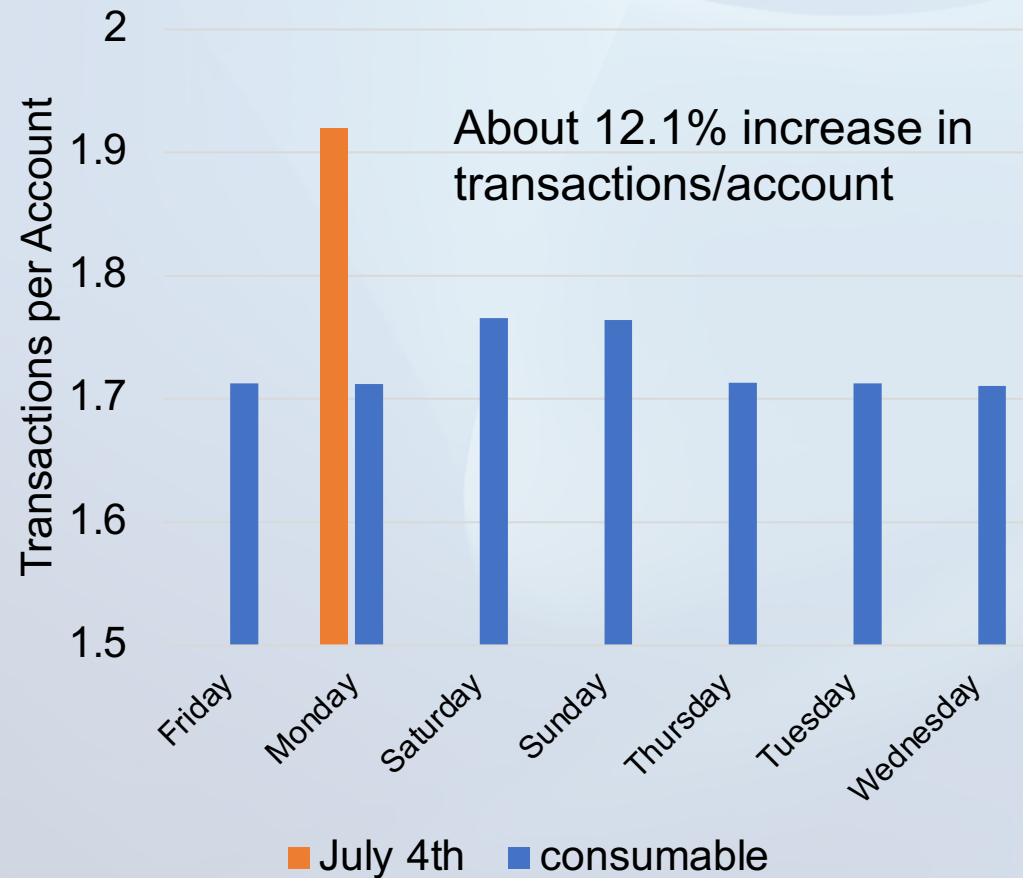
- Lower or eliminate the cost barrier to PMOF apps, especially for Games category

July 4th Spike

July 4th – Only Holiday Spike



Consumable Transactions (PMOF)



Takeaway 2

- We observed a spike in consumable transactions on July 4th.
- No other spikes in other holidays
- Does not appear to be due to pricing discounts

