Delivering a secure global 5G network for US DoD

How the latest in network slicing enables
mission connectivity CONUS and OCONUS

Extending advanced communication capabilities for US forces wherever the mission takes them

5G: Force multiplier for US DoD

Advanced, highly capable and ubiquitous communication is integral to the Department of Defense's vision for the future. 5G is central to that vision. 5G opens an array of new capabilities that enhance DoD missions, and the technology exists today to extend those capabilities to any theater of operation.

DoD 5G communications will rely on a mix of private 5G networks and commercially available 5G networks, both CONUS and OCONUS. Private DoD networks will provide highly capable and configurable networks to meet mission requirements. The private network can be modified and adjusted as the mission changes with full control being with the DoD.

However, the footprints of private networks will be limited when operating at a theater level. To increase resiliency and operational effectiveness, the DoD must reach beyond the boundaries of private networks and interoperate with or Operate Through, a public provider network. To be an effective network for DoD mission sets though, the DoD will still need some level of network quality, security and control to enable their range of applications.

Ericsson's Network OverWatch (NOW) is an approach designed to facilitate these operational requirements through the use of on-demand network slice orchestration and User Equipment Route Selection Policy (URSP) mechanisms to enable the DoD to

Operate Through CONUS and OCONUS using existing infrastructure. NOW extends the reach of the device while enabling the DoD to maintain control.

Network slicing: Key to Operate Through

What is network slicing?

5G network slicing is a technology that divides a network into independent "slices"—logical networks on top of a shared infrastructure. Each logical network is designed to serve a defined business purpose with different network requirements. Network slices will enable to DoD to procure secure services on public networks that will support rapidly changing mission requirements.

For example, a slice supporting mobile broadband users requires high data rates and traffic volumes that one would see in Intelligence, Surveillance and Reconnaissance (ISR) missions; a slice supporting Internet of Battlefield Things (IoBT) devices may optimize high-density devices and power consumption as one would see in distributed ground sensors; and a slice supporting autonomous driving may provide high-reliability and low-latency communications that one might see for unmanned logistics operations.
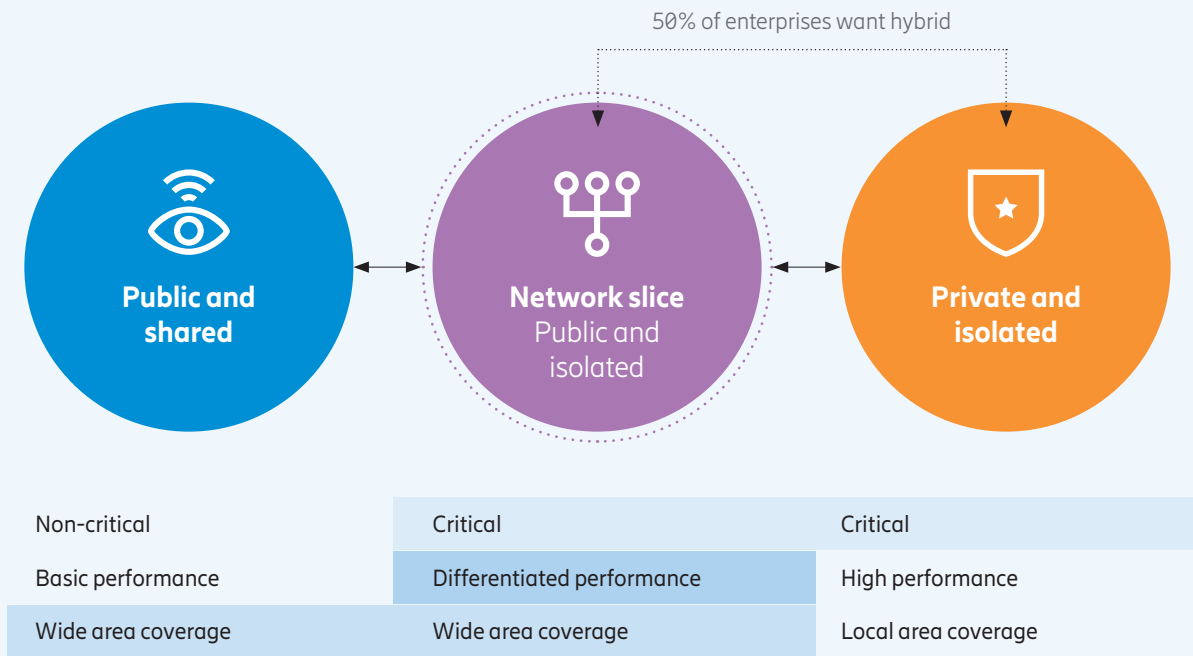
What is UE Route Selection Policy (URSP)?

