bwtech

IMPACTS OF COVID-19 IN THE LATIN AMERICA NETWORK TRAFFIC

The Coronavirus pandemic has hit most countries around the globe. As the most recommended preventive measure, countries adopted quarantine and social distancing to prevent the spread of the virus.

With the increase of people staying home and many companies sending their employees to the home office regime, as well as the closing of schools and universities, the use of the internet for education and the demand for better connections grows. All of this, demands the mobile operators to guarantee an even better network quality.

To understand a little more about the changes caused by the COVID-19 in the consuming behavior of networks, we conducted a survey using NetChart, our network monitoring and optimization tool, to analyze the network consumption scenario in Latin America.

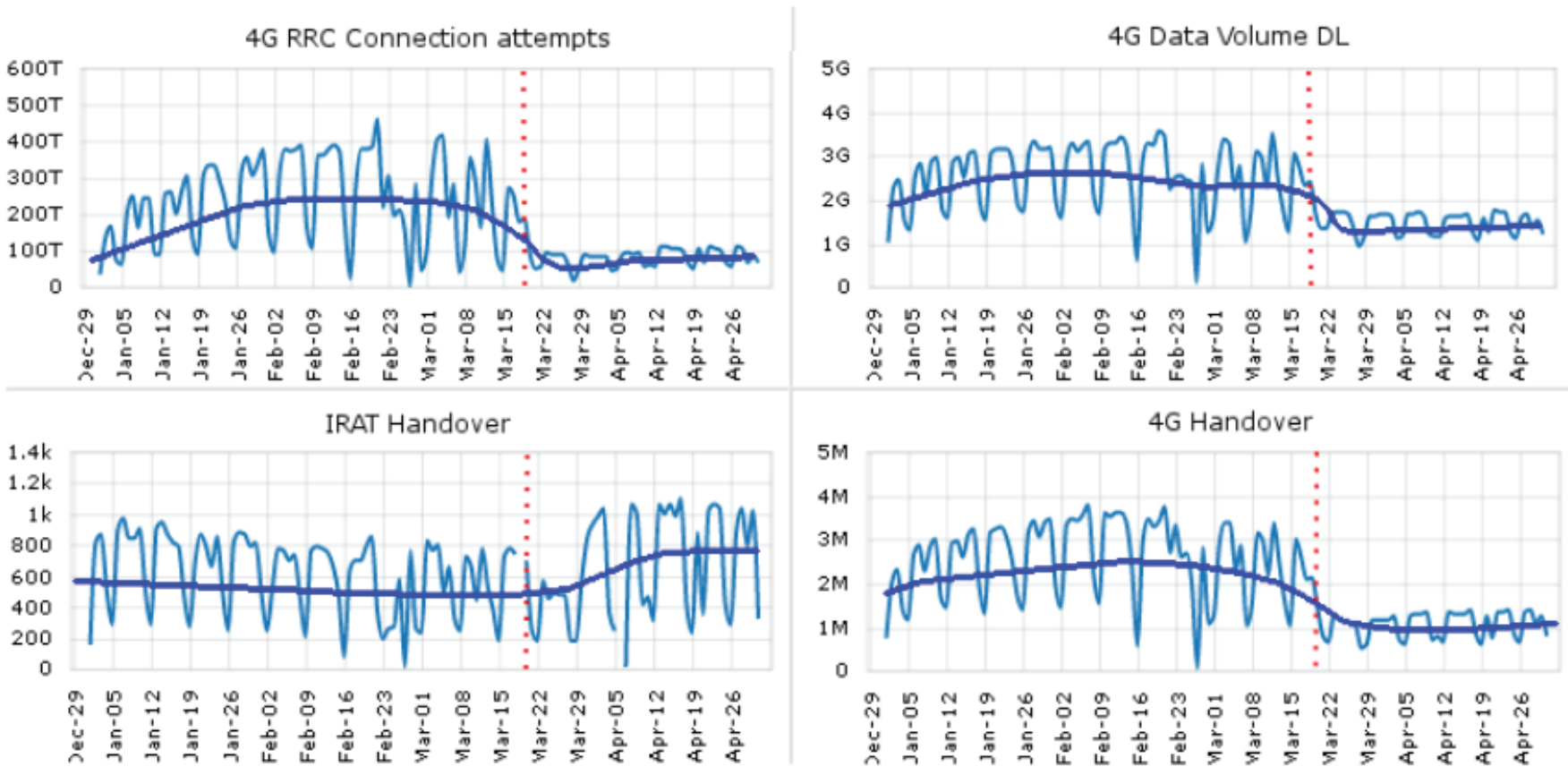
bwtech

How COVID-19 changed the telecom traffic

To better understand the impacts of self-isolation in network traffic, Bwtech conducted internal research in some Latin American markets using NetChart to have a bigger picture of how the pandemic changed the telecom traffic - especially on mobile networks.

