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Ericsson Dynamic Network Slice Selection

**Tailored multiple slices
for your smartphone**



Network slicing is a key enabler in 5G networks, providing a growing number of opportunities for various new services with applications on different devices. Ericsson Dynamic Network Slice Selection enables flexible separation of services and enhances traffic steering to maximize quality of experience (QoE) on a single device.

Business opportunities with network slicing

In a world with 5G connectivity, network slicing is one of the prominent technologies that is here to stay, delivering tailored services and connectivity for users. The developments in network slicing technology are becoming increasingly important and will continue to become even more critical in the coming years. Network slicing will be a key pillar for enabling a variety of 5G use cases for enterprises and consumers.

Technological advances across industries are increasing the demand for high-performance, flexible mobile broadband, communications and other services for people and machines. Network slicing is emerging as a fundamental capability for communication service providers (CSPs) to deliver specific network characteristics to meet 5G market demands.

New opportunities are emerging for CSPs to expand into new market segments with new partners and offer end-to-end enterprise and consumer services supported by 5G networks.¹ In addition, the market outlook looks promising. For example, the network slicing enterprise (B2B and B2B2X) market alone is predicted to be worth USD 200 billion by 2030.² What is clear, however, is that a large portion of the revenue potential lies within the enterprise market.

To make the most of these new opportunities, CSPs need to differentiate themselves with new services and ensure better QoE to attract customers and retain existing ones. This can be done by ensuring the devices and applications used meet the specific service requirements through the selection of appropriate network slices.

Introducing multiple slices for smartphones

Network slicing is maturing in the industry. 5G deployments and coverage are expanding, and device vendors are on the path to implementing network slice selection rules in smartphones. The device ecosystem has started to develop, test and introduce commercial support for multiple slices on a single device – a smartphone can use multiple slices simultaneously, all with various types of quality of service (QoS). Device vendors are now implementing User equipment Route Selection Policy (URSP), based on the 3GPP standard, in commercial smartphones, with other devices set

to follow. URSP provides a foundation to deliver dynamic network slice selection, enabling traffic steering and the separation of services for devices when using network slices.

When devices are being provisioned with URSP information, the URSP adds further details regarding which network slices the device's underlying applications should use when activated. This will enable CSPs to fully harness their capability to provide tailored services for enterprises and consumers on various devices suited to different applications.

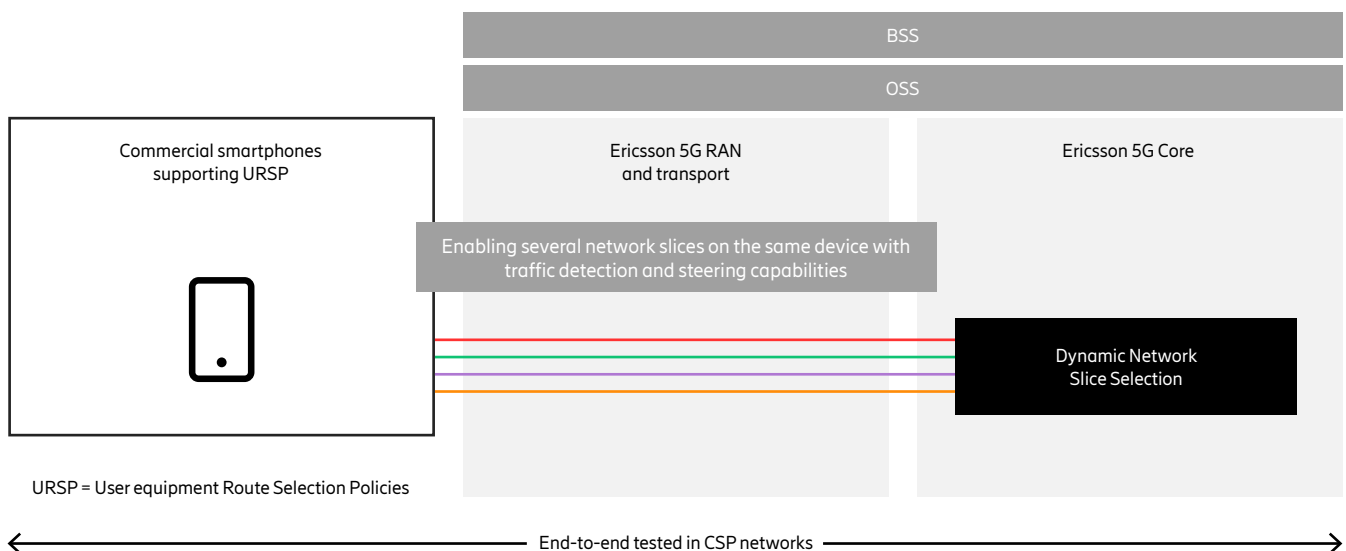
1. [“The essential building blocks of E2E network slicing”, June 2021.](#)