To complement the implementation of slicing at the network layer, additional capabilities are needed at the User Equipment (UE) layer. Once a network advertises what slices are available to the UE, and the quality of service (QoS) associated with that slice, a decision needs to be made on how to route application traffic to the advertised slices thereby ensuring that the application traffic is provided the necessary QoS. Both major device operating systems, IoS and Android, have implemented URSP as a standard offering within their platforms. URSP is a tool available to application developers that can be considered an application data flow filter that directs application traffic to each of the slices from the UE perspective.

In 2024, advanced network slicing capabilities are being deployed by providers globally, and along with IoS and Android support, URSP is being put into practice to make the necessary routing decisions to leverage those network-provided slices. These technologies when combined can materially benefit the DoD. They can be implemented on public or private networks and the technology can be used to enable the DoD to securely leverage commercial networks in Operate Through scenarios. Most importantly, these technologies are available today.

Slicing as a Force multiplier
Slicing combines benefits from public and private networks while being more flexible than either one.

50% of enterprises want hybrid

Public and shared

Network slice
Public and isolated

Private and isolated

Non-critical	Critical	Critical
Basic performance	Differentiated performance	High performance
Wide area coverage	Wide area coverage	Local area coverage

NOW deployment options

Ericsson's NOW with slicing combines benefits from public and private networks while being more flexible than either one.

NOW extends device reach while allowing your forces to maintain control. The DoD would always remain in control of the DoD UE device and required performance characteristics of the mission applications. If the network is a DoD-owned private network, similarly, control is maintained and network slices can be configured at the DoD's discretion to meet mission and application performance requirements. However, what about when using a domestic carrier network or host nation network as part of the DoD's Operate Through strategy?

In this case, with NOW, the DoD can coordinate and collaborate with a network provider such that the carrier's network can deliver the same or similar performance requirements for both CONUS and OCONUS. Further, the URSP hooks developed into the DoD's applications by its developer community become extensible to wherever the DoD is operating; as long as the service provider has implemented 5G slicing within their network.

This is a critical value proposition of working with Ericsson, one of the largest Original Equipment Manufacturers (OEMs), to enable NOW. While the technologies and interfaces that make up NOW are globally standardized and available to the global provider community, not all capabilities have been universally implemented. Ericsson's global reach and deployment within over 50 percent of the world's cellular networks can help the DoD identify the key carriers within the Area of Responsibility (AOR) that would be the best providers for the DoD to engage with to enable NOW. Ericsson can work with chosen carriers to ensure that their networks have the right technology and network functions to enable NOW. And, Ericsson can help design, engineer, configure and extend those capabilities to interoperate with the DoD's private networks.

With NOW, the DoD can leverage the architectures and application frameworks developed within the DoD's private networks and extend these capabilities onto the public networks. Through these roaming relationships between public and private, the public networks ultimately act as extensions of a DoD private network. This allows DoD devices to take advantage of the same

authentication and authorization framework that securely protects the DoD's private network and the required characteristics of a network slice to service mission applications can be shared with the public network provider. This sharing can be done statically in advance of operations or dynamically in near-real-time to be implemented within the hosting network using automation and orchestration techniques. Either way, network slicing will allow those devices and the applications running on them to get network access meeting specific DoD policies and requirements. These can include:

specific security

latency

bandwidth

high quality of service

These roaming relationships can be created with both domestic CONUS carriers and with host nation carriers OCONUS.

Dynamic communications for a rapidly changing environment

Today's DoD environment is incredibly dynamic, fast-changing and complex. With NOW, quality of service can be dynamically configured to match the mission and the commander's intent, even as the situation evolves.

NOW technology enables DoD forces to realize mission scenarios at the pace of the real-world environment.

Operate Through with NOW is available today
The technology behind Ericsson Network OverWatch is quickly scaling globally as providers deploy 5G Standalone networks (5G networks untethered to the 4G core). From the first instantiation of a secure network slice on a public network in June 2023 (Deutsche Telekom with Ericsson), to T-Mobile's nationwide network slicing developer program and T-Priority for First Responders, network slicing is maturing quickly and will become available from Tier-1 operators globally in 2025. The technology provides for automated configuration, provisioning and end-to-end orchestration of the enterprise slicing service order. And it is enabled without the need for any additional configuration by the user on their enterprise devices.

This corresponds to the DoD's need for an on-demand secure slice with specified SLAs end-to-end, such as from a DoD device to a DoD application over a cooperating provider network.

How NOW with network slicing works

DoD requests the creation of a slice or slices on the host network that conforms to DoD/mission's policies and SLAs.

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The network slice is configured on the fly to suit the mission, taking into account the network's available capabilities and limitations (bandwidth, latency, speed). Slices can be reconfigured automatically as conditions change.

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Slice availability is signaled to the user equipment. Slice(s) are then leveraged by individual applications on the UE. These applications can either be loosely coupled to the slice or tightly integrated at the application developer level.

