

# PRIVATE LTE



# A Growing Market

Building a more connected world requires a more sophisticated solution than simply throwing more bandwidth at applications and devices. Traffic prioritization, security, and cost will continue to play an essential role in designing connectivity solutions that meet end user needs. This in part explains the growing popularity of private LTE networks. As 5G and internet of things (IoT) technologies spread, private LTE is emerging as a way to create scalable and flexible wireless coverage that can be customized for use across several industries and applications. In fact, a report by Mobile Experts predicts the private LTE/5G market to triple by 2025<sup>1</sup>.

**It's clear that private LTE networks will play an important role in our connected future. In this paper, we will explore what private LTE is, its benefits, and where it can best be used.**

## What is Private LTE?

---

In a nutshell, private LTE uses local cellular towers and cell sites to establish a LTE service in a localized area, such as a stadium, factory, or mine. LTE can cover the same area as multiple Wi-Fi access points. Compared to public LTE and Wi-Fi networks, users employ private LTE for its coverage, capacity, security, and user control.

This makes private LTE networks ideal for a range of different devices, use cases, and applications, from gigabit services to IoT devices with low power and low data-rate services. Private LTE networks can be used to supplement current networks to reduce congestion and add security, or to build out a cost-effective, standalone network where there's no existing infrastructure.

Mobile network operators and service providers can set up private LTE networks that operate on licensed, unlicensed, or shared spectrum, depending on local regulations and end-user needs. Globally, private LTE networks using unlicensed spectrum operate on 5GHz band, which is good for providing faster speeds to a smaller coverage area. Licensed spectrum varies based on local regulation. For example, in North America the FCC is opening the Citizen Broadband Radio Service (CBRS), which operates in 3.5GHz (3350 MHz to 3700 MHz).

<sup>1</sup> <https://www.thefastmode.com/technology-and-solution-trends/16474-private-lte-and-5g-market-to-triple-to-10b-by-2025-says-mobile-experts#:~:text=The%20global%20private%20LTE%20and,new%20report%20by%20Mobile%20Experts.>

## Why Choose Private LTE?

---

Private LTE networks offer high performance, security and flexibility with minimal infrastructure build-out, which makes it an attractive option for enterprises and organizations seeking a cost-effective yet high-quality network option that will work with both current and emerging use cases. The main benefits of a private LTE network are primarily:

**Performance:** Private LTE networks offer high-quality, scalable performance in part because of the careful control it gives users over traffic. Compared to Wi-Fi, which uses unlicensed bands, the cellular network controls who joins the network to prevent interference from outside users or traffic. Users can also finely tune quality of service (QoS) rules for designated SIMs and devices on private LTE networks to ensure optimal traffic prioritization and control.

As a result, private LTE networks are very effective for enterprises with complex needs, such as serving hundreds of users or devices, over a large coverage area. While Wi-Fi and public LTE might become congested in these scenarios, private LTE can keep important traffic flowing.

**Cost savings:** The main source of cost savings from private LTE networks comes from infrastructure and installation costs. For example, where a Wi-Fi network may require several extenders and repeaters to cover a large area, a private LTE network might only require a single cell tower for fewer access points. Usually, end users can also use

existing cellular equipment and devices, such as smart phones, instead of investing in new technologies. This makes installing a private LTE network a cost-effective solution for remote areas where there is no existing infrastructure.

Private LTE is also a cost-effective solution for those that need to run high-bandwidth traffic within a tight budget. Private LTE over CBRS band, for example, combined with fixed-rate plans makes high-bandwidth applications more affordable than when used on per-use public LTE.

**Security:** End users can keep important, high-risk and proprietary information secure and on-site through the many layers of security that come with private LTE networks. For example, end users can enable two-factor authentication by requiring both SIM card and PIN verification to access the network.

**Flexibility:** Private LTE networks are flexible, and they also enable flexibility. With dual SIM operations, equipped devices can move between public and private LTE networks for seamless coverage. Private LTE networks can also be used to set up an additional, secure network without separate SSIDs or additional infrastructure.

## Private LTE Use Cases

---

Private LTE networks are quickly emerging as a scalable and cost-effective solution for local connectivity for enterprises and small to medium-sized entities, as well as those incorporating IoT technology into their operations. Some use cases that lend themselves to private LTE networks include:

- **Manufacturing:** Private LTE networks can be used to power wireless robotic devices without building out additional connectivity infrastructure. For example, a manufacturing site could put all machinery sensors on a dedicated private LTE network. Manufacturing organizations could also ensure environmental sensors and monitoring runs seamlessly without interruption from network congestion. Placing proprietary apps on private LTE networks keeps sensitive traffic and data on-site.
- **Warehouses:** Security and surveillance video cameras, autonomous forklifts, telemetry data, GPS and/or Bluetooth device tracking, and supply chain applications can all run on a private LTE network to ensure operations run smoothly.
- **Mining:** Between automated machinery, voice communications above and below ground, human machine interfaces (HMIs), predictive maintenance applications, mobile devices for field staff, and crew welfare applications, mining sites require a lot of bandwidth. Private LTE networks can help these remote outposts prioritize traffic to ensure operational efficiency and crew safety.
- **Airports:** Security is critical at airports. With private LTE networks, airports can run remote diagnostics and incident reporting apps, as well as IoT devices for aircraft data and analysis with a higher level of security. Other applications, such as digital signage, can also run on the private LTE network.
- **Smart cities:** Private LTE networks will be critical as smart cities evolve. They will help power applications such as digital signage, smart lighting control, and security/surveillance with integrated recognition software and video analytics without interference from traffic on public networks.
- **Hospitals:** Reliability is key for several critical communications applications at hospitals. With private LTE networks, hospitals can ensure critical care health monitoring apps run securely and without interference. With private LTE, digital management apps, such as electronic health records, can ensure sensitive patient data is kept on-site.

