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5G Core Virtualization Market Forecasts to 2032 - Global Analysis By Component (Software and Services), Use Case, Virtualization Type, Network Function, End User and By Geography

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Abstracts

According to Stratistics MRC, the Global 5G Core Virtualization Market is accounted for $6.44 billion in 2025 and is expected to reach $46.73 billion by 2032 growing at a CAGR of 32.7% during the forecast period. 5G Core Virtualization refers to the implementation of 5G core network functions using virtualization technologies such as Network Functions Virtualization (NFV) and cloud-native architectures. Instead of relying on dedicated hardware, core functions like session management, mobility management, and policy control run as software-based virtual network functions or containerized microservices on shared cloud infrastructure. This approach enables greater scalability, flexibility, and cost efficiency while supporting dynamic service creation, network slicing, and low-latency applications. 5G core virtualization also allows operators to rapidly deploy, upgrade, and manage network services across centralized and distributed cloud environments.

Market Dynamics:

Driver:

Rising demand for scalable network functions

Traditional hardware?centric cores cannot adapt quickly to fluctuating workloads, creating inefficiencies. Virtualized 5G cores allow elastic scaling, dynamic orchestration, and efficient distribution of resources. Providers are deploying AI?enabled automation to improve responsiveness and reduce latency. Demand for seamless connectivity

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across industries is accelerating uptake of virtualized architectures. The shift toward scalable network functions is transforming 5G cores into adaptive engines that underpin next?generation telecom services.

Restraint:

High initial virtualization deployment costs

Migrating legacy systems into cloud?native environments demands significant capital and specialized expertise. Smaller operators often hesitate due to uncertain returns and budget constraints. Integration across multi?vendor ecosystems adds complexity and prolongs deployment timelines. Vendors are offering phased migration strategies and modular frameworks to ease financial strain. Despite these efforts, high entry costs continue to slow widespread adoption, making affordability a critical determinant of market expansion.

Opportunity:

Expansion of edge computing services

Enterprises increasingly require distributed architectures to support latency?sensitive applications such as IoT, AR/VR, and autonomous systems. Virtualized cores integrate seamlessly with edge platforms, enabling real?time analytics and localized service delivery. Providers are leveraging containerized microservices to enhance agility and scalability. Rising investment in edge infrastructure is amplifying demand for virtualization frameworks. The convergence of edge computing and 5G core virtualization is redefining telecom networks as intelligent, distributed ecosystems.

Threat:

Security vulnerabilities in virtualized environments

Expanded digital footprints expose operators to cyberattacks, data breaches, and denial?of?service incidents. Enterprises must invest heavily in advanced security protocols to safeguard sensitive traffic. Smaller providers often lack the resources to maintain robust defenses compared to incumbents. Regulatory scrutiny around data privacy adds further complexity to deployment. Persistent vulnerabilities are reshaping industry priorities, making cybersecurity resilience a non?negotiable requirement for virtualization success.

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Covid-19 Impact:

The pandemic accelerated demand for virtualized cores as remote work and digital services drove unprecedented traffic volumes. Supply chain disruptions slowed infrastructure rollouts, but operators prioritized investments in resilient networks. Virtualization enabled predictive monitoring, automated orchestration, and remote management during peak uncertainty. Enterprises relied on self?healing architectures to maintain service continuity. Vendors introduced AI?driven resilience features to strengthen operational stability. Covid?19 underscored virtualization as a strategic enabler of telecom reliability in crisis conditions.

The user plane function (UPF) segment is expected to be the largest during the forecast period

The user plane function (UPF) segment is expected to account for the largest market share during the forecast period, driven by demand for efficient traffic routing and low?latency performance. UPF enables dynamic packet forwarding, quality?of?service management, and seamless integration with edge platforms. Operators are embedding UPF into 5G workflows to strengthen scalability and compliance. Rising demand for high?volume data processing is reinforcing adoption in this segment. Vendors are investing in advanced UPF frameworks to improve speed and reliability. The prominence of UPF highlights its role as the operational backbone of virtualized 5G core networks.

