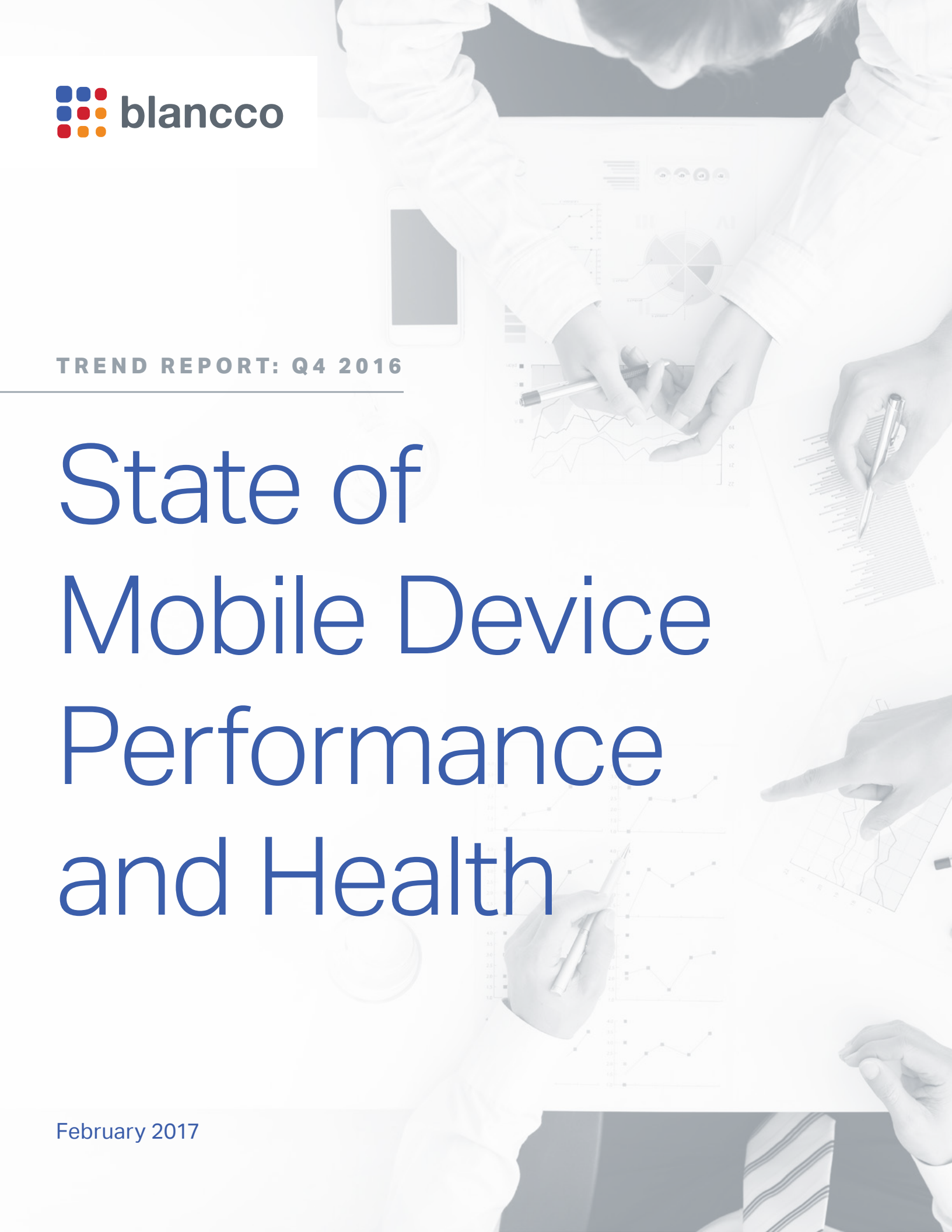

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TREND REPORT: Q4 2016

State of Mobile Device Performance and Health

February 2017

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Introduction

It's been nine years since the launch of the first full touchscreen smartphone – and smartphone adoption continues to grow around the world. These handheld devices are no longer considered 'nice to haves.' With BI Intelligence predicting that the global smartphone market will hit about 2.1 billion units shipped in 2021, it's clear that smartphones have evolved into a necessary tool for almost every facet of our personal and work lives.

According to the Deloitte Mobile Consumer Survey 2016, smartphone adoption will continue to grow in various parts of the world. Britain, for example, has entered what is being called the 'peak smartphone' era with 37 million people – or 81 percent of the UK population – either owning or having access to a smartphone.

As the Deloitte Mobile Consumer Survey 2016 indicates, checking our smartphones has become just as 'necessary' as waking up. In fact, mobile users in the United States check their devices within five minutes of waking up. But our dependency on mobile devices doesn't stop there. During the day, American smartphone owners look at their phones approximately 47 times. Plus, 30 percent of users check their phones at the end of the day within five minutes of going to sleep. In the United Kingdom, on the other hand, one-third of smartphone owners instinctively reach for their phones within five minutes of waking up. And half of UK smartphone owners – the equivalent of 2.3 million UK adults – do so within a quarter of an hour.

With mobile device adoption showing no signs of slowing down, mobile network operators/carriers and device manufacturers are poised to drive significant sales and revenue. For businesses encouraging a mobile-first workforce, mobile devices have become a vital asset in improving employee productivity and performance. But for every mobile user – be it a consumer or a corporation – sluggish performance is one factor that can prevent devices from taking full advantage of their power. In this report, we will share various data points that indicate key sources of device performance issues.

About the Data Powering the Report

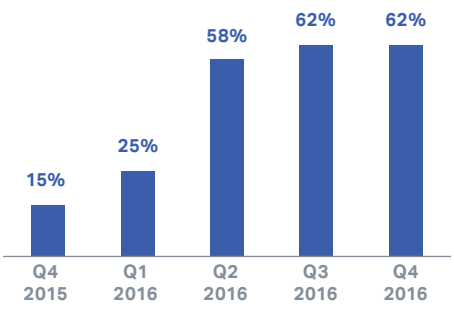
The State of Mobile Device Performance and Health report is an in-depth quarterly review of global mobile device trends, including: diagnostics testing, performance issues and failures. The information contained in this report is based on internal data collected from millions of iOS and Android mobile devices that were brought into mobile carriers and device manufacturers for diagnostics testing in North America, Europe and Asia over the course of five quarters, including Q4 2015, Q1 2016, Q2 2016, Q3 2016 and Q4 2016.

The diagnostics tests were performed using the Blancco Mobile Diagnostics platform, the global leader in mobile device diagnostics and business intelligence. Organizations of all types can leverage this information to ensure a better customer experience and improve device performance. The report's findings are based on aggregate, anonymized data and include the following information:

- Device failure rates by operating systems, manufacturers and models
- The most common types of performance issues – hardware, software and connectivity – by operating systems and geographic regions
- The top 10 iOS and Android apps with the highest crashing rates

Figure 1.

iOS Device Failure Rates Worldwide, 2015-2016



Note: Failure rate refers to devices that had excessive performance issues that could not be resolved.

Figure 2.

iOS Device Failure Rate By Region, Q4 2016

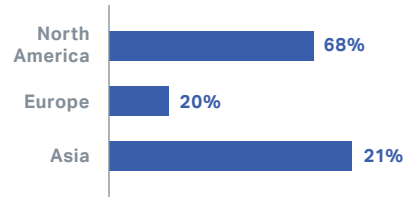
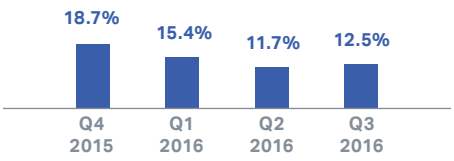


Figure 3.

