

Getting insights of ‘Zoom’ Comparing with ‘MS Teams’

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Social Media
Analytics

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- Result

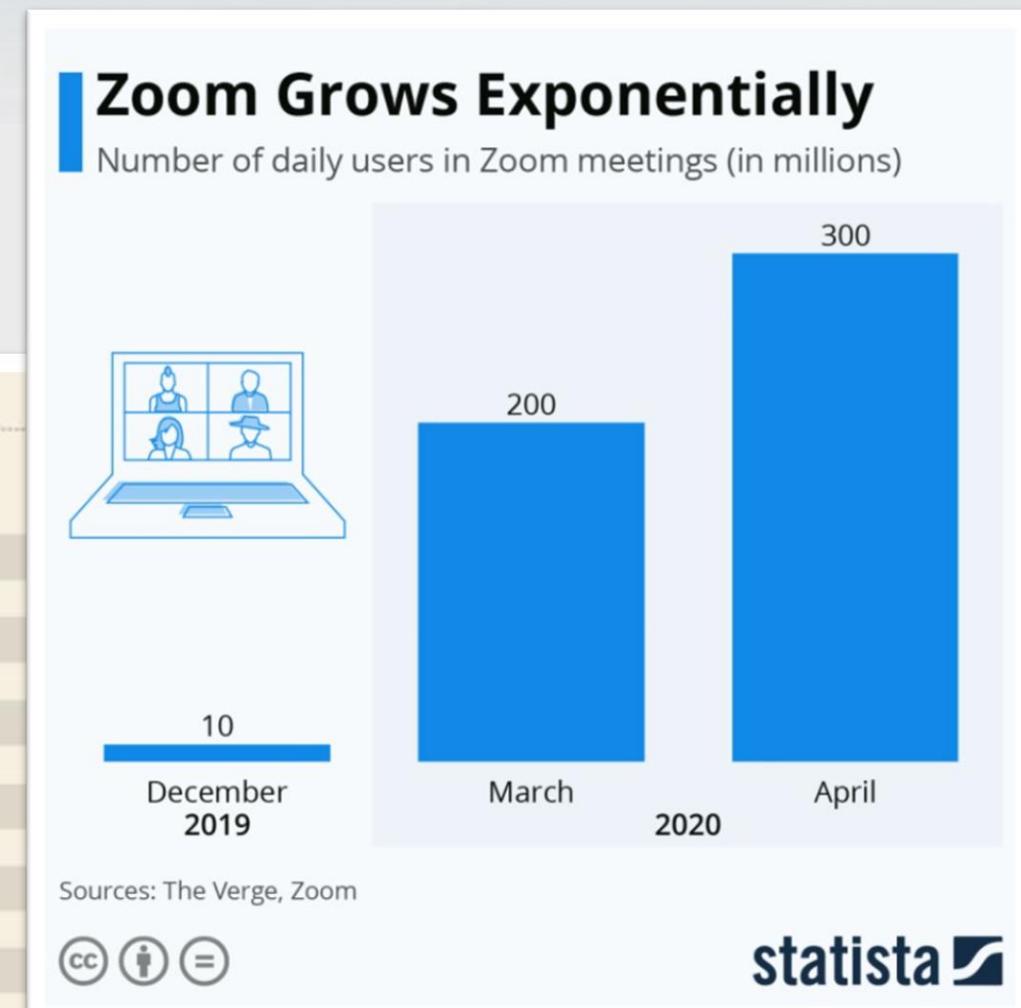
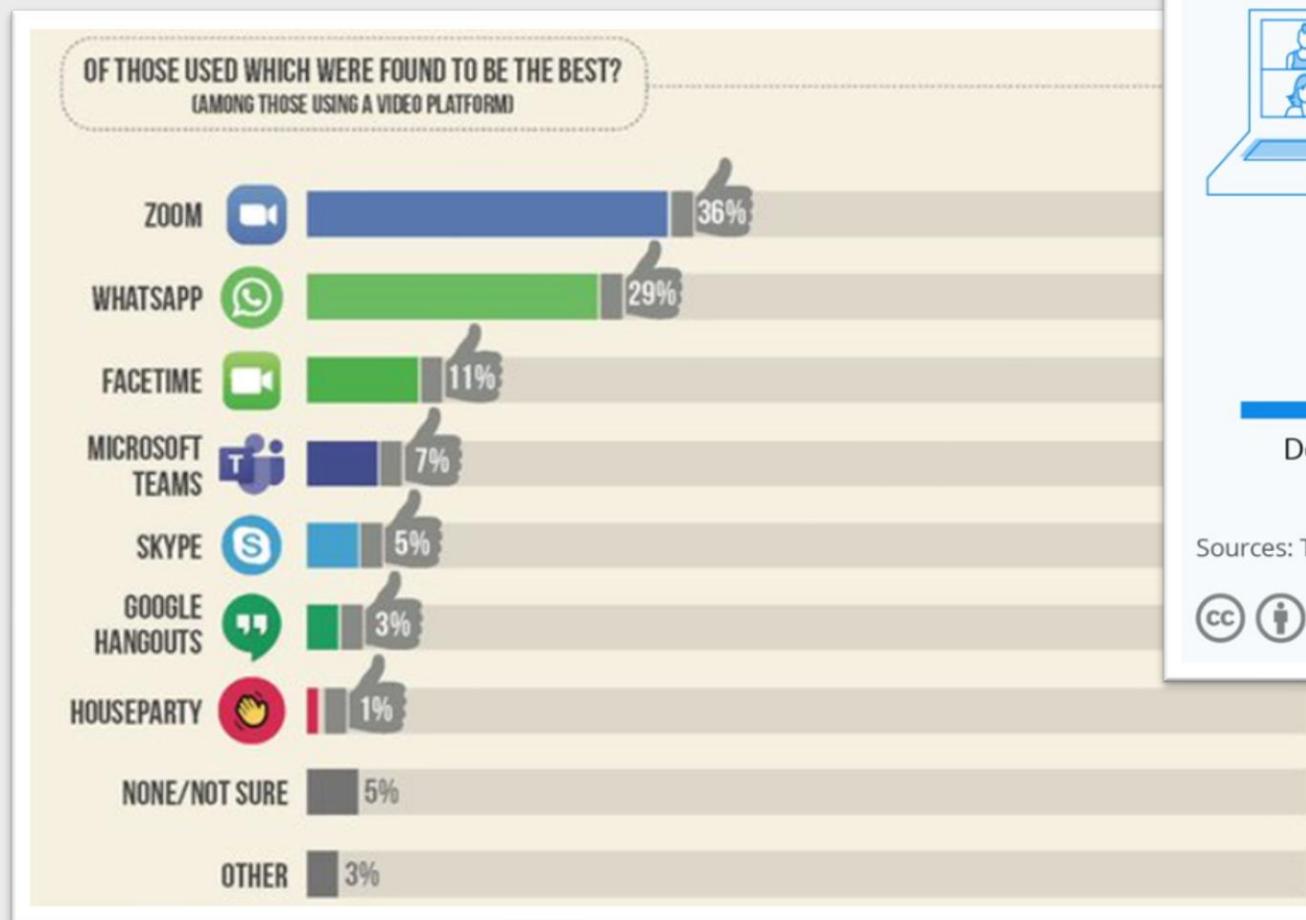
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Motivation of Choosing the Topic