2. [“Network slicing value potential report”.](#)

Introducing Ericsson Dynamic Network Slice Selection

As a response to the new business opportunities that are arising, Ericsson is supporting CSPs to further extend their current network slicing capabilities by introducing a new Ericsson 5G Core solution – Ericsson Dynamic Network Slice Selection. This will enable the setup and dynamic steering of several slices by devices, such as smartphones.

Figure 1: Overview of Ericsson Dynamic Network Slice Selection



These new features are added in the Ericsson 5G Core, with new software support, including:

- Access and Mobility Functions (AMF) in Ericsson Packet Core Controller
- Policy Control Function (PCF) in Ericsson Cloud Core Policy Controller
- User Data Repository (UDR) in Ericsson Cloud Core Data-Storage Manager

The solution is an integral part of Ericsson's end-to-end network slicing offering with BSS, OSS, Core, 5G RAN slicing and transport domains, and enables simplified introduction in CSP networks.

It is built on the 3GPP-standardized function URSP (User equipment Route Selection Policy) that allows for a communication channel between a CSP's network and a device (user equipment, or UE).

The new feature enables CSPs to deploy network slicing with a complete end-to-end approach and will further strengthen their RAN slicing and Core slicing capabilities. Once slice configuration and slice characteristics are configured by Ericsson RAN slicing and Core slicing functions, this new feature will allow devices to choose optimal network slices based on URSP rules.

Ericsson Dynamic Network Slice Selection enables flexible separation of services and enhances traffic steering to maximize QoE on a single device. In 2021, the solution was tested in CSP networks and on commercial smartphones.

Main benefits of Ericsson Dynamic Network Slice Selection

Simultaneous use of multiple network slices on the same device

This enables the device and set of applications to simultaneously operate on multiple network slices.

Flexible selection of the appropriate slice for any device application

The network provides traffic detection and steering rules to the device. These rules can be updated and changed dynamically when needed. This enables the device to select the appropriate slice for a specific service.

Key to effective edge compute deployment

USRP rules trigger the selection for edge compute deployment of the user plane for optimized characteristics, such as high throughput and low latency.

Optimal selection of slice security for enterprise devices

This enables enhanced enterprise deployment and management of services in devices with improved security by using dedicated work profiles.

