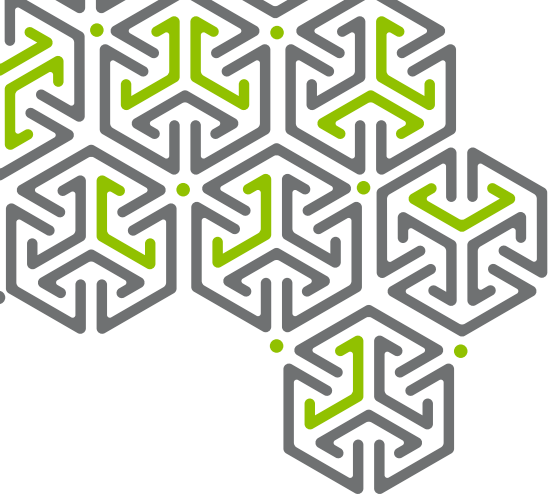




CONVIVA

Q2
2021

**Conviva's
State of
Streaming**



When streaming skyrocketed last year, many surmised that the global upswing was due to the COVID-19 pandemic temporarily altering viewing and social media behaviors. While viewing habits certainly changed, those temporary spikes have turned out to be not so temporary. The pandemic has spurred a tipping point in streaming that shows no signs of reversal. In fact, streaming continued to climb, growing an additional 13% over the pandemic heights of Q2 2020.

In addition to the increase in streaming viewing, investment in social media, particularly video content, rose as platforms commanded huge, highly engaged audiences. The advertising implications of all this growth are starting to take shape, too; more eyes mean more revenue opportunities and as the quality and measurement for streaming ads improve, even more investment is likely to follow.

All of this is to say, streaming media isn't going away, it's not slowing down, it's only growing—and its dominance is forcing digital businesses to reevaluate how they create content, market to consumers, advertise, and invest in providing great viewer experiences.



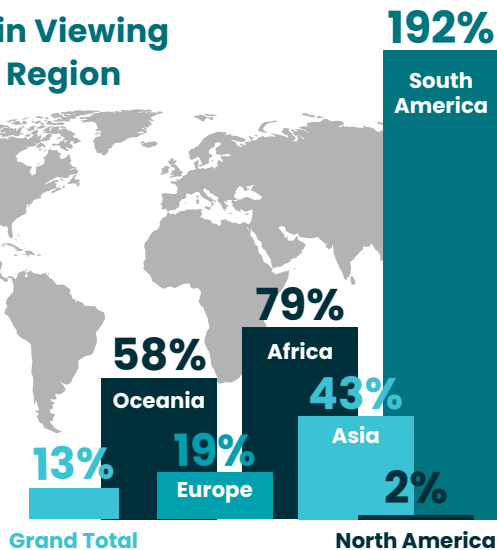
Conviva's data is primarily collected using proprietary sensor technology with a global footprint of more than 500 million unique viewers watching 180 billion streams per year across 3.3 billion applications streaming on devices. Embedded directly within streaming video applications, the sensor measures across content and ads to analyze nearly two trillion real-time transactions per day for its customers. In this report, the year-over-year data from Q2 2021 as compared to Q2 2020 was normalized based on Conviva's customer base.

Q2 2021 highlights:

- Streaming grew by 13% in Q2 2021 versus the same time last year. June enjoyed the biggest increases of the quarter, led predominantly by South America and Africa, which both had triple-digit growth in viewing time.
- While 16% of ads were missed opportunities as they went unfilled or failed to play as expected, this number has decreased significantly, down 37% from the previous quarter.
- Fortune 500 companies leveraged the value of social media in Q2 2021, led by Netflix with the most videos, most video views, and highest total cross-platform engagements and Apple with the highest average engagements per video and highest average engagements per post on social media.
- The streaming show with the most cross-platform engagements on social media in Q2 2021, was the long-running Grey's Anatomy which edged out Netflix's Spanish-language drama Elite in the number two spot.
- On YouTube, mobile phones accounted for 63% of views but just 52% of watch time, as consumers tallied nearly twice as many minutes per view when watching YouTube on a console or connected TV than they did on mobile or tablet in Q2 2021.
- On streaming, while other big screens enjoyed increases, with smart TVs up 46% and connected TV devices up 5%, gaming consoles decreased 14%. Among smaller screens, mobile grew 30%, desktop 15%, and tablets 9%.
- Roku maintained its dominance with 31% global share of big screen viewing time but dropped slightly in share as smart TV-only devices including Samsung TV, LG TV, Android TV, and Vizio TV each increased in share.
- Q2 2021 was the first time since early 2020 in which all sports leagues showed a year-over-year increase in posts, videos, and engagements on social media, marking nearly 14 months to get back to engagement levels seen prior to the pandemic.

Growth in Viewing Time by Region

Q2 2021 vs
Q2 2020



Streaming still gaining strength

Overall, viewing time grew by 13% over this period last year. While many had prophesied that the COVID-induced streaming boom of Q2 2020 was temporary, streaming continued to rise year over year although at more modest rates in many regions that skyrocketed in 2020. South America saw the largest increase at 192%, driven by new services launched in the past year, while North America saw the most modest growth at just 2%. Africa had the second largest growth spurt at 79%, followed by Oceania at 58%, and Asia at 43%. This continues the trend of streaming increasing year over year in every region.

No June gloom in 2021

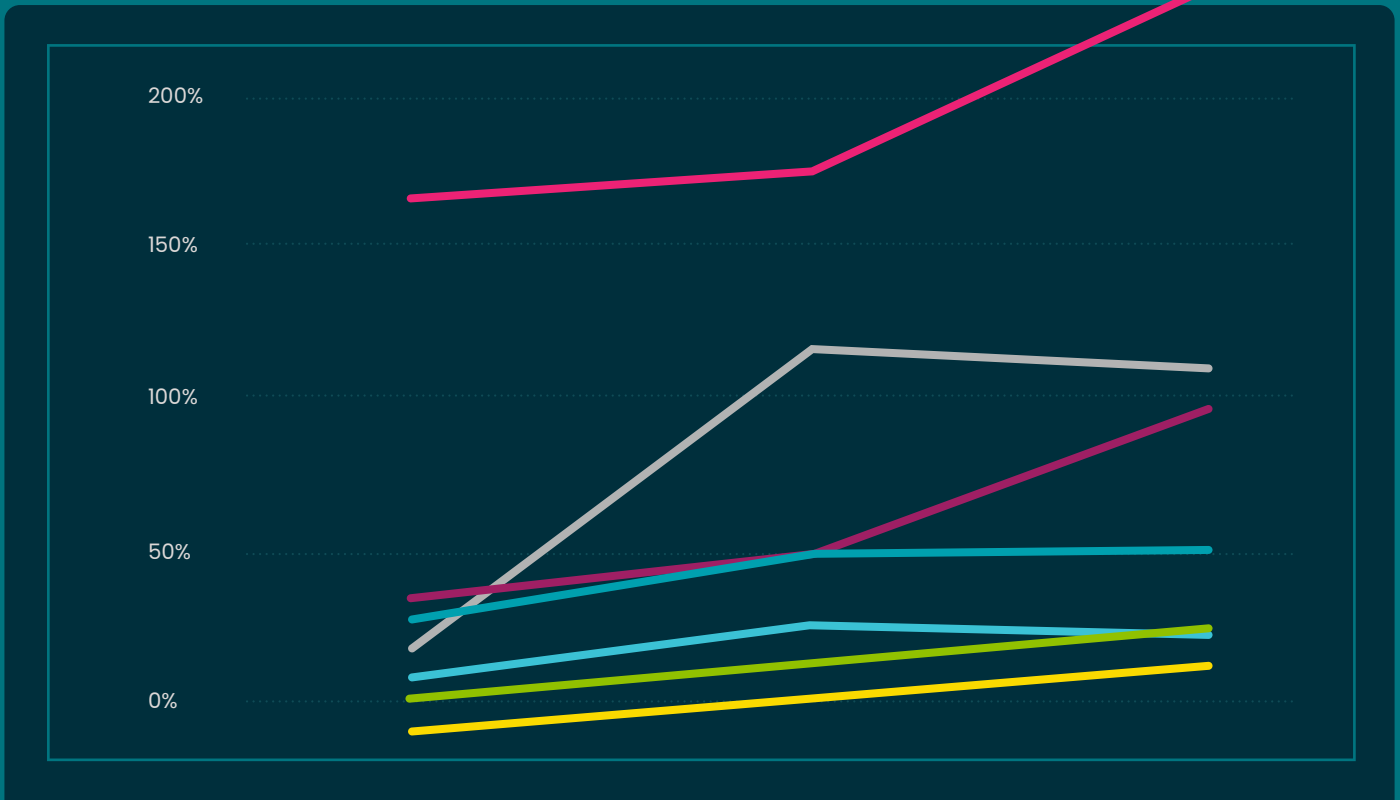
Diving further into the comparison between two quarters marked by the beginning and (what the world hopes is) the ending of the COVID-19 pandemic, April 2021 had the most modest growth of the quarter across all regions given the massive stay-at-home induced spike in April 2020. In April 2021, North America actually recorded a 7% decline in time spent streaming year over year, dragging down the region's growth to just 2% for the second quarter. Europe, which led the world in year-over-year growth in April of 2020, still tallied an increase year over year, albeit of just 9% in the first month of the quarter. At the opposite end of the spectrum with new services rolling out and more moderate gains in Q2 2020 leading to more impressive year-over-year numbers in Q2 2021, South America saw a triple-digit increase, up 167% in April, while Africa, Asia, and Oceania hovered around a 25% growth in viewing time.

