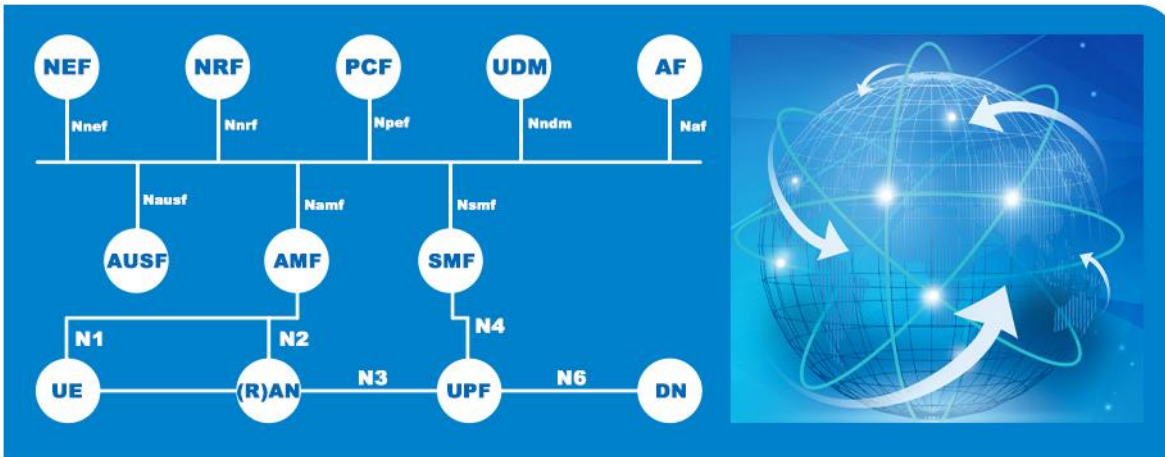# vk5GC –
private 5G core networks

vk5GC is a cutting-edge solution designed to empower enterprises with robust, secure, and high-performance connectivity. Built in accordance with 3GPP standards, it integrates all key functions of the 5GC as an all-in-one lightweight core network product. Through careful design and innovation, this product provides a solution that is efficient, flexible, and has strong network performance.

Key Features

1.3GPP Compliance:
· vk5GC adheres to industry-standard 3GPP specifications, ensuring seamless interoperability and compatibility with existing 5G infrastructure.

2.Stability and Reliability:
· Experience uninterrupted connectivity for mission-critical applications.
· Trust in a network engineered for robust performance, even in challenging environments.

3.Security and Compliance:
· Protect sensitive data with end-to-end encryption.
· Ensure compliance with industry standards for robust security practices.

4.Customization and Scalability:
· Tailor the network to your specific business needs.
· Expand seamlessly as your requirements evolve.

5.Hardware Independence:
· vk5GC is adaptable. It seamlessly runs on both x86 or ARM hardware/server/cloud.

Applicable scenes:

1.Manufacturing and Industry 4.0:
· vk5GC powers robotics, autonomous guided vehicles (AGVs), and smart manufacturing processes.
· It enables real-time communication crucial for industrial automation.
· Closed-loop manufacturing, including sensors and automated pickup of components, benefits from low latency and high bandwidth.

2.Logistics and Warehousing:
· In logistics facilities, vk5GC enhances tracking, sorting, and monitoring of packages and shipments.
· Improved throughput without increasing manpower saves costs and time.
· Seamless connectivity ensures efficient inventory management and supply chain operations.

3.Smart Agriculture and Precision Farming:
· In agriculture, vk5GC supports precision farming techniques.
· Real-time data from sensors, drones, and machinery optimize crop management.
· Low-latency communication enhances yield, reduces waste, and conserves resources.