Apple Smartphone Market Share, 2015-2016



Source: IDC Worldwide Quarterly Mobile Phone Tracker, November 2016

iPhones Are Less Reliable Than Android Devices, With Failure Rates Steadily Increasing in a Year

Our data suggests that it's more reliable to own Android devices than iPhones, which have been weighed down by a multitude of performance issues and high failure rates in the last year. Although iOS devices haven't always had a higher failure rate than their Android counterparts, the failure rate has steadily increased quarter over quarter for the last year until it finally stabilized in Q4 2016.

In Q4 2015, for example, iOS devices had an overall failure rate of 15 percent. This was considerably lower than Android devices, which had an 85 percent failure rate during that period. But as each quarter has passed, the iOS failure rate has increased steadily – from 15 percent in Q4 2015 to 25 percent in Q1 2016 to 58 percent in Q2 2016 to 62 percent in Q3 2016. Now in Q4 2016, iOS devices once again lost the performance battle with more performance issues and higher failure rates worldwide (62 percent) than Android devices (47 percent). However, this is a sign of better things to come for iOS devices, as this is the first quarter since we have been analyzing mobile diagnostics testing data that the iOS failure rate has not increased from the previous quarter.

Our data also reveals that iOS devices had significantly higher failure rates in North America (68 percent) and Asia (81 percent) in the fourth quarter of 2016. To understand why iOS devices failed more in North America and Asia, we took a closer look at smartphone market share data.

Over the past year, Android and iOS have endured a push-and-pull battle to capture smartphone market share from one another. According to data released by Kantar Worldpanel ComTech, Apple captured a large chunk of market share from Android during the holiday shopping period in 2016. In the United States, for example, Apple's iPhone 7, iPhone 7 Plus and iPhone 6S were the three most popular smartphones during the three-month period ending in November 2016. Combined, these three devices accounted for 31.3 percent of all smartphone sales in the US.

Meanwhile, Apple's iPhones saw similarly strong growth in Asia, according to market research firm Counterpoint. In particular, Apple's iPhone is gaining popularity in India with a 62 percent market share among devices that cost more than $450. Apple's strong growth in key markets like the United States and India could account for why iPhones had such high failure rates in North America and Asia in Q4 2016.

Newer and Sleeker iPhone 6, iPhone 6S, iPhone 7 and iPhone 7 Plus Models Bear the Brunt of iOS Performance Issues

Based on our diagnostics testing data, the iPhone 6 has been the worst performing iOS device consecutively for four quarters. First, it rose from a failure rate of 25 percent in Q1 2016 to 29 percent in Q2 2016. In the following quarter (Q3 2016), the iPhone 6 once again had the highest failure rate (13 percent). But it's now showing signs of improved performance as the failure rate has dropped considerably from 29 percent in Q2 2016 to 13 percent in Q3 2016. In the most recent quarter (Q4 2016), the iPhone 6 once again performed poorly (15 percent), although it improved slightly from the previous quarter.

One possible explanation for why the iPhone 6 may have struggled with more performance issues and failures than other models over the last year could be Apple's release of multiple

software updates – iOS 9.3.1 in April 2016, iOS 9.3.2 in May 2016, iOS 10 in September 2016 and iOS 10.2 in December 2016. Following all of these software updates, many iPhone and iPad users began to experience problems on their devices, such as faster battery drain, 'bricking,' random crashes, poor sound quality when taking Bluetooth calls, crashing apps and WiFi connectivity problems, just to name a few.

For example, the release of the iOS 10 software update on September 13, 2016 caused a 'slow down' of certain iPhone models, particularly on the iPhone 6 and iPhone 5S. According to an article in The Guardian, Apple's iOS 10 update resulted in 'bricking' devices. In response, Apple acknowledged a "brief issue with the software update process affecting a small number of users during the first hour of availability."

If devices get 'bricked' after installing the iOS 10 update, it's possible to recover from this by putting the device into recovery mode. Simply, press and hold the 'Sleep' and 'Home' buttons and this will update/restore the device using iTunes. Although this won't delete apps, data or music from the device, users will likely have to set up their WiFi connections again and will need to customize their iPhone settings again to match their personal preferences.

Similarly, the iPhone 6S has also been a constant presence on our report's list of iOS devices with high failure rates over the last year. In Q1 2016, the iPhone 6S had a failure rate of 12 percent – and its problems worsened when the failure rate jumped to 23 percent in the following quarter (Q2 2016). Although the iPhone 6S showed up as one of the top failing devices for the next two quarters (Q3 2016 and Q4 2016), its failure rate decreased considerably to 9 percent and 8 percent in both quarters, respectively.

One reason for the high failure rate of the iPhone 6S in Q4 2016, in particular, could be Apple's release of the iOS 10.2 software update. The update, which was released on

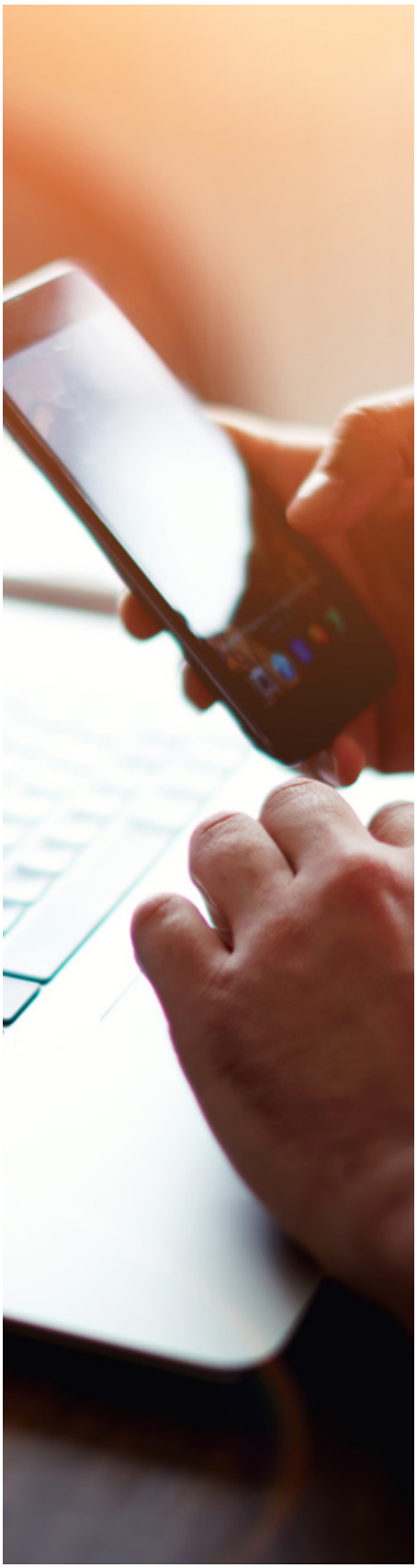
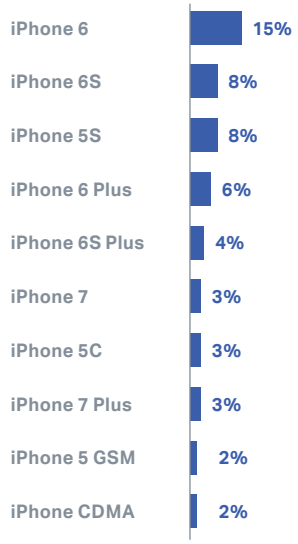


Figure 4.