May fared a little better at 14% global growth as South America again charged ahead with a 176% increase in viewing time, followed by Africa at a 118% increase; both far and away higher than the next closest region, which was Oceania at 51% growth. North America rebounded from its decrease in April, but still tallied just a 2% year-over-year increase the next month. Both Europe and Asia boosted their viewing time as well, up 27% and 49%, respectively in the month of May.

June enjoyed the biggest increases of the quarter in many regions, as South America increased viewing time by 236%, the largest year-over-year increase for any region in Q2, followed by Oceania at 98%, Asia at 52%, and North America up 14%. While May was the highest growth month for Africa and Europe, the regions still tallied impressive growth in June up 111% and 24%, respectively.

Growth in Viewing Time

Q2 2021 vs Q2 2020



| | APR | MAY | JUN |
|------------|------|------|------|
| Global | 2% | 14% | 25% |
| Africa | 21% | 118% | 111% |
| Asia | 28% | 49% | 52% |
| Europe | 9% | 27% | 24% |
| N. America | -7% | 2% | 14% |
| Oceania | 35% | 51% | 98% |
| S. America | 167% | 176% | 236% |

Less spinning wheel of death, higher picture quality

Buffering and picture quality improved across every region in the world year over year. Africa made the largest inroads in picture quality and buffering with improvements of 168% and 76%, respectively, needed improvement for a region that still has the worst buffering in the world. At the opposite end of the spectrum, where quality is already quite good and improvements are much more modest, North America saw the smallest increase in picture quality with bitrate up just 2% and Asia had the weakest buffering decrease, down just 3%.

Quality by Region

Real Time Global Region Filters Metrics Q2 2021 vs Q2 2020

| | Minutes / Play | | Video Start Failures | | Video Start Time | | Buffering | | Bitrate | |
|-------------|----------------|------|----------------------|------|------------------|-----|-----------|------|---------|------|
| | Q2 2021 | YoY | Q2 2021 | YoY | Q2 2021 | YoY | Q2 2021 | YoY | Q2 2021 | YoY |
| Africa | 12.7 | 170% | 3.43% | 8% | 7.45 | 12% | 1.16% | -76% | 6.98 | 168% |
| Asia | 10.1 | -12% | 0.62% | -28% | 3.87 | 24% | 1.13% | -3% | 2.24 | 20% |
| Europe | 23.0 | -1% | 1.35% | 12% | 3.92 | -2% | 0.22% | -36% | 7.29 | 43% |
| N. America | 21.5 | -1% | 0.42% | 1% | 4.26 | -3% | 0.19% | -27% | 6.74 | 2% |
| Oceania | 21.1 | 3% | 1.21% | 0% | 4.89 | 2% | 0.22% | -34% | 9.11 | 51% |
| S. America | 20.6 | 6% | 2.56% | -29% | 6.68 | 8% | 0.63% | -42% | 7.80 | 83% |
| Grand Total | 20.2 | -3% | 0.74% | 14% | 4.30 | 1% | 0.28% | -15% | 6.69 | 9% |

Improvements in green, declines in pink | Best per category in green, worst in pink

The rest of the global quality metrics were far more mixed.

Globally, minutes per play were down 3% as the world shifted to more mobile viewing from the attention-capturing TV sets. Asia's minutes per play decreased the most globally, down 12%, and the region also captured the least minutes per play, owing to the prevalence of mobile viewing. For improvements, Africa saw a huge increase in minutes per play, up 170%, while Oceania and South America marked single-digit increases. Looking at just Q2 2021, overall minutes per play were at about 20 globally with most regions coming in around that average, with Europe excelling at 23 minutes per play.

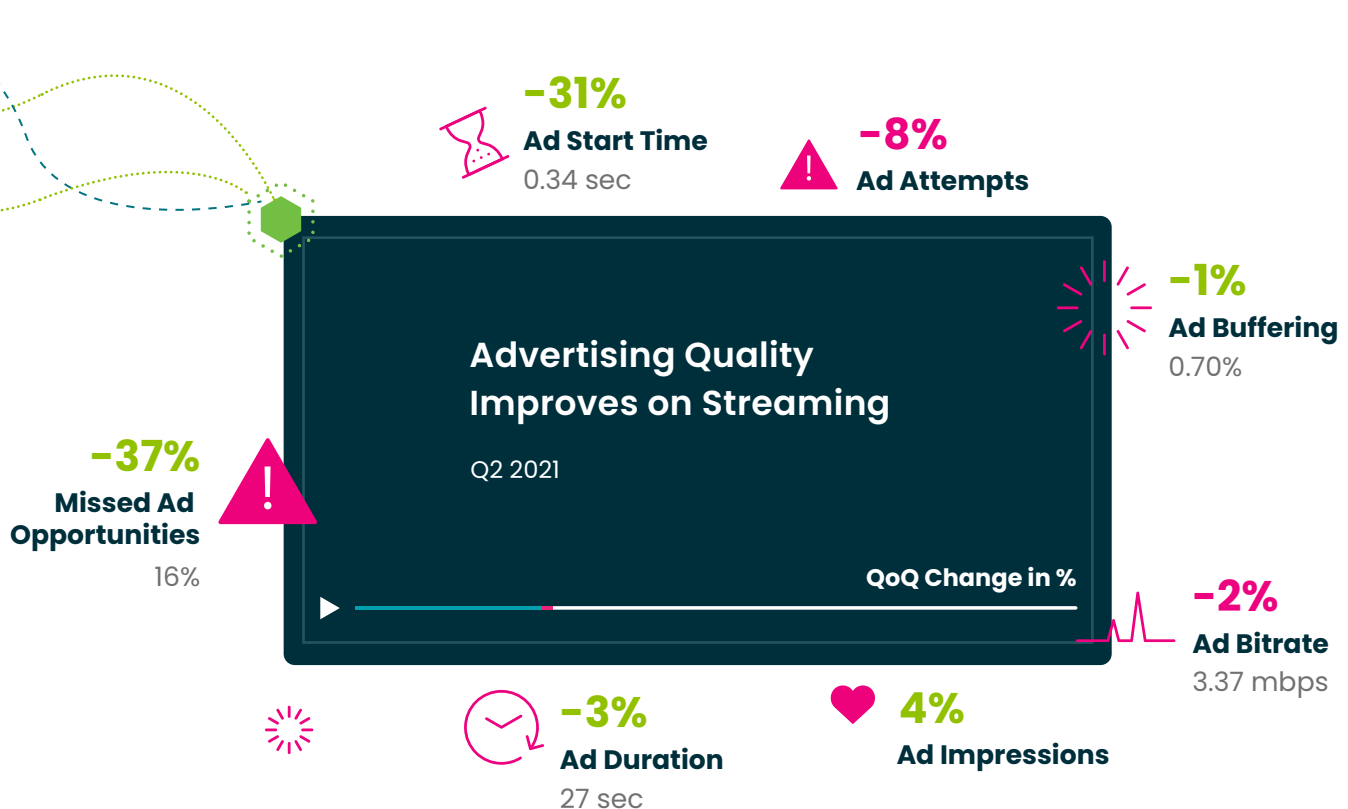
Due to some large, isolated spikes during the quarter, video start failures were up 14% overall as Africa tallied the worst increase at 8% while South America experienced the biggest improvement, down 29%. Video start time was up 1% globally, with four of the six regions increasing the amount of time viewers waited for the video to start, between 2% and 24%. Europe and North America were the only two regions that had decreases in video start time improving 2% and 3%, respectively.

Africa had the dubious honor of having the worst video start failure, video start time, and buffering. North America had the best video start failure rate at just .42% as well as the best buffering rate at only .19%. Asia had the best video start time at 3.87, just edging out Europe's 3.92. Finally, bitrate had a fairly wild swing between best and worst with Asia at 2.24 and Oceania at 9.11 and the global overall bitrate netting at 6.69.

