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Introduction

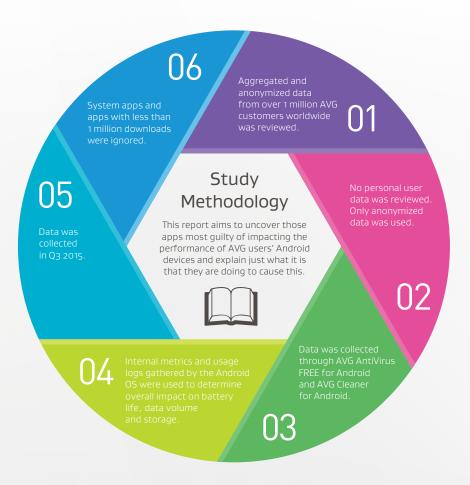
This AVG study identifies the top battery, data and storage consuming apps on Android[™] smartphones and tablets and includes the latest results from Q₃ 2015.

The huge choice of cool, interesting and engaging apps available today for Android handsets is what makes a phone more than just a phone.

These apps bring social networks, entertainment, educational information, and productivity tools to our fingertips, at home, in the office or on the move.

Brilliant though they are, certain apps have a tendency to eat up the battery life, mobile data and storage of our phones and tablets without our realizing it – by constantly checking for content and feed updates, pushing through notifications, streaming audio in the background, delivering high-res graphics, or simply downloading data.

If you are tired of soaring data bills, sluggish devices, and that universally hated red battery symbol, then read on.





Introduction cont...

The measured vectors - battery, storage and data plan - were normalized by calculating the percentile based on the median values of the apps, measured from when the app was installed, whether used or not.

Based on our experience with consumer preferences, AVG weighted each of the three vectors slightly differently when calculating the overall performance score for an app. The calculation was therefore:

Storage*3 + Battery*2 + Traffic

Data collected in the US, UK and Australia was statistically significant enough to be able to produce specific tables and insights for those markets. These can be viewed in the appendix.

Measurement was carried out as follows:



Battery Drain

We ranked the apps' battery consumption average based on real usage data. We ignored applications that have less than 1 million downloads according to Google Play. We also did not include core system apps but left in pre-installed but optional apps.



Storage Consumption

We ranked the apps' storage consumption average based on real usage data by measuring the size of not just the app itself but also the additional data (e.g. downloads, temp files or cache data) stored over time.



Data Plan

We ranked the apps' network traffic consumption average based on real usage data. We only took into account cellular transmitted data, ignoring the cost-free Wi-Fi traffic.

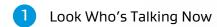


Note that our own **AVG AntiVirus & AVG Cleaner for Android** apps have been excluded because the data for this report is collected anonymously from these two apps, which would automatically have put them in first place as most installed.





Top Findings in Q3 2015





KakaoTalk & WhatsApp on the Rise Facebook, Instagram and the Google Play Services app remain the top resource-drainers across all of

our metrics (storage, battery and mobile traffic), but now, both WhatsApp and KakaoTalk have found their way into the top 10 most resource-consuming background apps.



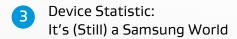
Our advice: Try to turn off notifications in the apps settings when you're running out of juice, and limit video calling or animated stickers in KakaoTalk.





Staying relevant in the smartphone business has Microsoft porting many of its services, such as Office or OneDrive, to Android and iOS. But one

of them isn't playing nicely: **Outlook** has made its way into the top 10 battery-draining apps that users are actively running. It's nowhere near the top ones, like **Spotify**, **Snapchat** or **Netflix**, but a simple email app shouldn't appear on this list.





In our Q2 report, the Samsung dominance in the Android market became painstakingly clear, as 9 of the top 10 most-used devices

that we analyzed – those which had **AVG Cleaner™ for Android** or **AVG AntiVirus™ for Android** installed – were made by Samsung.

Since then, we have seen a clear trend by global usage of the most used phones, namely variants of the Samsung Galaxy S₃ Mini and S₄, slowly dwindle, as the S₅ is gaining momentum. The only non-Samsung is still last year's Sony Xperia Z₂.