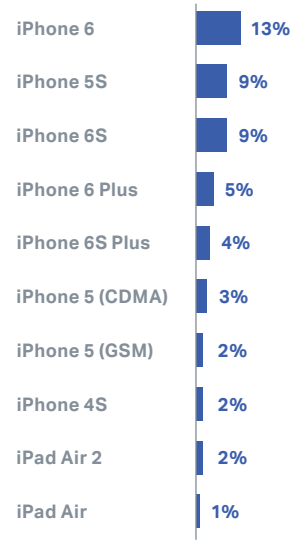
Top 10 iOS Models by Failure Rate, Q4 2016



Note: The iOS model failure rates are taken as a percentage of the total iOS failure rate (62 percent).

Figure 5.

Top 10 iOS Models by Failure Rate, Q3 2016



Note: The iOS model failure rates are taken as a percentage of the total iOS failure rate (62 percent).

Key Trends & Insights

December 12, 2016, included a new TV app, over 70 new emojis and various UI and feature fixes to the Music app. In addition to these new features, the software update was intended to fix bugs in the iOS 10 update released with the iPhone 7 in September 2016. But that wasn't necessarily the case.

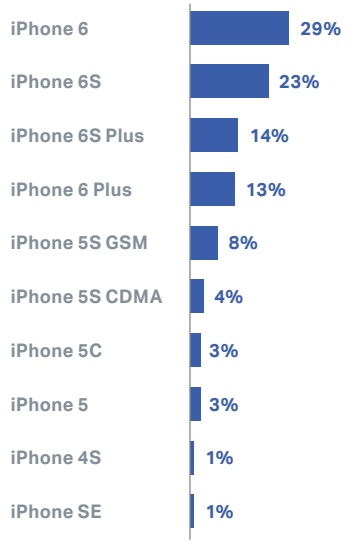
In November 2016, news reports and user forums began to fill up with complaints when, after updating to iOS 10.1 (or iOS 10.1.1), certain iPhone models were shutting down all of a sudden despite the fact that the battery indicators showed 30% battery power was still remaining. While Apple has acknowledged this '30% bug,' the device maker says that it's only affected a small batch of iPhone 6S models and hasn't found any evidence to suggest it's happening to any other models.

Our data also reveals that the newest iPhone 7 (3 percent) and iPhone 7 Plus (3 percent) models aren't exempt from performance issues and failures. Despite extensive fanfare from the media and industry pundits, users have been complaining about a variety of issues with these two new models. Some of the more common problems noted with the iPhone 7 and iPhone 7 Plus include battery drain, WiFi connectivity issues, Bluetooth problems, touch screen issues, problems with various apps and issues syncing photos.

If iPhone 7 and iPhone 7 Plus users experience an issue with the touch screen, Apple provides explicit instructions for how to resolve the issue. First, remove the case or screen protector from the device. Then clean the screen with a slightly damp cloth. Finally, unplug the device and restart it. If this doesn't resolve the problem, then users are advised to take the device into their wireless carrier or to an Apple retail store for a proper diagnosis and repair.

Figure 6.

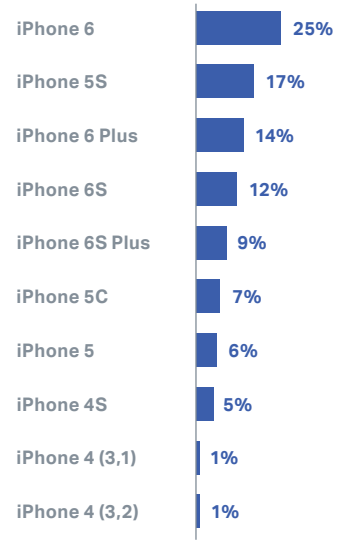
Top 10 iOS Models by Failure Rate, Q2 2016



Note: The iOS model failure rates are taken as a percentage of the total iOS failure rate (58 percent).

Figure 7.

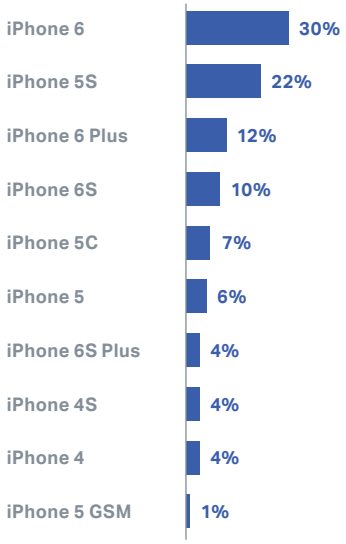
Top 10 iOS Models by Failure Rate, Q1 2016



Note: The iOS model failure rates are taken as a percentage of the total iOS failure rate (25 percent).

Figure 8.

Top 10 iOS Models by Failure Rate, Q4 2015



Note: The iOS model failure rates are taken as a percentage of the total iOS failure rate (15 percent).

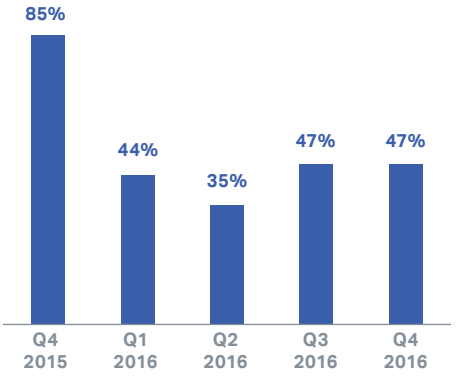
Android Devices Fail Less and Show Signs of Improved Performance Over Time

In contrast to its iOS counterparts, Android devices performed considerably better with less performance issues and lower failure rates over the last year. While Android devices started out with a higher overall failure rate than iOS devices, their failure rates have dropped significantly over time – from 85 percent in Q4 2015 to 44 percent in Q1 2016 to 35 percent in Q2 2016.

Although the Android device failure rate worldwide increased from 35 percent in Q2 2016 to 47 percent in Q3 2016, it has since stabilized and didn't increase in the following quarter (Q4 2016). This stabilization of the Android failure rate could be occurring for a number of reasons. On the one hand, Android users may be becoming more tech savvy and taking advantage of smartphone optimization tips provided in tech blogs, users forums and our own experts. Another explanation could be that the mobile network operators/carriers and device manufacturers are using advanced diagnostics testing tools to quickly and accurately identify the source of problems, thus reducing the likelihood and instances of device failures.

Figure 9.

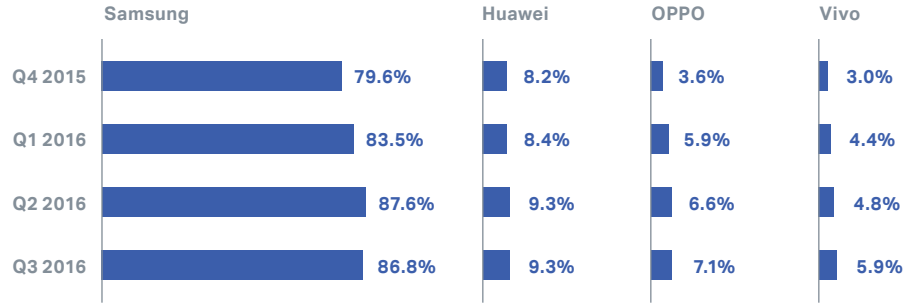
Android Device Failure Rates Worldwide, 2015-2016



Note: Failure rate refers to devices that had excessive performance issues that could not be resolved.

Figure 11.

Android Smartphone Vendor Market Share, 2015-2016



Source: IDC Worldwide Quarterly Mobile Phone Tracker, November 2016

Figure 10.

