

Produced in Native

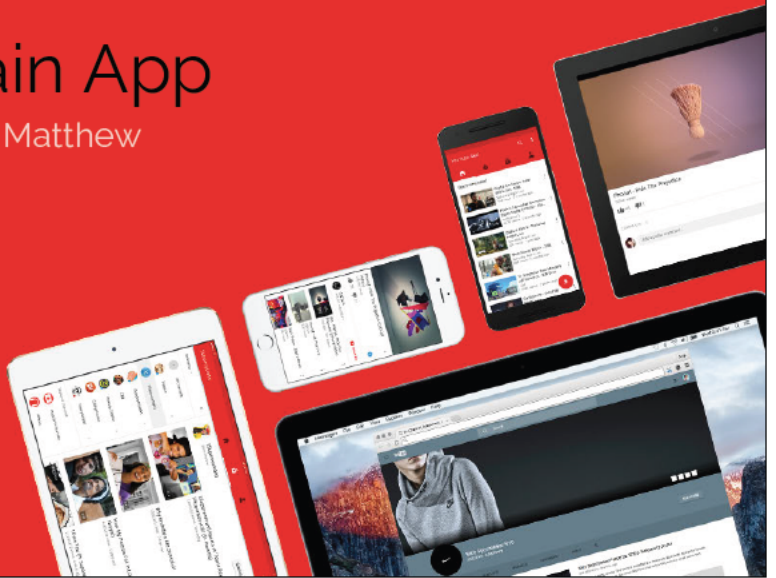




YouTube Main App

Deep dive with Neal and Matthew

February 4, 2016



Agenda

Team

Our users

2015 Summary

2016 Priorities

Team

Our users

2015 Summary

2016 Priorities



Meet the Main App team

Eng



Attila

Eng leads



John
iOS



Waldemar
Android



Matt S.
Web

Eng team (54 FTEs)

41 current + 13 TBH

/ 5 allocated to Growth*

/ 5 allocated to S&D

/ 6 allocated to YTR/YTO

PM



Brian



Andrea
Desktop



Matt D.
Android



David S.
mWeb



TBH
iOS



TBH
Product
Excellence

UX



Taeho

Taeho leads a team of:

9 on board & 1 TBH

/ 0.5 allocated to Growth*

/ 1 allocated to S&D

/ 1 prototyper

/ 1 on paternity leave



Laura
UER Lead



Moses
Quant Lead

3 UERs

/ 1 to S&D

* Note: Growth Eng & UX map to Growth PM team

We are responsible for the core YouTube experience for all viewers...

App excellence leadership and innovation

- / Information architecture (e.g. structure, navigation, menus, gestures...)
- / Overall UX & UI cohesiveness, consistency & polish
- / Speed/latency
- / Reliability
- / Addressing user feedback
- / Defining and polishing user journeys

Platform upgrades

- / Core platform scalability, capability upgrades, release process

Delighting core users with emerging technologies

- / New form factors (e.g. iPad Pro)
- / New features (e.g. 4K video, picture-in-picture)
- / New platforms (e.g. watches)

...plus supporting company OKRs via front-end leadership throughout the app

Search	Browse	Watch	Engage
Search w/ S+D	Home w/ S+D Account/Library Channels	Watch w/ S+D Playlists	Growth w/ S+D
	Trending Tab w/ S+D Subs Tab w/ Comm	Ads w/ Ads Live w/ Live VR w/ VR	Reactr w/ Comm Comments w/ Comm Uploads w/ Comm
Horizontal across all 4 areas			
	Offline Background Play YTO Shows Promotions UI	w/ Subscriptions & EM w/ Subscriptions w/ Subscriptions w/ Subscriptions	

Bold: Main App's area of focus (we own client code base)

Green: Partnerships with other teams

We must partner with everyone, but will focus 70%+ on core partners

Core Partners

Main App PM, UX, Eng. work on joint projects with these teams. Team plans to spend ~70% of its time on these areas

- / S&D - Watch Next, Search, Home
- / DAV Growth
- / YouTube Red/Originals

Middle Ground

These teams are in need of core partnership from Main App, but we are not staffed to support them in 2016

- / Live
- / Emerging Markets (e.g., Toothfairy, Pause & Buffer)
- / Unicorn (any work beyond MVP)

Light Touch Partners

These teams have relatively "independent" PM & Eng teams. A Main App PM will coordinate with each area to ensure cohesiveness & excellence. Main App Eng. will provide code reviews

- / Community - Uploads, Reactr, Subs Tab, Comments
- / S&D - Trending
- / Ads
- / Living Room
- / VR
- / Creator
- / Other Google & Alphabet teams (e.g., Access, ATAP)

Measuring success - app excellence metrics

Owned by Main App

App store ratings	/ Critical "vanity metrics", plus valuable sources of user feedback / iOS and Android ratings have unique limitations/opportunities
Issue frequency	/ # gFeedback complaints/DAV grouped by issue / We can measure reduction in frequency for each issue we target
HaTS (Happiness Tracking Surveys)	/ Measures overall satisfaction with YouTube by platform, country / We're planning improvements, e.g., different questions/targeting
% bad sessions	/ Based on 5 metrics: app crashes, UI freezes, app startup time, feed latency, playback startup latency / Developing baselines in Q1
% amazing sessions	

Measuring success - growth

Overall YouTube metrics

Watchtime
Daily Active Viewers



Key supporting metrics (shared with partners)

Home engaged watchers Daily Home visitors that watch at least 5 minutes that day

Daily Active Subscribers People who view their Subscriptions daily

Query abandonment rate % of search queries where user does not click a result

Red metrics
Acquisition: # of new users
Retention: % CC trial to paying member, % monthly churn

Vision

We aspire to create an app that is.....

Best in class	Viewers should prefer to watch videos in our app even if they're available elsewhere, and they should consider our recommendations superior to those they find elsewhere
Robust	Our app should set and constantly raise the standard for reliability and snappiness throughout the entire experience
Innovative	We should introduce delightful new features big and small before other apps do. We value rapid-fire experimentation and taking risks by trying new things we're not sure about
Cohesive	All user journeys should be intuitive and effortless, and the level of quality is always consistent throughout the app
Addictive	Our app experience should compel users to come back more and more often
Polished	Unparalleled UI is all about details, and no detail is too small to get right. We are proud perfectionists, and we hold other teams to the same standard

To be refined through XFN team offsites - Product Excellence; Product Playbook

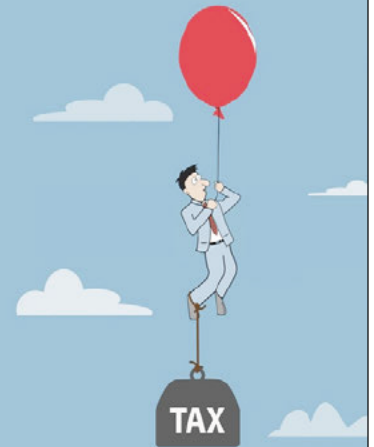
Complexities

Unique Main App "taxes"

- / "Top down" Google projects (e.g., Unicorn, ATAP Spotlight Stories)
- / Managing investment in "middle ground" partners is difficult (e.g., EM - Pause & Buffer)
- / Code review & training "tax", e.g., each main app POC reviews an extra ~300 cls per year
- / Ensuring excellence/quality across the app (including "light touch" areas)

Google is underinvested in iOS infrastructure and recruiting

Trading off goals (DAV vs. WT vs. excellence)



Team

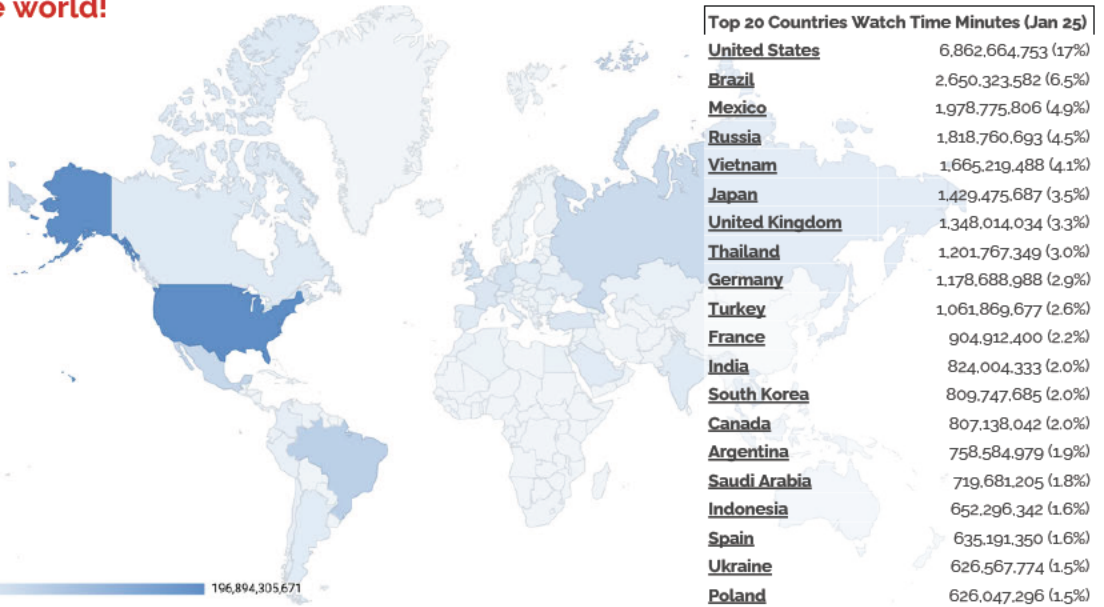
Our users

2015 Summary

2016 Priorities



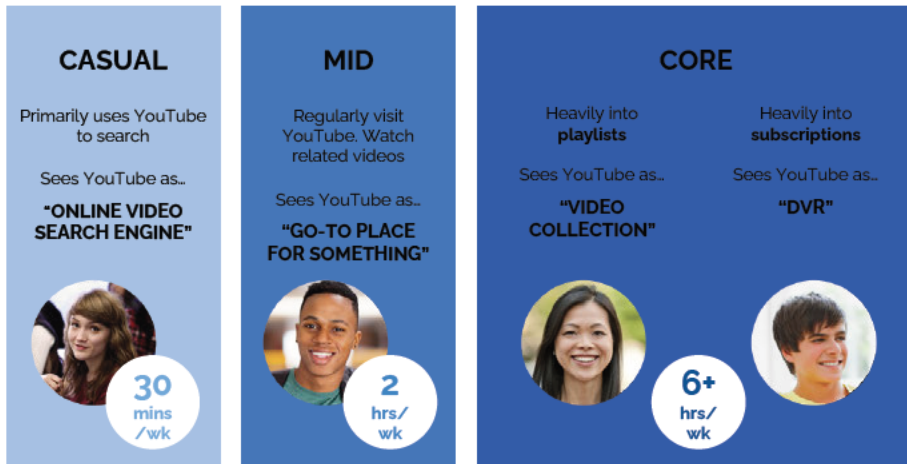
Main App users are....almost a billion DAVs around the entire world!



