

C-RAN - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2024 - 2029)

<https://marketpublishers.com/r/C1E69D0D5208EN.html>

Date: July 2024

Pages: 106

Price: US\$ 4,750.00 (Single User License)

ID: C1E69D0D5208EN

Abstracts

The C-RAN Market size is estimated at USD 13.85 billion in 2024, and is expected to reach USD 41.60 billion by 2029, growing at a CAGR of 24.61% during the forecast period (2024-2029).

The rapid increase in capital expenditure and reduction in operational spending is expected to drive the Cloud Radio Access Network Market over the forecasted years. Also, the increasing upgrade in wireless and telecommunication technology improves 4G and 5G accessibility, thereby imposing a positive outlook on market growth.

Key Highlights

The constant advancements in 5G technology also play a key role in driving the Cloud RAN market. 5G networks require increased capacity, low latency, and enhanced network performance, which align well with the abilities offered by C-RAN architecture. C-RAN enables the deployment of 5G networks with its centralized processing and progressive radio resource management, allowing operators to unlock the complete potential of 5G technology and provide a superior user experience.

Furthermore, mobile operator RAN networks are expected to evolve significantly toward Cloud-based RAN solutions. In practice, most operators will adopt a hybrid strategy during the journey toward 6G simply because Cloud RAN will have to co-exist in the network with Classic RAN with a purpose-built baseband.

The Internet of Things (IoT) is driving the development of connected devices across different sectors, such as smart cities, healthcare, agriculture, and manufacturing. To connect billions of IoT devices at once, 5G networks are being built, enabling massive

connectivity. 5G networks are made more scalable and flexible by C-RAN architecture, which makes it likely to integrate IoT applications with them seamlessly. C-RAN provides dynamic resource provision to meet changing connectivity needs and rationalizes IoT traffic management by putting software-defined networking (SDN) ideas into practice and centralizing management operations.

C-RAN can significantly decrease the cost of maintaining and deploying a wireless network. By consolidating the baseband processing purposes, C-RAN removes the requirement for dedicated hardware at each base station, decreasing the need for equipment. In addition, using software-defined networking (SDN) and virtualization technologies enables more efficient utilization of resources, further reducing costs.

The demand for wireless communication is rising in a rapidly connected world. The need for a secure and fast wireless network has never been more critical, from smartphones to smart homes, from autonomous cars to Industrial Internet of Things devices. The challenge of spectrum scarcity, the limited number of radio frequencies that can be used to transmit mobile data, also increases with increasing demand for Internet connectivity.

Cloud Radio Access Network Market Trends

5G to be the Fastest Growing Network Type

C-RAN enables operators to deploy 5G networks more cost-effectively by reducing hardware and operational costs, along with demand for high-speed mobile connectivity continues to rise, especially with the proliferation of IoT devices and emerging technologies like autonomous vehicles and augmented reality, the market for 5G C-RAN is expected to grow significantly in the coming years.

The rise in adopting 5G fixed wireless access would drive the studied market over the forecasted period. The graph indicates that the 5G connections are analyzed to reach a notable 5.3 billion subscriptions, thereby contributing to the market growth rate.

By geography, the North American region has a substantial share globally. 5G technology is widely adopted, particularly in the Cloud Radio Access Network (C-RAN) market. C-RAN leverages cloud computing to centralize and virtualize baseband processing functions, offering flexibility and scalability.

With 5G's high data rates, low latency, and massive connectivity capabilities, it is well-

suited to C-RAN deployments, enhancing network performance and enabling advanced services like IoT and augmented reality. This combination of 5G and C-RAN drives innovation and efficiency in the telecommunications industry across North America.

In December 2023, AT&T announced plans to be a key provider in the United States in commercial-scale open radio access network (Open RAN) deployment. In collaboration with Ericsson, this industry move will further the telecommunications industry efforts and help build a more robust ecosystem of network infrastructure providers and suppliers. AT&T's and Ericsson's multiyear joint commitment to Open RAN deployment comes at a pivotal moment in the 5G innovation cycle.

Asia-Pacific is Expected to Register the Fastest Growth

Several factors drive the C-RAN market in China as the country has a thriving domestic C-RAN ecosystem with several significant players, such as Huawei and ZTE. China is aggressively deploying 5G networks, and C-RAN is considered a key technology to allow efficient network performance and support diverse 5G use cases.

In China, the widespread adoption of 5G mobile networks is supporting various service types, such as healthcare, automotive, logistics, energy, and public safety. Network slicing enables programmable network instances that match the requirements of individual use cases, subscriber types, and applications.

