



The bridge to possible

Data sheet  
Cisco public

# Cisco Ultra 5G Cloud Core – Session Management Function (SMF)

---

# Contents

Product overview	3
Features and benefits	4
Prominent feature	4
Platform support	5
Licensing	5
Product specifications	5
System requirements	5
Ordering information	6
Warranty information	6
Cisco environmental sustainability	6
Cisco and Partner Services	6
Cisco Capital	7
Call to action	7

---

Cisco® Session Management Function (SMF) provides a central function in the 5G SA mobile core and enables QoS control, 4G-5G mobility handover, and charging controls for data and voice sessions.

## Product overview

Cisco Session Management Function (SMF) is a control plane network function (NF) of the 5G core (5GC). SMF is responsible for session management with supported individual functions on a per-session basis. Cisco SMF performs its session control per 3GPP specification, augmented with specific value-add functions from Cisco.

The Cisco SMF also enables:

- Cloud-native architecture to simplify automated operation
- Bare-metal deployment model maximizing hardware efficiency
- Built-in automation for operational flexibility and affinity

SMF functionalities:

- Session management, such as session establishment, modification, and release, including establishing a tunnel between the UPF and the AN node.
- UE IP address allocation and management, including an optional authorization.
- Perform DHCPv4 and DHCPv6 functions, both as server and client.
- Perform ARP Proxying and IPv6 Neighbor Solicitation Proxying functionality for the Ethernet PDUs. The SMF communicates with the ARP and the IPv6 Neighbor Solicitation Request by providing the MAC address. This address is corresponding to the IP address that exists in the request.
- Select and control the UP function for Ethernet PDU sessions. UP functions include controlling the UPF to proxy ARP or IPv6 Neighbor Discovery and forwarding all ARP or IPv6 Neighbor Solicitation traffic to the SMF.
- Configure Traffic Steering at UPF to route traffic to the corresponding Data Network (DN).
- Terminate interfaces toward Policy Control Functions.
- Handle the Lawful Intercept for SM events and interface to the LI system.
- Control and synchronize the charging data collection at UPF.
- Terminate the SM parts of NAS messages.
- Route packets and ensure the delivery information through Downlink Data Notification.
- Initiate the AN-specific SM information that is sent through AMF to AN over the N2 interface.
- Determine the SSC mode of a session.
- Provide the following roaming functionalities:
  - Manage the local enforcement to apply QoS SLAs (VPLMN).
  - Collect charging data and support the charging interfaces.
  - Support communication with external DN. The communication is for the transport of signaling for the PDU Session authorization or authentication by an external DN.

## Features and benefits

Feature	Benefit
<b>SMF+S5-c support to enable 4G-5G interworking for dual-mode devices</b>	Common, converged GW that could anchor 5G, 4G, 3G, and 2G devices with flexible configuration options to support different use cases
<b>IP address management</b>	The SMF supports “centralized” management of IP address allocation across the distributed UPFs
<b>PCEF on SMF</b>	Better and easier policy management and UPF management
<b>High-availability and migration/upgrades without disruption</b>	No downtime, and upgraded service continuity without any outages
<b>SMF - NRF interactions</b>	Standards-based NRF support, including Heart-beat and Failure-Handling
<b>UPF node selection</b>	Rich and configurable, including local configurations and prioritizations
<b>LI support on SMF</b>	Standards and regulatory from Day 1 deployment

## Prominent feature

Completely cloud-native implementation from the ground up

- Three-layered, microservices-based architecture
- Common services abstracted (SMI, CDL) for efficiency and consistency across different cloud-native network functions
- Converged core evolution for deployment flexibility

No vendor lock-in; truly open interfaces

- All SBI interfaces are fully 3GPP compliant
- S5-c, S2b-c (GTP) – fully 3GPP compliant
- Standard-complaint N4 (with optional proprietary extensions)

Leverage deep expertise in 2G/3G/4G x-GW to enable feature parity over multiple releases

Field-proven in different Tier-1 deployments

Smooth migration to 5G with zero-to-minimal service disruption

## Platform support

Product Family	Platforms Supported
Cisco Ultra 5G Cloud Core SMF	VMware 6.5
	OpenStack
	Bare metal
	Google Cloud

## Licensing

Application base	Per 5G application, per cluster - SMF
Sessions (increments of 1000)	Per 5G application, network-wide - SMF

## Product specifications

Cisco Ultra 5G Cloud Core SMF specifications	
Cisco Ultra Cloud Core Platform Software	
Cisco Ultra Cloud Core 5G SMF Software	

## System requirements

Server	UCS-C220-M5
Processor	2 x 6148 CPU (20 cores @ 2.4GHz)
NIC	2 x Intel® XL710 Dual-Port 40G QSFP+ NIC or Intel XXV710 Dual-Port 25G QSFP+ NIC
RAM	384 GB
Local disk storage	2 x 800 GB SSD

## Ordering information

Part #	Product description
UCC5G-SMF-BAS-L	UCC - Session Management Function (SMF), Base Minimum
UCC5G-SMF-S31-L	UCC - Session Management Function (SMF), 1K sessions
UCC5G-SMF-BAS-S	UCC - Session Management Function (SMF), Base Minimum SIA
UCC5G-SMF-S31-S	UCC - Session Management Function (SMF), 1K sessions SIA

## Warranty information

Cisco Ultra Cloud Core 5G SMF has the standard Cisco software warranty.

## Cisco environmental sustainability

Information about Cisco's environmental sustainability policies and initiatives for our products, solutions, operations, and extended operations or supply chain is provided in the "Environment Sustainability" section of Cisco's [Corporate Social Responsibility](#) (CSR) Report.

Reference links to information about key environmental sustainability topics (mentioned in the "Environment Sustainability" section of the CSR Report) are provided in the following table:

Sustainability topic	Reference
Information on product material content laws and regulations	<a href="#">Materials</a>
Information on electronic waste laws and regulations, including products, batteries, and packaging	<a href="#">WEEE compliance</a>

Cisco makes the packaging data available for informational purposes only. It may not reflect the most current legal developments, and Cisco does not represent, warrant, or guarantee that it is complete, accurate, or up to date. This information is subject to change without notice.

## Cisco and Partner Services

Using the Cisco lifecycle services approach, Cisco and our partners provide a broad portfolio of end-to-end services and support that can help increase your network's business value and return on investment. This approach defines the minimum set of activities needed, by technology and by network complexity, to help you deploy and operate Cisco technologies and optimize their performance throughout the network lifecycle.

---

## Cisco Capital

### Flexible payment solutions to help you achieve your objectives

Cisco Capital makes it easier to get the right technology to achieve your objectives, enable business transformation and help you stay competitive. We can help you reduce the total cost of ownership, conserve capital, and accelerate growth. In more than 100 countries, our flexible payment solutions can help you acquire hardware, software, services and complementary third-party equipment in easy, predictable payments.

[Learn more.](#)

## Call to action

Position your network for success with Cisco Ultra 5G Cloud Core SMF. For more information, contact your local account representative.

#### Americas Headquarters

Cisco Systems, Inc.  
San Jose, CA

#### Asia Pacific Headquarters

Cisco Systems (USA) Pte. Ltd.  
Singapore

#### Europe Headquarters

Cisco Systems International BV Amsterdam,  
The Netherlands

Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at <https://www.cisco.com/go/offices>.

Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL: <https://www.cisco.com/go/trademarks>. Third-party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1110R)