Initially, it was made an analysis in a dense urban area, that is full of offices, therefore, the expectation was that there would be a high impact due to the lockdown. The chosen region has a typical working environment for operators and service providers - which includes Bwtech's service model -, so it had a scenario that was close to the company's reality, making the findings even more interesting to us.

In this research, the data were summarized daily, from Jan 1st to May 1st. And it is important to notice that, in this city, the lockdown issued by the government started on March 20th - marked with the red dotted line.



bwtech

The analysis, which considers only the 4G part of a tier 1 operator, shows a considerable 50% drop in LTE connection attempts, data volume, and handovers. All of this information, in summary, means that half of the traffic is gone in this dense urban area.

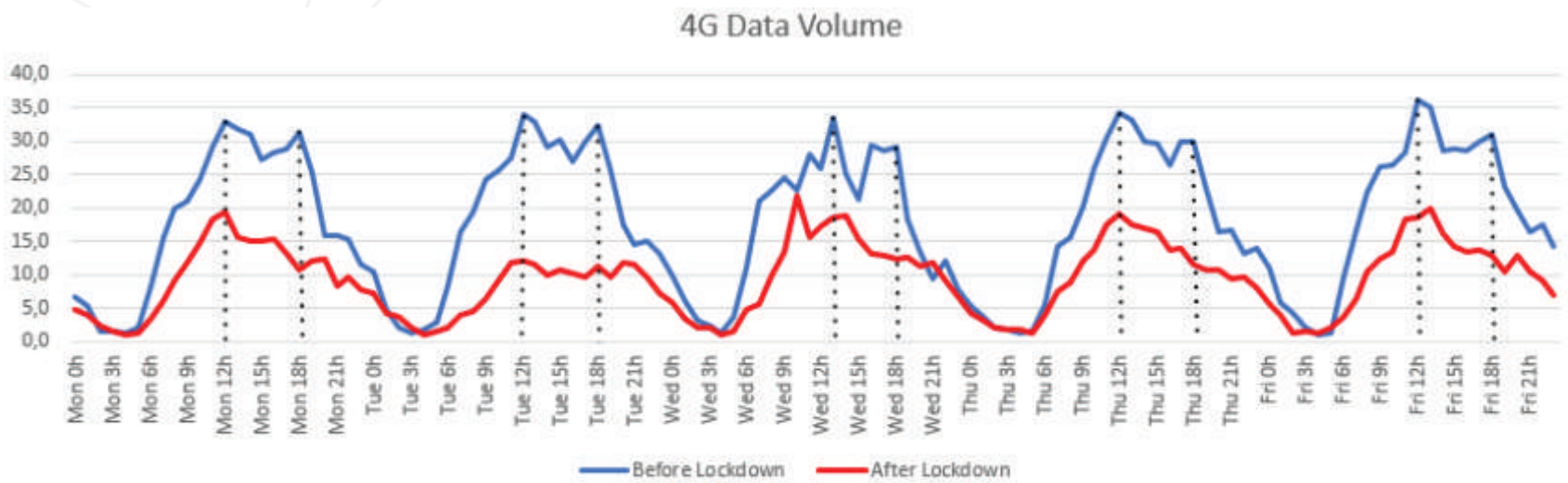
Therefore, it is possible to say that yes, there was a big impact, especially in data traffic as expected. Also, the attentive reader will notice an increase of around 25% in one of the charts, which shows handover to 2G and 3G networks. This may indicate that users are doing more voice calls, but that's a subject for another article.

