

LTE & 5G in Asia Pacific

July 2020



LTE is deployed in the vast majority of countries/territories of the Asia-Pacific region

LTE has been launched by 165 operators in 49 countries/territories in the Asia-Pacific region (including fully mobile networks and FWA broadband networks using LTE).

A handful of the world's few remaining LTE 'not-spots' (i.e. countries/territories with no LTE at all) can be found in remote parts of the Asia-Pacific region. However, these remaining island regions either have LTE networks planned or deployment is already underway.

Recent additions to the LTE networks in the region in 2020 include:

- TPG Telecom in Singapore
- Rakuten in Japan
- Afgan Telecom (Aftel, Salam) in Northern Kabul, Afghanistan

Figure 1: LTE 'not-spots' in the Asia-Pacific region



LTE FWA has been deployed in over half of the countries/territories in Asia-Pacific

LTE Fixed Wireless Access (FWA) has been launched by 70 operators in 36 Asia-Pacific countries/territories. This constitutes 60% of the region by country/territory count.

Of those without FWA networks, a further 5 countries/territories are known to have operators providing a MiFi-based broadband service.

Peak download speeds offered over LTE FWA in the region range from <5 Mbps to >1 Gbps. The average of these peak speeds is just over 100 Mbps.

LTE-Advanced launched in 32 countries by 80 operators

LTE-Advanced networks have been launched in 32 countries/territories within the Asia-Pacific region, by 80 operators.

Recent launches in the region include:

- Veon (Beeline) in Armenia in 2020
- Digicel in Fiji in 2019
- Jazz in Pakistan in 2019

A further 6 operators are known to be testing/trialling, planning or are deploying LTE-Advanced networks.

The commercially available services in the Asia-Pacific region include some of the fastest in the world. It is home to at least 14 networks capable of delivering full Gigabit network speeds (maximum theoretical throughput) in selected cities/districts.

Of those, two are known to be capable of Cat-19 performance (1.5 Gbps in the DL) in selected areas. These are based in Japan and Singapore.

Figure 2: Countries/territories with FWA networks in Asia-Pacific

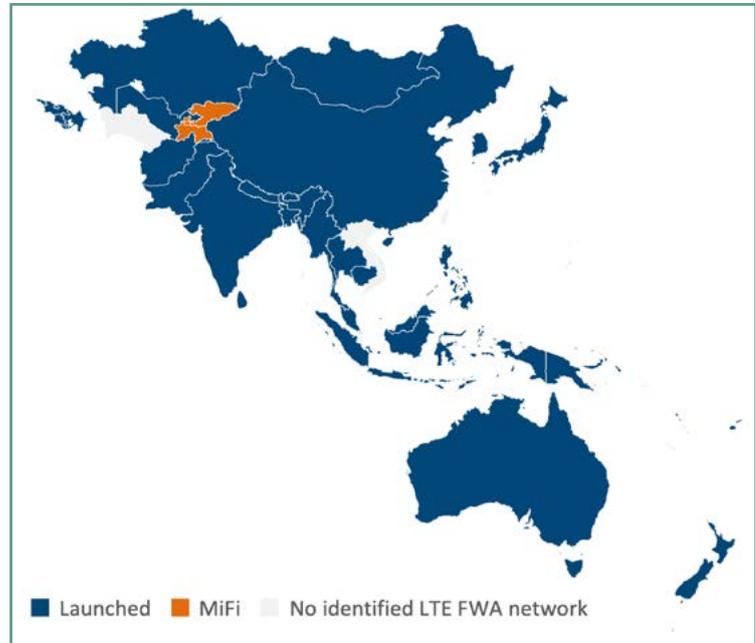
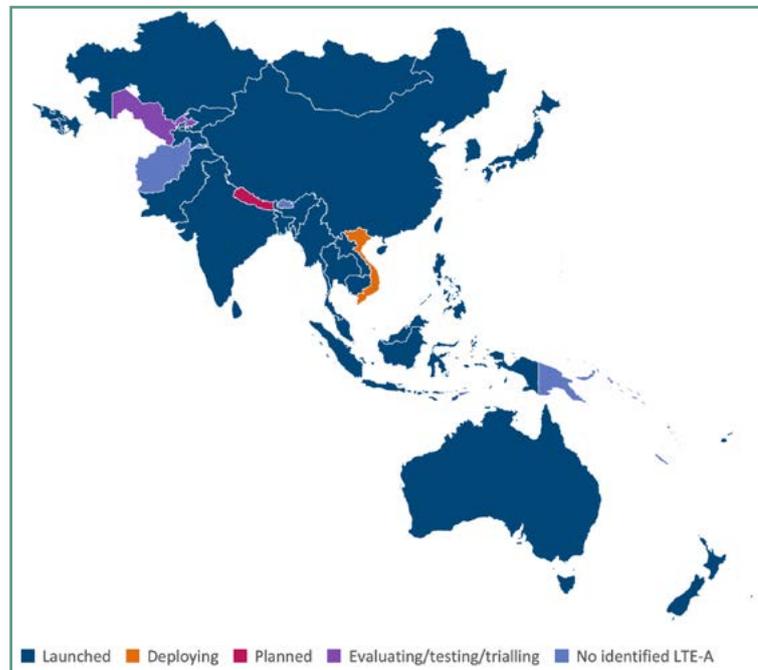