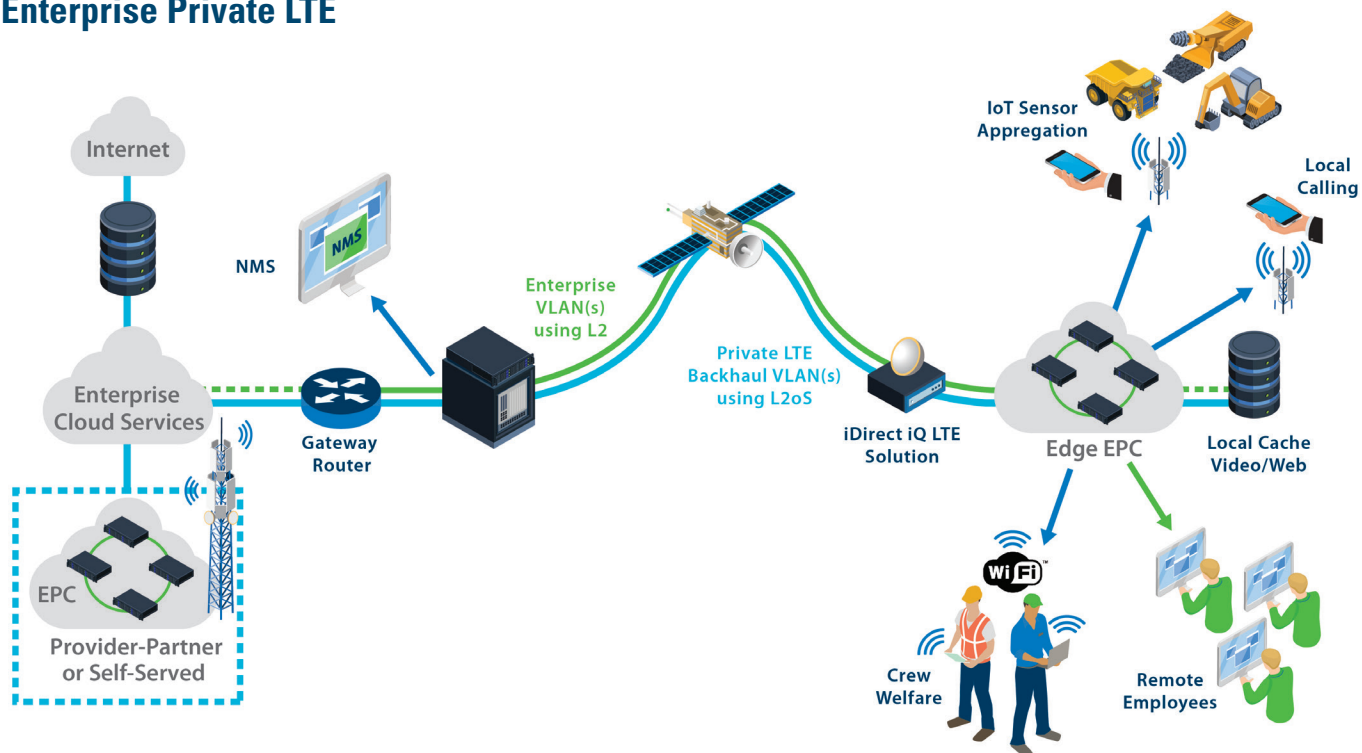
### Should you use a private LTE network?

Depending on your environment, budget and business needs, a private LTE network might be a good fit for your business or organization. Ask the following questions in researching private LTE solutions:

1. **What is your environment?** For example, do you need a network that extends above and below ground? One that connects multiple buildings on one campus?
2. **What problem are you trying to solve?** What are your network priorities? Do you want to ease network congestion for critical communications? Find the most cost-effective solution?
3. **Do you have infrastructure problems?** Current infrastructure may dictate how you deploy a private LTE network.
4. **What local regulations are in your area?** Do they have open licensed frequency to private LTE?
5. **What installation strategy works best for you?** Can you build private LTE infrastructure yourself, or do you need a third party offering?



## Enterprise Private LTE



### ST Engineering iDirect and Private LTE Solutions

**When combined with satellite, private LTE networks become a powerful solution that can be deployed across the globe. ST Engineering iDirect platforms, such as Evolution and Dialog, support private LTE backhaul.**

ST Engineering iDirect also offers several modems that support private LTE networks. These include the iQ LTE+ and iQ LTE Pro, both part of our iQ LTE series of remotes. The iQ LTE series combines our next-generation DVB-S2/ DVB-S2X satellite connectivity with a Cradlepoint LTE cellular router to deliver reliable, persistent communications across a wide range of use cases.

As the world becomes more connected, connectivity solutions are shifting from “one-size-fits-all” to more flexible models. Private LTE networks are emerging as an easily customizable solution that can accommodate a range of industries and use cases. In the future, we will not only connect more, but in many different ways.