Top Findings in Q3 2015

Tamagotchi Style Apps are Back, Out to Drain Your Battery This Time



Supercell, now coming in strong and only behind the literal **King** of the mobile gaming market, is now securing another spot in the

top 10 most resource-hungry apps, with its **Clash of Clans**. The more things change, the more they stay the same. **My Talking Tom Free**, now joins **My Talking Angela Free**, as one of the most resource-hungry games, as you constantly need to care for a digital kitty – reminding us of the mid-90s Tamagotchi phenomenon, only running on high-res smartphone displays and GBytes of memory instead of a a 32x32 pixel LCD with just a few kilobytes of memory.

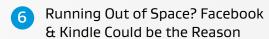


Our advice: If you're on the road without a power outlet in sight, it's best to avoid playing that game for longer stretches. 5 Chinese WeChat in the top 10



With 500 million users, mostly in China, WeChat is starting to head West and go head-to-head with the likes of WhatsApp, Snapchat and Facebook Messenger.

Unfortunately, with it, comes a big battery drain, as WeChat made its way into the top 10 battery-draining apps that start automatically when you turn on your Android device – and keep on secretly guzzling your resources.





When your phone is running low on storage, the first thing you usually do is delete photos and music, right? Not so fast! It's also the data within

apps that could amount to Gigabytes of hidden storage. According to our telemetry, **Facebook**, **Kindle** and the **Japanese NTT Docomo Email Client** rank among the top storage-eating apps that store more files for offline use than you might think.

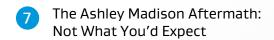








A Executive Summary Top Findings in Q3 2015

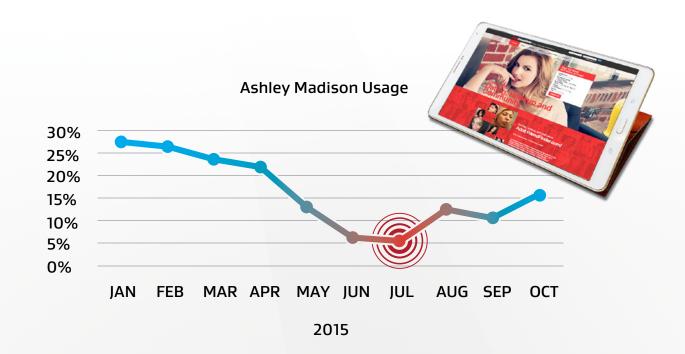




In July and August, when both partner finding and cheating services, **AdultFriendFinder** and **Ashley Madison**, got hacked and their millions of users were revealed, the

aftermath seemed shocking, with jobs, marriages and families being ruined. However, according to our statistics about top installed and used apps, this category seems to be fully recovering very quickly: Only 5% who had the app installed during the hacking season in July actually used it. However, in Q3, Ashley Madison went back up to a usage ratio of 15%, which is the percentage of people who had the app installed and actively used it.

More shockingly, it seems as if the entire category seems to have gained momentum, following the hacks: Competing platform, **MiuMeet**, saw an uplift in usage from 50% (before July) to 73% (August an onwards); and **AnastasiaDate** even went from 11% to 60% in October. Bottom line: most users have returned to AshleyMadison or even switched to other similar platforms.









Top Findings in Q3 2015

9 out of 10 Top Devices of 2015: Made by Samsung

Looking across our entire AVG customer base, we have a pretty good idea of which devices you are all using. Namely – those from Samsung. 9 of the top 10 most-used devices that we analyzed those which had AVG Cleaner™ for Android or **AVG AntiVirus™ for Android** installed – were made by Samsung. And we're not just talking about the latest and greatest models. Most of the Samsung devices are more than 3 years old, such as the Samsung Galaxy S2 Crystal Edition or the Note 2. Others are low-budget Galaxy phone, like the S₃ Neo or the S₄ Mini.

In fact, the only non-Samsung phone in this list, comes from Sony: The Xperia Z2.

