



# The New Normal: Remote Work Reshapes Technology

April 30, 2020

## Key Takeaways

- ▶ The new work-from-home environment sparked by shelter in place requirements to contain COVID-19 is impacting information technology and the related communication services sector in three primary areas: consumer, enterprise and network service providers.
- ▶ Consumers are shifting from less data intensive and mobile experiences to more data intensive and residential experiences, which should drive growth in gaming and a push by service providers to upgrade the last mile of wired networks.
- ▶ Enterprises are seeing a larger move toward public cloud services and embracing software that optimizes productivity in remote work environments.

## Consumers Increasing Residential Data Consumption

Containment strategies to combat the spread of COVID-19 have significantly altered the way we work and play. Both workers and businesses have had to adjust to the new work-from-home (WFH) paradigm, which has affected companies across the economy and created new opportunities or enhanced existing market positions in certain industries. The major impact for consumers appears to be a shift from less data intensive/mobile experiences, such as podcasting and music streaming, to more data intensive/residential experiences including video streaming and gaming. This shift could lead to an elongation in replacement rates for expensive mobile solutions like smartphones and a pull forward in replacement rates for cheaper residential solutions like gaming consoles. Comcast saw a 37% increase in streaming and web video consumption and 77% increase in video game downloads as of April 15 compared to traffic trends on March 1. Meanwhile, consumers appear to be listening less to podcasts and streaming music as they eliminate their commutes. This indicates a trade-off from lower data intensive/mobile services to more data intensive/wired service.

If this trend holds, it could eventually lead to a "trading down" of mobile rate plans, and a commensurate "trade-up" in broadband rate plans. It also would mean that overall network usage would increase, which would likely drive carriers to increase investment in their networks (primarily the network core, and "last mile" services to residential areas). Mobile customers could trade down in terms of rate plans as they find they aren't consuming as much data as they were pre-COVID and look to reduce costs. This could exacerbate competition in the second half of 2020 when the 5G iPhone ramps up as carriers are more desperate for higher-revenue customers. We believe this trend would favor ClearBridge holding T-Mobile given its position as the low-cost provider and its potential to have the best 5G network quality in the next 18–24 months, as well as Comcast and Charter given positions as the largest broadband providers in the U.S.

While it's unclear how prolonged either the recession or social distancing policies will be, the longer they last, the greater the likelihood that consumers will gravitate to lower-priced consumer electronics and de-prioritize purchases that provide more mobility (Exhibit 1). This suggests less incentive to upgrade expensive mobile possessions.

Exhibit 1: Consumer Electronics Purchases Likely Going Down Market

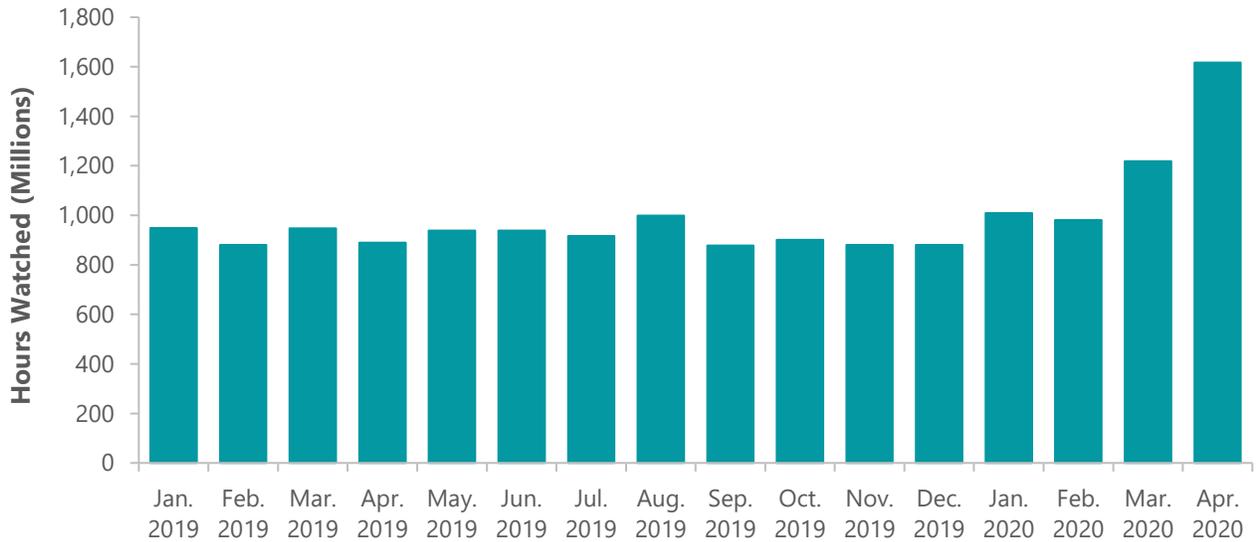


Source: ClearBridge Investments.

