A-Core Container

Do 5G base stations need synchronous motors

Overview

Do 5G networks need time synchronization?

Many of the commercial 5G networks going live around the world today use TDD. TDD radio frames inherently require time and phase alignment between radio base stations, to prevent interferences and related loss of traffic. Time synchronization is also required in FDD networks when different radio coordination features are used.

Does 5G change radio network synchronization requirements?

While the introduction of 5G did not cause any fundamental change to radio network synchronization requirements, some applications may put more stringent local accuracy requirements on the synchronization of the 5G nodes. Examples include time-sensitive networks (TSNs), smart grid applications and the UE device-positioning use case.

Should the tightest synchronization requirement be a general 5G requirement?

While the level of the required synchronization accuracy depends on several factors, it would be a mistake to apply the tightest synchronization requirement as a general 5G requirement, as doing so would make the cost for 5G and the future evolution of the mobile technologies unsustainable.

What is 5G synchronization & why is it important?

Proper network synchronization is a prerequisite to excellent radio network performance. Some of the most compelling use cases for 5G, including industrial automation, depend on more accurate timing and will likely generate additional synchronization requirements in the near future.

Why is time and phase synchronization important for 5G spectrum utilization?

Efficient spectrum utilization is crucial to maximizing the return on this investment. Time and phase synchronization plays a critical role in optimizing

5G spectrum utilization, focusing on time Division Duplex (TDD), Carrier Aggregate (CA), and the synchronization strategies supported by the O-RAN Alliance.

Why is 5G synchronization so difficult?

And there are other advanced technologies that come with 5G, like dynamic spectrum sharing (DSS), carrier aggregation and massive MIMO—all requiring good timing to operate correctly. These technologies give rise to complexities in network synchronization not seen in earlier generation networks.

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