Android Device Failure Rate By Region, Q4 2016

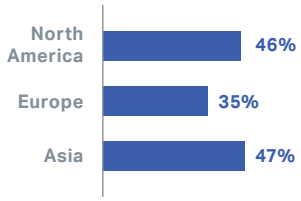


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Figure 12.

Top 10 Android Manufacturers by Failure Rate, Q4 2016

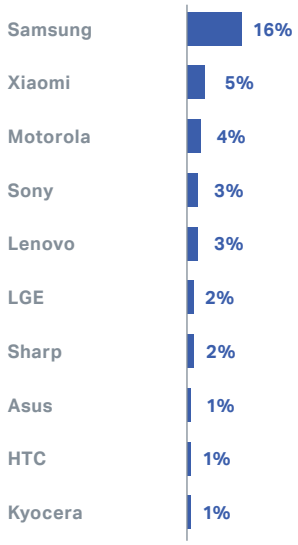


Figure 13.

Top 10 Android Manufacturers by Failure Rate, Q3 2016

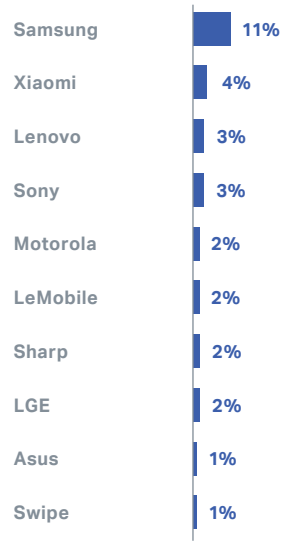


Figure 14.

Top 10 Android Manufacturers by Failure Rate, Q2 2016

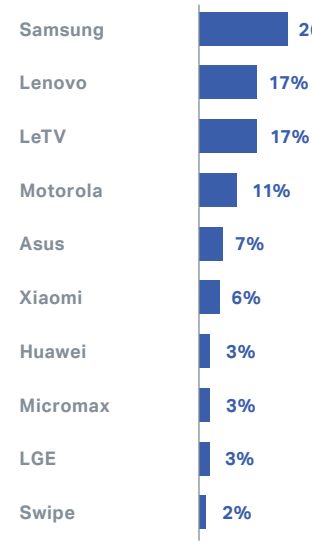


Figure 15.

Top 5 Android Manufacturers by Failure Rate, Q1 2016

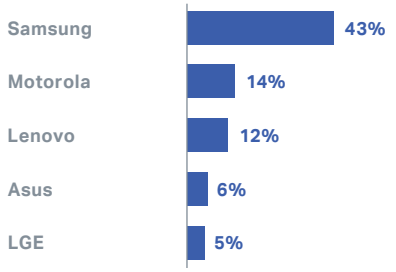
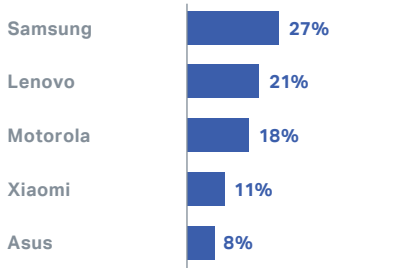


Figure 16.

Top 5 Android Manufacturers by Failure Rate, Q4 2015



Samsung Galaxy S7 Edge, Xiaomi Redmi 3S, Motorola Moto G4 and Lenovo Vibe K5 Note Smartphones Perform Poorly and Lag Constantly

According to data from Kantar Worldpanel ComTech, sales of Samsung devices achieved 29 percent market share in the three-month period ending November 2016, compared to 31 percent for Apple. In fact, Android phones sold far better than iPhones in China, Germany, France, Italy and Spain – and edged out Apple's iPhones in the US. Samsung's Galaxy S7 and Galaxy S7 Edge devices, in particular, were the fourth and fifth most popular smartphones, accounting for 28.9 percent of all smartphone sales in the region.

In looking at the last five quarters of mobile diagnostics testing data, Samsung consistently had the highest failure rate compared to other Android device manufacturers. Its failure rate jumped from 27 percent in Q4 2015 to 43 percent in Q1 2016. But in the last three quarters (Q2 2016, Q3 2016 and Q4 2016), Samsung has shown signs of improvement with its failure rate dropping to 26 percent, 11 percent and 16 percent, respectively.

We found it particularly interesting that various Samsung smartphone models consistently had high failure rates over the last year. In Q4 2016, in particular, these include the Samsung Galaxy S7 Edge (2 percent), Samsung Galaxy S7 (1 percent), Samsung Galaxy S6 (1 percent), Samsung Galaxy S5 (1 percent) and Samsung Galaxy Note 5 (1 percent). This could be due to the increasing popularity and adoption of these devices around the world.

Key Trends & Insights

Among the many problems experienced on the Samsung Galaxy S7 Edge, users have complained of glitches with the fingerprint scanning, the device randomly freezing or restarting, alerts or notification sounds not playing, overheating and other problems. The Samsung Galaxy S7 has also been a source of frustration for users with a myriad of problems, ranging from audio distortion and SD card glitches to unresponsive screens and WiFi connectivity.

Meanwhile, the Xiaomi Redmi 3S smartphone has had a high failure rate in multiple quarters – at 9 percent in Q3 2016 and 3 percent in Q4 2016. The smartphone offers a meta chassis, Snapdragon 430 and a massive 4100mAh battery that is reported to last at least two days on a full charge. With such a robust hardware configuration, many industry analysts have lauded the manufacturer for offering this smartphone at a reasonable price – nearly half the price of the Moto G4. But for all its strengths, Xiaomi Redmi 3S users have still experienced certain performance issues. In particular, it's been reported that the device's battery drains too quickly, the phone heats up especially when users are playing games and the WiFi and mobile data connection are unstable.

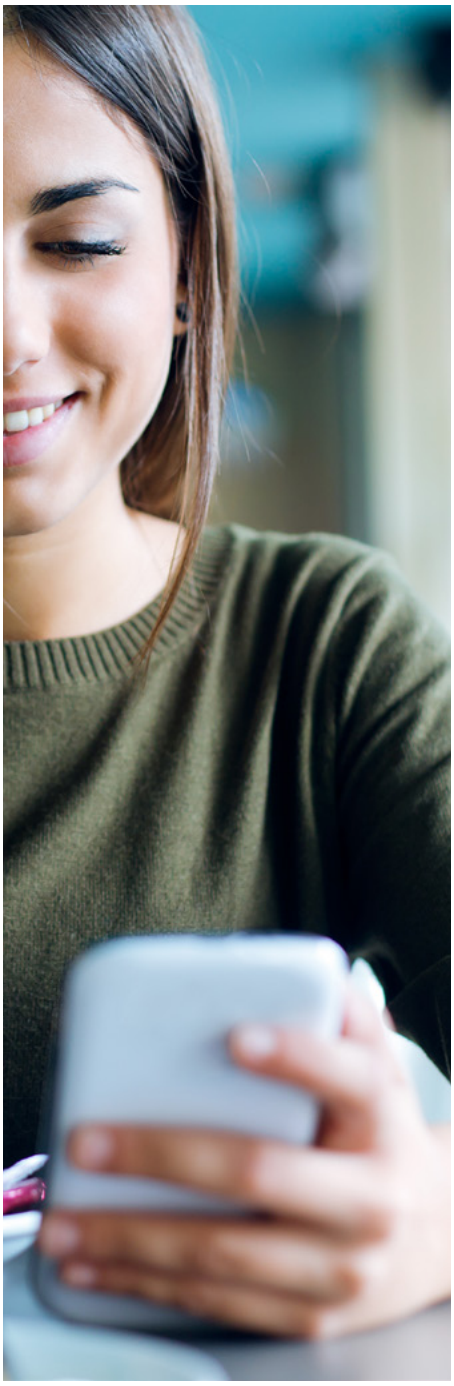
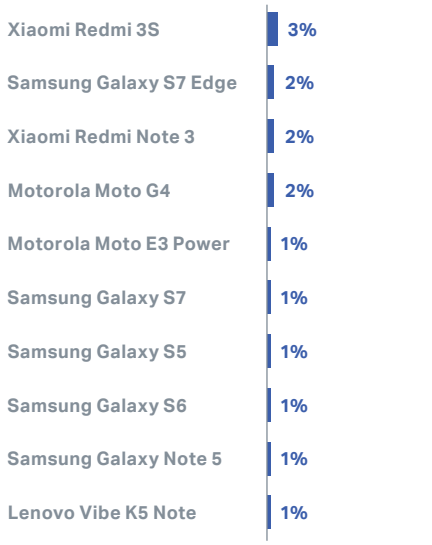


Figure 17.