### Gaming Boost a Secular Trend

As anyone with tweens/teenagers in their homes during the pandemic knows, gaming is a relatively low-cost activity that can entertain for hours. Stats from video game streaming platform Twitch show there's been a 64% increase in average concurrent Twitch viewers since March 1 (Exhibit 2). For hobbyists, this provides an opportunity to spend more time consuming gaming content than commuting. We do see some risk for casual gamers to trade down to lower-end graphics processing units (GPUs), or to move to lower-end solutions like game consoles. However, we believe new GPU introductions in the second half of this year, in line with the release of new gaming consoles, should drive an upgrade cycle for enthusiasts who are very price inelastic when it comes to gaming. This should help provide some buffer for high-end GPU makers like Nvidia. Longer term, cloud gaming should become a large driver of growth of both gaming users as well as gaming consumption, and new technologies such as augmented reality/virtual reality could also drive higher-end GPU content. Nvidia remains our favorite way to play this trend, although Sony and Advanced Micro Devices should benefit from the launch of the new PlayStation and Xbox consoles. Increased gaming uptake is one of several positive revenue drivers for Microsoft, which is also benefiting from WFH in its core enterprise businesses.

Exhibit 2: Twitch Usage Is Spiking with Gamers at Home



Data as of April 28, 2020. Source: TwitchTracker.

### Enterprises Embracing the Cloud

The sudden shift from high-speed office networks and connected workstations to remote work environments has not been without incident for companies serving enterprise customers. Large IT projects are beginning to be deferred as enterprises scramble to get employees up and running from home, making them more reticent to consider new vendors. The exception has been companies supporting WFH, primarily infrastructure providers and software makers, which are seeing solid-to-strong demand as about 98% of enterprise customer employees need to be equipped to work remotely.

Enterprises are seeing a larger push toward public cloud services. Cloud is a clear beneficiary as remote work should increase usage. Amazon.com and Microsoft have experienced massive increases in traffic in their public cloud businesses, as enterprise customers move their storefronts from brick and mortar onto the Internet. While this near-term surge will likely normalize as customers weigh spending on new tactical projects against the potential deferral of larger, strategic projects, once the dust settles it's likely that enterprises will end up moving more workloads to the public cloud. All else being equal, the trade-off between cloud services and on-premise spending varies for different workloads, with on-premise equipment better for high-usage/secure workloads while the cloud is better for low-usage workloads and new features. Below is a simplistic framing of how chief information officers are weighing the pros/cons of moving any given workload to the cloud. Overall, the WFH phenomenon shifts the near-term focus to public cloud and likely accelerates the long-term trend toward public cloud environments. In the same vein, enterprises are embracing software-as-a-service as it is easier to get up and running quickly and removes the onus of management from in-house IT teams.

Exhibit 3: Cloud Makes Sense for Many Applications

	Public Cloud	On-Premise
Cost	Cheaper for Low Usage	Cheaper for High Usage
Security	Less Secure	More Secure
Latency	More	Less
Maintenance	Less	More
New Feature Velocity	More	Less

Source: ClearBridge Investments.

Remote access, collaboration software, videoconferencing and e-signature companies are also seeing strong uptake in the WFH environment and should be longer-term beneficiaries of this paradigm shift. Standalone companies like ServiceNow, which offers remote IT help desk functions, and DocuSign are well-positioned to gain share in this environment while the attraction of Microsoft’s Teams is causing an increase in Office 365 deployments. Larger enterprise vendors like Microsoft will use this as an opportunity to gain share and we expect them to offer incentives like delayed payment terms to garner customer loyalty. Higher WFH uptake also encompasses back-end functions including content acceleration to serve up web pages quicker and virtualization to allow for greater capacity. Witness the first-quarter results of content delivery and security vendor Akamai Technologies, which delivered a rare beat and raise in a period where S&P 500 earnings are expected to fall 16% in 1Q and even more in 2Q. To keep enterprise applications secure and effective, WFH is also pulling along information security (cloud security, managed services and endpoint protection) as well as network application monitoring software.

### Network Strains Could Spark Last Mile Upgrade Cycle

Broadband networks are seeing strains from increased WFH usage, likely leading to upgrades at the last mile of connection into homes. Comcast said in mid-April that upstream traffic growth is up 32% since March 1, with voice over IP and video conferencing traffic up 228%. AT&T noted that mobile traffic was up 27% month-over-month and Verizon experienced a 22% increase in traffic on its wireless and fiber broadband networks. This has led to some degradation in network performance, particularly in areas that have implemented “shelter-in-place” policies. For example, while the U.S. overall has seen about a 10% decline in performance, New York and San Jose have experienced declines of about 24% and 38%, respectively.

The need for high-speed connections is leading customers to upgrade the speed of their home broadband packages, which providers can charge for. We believe cable companies like Comcast and Charter have the advantage over telcos in providing broadband and continue to take share due to better technologies and faster speeds, which should allow them to raise prices over the long term.

*Work from home is one of many near and potentially longer-term impacts of efforts to cope with the COVID-19 outbreak. The shift in business practices and priorities is also affecting other sectors of the economy, which we plan to address in future blogs.*



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