Content from: <https://video-analytics-demo.corp.google.com/#dt=c,fe=16825,fr=lw-001,fs=16825,fcr=0,r=views,rpa=a,rpbm=93-7-310,rpd=117,rpg=93,rpm=l,rpp=0,rpr=d,rps=93,rpsd=1>

How do we think about such a broad user base?

This is a broad qualitative view; we have no overarching quantitative segmentation



What are the reasons our users visit the Main App?

People generally come to YouTube for one of these 6 use cases...

1. Find and play a video

- / Find something you want to watch
- / Find and watch a specific video

2. Keep in the know

- / Browse the most popular videos on YouTube right now

3. Learn more

- / Watch a how to video for a new skill you want to learn

4. Watch in the background

- / Find and play a playlist or mix in the background
- / Collect and replay that same set, without using search

5. Connect with what's new

- / Watch new content from your favorite YT creator

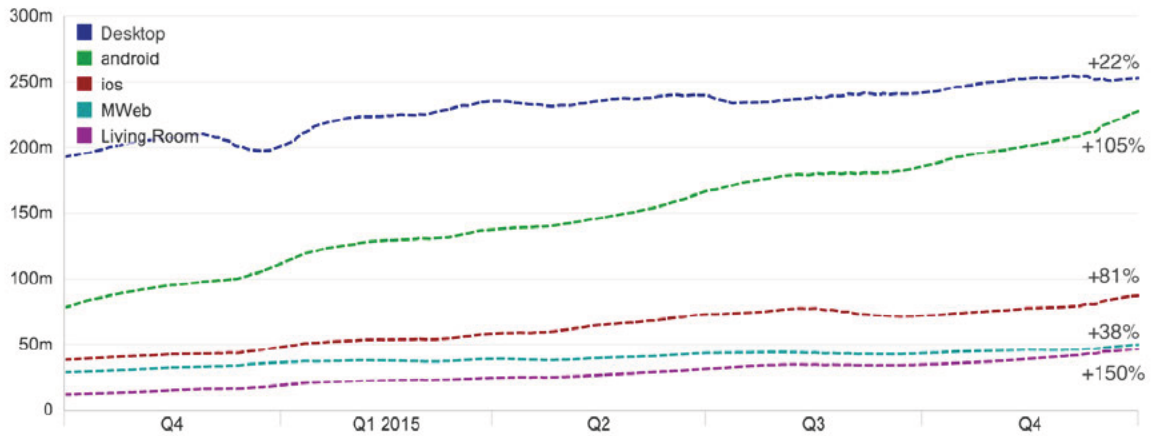
6. Receiving a video

- / Watch a video that has been sent to you by a friend

Which platforms to they watch on and how is that changing?

Mobile apps and living room are growing fastest, but desktop and mWeb are still going

WatchTime (28-day average)



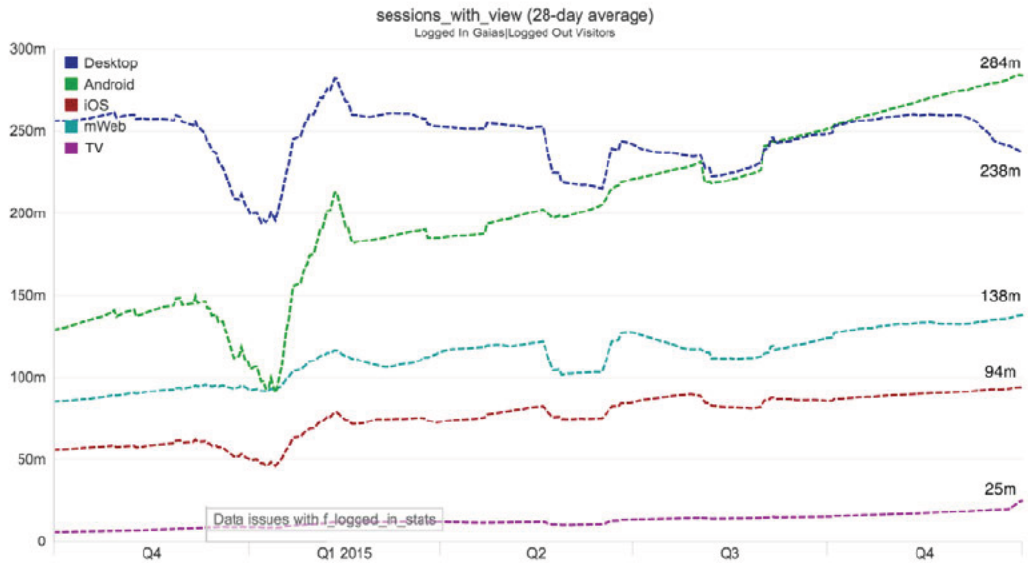
Android: 82% mobile, 18% tablet*

iOS: 59% mobile, 41% tablet*

* Note: Based on Dec. 1-7, 2015

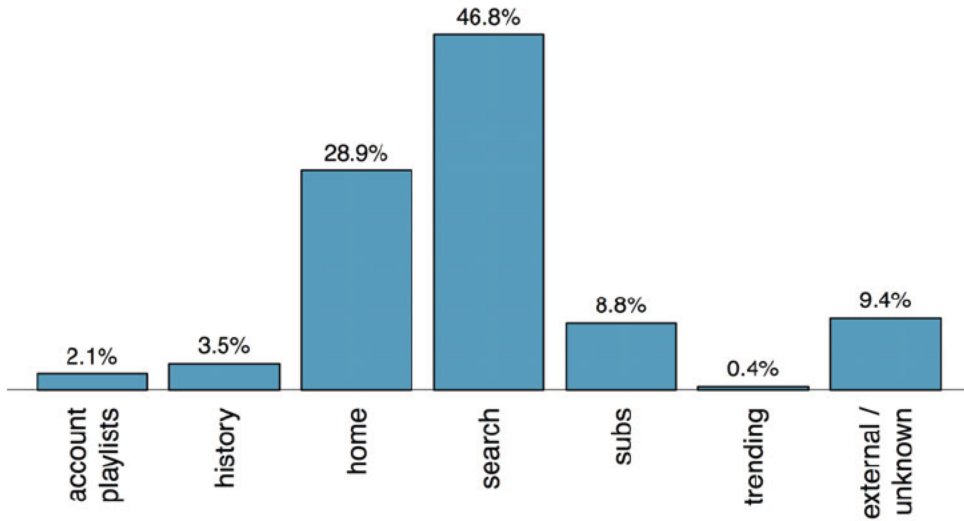
How many people visit us every day and how is that changing?

Android DAV has ~doubled in last year, with desktop DAVs ~flat



Which areas of the app do users visit before they start watching?

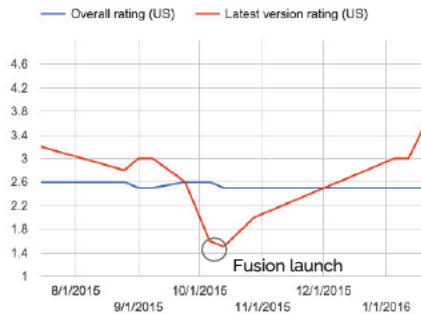
More watchtime is driven by Home- and Search- than all other areas of the app combined (for mobile apps)



Note: Android only data from 6/15; iOS distribution is similar

User feedback - App Store ratings are a critical vanity metric...

YT iOS App Rating (US only; manually tracked)



Current version rating* (Default view): **3.5 stars US**

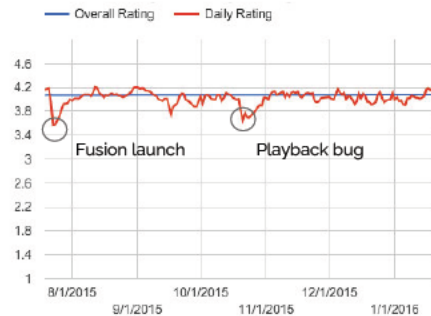
Overall rating: **2.5 stars**

Total ratings (All time; US): 209K reviews

Variance in ratings across top 10 countries: **2 stars**

Outlier counties: Russia (1.5), Germany (2), Italy (2)

YT Android App Rating (Global)



Overall version rating (Default view): **4.1 stars**

Current version rating*: **4.1 stars**

Total ratings (All time): 8.2M reviews

Variance in ratings across top 10 countries: **1.4 stars**

Outlier countries: Korea (3 stars)

Note: iOS App Store data logged manually from iTunes (US) and is missing data points from Nov-Dec."

Android data taken from the Internal Developer Console.

***Current version as of 1/20** (iOS v.10.50; Android v.10.50)

****About the iOS rating trends:** There's currently no automated process to look at iOS app rating over time. Data points included in the graph above were [tracked manually](#). Beginning in Q1, we are manually tracking app rating for the latest version, overall rating, and # of ratings on a weekly basis (US only), with additional explorations into automated/scalable solutions.