How COVID-19 changed the traffic shape

The next step was the analysis of the traffic shape in the same dense urban area. It was made a comparison between a period before the lockdown - from Feb 3rd to 7th (blue line) -, with one after - from April 20th to 24th (red line) - with the data summarized hourly.

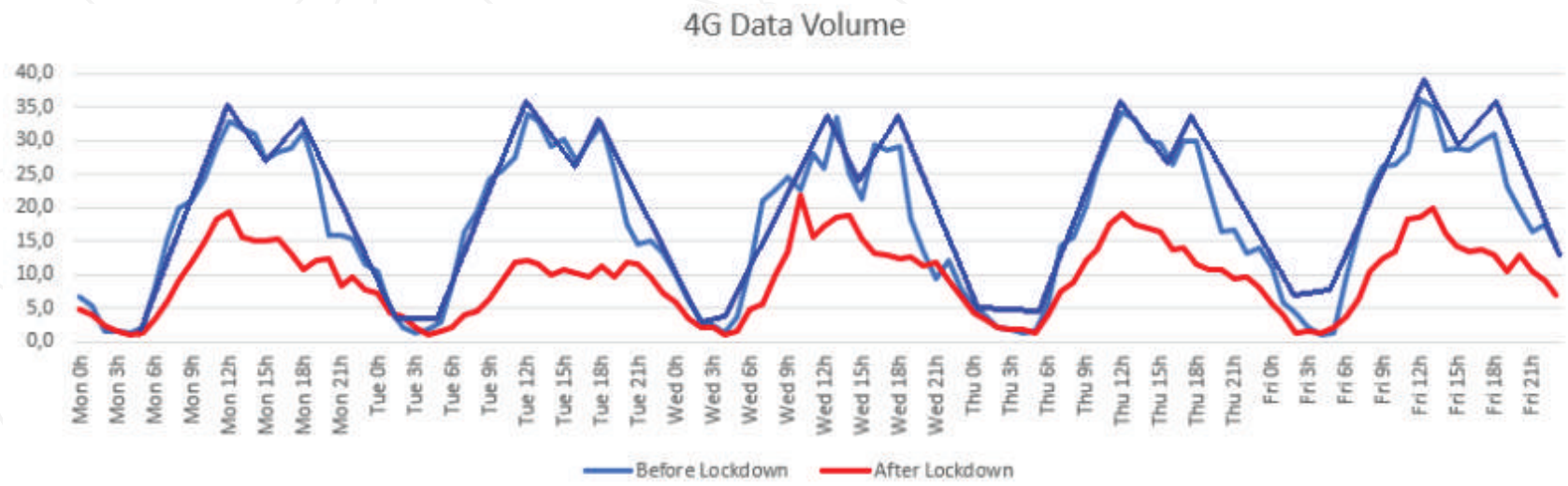
The dotted line in the chart below represents the peak hours before the lockdown. Through it, it is possible to see that they are concentrated on two main hours: 12h and 18h. In this region, they represent lunchtime and the time when people leave the office to go home, respectively.

Those are the moments where people pick their phones to interact with it: making phone calls, looking at their social media profiles, watching videos, and so on.