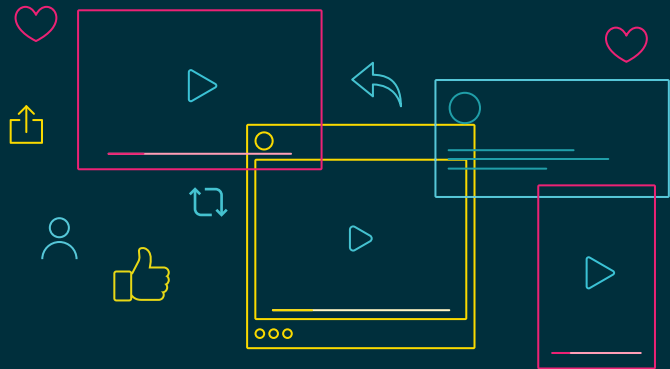
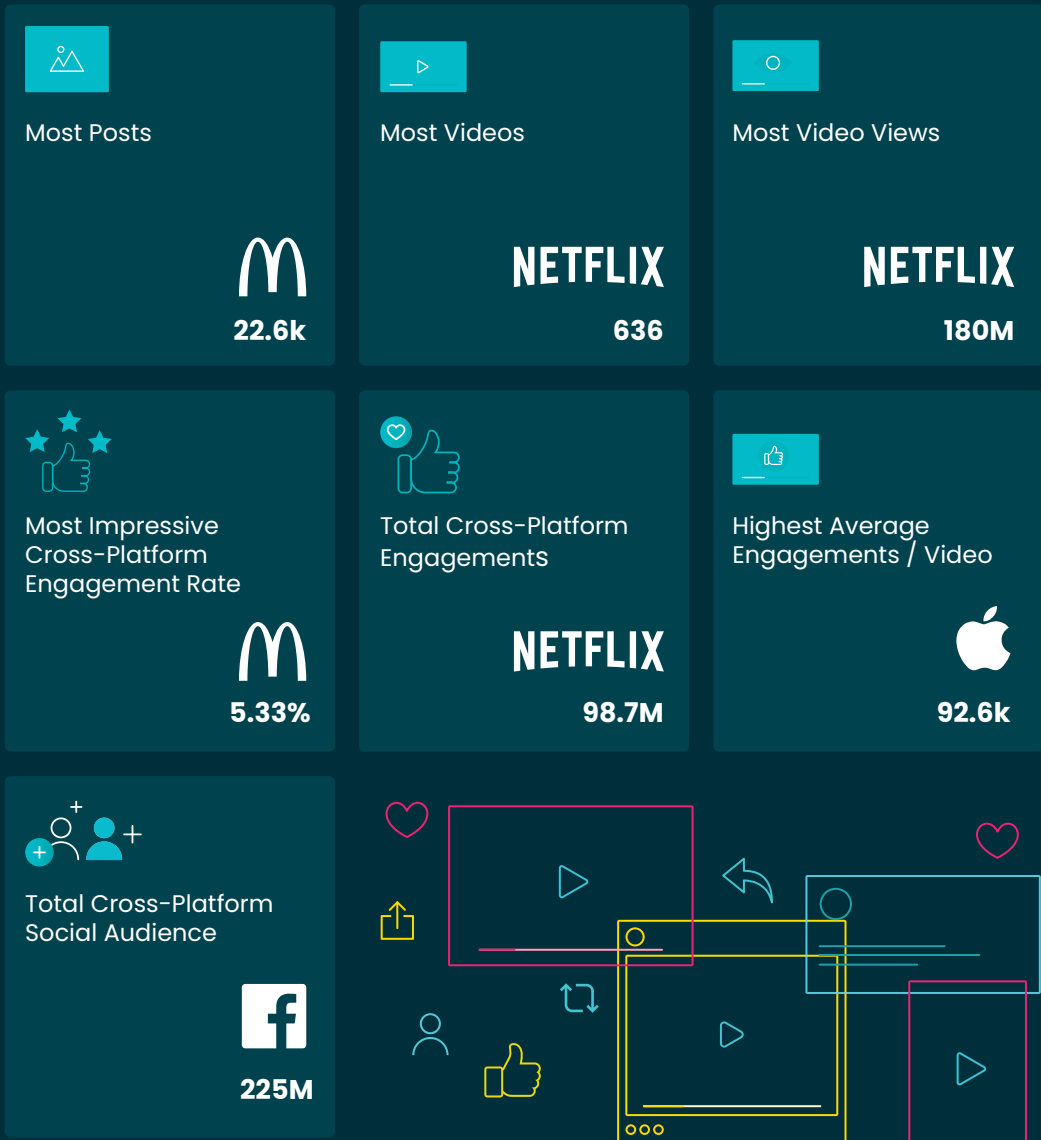
Big progress in streaming ad quality

While 16% of ads were missed opportunities as they went unfilled or failed to play as expected, this number has decreased significantly, down 37% from the previous quarter. The result is that even while ad attempts dropped 8% from Q1 to Q2 2021, more attempts were successful resulting in a 4% increase in ad impressions quarter over quarter.

For ads that were delivered, ad start times improved significantly as viewers spent 31% less time waiting for ads to play. Ad buffering also saw a minimal improvement, down 1% from the previous quarter. Picture quality for ads was the lone ad metric to falter a bit with a 2% decrease in quality in Q2 2021 as compared to the previous quarter. Meanwhile, to the delight of viewers, ad duration decreased 3% to 27 seconds.



**Fortune 500
shine on social
media**
Q2 2021



In addition to advertising on linear TV and streaming, companies are increasingly turning to social media to reach consumers. The Fortune 500 represents the 500 largest companies in the world ranked by revenue, and it is interesting to see which companies on the list excel on social media, given the medium's power to boost sales.

McDonald's, Netflix, Nike, Apple, and Facebook all claimed top social spots in Q2 2021. Netflix tallied the most social media videos, most video views, and

highest total cross-platform engagements. Apple held the honor of highest average engagements per video and highest average engagements per post in Q2 2021 despite the company's strategy to post very little organic content and when they do to promote it with a massive ad spend. Still, Apple's impressive numbers in Q2 2021 are a testament to their incredible creative. Not to be outdone in creative, Nike took the gold for highest average views per video. And on the followers front, Facebook dominated with the largest cross-platform social audience of any Fortune 500 company.

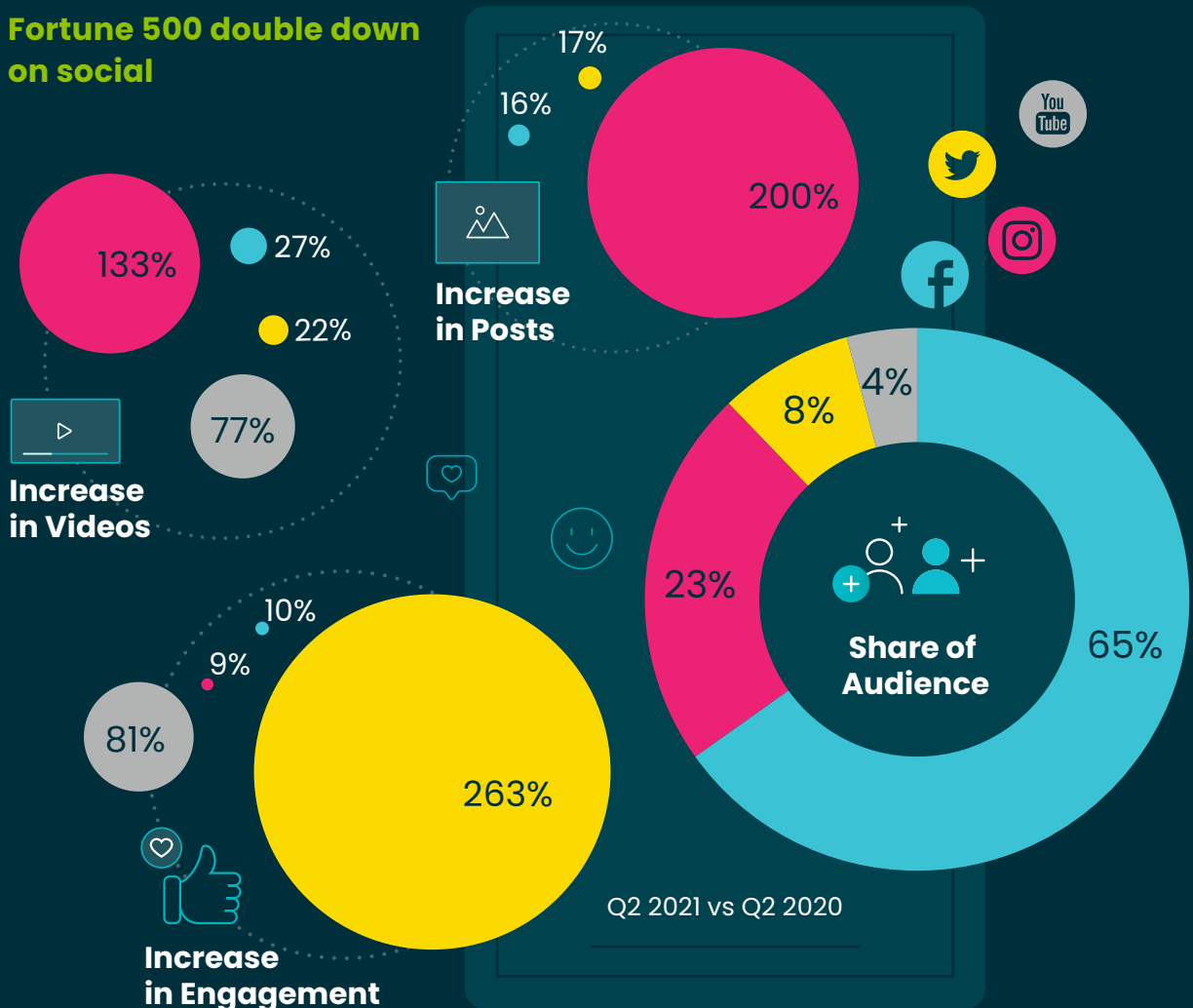
A 5.33% engagement rate across Facebook, Instagram, Twitter, and YouTube with a total audience of 88.3 million followers is virtually unheard of. That's why McDonald's was perhaps the most impressive win among leaders as their Q2 2021 collaboration with the K-pop group BTS drove millions of engagements securing them the top spot for average cross-platform engagement rate for any Fortune 500 brand with more than 15,000 followers. This massive achievement was also bolstered by a shift in their tone on social media over the past year, away from corporate speak to a more fun, meme-driven tone.