4.Industrial IoT and Edge Computing:
· vk5GC seamlessly integrates with edge computing nodes.
· Edge analytics, augmented reality, and machine learning benefit from high-speed, low-latency connections.
· Efficient data processing at the edge enhances real-time decision-making.
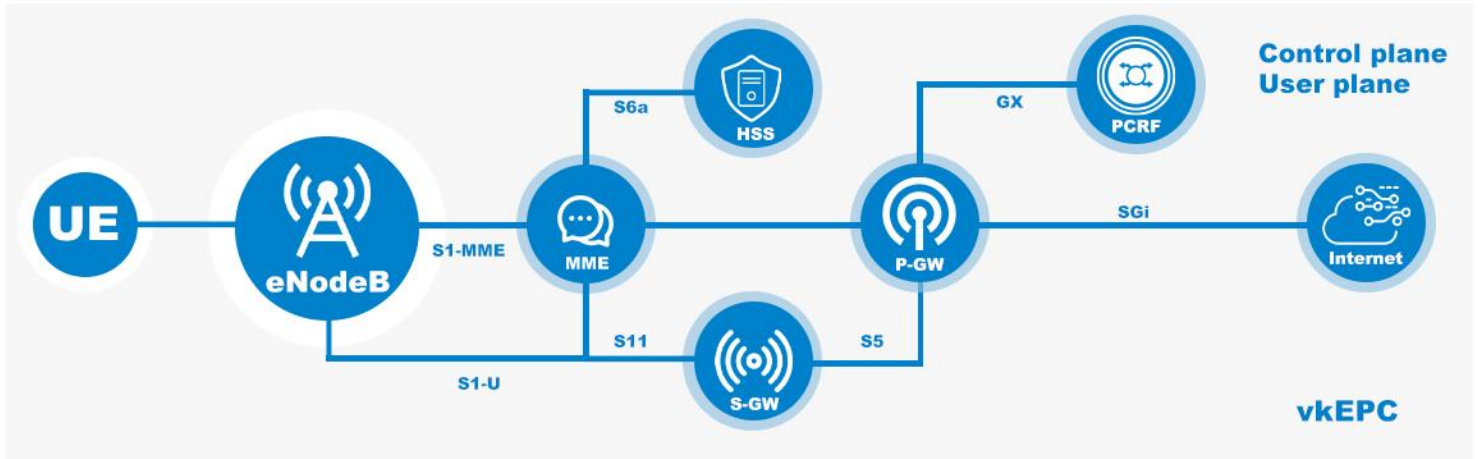
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vkEPC: Empowering Your Private LTE Network

vkEPC is a lightweight Evolved Packet Core (EPC) solution meticulously crafted for private LTE networks. Whether you're building a smart factory, a secure campus, or an industrial IoT ecosystem, vkEPC delivers high performance, reliability, and flexibility.

Key Features

1. 3GPP Compliance

· vkEPC adheres rigorously to 3GPP (Third Generation Partnership Project) standards. This ensures seamless interoperability with other LTE components and user equipments.

· Whether you're deploying voice services, data applications, or mission-critical IoT, rest assured that vkEPC meets the industry's highest benchmarks.

2. Stability and Reliability

· Your private LTE network deserves unwavering stability. vkEPC provides just that.

· Our robust architecture minimizes downtime, ensuring uninterrupted connectivity for your critical operations.

· From all local applications, vkEPC keeps your network rock-solid.

3. Quality of Service (QoS) Management

· Prioritize what matters most. vkEPC empowers you to manage QoS effectively.

· Allocate bandwidth dynamically based on application requirements.

· Whether it's voice calls, video streaming, or industrial telemetry, vkEPC optimizes resource allocation.

4. Hardware Independence

· Works either on Intel x86 servers or tiny ARM boards.

· Scale effortlessly without constraints imposed by proprietary hardware.

Application Scenarios

1.Smart Factories and Industrial Automation:

· vkEPC transforms factories into intelligent hubs. It ensures seamless communication between machines, robots, and sensors.

· Monitor production lines, manage inventory, and optimize logistics with real-time data.

· Prioritize mission-critical processes while maintaining QoS for other applications.

2.Healthcare Facilities:

· Hospitals, clinics, and telemedicine services demand reliable networks.

· vkEPC supports patient monitoring, medical imaging, and staff communication.

· Prioritize emergency services while maintaining privacy and security.

3.Transportation and Logistics:

· Airports, seaports, and logistics hubs require efficient networks.

· vkEPC enables real-time tracking of shipments, vehicle management, and passenger services.