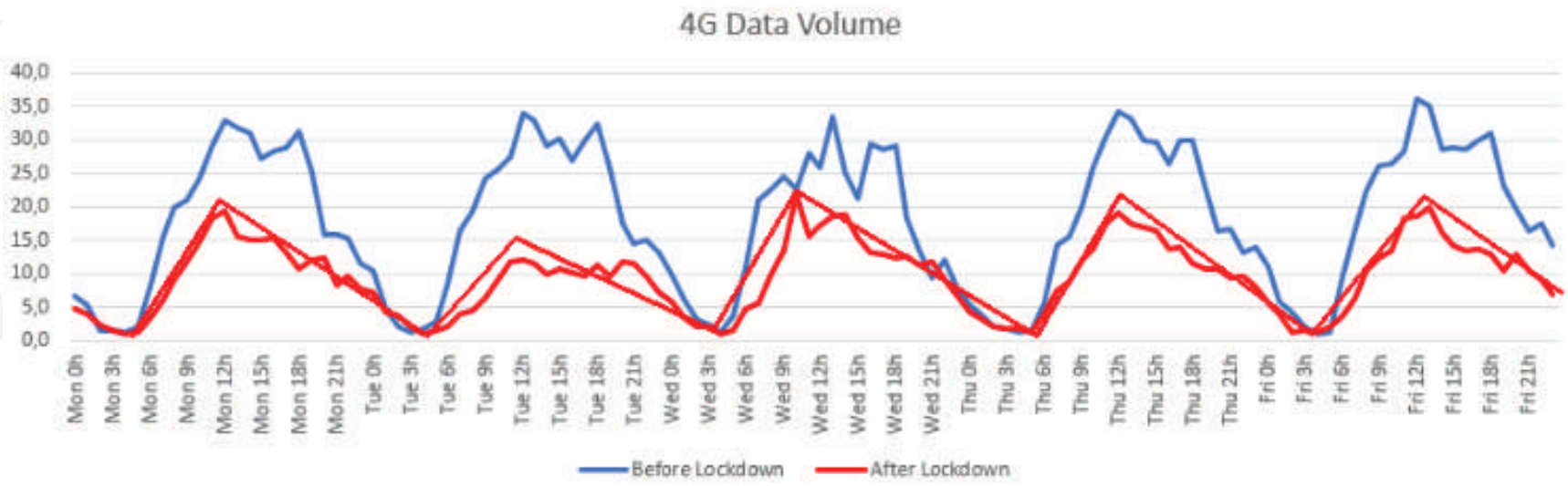


The chart below has an exaggerated “M like” pattern (in blue) that represents those two peak hours.

bwtech



But looking at the after-lockdown traffic shape (red line), and doing a similar exaggeration, you can see a chain teeth pattern. There, the lunchtime peak is kept, but the go-home peak does not exist. This happens because people are not going to their offices to work, apart from essential services, and business-es all over the city are shut down.