Looking at the list as a whole, Fortune 500 companies did extremely well in Q2 2021 compared to the abysmal year prior as brands participated on social media with more posts and videos and enjoyed increases in

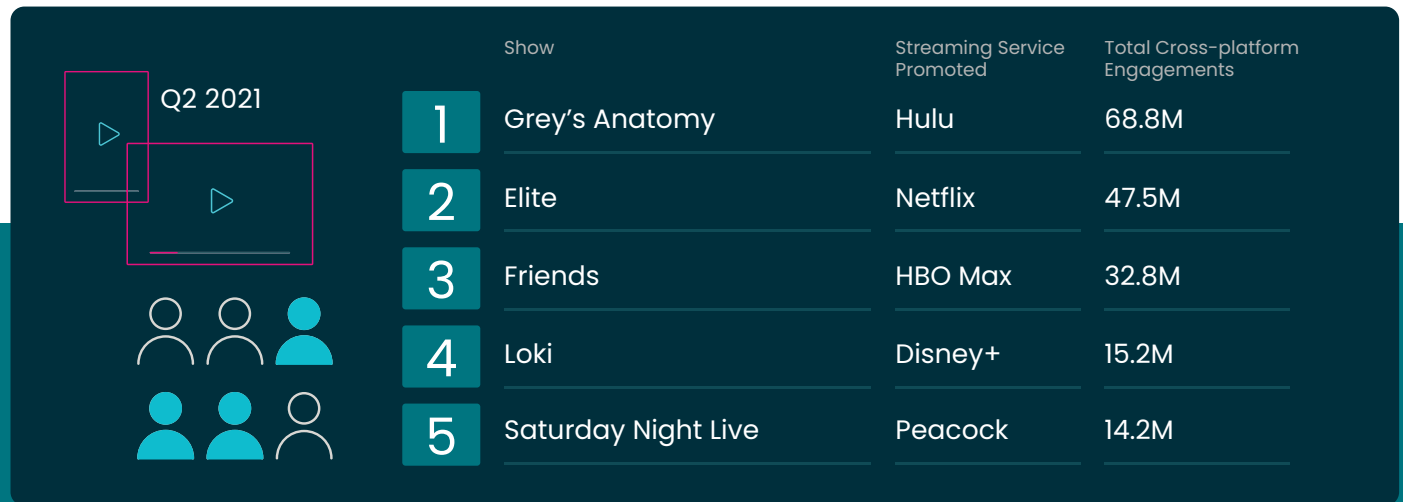
engagement across all platforms as a result. Compared to the previous year, Fortune 500 brands increased their posting on Instagram with 200% more posts and 133% more videos in Q2 2021 but only drove a modest 9% increase in engagement on the platform. It was Twitter that tallied the largest increase in engagement for the Fortune 500, up 263%, driven by brands like McDonald's, GameStop, and Netflix.

The Fortune 500 still relies heavily on Facebook with 65% share of total audience on the platform, with Instagram second for audience at 23% share. Conversely, Twitter captured only 8% share of the audience for Fortune 500 brands, but it was still double YouTube's 4% share of audience in Q2 2021.

Fortune 500 double down on social



Legacy matters for top streaming shows



| | | | | | | | |
|----|---------------------------------------|----------------------|-------|----|-------------------------------|-------------|-------|
| 6 | Rick and Morty | HBO Max / Adult Swim | 12.5M | 16 | Stranger Things | Netflix | 5.77M |
| 7 | Peaky Blinders | Netflix | 11.3M | 17 | Falcon and the Winter Soldier | Disney+ | 5.25M |
| 8 | SpongeBob SquarePants | Paramount+ | 9.85M | 18 | Legacies | The CW | 5.10M |
| 9 | The Flash | The CW | 9.77M | 19 | The Handmaid's Tale | Prime Video | 4.11M |
| 10 | Money Heist (La casa de papel) | Netflix | 8.57M | 20 | Shameless | Showtime | 4.09M |
| 11 | Shadow and Bone | Netflix | 8.53M | 21 | Julie and the Phantoms | Netflix | 3.77M |
| 12 | Game of Thrones | HBO Max | 7.15M | 22 | The Grand Tour | Prime Video | 3.73M |
| 13 | Riverdale | The CW | 6.64M | 23 | Schitt's Creek | CBC Gem | 3.55M |
| 14 | The Office | Peacock | 6.52M | 24 | All American | The CW | 3.23M |
| 15 | Keeping Up with the Kardashians on E! | Peacock | 6.23M | 25 | Yellowstone | Paramount + | 3.21M |

Social media is as critical for streaming services promoting their product as it is for brands. When that product is marquee content, social media accounts for those shows can also be used to promote the streaming service itself.

A ranking of top streaming shows (those that promote their availability on a streaming platform in their social bio), illustrates the power of legacy exclusives like Friends, Game of Thrones, and The Office in highlighting a streaming service and maintaining audience engagement year-round on social media, even without new episodes.

Vying for the top spot as most engaged streaming show in Q2 2021 with the most cross-platform engagements on social media, Netflix's Spanish-language drama Elite was edged out by the long-running Grey's Anatomy which promotes its streaming availability on Hulu. Among new originals, Loki claimed the top spot for Disney+ at number four on the list overall.

The streaming service most successfully driving engagements on social media for their shows was Netflix with six shows on the list, followed by The CW with four of the top 25 streaming shows in Q2 2021.

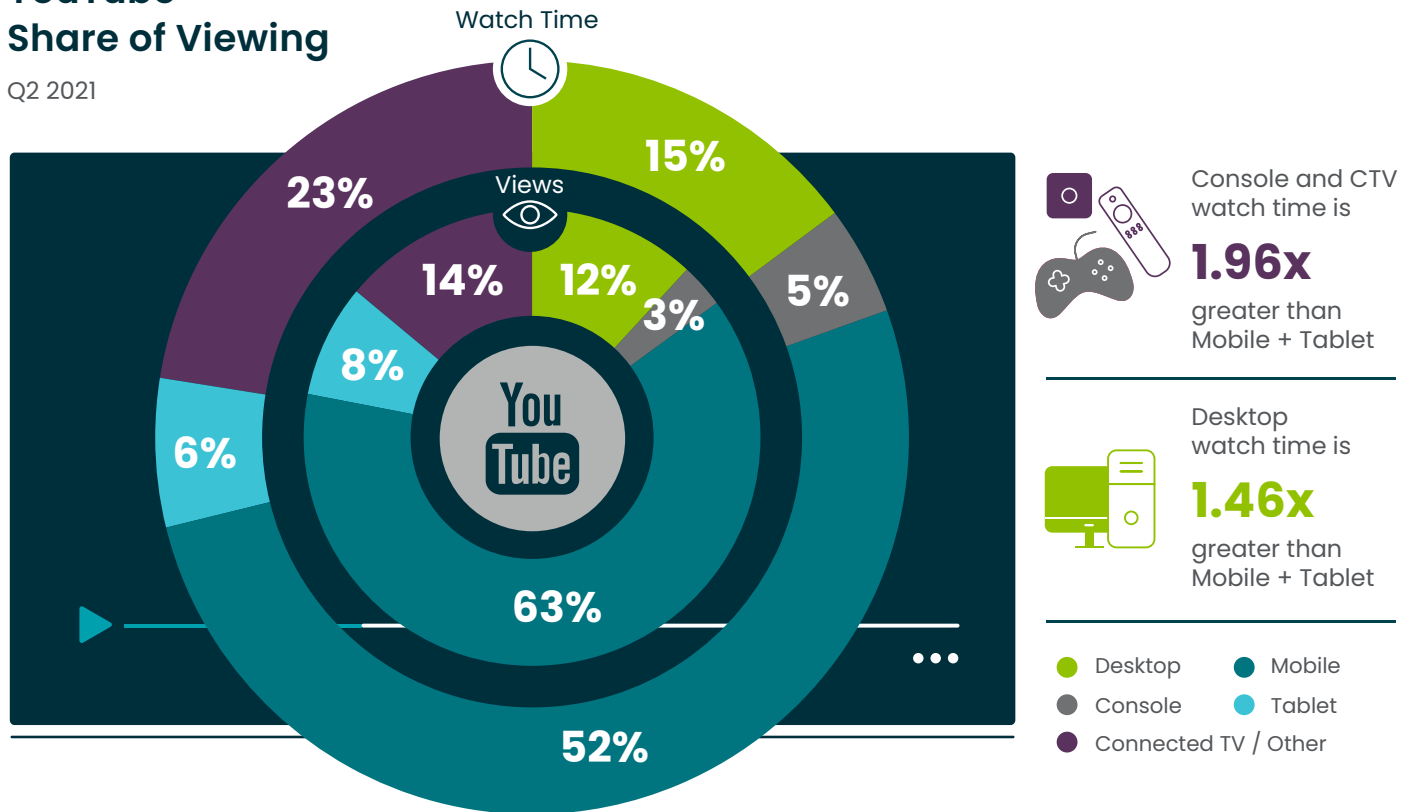
YouTube challenges social expectations

Of particular consequence for streaming services on social, YouTube continues to challenge the concept of what video on a social media platform looks like. The majority of YouTube views, 63%, and watch time, 52%, came via mobile phones in Q2 2021. YouTube records a view as any 30-second watch time on a video. For smaller screens, scrolling and surfing is a common YouTube practice, especially with the recent introduction of YouTube Shorts, YouTube's short-form content feed.

