The Mobile Internet
Phenomena Report
February 2020

Welcome to the Mobile Phenomena Report

A word from Lyn Cantor, CEO, Sandvine

Mobile networks are an integral part of the consumer and business experience today. If you want to see a consumer start to get antsy, take their mobile device from them! Consumers increasingly expect their mobile devices to deliver a high quality of experience (QoE), even for high bandwidth traffic like video streaming and cloud gaming.
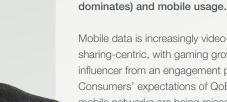
The most important asset that a mobile operator can have is a clear view of how their network is delivering services to their users. This clear understanding drives their entire business strategy: investments, service planning, product launches, and even technology strategies. Without a granular view, mobile operators are hoping that best practices can get them where they want to be.

As 5G networks are deployed, this problem will become even more acute. Network slicing, massive IoT deployments, and higher expectations will be present from day one of network launch. With many 5G roll-outs targeting fixed line replacement services, network congestion (especially from streaming video) can be expected from the very beginning.

Our goal with the Mobile Report is to inform the global community on the 'internet phenomena' we live in every day at Sandvine. Our focus on network intelligence ensures that we will continue to provide unique insights into the applications and content that drive internet traffic growth every day.

We hope you will enjoy the report. If you have any suggestions on how we can make this report better, please reach out to phenomena@sandvine.com – we would appreciate your input.
Lyn Cantor, CEO, Sandvine

Welcome to the Mobile Internet Phenomena Report

Last year's Mobile Report highlighted the differences between the overall Global Internet Phenomena Report (where fixed bandwidth dominates) and mobile usage.

Mobile data is increasingly video- and social-sharing-centric, with gaming growing as an influencer from an engagement perspective. Consumers' expectations of QoE from their mobile networks are being raised, by both aggressive marketing by mobile operators as well as their reliance on mobile connectivity.

Over the past few Phenomena Reports, we have begun to see some definitive trends in usage that operators can use to drive their thought processes on how to deliver more compelling services to their subscribers.

This edition of the Mobile Internet Phenomena Report will cover the global and regional micro views of the composition of traffic on the mobile internet, and is drawn from a larger sample than last year, which may affect some of the results (in a positive way).

The Mobile Internet Phenomena Report ranks applications based on their "traffic share." The fascinating data that fuels the report illustrates the disconnect between "market share" for companies defined by subscriber counts and how often subscribers use a service. Traffic share is defined as the percentage of network resources used by a specific application relative to other applications.

After each report, I often get requests for more detail from different application vendors who are not happy with how their application showed in the report. The irony in this is that the better your application is written (i.e., the less bandwidth you require to deliver good QoE), the more engagement you will require from users to rank highly. Netflix historically has the most efficient video codecs, so they rank lower than they would if they used less efficient codecs.

Keep this in mind as you go through the report – usage is a combination of engagement and the bandwidth needed to run the application. If you want more of an explanation on this, please feel free to reach out to me directly.

For global and regional overall reports, we rank all applications that Sandvine can see with our ANI Classification Engine. This list has almost 3,500 applications and grows on a weekly basis.
**Cam Cullen,
VP of Marketing, Sandvine**

About the Mobile Internet Phenomena Data

The data in this edition of the Mobile Internet Phenomena Report is drawn from Sandvine's installed base of mobile operators worldwide. The report does not include significant data from either China or India, but the data represents a portion of Sandvine's 2.5B subscribers installed base, a statistically significant segment of the internet population.

This edition is solely focused on mobile data in order to provide a targeted model that mobile operators can draw from to begin their planning process.

Within each section, Sandvine measured the total global traffic share (not just peak hour) for applications from several different perspectives:

- **Downstream:** This is the traffic volume downloaded from the internet. Examples would be a video stream, a file download, or an app download from Apple's App Store.

- **Upstream:** This is the traffic volume uploaded to the internet. It could be requests for content (i.e., browsing the Netflix library), an interactive messaging session, or a Twitch stream of a gaming session from a console.

- **Connections:** This represents the number of "conversations" occurring for an application. Some applications use a single connection for all traffic, others (like Netflix, BitTorrent, or Pokemon Go) use many connections to transfer data or video to the end user.

Section Overview

Section 1: Global News

HIGHLIGHTS IN THIS EDITION
A brief overview of some of key findings in this issue of the Mobile Internet Phenomena Report – done in an infographic style.

EXECUTIVE OVERVIEW
What are the phenomena that are dominating the mobile internet in 2020 and what marks mobile as different to fixed? Video traffic is sure to be the biggest contibutor, right? What other classes of traffic dominate the downstream, upstream, and total volume of traffic on the mobile internet?