Android Fusion: Android's app rating also dropped on Fusion Nav launch day (4.07 stars -> 3.93 stars). [See report](#)

...and valuable source of user feedback

YT iOS App - Review themes (Approximate for Dec/ Jan)

Synthesis of non-randomized snapshots, US only (n=479) from 12/25-12/29 & 1/16-1/19

Theme	% share	Sample issues
Playback	20-30%	Video won't start; Playback quality
Positive - General	10-15%	Fluctuates - recent snapshot: 17%
Navigation / UI	10-20%	Access base tabs; Back button requests
Crashes	5-20%	Crash at launch; crash starting videos
Browse errors	5-10%	Connection error, An error occurred
Ads	5-10%	Too many ads, Ad formats (midrolls)
Installation	5-10%	17+ restriction; iTunes install bug
P2-P3 misc. bugs	5-10%	e.g. Textbox not in focus in replies
Negative - General	0-10%	Fluctuates - recent snapshot: 17%
Background	0-5%	FRs and complaints about YT Red cost
iOS 9 features	0-5%	PIP, iPad Pro optimization

YT Android - Review themes (Range: 10/1/15 - 12/31/15)

Global Play Store reviews are imported and triaged via GFeedback (n=155K)

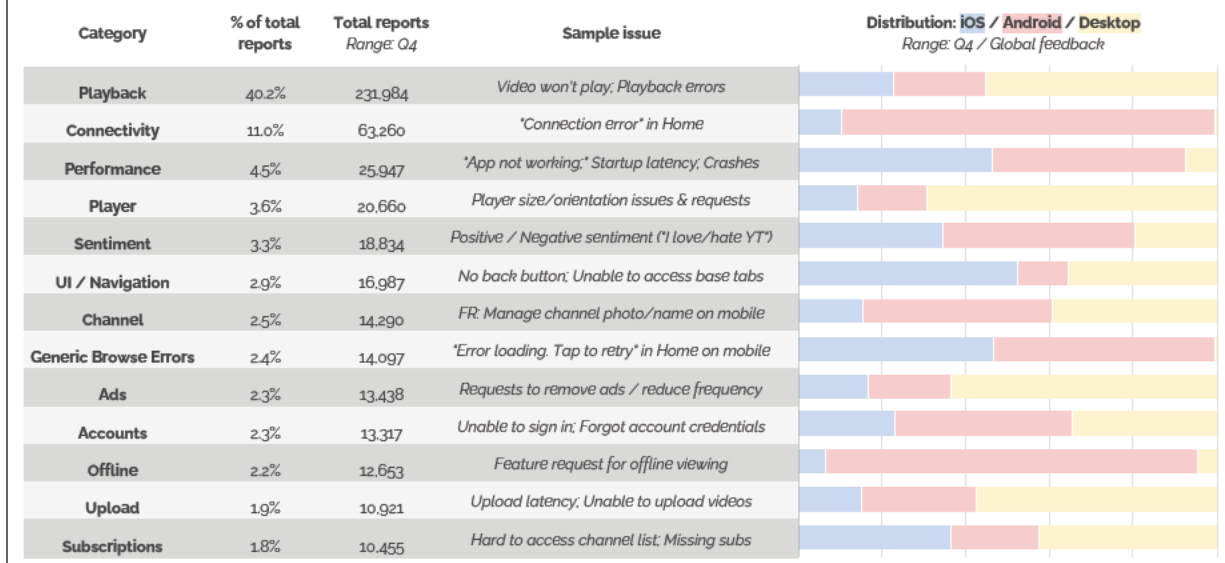
Theme	% share	Sample issues
Playback	38%	Not playing; a/v desync
Positive sentiment	13%	Qualitative statements, eg. I like the app*
Performance/Crash	8%	Latency, crashes
Negative sentiment	5%	Fluctuates - recent snapshot: 10%
Player	5%	Quality options missing
Navigation / IA	3%	Access to base tabs/channel list: bugs
Ads	2%	Complaints about too many ads
Connectivity	2%	Not connected* and other errors
Offline	1%	Feature request to download videos
Comments	0.5%	Unable to see comments
History	0.5%	e.g. Search history missing (bug)

Note: Q1 effort to find ways to systemize iOS review insights

About iOS review data: Synthesizes two manual analyses of reviews (n=400; [Analysis 1](#): 12/25-12/29; Analysis 2: 1/21 - n=479). See [slide](#) for snapshots.

User feedback - gFeedback is our most actionable source

Q4 gFeedback snapshot



User feedback - YouTube HaTS tracks overall satisfaction via in-app surveys...



76.01%↓0.02%

✓ The HaTS 2015 OKR was for 76% of users to rate YouTube 4 or 5 on a 1-5 scale (smiley faces)

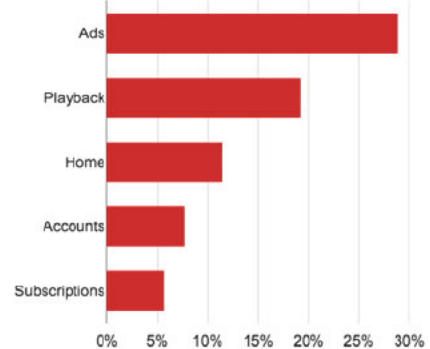
✓ In November 2015, HaTS was 76.01%, a fraction down from October, but still surpassing the OKR

4 Years of Daily Scores



Desktop only until 2015

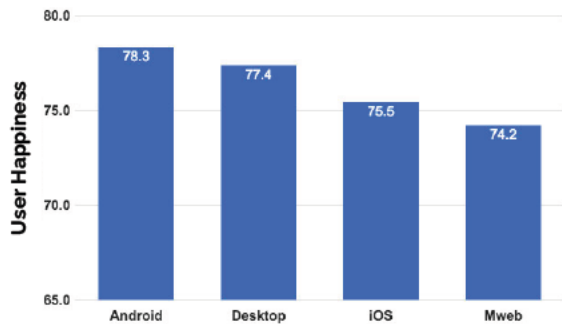
Top User Issues



Desktop only. Mobile expected in 2016

...and HaTS is natively available in every language and client

User Happiness per Platform (last 3 months)



User Happiness Breakdown

	Least happy	Most happy
Country	60% India, Japan	85% Brazil, Venezuela
Age	74% 25-34 year old	76% +35 year old
Account	75% logged out	78% logged in
Weekly Active	75% 0 days active	78% 6-7 days active
Client	72% MWeb	79% Desktop

NOTES:

- User Happiness = top 2 buckets on a 1-5 scale.
- Right graph: World wide data, all platforms (logged in and logged out)

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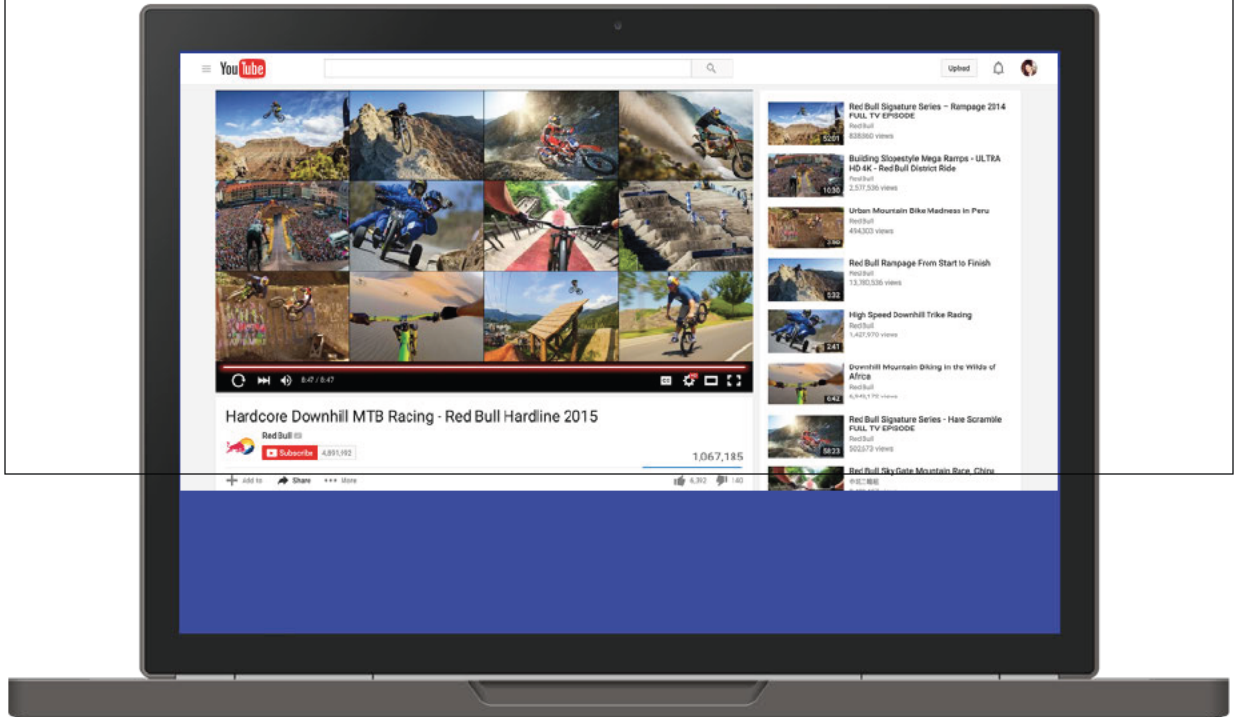
2015 Priorities for Main App

-  Desktop AutoNav
-  Fusion Nav
-  Inline Playback
-  YouTube Red
-  Emerging Markets
-  "Fixing the Sub Box"
-  App Excellence
-  Unicorn