But when watching YouTube on a console or connected TV, consumers tallied nearly twice as many minutes per view than they did on mobile or tablet. This disparity is also seen in the significantly longer share of watch time for connected TVs at 23% when compared to the device's share of total views at 14% in Q2 2021. These trends indicate that YouTube viewers are selecting significantly more long-form content to play on the big screen, and brands should take note.

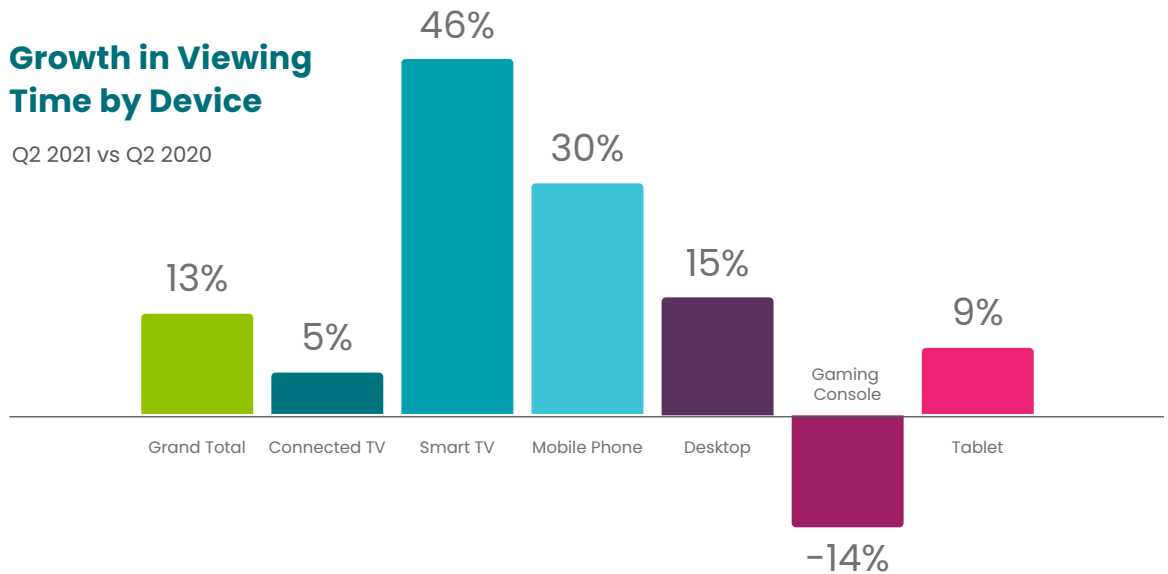
YouTube Share of Viewing

Q2 2021



Rare decrease in device growth

For years, all devices have recorded global increases in viewing time. In a rare shift, Q2 2021 marks the first quarter that a device, and a TV device at that, has recorded a decrease. While other TV devices enjoyed increases, with smart TVs up 46% and connected TV devices up 5%, gaming consoles decreased 14%. Among smaller screens, mobile grew 30%, desktop 15%, and tablets 9%. Across all devices, viewing time increased 13% over last year.










Device quality continues to surprise

Buffering and picture quality got better on every device with gaming consoles taking the top spot, improving 44% in buffering and 20% in picture quality, while connected TVs tallied the smallest quality gains, improved just 3% in buffering and 4% in picture quality.

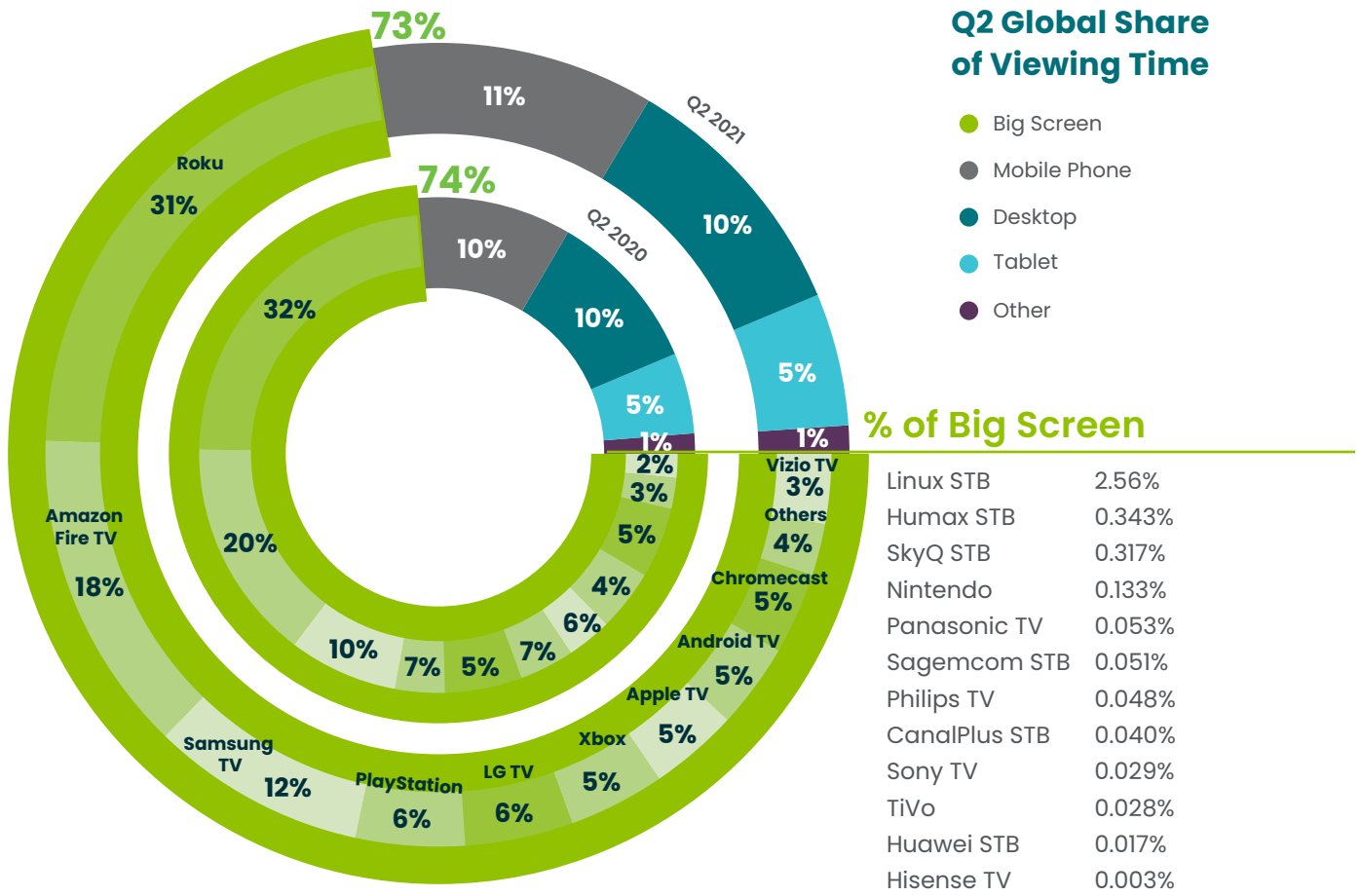
The three other quality metrics varied among devices. Minutes per play overall was down 3%. Mobile phones had the biggest drop of 7%, and gaming consoles eked out tablets for the highest increase in minutes per play. Due to the same issues with video playback mentioned before, video start failures had some huge increases, but tablets and desktops both had decreases of 2% and 26%, respectively. Video start time was also affected, so most devices saw a decline in start times with gaming consoles again leading the pack, down 8%, followed closely by connected TV devices at 5%, smart TVs at 4%, and tablets at 3%.

For Q2 2021, connected TV devices enjoyed the most minutes per play at 27.6, while mobile phones had the least at 9.1, as expected this is significantly lower than the overall average of 20.2. Video start failure was not kind to tablets with a hefty 1.31% failure rate next to connected TV's modest .53% failure rate. Video start time, however, saw tablets win out against all other devices at 3.74 seconds as desktop brought up the rear at 4.84 seconds. Buffering rate was lowest on gaming consoles at just .10%, while mobile phones had the highest rate at .82%, steep considering the overall average of .28%. Desktop and mobile phones were the main outliers in bitrate, bringing down the average with 3.05 and 3.63, respectively. TV devices require much higher picture quality and delivered with smart TVs leading the way at 8.34, followed by gaming consoles at 7.77, and connected TV devices at 7.10, while tablets tallied an impressive 6.02 bitrate.