Top 10 Smartphones Q3 2015

Samsung GT-i9300I Galaxy S III Neo+ Duos / Galaxy S3 Neo 2.5 milion users



Samsung GT-i9505 Galaxy S4 Black Edition 32GB 1.8 milion users



Samsung SM-G900MD Galaxy S5 Duos 4G LTE-A 1.5 milion users



Sony Xperia Z2 LTE-A D6503 1.1 milion users



Samsung GT-N7100 Galaxy Note II 0.9 milion users



Samsung GT-i9500 Galaxy S4 La Fleur Edition 0.9 milion users



Samsung GT-i9195F3 Galaxy S4 Mini LTE o.8 milion users



Samsung GT-i8190 Galaxy S III Mini Crystal Edition 0.6 milion users



Samsung SM-N9005 Galaxy Note 3 Olympic Games Edition 0.6 milion users



Samsung GT-i9100 Galaxy S2 Crystal Edition 0.3 milion users







Scoreboard - Top Apps Run At Startup

The following tables show the top five apps in each category which, according to AVG's study, have the most impact on your device. These tables do not include games.







HIGHEST DATA TRAFFIC





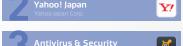


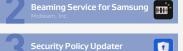




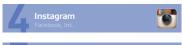




























Scoreboard - Top Apps Run By User

The following tables show the top five apps in each category which, according to AVG's study, have the most impact on your device. These tables do not include games.







Scoreboard - Top Games

The tables below look at the top five games apps in each category which, according to AVG's study, have the most impact on your device.







Perform a Self-Check Now

How To Identify the Top 10 Apps on YOUR Phone

AVG has collected this anonymized data through its mobile AVG AntiVirus and AVG Cleaner apps. To see what's consuming all of your smartphone's battery life, storage or mobile data, we've developed App Manager, which is a feature within AVG Cleaner for Android. It quietly observes of the top resource-hungry apps (see screenshots to the right):





Download AVG Cleaner to check your phone!







Key Findings - Q3 2015 Introduction

New versions of the Android™ operating system introduce additional features that are specifically optimized for the latest devices. But at what cost?

While new Android versions can dramatically improve the experience for those who own the latest smartphone or tablet, the same is not true for older devices, whose users may see the battery life and speed suffer.

It's also the case that the more apps you install, the slower your phone or tablet will get. This is not just about the space those apps take up being on your device, but also the fact that a lot of apps, such as **Spotify**, **Skype or WhatsApp**, tend to be active even when not used and run quietly in the background.

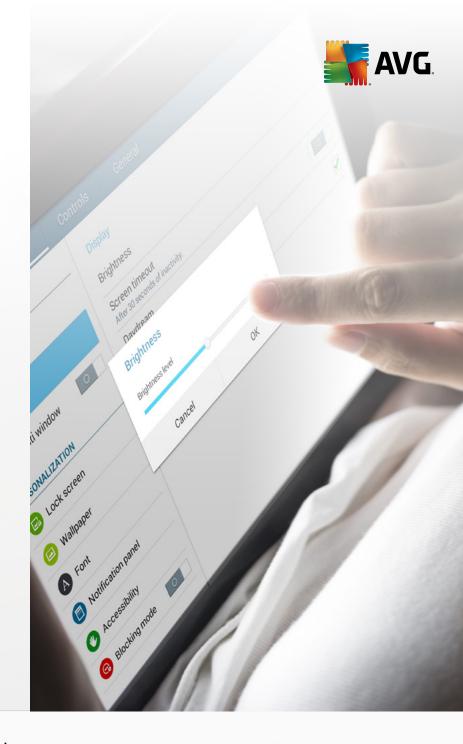
In this section, we will take a closer look at the full list of apps which ranked in the top ten for impact on battery life,

device storage and data plan – as well as those with the overall highest ranking for performance when combining all three of these measurements.

The key findings are separated into two parts:

- All apps excluding games
- Games only, which we felt were significant enough to merit a separate category of their own

On page 25, we will look at possible ways to improve the battery drain, performance draw and data usage through various steps both inside the Android OS as well as in specific apps.







World's Greediest Mobile Apps

In this section, we discovered which apps had the most overall impact on mobile devices.

TOP 10 PERFORMANCE DRAINING APPS - RUN AT START UP



Analysis

If your phone's battery doesn't last through the day, but you've barely even picked it up, a background app that starts automatically might be at fault. The 10 automatically running apps you see to the left had the most overall impact on battery life, traffic and storage. Top spot, no surprise here, is yet again, Facebook, with its background checks and notifications: and **The Weather Channel** also makes it into the Top 10 again. The preinstalled **ChatON** app stuck out to us once more, as it's still in the Top 10, despite being discontinued and replaced by the Samsung Knox Message BETA everywhere except for the US. No two ways about it: if you're not using it, get rid of it.