Ericsson Federal Technologies Group: Trusted partner

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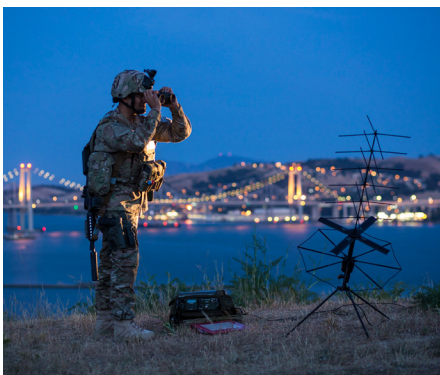
Ericsson 5G networks are in all 50 states and we are trusted partner to all US Tier-1 providers.

Ericsson has a global footprint with over 160 live 5G networks in more than 70 countries, more than any other supplier.

Over 90% of the top 50 global providers leverage Ericsson hardware, software and services for their 5G networks.

Ericsson is a global leader in deploying advanced 5G capabilities like network slicing.

Ericssons' relationship with governments, CSPs and an extensive ecosystem of partners enables us to support negotiations globally and accelerate Operate Through execution.

Ericsson has already proven the technology behind NOW and can help the US DoD to procure and deploy these capabilities both CONUS and OCONUS.
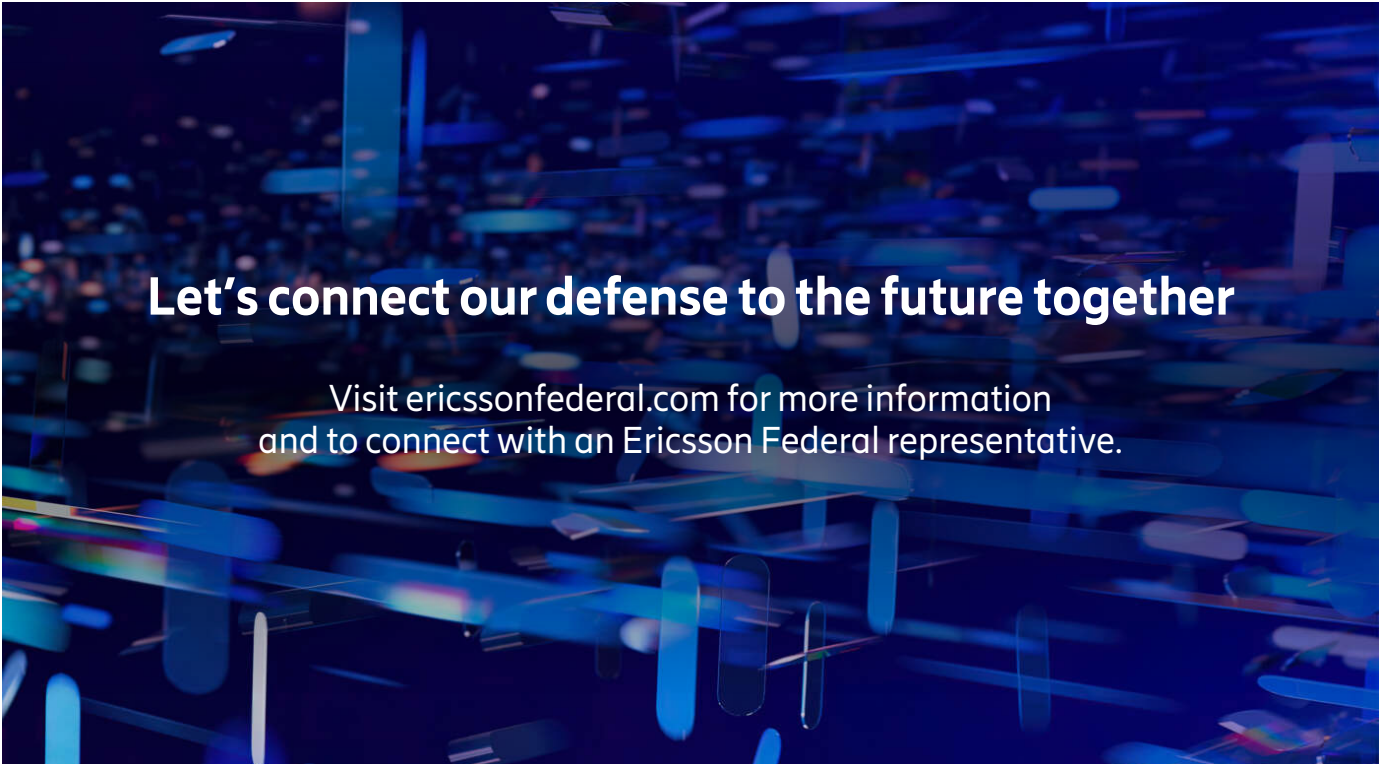
Let's connect our defense to the future together

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6300 Legacy Dr, Plano, TX 75024

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