Private LTE/5G Networks for IoT Applications
2nd Edition

Private LTE/5G Networks for IoT Applications is a strategy report from Berg Insight analysing the latest developments on the rollout of private cellular networks worldwide. This strategic research report from Berg Insight provides you with 60 pages of unique business intelligence including 5-year industry forecasts and expert commentary on which to base your business decisions.
Private LTE/5G network deployments to reach 11,900 in 2028

Private LTE/5G networks, referred to as non-public networks by the 3GPP, are networks that use spectrum defined by the 3GPP and LTE or 5G NR base stations, small cells and other radio access network (RAN) infrastructure to transmit voice and data to edge devices. For the purpose of this report, Berg Insight defines a private cellular network as a 3GPP-based private LTE/5G network built for the sole use of a private entity such as an enterprise or government organisation.

Advancements in cellular technology, along with the increasing availability of dedicated spectrum for industries are currently transforming the private cellular network market from a niche to a substantial market. These developments open up a range of opportunities for the cellular ecosystem, fuelling a new wave of investments by established network equipment vendors but also attracting new entrants into the space.

The major RAN vendors (Ericsson, Nokia and Huawei) all play significant roles as integrated solution providers and are challenged by a number smaller RAN equipment providers. Nokia counts the largest number of private network deployments with more than 635 private cellular customers at the end of Q2-2023. The vendors increasingly pursue channel-led sales strategies, and have developed ecosystems of mobile operators, system integrators, VARs and consulting partners to bring solutions to market. A number of small cell and other RAN equipment providers including Airspan Networks, Baicells, CommScope, JMA Wireless, Mavenir, Samsung Networks, Sercomm and ZTE provide competitive LTE/5G radio products and in some cases complete private network offerings.

Important specialised core network software vendors include Druid Software, Athonet (acquired by HPE in June 2023), as well as Affirmed Networks and Metaswitch (both part of Microsoft since mid-2020). In total, EPC/5GC offerings are available from close to 30 vendors. In line with the trend of network function virtualization, the major cloud service providers Microsoft and AWS have increased their focus on the telecommunications market in recent time. A third category is IT-centric players like Cisco and HPE. These companies focus on delivering fully integrated Wi-Fi and private LTE/5G solutions, enabling network managers to administer Wi-Fi and private LTE/5G networks through a single pane of glass. Celona is a new entrant in the space, backed by NTT Data and Qualcomm, offering its integrated private cellular solution in a single SaaS subscription.

Private LTE/5G network deployments are growing from a small base, with an increasing number of organisations trialling and deploying networks. Berg Insight estimates that there are about 2,200 private 4G LTE networks deployed globally today, serving a variety of use cases. Private 5G network deployments are moving from trials to commercial operations and amounts to an estimated 700 networks whereof trials accounted for close to half. Until 2028, the number of private LTE/5G network deployments are expected to grow at a compound annual growth rate (CAGR) of 33 percent to reach 11,900 networks at the end of the period.

Spectrum availability is the most important enabling factor for the adoption of private LTE/5G networks. While the CBRS band in the US allows for both private LTE and 5G network deployments, organisations looking to deploy private LTE networks generally need to gain access to spectrum via mobile operators in most other markets. National regulators in an increasing number of countries, especially in Europe, are introducing local licensing models for private 5G networks. The private 5G ecosystem is however still in an early stage, especially on the device side.

Whereas the number of devices connected to indoor mobile phone networks and campus IT networks is closely tied to the number of employees or other user groups, edge devices connected to private LTE/5G networks for IoT use cases vary significantly between application areas. Nationwide utility and public safety networks may support hundreds of thousands or even millions of IoT devices, while the number of IoT devices connected to a local private LTE/5G network at a factory, port, mine or other industrial site typically are in the low hundreds to a few thousands. Berg Insight estimates that the number of IoT devices connected to private LTE/5G networks amounted to 1.4 million at the end of 2023 with large-scale public safety and utility networks accounting for the majority of the volume. Until 2028, private LTE/5G IoT connections are expected to grow at a CAGR of 38 percent to reach 7.1 million.
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Glossary
Highlights from the report

**Insights** from 20 new executive interviews with market leading companies.

**360-degree overview** of the private LTE/5G ecosystem.

**Comprehensive overview** of spectrum availability for private LTE/5G network deployments.

**Profiles** of the key private LTE/5G solution providers.

**In-depth analysis** of private LTE/5G network deployments worldwide.

**Detailed market forecast** on private LTE/5G network deployments and IoT device shipments by technology and vertical market lasting until 2028.

The report answers the following questions

- How will the private LTE/5G network market evolve over the next five years?
- What spectrum is available for private LTE/5G network deployments?
- What are the main spectrum licensing frameworks for private LTE/5G employed by regulators?
- Who are the main private LTE/5G solution providers?
- What types of organisations are deploying private LTE/5G networks?
- What is the state of the 5G IoT device ecosystem?
- What is the outlook for LTE/5G IoT device shipments for private LTE/5G networks?

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Our market reports offer comprehensive information and analysis on key IoT technologies and markets, addressing important concerns including total addressable market, market penetration, market shares, industry landscape, regulatory environment, market trends and forecasts. Our research portfolio today comprises more than 65 items, where each market report focuses on a specific vertical application area or cover horizontal themes. All market reports come with complementary data sets in Excel format that can be easily analysed and converted into tables and charts. We offer a range of different license options together with bundled packages and subscriptions to suit your specific needs.
Berg Insight estimates that there were a total of 2,900 private LTE/5G networks deployed across the world at the end of 2023, including trial and pilot deployments. With the growing momentum around private LTE and more local 5G spectrum becoming available across regions, the private LTE/5G network market is set to grow significantly in the next years. Get up to date with the latest trends and information about vendors, products and markets.

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Who should read this report?

Private LTE/5G Networks for IoT Applications is the foremost source of information about the emerging private cellular network market. Whether you are a device vendor, telecom infrastructure vendor, system integrator, service provider, telecom operator, investor, consultant, or government agency, you will gain valuable insights from our in-depth research.

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Fredrik is an experienced analyst who specialises in the IoT connectivity and software markets. He contributes primarily to the horizontal research programmes, for which he produces most of the content and manages all the underlying data sets. Fredrik's key areas of expertise are IoT connectivity services, IoT platforms and software as well as IoT/M2M applications in the industrial markets. In addition to published research, he has worked on projects for a range of clients across the IoT ecosystem. Fredrik joined Berg Insight in 2016 and holds a Master's degree in Industrial Engineering and Management from Chalmers University of Technology.
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