Recommendation

- Inconclusive. Need to find other variables to explain the spike on July 4th

Data Quality Issues

- 25 acct_id's without payment_type
- data gap on 2016-08-22 to 2016-08-24

payment_type	n_acct
Free only	14993
PMOF	14982
unknown	25

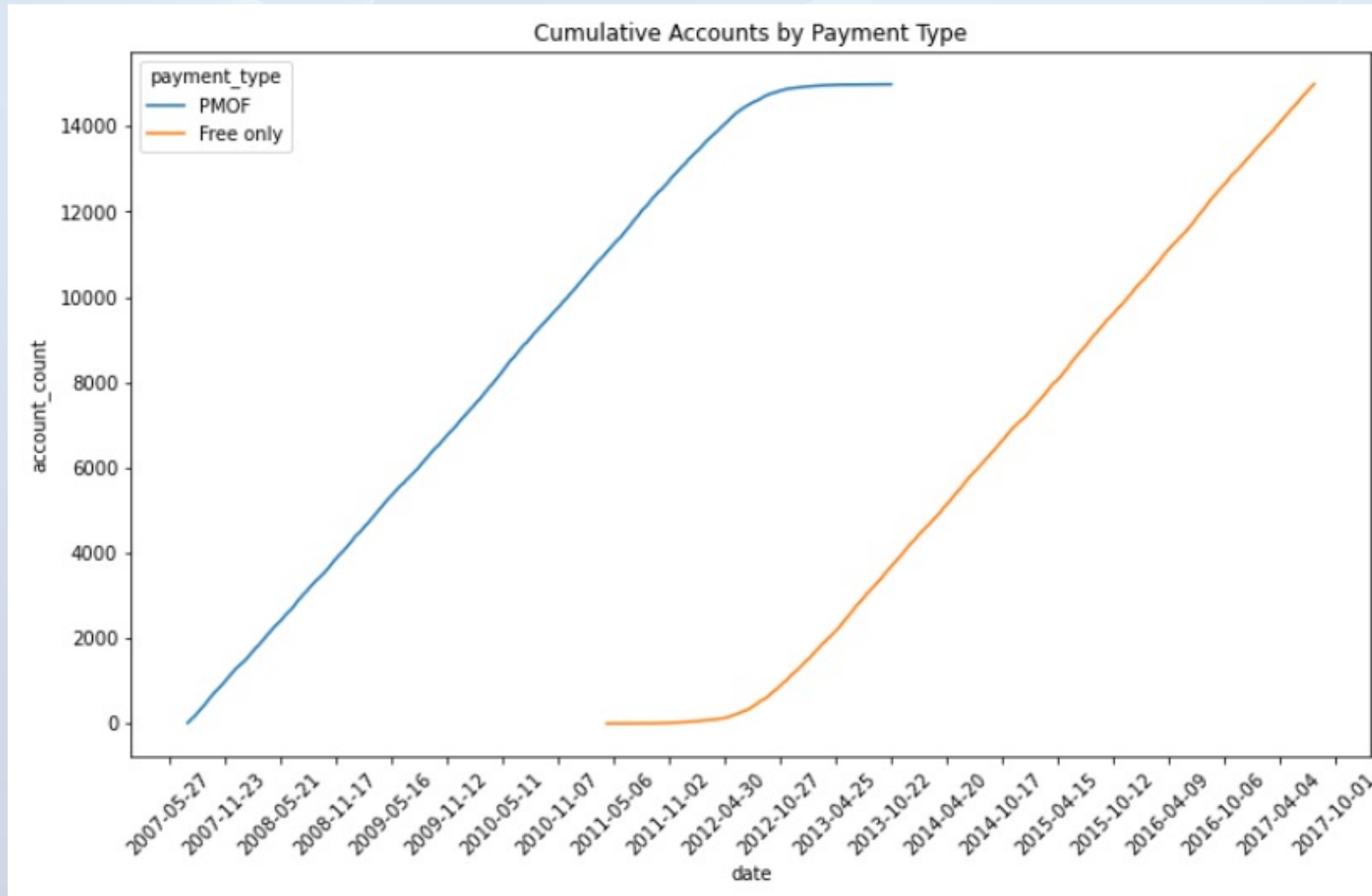
	create_dt_transaction	n_transactions
79	2016-08-19	16146
80	2016-08-20	17011
81	2016-08-21	17424
82	2016-08-25	16184
83	2016-08-26	16245
84	2016-08-27	17304

Future Analysis

I want to do a deeper analysis with more data including:

- App usage metrics like crashes, duration, and rating
 - Better define what a “good” app
- Account attributes like age and demographics
 - Audience segmentations for accounts