01

01 Motivation

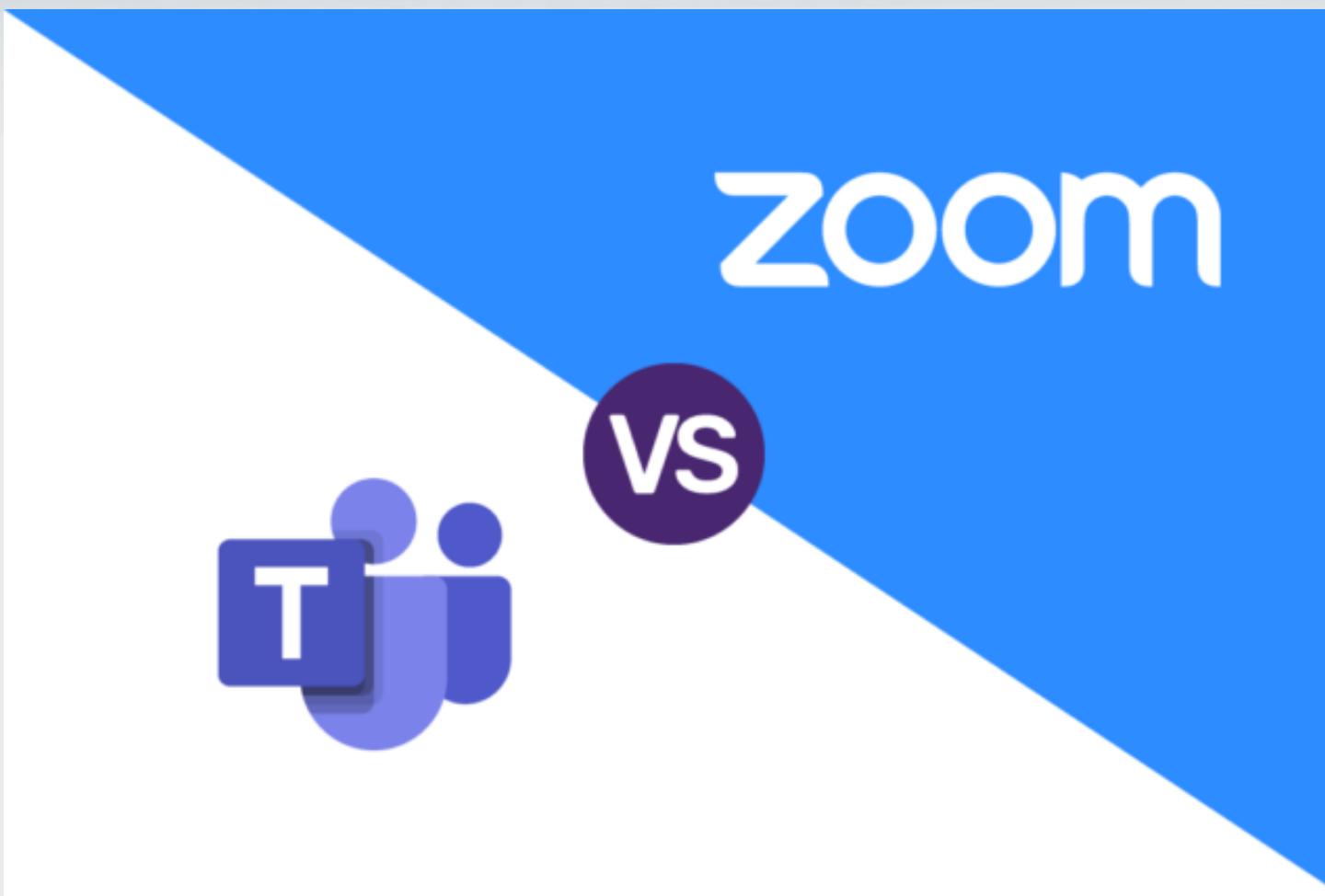
300 mil.
of daily zoom users
in April, 2020