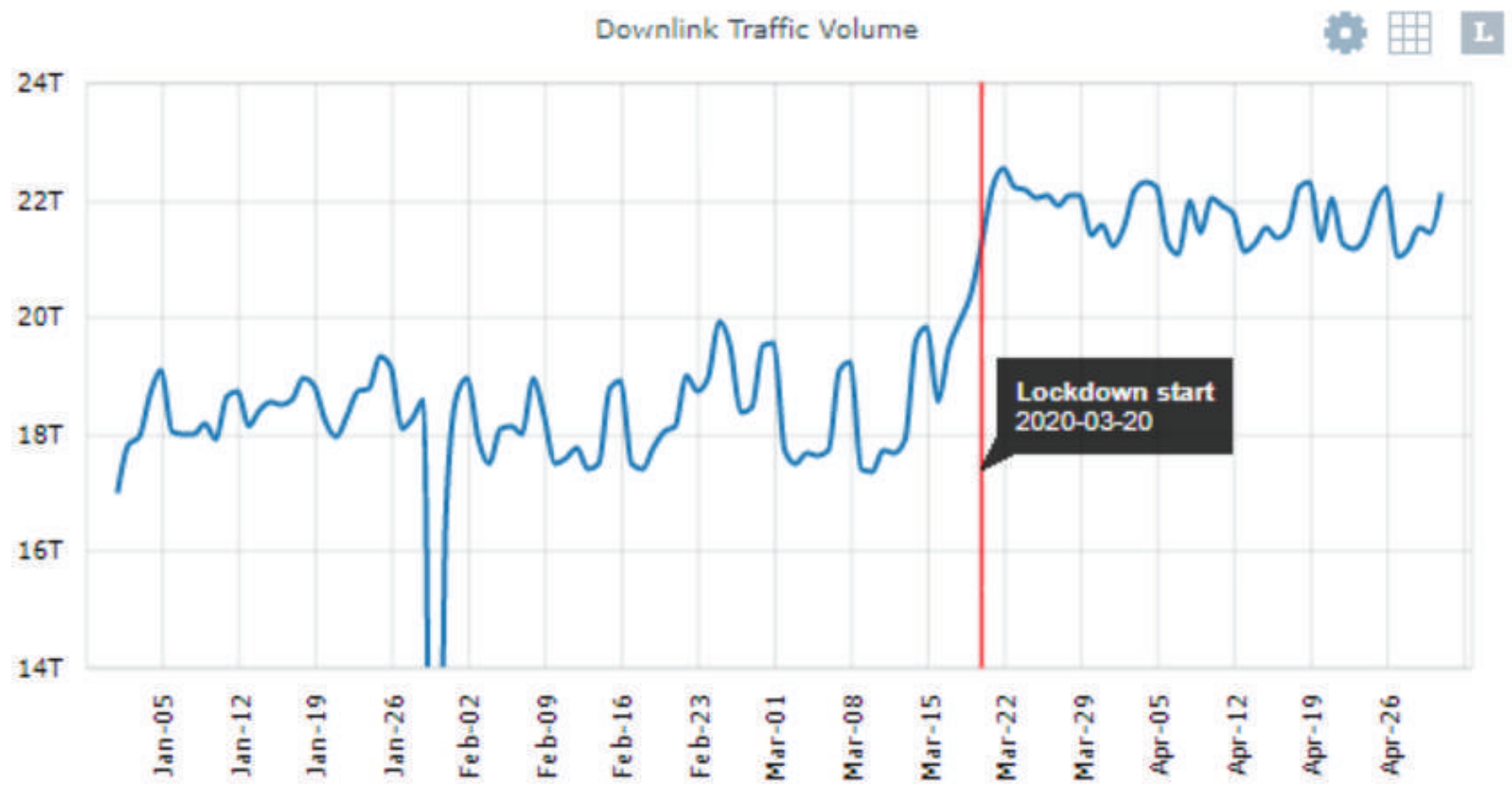
bwtech

Home office traffic

Another finding was a traffic decrease in offices areas and, since most of the workforce is at home, it is expected to see a traffic increase in residential areas. But this traffic would not be represented in 4G, it would rather be switched to home Wi-Fi. This, in turn, would use fixed access - like cable or optical fiber for example -, not the 4G mobile network.

Fortunately for this research, some operators provide a fixed LTE data service, i.e., home internet (Wi-Fi) that goes through the LTE network. This gave a broader figure on home traffic and allowed this study to use the same 4G network to better understand the changes in the network traffic.

Filtering by this service in NetChart, summarized by day, on a country level, the result was the chart below. The red line is a reference day for the lockdown in the area because the social isolation measures happened on different days throughout the cities.



The chart above shows an increase of around 20% in data volume countrywide, confirming the hypothesis this study had and the reality of the home office network traffic.