GLOBAL MOBILE APPLICATION TRAFFIC SHARE
What applications are the leading consumers of mobile internet bandwidth? Has the current drive to video on social networks for advertising made an impact? Is YouTube still the king?

Section 2: Regional News

NORTH AMERICA'S MOBILE TRAFFIC SHARE
AWS begins to move up the charts as a massive source of upstream traffic and WhatsApp replaces SMS for users all across the Americas.

LATIN AMERICA'S MOBILE TRAFFIC SHARE
Latin America's predominantly usage-based pre-paid mobile plans directly influence users' mobile applications of choice. YouTube and WhatsApp lead the charts as a result of this behavior.

EUROPE'S MOBILE TRAFFIC SHARE
What happens on mobile networks with unliimited data plans? They begin to resemble fixed networks with their application mix – addiing BitTorrent and more Netflix to the traditional mobile mix.

MIDDLE EAST and AFRICA'S MOBILE TRAFFIC SHARE
Social sharing ecosystem dominates the region for mobile traffic.

ASIA PACIFIC'S MOBILE TRAFFIC SHARE
Facebook and YouTube continue to dominate in the Asia Pacific region, and Facebook properties continue to grow even from an already strong base.

Section 3: Spotlights

SPOTLIGHT: FIXED MOBILE REPLACEMENT
How will the initial 5G networks that are being sold for fixed mobile replacement be consumed? Will they look like the consumer 4G networks of today? Or will they look like fixed networks? We look at a 4G network used as a fixed line replacement to forecast 5G.

SPOTLIGHT: QOE PHENOMENA
How does the traffic volume of the Phenomena Report actually get delivered to users? We look at how QoE relates to volume and can directly impact investments and monetization.

INFOGRAPHIC COLLECTION AND RESOURCES
Want to use some of this data? We have a handy collection of resources to simplify re-use of the data in the Phenomena Report, as well as links to more information if you have questions for us.

Highlights in this edition

12.74% of Mobile use is **SOCIAL MEDIA**

65% of worldwide mobile downstream traffic is **VIDEO**

PERCENTAGE OF GLOBAL MOBILE TRAFFIC

facebook properties

Everything Else

33% DOWNSTREAM

28% UPSTREAM

SOCIAL VIDEO

2.76% GLOBAL MOBILE TRAFFIC is **WhatsApp**

2ND OVERALL IN LATAM AND N. AMERICA

40% OF ALL **MESSAGING TRAFFIC ON MOBILE** is **WhatsApp**

PLAYERUNKNOWN'S BATTLEGROUNDS

NO.1 MOBILE GAMING WORLDWIDE

Executive Overview

GLOBAL APPLICATION CATEGORY TRAFFIC SHARE

1	**VIDEO STREAMING: 62.06%**
	65.5% ⬇ 22.4% ⬆

2	SOCIAL: 12.74%
	12.9% ⬇ 16.8% ⬆

3	MESSAGING: 6.77%
	5.9% ⬇ 16.9% ⬆

4	MARKETPLACE: 5.64%
	5.9% ⬇ 1.9% ⬆

5	WEB: 5.46%
	4.2% ⬇ 19.5% ⬆

6	GAMING: 3.29%
	3.7% ⬇ 3.3% ⬆

7	CLOUD: 1.80%
	0.3% ⬇ 7.0% ⬆

8	SECURITY AND VPN: 1.34%
	0.8% ⬇ 7.9% ⬆

9	FILESHARING: 0.86%
	0.6% ⬇ 3.8% ⬆

10	AUDIO STREAMING: 0.04%
	0.2% ⬇ 0.5% ⬆

Video dominates mobile

The 2019 Global Internet Phenomena Report showed that video was 60% of downstream traffic overall on the internet. The 2020 totals for mobile video are even higher, with 62% overall and over 65% of all downstream traffic.

Video traffic continues to grow worldwide, and the increasing popularity of mobile consumers sharing video has not only caused growth in downstream traffic, but also in upstream traffic as well. Instagram grew in the upstream as more consumers share images and videos. TikTok, Snapchat (video), FaceTime, and even Facebook Live were all in the top 50 applications worldwide on the upstream that are video-sharing-centric.

Social networking is second overall on mobile for traffic share with 12.74% of overall traffic, and over 16% on the upstream, where it shows well due to the video phenomena that was described above. A few notes on the overall social share that are worth noting – Snapchat, Facebook Video, TikTok, and all of the messaging applications are not counted as social, but instead are part of their "native" classifications. We'll touch more on this area in a later section of the report because, although the application classes are different, they are part of the same phenomena.