36% of those used
“Zoom” was found to be best

Brief Analysis

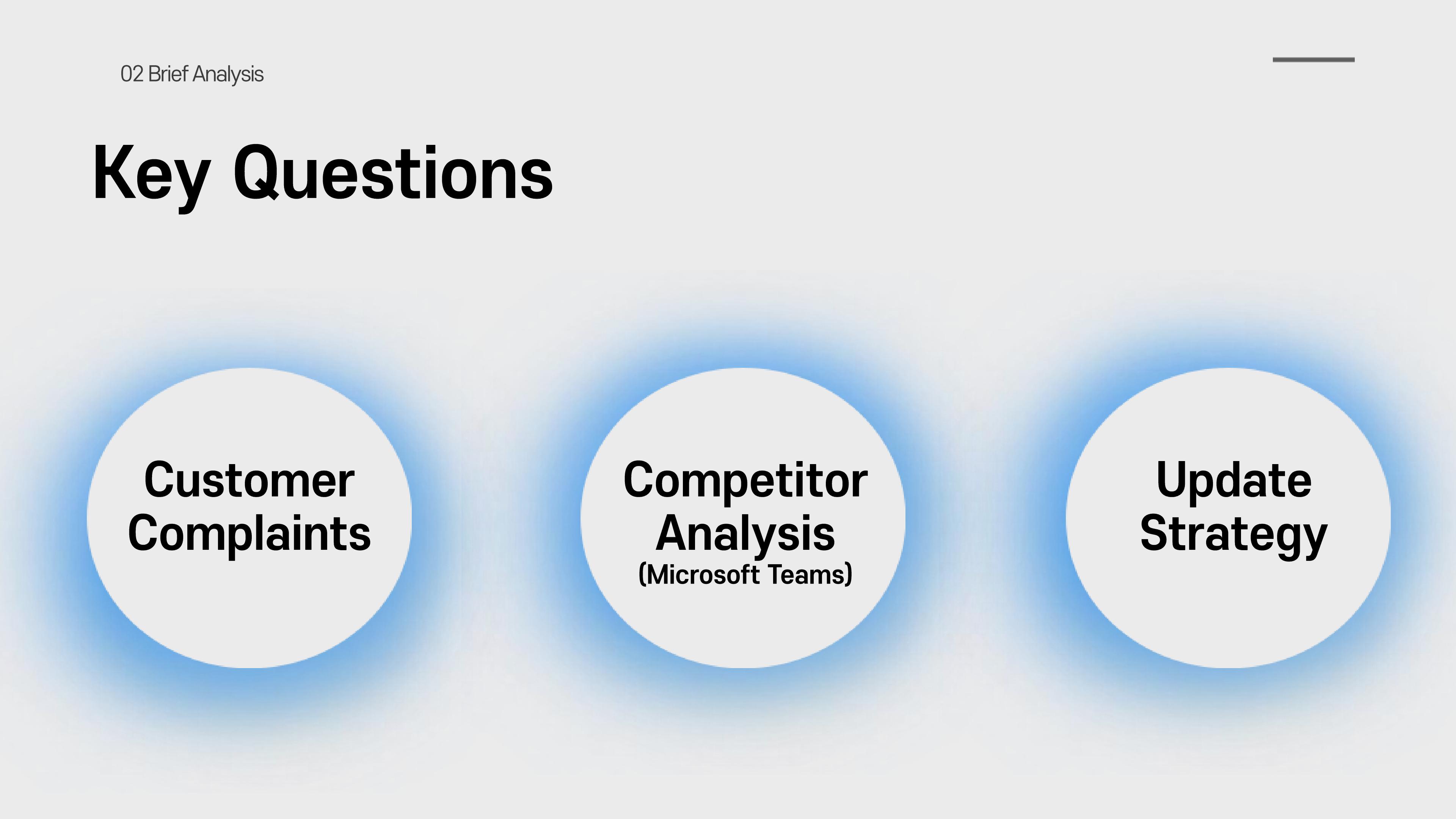
02



# of Installs	5B +	1B +
Content rating	3 +	3 +
# of reviews	2.4M	0.3M
Review Rating	3.9	4.1

Google Playstore(U.S.A)

Key Questions



Customer
Complaints

Competitor
Analysis
(Microsoft Teams)

Update
Strategy

Data Source

03

03 Data Source



Google Play

ZOOM Cloud Meetings

zoom.us Business

2,466,317 total reviews

You don't have any devices

Add to Wishlist

Install

One app for meetings, phone, and chat

Stay connected wherever you go – start or join a secure meeting with flawless video and audio, instant screen sharing, and cross-platform instant messaging - for free!

Zoom is #1 in customer satisfaction and the best unified communication experience on mobile.

It's super easy! Install the free Zoom app, click on "New Meeting" and invite up to 100 people to join.

READ MORE

REVIEWS

3.9

2,466,317 total

Femida Abdullah

This app keeps spinning and only allows me to join a class only if I restart my phone.

READ ALL REVIEWS

WHAT'S NEW

- Meeting/webinar features
- Virtual Background enhancements
- Mobile support for Blurred background
- Enhanced data privacy notices for live streaming
- Meeting features
- Enhanced data privacy notices for archived meetings

READ MORE

ADDITIONAL INFORMATION

Updated	Size	Installs
May 25, 2021	124M	500,000,000+
Current Version	Requires Android	Content Rating
5.6.6.2076	5.0 and up	Rated for 3+
		Learn more
Interactive Elements	Permissions	Report
Users Interact	View details	Flag as inappropriate
Offered By	Developer	
zoom.us	Visit website	
	info@zoom.us	
	Privacy Policy	

