

THE INTERNET **BENDS** BUT DOESN'T **BREAK**

The impact of the increased network utilization on wireline and wireless networks **By Jim Davis**

People around the globe are adapting to shelter and work from home policies designed to protect them from an unseen virus. “Are we going to break the Internet?” has become a common question. The short answer is that like the people using the Internet, the infrastructure that connects them is proving to be quite resilient.

OBSERVING CHANGES IN TRAFFIC DURING LOCKDOWN

After roughly two months of over 100 countries being in full or partial lock-down, the Internet has experienced tremendous traffic growth: reports of 30% to 50% spikes in the span of a few weeks starting in February are the norm. Internet exchanges, CDNs, ISPs, submarine cable systems and the datacenters that house equipment have withstood the surge, for the most part.

ACCESS NETWORKS

Access networks are typically going to be the source of most reports of performance degradation and outages. ThousandEyes, a provider of network monitoring services, reported that they number of ISP outages did increase significantly in February and March, showed the average number of measured outages at rising from 176 in February to around or below 300 outages per week on a global basis, with the exception of the week of April 6, where there were 177 outages.

At an application level, unified communications tools (videoconferencing and the like) have seen huge increases in usage, and as a result, there have been growing pains. ThousandEyes reports that UCaaS (Unified Communications as a Service) outages went from single digits in early February to 25 outages in the US alone the week of March 30th.

MIDDLE MILE/CORE OF THE INTERNET

Major Internet Exchange Providers (IXPs) are reporting record traffic levels, with DE-CIX saying that they’ve seen an average 10% increase in traffic in a matter of days in March, which compares to a typical 10%-50% traffic



growth annually. The latest figures from DE-CIX’s exchange in Frankfurt are showing that the platform is delivering close to the new record peak of 9.1 Terabits per second data throughput achieved in mid-March.

Video traffic makes up a disproportionate amount of Internet traffic on a normal day; stay-at-home orders have contributed to significant increase in consumption of OTT video services. CDN service providers CDN providers like Akamai, CenturyLink, LimeLight Networks, and Verizon Digital have built distributed compute, storage and network systems to help deliver this content and are continuing to perform this function well. Akamai executives reported the following:

- ▶ March traffic growth averages 3%-10% historically; in 2019 traffic had actually declined 1% in March on the Akamai platform.
- ▶ In 2020, traffic was up 30% in the span of one month (not year over year).
- ▶ Akamai reported peak traffic of 167Tbps compared to 82Tbps in 2019.

WIRELESS TRAFFIC/BACKHAUL

Cellular networks have seen increased call volume, but as far as network capacity is

concern, wireless data consumption has increased at fairly modest rates. Verizon reported that data traffic was up 9% in April compared to January figures, and usage remains well below network capacity.

As far as network expansion is concerned, 5G rollouts in the US, for instance, have been slowed by a matter of months due to travel restrictions and other factors, but so far there are no widespread plans to reduce capital expenditures on 5G infrastructure.

LOOKING AHEAD – WILL SUPPLY CHAIN ISSUES IMPACT RESILIENCE?

So far, most service provider access networks are handling increased traffic owing to rapid shifts in user behavior. Many outages have been due to the usual problems like fiber cuts and equipment misconfiguration as opposed to be caused directly by a lack of capacity in routers, fiber networks, optical transport gear and the like.

Providers have noted that there are some delays in their supply chains that are causing some delays in network expansion and servicing activity. On the production side, one IX had some issues with finding enough network patch cables to connect equipment because the manufacturer was based in China. Others are finding delays resulting from in the shipping, unpacking, and installation of equipment as datacenter facilities cope with having limited access to essential personnel.

Looking down the road, the wide variance in lockdown policies could impact the ability to support continued Internet growth. Different policies on a country-by-country down to the city level will make supply chain management very difficult in the coming months. ☹

About the Author

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