Messaging applications, especially on the upstream, continue to become a critical part of the mobile experience, replacing old style text messaging, and increasingly are video-based. Four of the top

20 applications on the upstream are messaging apps – Facebook VoIP, WhatsApp, Snapchat, and FaceTime.

Marketplace traffic is the aggregation of the traffic to the app stores that service various ecosystems with purchases and, more importantly from a volume perspective, updates. Not only the Google Play Store and the Apple App Store, but also Microsoft, Samsung, Sony, and Huawei updates. The volume of updates seems to grow each year, and this category will continue to grow even though many users only update on WiFi.

Gaming is also continuing to grow on mobile networks, even though gaming downloads are part of the Marketplace category above (unlike the Global Internet Phenomena Report where gaming downloads are almost 97% of all gaming traffic today). The improved performance of 4G and the coming promise of 5G will continue to drive at least casual gamers to mobile networks, and with many games falling into the casual category of "login, update my fortress/farm/zombie/cats, then log off," mobile devices are perfect for that.

Outside of those categories, there is still a good deal of normal web traffic (with fortunately HTTP unencrypted traffic comprising only .3% of all traffic), lots of cloud traffic on the upstream (to fuel the social sharing revolution), and drips of other application types.
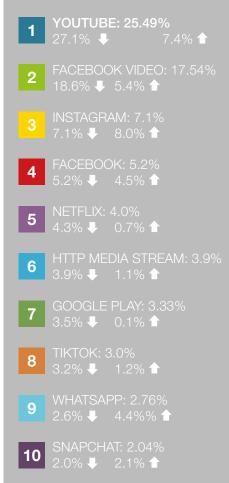
Let's go down to the specific applications and the regional view to see how the top applications fared worldwide.

65%
of worldwide mobile downstream traffic is **VIDEO**

Global Mobile Application Traffic Share

GLOBAL APPLICATION TRAFFIC SHARE

1 **YOUTUBE: 25.49%**
27.1% ⬇   7.4% ⬆

2 **FACEBOOK VIDEO: 17.54%**
18.6% ⬇ 5.4% ⬆

3 INSTAGRAM: 7.1%
7.1% ⬇   8.0% ⬆

4 FACEBOOK: 5.2%
5.2% ⬇   4.5% ⬆

5 NETFLIX: 4.0%
4.3% ⬇   0.7% ⬆

6 HTTP MEDIA STREAM: 3.9%
3.9% ⬇   1.1% ⬆

7 GOOGLE PLAY: 3.33%
3.5% ⬇   0.1% ⬆

8 TIKTOK: 3.0%
3.2% ⬇   1.2% ⬆

9 WHATSAPP: 2.76%
2.6% ⬇   4.4%% ⬆

10 SNAPCHAT: 2.04%
2.0% ⬇   2.1% ⬆

I Tube, YouTube, We all Tube...

YouTube is still the commanding leader on the worldwide mobile internet, but not by quite as much as last year. Facebook Video is up signficantly from last year, and it is up in both the Americas and Europe, where it has become the political advertising medium of choice, and the sample period for this report was squarely in the middle of election season.

YouTube: YouTube maintains their number one position on mobile networks in 2020, despite the continued rise of WiFi usage and alternative video sources, especially on social networks.

Facebook Video: Facebook Video rises dramatically in 2020, but I have suspicions that this rise is partially due to the political activity around Europe and the US, where numbers were up this year for Facebook Video.

Instagram: Instagram continues to grow in importance in the social landscape, with video a central part of the value offering for users as well as influencers and advertisers.

Facebook: Facebook isn't the "cool" social network anymore (see Instagram above), but it is still the place that billions of people access daily. Facebook has become a powerful targeted advertising machine.

Netflix: Netflix is up over last year on mobile, as people take advantage of unlimited data plans, mobile downloads, and continued investment in compelling content.

HTTP Media Stream: As shown in the Global Report, this is a catch-all bucket for video streaming services that are consumed by users that Sandvine is not tracking uniquely, like we are Netflix, Hulu, Amazon Prime, and others.

Google Play: Interestingly enough this year, Google Play is higher than the App Store, which is not even in the top 10 this year. This is not necessarily saying that Android phones are more popular than iPhones, but that Android apps are at least updating more frequently or with larger updates than the Apple ecosystem (at least from this year's sample).

TikTok: TikTok moves up the charts from the number 11 position to number eight, continuing strong growth and engagement during 2019. The app has picked up major campaigns with the NBA, NFL, Calvin Klein, and Red Bull, and continues to pick up steam as a "fun" place to share video content.