Data Analysis

- Data Crawling
- Sentiment
- Text Preprocessing
- Clustering
- Result

04

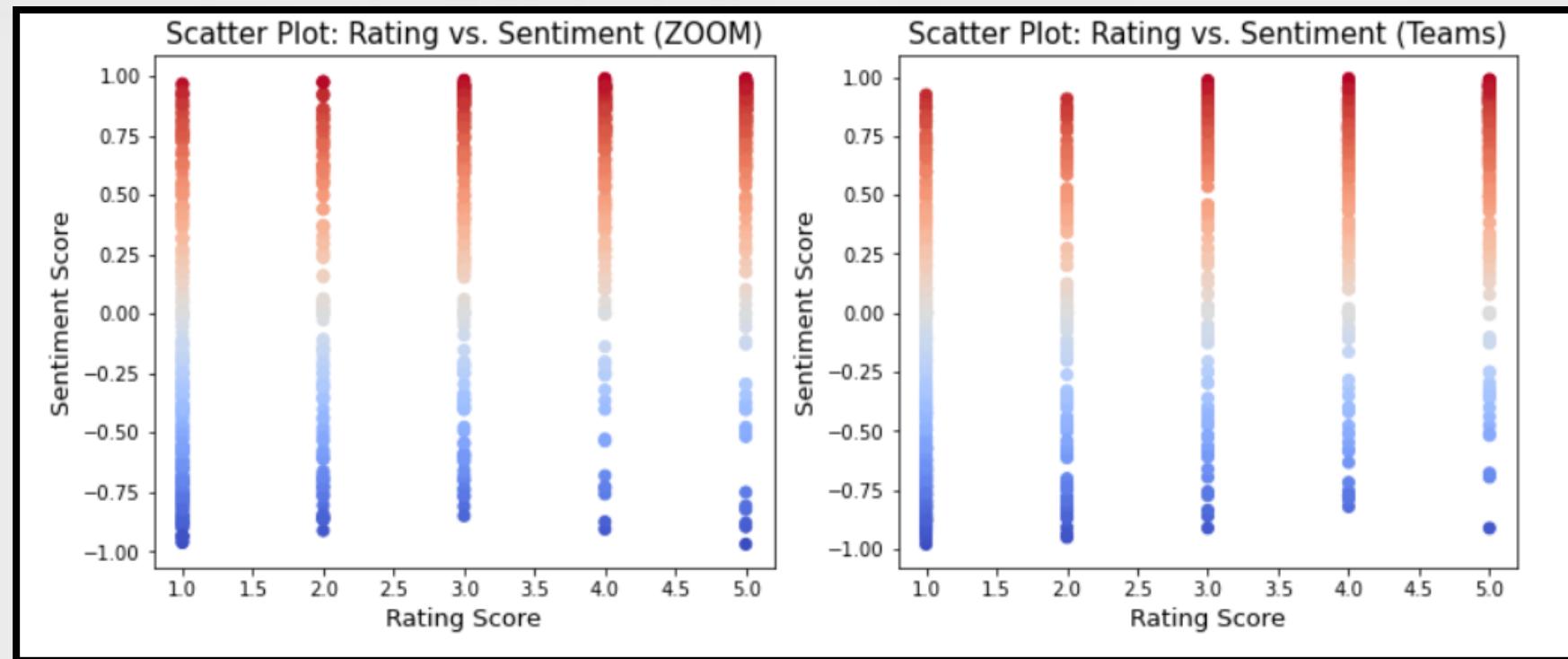
Setup

- 01 Chrome Selenium Setup**
- 02 Crawl basic app infos from Google Play Store**
- 03 Enter User Review page**
- 04 Load Target # of user reviews scrolling down(1,000)**
- 05 Click on all 'Full Review' Buttons**



Crawl all review data / Setup DataFrames_(Zooms&Teams)

Sentiment Analysis



Full Review

M

Mehuli Rudra
★★★★★ June 1, 2021

thumb up141

⋮

Recently I experienced a technical problem that I have never before. My meeting password kept getting rejected... I tried various methods to get over this glitch. Uninstalled the

Not suitable for separating positive & negative reviews!

Text Preprocessing

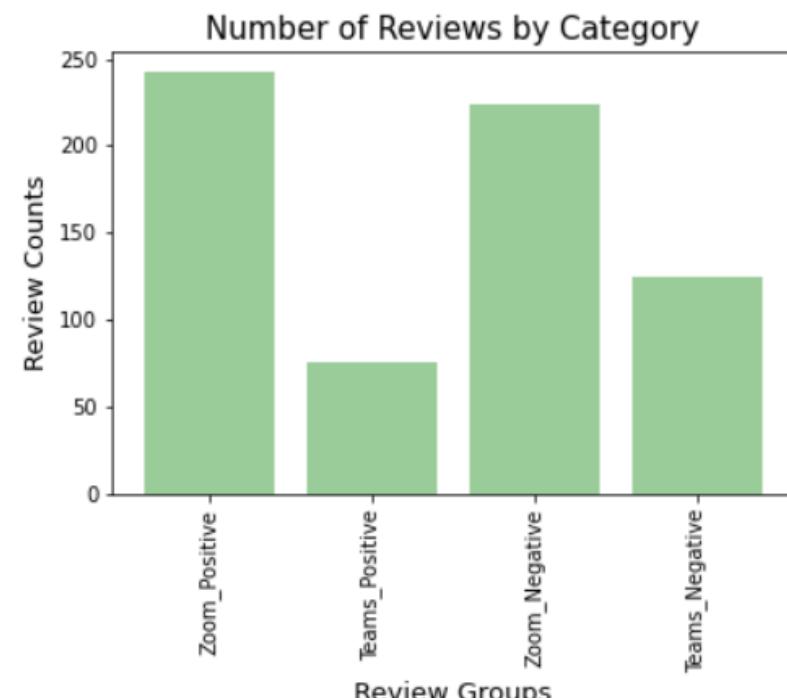
Lower case, Remove Stopwords, Lemmatisation, TF-IDF Vectorization

- 'Ratings below or above 3' -> 'negative or positive review groups'.
- Only use reviews with 'UpVotes >= 5' to sort out less significant ones.

```
In [52]: df_zoom_pos = df_zoom.loc[(df_zoom['UpVote']>=5) & (df_zoom['Rating']>3)]
df_teams_pos = df_teams.loc[(df_teams['UpVote']>=5) & (df_teams['Rating']>3)]
df_zoom_neg = df_zoom.loc[(df_zoom['UpVote']>=5) & (df_zoom['Rating']<3)]
df_teams_neg = df_teams.loc[(df_teams['UpVote']>=5) & (df_teams['Rating']<3)]
```

```
In [55]: comment_category = ["Zoom_Positive", "Teams_Positive", "Zoom_Negative", "Teams_Negative"]
comment_groupCnt = [len(df_zoom_pos), len(df_teams_pos), len(df_zoom_neg), len(df_teams_neg)]
```

```
In [56]: plt.bar(comment_category, comment_groupCnt)
plt.title("Number of Reviews by Category", fontsize=14)
plt.xlabel('Review Groups', fontsize=12)
plt.xticks(comment_category, fontsize=12)
plt.ylabel('Review Counts', fontsize=14)
plt.show()
```