Desktop AutoNav - motivation

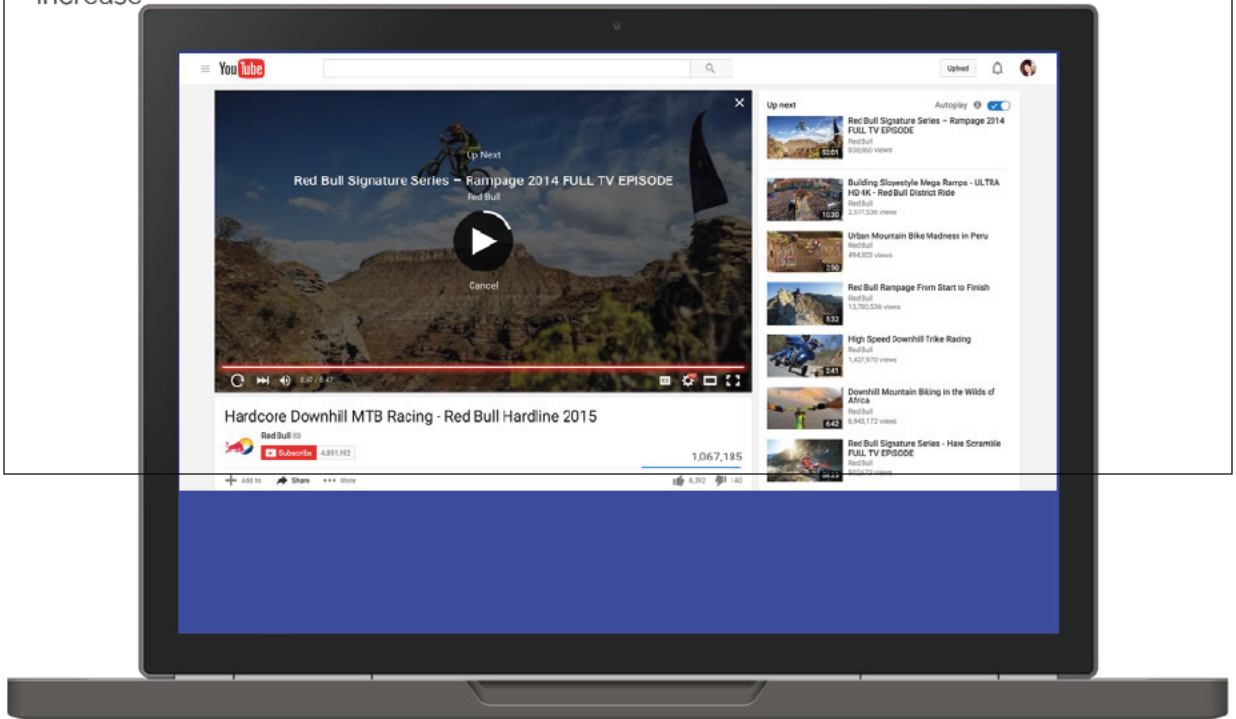
Continuously watch videos without constantly looking for what to watch next - we envisioned a "win-win" for users and YouTube growth

Before: Users had to look for next videos to watch at the end of every video.



Desktop AutoNav - results

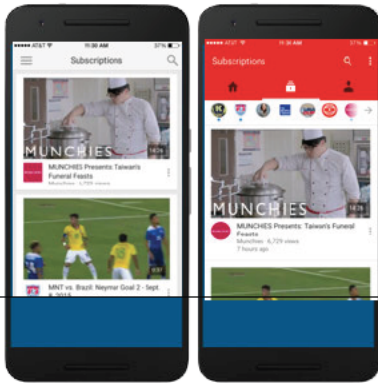
We implemented a system that counts down, then auto-plays the next video determined by S&D "Watch Next" algorithm. This was the single most impactful launch in YouTube history, with +8% desktop watchtime, +4% overall watchtime increase



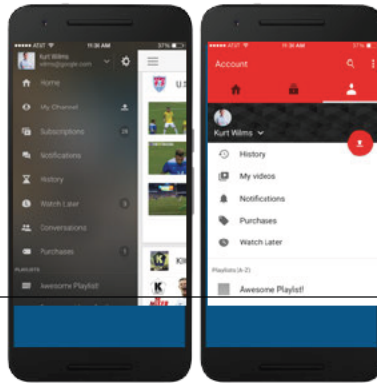
Fusion Nav - motivation

Reorganised the mobile apps with the goal of "providing engaging browse experiences which were dead simple to discover and navigate." Fusion Nav also included: Material Design on iOS, vertical video support, inline account switcher, upload FAB, and Trending as an experiment

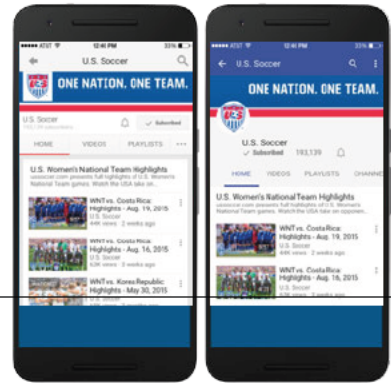
Before and After
My Subscriptions



Before and After
Account



Before and After
Channel



Fusion Nav - results

- 1 / Marquee product announcement in VidCon keynote by Susan
- / Goal was to be **watchtime neutral** as there were strong learning effects associated with the outgoing design. Broadly achieved this as measured by 50-day holdback
- / Achieved **neutral user happiness**, a first for a major redesign on any platform at YouTube
- / A prominent call-to-action **improved sign-in rates by 2%**
- / Upload FAB **increased uploads by 7%** and uploaders by 12%
- / **Subscriptions watch time increased by 2.1%** on tablets (fast-follow Avatar Drawer launch)
- / Retired "Music What to Watch" - a little-used and neglected feature
- / **iOS app rating declined to 1.5 stars** at launch (recovered with fast-follow). Android neutral



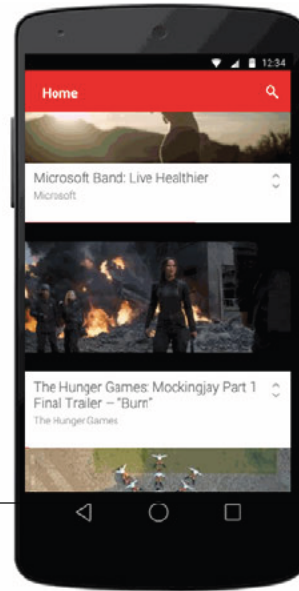
Slide 1

- 1 [REDACTED]@google.com and [REDACTED]@google.com to keep me honest
(I can't find the 50-day holdback results, so first line is from memory)
Matthew Darby; 2/2/2016 2:25:50 AM
- 1 [REDACTED]@google.com [REDACTED]@google.com
Can you please review?
Brian Marquardt; 2/2/2016 1:28:52 AM
- 1 We were trending upward but only got back to -0.5% or so by the time
we ended the holdback.
<https://screenshot.googleplex.com/rBwoMOxTVN2>
Matthew Smith; 2/2/2016 2:25:50 AM

Inline Playback - motivation

"Our objective is to bring the DNA of Instant and Reactr into our flagship app where it will touch billions of people" - Vision statement at inception of project

- / With inline playback, you watch video instead of reading metadata
- / Internal feedback was very positive on the user experience of inline playback. Hypothesis was users will browse, watch and enjoy more video in the in-line experience
- / Sharing videos inside the app (Reactr) with inline playback was a key feature

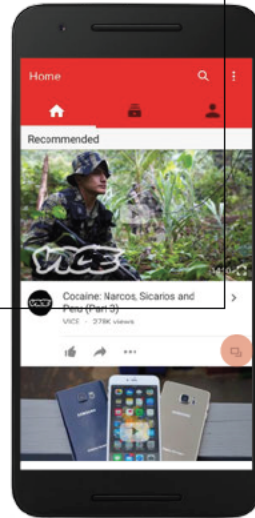


In-line Playback - results

We crafted a new watching experience in the feeds, including experiments with Ads, Placement (which feed), feed ranking, Related Video Insertion ("dropping"), and Autoplay defaults. However, **no launch candidate was identified** as experiments were all WT negative - this change disincentived users to go to the watch page and as a result, consumed less related content



/ **Scrollable fullscreen** to easily browse in fullscreen, and **auto-advance** to make easier to watch when you want to lean back



/ New player with **swipe scrubbing** and tap to play/pause

/ **Miniplayer button** to get into Watch While easily

/ **Metadata changes** to bring important actions out of the overflow

Red Experience - motivation

We set out to launch YouTube Red and achieve 200k paying members by EOY 2015 and 4M paying members by EOY 2016 through three areas:

Promotions/buy flows

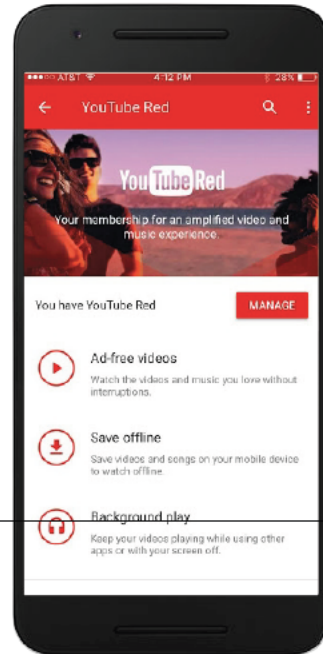
All UI for the in app upsells to Red are built by Main App team

Offline/Background play

Background and offline playback experience and UX

YouTube Originals (YTO)

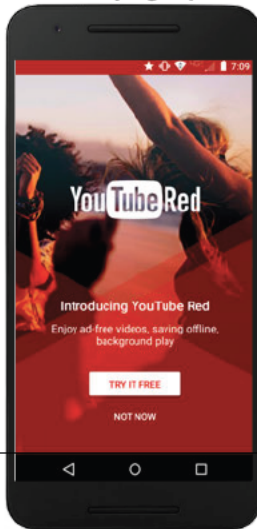
Discovery and consumption improvements to support YTO shows and movies



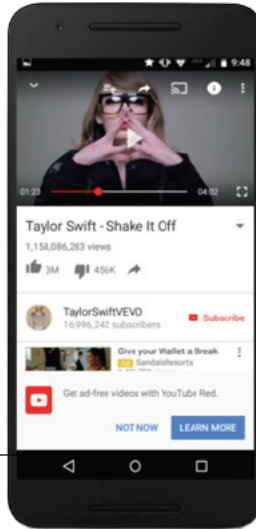
Red Experience - promotions/buy flow

Main app built in-app promo units and managed integration with commerce growth platform (Nirate). In the past month, these placements have driven 78% of Red signups!