WhatsApp: WhatsApp continues to be the leading mobile messaging platform worldwide. The fourth Facebook property in the top 10, it has replaced text messaging for over 1.5B users a month, and is strong in every region of the world.

Snapchat: Snapchat punches above its weight compared to many other applications on this list, with "only" ~360M monthly users. However, those that do use it are rabid consumers and creators of content, with the app being used frequently and with text, voice, and video messages both to individuals as well as subscription groups.

SOCIAL VIDEO

Video usage on social media has skyrocketed, partially due to its effectiveness in political advertising

AMERICAS ⬇ TRAFFIC SHARE TOP 10

1	YOUTUBE	42.33% ⬇
2	WHATSAPP	8.91% ⬇
3	FACEBOOK VIDEO	7.23% ⬇
4	INSTAGRAM	6.73% ⬇
5	GOOGLE PLAY	6.03% ⬇
6	FACEBOOK	2.56% ⬇
7	HTTP DOWNLOAD	2.53% ⬇
8	GOOGLE	1.63% ⬇
9	APP STORE	1.54% ⬇
10	HTTP MEDIA STREAM	1.38% ⬇

AMERICAS ⬆ TRAFFIC SHARE TOP 10

1	WHATSAPP	26.64% ⬆
2	GOOGLE	20.34% ⬆
3	YOUTUBE	15.37% ⬆
4	ICLOUD PHOTO	6.63% ⬆
5	SAMSUNG CLOUD	5.60% ⬆
6	AMAZON AWS	5.31% ⬆
7	INSTAGRAM	5.17% ⬆
8	ICLOUD	4.46% ⬆
9	SKYPE	4.24% ⬆
10	FACEBOOK	3.09% ⬆

AMERICAS TOTAL TRAFFIC SHARE TOP 10

1	YOUTUBE	39.79%
2	WHATSAPP	10.57%
3	FACEBOOK VIDEO	6.81%
4	INSTAGRAM	6.59%
5	GOOGLE PLAY	5.64%
6	GOOGLE	3.38%
7	FACEBOOK	2.61%
8	HTTP DOWNLOAD	2.37%
9	APP STORE	1.44%
10	HTTP MEDIA STREAM	1.29%

AWS rains traffic

Even with the strength of the iPhone in North America, the proliferation of Android devices has a far reaching impact as the Google ecosystem is fully leveraged on Android devices.

YouTube may be number one, but Google applications and content are prolific in the top applications in North America. The Google Play Store, and Google search are all in the top 10 for total volume, making up almost 49% of all traffic in North America alone.

Another interesting entrant into the top 10 on the upstream is traffic to Amazon AWS. This is a collection of traffic that is using AWS as their hosting, but Sandvine isn't tracking the specific application – which, if you read Amazon's results, is millions of apps! AWS appears in five of the six regions in the top 10 on the upstream, and it would not be a surprise if that grew like crazy over the next few years.

WhatsApp shows strongly in North America, improving their position on the upstream from seventh to first this year, and being second overall. Last year, Snapchat was the leading messaging application in the region, but this year WhatsApp made huge strides worldwide.

The growth in storage on phones has continued to drive volume to the main app strores – Google Play and the App Store – not just for initial downloads, but the constant updating process on both the mobile network and on WiFi.

LATAM ⬇ TRAFFIC SHARE TOP 10

#	App	Share
1	YOUTUBE	42.33% ⬇
2	WHATSAPP	8.91% ⬇
3	FACEBOOK VIDEO	7.23% ⬇
4	INSTAGRAM	6.73% ⬇
5	GOOGLE PLAY	6.03% ⬇
6	FACEBOOK	2.56% ⬇
7	HTTP DOWNLOAD	2.53% ⬇
8	WINDOWS UPDATE	1.75% ⬇
9	GOOGLE	1.63% ⬇
10	HTTP MEDIA STREAM	1.38% ⬇

LATAM ⬆ TRAFFIC SHARE TOP 10

#	App	Share
1	WHATSAPP	21.03% ⬆
2	GOOGLE	16.06% ⬆
3	YOUTUBE	12.14% ⬆
4	ICLOUD PHOTO	5.24% ⬆
5	SAMSUNG CLOUD	4.42% ⬆
6	AMAZON AWS	4.19% ⬆
7	INSTAGRAM	4.09% ⬆
8	ICLOUD	3.52% ⬆
9	SKYPE	3.35% ⬆
10	FACEBOOK	2.44% ⬆

LATAM TOTAL TRAFFIC SHARE TOP 10

#	App	Share
1	YOUTUBE	38.82%
2	WHATSAPP	10.31%
3	FACEBOOK VIDEO	6.64%
4	INSTAGRAM	6.43%
5	GOOGLE	3.30%
6	FACEBOOK	2.55%
7	HTTP DOWNLOAD	2.31%
8	WINDOWS UPDATE	1.60%
9	HTTP MEDIA STREAM	1.25%
10	APP STORE	1.24%

WhatsApp?