- For pre-processing, we'll use 'TF-IDF Vectorizer' & 'Lemmatisation'. Since we are mainly using clustering for analysis.

```
In [188]: tfidf1_zoom = TfidfVectorizer(lowercase=True, stop_words=zoom_new_stopwords).build_analyzer()
tfidf1_teams = TfidfVectorizer(lowercase=True, stop_words=teams_new_stopwords).build_analyzer()
lem = WordNetLemmatizer()
```

```
df_zoom_pos = df_zoom.loc[(df_zoom['UpVote']>=5) & (df_zoom['Rating']>3)]
df_teams_pos = df_teams.loc[(df_teams['UpVote']>=5) & (df_teams['Rating']>3)]
df_zoom_neg = df_zoom.loc[(df_zoom['UpVote']>=5) & (df_zoom['Rating']<3)]
df_teams_neg = df_teams.loc[(df_teams['UpVote']>=5) & (df_teams['Rating']<3)]
```

```
def lemmatizer_teams(x):
    return (lem.lemmatize(w, get_pos(w)) for w in tfidf1_teams(x))
```

```
In [191]: tfidf2_zoom = TfidfVectorizer(analyzer=lemmatizer_zoom)
tfidf2_teams = TfidfVectorizer(analyzer=lemmatizer_teams)
```

```
In [192]: tfidf_comments_zoom_pos = tfidf2_zoom.fit_transform(df_zoom_pos["Comment"])
tfidf_terms_zoom_pos = tfidf2_zoom.get_feature_names()
tfidf_comments_teams_pos = tfidf2_teams.fit_transform(df_teams_pos["Comment"])
tfidf_terms_teams_pos = tfidf2_teams.get_feature_names()

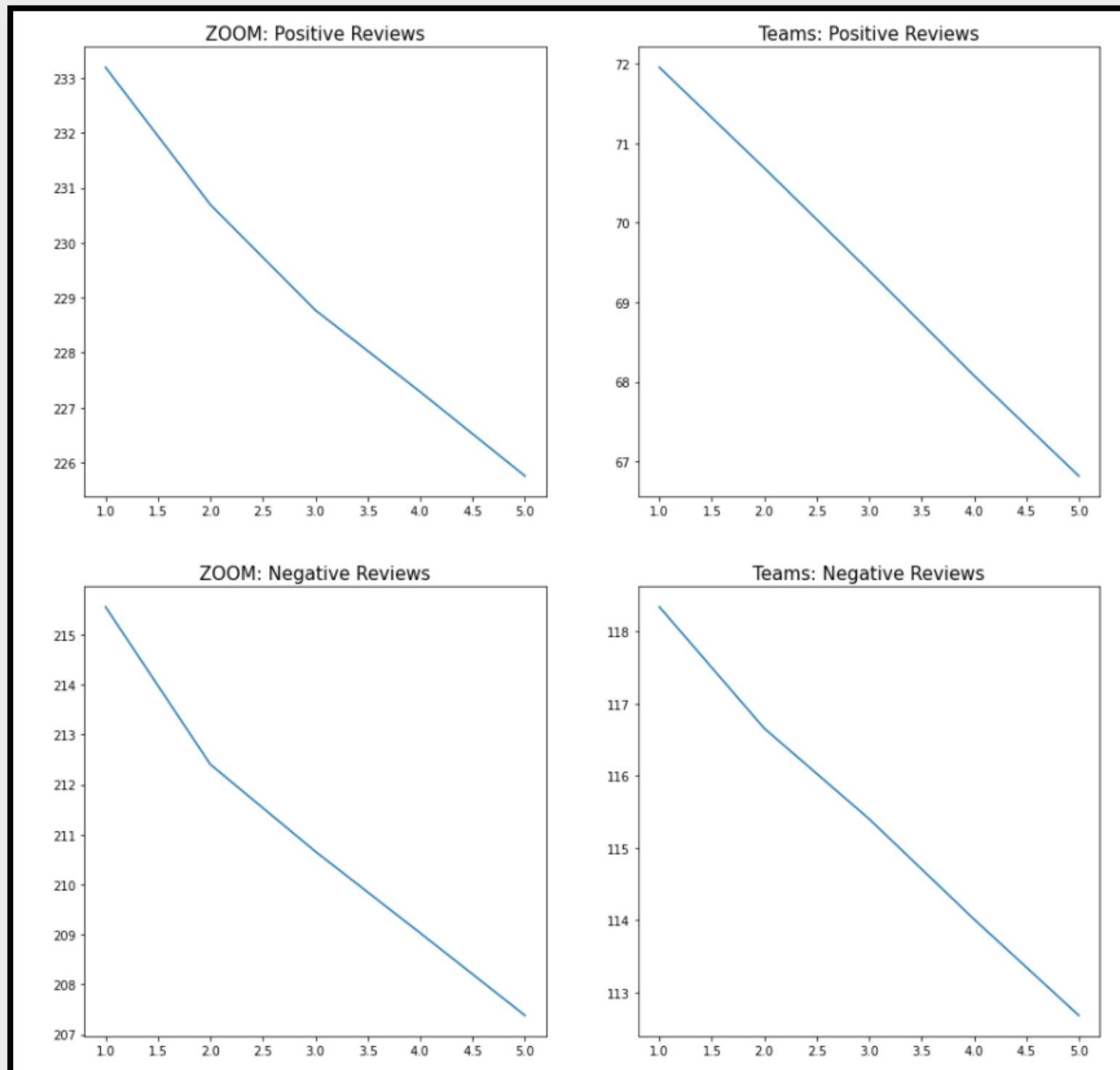
tfidf_comments_zoom_neg = tfidf2_zoom.fit_transform(df_zoom_neg["Comment"])
tfidf_terms_zoom_neg = tfidf2_zoom.get_feature_names()
tfidf_comments_teams_neg = tfidf2_teams.fit_transform(df_teams_neg["Comment"])
tfidf_terms_teams_neg = tfidf2_teams.get_feature_names()
```

```
In [193]: comment_vector_zoom_pos = pd.DataFrame(tfidf_comments_zoom_pos.toarray(), columns=tfidf_terms_zoom_pos)
comment_vector_zoom_pos.index = df_zoom_pos["Comment"]
comment_vector_teams_pos = pd.DataFrame(tfidf_comments_teams_pos.toarray(), columns=tfidf_terms_teams_pos)
comment_vector_teams_pos.index = df_teams_pos["Comment"]

comment_vector_zoom_neg = pd.DataFrame(tfidf_comments_zoom_neg.toarray(), columns=tfidf_terms_zoom_neg)
comment_vector_zoom_neg.index = df_zoom_neg["Comment"]
comment_vector_teams_neg = pd.DataFrame(tfidf_comments_teams_neg.toarray(), columns=tfidf_terms_teams_neg)
comment_vector_teams_neg.index = df_teams_neg["Comment"]
```