The private networks segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the private networks segment is predicted to witness the highest growth rate, supported by rising demand for secure and customized connectivity. Private 5G deployments allow enterprises to tailor virtualization frameworks for industrial automation, logistics, and smart campuses. Providers are integrating orchestration and security modules into private network offerings to strengthen resilience. SMEs and large enterprises benefit from scalable solutions aligned with unique operational needs. Investment in Industry 4.0 initiatives is reinforcing demand in this segment. The growth of private networks underscores their role in redefining virtualization as a driver of enterprise?specific 5G innovation.

Region with largest share:

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During the forecast period, the North America region is expected to hold the largest market share by mature telecom infrastructure and strong enterprise adoption of virtualization. Operators in the United States and Canada are leading investments in AI?driven orchestration to manage 5G rollouts. The presence of major cloud providers and telecom vendors further strengthens regional dominance. Rising demand for hybrid and multi?cloud governance is reinforcing adoption across large enterprises. Vendors are deploying advanced orchestration and compliance features to differentiate offerings in competitive markets. North America?s leadership reflects its ability to integrate innovation, regulation, and scale into virtualization ecosystems.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR, fueled by rapid urbanization, expanding mobile penetration, and government?led digital initiatives. Countries such as China, India, and Southeast Asia are investing heavily in virtualization services to support 5G deployments and smart city ecosystems. Local operators are adopting cost?effective frameworks to strengthen scalability and meet consumer demand. Startups and regional vendors are deploying tailored solutions to accelerate adoption in diverse markets. Government programs promoting digital transformation and connectivity are reinforcing demand.

Key players in the market

Some of the key players in 5G Core Virtualization Market include Ericsson AB, Nokia Corporation, Huawei Technologies Co., Ltd., Samsung Electronics Co., Ltd., ZTE Corporation, Cisco Systems, Inc., NEC Corporation, Mavenir Systems, Inc., Affirmed Networks, Inc. (Microsoft), Hewlett Packard Enterprise Company, VMware, Inc., Intel Corporation, Juniper Networks, Inc., Ribbon Communications, Inc. and Amdocs Ltd.

Key Developments:

In March 2024, Nokia and Ooredoo Group signed a multi-year agreement to deploy Nokia's 5G Core technology across several of Ooredoo's operations in the Middle East and North Africa region. The deal focused on modernizing Ooredoo's core networks with a cloud-native, containerized architecture to enhance service agility.

In February 2023, Huawei and du from the UAE announced a strategic partnership to launch the region's first 5G-Advanced (5.5G) end-to-end network trial, heavily utilizing a

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virtualized cloud-native core. This collaboration aimed to validate ultra-high bandwidth and native AI capabilities within a virtualized environment.

In July 2022, Ericsson completed the acquisition of Vonage for $6.2 billion to create a global platform for network API exposure, a critical monetization layer for 5G Core capabilities. This move allows developers to embed network functionality like quality-of-service into applications, leveraging the programmable 5G core network.

Components Covered:

- Software
- Services

Use Cases Covered:

- Private Networks
- Smart Cities
- Industrial Automation
- Media & Streaming
- Other Use Cases

Virtualization Types Covered:

- NFV
- Containerization
- Microservices
- Hybrid Virtualization
- Other Virtualization Types

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Network Functions Covered:

- Access and Mobility Management Function (AMF)
- Session Management Function (SMF)
- User Plane Function (UPF)
- Policy Control Function (PCF)
- Unified Data Management (UDM)
- Network Slice Selection Function (NSSF)
- Other Network Functions

End Users Covered:

- Telecom Providers
- Cloud Providers
- Enterprises
- Government
- Other End Users

Regions Covered:

- North America
  - US
  - Canada

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- Mexico

Europe

- Germany
- UK
- Italy
- France
- Spain
- Rest of Europe

Asia Pacific

- Japan
- China
- India
- Australia
- New Zealand
- South Korea
- Rest of Asia Pacific

South America

- Argentina
- Brazil

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Chile

Rest of South America

Middle East & Africa

Saudi Arabia

UAE

Qatar

South Africa

Rest of Middle East & Africa

What our report offers:
- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2024, 2025, 2026, 2028, and 2032
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

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Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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Note: Tables for North America, Europe, APAC, South America, and Middle East & Africa Regions are also represented in the same manner as above.

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