Messaging in LATAM in 2020 accelerated migration from one Facebook app (Messenger) to another (WhatsApp).

In a pre-paid dominated market, subscribers are looking to take advantage of things that use the least amount of data possible. In the mobile world, YouTube is that for video, and WhatsApp replaces the cost associated with SMS messages. The Android ecosystem also dominates in this market for the same reason – a proliferation of low cost devices that meet the needs of consumers.

The outlier in the region is the appearance of Windows Update on the top traffic list on the downstream. This could be due to legacy Windows mobile devices in region (less likely) or people using mobile devices as internet modems that fall victim to Patch Tuesday on a regular basis. This is the only region that has this anywhere in the Mobile Report, so it definitely caught the eye in the data.

iCloud Photo, Samsung Cloud, Amazon AWS, and iCloud demonstrate the incessant flow of data into the cloud from mobile devices. Most consumers send all photos, videos, and even documents to at least one (and some do multiple). AWS represents an aggregation of millions of applications feeding into application ecosystems that use the data to store progress or content for apps. The saying "it's all in the cloud" has never been more true than today.

2.76%
GLOBAL MOBILE TRAFFIC
is **WhatsApp**
2ND OVERALL IN LATAM AND N. AMERICA

40%
OF ALL
MESSAGING TRAFFIC ON MOBILE
is **WhatsApp**

Europe: Mobile Application Traffic Share

EUROPE ⬇ APPLICATION TRAFFIC SHARE TOP 10

1	YOUTUBE	27.03% ⬇
2	FACEBOOK VIDEO	17.81% ⬇
3	INSTAGRAM	7.11% ⬇
4	FACEBOOK	5.26% ⬇
5	NETFLIX	4.35% ⬇
6	HTTP MEDIA STREAM	3.94% ⬇
7	GOOGLE PLAY	3.54% ⬇
8	TIKTOK	3.10% ⬇
9	WHATSAPP	2.67% ⬇
10	PLAYSTATION DOWNLOAD	2.15% ⬇

EUROPE ⬆ APPLICATION TRAFFIC SHARE TOP 10

1	GOOGLE	11.45% ⬆
2	INSTAGRAM	8.15% ⬆
3	YOUTUBE	7.35% ⬆
4	FACEBOOK MESSENGER	5.56% ⬆
5	FACEBOOK VIDEO	5.53% ⬆
6	BITTORRENT	4.76% ⬆
7	WHATSAPP	4.04% ⬆
8	GOOGLE CLOUD STORAGE	3.81% ⬆
9	AMAZON AWS	3.38% ⬆
10	IPSEC VPN	3.33% ⬆

EUROPE TOTAL TRAFFIC SHARE TOP 10

1	YOUTUBE	25.45%
2	FACEBOOK VIDEO	17.81%
3	INSTAGRAM	7.19%
4	FACEBOOK	5.21%
5	NETFLIX	4.06%
6	HTTP MEDIA STREAM	3.72%
7	GOOGLE PLAY	3.33%
8	TIKTOK	2.95%
9	WHATSAPP	2.78%
10	SNAPCHAT	2.07%

Unlimited impact

What happens to a mobile network when unlimited plans are offered with no (or very soft) caps on usage? What about when the 4G network is better than the copper network servicing your home?

The mobile network acts a little bit more like a fixed network. We saw this in both Europe and the Middle East last year, and it continues here. 5G networks are likely to exhibit more of this behavior, especially with the early offerings being fixed home modems. These networks exhibit more Netflix, where file sharing will pop up (#6 on the upstream), and you will see gaming networks present (like the Playstation Network at #10). Europe was huge with file sharing in the 2019 Global Report, and if you have an unlimited plan, why not?

Europe also saw the debut of TikTok on the regional charts (and new to Europe since it was not in the top 10 last year), building a foundation for it to climb the charts to hit its global position.

Europe also has IPsec VPNs on the Global Report (at #6), and last year the only region that had IPsec on the charts was the Middle East. But, it makes an appearance this year on the Mobile Report – likely due to the aforementioned fixed network behavior.