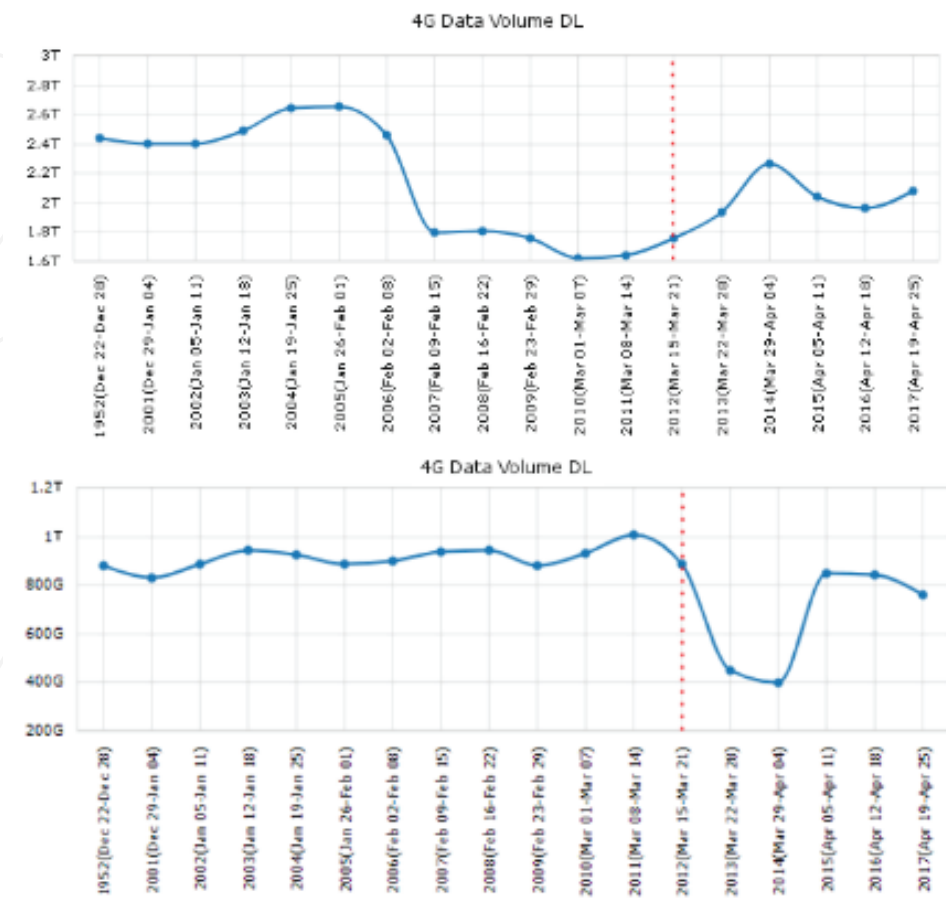
bwtech

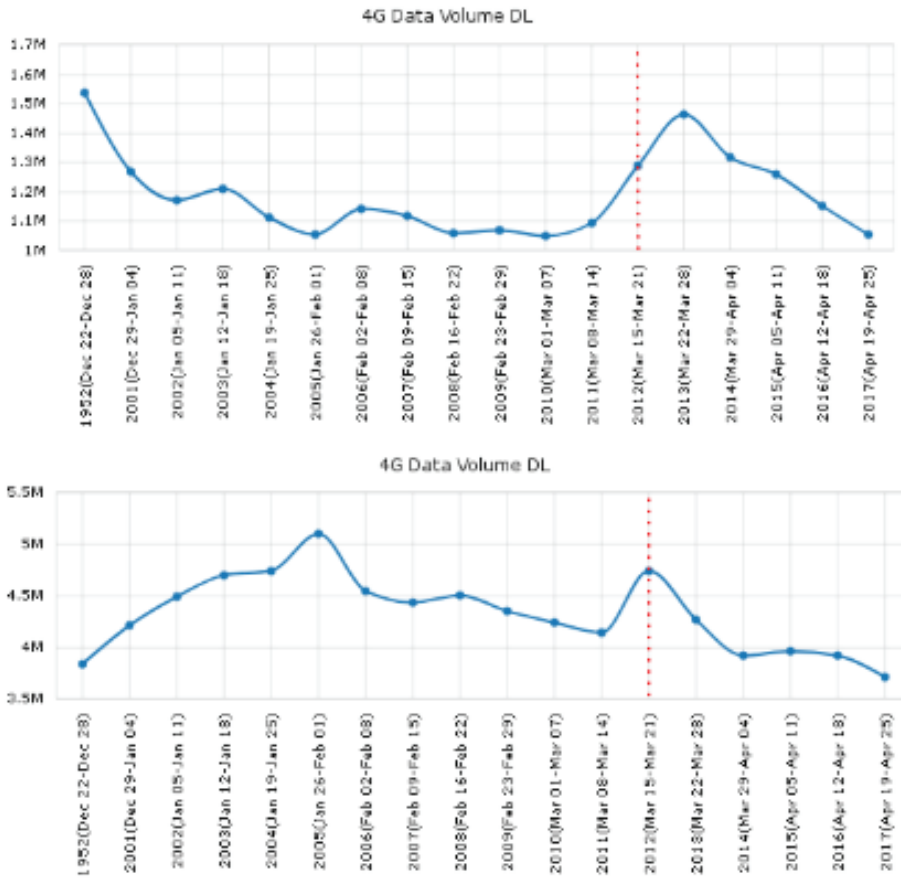
Overall traffic in operators

Finally, it was time to take a look at the operators that do not provide a fixed internet over LTE service, to see the overall impact on it on a country level. It is known that traffic in office areas is reduced and that people at home are likely to connect to their local Wi-Fi (if they have one). That being said, the hypothesis was that there would be a traffic decrease in 4G.

The following charts are at the network level, for several countries in Latin America, summarized by week and obtained from NetChart. In this step, the reference date used was the 20th of March as the lockdown start - although each city and country got a different one, they are not very far from it.

Most countries presented a decrease in traffic between 5% and 10%, while one country presented an increase of 10% in its LTE traffic. It is not possible to assume a single direction here, and this change may even be considered a normal network traffic fluctuation. Given this data, the impact in overall 4G data traffic can be considered low.





Conclusion

The COVID-19 is disruptive for the world, and it affects the Telecom industry as well. Some areas got its 4G data traffic reduced, especially office neighborhoods in dense urban locations. And others got its traffic increased, especially for operators providing fixed 4G data access. The impacts on traditional mobile operators are considered low, but these figures can change in the next weeks, depending on how the COVID-19 crisis evolves.