· Handle peak loads during travel seasons without compromising safety.
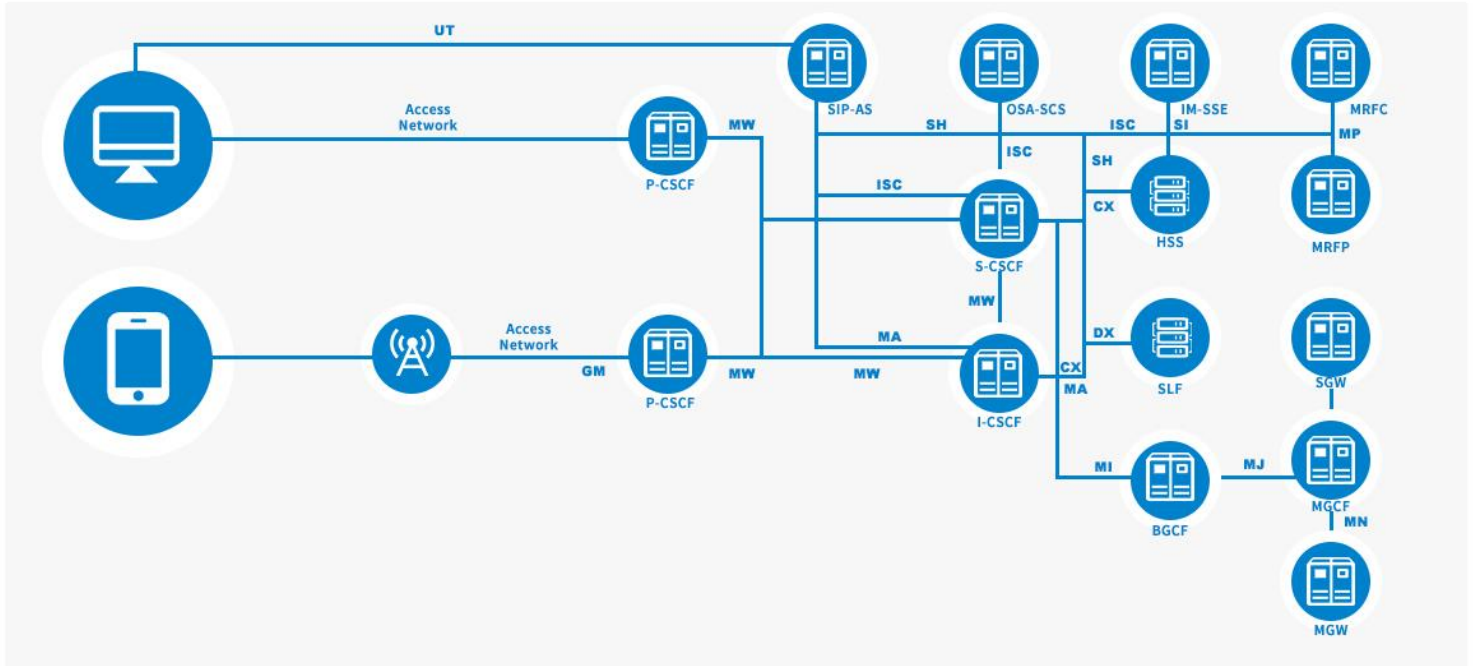
4.Mining and Oil Exploration:

· Remote mining sites and offshore platforms demand robust networks.

· vkEPC supports telemetry, asset tracking, and safety communications.

· Operate efficiently in harsh environments with minimal latency.

vkIMS: Elevating Communication Efficiency

vkIMS (IP Multimedia Subsystem) is used to support the transmission and interaction of multimedia services and applications in mobile private networks, and provides multimedia communication capabilities such as VoLTE and VoNR.

Key Features

1. Compatibility Across Networks
· vkIMS seamlessly integrates with vk5GC and vkEPC.
· Interoperate with commercial mobile phones and diverse endpoints.

2. Minimal Resource Footprint
· Efficiency begins with resource optimization.
· vkIMS has a lean architecture, minimizing memory, CPU, and storage requirements.

3. Efficient Signaling and Call Control
· vkIMS optimizes signaling traffic.
· Experience faster call establishment and improved user satisfaction.

4. Secure and Scalable
· Security is paramount. vkIMS ensures encrypted communication.
· Scale horizontally as your user base grows.

Application scenes

1.VoLTE / VoNR:
· vkIMS enables high-quality voice calls over private mobile networks.
· Private networks, such as those in industrial plants or campuses, can leverage VoLTE for reliable voice communication among employees, even in challenging environments.

2.ViLTE /ViNR:
· IMS extends video calling capabilities to LTE/5G networks.
· In mobile networks, ViLTE/ViNR facilitates video collaboration between field workers, remote experts, and supervisors.
· Real-time video enhances troubleshooting, inspections, and training.

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Vankom Private Network Solution:
Empowering Smart Factories

Industrial Private Networks empowers seamless connectivity, real-time data exchange, and unparalleled efficiency. Our solution is specifically designed for Industry 4.0, guaranteeing that your smart factory remains at the forefront. One of our standout features is the integrated lightweight vk5G core network, which serves as a critical component for keeping data local within a wholly owned and manageable enterprise network. This facilitates efficient and secure edge computation within various industries.

Industry Applications

vk5GC   vkIMS   vkEPC   MEC

Enterprise Ethernet

Macro BBU/RRU   Pico gNodeB   Pico eNodeB

Camera   AGV   CPE   drone   Robot   Sensor   automatic equipments