Just as last year, Instagram is the driver for a lot of European traffic – the beauty of the continent serving as the backdrop for many an Instagram moment that must be shared with everyone!

Middle East/Africa: Mobile Application Traffic Share

MEA ⬇ APPLICATION TRAFFIC SHARE TOP 10

#	Application	Share
1	YOUTUBE	27.75% ⬇
2	FACEBOOK VIDEO	18.74% ⬇
3	INSTAGRAM	6.47% ⬇
4	FACEBOOK	5.36% ⬇
5	HTTP MEDIA STREAM	3.97% ⬇
6	NETFLIX	3.72% ⬇
7	GOOGLE PLAY	3.56% ⬇
8	TIK TOK	3.20% ⬇
9	WHATSAPP	3.05% ⬇
10	PLAYSTATION DOWNLOAD	2.26% ⬇

MEA ⬆ APPLICATION TRAFFIC SHARE TOP 10

#	Application	Share
1	GOOGLE	11.38% ⬆
2	INSTAGRAM	7.73% ⬆
3	YOUTUBE	7.72% ⬆
4	FACEBOOK VIDEO	5.76% ⬆
5	FACEBOOK MESSENGER	5.51% ⬆
6	FACEBOOK	4.51% ⬆
7	WHATSAPP	4.23% ⬆
8	GOOGLE CLOUD STORAGE	4.13% ⬆
9	IPSEC VPN	3.64% ⬆
10	AMAZON AWS	3.41% ⬆

MEA TOTAL TRAFFIC SHARE TOP 10

#	Application	Share
1	YOUTUBE	26.15%
2	FACEBOOK VIDEO	18.74%
3	INSTAGRAM	6.57%
4	FACEBOOK	5.29%
5	HTTP MEDIA STREAM	3.75%
6	NETFLIX	3.72%
7	GOOGLE PLAY	3.56%
8	TIKTOK	3.20%
9	WHATSAPP	3.05%
10	SNAPCHAT	2.17%

The rise of social sharing

The Internet Phenomena Reports have highlighted a "combination" that we call social sharing.

Social sharing is the combination of not only social networking, but also the ecosystem that enables and feeds it. If you take a look at how social content is shared, people download apps that they can use on their devices to edit photos and videos: they take pictures or videos (which promptly get uploaded to the cloud), edit them (and they go to the cloud again), and then post on one (or more commonly now multiple) social network. Then, they message people (either on the social messaging app or in a separate one) to tell them to check out what they just posted.

Rinse and repeat – that is social sharing.

Much of the Mobile Internet Phenomena Report exhibits this exactly, and the Middle East charts illustrate this with their rankings. YouTube, Facebook Video, Instagram, Facebook, and TikTok are the top downstream applications (people consuming social content); Instagram, YouTube, Facebook Video, Messenger, Facebook, WhatsApp, and Google Cloud Storage on the upstream (both from sharing and viewing) generating traffic into the network.

We often think of this as "influencer" behavior – but every single person that shares on a social network or messaging platform is a social sharer.

SOCIAL NETWORK(S)

TYPES

1. Celebrities
2. Industry experts and thought leaders
3. Bloggers and content creators
4. Micro influencers

MULTIPLE DEVICES/CLOUDS

STREAM LIVE

APAC: Mobile Application Traffic Share

APAC ⬇ APPLICATION TRAFFIC SHARE **TOP 10**

1	YOUTUBE 40.25% ⬇
2	FACEBOOK VIDEO 21.99% ⬇
3	FACEBOOK 8.64% ⬇
4	INSTAGRAM 4.27% ⬇
5	TIKTOK 2.95% ⬇
6	LINE 2.49% ⬇
7	GOOGLE PLAY 1.72% ⬇
8	GOOGLE 1.25% ⬇
9	FACEBOOK MESSENGER 1.06% ⬇
10	NETFLIX 1.05% ⬇

APAC ⬆ APPLICATION TRAFFIC SHARE **TOP 10**

1	FACEBOOK MESSENGER 16.28% ⬆
2	YOUTUBE 15.74% ⬆
3	LINE 12.74% ⬆
4	INSTAGRAM 8.60% ⬆
5	FACEBOOK VIDEO 7.57% ⬆
6	FACEBOOK 7.25% ⬆
7	GOOGLE 5.28% ⬆
8	RTP VOICE 3.42% ⬆
9	ICLOUD 2.12% ⬆
10	TIKTOK 1.44% ⬆

APAC TOTAL TRAFFIC SHARE **TOP 10**

1	YOUTUBE 38.35%
2	FACEBOOK VIDEO 20.29%
3	FACEBOOK 8.53%
4	INSTAGRAM 4.61%
5	LINE 3.28%
6	TIKTOK 2.83%
7	GOOGLE PLAY 1.63%
8	GOOGLE 1.56%
9	NETFLIX 1.00%
10	FACEBOOK MESSENGER 0.98%

Facebook runs APAC

Facebook and "from Facebook" applications run rampant in APAC. Three of the top five in each category are Facebook applications, mirroring the fact that Facebook's largest user concentrations are in the region.