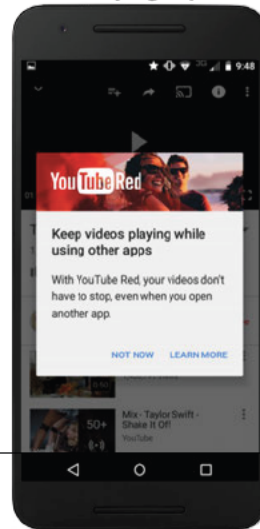
32% of signups



12% of signups



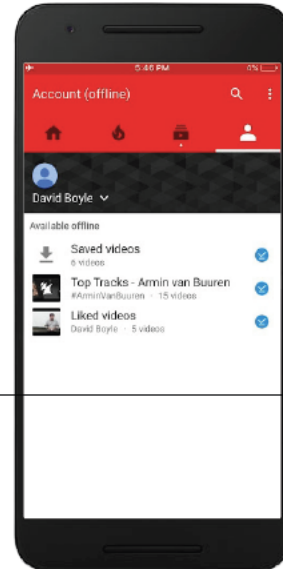
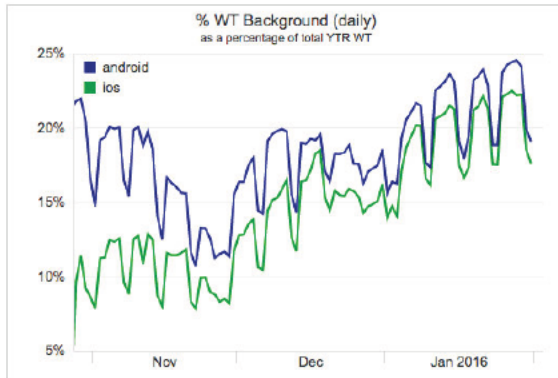
34% of signups



Red Experience - offline/background play

Background and offline play are critical to the Red value proposition. Main app team made key UI/UX, discoverability, and quality of experience improvements

- / Offline play is used by 11% of paying Red Members and 5% of all Red Members (free trialers & paying users) each day
- / Background playback is >20% of Red member watch time



Red Experience - YouTube Originals

Main app is driving discovery, consumption, upsell experiences for Feb 10 YTO launch

Amazing show consumption experience

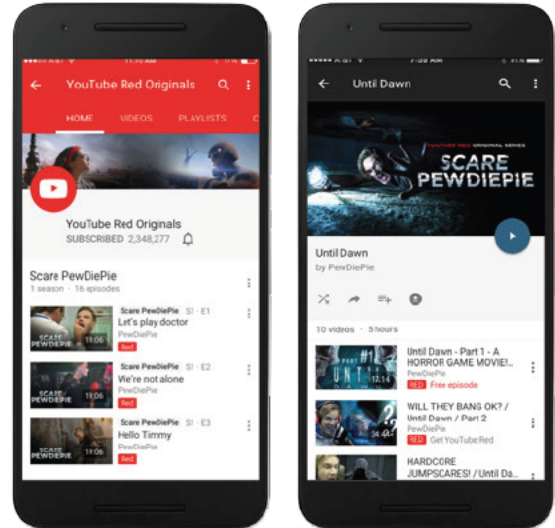
Support for season & episode metadata, beautiful show artwork, etc

Simple upsell flow to Red

Non-members can preview YTO videos and will see a buy button on those watch pages

Badging system for Red original content

Members and non-members alike can easily identify it in the app



Offline Playback in Emerging Markets

Our goal was to accelerate usage in fast-growing but challenging emerging markets by delivering a better experience for users with unreliable connections and expensive data plans. We **launched offline playback to 77 countries**, over 2.9B people/39% of the global population

- / 1.6M hours of offline watchtime daily
- / Growing at 30% QoQ
- / Between 5% and 10% (India) of mobile sessions include offline
- / +1.5% DAVs
- / +5% logged-in usage

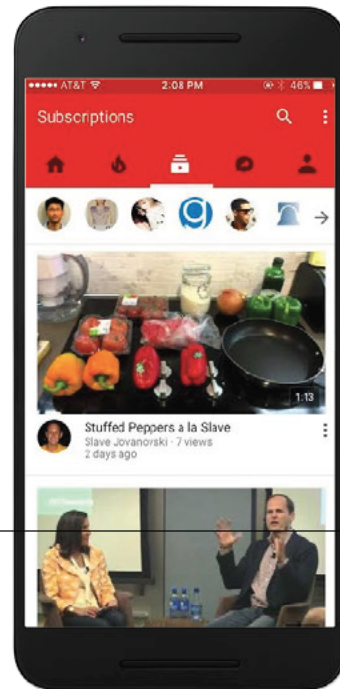


"Fixing the Sub Box" - motivation

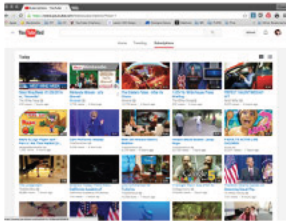
We invested in the subs experience both because it was an opportunity to grow DAV plus make viewers and creators happier

/ **Viewers** see subscriptions as the best way to stay updated on the channels that they love

/ **Creators** view subscriptions as paramount because they offer them a consistent way to publish content to their fans

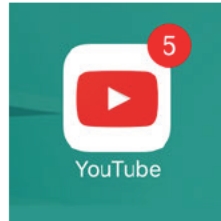


"Fixing the Sub Box" - results



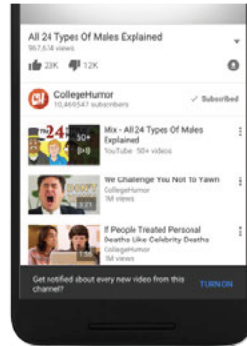
Grid View on Desktop My Subs

/ 2.5% subs WT and strongly positive user feedback



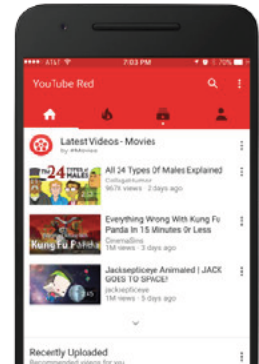
iOS Badge Count

/ Count on the app for new notifications
/ Grew iOS +0.5% DAV and +.4% WT



Post-Subscribe Notification Prompt

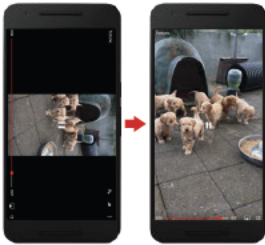
/ Option to get notifications after subscribing
/ +0.5% DAV



New content indicator

/ Dot on subs tab for each new upload
/ +4% subs WT

App Excellence



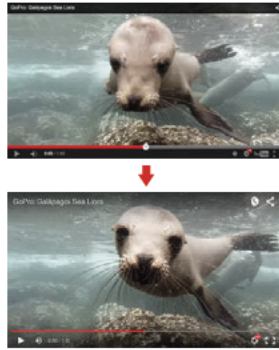
Vertical Video

Pain point

Vertical videos played with letterboxing in fullscreen

User reception

Universally positive social media feedback and press



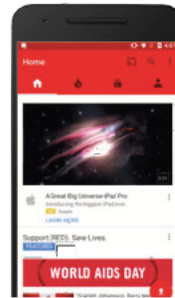
Cougar Player

Pain point

Ugly player on desktop and embeds

User reception

61% positive sentiment user feedback post-launch. Universally positive Twitter feedback and press



Scroll-off AppBar

Pain point

Too much vertical height for appbar with Fusion Nav

User reception

Resolved user feedback about the header size (2.5% of post-Fusion feedback)



Avatar Drawer

Pain point

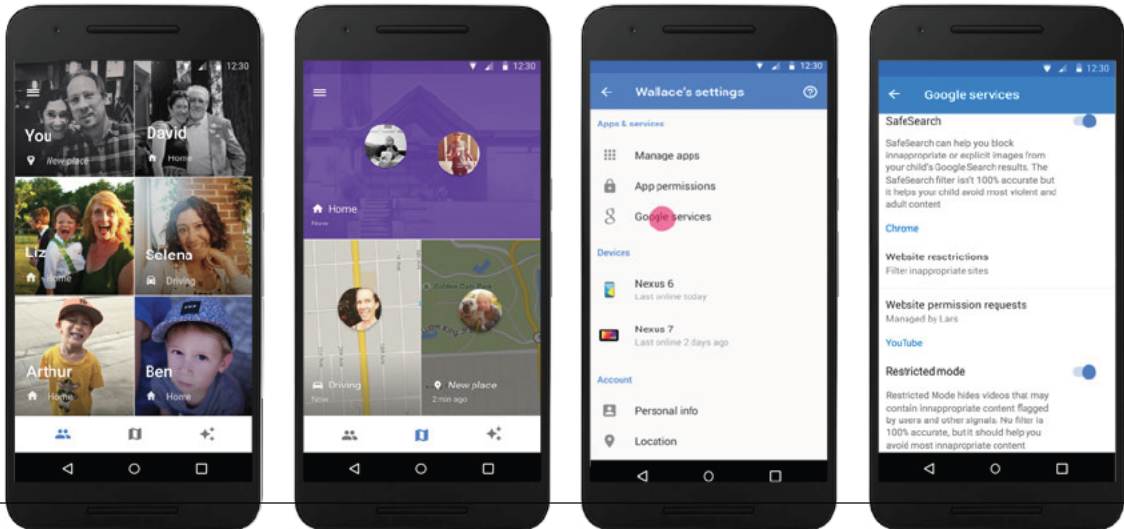
Channel list harder to access without the guide, especially on tablet

User reception

US App Store rating went from 1.5 stars to 3.5 stars post-launch. +2.5% subs watchtime

Unicorn - motivation

We invested in supporting Google kid's accounts on YouTube (targeting ages 9-12) in order to help grow the Android ecosystem, which drives much of YouTube's growth



Background about Family Link:

Family Link helps families stay connected and keeps parents in the loop. Parents and kids can track where each other are. Parents can also supervise their kids device usage -- for example, understanding a child's app usage and setting screen time limits. In addition, parents can use Family Link to create an account for their kids under 13 years old and control the experience their child gets on Google products, such as YouTube, Chrome and Search.