Clustering

Elbow Method



K Means Clustering

```
In [196]: clusterCnt = 3
km_zoom_pos = KMeans(n_clusters=clusterCnt, random_state=0)
km_zoom_pos.fit(tfidf_comments_zoom_pos)

km_teams_pos = KMeans(n_clusters=clusterCnt, random_state=0)
km_teams_pos.fit(tfidf_comments_teams_pos)

km_zoom_neg = KMeans(n_clusters=clusterCnt, random_state=0)
km_zoom_neg.fit(tfidf_comments_zoom_neg)

km_teams_neg = KMeans(n_clusters=clusterCnt, random_state=0)
km_teams_neg.fit(tfidf_comments_teams_neg)

Out[196]: KMeans(n_clusters=3, random_state=0)

In [197]: clusters = km_zoom_pos.labels_.tolist()
df_zoom_pos["Cluster"] = clusters

clusters = km_teams_pos.labels_.tolist()
df_teams_pos["Cluster"] = clusters

clusters = km_zoom_neg.labels_.tolist()
df_zoom_neg["Cluster"] = clusters

clusters = km_teams_neg.labels_.tolist()
df_teams_neg["Cluster"] = clusters
```

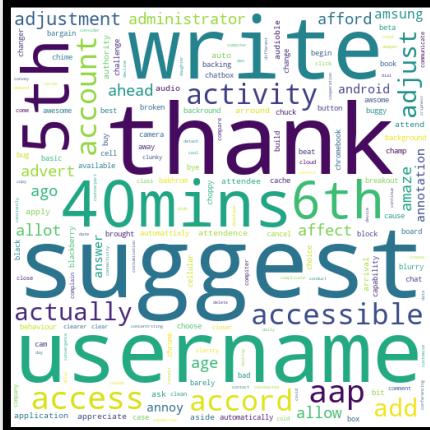
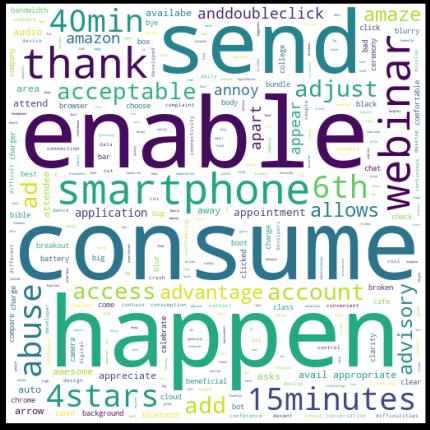
Common / Relevant words

Zoom Positive

- 01** Simple to use. Consistant Connection.
Easy Interface. Great for meetings.

- 02** Helpful for online classrooms, for both Teacher and students.

- ## 03 Poor virtual background on Android devices.



Teams Positive

- # 01 Useful when working with large groups.

- 02** Great sync btw desktop & mobile.
Compatibility with office 365.

- # 03 Authentication issue at login. Unstable quality controls.



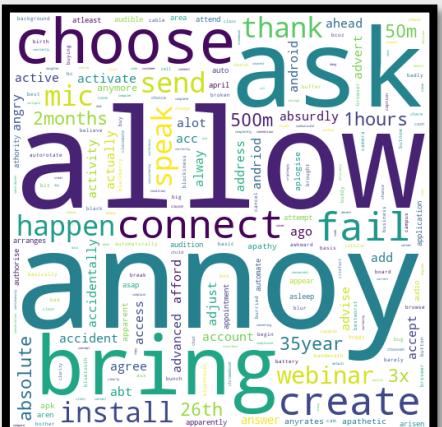
Common / Relevant words

Zoom Negative

- ## 01 Video & Audio lags. Lack of speaker Screen grid view on mobile.

- # 02 Unstable network Connection.

- 03** Lack of virtual background support on Many Android devices.

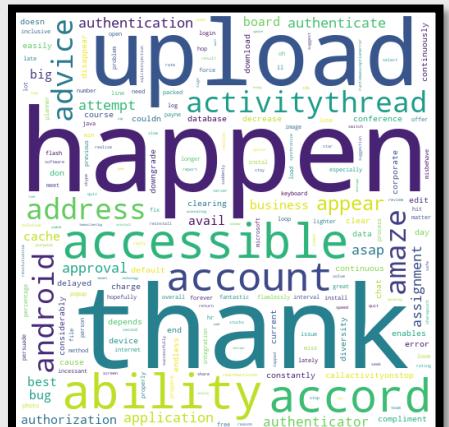
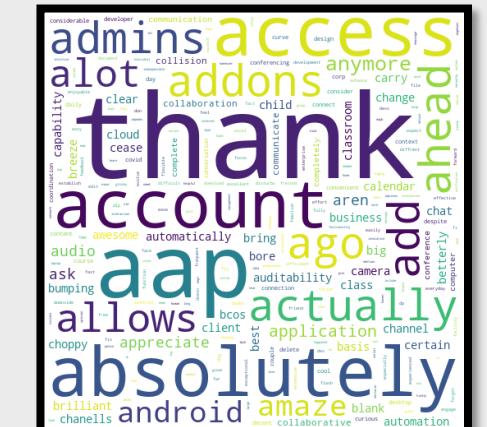


Teams Negative

- # 01 Error loop on the account authentication.