Last year, Facebook Video made its best showing in APAC, and this year is no different, and it is up even more. In the region, Messenger is higher than WhatsApp and Line, which is a significant achievement.

Just with the apps in the top 10, Facebook is almost 35% of the total traffic in the region. Although that is impressive, the title for the region still sits right above it on the total share chart – YouTube with over 38% all by itself. Amazingly enough, despite the growth for

Facebook, YouTube still grew across the board on the downstream and upstream from last year.
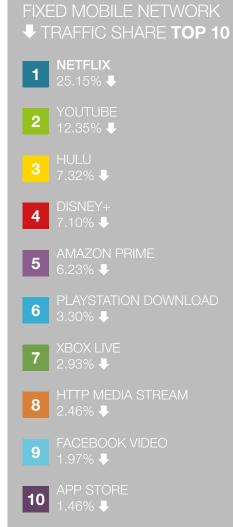
Speaking of Line, APAC is the only region that it is a major player, but boy does it hold strong in the region. Despite not being aligned to a social network, it continues to fend off WhatsApp, WeChat, and numerous other messaging apps in the region (both global and regional ones).

Also climbing the charts in APAC is TikTok, which is no surprise due to the perfect fit for the APAC social sharing scene. Not only is it a climber on the downstream, but it is also in the top 10 on the upstream, indicating active uploads and streaming.
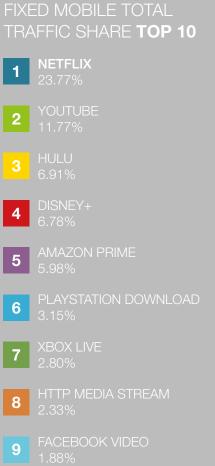
PERCENTAGE OF GLOBAL MOBILE TRAFFIC

facebook properties

Everything Else

33% DOWNSTREAM

28% UPSTREAM

Spotlight: 5G and Fixed Mobile Replacement

FIXED MOBILE NETWORK ⬇ TRAFFIC SHARE TOP 10

1	NETFLIX	25.15% ⬇
2	YOUTUBE	12.35% ⬇
3	HULU	7.32% ⬇
4	DISNEY+	7.10% ⬇
5	AMAZON PRIME	6.23% ⬇
6	PLAYSTATION DOWNLOAD	3.30% ⬇
7	XBOX LIVE	2.93% ⬇
8	HTTP MEDIA STREAM	2.46% ⬇
9	FACEBOOK VIDEO	1.97% ⬇
10	APP STORE	1.46% ⬇

FIXED MOBILE ⬆ TRAFFIC SHARE TOP 10

1	ICLOUD PHOTO	7.24% ⬆
2	ICLOUD	5.74% ⬆
3	GOOGLE	5.71% ⬆
4	NEST THERMOSTAT	5.34% ⬆
5	NETFLIX	5.06% ⬆
6	YOUTUBE	3.93% ⬆
7	AMAZON PRIME	2.55% ⬆
8	FACETIME	2.52% ⬆
9	DISNEY+	2.44% ⬆
10	RING	1.84% ⬆

FIXED MOBILE TOTAL TRAFFIC SHARE TOP 10

1	NETFLIX	23.77%
2	YOUTUBE	11.77%
3	HULU	6.91%
4	DISNEY+	6.78%
5	AMAZON PRIME	5.98%
6	PLAYSTATION DOWNLOAD	3.15%
7	XBOX LIVE	2.80%
8	HTTP MEDIA STREAM	2.33%
9	FACEBOOK VIDEO	1.88%
10	GOOGLE	1.45%

Forecasting 5G usage

What if 5G networks were actually used as a fixed line replacement? Many operators (T-Mobile and Verizon among them) have announced that they will offer 5G modems for home use to compete with fixed line services with the higher throughput supported by 5G. Is building that network to deliver good QoE different than a normal mobile network?

The first mass market 5G phones from Samsung were announced recently and it appears 5G might start to be available in a useful way soon for mobile consumption. But, the initial 5G service announcements were about a fixed replacement service because of the lack of phones with 5G. When I ran the initial data for the Mobile Report, one of the datasets looked wrong. When I dug into it, it suddenly made sense.