Quality by Device

| | Min/Play | | Video Start Failures | | Video Start Time | | Buffering | | Bitrate | |
|---|----------|-----|----------------------|------|------------------|-----|-----------|------|---------|-----|
|  Overall | 20.2 | -3% | 0.74% | 14% | 4.30 | 1% | 0.28% | -15% | 6.69 | 9% |
|  Connected TV Devices | 27.6 | 0% | 0.53% | 65% | 4.19 | -5% | 0.20% | -3% | 7.10 | 4% |
|  Smart TV | 26.3 | -1% | 0.55% | 5% | 4.57 | -4% | 0.16% | -30% | 8.34 | 8% |
|  Mobile Phone | 9.1 | -7% | 0.92% | 13% | 4.05 | 6% | 0.82% | -12% | 3.63 | 1% |
|  Desktop | 15.6 | 1% | 0.71% | -26% | 4.84 | 18% | 0.45% | -24% | 3.05 | 13% |
|  Gaming Console | 26.3 | 5% | 0.71% | 47% | 4.14 | -8% | 0.10% | -44% | 7.77 | 20% |
|  Tablet | 15.8 | 4% | 1.31% | -2% | 3.74 | -3% | 0.32% | -27% | 6.02 | 17% |
| | Q2 2021 | YoY | Q2 2021 | YoY | Q2 2021 | YoY | Q2 2021 | YoY | Q2 2021 | YoY |

Improvements in green █, declines in pink █ | Best per category in green, worst in pink



Despite changing device preferences, big screens still dominate

As viewers went back to a more mobile life in 2021, with less people stuck at home than the previous Q2, mobile phones gained on big screens by 1% share globally, growing from 10% in 2020 to 11% in 2021. Conversely, share for big screens including connected TV devices, smart TVs, and gaming consoles fell 1% from 74% to 73%. While 1% may seem inconsequential, at a global scale this shift is quite significant in terms of time watched. However, even with the slight decrease for big screens, large-format devices still account for the vast majority of viewing time throughout the world. Share of global viewing time across other devices saw very little change year over year. Tablets maintained their 5% share as did desktops at 10%, and other at 1%.

Globally, Roku maintained its dominance with 31% of big screen viewing time but dropped slightly in share as smart TV-only devices including Samsung TV, LG TV, Android TV, and Vizio TV each increased 1%-2% in share. Roku was not alone, Amazon Fire TV also dropped share, down 2% over Q2 last year, as did Xbox, down 2%; PlayStation, down 1%; and Apple TV, down 1%. Chromecast maintained its 5% share from last year. This shift illustrates the continued fragmentation of devices as newer players improve technology and capture share from the dominant devices, especially internationally.

Big screens, big stakes on quality

Overall, big screen quality year over year made decent gains in almost every metric. Viewing time was up 11% and increased on all but three big screens. LG TV reaped the biggest rewards with an increase of 50%, while Vizio, up 43%, Android TV, up 40%, and Samsung TV, up 36%, illustrate the growing prevalence of smart TVs. With year-over-year declines in viewing time, Apple TV, down 6%, joined gaming consoles PlayStation and Xbox which decreased 17% and 21%, respectively.

Among big screens overall, buffering was down 16%, and picture quality was 10% improved with nearly every device tallying improvements. Only Amazon Fire TV worsened in buffering, and only by 1%. Similarly, Vizio saw the only decline in picture quality, again by just 1%. Xbox and Apple TV tied for the best buffering rate at an impressive 0.06%, which Chromecast lagged at 0.32%. As far as picture quality is concerned, LG TV came out well ahead of other big screens with a bitrate of 10.28 Mbps, while Chromecast again lagged at 6.21 Mbps.

Minutes per play held at a 0% increase, PlayStation was most improved with a 9% increase and Android TV has the biggest decline of 7% and also had the lowest

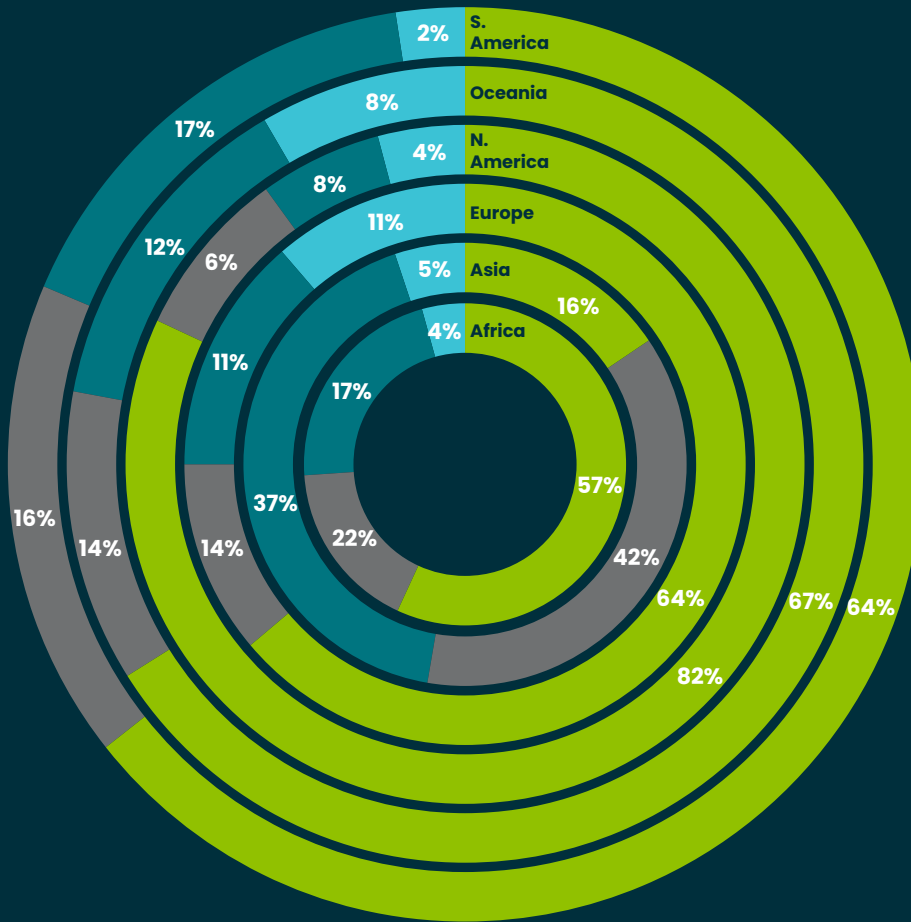
minutes per play at 21.9 in Q2 2021. Chromecast savored 34.2 minutes per play, not only the most minutes per play, but also quite high versus the overall average of 26.9 minutes per play across all big screens in Q2 2021.

The global increase in video start failures was most prominent on big screens with all devices experiencing significant growth in failures. Even after experiencing the largest increase in video start failures, up 88%, Roku still has the lowest occurrence of any big screen device. Conversely, Android TV had the most modest increase in failures, up just 9%, but still delivers the worst failure rate by a large margin.

Video start time was a bit of a mixed bag with an overall decrease of 3% as Roku led the pack, down 17% in start time, followed closely by PlayStation, down 15%, and Amazon Fire TV down 2%. All the other big screens had longer start times in Q2 2021 than the previous Q2, including Apple TV which had 1% longer start times year over year, but still had the shortest start time, 2.76 seconds, significantly better than the average of 4.34 seconds or even the next closest competitor, Roku, at 3.51.

| | Viewing Time | | Min/Play | | Video Start Failures | | Video Start Time | | Buffering | | Bitrate | |
|--------------------|--------------|------|----------|-----|----------------------|-----|------------------|------|-----------|------|---------|-----|
| | Q2 2021 | YoY | Q2 2021 | YoY | Q2 2021 | YoY | Q2 2021 | YoY | Q2 2021 | YoY | Q2 2021 | YoY |
| Roku | 31% | 7% | 28.0 | -3% | 0.19% | 88% | 3.15 | -17% | 0.14% | -2% | 6.98 | 0% |
| Amazon Fire TV | 18% | 0% | 26.5 | 1% | 0.52% | 53% | 5.00 | -2% | 0.24% | 1% | 7.36 | 7% |
| Samsung TV | 12% | 36% | 26.1 | -1% | 0.57% | 32% | 4.85 | 3% | 0.14% | -30% | 8.83 | 15% |
| LG TV | 6% | 50% | 27.6 | -3% | 0.72% | 55% | 5.95 | 11% | 0.20% | -14% | 10.28 | 25% |
| PlayStation | 6% | -17% | 27.5 | 9% | 0.84% | 54% | 4.02 | -15% | 0.13% | -46% | 8.10 | 26% |
| Chromecast | 5% | 20% | 34.2 | 1% | 0.68% | 27% | 5.77 | 6% | 0.32% | -48% | 6.21 | 17% |
| Android TV | 5% | 40% | 21.9 | -7% | 1.39% | 9% | 4.43 | 16% | 0.27% | -4% | 8.27 | 17% |
| Apple TV | 5% | -6% | 24.7 | 4% | 0.67% | 21% | 2.76 | 1% | 0.06% | -48% | 8.75 | 8% |
| Xbox | 5% | -21% | 26.0 | 2% | 0.59% | 37% | 4.23 | 5% | 0.06% | -36% | 7.54 | 10% |
| Vizio TV | 3% | 43% | 27.3 | 1% | 0.66% | 91% | 4.29 | 1% | 0.21% | -15% | 6.93 | -1% |
| Big Screen Overall | 100% | 11% | 26.9 | 0% | 0.56% | 44% | 4.34 | -3% | 0.17% | -16% | 7.68 | 10% |