Figure 3: Countries/territories with LTE-Advanced networks in Asia Pacific



LTE-Advanced (peak theoretical) DL speeds have reached 1.5 Gbps in some locations

Figure 4: Peak theoretical download speeds of LTE-Advanced networks in the Asia-Pacific region.

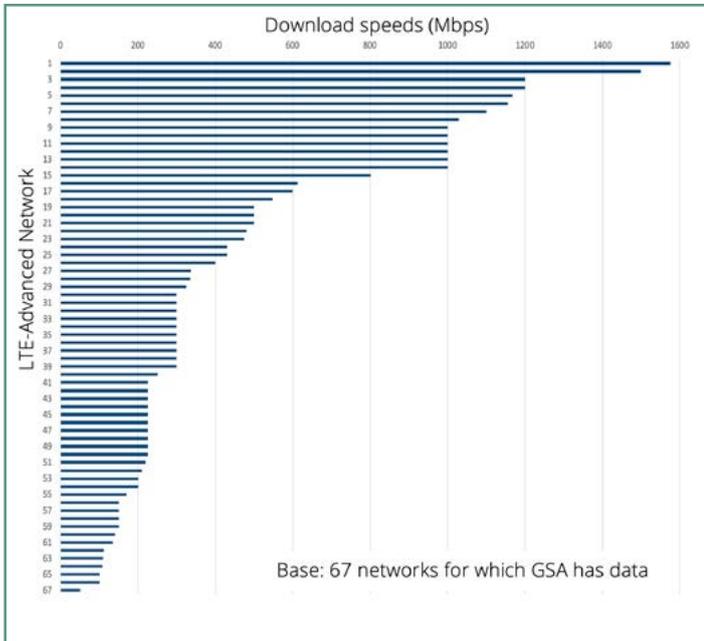
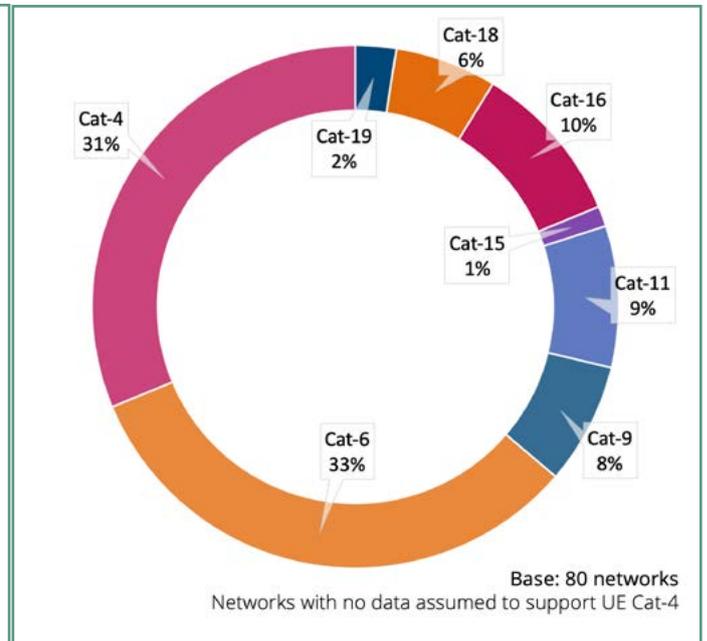


Figure 5: Analysis of UE Cat download speeds supported by LTE-Advanced networks in the Asia-Pacific region.



