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How private 5G networks will modernize the enterprise connectivity model

With the roll-out of 5G technology, private cellular networks will bring next-level, secure enterprise connectivity to smart factories and more.

 # CONNECTIVITY

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With the ongoing IoT boom, today's most advanced office buildings and smart factories—aka Industry 4.0—now house dozens, hundreds or even thousands of connected objects, computers, robots, detectors and sensors. In order for companies to fully exploit their tech investment, they need a network that is both lightning fast and ironclad. The launch of private 5G networks is set to take enterprise connectivity to the next level.

Introducing next level enterprise connectivity with private cellular networks

With a dedicated infrastructure or relying on a dedicated network slice, universally deployable 5G private cellular networks can—partially or completely—replace physical cables and Wi-Fi. Not only do these next generation private networks promise to **transmit more data to more devices** with higher responsiveness than ever before, they also allow companies to **control end-to-end security** and configure network settings according to their individual needs. Whether private companies—or critical service providers in the public sector such as fire or police departments—choose to establish a **dedicated infrastructure**, or rent a **network slice**, they can operate a private cellular network for each of their premises.

Streamlined, secured connection in any environment

Private 5G network technology opens the door to highly secure and dedicated connectivity capabilities for company activities or public security services—whether high throughput, reduced latency or low power consumption with extensive coverage is needed. That not only means ultra-reliable connectivity for critical communication **in the densest urban areas**, but also next-level connectivity even **in the most isolated places**—including workers stationed on a rig in the middle of the North Sea, an environment known for extremely poor or non-existent connectivity.

It also means revolutionizing enterprise connectivity in a multinational setting. Here, private 5G networks guarantee that employees and devices on-premise are always connected to a high quality network, **ensuring business continuity and protecting the company from intruders**. With private 5G networks installed across all premises around the world, a jet-setting employee could connect to a secure and reliable network in their home country, switch to a new network when attending a meeting in Japan and reconnect when visiting a factory in Germany.

Capitalizing on existing cellular technology expertise for private networks

While it is clear that private 5G networks are an ideal solution for companies to manage end-to-end connectivity and associated security, they are likely to face some challenges when they first launch their own private network. These include SIM supply and maintenance, as well as managing roaming and app security.

For starters, internal IT staff generally lack experience in **managing cellular connectivity**—an entirely different job requiring a certain level of targeted expertise compared to the more standard wired or Wi-Fi connectivity. Luckily, they can count on the support of external experts to help them manage cellular connectivity and associated SIM with **OTA platforms** throughout the entire device life cycle.

Moreover, the significantly smaller scale and the reduced volume of devices connected to these private networks, compared to public 5G networks, demand specific service models. In response to this challenge, cellular industry experts can provide both **on-demand SIM delivery** and on-demand services for the remote management of (e)SIMs—as opposed to a complete and dedicated platform.

Making the best of private 5g networks

Depending on the reasons behind their transition to cellular connectivity, companies will have to consider the entirety of the technology panel at their disposal to truly benefit from the **enhanced security** and **seamless connectivity** of a private 5G network.

First, from a security standpoint: while private cellular networks ensure secure authentication to the company network, it is equally essential for companies to **secure applications and devices** to protect against data interception or tampering. This is also important to ensure the trusted execution of commands in smart factories. For these purposes, companies can rely on **advanced cryptographic features** brought by cellular technology as recommended by the IoT SAFE standard defined by the mobile industry; which consists in leveraging the SIM card as a secure anchor point to secure the identity of the devices and their communication with the Cloud or applicative servers.

From a connectivity standpoint, 5G technology brings seamless **connectivity continuity** to both private and public networks. This will not only simplify the lives of jet-setting employees, but also ensure that any company asset traveling the world can be reached whenever and wherever necessary. In any of these scenarios, a company may need SIMs with **multiple IMSI configurations** which are capable of authenticating on several networks. In certain cases, eSIM solutions also make it possible for devices to easily transition from one network to another—for example when leaving private network coverage and roaming on public networks.

With the support of the cellular industry, future-minded companies can confidently turn to 5G technology for secure, rapid, next-level enterprise connectivity—and many are already ready to invest to modernize their connectivity model. In a study of July 2020 ABI Research estimated that **private 5G networks spend will reach $25B in 2026 and $110B in 2036**—a bright future for cellular connectivity in offices and smart factories.