Improvements in green , declines in pink | Best per category in green, worst in pink



Share of Viewing Time by Region

Q2 2021 vs Q2 2020

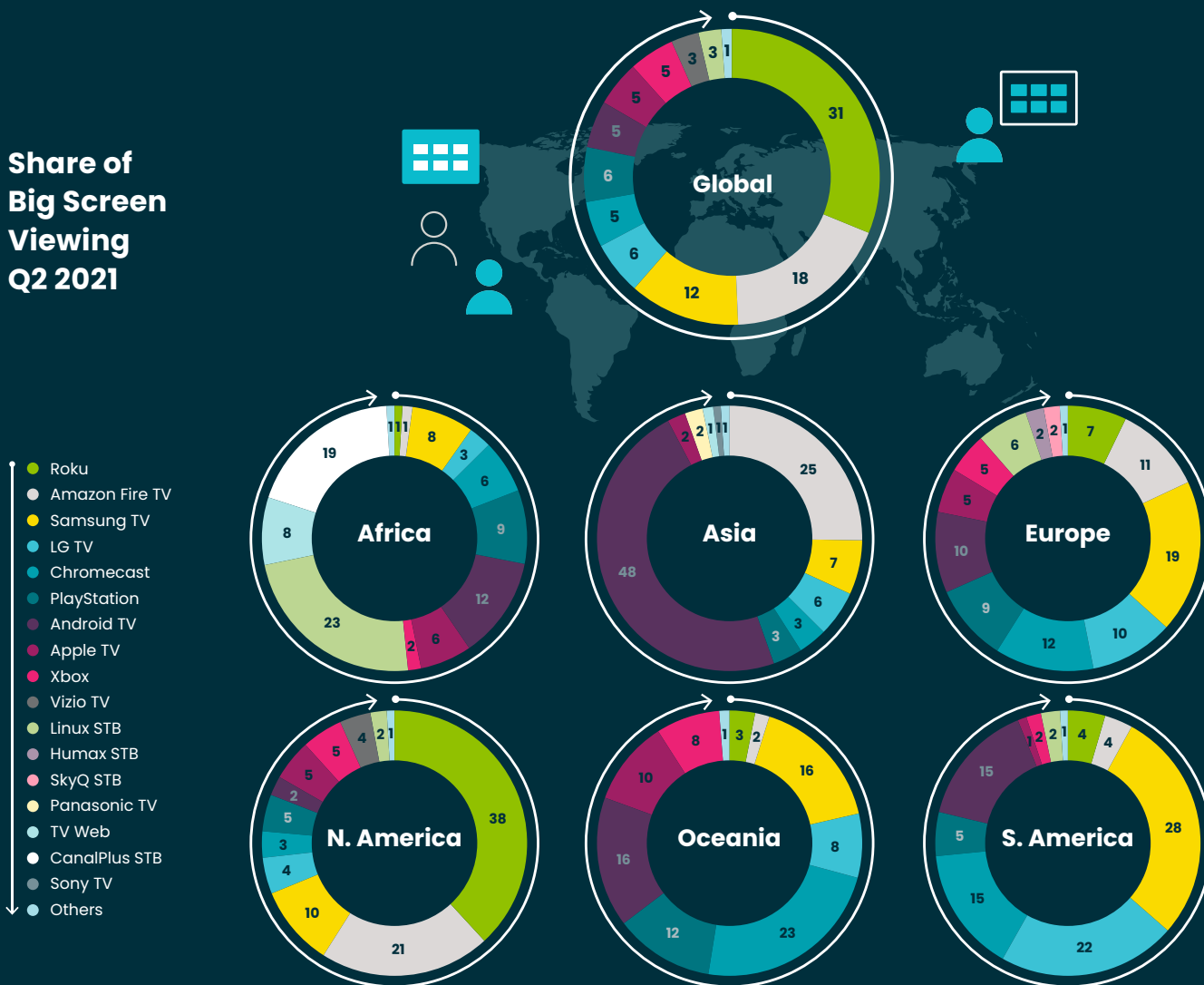
- Big Screen
- Mobile
- Desktop
- Tablet

Regional device divides continued

In every region but Asia, big screens dominated viewing with well over 50%, and North America's love for the big screen was particularly evident at 82% of the share of viewing time. Mobile phones, desktops, and tablets barely made a blip in North America with mobile phones coming in second among devices in the region at just 8%. Oceania and Europe have similar splits with big screens taking more than 60% share, desktops at 14%

share, and mobile phones and tablets bringing in about 10%. Africa, while still seeing 57% of viewing time going to big screens, had a much larger percentage of tablets compared to all other regions, except Asia. Asia is the outlier with 42% of viewing time watched on mobile devices and 42% on desktop, while just 16% of viewing time was spent on big screens in Q2 2021.

Share of Big Screen Viewing Q2 2021



How the world watched big screens

Big screens have been gaining popularity all over the world for the last several quarters. In Q2 2021, globally, Roku made up 31% of global viewing time, while Amazon Fire TV and Samsung TV had decent showings at 18% and 12%, respectively.

While Africa and the Americas had clear devices that led in the big screen category, Europe and Oceania had much more device diversity. Roku had the most dominant share of viewing time in North America, followed by Amazon Fire TV at 21%, and Samsung TV at 10%. In South America, it was Samsung TV that led the way, but LG TV was right on its heels with 22% share while Chromecast and Android TV tied for third at 15% share

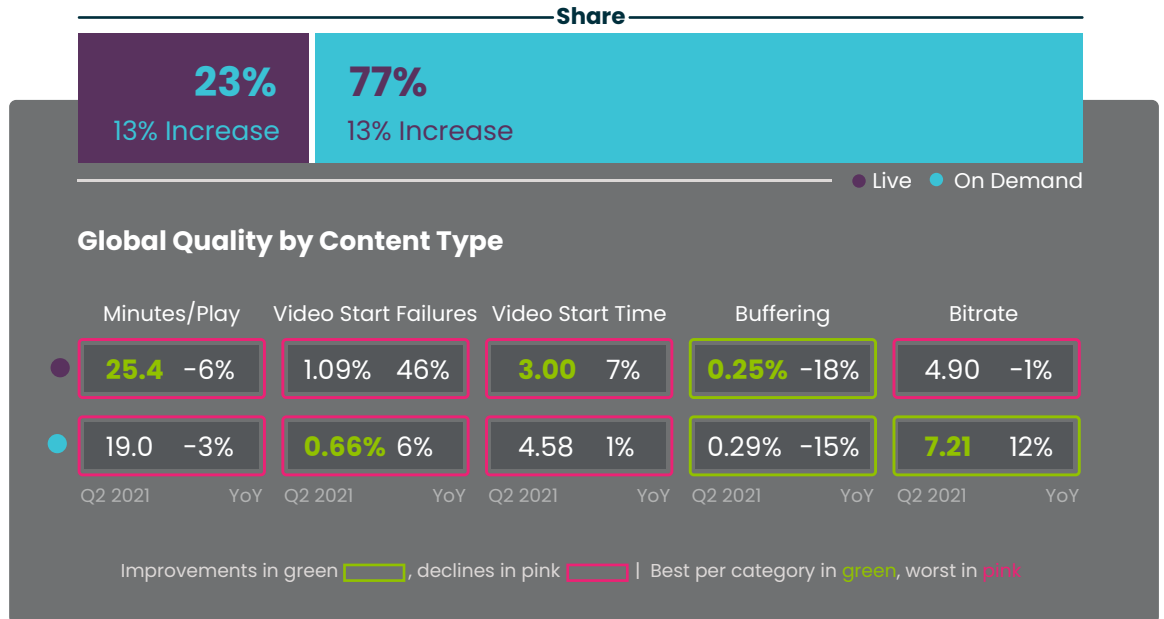
each. As the viewing time increased in the region, Linux STB pulled ahead in Africa with 23% share of viewing time while CanalPlus STB captured 19%, and Android TV came in third at 12%. Chromecast led the way in Oceania with 23%, but four other devices, including Samsung TV and PlayStation, had double-digit share. Europe's division was even slimmer as the top five devices had only a few percentage differences. Speaking of clear leaders, Android TV had almost 50% of share in Asia where big screen viewing makes up a relatively small portion of overall viewing; the next closest competitor was Amazon Fire TV with 25%.