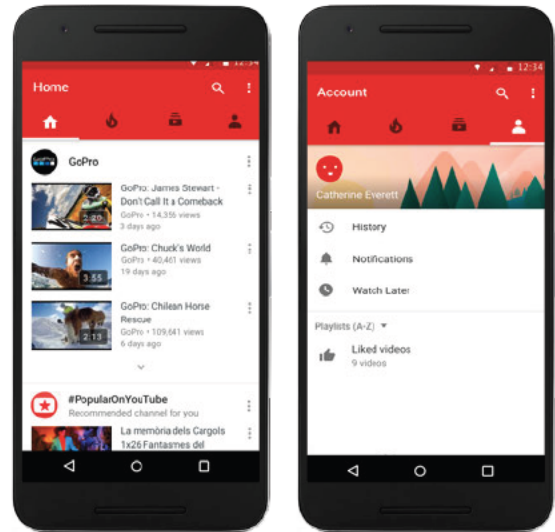
Unicorn - building the YouTube MVP

MVP is focused on the viewing experience for iOS and Android

Main app will complete work in Q1

What we're doing to make YT safer for kids

- / Parents control content filtering
- / Kids won't be able to create a channel or upload videos
- / Kids won't be able to purchase YT Red or movies and shows
- / Ads served to kids will comply by Unicorn ads policy



Team
Our users
2015 Summary
2016 Priorities



2016 Priorities for Main App



Deliver **Unparalleled App Excellence**



Create a **Next Gen *Watch* Experience** that viewers love



Create a **Next Gen *Search* Experience** that viewers love



Create a **Next Gen *Browse* Experience** that viewers love



Attract and retain YouTube Red Members

Unparalleled app excellence

Metrics & Goals

- / 4.0+ rating on Android and iOS (global)
- / KR: TBD reduction in % Main App bad sessions/day (baselining in Q1)
- / KR: TBD increase in % Main App amazing sessions/day (baselining in Q1)

Key Projects

- / Improve measurement (iOS ratings, next gen happiness tracking, user segmentation)
- / New metrics tracking, baselines, goals (start-up, errors, crashes, feed latency)
- / Define top ~10 journeys (update [this list](#)), audit them and fix all Po-2 bugs each Q
- / Drive down frequency of 3 top front-end user issues by 50% each Q
- / One "elephant in the room" UX project ([go/yt-elephant](#)) per Q
- / Fresh and delightful features that take advantage of latest emerging technologies

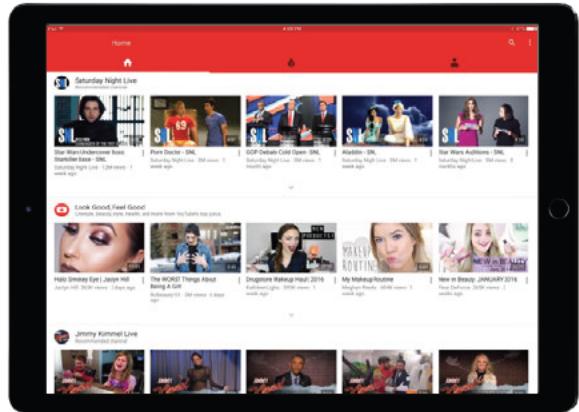
App excellence projects - fresh and delightful features

We're working on iPad Pro native resolution support as well as iOS 9 support, including 3D touch, split-screen multitasking, and PIP

Split-screen multitasking



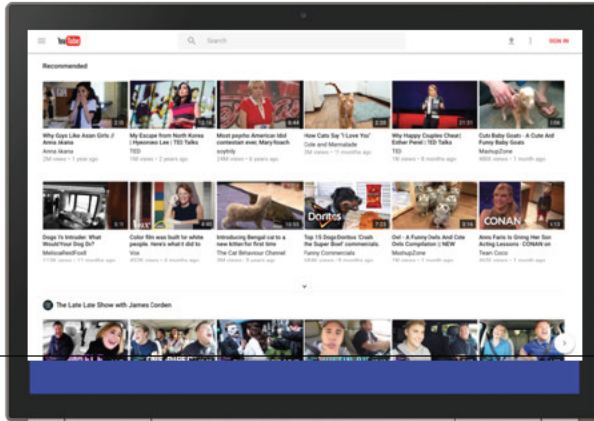
Native resolution support



App excellence projects - fresh and delightful features

We're currently working on a desktop Material redesign and Polymer rewrite ("Kevlar") that will result in a beautiful, modern new site...

New homepage



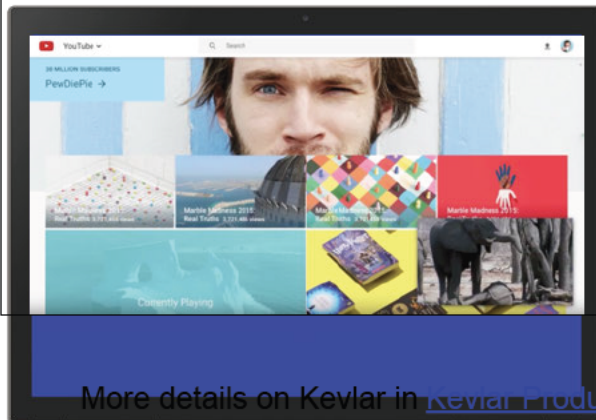
New channel page



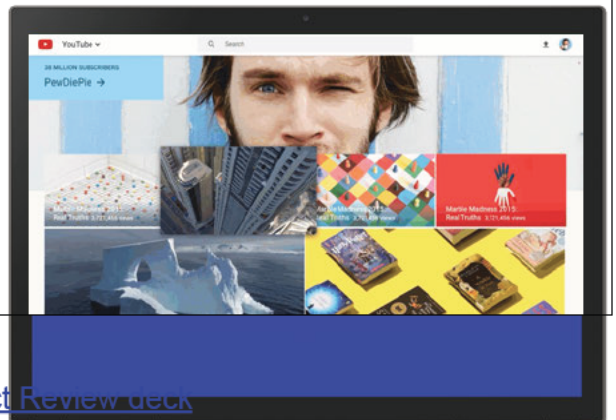
App excellence projects - fresh and delightful features

....that can support compelling features that are difficult to implement in our existing stack

Desktop miniplayer



Skywatch
(Watch as a layer over browse)



More details on Kevlar in [Kevlar Product Review deck](#)

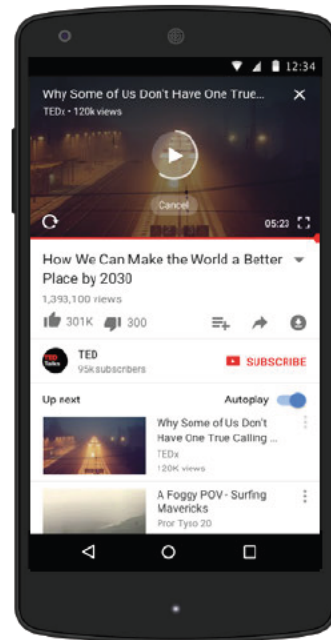
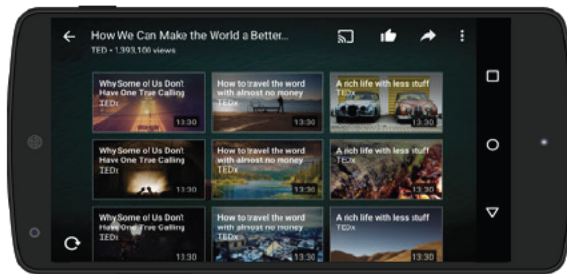
Next gen watch - Autonav

Goal

/ 2% increase in site-wide WT

Key Projects

- / Autoplay on mobile
- / Endscreen on mobile
- / Watch Next UX in fullscreen



Next gen watch - beyond Autonav

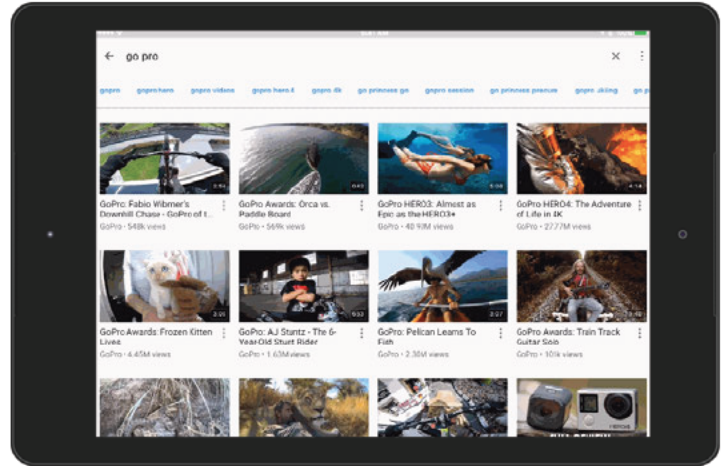
Build the world's most powerful and delightful video consumption experience

Metric Goal

/ +1% watch time

Design Goals

1. Blazing fast watch-to-watch
2. Delightful and intuitive control
3. Encourage exploration
4. Marquee TV companion
5. Landscape first (on tablet)



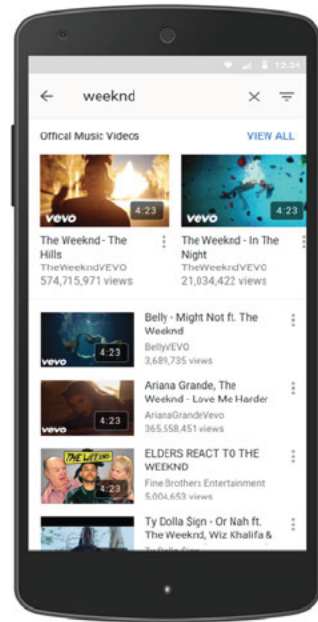
Next gen search

Goal

/ 20% decrease in broad query abandonment rate (8% decrease in overall abandonment - from 17% to 15.6%)

Key Projects

/ Horizontal shelves on search results page
/ Browsey bar on search results page
/ TBD other search UI and features for broad queries
/ TBD app excellence improvements to search (e.g., zero state nav suggest and trending suggest, UI improvements for channel seeking queries)