World's Greediest Mobile Apps Cont...

TOP 10 PERFORMANCE DRAINING APPS - RUN BY USER



Analysis

Yet again, **Snapchat** takes the crown as well as **Spotify**, **Line** and **Amazon's Shopping** apps, in the category of actively used apps with the heaviest resource drain. Interesting: Newcomer, Microsoft **Outlook**, seems to be responsible for a significant amount of resource usage, which could very well be caused by users actually checking it every other minute or syncing it too frequently. If you're living inside Outlook, and feel like it's draining your resources too fast, go to the settings menu and turn off notifications. Also make sure that it doesn't eat up your storage by limiting the synchronization with your email to the last 30 days.







Top Ten Battery Drainers

In this category, we split out those apps which run automatically when you turn on your smartphone or tablet and keep on running in the background all the time as part of their core functionality. This could, for example, include antivirus apps, messaging apps or social apps.

TOP 10 BATTERY DRAINERS - RUN AT START UP



Analysis

The now long-deposed handset maker, BlackBerry, continues to live on with its iOS and Android app, **BBM (BlackBerry Messenger)**, even enjoying an ever-growing community. However, beware of its side effects, because it continues to hold a spot in the top 10 hidden startup apps with the highest battery drain, going back to our very first App Report from Q3/Q4 2014.





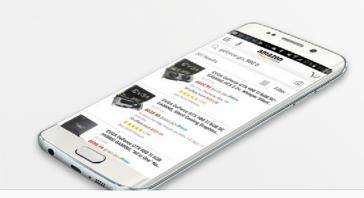
Top Ten Battery Drainers Cont...

TOP 10 BATTERY DRAINERS - RUN BY USER



Analysis

The Christmas and winter season seem to be getting closer, as our shopping habits ramp up, and we're spending more time inside reading books: that's why two **Amazon Shopping** apps, the Walmart app, and the BBC News app made their way into the top 10.





Top Ten Storage Hogs

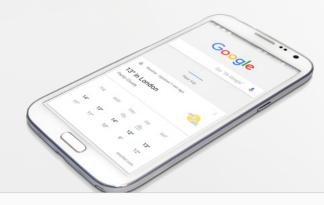
Your favorite everyday apps could be using up more of the precious limited storage on your device than you might realize.

TOP 10 STORAGE EATERS - RUN AT START UP



Analysis

The official **Google Search** app stores more than its name suggests, making you wonder why a search tool keeps so much data stored locally. Our advice: use AVG Cleaner **for Android** to fully delete the app and reinstall it if it's consuming too much space. Living in Japan? Then watch out for your carrier NTT Docomo's pre-installed email app (SP-Mode Mail), which is one of most storage eating apps, across the globe, and just slightly behind global apps, such as Facebook and Kindle.







Top Ten Storage Hogs Cont...

TOP 10 STORAGE EATERS - RUN BY USER



Analysis

This year, both **Spotify Music** and **Google Chrome** kept their number 1 and 2 spots of apps that consume the most space on your phone.

Why a **Filters & Stickers app for LINE** messenger is consuming so much space, just behind a web browser (which caches a complete website offline) and Spotify (which could store GBs of music on your phone) is beyond us: AVG App Manager, a feature of AVG Cleaner for Android can keep an eye out for Filters & Stickers storage consumption, and simply reinstall it if it grows out of control, which will restore its cached files. The other apps that shouldn't store so many files locally, are **TripAdvisor** and **Amazon's** shopping apps.





Top Ten Data Traffic Hogs

Many of the apps you love the most can impact heavily on your data plan, which is why if you are watching your monthly bills, you might want to use these apps with care.

TOP 10 DATA TRAFFIC HOGS - RUN AT START UP



Analysis

It's perfectly fine for **Facebook**, **Instagram** or radio streaming service, iHeartRadio, to consume mobile traffic, but if an antivirus app or the **APUS Launcher** consume your data volume, it's time to raise some eyebrows.



Our advice: Try turning off as many of their data-consuming features as possible; or find an alternative, if their traffic keeps exceeding your mobile limit. You can also use AVG Cleaner for Android's App Manager to check which apps consume the most mobile data.







