



Private LTE/5G Networks for IoT Applications

1st 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 tenfold in the next five years

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. Notably, Nokia became the first vendor to offer a private LTE/5G solution as-a-service with the introduction of the Nokia DAC in 2018 and has been followed by a host of other players across the ecosystem in recent time. Small cell and other RAN equipment vendors such as Airspan Networks, JMA Wireless, Mavenir, CommScope and Samsung Networks provide competitive LTE/5G radio products.

Important specialised core network software vendors include Druid Software, Athonet, Quortus (acquired by Cradlepoint/Ericsson in December 2021), as well as Affirmed Networks and Metaswitch (both part of Microsoft since mid-2020). In line with the trend of network functions virtualization, the major cloud service providers AWS and Microsoft have increased their focus on the telecommunications market. Both offer private LTE/5G solutions with an as-a-service model together with RAN partners. Celona is another important new entrant in the space. Founded by an experienced team of wireless networking professionals in 2019, Celona provides an integrated private LTE/5G solution in a single SaaS subscription. Most recently in early 2022, Cisco entered the market through the launch of its Private 5G as-a-service offering together with its partners Airspan Networks and JMA Wireless.

Private LTE/5G network deployments are growing from a small base, with an increasing number of organisations trialling or planning to deploy networks. Berg Insight estimates that there are today more than 1,000 private LTE networks deployed globally, serving a variety of use cases. Private 5G network deployments are so far mainly concentrated to trial and

pilot deployments and amounts to an estimated 200–300 networks. Until 2026, the number of private LTE/5G network deployments are expected to grow at a compound annual growth rate (CAGR) of 57 percent to reach 13,500 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.

The 5G IoT device value chain starts at the chipset and module levels. Following the commercial availability of 5G NR modules in mid-2020, several cellular IoT gateway vendors have introduced devices supporting 5G NR connectivity. 5G NR modules supporting 3GPP Release 16 and URLLC capabilities are starting to become available in samples, meaning that IoT devices built on the modules are likely to be introduced later in 2022. A key accelerator for the adoption of 5G in less demanding applications will be support for reduced capability (RedCap) devices. The specification is part of the upcoming 3GPP Release 17.

Berg Insight expects that 5G NR IoT device shipments for private 5G networks will ramp up significantly starting in 2023, as more network trials convert into deployments. Annual 5G NR IoT device shipments for private 5G networks are forecasted to reach 850,000 units in 2026, driven by the manufacturing & warehousing, transport & logistics and public safety & defence segments.

Private LTE/5G network deployments by technology (World 2020–2026)

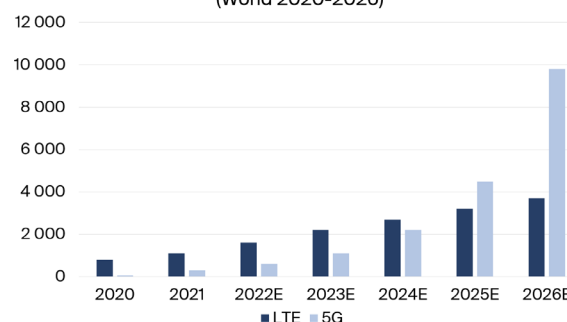


Table of contents

Executive summary

1 Private cellular networks

- 1.1 Introduction
- 1.2 Spectrum for private LTE/5G networks
 - 1.2.1 Licensed spectrum
 - 1.2.2 Unlicensed spectrum
 - 1.2.3 Shared spectrum
- 1.3 Private LTE/5G network deployment models
- 1.4 Private cellular network market segmentation
 - 1.4.1 Indoor mobile phone networks
 - 1.4.2 Campus IT networks
 - 1.4.3 Neutral host networks
 - 1.4.4 Critical communications networks
 - 1.4.5 IoT networks
- 1.5 Business models