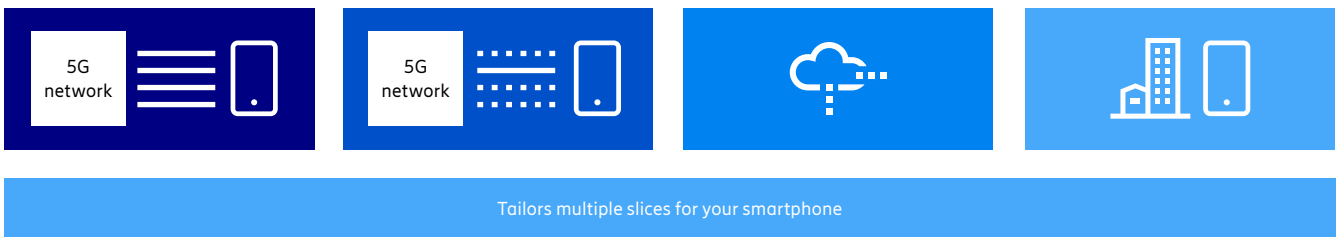
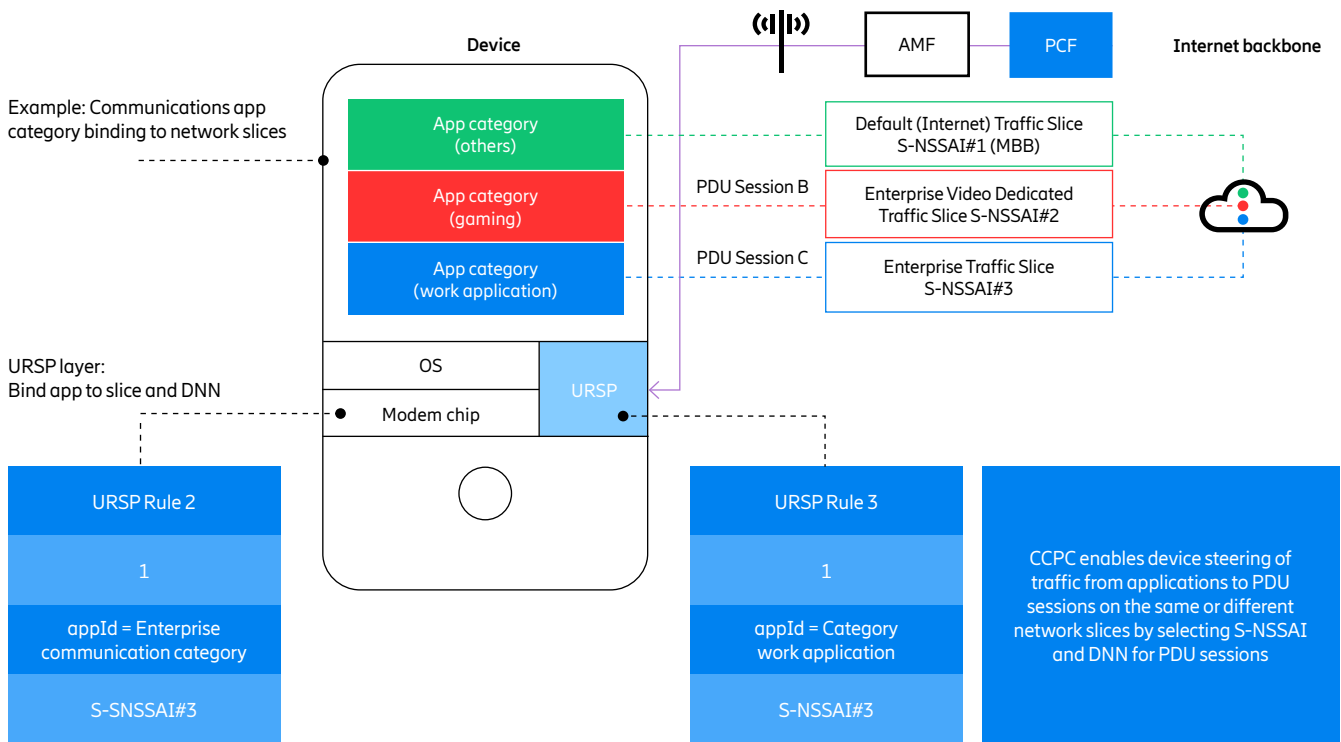


Figure 2: How smartphones interact with the network



URSP – UE Route Selection Policy
 PCF – Policy Control Function
 AMF – Access and Mobility Management Function
 OS – Operating System