Top Ten Data Traffic Hogs Cont...

TOP 10 DATA TRAFFIC HOGS - RUN BY USER



Analysis

No surprise here: video streaming service, **Netflix**, consumes the most mobile traffic among apps that users actively run. What does come as a surprise, however, is that **Photo Editor by Aviary** is in the top 10, which is likely due to its ability to share files across all your social networks.







Mobile Gaming - What Gamers Should Know

Many of the games you love the most can impact heavily on your device performance, so if you are watching your battery or storage levels, you might want to choose when to use these apps.

TOP 10 PERFORMANCE DRAINING APPS - GAMES



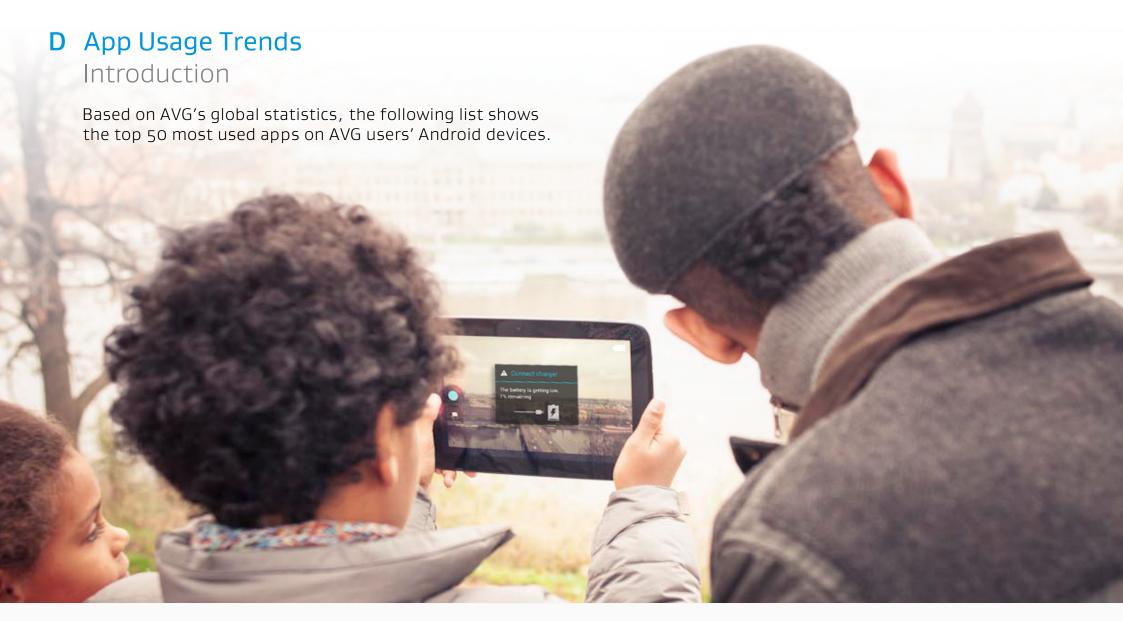
Analysis

And King has been dethroned again: while still holding ranks 2, 3 and 4 with its Candy Crush and Farm Heroes Saga games, Clash of Clans is now the top performance-consuming app. Newcomer, **Don't Tap the White Tile**, doesn't display very fancy graphics, yet continues to drain resources more than hundreds of other games do on this list.













D App Usage Trends

Top 50 Installed Apps



Analysis

Surprise, surprise! The top 15 most-installed apps across all Android devices are all from Google, such as the built-in Play Store, Hangouts, Chrome or Gmail, with one, notable exception: Facebook, which is installed on 69% of all Android devices, worldwide. That's Surprisingly

low, given its dominance, but the rest of these users either don't use Facebook, or simply use the web version in Google Chrome. The second app after Facebook and its **FB Messenger** companion is **WhatsApp**, which is installed on 51% of all Android users devices. Gaming

plays a big role in the mobile world, with **Candy Crush Saga installed on 15.8%** of all smartphones measured.
Funny. It seems that both Samsung and HP managed to sneak their printer support apps onto 20% and 13%, respectively, of all users' smartphones.