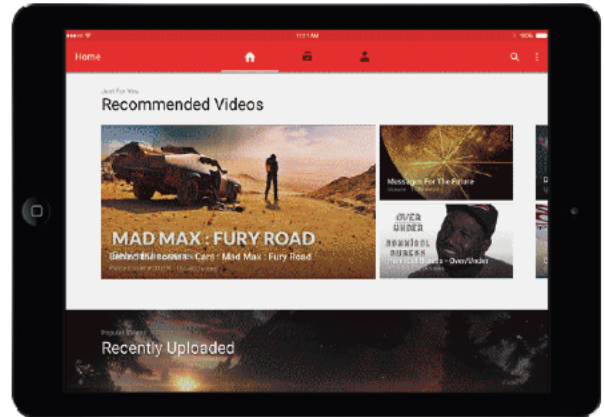
Next gen browse

Goal

- / 300M daily Home Engaged Watchers (up 50% from 200M)
- / 1%+ WT increase

Key Projects

- / New shelf types (e.g., larger thumbnails with less text, horizontal scrolling shelves)
- / Live thumbnails in feeds
- / "Housewarming" experience for new and low-set-up users
- / Gestures in feeds, e.g., swipe to dismiss, swipe to next video, etc
- / Watch Later/Queue



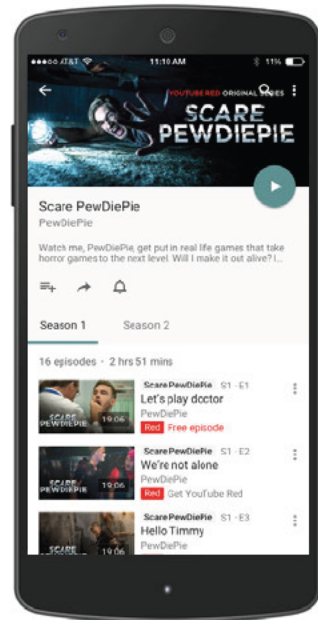
YouTube Red

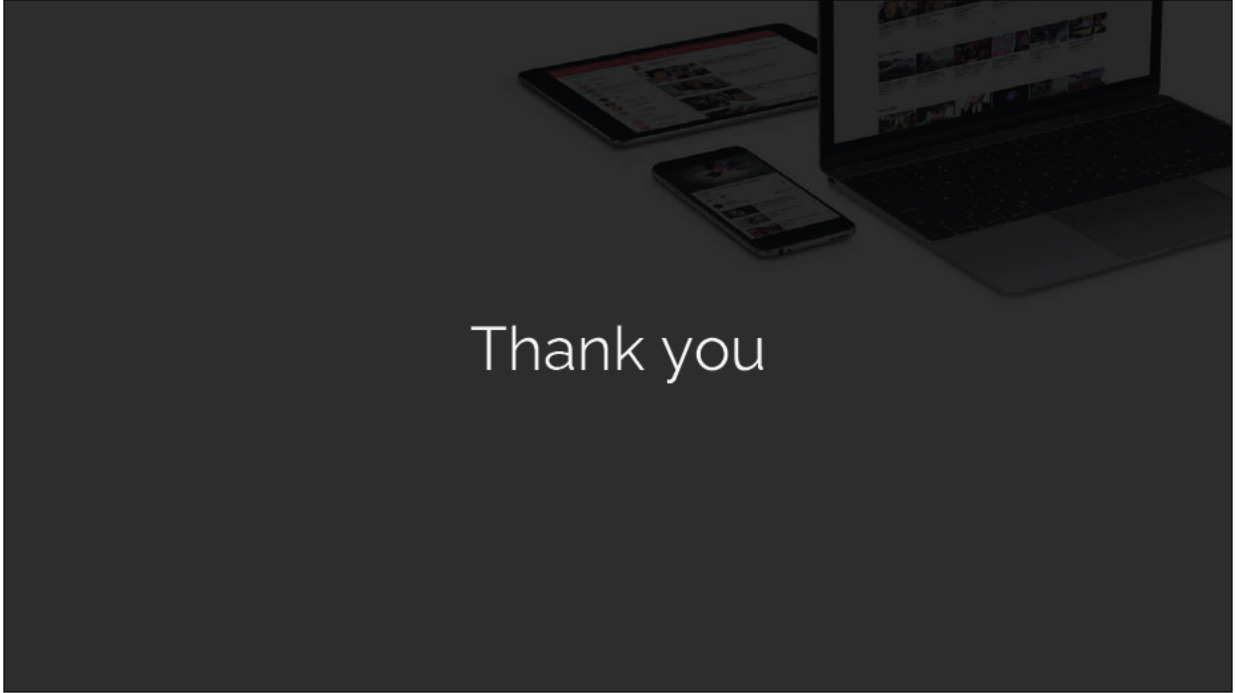
Goal

- / 4M net Red Members (740K baseline)
- / 2M new CC trails from YTO Shows (0 baseline)
- / 50% conversion from CC trial to paying member (30% baseline)
- / 15% paid member monthly churn (22% baseline)

Key Projects

- / YTO Shows
- / Auto-offline
- / YTR family plans
- / Expand YTR to 10+ new countries
- / Enhanced promotional placements





Thank you

Appendix

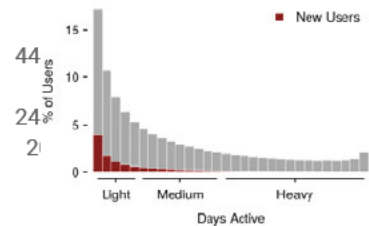


Segmenting the user base - by days active per month

We saw ~950 million active logged-in users in September 2015.

Divided up by activity level:

- | | | |
|---------------------------------------|------|-----|
| • light (1-5 days of activity) | 46%* | |
| • medium (6-14 days) | | 27% |
| • heavy (15+ days) | | 25% |
| • deleted watch history in Sept. | 2% | |



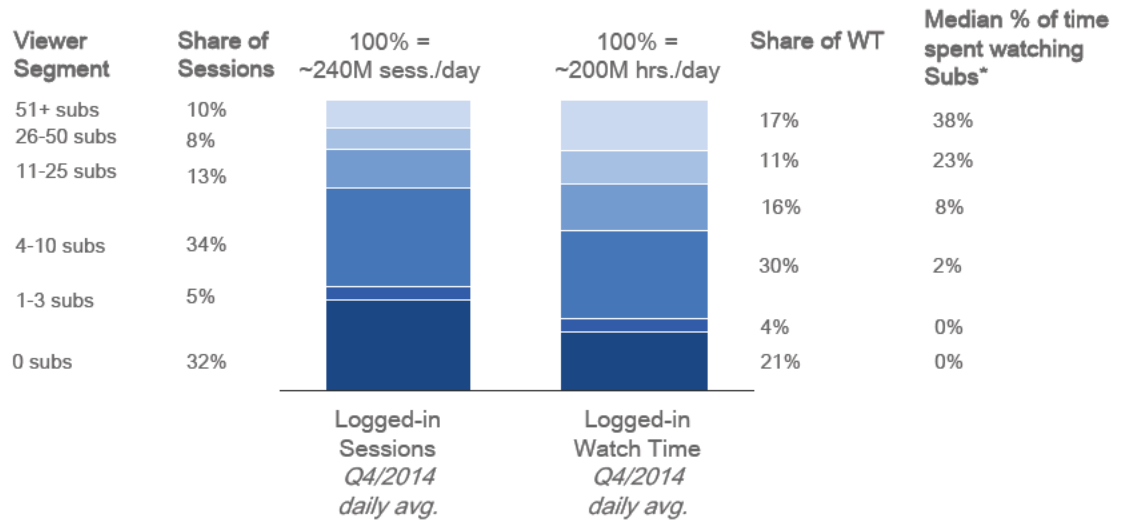
About **10% of users were new**. These users were mostly light.

Proportion of new users is around 6% in US/developed countries,
13% in BRIIM/emerging markets.

* Percentages are based on d_longitudinal_sample, so sizes in right column should be considered estimates.

Viewer segmentation by number of Subs

Our heaviest Subs users (11+ Subs) drive 45% of WT and spend ~8% to 38% of their time watching Subs



* For users active on 3/9/15, % of watch time in 2015 so far that was subscribed watch time

Segmenting the user base - overarching cluster analysis, i.e., unified YouTube segmentation ** not refreshed since late 2014 ** (1/2)

Cluster 1: subs & gaming (10%)

most days active; videos from uploaders they are subscribed to; gaming content

Cluster 2: playlists & music (7%)

most watch time and watches per day; watches from playlists; music content; rewatching

Cluster 3: search & related (48%)

watches from search & from related; music content

Cluster 4: external & embeds (35%)

watches from external referrers & from embed playbacks; little onsite activity; recent videos

Segmenting the user base - overarching cluster analysis, i.e., unified YouTube segmentation ** not refreshed since late 2014 ** (2/2)

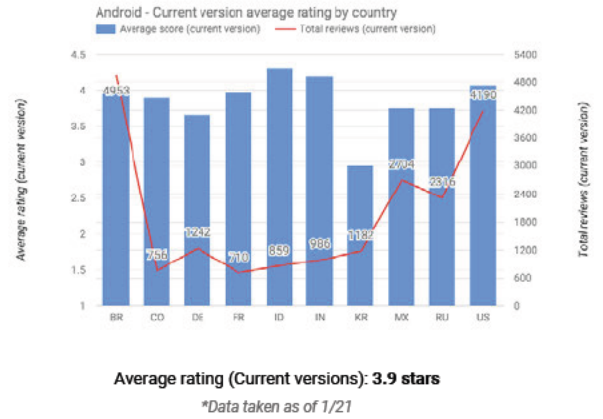
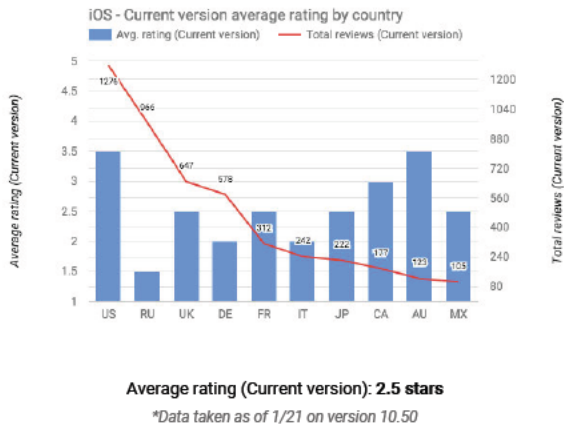
	Cluster 1 subs & gaming	Cluster 2 playlists & music	Cluster 3 search & related	Cluster 4 external & embeds
Percentage of sample	10.2%	6.9%	48.1%	34.9%
Percentage of watch time accounted for by this cluster	23.9%	25.2%	43.2%	7.7%
Percentage of watches accounted for by this cluster	21.9%	20.7%	47.3%	10.1%
Median total watch time (one month)	4.4 hours	6.8 hours	1.4 hours	0.3 hours
Median total # of watches (one month)	128	170	54	15
Median # of days active (one month)	16	12	7	6
Median age	23.5	27	28	33
Percent female (of those who declared f/m)	25.2%	41.0%	35.9%	35.2%