DNN – Data Network Name
 MBB – Mobile Broadband
 PDU – Protocol Data Unit
 CCPC – Cloud Core Policy Controller

Ericsson Dynamic Network Slice Selection in action

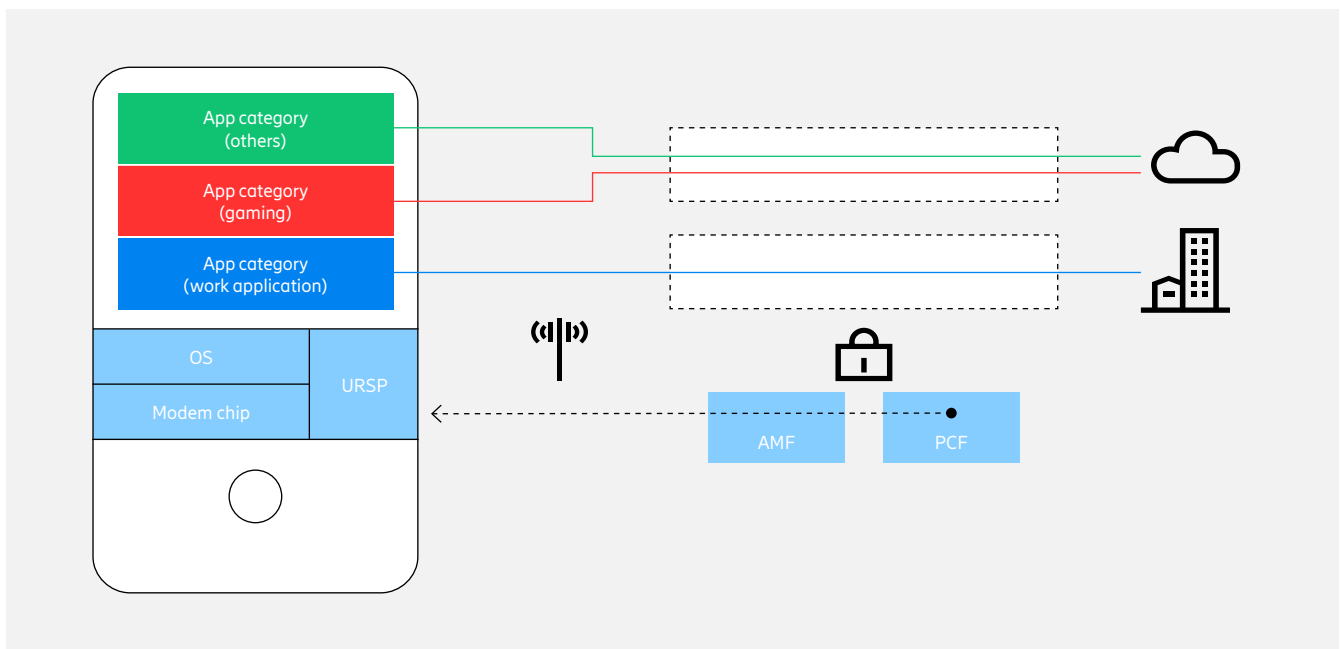
Ericsson Dynamic Network Slice Selection enables flexible separation of services and enhances traffic steering to maximize QoE on a single device. The CSP is in control of providing policy rule parameters to a device around the traffic classification of services, what slice should be used and the necessary information for Protocol Data Unit (PDU) session establishment. A device using more than one slice based on the CSP's intention could make use of Ericsson Dynamic Network Slice Selection

to facilitate dynamic delivery of rules on what traffic should be steered to which network slice. This ensures pre-defined performance in the device for its applications and enhances security with isolated network slices supporting different services.

When the device supports the use of URSP rules, it is possible to have multiple slices dedicated to the device simultaneously.

