⊕TITAN.IUM®

5G Security Edge Protection Proxy (TITAN.IUM SEPP)

Business Benefits

- **Provides standards-compliant secure interworking between home and visited 5G PLMNs, virtually eliminating mobile interconnect fraud for 5G roamers.**

- **Implements a key element of the 5G Core "security by design" architecture.**

- **Incorporates a powerful Rules Engine enabling highly flexible message filtering and routing as well as customer provisioned rules entry.**

- **Delivered on Titan.ium's TITAN.IUM InterGENerational™ cloud native framework.**

- **Provides "capacity on demand" via cloud native fully containerized implementation.**

- **Extremely lexible deployment models: on premises or in the cloud, via Containers, Virtual Machines or Bare Metal.**

Overview

Mobile interconnect fraud is an expensive problem in the 2G/3G/4G world. In developing standards for 5G, 3GPP called for secure communications between home and visited 5G networks. The task of implementing that security was mandated to a new network element, the Security Edge Protection Proxy (SEPP).

The SEPP performs many critical functions to fulfill this mandate. Key among them are:

- Act as a secure signaling relay between PLMNs
- Provide a mutually authenticated secure communication path between networks
- Act as a reverse proxy, providing a single point of access to all network functions
- Provide inter-PLMN topology hiding
- Provide traffic filtering, policing and overload protection

Titan.ium's SEPP is delivered on the TITAN.IUM cloud-native InterGENerational™ framework, providing "deploy anywhere" flexibility, effortless automated scaling and strong security.

TITAN.IUM SEPP Key Capabilities
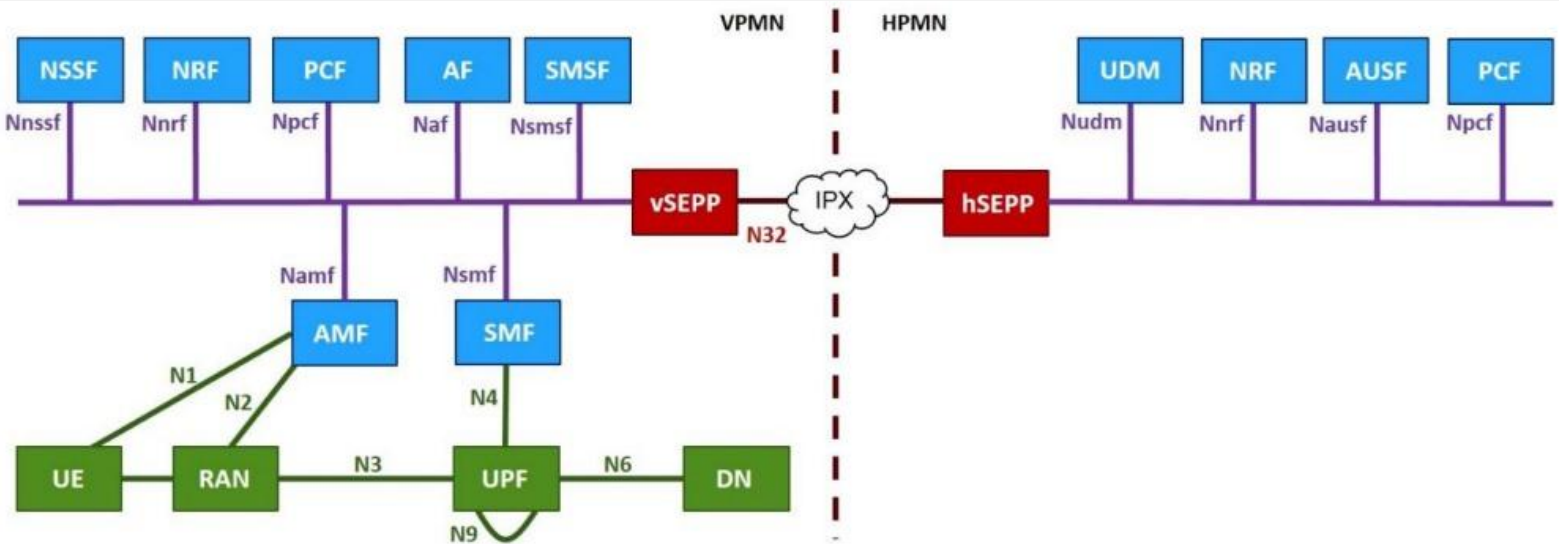
GSMA NG.113

Secure Intra-PLMN Communications
TITAN.IUM SEPP provides secure end-to-end inter-PLMN communications using security negotiation over the N32-c link and inter-PLMN NF message forwarding over the N32-f link, protected by the agreed TLS mutual authentication, Server Name Indication (SNI) support and TLSv1.2/TLSv1.3.

5G Standards Compliant
TITAN.IUM SEPP supports 3GPP TS 23.501, TS 23.502, TS 29.573, and TS 33.501 standards, along with GSMA FS.36.

High Performance HTTP/2 Stack
TITAN.IUM SEPP relies on a high-performance HTTP/2 stack with rich configuration options, including connections, buffers, traffic classes, and TLS.