The dataset was from a mobile operator, but it was an operator that offers a fixed mobile service rather than a traditional mobile offering. The data in this section is what came out of the analytics on the traffic share for a mobile network, but if you just looked at the data, you would think it is fixed.

That data would not be out of place on a high capacity fiber network! Notice that seven of the top 10 are video, and they account for more than 62% of the traffic by themselves. The usual suspects are in the top five, including Disney+, with Netflix assuming a dominant share, and YouTube doing better than on traditional fixed networks (likely due to lower resolution requirements, encouraging usage versus other OTT services). Also, notice on the upstream, Nest Thermostat and the Ring Doorbell, not something that you are likely to see on many mobile device networks in the top 10!

Building a network to deliver a high QoE for this mobile network would not be the same as building one to support a great experience for all mobile users – there is a distinct lack of social networking, and more gaming traffic (as you will see) than on a normal mobile network, so latency (which 5G promises to improve) are more important.

Dimensioning early **5G** networks will be more like **fixed capacity planning** than traditional mobile capacity planning

Phenomenal QoE KPIs

Networks that deliver great QoE to users are phenomenal. They have the best customer satisfaction, usually the least churn, and users are often willing to pay a premium.

But what does it mean to deliver good QoE in today's phenomena-driven internet? One thing is for sure – it is not just about throughput, and plans that simply advertise (and seldom deliver) the maximum download speed in the best case scenario is likely to disappoint users. Each phenomena type that Sandvine has identified as drivers for consumer consumption has specific QoE requirements, and since each phenomena type actually combine different application types, it is worth a quick view to explore what QoE is required to keep consumers happy with their service as their demographics and behavior shift.

Video: Video is actually the simplest application to deliver good QoE to – give it a good downstream throughput, and it generally works fine. Keep the buffers on the device full, and the user won't see any momentary network congestion or delay. But digging deeper, heavy video users like to stream 4K video to large screens, so if you fail to give them 35Mbps, they may notice. It is also common for these same users to participate in piracy, as they are not willing to pay for every streaming service that has the content that they want access to, so their downstream and upstream will have some BitTorrent as well, which directly impacts not only their QoE, but also anyone else sharing the same network segment.

Gaming: Gaming has historically been driven by latency (and packet loss) for judging QoE but cloud gaming changes that by delivering a 4K quality video on the downstream, and placing new levels of sensitivity on the upstream latency – which is something very few networks are optimized for. Gamers now don't only game, they broadcast via Twitch and Mixer, and watch other games on the same services. Cloud gaming has the potential to drastically change bandwidth consumption on networks, and if it hits mobile networks, beware!

Social Sharing: Isn't this just social networking? Actually no, because the big picture of social networking includes much more than just Facebook and Instagram traffic now. All of those pictures and videos are uploaded directly into a cloud (iCloud, Google Photo, Samsung Cloud, etc.) and uploaded to one or many social networks, and then discussed (or shared again) over messaging networks. The ecosystem is no longer just browsing your Facebook feed and posting text – it is a rich upstream traffic mix that users are monetizing and are sensitive to bad QoE – and will churn if their expectations are not met.

Resources: Infographics and other Links

Infographic links

GRAPH PACK
Top 10 lists for all sections if you want to show the traffic share for any specific geography or class of application.
CLICK HERE

INFOGRAPHICS PACK
What application categories are the leading consumers of mobile internet bandwidth? The real question is, how much traffic on the internet is video? (hint: a whole lot)
CLICK HERE

SANDVINE LOGO PACK
Need Sandvine logos for attribution?
CLICK HERE

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RESOURCES
Come see our Resources page for a wide range of videos, webinars, and whitepapers:
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Phenomena Roadmap

WHERE TO NEXT?
We plan to issue a full Global Internet Phenomena Report in the middle of the year, and continue to release several spotlight reports when the data speaks to us.

DO YOU HAVE REQUESTS FOR INSIGHTS?
Although putting out the Phenomena Report is only one of our contributions to the market, we love inbound requests for data from our customers, prospects, industry analysts, and press. Many of the topics we cover in the Phenomena Report cross boundaries from tech into entertainment, and we welcome inquiries where we can help give clarity to the market. If you have questions, please reach out to Sandvine at **phenomena@sandvine.com**

WANT US TO LOOK AT YOUR DATA?
We are happy to work with operators to do a profile of your network to see how it matches up to the global and regional data that we see around the world. If you have any interest, please reach out to Sandvine at **phenomena@sandvine.com**

We will also blog regularly, come to Sandvine's blog at **www.sandvine.com/blog**