# A Push to the Edge

Mobile operators are preparing their networks for 5G and its eagerly anticipated promise of advanced real-time services. Edge computing is gaining universal consensus as a critical enabler for this promise by distributing service assurance nearer to the user, at the Edge, for greater responsiveness and agility.

So what is the Edge and why does it matter?

Simply put the Edge is the re-architecting of the centralized data center using technologies such as SDN/NFV and cloud to create a mesh network of data centers that extend the application compute, intelligent analytics, and storage to the edge of the network instead of just in a centralized data center. Therefore, edge computing facilitates data center-like support nearer to where the user and user devices reside. This distributed platform is known as the MEC -Multi Access Edge Computing a name coined by ETSI and referring to the use of RAN, LAN and WAN networks to locate the distributed network edge. Mobile Edge compute relates to edge system buildout in mobile telecoms network roadmaps culminating in the upcoming 5G.

It matters because having compute close to the edge allows the end user the ability to capture, analyze and derive insight on data almost in near-real-time. Edge computing enables a much more responsive network and more advanced applications than does a device-to-centralized-data center architecture.   MEC creates the power for existing and next generation networks to meet the complexity that our new IoT device-driven world will demand. These new complexities include challenges such as: exponentially increasing data capacity to load balance the rising data loads from IoT; delivering sub-5ms latency between device and network connectivity required by new innovations like Augmented Reality and Holographics; and managing ZBs of IoT data to drive complex rule engines for service assurance and real-time insights. All this data will require transport over a secure, fast, low latency and reliable network such as 5G. MEC combined with 5G is necessary to fulfill the digital promise.
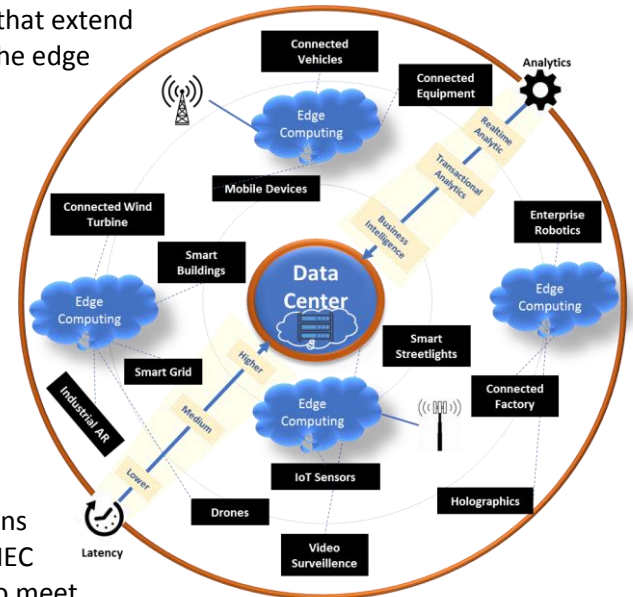
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Where will the Edge reside?

Cost and benefit considerations drive this common question whose answer has multiple dependencies. It can be at the **Internet/Private Network Edge** in the private cloud data center itself, or at the **Telco Core Edge** co-located in the MNO data center, or at the **Network Aggregation Edge** (i.e. cell towers, external small cells, street cabinets, etc.), or at the **Customer Edge** inside the end user customer/enterprise premises (e.g. co-located with LAN or private RANs) and surprisingly it can also exist on the **Device Edge** within the UE itself. The end-user business case, latency requirements, reliability and connection density dependencies are all drivers that will inform where the edge will reside to satisfy specific service assurance requirements, customer expectations and budget.

Pushing the Competitive Edge

The 5G distributed cloud market is expected to be worth $7 to 13 billion by 2022. As cloud players and mobile operators jockey for market position in this important and lucrative value chain segment, an

increasing number of edge technology suppliers are also entering and competing ferociously for this business. So, buckle up, start your engines because the push to the edge accompanies the race to 5G.