- ## 02 Not in sync with desktop version

- 03** Long load times.
Files sharing system can be glitchy



Customer Insights

- Customer complaints
- Competitor comparison
- Update strategy

05

Customer Complaints

Among negative reviews of Zoom(ratings below 3), we found 3 clusters. Each of the clusters give us insights of customer dissatisfaction.

```
In [209]: for i in range(0, clusterCnt):
    print(topWords_zoom_neg[i])
df_zoom_neg[df_zoom_neg["Cluster"] == 2].sort_values('UpVote', ascending=False).head(10)

['share', 'join', 'video', 'screen', 'try', 'link', 'account', 'audio', 'use', 'don']
['problem', 'connect', 'network', 'show', 'bad', 'fix', 'class', 'phone', 'time', 'solve']
['background', 'update', 'virtual', 'version', 'work', 'issue', 'user', 'android', 'stop', 'use']
```



Video & Audio lags / Lack of speaker screen grid view on mobile

Unstable network connection

Lack of virtual background support on many Android devices

Competitor Comparison

Competitive
Advantages

What are the competitive advantages and disadvantages of Zoom over Microsoft Teams?

Easier to use

- 01** Can join meeting with only links, no sign-in required
- 02** Faster load times

Zoom positive Cluster 1: Simple to use. Consistent connection. Easy interface. Great for meetings.
Teams negative cluster 3: Long load times. File sharing system can be glitchy.

More stable service

- 01** No major technical issues such as Teams' ' Authentication error loop'

Zoom positive Cluster 1: Simple to use. Consistent connection. Easy interface. Great for meetings.
•Teams negative cluster 1: Error loop on the account authentication page.

Competitor Comparison

What are the competitive advantages and disadvantages of Zoom over Microsoft Teams?

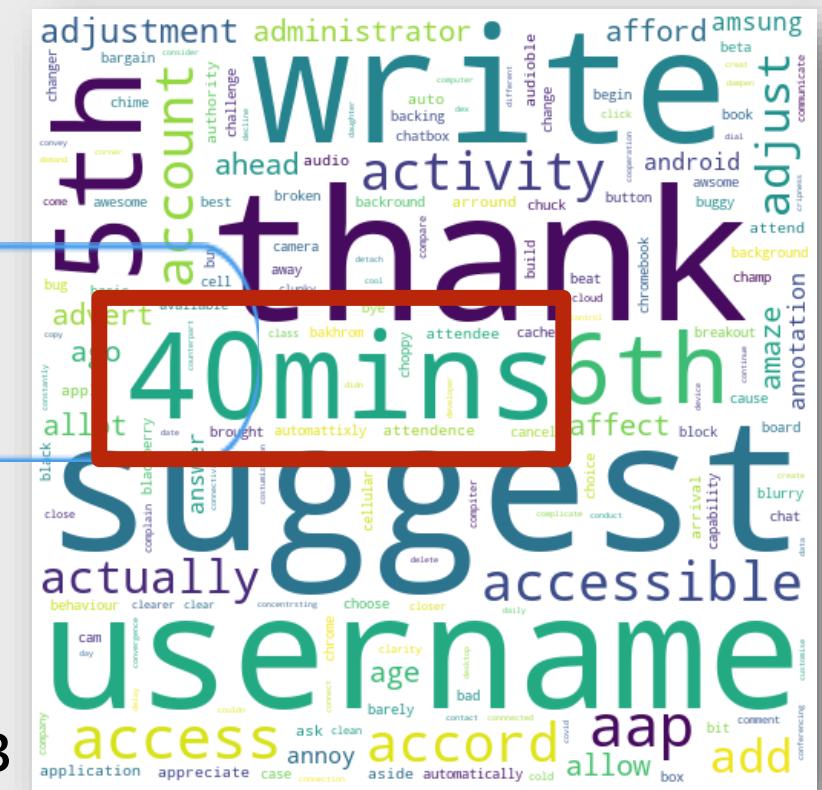
Compatibility with productive applications

- ## 01 Teams features strong compatibility with Office365 apps

Teams positive cluster 2: Compatibility with office 365 applications.