Segmenting the user base - 16% of MAUs are considered “heavy Subs” users, and we have segmented them further using cluster analysis

	Cluster 1 Music Deep Dive	Cluster 2 Shared Device?	Cluster 3 Music Searchers	Cluster 4 Hardcore Gamers	Cluster 5 Not Classified
Platform	Desktop	Tablet	Mobile	Mobile	Mobile
Discovery Path of Subscriptions	Home / Chan	Grab Bag	Search	Subs / Chan	Grab Bag
Median Subs Playback Hours	3.9 hours	5.0 hours	1.6 hours	10.4 hours	3.3 hours
Average % of WT that is Subscriptions	32%	36%	21%	52% (!!!)	34%
Gender (Percent Female)	29%	44%	43%	33%	33%
Cluster Size (% of sample)	27%	13%	22%	16%	22%
Verticals	Non-Sub Music	Grab Bag	Music Not Gaming	Gaming	Grab Bag

Cluster 5:
Did not meet the >70%-confidence criteria for classification

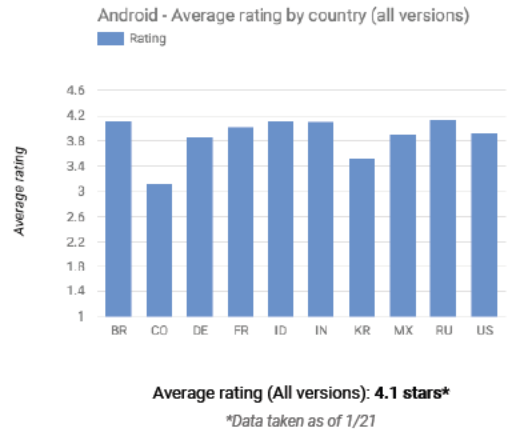
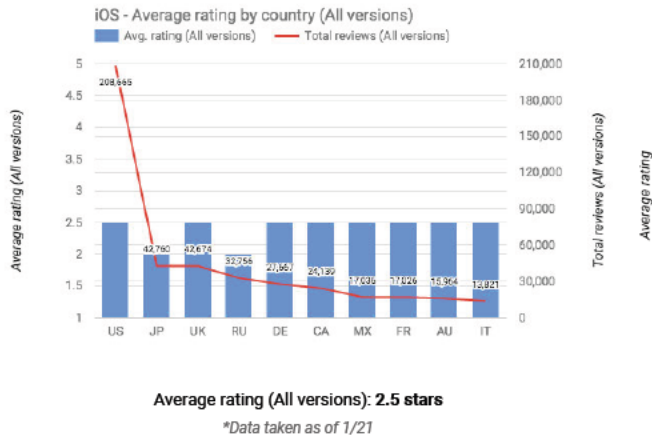
App Store ratings by country (current version)



[Raw data](#) - iOS

[Raw data](#) - Android

App Store ratings by country (all versions)



[Raw data](#) - iOS

[Raw data](#) - Android

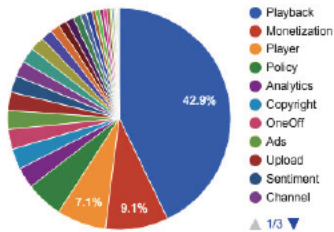
*Quantity of total reviews from all time are unavailable on Internal Play Dashboards.

User Feedback (Monthly snapshot - GFeedback)

Desktop GFeedback

Dec 24 - Jan 20

Monthly reports: **74K** (-27% MoM)



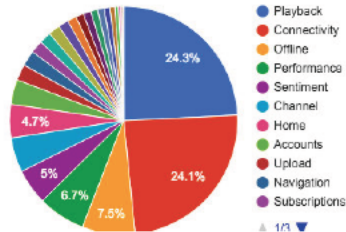
Theme	Change
Playback (Quality/Performance)	-17.8%
Monetization (Video/Channel Eligibility)	+7%
Player (Controls and Settings)	-9.2%
Policy (Blocked Channels, Offensive Content)	+136%
Analytics (Partner Data)	-25%

Top FR: Add repeat/loop button

Android GFeedback

Dec 24 - Jan 20

Monthly reports: **39K** (-45% MoM)



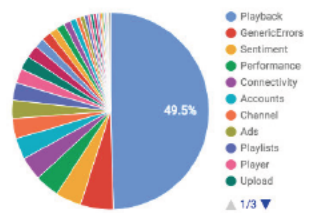
Theme	Change
Playback (Quality/Performance)	-41%
Connectivity ("No connection")	-35%
Offline (FR to save offline)	-31%
Sentiment ("I like the app")	-49%
Channel (FR: change channel name)	-18%

Top FR: Change channel name

iOS GFeedback

Dec 24 - Jan 20

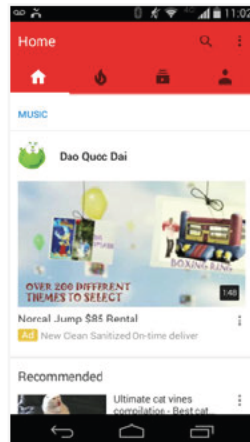
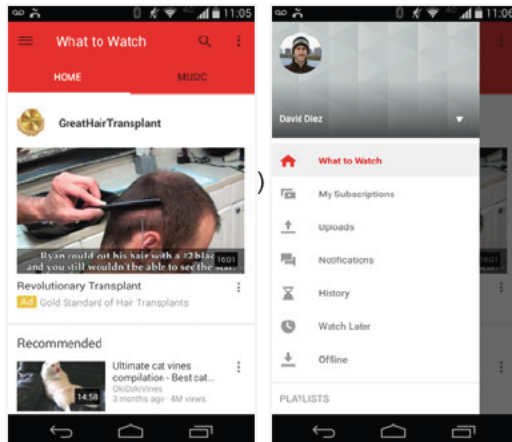
Monthly reports: **23K** (-16% MoM)



Theme	Change
Playback (Quality/Performance)	-4.5%
Generic errors ("Error loading")	-35.0%
Sentiment (Positive/Negative)	-15.3%
Performance (Crash, Latency)	-33%
Connectivity ("No connection")	-44%

Top FR: Edit channel photo/cover art

Fusion Nav redesign



Tabs for navigation

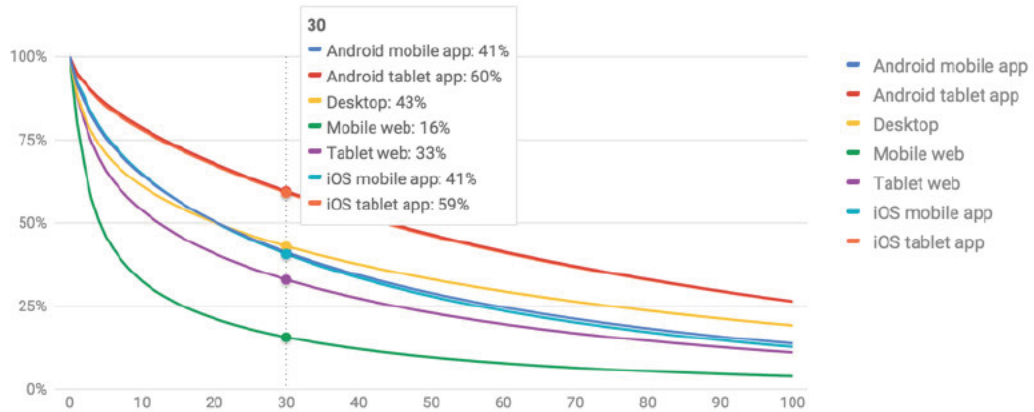


Unused

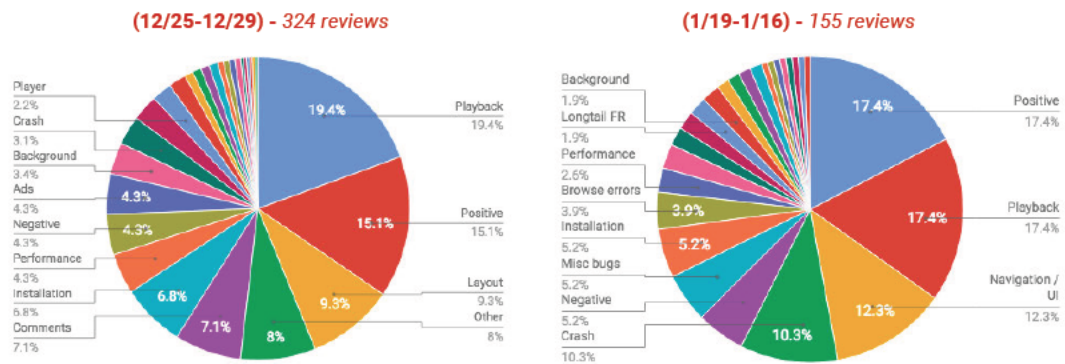
Session (24 hour period per user) watchtime by platform

Tablet and desktop users watch more, with 60% of tablet users watching over 30 minutes per day

% sessions lasting at least x minutes, by platform



iOS App Reviews: Non-randomized snapshots of review themes



[See raw data](#) | [Main slide](#)