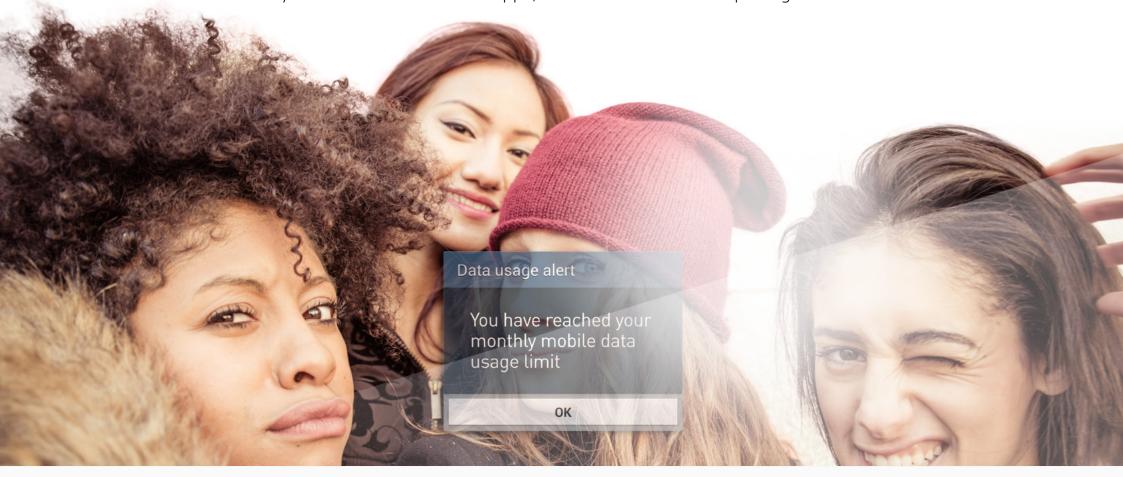




E Addressing the Issues

Insights into Android Device and App Optimization

Android devices have to walk a fine line trying to restrict the resource consumption of apps, but not limit their functionality too much. We all love our apps, and we don't want to stop using them.



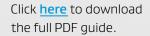


Addressing the Issues

7 Ways to Boost Battery Life, Free Up Storage and Reduce Mobile Data Traffic

Here are 7 easy steps to help you boost battery life, stop storage eaters and save mobile traffic.

We've put together a comprehensive guide for all consumers and businesses looking to address the issues outlined in this report.







Limit notifications to save battery life, performance and mobile data:

Phone notifications are one of the most useful mobile inventions, giving users information they need to know about new appointments or messages at a glance. But not all of them are useful, and they can consume resources.



Limit apps battery & performance drain:

Reduce background features, refresh intervals, location usage or in-app notifications.



Free up space:

Apps collect clutter over time. Use AVG Cleaner for Android to get rid of temporary files.



Reduce data traffic:

Turn off background data transfers or any offline reading features within your app if you don't want it to consume mobile traffic.



Turn off Wi-Fi, Bluetooth and GPS:

To save more battery life, turn off all the hardware features you don't need at any given moment.



Turn down brightness:

If you're not in bright sunlight, we recommend turning the brightness levels down to 50-70%. Why? On many of today's big phones and tablets, the display is responsible for up to 80% of the entire power consumption.



Get rid of performance-sapping apps:

Our AVG Cleaner for Android analyzes the top battery, storage, and traffic-hogging apps on your device. If you don't need one of these apps, you can easily uninstall it and look for more resourcefriendly alternatives.





Contact Information

For further information, please visit:

Our blogs, press information and resources on how to get the most out of your connected devices at AVG Now: http://now.avg.com

Our website for details about our performance products: http://www.avg.com/performance Contact:

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App Resource Consumption Analysis

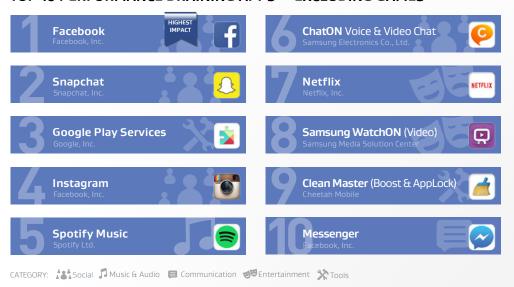
In this section, you can find the app resource consumption analysis for the United States, the United Kingdom and Australia. We used the same methods to calculate the rankings as before, but this time only took into account performance data of users from these specific countries.