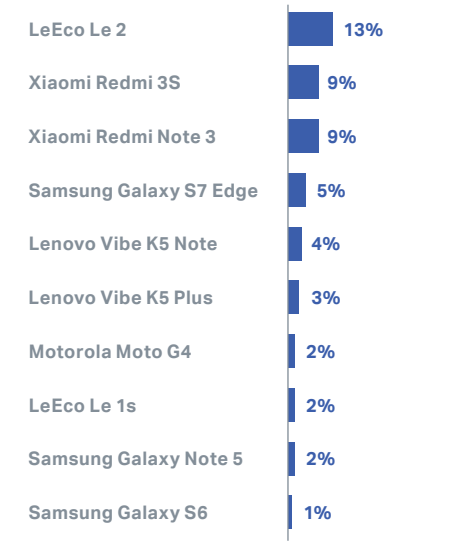
Top 10 Android Models by Failure Rate, Q4 2016



Note: The Android model failure rates are taken as a percentage of the total Android failure rate (47 percent).

Figure 18.

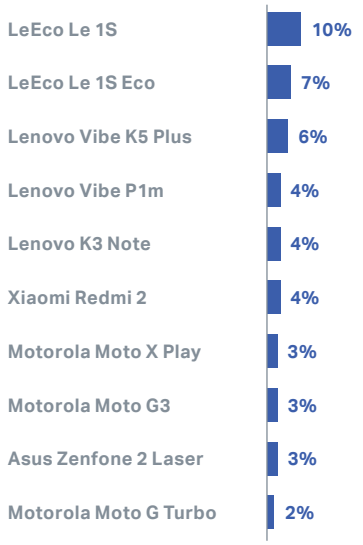
Top 10 Android Models by Failure Rate, Q3 2016



Note: The Android model failure rates are taken as a percentage of the total Android failure rate (47 percent).

Figure 19.

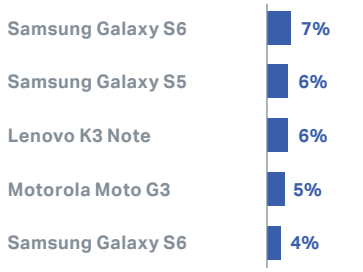
Top 10 Android Models by Failure Rate, Q2 2016



Note: The Android model failure rates are taken as a percentage of the total Android failure rate (35 percent).

Figure 20.

Top 5 Android Models by Failure Rate, Q1 2016



Note: The Android model failure rates are taken as a percentage of the total Android failure rate (44 percent).

Note: Failure rate by Android models data is not available for Q4 2015.

In Q3 2016 and Q4 2016, Motorola's Moto G4 smartphone appeared on the list of Android models with the highest failure rates – at 2 percent and 2 percent, respectively. According to a recent product review on Yahoo News, several Moto G4 users have experienced their devices freezing or rebooting randomly. Another common issue is that the device cannot detect the SIM card – and this has led to signal loss and spotty data connectivity.

Another Android model that failed frequently in the last year is the Lenovo Vibe K5 Note. In various product reviews of the Lenovo Vibe K5 Note, the phone has been lauded for certain features like the fingerprint sensor, the large 5.5 inch full HD display with 401 pixels per inch and the large 3500 mAH battery capacity. But the phone has not been without certain problems. One problem, in particular, is the poor image quality from the camera in low light conditions. Some users have reported that the camera makes noise or produces a grain effect in images. Another major problem with this device is the absence of fast charging technology for the battery. For users who use their device constantly during the day – and play games for hours on end – this could cause the device's battery to drain quickly. This could require users to charge their devices twice – or multiple times – in a day.

Figure 21.

Top 5 iOS Performance Issues Worldwide, Q4 2016

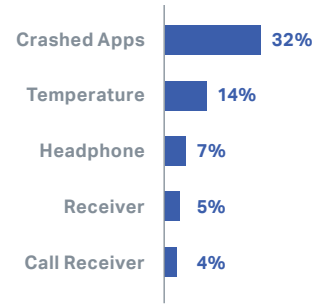
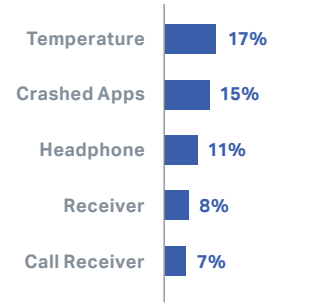


Figure 22.

Top 5 iOS Performance Issues Worldwide, Q3 2016



Crashing Apps, Overheating and Headphone Malfunctions Persist on iPhones

According to our diagnostics testing data, crashing apps have been a constant source of performance issues and failures on iOS devices in the last year. Most recently, crashing apps came in as the top-most performance issue (32 percent) in Q4 2016. During the previous quarter (Q3 2016), this same problem persisted on iPhones, although somewhat less, at 15 percent. And in Q2 2016, crashing apps (65 percent) again caused significant issues on iPhones.

As we explained previously, the iOS 10.2 software update was released on December 12, 2016. However, news articles and user forums point to some 'nasty' surprises that iOS users have experienced after installing iOS 10.2 onto their iPhone, iPad and iTouch devices. In addition to the '30% bug' we described earlier, many users reported that the update has caused apps to crash. In one particular Apple community forum, an iPhone 6 user complains that, after installing iOS 10.2 onto her phone, certain apps like Snapchat randomly crash – turning off and then on again. This is interesting given the fact that Snapchat is among the top 10 list of crashing apps on iOS devices in Q4 2016.

Another common problem that's been reported with various iPhone models is that the Apple earpods have been malfunctioning so users cannot hear anything during phone calls. Although ending and restarting a call has been seen to fix the issue temporarily, users reported that it eventually happened again. In addition, some iOS users reported that the microphone constantly cuts in and out. And it's not just headset issues that plague iOS devices. Bluetooth connectivity was reported as cutting out and being spotty on iPhone 7 and iPhone 7 Plus devices, which have the new 3.5 mm headphone jacks.

In looking at the recurring issue with temperature on iPhones in Q3 2016 and Q4 2016, we noted in one of our previous reports that when users first downloaded and installed the iOS 10 software update, it updates apps in the background. As a result, the update eats into the device's battery power and life – and may cause the device to heat up more than usual.

Figure 23.

Top 5 iOS Performance Issues Worldwide, Q2 2016

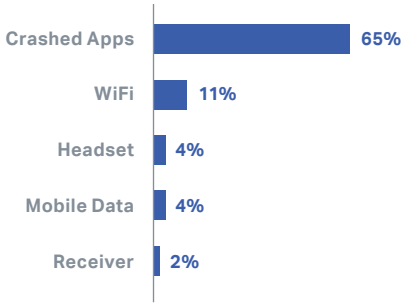


Figure 24.