Anti-Spoofing Protection
TITAN.IUM SEPP verifies that the sending SEPP is authorized to use the PLMN ID they are asserting and performs full cross layer validation of FQDN/PLMN IDs. Spoofed messages can be dropped, rejected, etc.

Message Filtering, Rate Limiting, Overload Protection
TITAN.IUM SEPP provides message filtering (ex: blocking of messages that should not target home subscribers), full stack parameter checking, malformed message protection and rate limiting/overload protection.

PLMN Topology Hiding, Telescopic FQDNs
TITAN.IUM SEPP provides full support for Topology Hiding, masking internal network element details from external PLMNs. This is accomplished by obscuring internal network node information via full telescopic FQDNs generated using TLS wildcard certificates.

Message and Location Plausibility Checking
TITAN.IUM SEPP determines message and location dialog fit and plausibility and can drop inappropriate messages.

Dissectors
TITAN.IUM SEPP's Dissector facility includes predefined and user-defined HTTP/2 dissectors allowing retrieval of any information element contained in an HTTP/2 message, which can then be used for filtering and routing.

Dissector-based Rules Engine
Filtering and routing processing is supported by TITAN.IUM SEPP's powerful Rules Engine allowing provisionable logical expressions (And/Or/Not) on one or more HTTP/2 information elements as needed. Also provided are pre-defined functions that can be applied to optimize user provisionable rule entry.

Flexible Message Routing
TITAN.IUM SEPP implements highly flexible routing of messages between home and visited PLMNs based on rules for matching criteria. This allows any HTTP/2 information element to be used in any routing decision.

Secure Local Key Management
TITAN.IUM SEPP provides a secure local capability for N32 key management, storage and recall.

Statistics and Key Performance Indicators (KPI)
TITAN.IUM SEPP generates statistics and KPIs that can be retrieved by external servers and used for health and performance tracking purposes. TITAN.IUM SEPP also uses these statistics for congestion control and for routing decisions based on load/latency of route entries.

Transaction Detail Records (TDRs)
TITAN.IUM SEPP supports configurable generation of TDRs for inbound and/or outbound messages. Operators can select the set of Information Elements (IE) that are included via provisioning.

Events and Tracing
TITAN.IUM SEPP raises events when defined situations occur or disappear, for example with the onset of a certain load level or when it abates.

Delivered on Titan.ium TITAN.IUM Framework
TITAN.IUM SEPP is delivered on Titan.ium's high performance cloud-native TITAN.IUM platform, providing effortless automated scaling, efficient use of cloud resources and strong security.
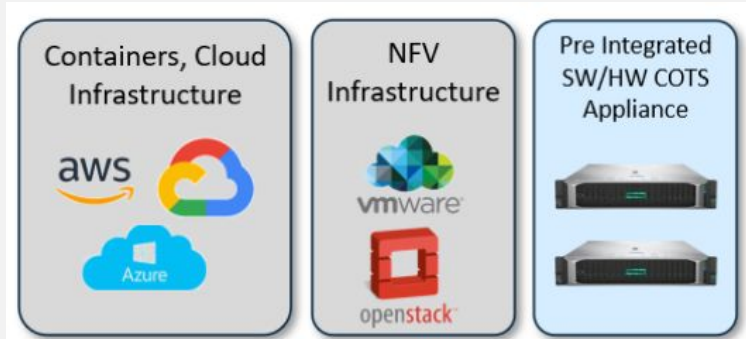
Colocation of Other 3G/4G/5G Network Functions
The same TITAN.IUM framework can support other Titan.ium CNF and VNF applications, including 3G, 4G and 5G network functions, providing a single unified InterGENerational^{TM} network capability.

Highly Flexible Deployment Models
TITAN.IUM SEPP supports a wide range of on-premise and cloud-based deployment models, easing network integration. TITAN.IUM SEPP can be delivered on existing customer-provided CNF infrastructure, on existing customer-provided VNF infrastructure, or on turnkey hardware-software appliances provided by Titan.ium (high performance, telco-grade 1U or 2U servers).

Flexible Deployment Models

Optional Features

In addition to colocation of other 3G, 4G and 5G network functions the following features may be optionally added to a Titan.ium SEPP deployment:

Titan.ium Deployment Server
Titan.ium's Deployment Server provides semi or fully automated delivery of Titan.ium SEPP software.

Titan.ium EMS
Titan.ium's Element Management System (EMS) provides centralized configuration, performance and fault management for SEPP and other Titan.ium NEs.

Titan.ium Analytics
Titan.ium Analytics delivers advanced analysis and visualization of transaction records and KPIs for SEPP and other Titan.ium network functions.

Contact Titan.ium Today

Please visit www.TitaniumPlatform.com for product or solution information. For configuration and pricing details, please contact your local account representative via Info@TitaniumPlatform.com.

About Titan.ium Platform, LLC

Titan.ium Platform, LLC brings more than two decades of experience delivering core network signaling control platforms that power global telecom and enterprise networks. Our industry leading TITAN Centralized Signaling, and Routing Control (CSRC) platform has been deployed by operators across the globe to simplify core networks, delivering new services and reducing operating costs. TITAN.IUM, the latest evolution for Titan.ium, is an innovative, InterGENerational Framework for 5G that bridges legacy 2G, 3G and 4G technology to the new cloud-native era.