One thing is for sure, with NetChart, operators and service providers can have clear visibility on what is happening and better plan for the challenging times we are living in.

About the author

José Ruy Moreira de Souza is Bwtech's Product Manager, responsible for the NetChart portfolio since its origins. He works with software applied to the mobile telecom industry for more than 14 years. He is finishing studies in technology leadership at MIT, USA, and holds an MBA in Project Management from FGV, Brazil, and a BSc in Electrical Engineering from UFMG, Brazil.

bwtech

About Bwtech

Bwtech is an innovative company that has the main focus to develop tools for monitoring and optimization of mobile networks. With end-to-end solutions, it has more than 20 communication providers in 15 different countries throughout the globe. With operations in Latin America, Europe, Africa, and the Middle East, Bwtech provides services for:

- Fixed and Mobile Operator Managed Service Providers
- Telecom Regulators
- MVNE/Os

Its main product, **NetChart**, is a complete solution that addresses the challenge of dealing with the modern, huge, and complex mobile networks that generate vast and diverse volumes of data. Therefore, it provides advanced network analytics and the correlation of various network information sources, such as counters, parameters, inventory, alarms, CDRs, traces and drive tests with each other.

bwtech

bwtech

For more information, feel free to contact our marketing and sales team at **hello@bwtech.com** or in our website **bwtech.com**.