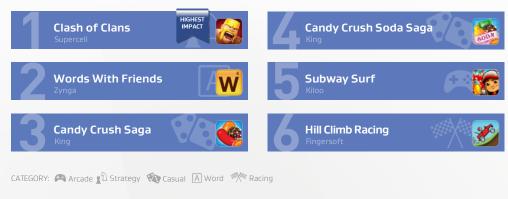


USA

TOP 10 PERFORMANCE DRAINING APPS - EXCLUDING GAMES



TOP 6 PERFORMANCE DRAINING APPS – GAMES ONLY



* Not enough games met the threshold of 1 million downloads and thus did not meet our criteria



USA

TOP 10 BATTERY DRAINERS – RUN AT START UP



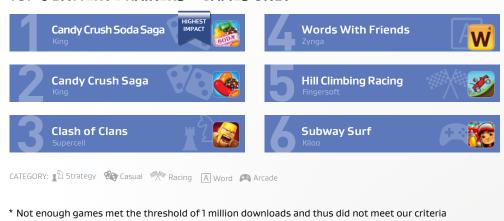
TOP 10 BATTERY DRAINERS - RUN BY USER





USA

TOP 6 BATTERY DRAINERS - GAMES ONLY



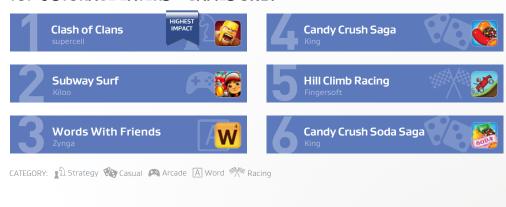
TOP 10 STORAGE EATERS – EXCLUDING GAMES





USA

TOP 6 STORAGE EATERS – GAMES ONLY



^{*} Not enough games met the threshold of 1 million downloads and thus did not meet our criteria

TOP 10 DATA TRAFFIC HOGS - EXCLUDING GAMES







F Appendix

USA

TOP 6 DATA TRAFFIC HOGS - GAMES ONLY



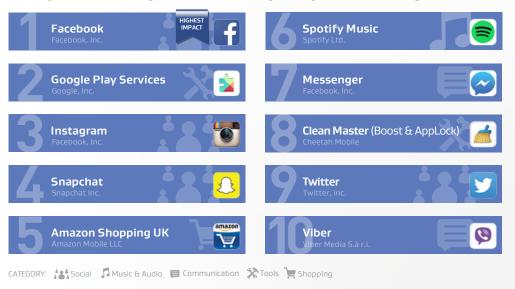
^{*} Not enough games met the threshold of 1 million downloads and thus did not meet our criteria





UNITED KINGDOM

TOP 10 PERFORMANCE DRAINING APPS - EXCLUDING GAMES



TOP PERFORMANCE DRAINING APPS - GAMES ONLY *



CATEGORY: Casual

* Not enough games met the threshold of 1 million downloads and thus did not meet our criteria



UNITED KINGDOM

TOP 10 BATTERY DRAINERS - RUN AT START UP



TOP 10 BATTERY DRAINERS - RUN BY USER





UNITED KINGDOM

TOP BATTERY DRAINERS - GAMES ONLY *



^{*} Not enough games met the threshold of 1 million downloads and thus did not meet our criteria

TOP 10 STORAGE EATERS - EXCLUDING GAMES





CATEGORY: Casual

UNITED KINGDOM

TOP STORAGE EATERS - GAMES ONLY *



* Not enough games met the threshold of 1 million downloads and thus did not meet our criteria

TOP 10 DATA TRAFFIC HOGS - EXCLUDING GAMES





F Appendix

UNITED KINGDOM

TOP DATA TRAFFIC HOGS - GAMES ONLY *





CATEGORY: Casual

^{*} Not enough games met the threshold of 1 million downloads and thus did not meet our criteria



AUSTRALIA

TOP 10 PERFORMANCE DRAINING APPS - EXCLUDING GAMES



TOP 10 BATTERY DRAINERS - RUN AT START UP





AUSTRALIA

TOP 10 BATTERY DRAINERS - RUN BY USER



TOP 10 STORAGE EATERS





F Appendix

AUSTRALIA

TOP 10 DATA TRAFFIC HOGS