2 Market forecasts and trends

- 2.1 Market analysis
- 2.2 Private LTE/5G industry players
- 2.3 Private network market sizing and forecast
 - 2.3.1 Private LTE/5G network deployments in Europe
 - 2.3.2 Private LTE/5G network deployments in North America
 - 2.3.3 Private LTE/5G network deployments in the Rest of World
- 2.4 Edge device shipments for private LTE/5G networks
- 2.5 The future of private cellular attracts M&A activity

3 Company profiles and strategies

- 3.1 Private LTE/5G solution vendors
 - 3.1.1 Accelleran
 - 3.1.2 Airspan Networks
 - 3.1.3 Athonet
 - 3.1.4 Amazon Web Services
 - 3.1.5 Celona
 - 3.1.6 Cisco
 - 3.1.7 CommScope
 - 3.1.8 Druid Software
 - 3.1.9 Ericsson
 - 3.1.10 Geoverse
 - 3.1.11 JMA Wireless
 - 3.1.12 Mavenir
 - 3.1.13 Microsoft
 - 3.1.14 Nokia
- 3.2 Semiconductor vendors
 - 3.2.1 Qualcomm
 - 3.2.2 Sequans Communications
 - 3.2.3 Sony Semiconductor

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.

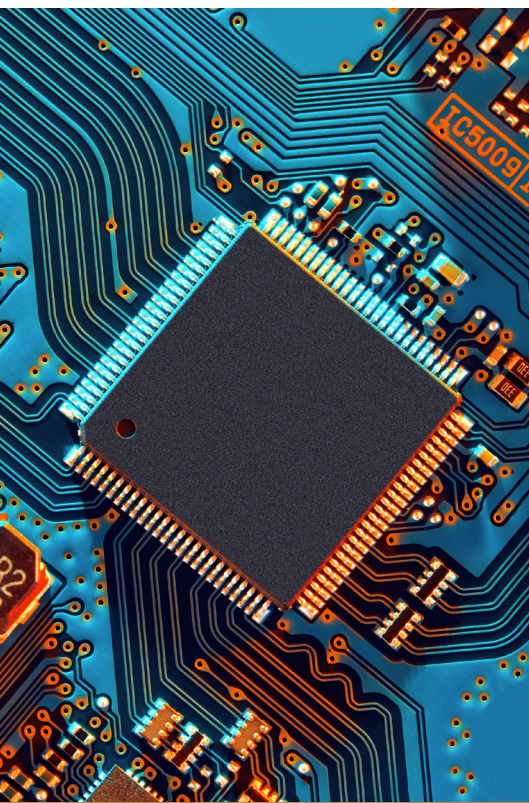
Profiles of the key private LTE/5G solution providers.

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 2026.

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?



About Berg Insight's IoT market research

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 55 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.



HORIZONTAL THEMES

Private LTE/5G Networks for IoT Applications

Berg Insight estimates that there were a total of 1,400 private LTE/5G networks deployed across the world at the end of 2021, 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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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.

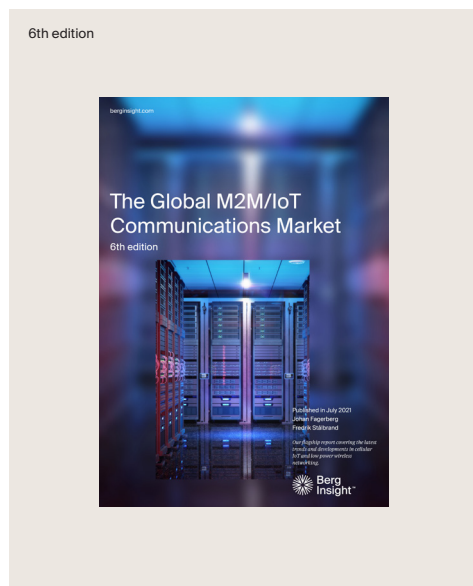
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Fredrik is an experienced analyst who specialises in the IoT connectivity and software markets. He contributes primarily to the horizontal research programmes, for which he produces most of the content and manages all the underlying data sets. Fredrik's 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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