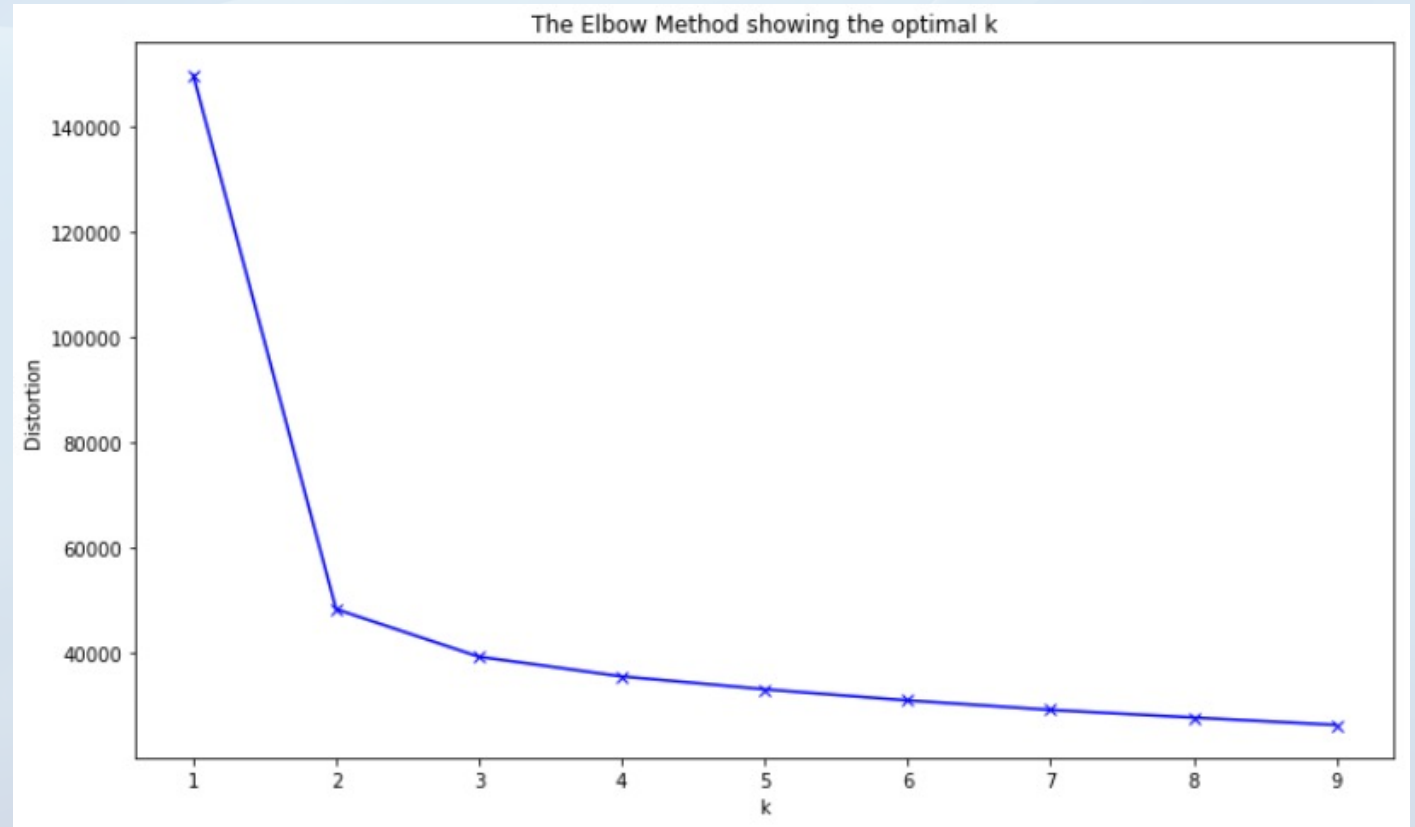
Extra: Account Creation



Extra: Account Clustering

	pred_k	payment_type	acct_cnt
0	0	Free only	28
1	0	PMOF	14982
2	1	Free only	14965

category_name	Entertainment	Games	Photos & Videos	Social Networking	Utilities
acct_id					
00028709c8d435ff	10.0	27.0	19.0	1.0	14.0
0005a4d77127fde7	6.0	16.0	3.0	0.0	1.0
0005c296f2605c08	4.0	17.0	4.0	1.0	1.0
00082ad3dc50a70d	15.0	30.0	17.0	3.0	11.0
00085ff73786df4d	3.0	14.0	2.0	2.0	2.0



Questions & Answers

Thank you