This allows devices to have multiple profiles to enable different levels of quality, security and privacy requirements, based on the needs of different applications. Once RAN slicing and Core slicing capability configure various end-to-end slices, URSP can select the most appropriate slice to make the best use of network capability in meeting service level agreements (SLAs).

Figure 3. Example with multiple slices supported on one device – two consumer slices and one enterprise slice




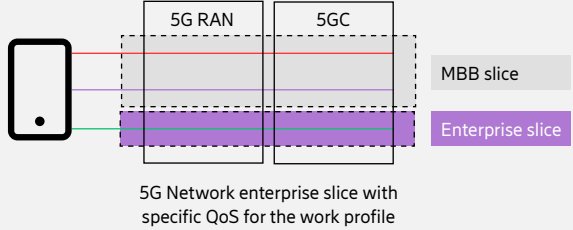
Services (applications or parts of applications) will likely belong to some form of a category to reduce the complexity when managing a huge number of applications.

Figure 3 shows two personal consumer categories; a private data and a gaming category, both of which could belong to the mobile broadband slice or separate slices, while a work traffic category has a specific


enterprise slice. As such, the enterprise slice will have a separate network connection, which brings the basis for securing isolation of the work traffic that many enterprises demand.

Consumer and enterprise use case examples

Example use case

Segment: Enterprise and enhanced mobile broadband	
Business model: B2B	
Operator's customer: Enterprises	
Use case challenges: <ul style="list-style-type: none"> Companies need to enable high-quality connectivity to their employees when they use specific enterprise applications. CSPs can enable the device vendors to provide support with network slices. 	
Capabilities and value: <ul style="list-style-type: none"> Through binding apps to a network slice, one mobile broadband slice could be for personal use and a separate one to support enterprise applications. It ensures performance for the traffic to the UE and applications, as well as enhance security with isolated network slices supporting the enterprise services. Apps in work profiles do not need to make changes to explicitly request the network slice. Traffic from all related apps will go on an enterprise network slice by default. 	 <p>5G Network enterprise slice with specific QoS for the work profile</p>

Future use case example

Segment: Enterprise and enhanced mobile broadband	
Business model: B2B (2X)	
Operator's customer, for example: Tennis event app	
Use case challenges: <ul style="list-style-type: none"> Running a tennis event app to provide services such as live score, multi-angle video and detailed replays during the match at a crowded stadium Providing very good QoE to end users at the stadium 	
Capabilities and value: <ul style="list-style-type: none"> Automated Network Slice Creation – a solution to automate creation of new network slice in line with SLA at stadium Customized services – with supported devices, allowing selection to specific network slice when running tennis event application Great user QoE – allowing the capability to provide best-in-class QoS, optimized radio frequency selection and connectivity, when running this application at the stadium 	 <p>Stadium slice with SLAs to ensure right QoE, such as QoS and optimized radio frequency selection</p>

Summary

Network slicing will significantly enable CSPs to deliver tailored services for enterprises and consumers. With the implementation of URSP support in devices, multiple network slices can be selected by the same device to allow different policies for different applications.

Ericsson Dynamic Network Slice Selection, based on 3GPP-standardized URSP and with end-to-end management, supports CSPs with the separation of services and traffic steering to maximize the QoE for their customers' applications. Ericsson's new solution has been tested in CSP's networks and commercial smartphones and can be smoothly introduced on top of the Ericsson 5G Core. Early to commercialize this on the market, Ericsson is supporting its customers in becoming early adopters of deploying network slicing technology and is helping them bring new use cases to consumers and enterprises.

**Find out more
about how Ericsson
can support
your network
slicing journey**

Dynamic Network Slice Selection:

1. [Ericsson Dynamic Network Slice Selection](#)
2. [5G Network Slicing - Make Network Slicing easy](#)
3. [5G RAN slicing shapes business growth](#)
4. [Enterprise Service Orchestration for innovation](#)
5. [Core Network & Automation - Evolve your network](#)
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