Top 5 iOS Performance Issues Worldwide, Q1 2016

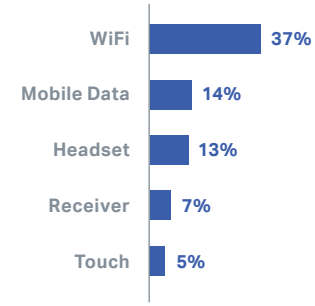
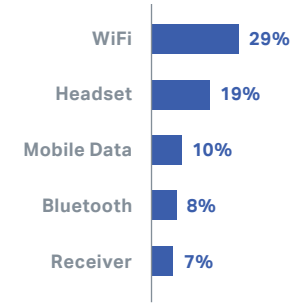


Figure 25.

Top 5 iOS Performance Issues Worldwide, Q4 2015



Camera, Battery Charge and USB Glitches Slow Down Performance of Android Devices

Our diagnostics testing data reveals that the most common performance issues on Android devices vary significantly from those on iOS devices. In the last year, the camera was a consistent problem for Android users – at 11 percent in Q1 2016, 10 percent in Q2 2016, 8 percent in Q3 2016 and 10 percent in Q4 2016.

In looking at the top Android smartphone models that failed each quarter over the last year, the Samsung Galaxy S6 showed up in the list of devices with high failure rates nearly every quarter. While this phone is a popular device among loyal Android users, various glitches with the camera have been reported. When some Galaxy S6 users have attempted to use the camera, they've been greeted with an error message that reads: "Camera failed." Even after rebooting their devices and trying to use the camera again, the camera glitch occurred again.

Users are advised to take the following actions to remedy the problem.

- Turn off the Samsung Galaxy S6 device.
- Press and hold the Volume Up, Home and Power keys together.
- When the device turns back on, the Android icon will appear on the screen. Wait until the Android Recovery Screen appears after 30 seconds.
- Using the Volume Down key, highlight the 'Wipe Data/ Factory Reset' option and press the Power key to select it.
- Press the Volume Down button again until the option 'Yes' appears.
- After the reset is complete, highlight 'Reboot System Now' and hit the Power key to restart the phone. It's important to remember that a factory reset doesn't permanently erase data from Android devices. The use of a factory reset is beneficial for improving device performance, but should not be used as a method of erasing data permanently.

Figure 26.

Top 5 Android Performance Issues Worldwide, Q4 2016

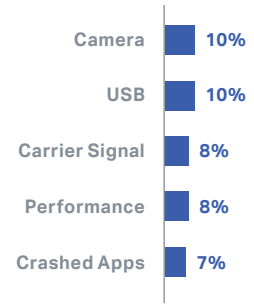


Figure 27.

Top 5 Android Performance Issues Worldwide, Q3 2016

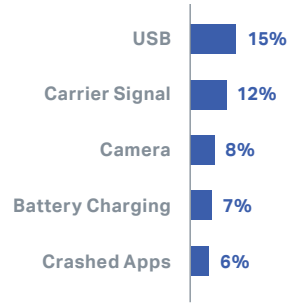
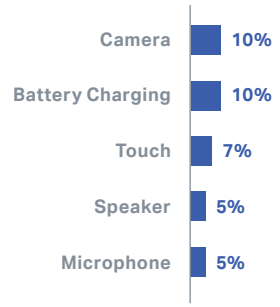


Figure 28.

Top 5 Android Performance Issues Worldwide, Q2 2016



Another problem that has been reported by Samsung Galaxy S6 users is the inability to send picture messages. One reason this may be occurring is if the APN hasn't been set up on the device. The APN is a set of parameters that needs to be entered into the device so it can connect to the user's mobile data network. In order to send and receive picture messages from the device, mobile data is required. If the APN hasn't been set up, users are advised to call their mobile network operator/carrier to help set it up. Once that's been done, users should confirm that mobile data has been enabled in the device's settings before sending picture messages.

Given that Motorola's Moto G4 device ranked as one of the highest failing Android devices in Q4 2016, we decided to take a look at some of the specific issues with this model. Moto G4 is considered to be more of a budget-friendly Android device with a big display, good camera and decent battery life. But it's been known to experience some performance issues. One such problem is a glitch with the camera, which also ranked as the top-most performance issue on Android devices worldwide in Q4 2016. When this camera error has occurred, users reported seeing the following message: "Camera Error, Please restart camera." If this happens repeatedly, it could be a sign of a hardware problem with the device.

If and when this camera error occurs, Moto G4 owners are advised to resolve it by performing the following actions:

- Go to Settings > Apps and find the Camera app.
- Tap Force Stop and tap Clear Cache in Storage.
- Hold down the power button on the phone and tap Power Off.
- Then turn the phone back on and see if the camera works properly.

If these actions don't resolve the camera problem, it's possible that a third-party app could be the cause of the malfunction. One way to test this is to put the device into safe mode – hold the Power key, then tap and hold on Power Off and then tap OK to reboot to safe mode. Once the device has been rebooted, users should see Safe Mode in the bottom left corner of the display. If the camera works properly, then an app installed on the phone is likely to blame. In such an instance, it may be beneficial to uninstall any apps that use the camera first (i.e. Snapchat, Instagram and even flashlight apps that use the camera flash). Then restart the device and test it again to see if the camera works. If both of these methods don't resolve the issue, then users should contact their device manufacturer or wireless carrier to diagnose and repair the problem.

Additionally, Android devices tend to suffer from a multitude of battery problems. As our data shows, battery charge consistently caused problems for Android users – at 8 percent in Q4 2015, 9 percent in Q1 2016, 10 percent in Q2 2016 and 7 percent in Q3 2016. To understand why battery charge has been a recurring problem on Android devices, we decided to take a look at some Android smartphone models that have struggled in this area.

On August 19, 2016, the Samsung Galaxy Note 7 launched, with a TIME article describing it as "a modest but welcome improvement over its predecessor, offering a more ergonomic design, an enhanced stylus, the same camera as its Galaxy S7 cousin and some software tweaks." Soon after, reports began to trickle in of the phone's battery exploding and catching fire. While not all of the cases were extreme,

one man in Florida reported that his SUV burst into flames after he charged his Samsung Galaxy Note 7 inside his car. Following these types of reports and incidents, Samsung launched device exchange programs in various countries. In September 2016, the electronics giant recalled nearly 2.5 million Galaxy Note 7 Phones after complaints of exploding batteries. But as the problems persisted, Samsung then permanently halted production of its Note 7 phones.

Meanwhile, a review in TechRadar of Motorola's Moto G4 described its battery performance as "about average." The article also called into question the manufacturer's claims that the device's battery could last a full 24 hours without needing to be recharged. Interestingly, the Motorola Moto G4 ranked in the top 10 list of failing Android devices with a failure rate of 2 percent in Q3 2016 and 2 percent in Q4 2016.

Finally, our data reveals that the USB has been a persistent source of frustration for Android users. More specifically, the USB ranked in the list of the top 5 performance issues on Android devices in Q3 2016 (15 percent) and Q4 2016 (10 percent). Meanwhile, several Samsung Galaxy S6 users have reported problems with connecting their phones to their computers via the USB cable. One reason for this could be that the USB cable wire has become damaged or bent, which makes data transmission or charging problematic.

To remedy this problem, Samsung Galaxy S6 users are advised to connect the device to another computer with a working USB port. If the device connects properly and is able to transmit data, then it means the USB port on the Samsung Galaxy S6 is damaged. To solve the problem, users should contact their mobile network operator/carrier or device manufacturer to diagnose what's really going on and either have it repaired or replaced.