VoLTE growth and investment continues

There continues to be strong investment in VoLTE within the Asia-Pacific region with a total 79 operators known to be investing in the technology in the form of trials, deployments or service launches.

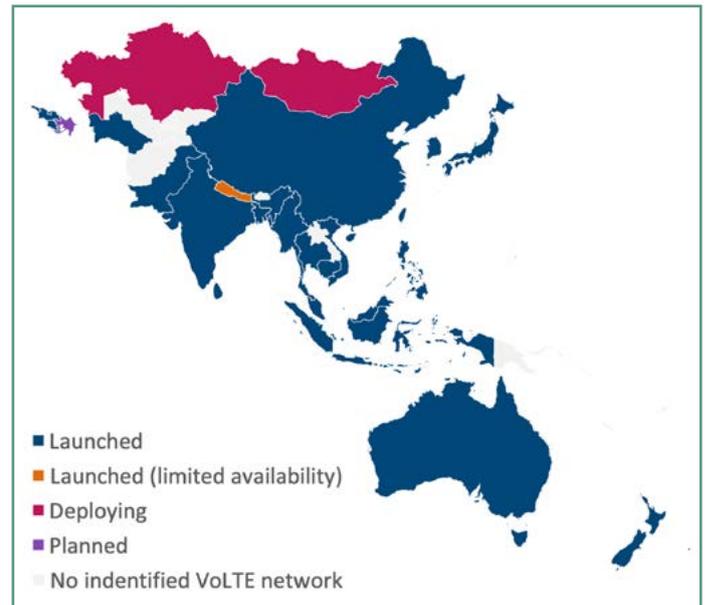
VoLTE services have now been launched in 29 Asia-Pacific countries/territories, by 65 operators. This represents 39% of all LTE operators in the region.

Recent launches in the region include:

- Globe in the Philippines in 2020
- Robi Axiata-Airtel in Bangladesh in 2020
- Telkomsel in Indonesia in 2020
- TPG Telecom in Singapore in 2020

Services are planned or in deployment by a further 12 operators in 10 countries/territories, and trials have been underway at two more operators.

Figure 6: VoLTE in Central and Latin America, launch status by country



NB-IoT & LTE-M have been launched in several key markets

NB-IoT and LTE-M are in the early stages of growth in the region.

Nine countries/territories have now seen the launch of both NB-IoT and LTE-M. A further 6 countries have operators that have launched NB-IoT only, with a further three home to operators in deployment, planning or piloting stages.

Thirty operators in the region have launched NB-IoT services and 14 have launched LTE-M services. Of these, 10 have launched both NB-IoT and LTE-M.

In addition 2 operators in Myanmar and the Philippines are undertaking NB-IoT testing and evaluation.

In Vietnam, Viettel is deploying both NB-IoT and LTE-M networks.

The region has seen 24 commercial 5G networks launched

Ninety-five operators across 31 countries/territories in the Asia-Pacific region are investing in 5G networks, reflecting 57.5% of the region's mobile operators.

Twenty-four operators across 12 Asia-Pacific countries/territories have launched 5G services. In addition there have been two soft launches by DoCoMo Pacific in the Northern Marina Islands and MegaFon in Tajikistan.

The number of active 5G networks has more than doubled in 2020. There were 11 launches in the first half of 2020 alone, with a further 3 operators launching in July 2020 in Taiwan.

There are currently 69 other operators across 19 countries/territories investing in 5G networks (including testing/trialling and deploying).

Figure 7: NB-IoT and LTE-M in Central and Latin America, launch status by country

