

# LTE APN



## WHAT IS LTE APN?

The acronym LTE stands for Long Term Evolution and is generally published as 4G LTE.

Although LTE is popularly considered as 4G, this technology is only one of this group, however, it is the most common when we talk about the latest generation of mobile internet.

The LTE is the evolution of the GSM/UMTS standards, something with which we are a little more related and its purpose is to increase the capacity and speed of wireless data networks by using a new digital signal processing (DSP).

Given the above, the LTE is a big change with respect to 3G, but for not meeting the standards of 4G is better defined as 3.9G, since it is neither 3G nor 4G, but is close to the 4G. In order to combat this weakness, 3GPP launched the new specification known as LTE-Advanced.

## WHAT IS 4G?

4G is the fourth generation of mobile telecommunications technology, commonly abbreviated as 4G, which are given by the Radiocommunication Standardization Sector of the International Telecommunication Union (ITU), whose task is to regulate most of the radio spectrum.

4G data transmission speeds is better than 3G. 4G LTE wireless broadband is 10 times faster than 3G— whose download maximum speeds can reach 12 Mbps (Megabits per second) and upload speeds can reach 5 Mbps, with peak download speeds approaching 50 Mbps. In the other word, referring to 4G speeds, it is specified that the speed in motion must be at least 100Mb/s (approximately 12MB/s), while the speed when one is at a fixed point should be reach 1Gb/s (128MB/s).

## WHAT IS LTE ADVANCE

LTE Advanced is the actual 4G candidate from 3GPP. This improvement for the LTE comes at the end of 2009. Unfortunately, the LTE in its eighth version was adopted as the international standard, while the Advanced has not yet had a great application.

The LTE Advanced, is version 10 of the LTE and complies with the speed characteristic proposed for the 4G, reaching 1Gb/s of descent speed.

## WHERE YOU'LL SEE APN LTE

The HSS contains users' SAE subscription data such as the EPS-subscribed Quality of Service (QoS) profile and any access restrictions for roaming. HSS also contains





information about the (Pocket Data Networks) PDNs to which the user can connect, as reported by Alcatel-Lucent. "This could be in the form of an access point name (APN) (which is a label according to DNS naming conventions describing the access point to the PDN) or a PDN address (indicating subscribed IP address(es)). In addition the HSS holds dynamic information such as the identity of the MME to which the user is currently attached or registered. The HSS may also integrate the authentication center (AUC), which generates the vectors for authentication and security keys."

## WHAT APN LTE DOES

To break it down, the APN identifies a Gateway GPRS Support Node (GGSN) or Packet Data Network GateWay (P-GW). It includes an APN network identifier which defines the Packet Data Network (PDN) to which the UE requests connectivity, and may also include an APN operator identifier which defines in which Public Land Mobile Network (PLMN) the P-GW or GGSN is located, according to LTE World. To accomplish this, the APN structure is comprised into two parts: a network identifier and an operator identifier

## HOW TO IDENTIFY?

There are also steps for identifying a PDN IP network that the mobile data user wants to communicate with. The NMC Consulting Group notes that the PDN Identity (APN) is used to

determine the P-GW and point of interconnection with a PDN. With APN as query parameter to the DNS procedures, the MME will receive a list of candidate P-GWs, and then a P-GW is selected by MME with policy.

## 3GPP VIEWS

The board who sets the standards for 3GPP, however, sees things a little differently. According to the new standards puts in place, the UE shall not include APN and PCO in the PDN connectivity request when the same is sent along with attach request. 3GPP has said that the UE shall send the PDN connectivity request with a flag "ESM Information transfer" on and no APN or PCO shall be included. Once the MME receives the Attach Request+PDN connectivity request, it can move ahead and accept the attach but it still cannot establish the EPS bearers just yet.

Next, MME goes ahead with establishing security context. After the security context is established MME will send a NAS message "ESM Information Request" asking UE for APN and PCO. Then, the UE will send an "ESM Information Response" with APN and PCO, encrypted. Finally, once MME receives this response it will go ahead with establishing the EPS bearers. If the response doesn't include APN then default APN shall be used by MME.

## BENEFITS OF LTE

- No wired connection can deliver 100% uptime
- Billions are lost each year in network downtime
- 60% of these downtimes or network outages are due to human errors
- 4G LTE provides true broadband speeds in comparison to 3G
- Low latency, lower idle-to-active times
- Backwards compatibility and future-proofing