Live and on-demand content remarkably steady

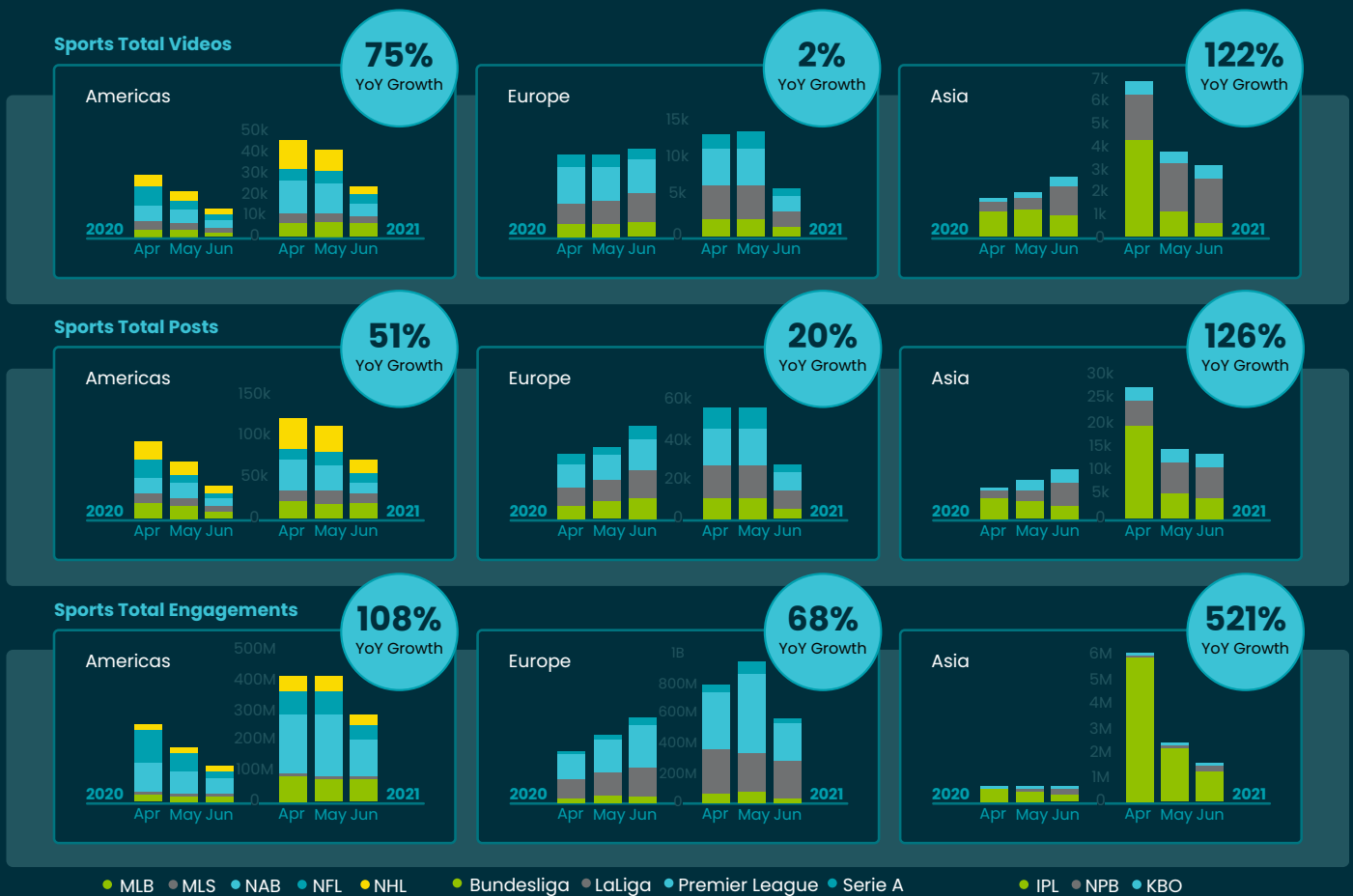
Interestingly, in Q2 2021 live and on demand content grew at exactly the same rate with both types up 13% year over year. This also translates to maintained share, with on demand at 77% and live at 23%, the same as it was in Q2 2020.

Looking at quality for the different types of content, while buffering saw decent advances across the board, there were issues with all other quality metrics for one or both content types.

Global Viewing Time by Content Type



Minutes per play declined 6% for live events and 3% for on demand, but live still delivered more minutes per play, averaging 25.4 to on demand's 19 in Q2 2021. On demand saw less video start failures at .66% in Q2 2021 versus live's 1.09%, after live content increased 46% year over year in failures. Video start time worsened for both content types with live up 7% and on demand up 1%, but live won the video start time race in Q2 2021 at 3 seconds to on demand's 4.58. Besides less buffering, picture quality for was the only metric to be better year over year for on-demand content, with bitrates up 12%, but for live content bitrates worsened 1%. The improvements in picture quality for on-demand content further the lead with a bitrate of 7.21 compared to live's 4.90.



Pro sports resurgence on social media

For many reasons, Q2 of last year was perhaps the most challenging quarter in sports history, and this was especially true for sports leagues on social media. As leagues were shut down, postponed, and quarantined in 2020, social media tanked. Q2 2021 was the first quarter since the beginning of 2020 in which all sports leagues showed an increase year over year across posts, videos, and engagements. It's important to chart how far sports has come in resurgence, as it illustrates just how disruptive the shutdown was to sports.

Asian leagues including the NPB, KBO, and IPL absolutely skyrocketed with increased engagements of 521% over the same time last year with triple-digit increases in content output as well. American leagues, including MLB, MLS, NBA, NFL, and NHL also shined in Q2 2021, increasing

engagements by 108% year over year, while increasing post and video output by 51% and 75%, respectively. Even with a slow June as the UEFA Euro 2020 tournament took precedence over league play, European leagues, including Bundesliga, La Liga, Premier League, and Serie A showed tremendous quarter-over-quarter growth up 68% in engagements despite only increasing videos by 2% and posts by 20%.

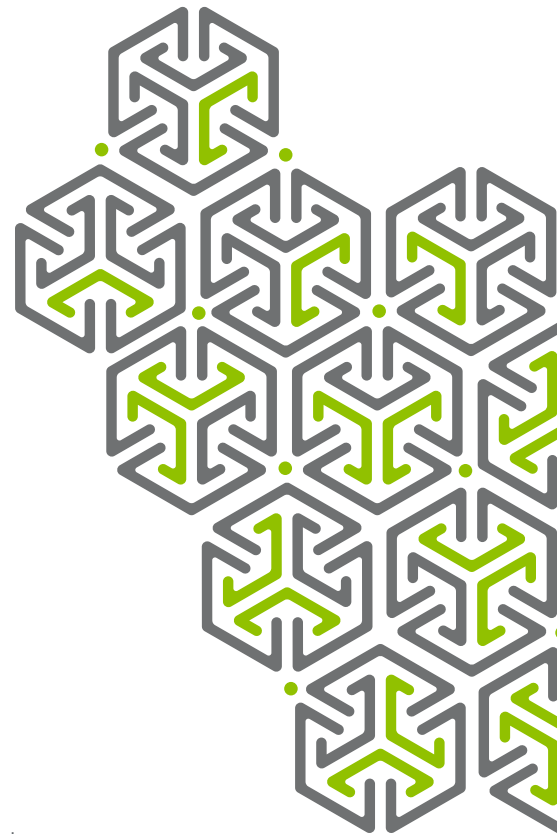
Once shut down, it took sports leagues nearly 14 months to get back to engagement levels seen prior to the pandemic. While some leagues found their footing sooner, there are undoubtedly countless lessons to be learned from how these teams and leagues recovered on social media.

Conclusion

As much of the world begins to open after being hunkered down for over a year, employees return to offices, and people venture out, it could be assumed that streaming might suffer from all of this out-of-home activity, but thus far, that isn't the case. In fact, streaming continues to grow all over the world, streaming advertising is not only burgeoning, but also getting better, and companies are investing in social media like never before. Streaming is here to stay.

Methodology

Data for Conviva's State of Streaming report was primarily collected from Conviva's proprietary sensor technology currently embedded in 3.3 billion streaming video applications, measuring in excess of 500 million unique viewers watching 180 billion streams per year with nearly 2 trillion real-time transactions per day across more than 180 countries. Year-over-year comparisons were normalized at the customer level for accurate representations of industry growth. The social media data consists of data from over 2000 accounts, over 5 million posts, 12.5 billion video views, and over 35 billion engagements across Facebook, Instagram, Twitter, and YouTube.



Q2 2021

Conviva's
State of
Streaming



About Conviva

Conviva is the intelligence cloud for streaming media. Powered by our patented Stream Sensor™ and StreamID™, our real-time platform enables marketers, advertisers, tech ops, engineering and customer care teams to build, engage and monetize their audiences. Conviva is dedicated to supporting brands like CCTV, DAZN, Disney+, Hulu, Paramount+, Peacock, Sky, Sling TV, TED and WarnerMedia as they unlock the incredible opportunity in streaming media. Today our platform processes nearly 2 trillion streaming data events daily, supporting more than 500 million unique viewers watching 180 billion streams per year across 3.3 billion applications streaming on devices. Conviva ensures digital businesses of all sizes can stream better—every stream, every screen, every second. To learn more, visit www.conviva.com.

Any Questions?

Visit www.conviva.com or contact Conviva at pr@conviva.com.