By network type, the 5G network is growing at a considerable rate. This growth is attributed to several factors, including increased demand for high-speed connectivity, software-defined networking, virtualization, technological advancements, and industry collaboration. The Japanese government has been trying significantly to promote the deployment of secure 5G telecommunications networks in recent years by supporting open radio access network (RAN) technology, which can further accommodate better vendor flexibility when building those networks.

Operators in the Rest of Asia-Pacific region are actively embracing C-RAN structure and network virtualization to tackle increasing deployment costs. Centralized radio access networks have gained increased significance in recent years as regional operators seek sound business models and equipment vendors try to reshape the landscape to suit their businesses. Countries such as India, South Korea, and Malaysia are developing C-RAN architectures to cater to growing customer demands effectively.

Cloud Radio Access Network Industry Overview

The cloud radio access network market is fragmented, and the intensity of competitive rivalry is high due to the significant growth in strategic collaborations. The demand from the buyers has actively led the incumbents to invest in solutions and keep the contracts intact; some of the key players in the market are Cisco Systems Inc., Nokia Corporation, Huawei Technologies Co. Ltd, Telefonaktiebolaget LM Ericsson, and Intel Corporation.

In October 2023, Nokia and Elisa declared that they had completed the industry's first trial of Cloud RAN, which was powered by In-Line acceleration. The successful trial occurred at Elisa's headquarters in Finland, where it utilized its commercial 5G Standalone RAN and 5G Core. The trial mainly builds on Nokia's anyRAN approach, which was established to ensure the feature richness, energy efficiency, and high performance of Cloud RAN compared to purpose-built RAN. Using In-Line layer 1 (L1) acceleration ensures each of these aspects while allowing flexibility to select between x86 and ARM-based ecosystems.

In September 2023, Ericsson and Google expanded their partnership with Google Cloud to develop an Ericsson Cloud RAN solution on Google Distributed Cloud (GDC). As per Ericsson, the partnership to develop an Ericsson Cloud RAN on GDC aims to offer integrated automation and orchestration and leverage AI /ML for communications service providers to benefit from. The partners successfully demonstrated the complete implementation of the Ericsson vDU (virtualized distributed unit) and vCU (virtualized central unit) on GDC Edge, running the solution on a live network in the Ericsson Open Lab in Ottawa, Canada.

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Contents

1 INTRODUCTION

- 1.1 Study Assumptions and Market Definition
- 1.2 Scope of the Study

2 RESEARCH METHODOLOGY

3 EXECUTIVE SUMMARY

4 MARKET INSIGHTS

- 4.1 Market Overview
- 4.2 Introduction to Market Drivers and Restraints
- 4.3 Market Drivers
 - 4.3.1 Rising Demand of 5G Trend Across Various End-user Segment
 - 4.3.2 Need to Eliminate the Cost of Hardware Equipment Used in 4G-5G Network
- 4.4 Market Restraints
 - 4.4.1 Scarce Spectrum Availability for Network Expansion When Combined With Regulatory Limits
- 4.5 Industry Attractiveness - Porter's Five Forces Analysis
 - 4.5.1 Threat of New Entrants
 - 4.5.2 Bargaining Power of Buyers/Consumers
 - 4.5.3 Bargaining Power of Suppliers
 - 4.5.4 Threat of Substitute Products
 - 4.5.5 Intensity of Competitive Rivalry
- 4.6 Technology Snapshot
 - 4.6.1 Cloud-Virtualization
 - 4.6.2 Centralized-RAN

5 MARKET SEGMENTATION

- 5.1 By Components
 - 5.1.1 Solution
 - 5.1.2 Services
 - 5.1.2.1 Professional
 - 5.1.2.2 Managed
- 5.2 By Network Type

5.2.1 5G

5.2.2 4G

5.2.3 LTE

5.2.4 3G (EDGE)

5.3 By Geography

5.3.1 North America

5.3.1.1 United States

5.3.1.2 Canada

5.3.2 Europe

5.3.2.1 United Kingdom

5.3.2.2 Germany

5.3.2.3 Rest of Europe

5.3.3 Asia-Pacific

5.3.3.1 China

5.3.3.2 Japan

5.3.3.3 Rest of Asia-Pacific

5.3.4 Latin America

5.3.5 Middle East and Africa

6 COMPETITIVE LANDSCAPE

6.1 Company Profiles*

6.1.1 Cisco System Inc.

6.1.2 Nokia Corporation

6.1.3 Huawei Technologies Co. Ltd

6.1.4 Telefonaktiebolaget LM Ericsson

6.1.5 Intel Corporation

6.1.6 Fujitsu Limited

6.1.7 Mavenir Systems Inc.

6.1.8 Artiza Networks Inc.

7 INVESTMENT ANALYSIS

8 FUTURE OF THE MARKET

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