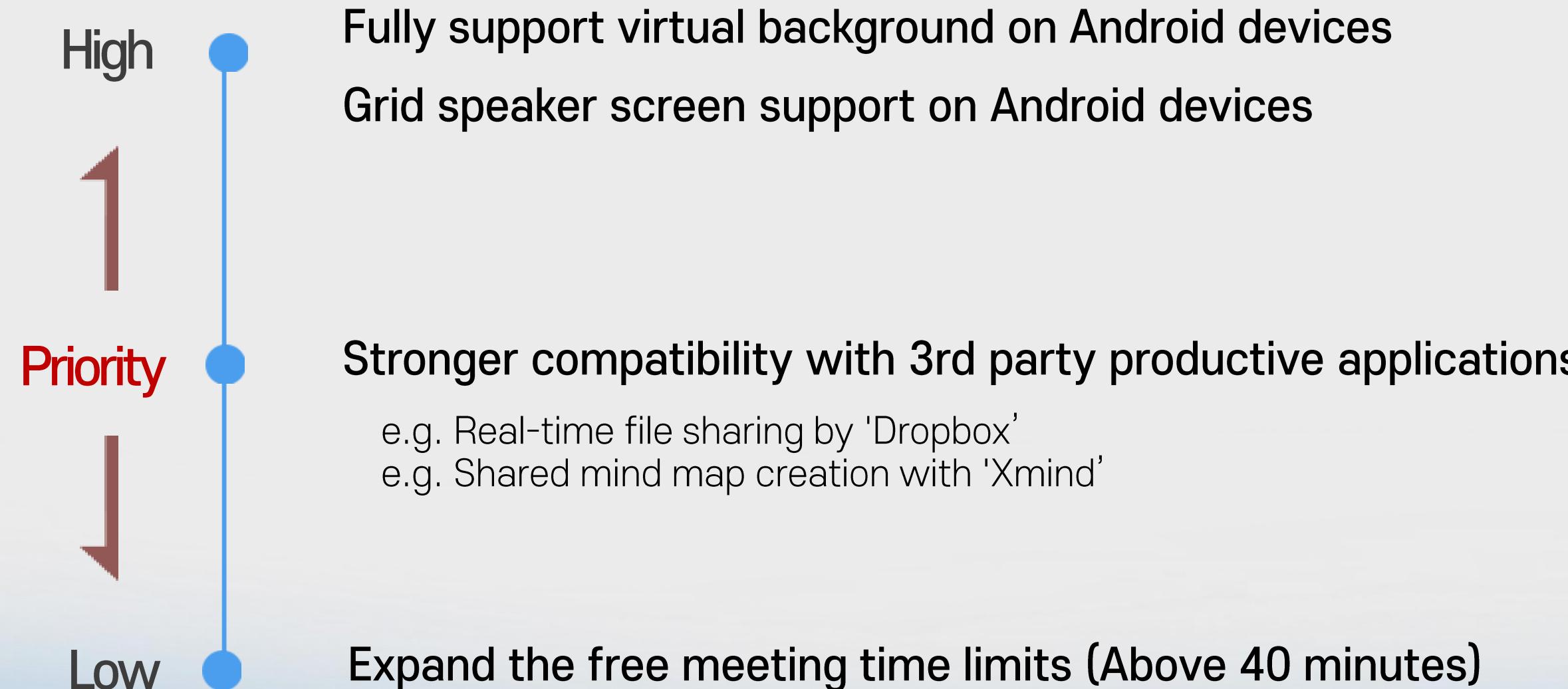
Meeting time limit

- 01** Teams offers free meetings with no time limit
ZOOM only offers 40 minutes.



Update Strategy

What are the features that users are asking for the most?



Limitations

How has user reviews updated overtime?

Current method is not suitable for time analysis ...



New method

'Dynamic Time warping'
should be implemented

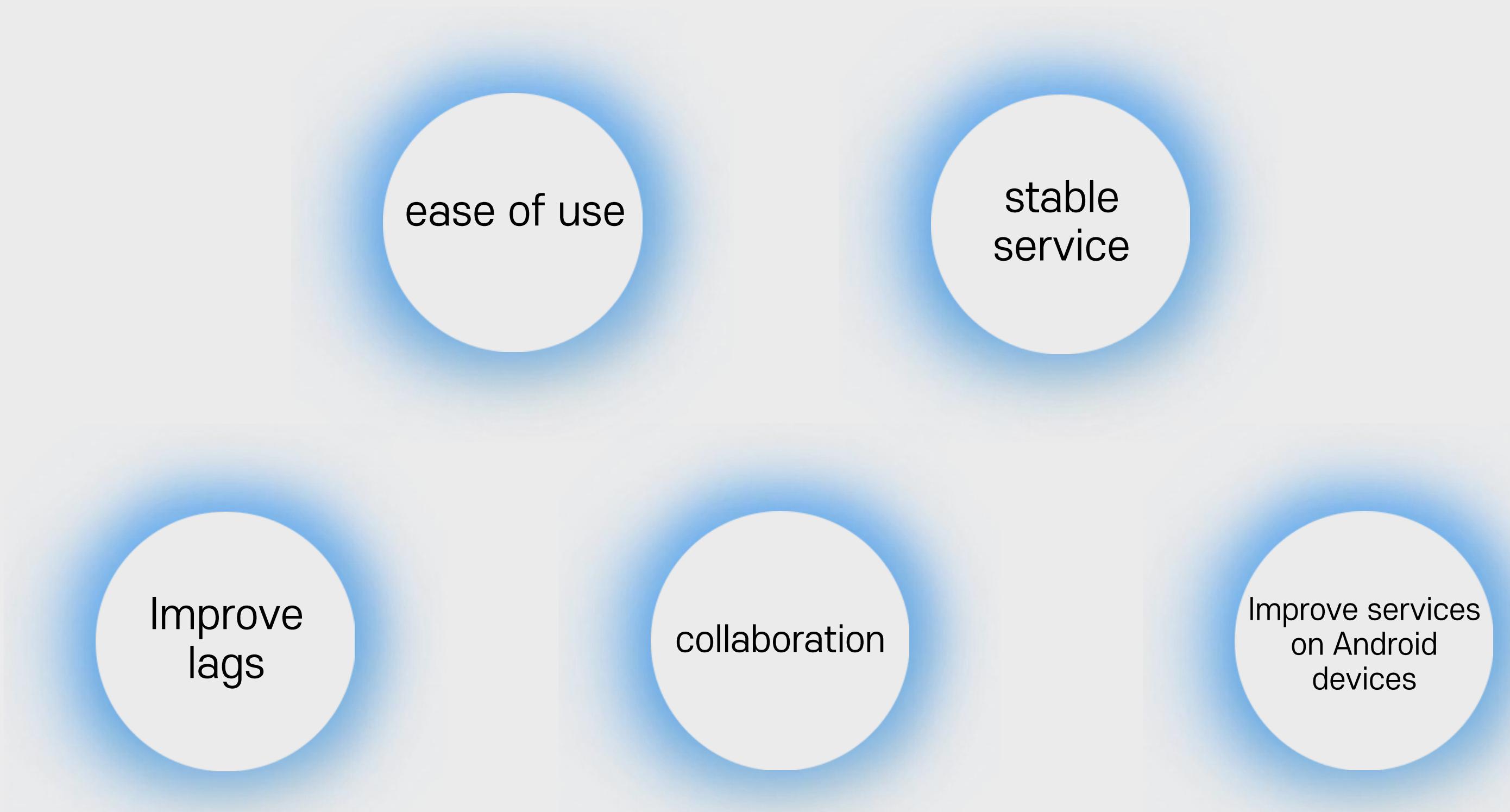


Larger data set

Time-series analysis requires much
larger data set, which takes
significantly longer time for crawling

Conclusion & Summary

06



Thank you

Group 9