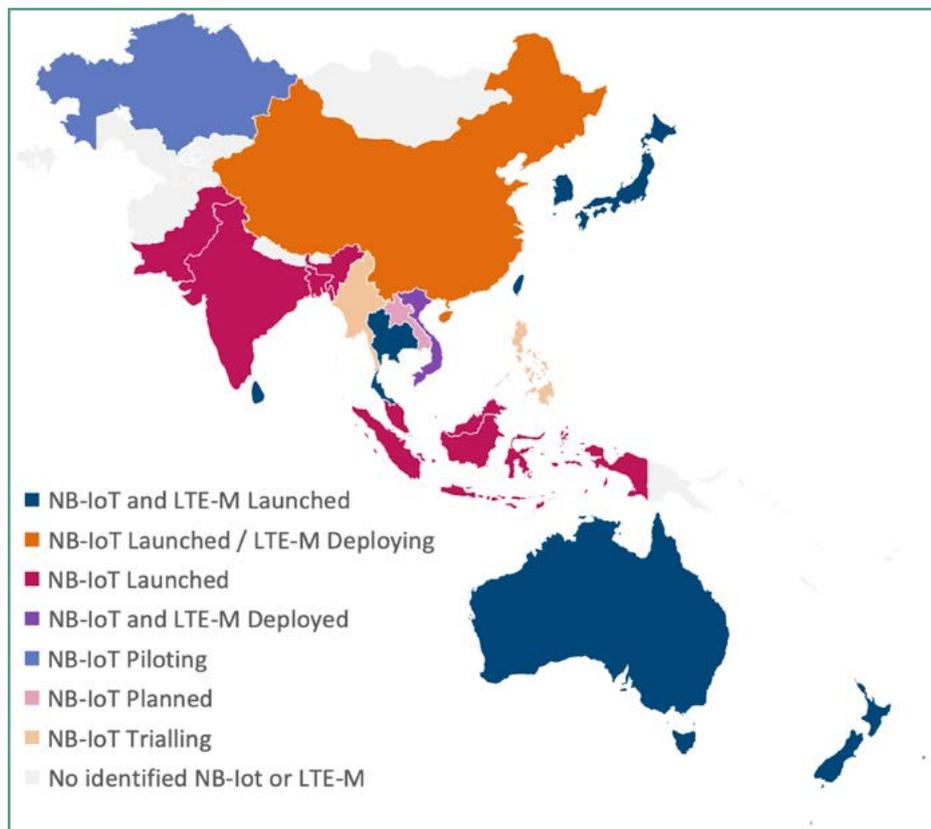
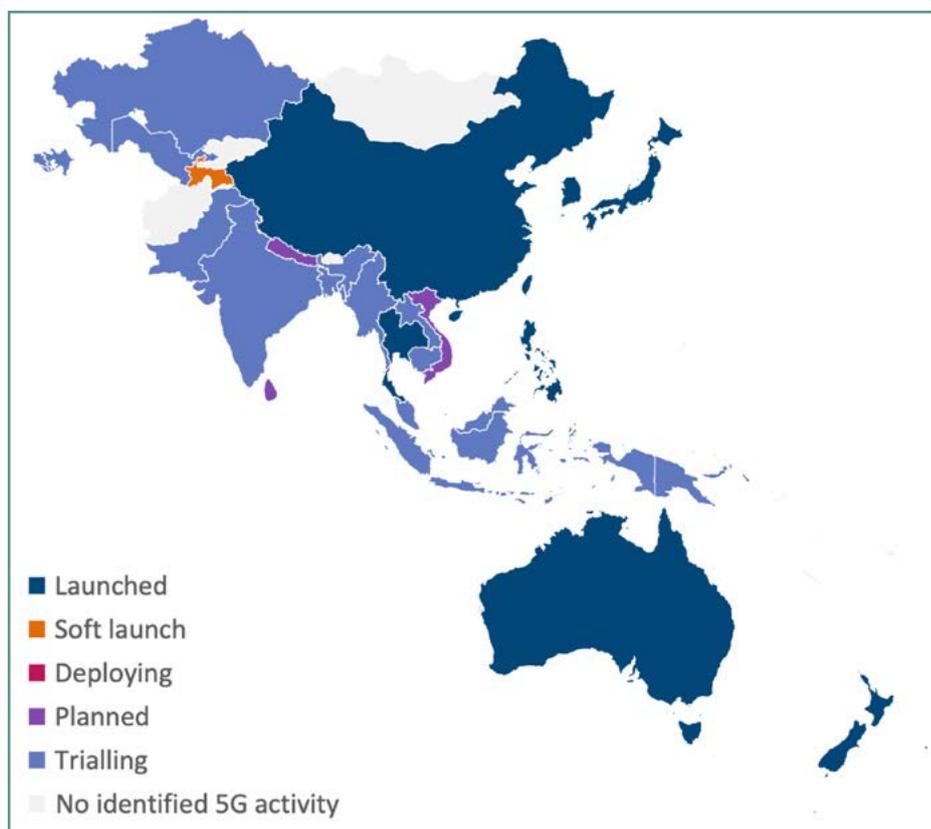


Figure 8: 5G network status and plans in Central and Latin America, by country



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