Figure 29.

Top 5 Android Performance Issues Worldwide, Q1 2016

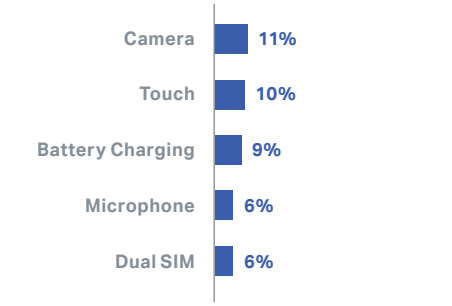
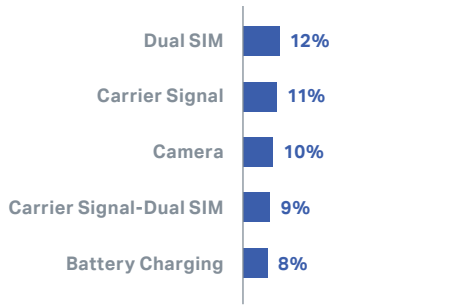


Figure 30.

Top 5 Android Performance Issues Worldwide, Q4 2015

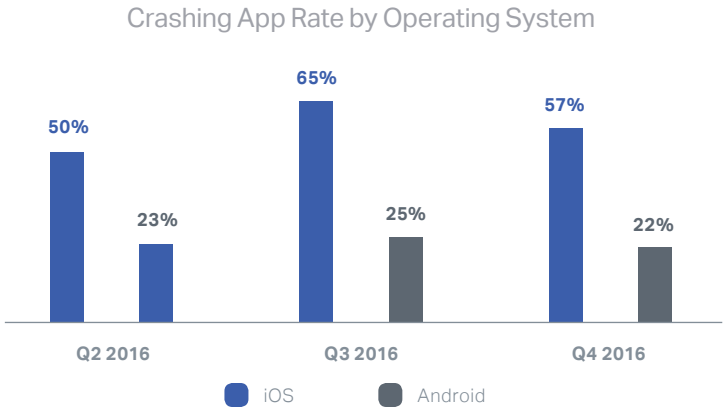


Apps Crash More Than Twice as Much on iPhones as on Android Devices

In the last year, iOS apps have crashed significantly more often on iPhones than on Android devices. In fact, the crashing app rate on iOS devices increased from 50 percent in Q2 2016 to 65 percent in Q3 2016. However, iOS apps may not be as doomed as some might think, as the iOS crashing app rate has now dropped to 57 percent in Q4 2016.

As we've explained in our previous reports, there are several reasons for apps to crash. One such reason could be user behavior. More specifically, apps could crash if a user hasn't updated the app to the latest software version. A second reason for crashing apps could be that a user hasn't updated the device to the latest operating system. And of course, another cause could be related to the poor design of an app itself.

Figure 31.



Note: Crashing app rate data is not available for Q1 2016 and Q4 2015.

Facebook, Instagram and Snapchat Apps Crash Regularly on iPhones

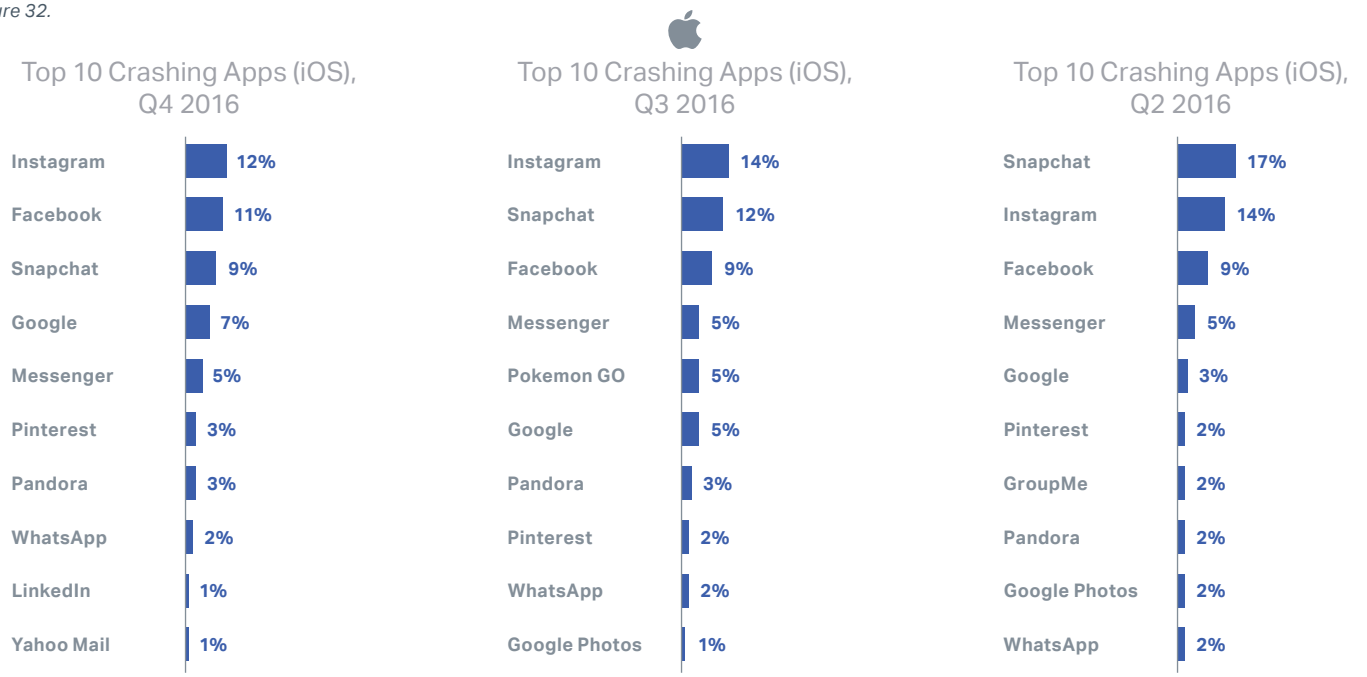
Our data reveals that the Facebook iOS app has crashed frequently, quarter after quarter. In Q2 2016 and Q3 2016, the social media app crashed at a rate of 9 percent. In the following quarter (Q4 2016), however, the app crashed more than the previous quarters at a rate of 11 percent.

Additionally, the crashing rate for both the Instagram and Snapchat iOS apps dropped quarter over quarter from Q3 2016 to Q4 2016. The Snapchat iOS app, in particular, fared better – with the crashing rate dropping from 17 percent in Q2 2016 to 12 percent in Q3 2016 to 9 percent in Q4 2016. Meanwhile, the Instagram iOS app ranked in the top 3 crashing iOS apps consecutively from Q2 2016 through Q4 2016 – at 14 percent, 14 percent and 12 percent, respectively.

A key reason these three social media apps have crashed so often on iOS devices could be due to their immense popularity and usage by mobile users around the world. The original Facebook app, which was created back in 2010, wasn't native and was known to be slow until Facebook launched the native iOS app in August 2012. This update improved the app's performance considerably and it has since gone through approximately 60 iterations to become one of the most widely used apps in the world.

As of 2016, the number of US users of the Facebook iOS app reached 47 million each month – making it the most popular iOS app.

Figure 32.



Note: Top 10 iOS crashing apps data is not available for Q4 2015 and Q1 2016.

Google Play Services and Yahoo Mail Android Apps Crash Frequently

On Android devices, Google Play Services has repeatedly made the list of top crashing apps in the last year. It emerged as a considerable problem in Q2 2016 (12 percent). But the app showed signs of improvement when its crashing rate dropped to 10 percent in Q3 2016 and then 5 percent in Q4 2016.

Interestingly, the Yahoo Mail app also crashed frequently on Android devices in the last two quarters – at 2 percent in Q3 2016 and 1 percent in Q4 2016. In these cases, it's important to note that changes were made to Google Push notifications on July 23, 2016. This caused older versions (5.0 – 5.5) of the Yahoo Mail app for Android to crash when notifications are received.

To fix this problem, Yahoo recommends that Android users download the latest version of the Yahoo Mail app from Google Play. To avoid this from happening in the future, users can enable their apps to be updated automatically. Keeping installed apps updated gives you access to the latest features and improves app security and stability.

How to Enable Automatic Updates to Android Apps

- ☑ Open the Google Play Store app
- ☑ Tap Menu > Settings
- ☑ Tap Auto-Update Apps
- ☑ Select one of the following options:
  - Auto-update apps at any time
  - Auto-update apps over WiFi only

**If an account on the device has a sign-in error, apps may not update automatically.*

Figure 33.

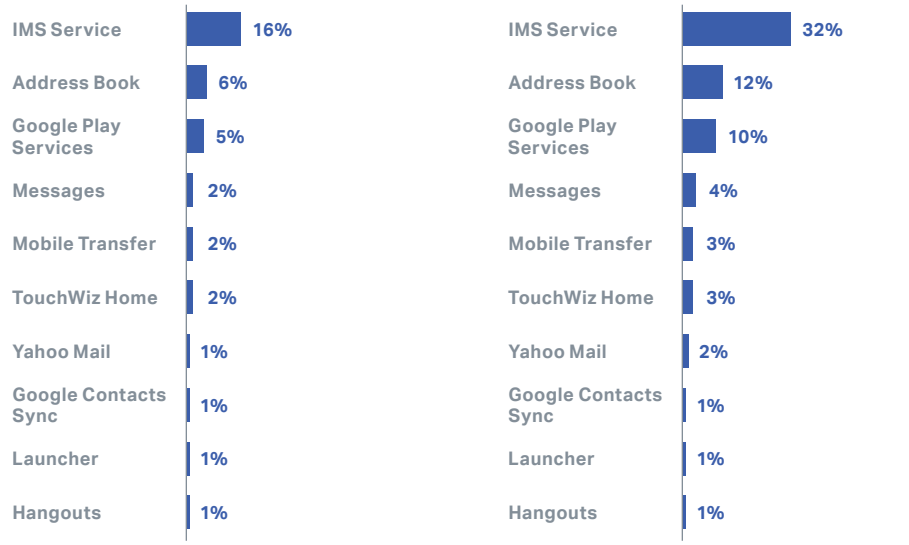
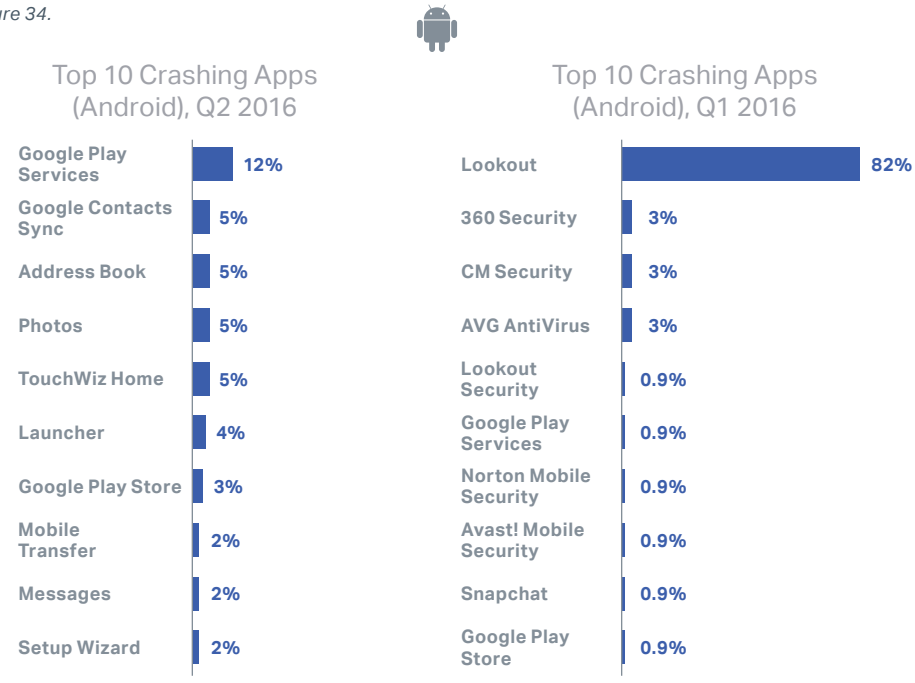


Figure 34.



Note: Top 10 Android crashing apps data is not available for Q4 2015.

Conclusion

Through data collected from millions of iOS and Android devices brought into wireless carriers and device manufacturers for testing, we have learned that iOS devices are less stable than Android devices with more performance issues and higher failure rates. Additionally, our data reveals that newer iPhone models – particularly the iPhone 6, iPhone 6S, iPhone 7 and iPhone 7 Plus – are prone to frequent performance issues, including crashing apps, overheating and headphone issues. There are implications from these findings for both mobile providers (device manufacturers and carriers) and enterprise organizations that increasingly allow BYOD use in the workplace.

For Manufacturers and Carriers

In today's highly competitive marketplace, mobile carriers and device manufacturers must deliver maximum value for their customers and improve the customer care experience across every channel. This has led to greater investments in staff training, education and technology – with the intent of keeping existing customers satisfied and loyal, boosting their Net Promoter Scores, reducing subscriber churn and increasing foot traffic and contract upsell opportunities. But the key to achieving these goals is being able to diagnose and repair device issues quickly, easily and accurately.

For Enterprise Organizations

More employees use their personal mobile devices inside and outside of the workplace than those who don't. Because of BYOD's increasing popularity among enterprise organizations, the IT and support desk teams have ultimately become the go-to 'fix it' source when employees' devices don't function properly. This creates a burden on IT and support desk workloads and manpower, which could be reduced significantly if employees understand how to optimize their own devices.

About the Technology Powering the Report

Through our Blancco Mobile Diagnostics solutions, we help some of the world's biggest and most iconic wireless carriers and device manufacturers automate and scale the diagnostics process across the entire mobile lifecycle and across every channel. To see how our Blancco Mobile Diagnostics solutions and business intelligence can help reduce the quantity and frequency of 'No Trouble Found' device returns, increase your Net Promoter Score and save millions of dollars each year, schedule a demo today.

About Blancco

Blancco is the de facto standard in data erasure and mobile device diagnostics. The Blancco Data Eraser solutions provide thousands of organizations with an absolute line of defense against costly security breaches, as well as verification of regulatory compliance through a 100% tamper-proof audit trail. Our data erasure solutions have been tested, certified, approved and recommended by 18 governing bodies around the world. No other security firm can boast this level of compliance with the most rigorous requirements set by government agencies, legal authorities and independent testing laboratories.

The Blancco Mobile Diagnostics solutions enable mobile network operators, retailers and insurers to easily, quickly and accurately identify and resolve performance issues on their customers' mobile devices. As a result, mobile service providers can spend less time dealing with technical issues and, in turn, reduce the quantity of NTF returns, save on operational costs and increase customer satisfaction.

For more information, visit our website at www.blancco.com.

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