TITAN.IUM

5G CORE

Product Data Sheet

5G Binding Support Function (BSF)

⌄ Business Benefits

- Key function of the 5G Core service-based signaling network providing secure mapping of mobile device data session usage to associated policy control.

- Provides interworking to corresponding Diameter-based 4G DRA binding functions supporting dual-binding & handover cases.

- Incorporates powerful award-winning Dissector-based Rules Engine enabling flexible customer programmability.

- Part of the Titan.ium, InterGENerational™ Cloud-Native Framework that interworks with HTTP2, Diameter, SS7 & SIP signaling.

- "Deploy anywhere" installation on premises or in the cloud via Containers.

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⊕ Overview

The Binding Support Function (BSF) is one of the key functions of the 3GPP Service-Based Architecture (SBA) for 5G Core networks. It enables other Network Functions (NFs), for example an IMS Call State Control Function (CSCF) or Network Exposure Functions (NEF), to determine which Policy Control Function (PCF) is holding needed Policy & Accounting information for each active Mobile device Data Session.

Titan.ium's BSF allows application functions to discover the PCF that is holding the information of a distinct data session based on a set of standardized session attributes.

Following 3GPP TS 29.512, Titan.ium's BSF supports the defined session binding data model and the prescribed session binding discovery attributes. It enables applications such as voice (IMS) to access the policy control function for the related data session.
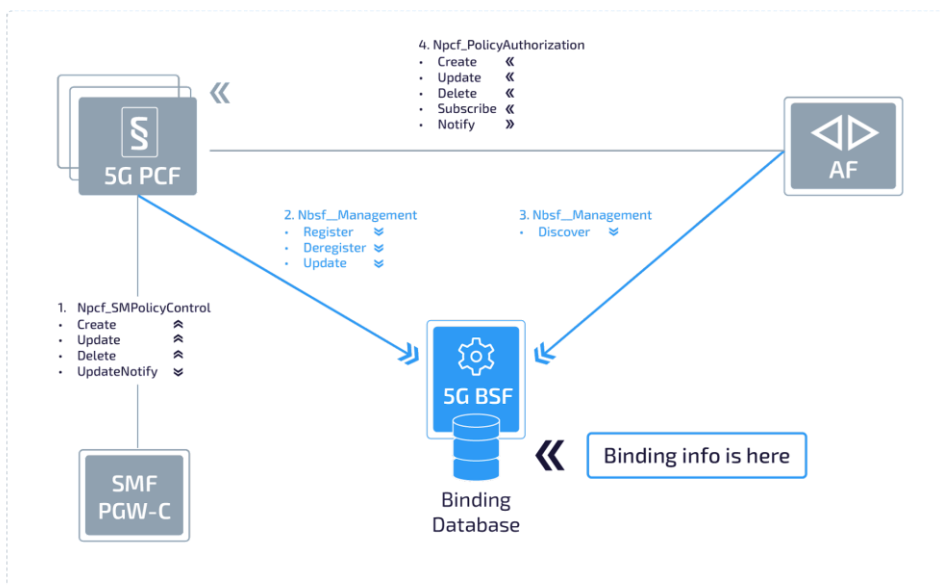
╟╢ Key Capabilities

PCF Binding Register, Deregister and Update
BSF service which allows network policy functions (PCFs) to register new Mobile Device data session bindings thus providing a method for other NFs (e.g., CSCFs and NEFs) to find associated policy functions when working with specific Mobile Device data sessions. Registered data service bindings may also be updated or removed via this BSF service.

PCF Binding Discovery
BSF service allowing other NFs, typically Application Functions (AF) such as IMS CSCFs and NEFs, to find PCF policy functions for specific data sessions that they are working with based on specific discovery criteria.

Dissectors
Titan.ium's Dissector facility includes Predefined & User-defined HTTP2 dissectors allowing retrieval of any information contained in an HTTP2 message, which can then be used for routing or service logic.

⦚ Key Capabilities (continued)

Dissector-based Rules Engine
Routing & Service logic processing is supported by the powerful Titan.ium Rules Engine allowing programmable logical expressions (And/Or/Not) on different Dissector parameters as needed. Also provided are pre-defined functions that can be applied to optimize user programmable processing logic.

Configurable Actions
The programmable Rules Engine also allows the user to configure context-specific actions. For example, programmable logic may invoke an NRF discovery request, make an NF selection, generate an Event, among other capabilities.

Overload Protection
BSF replicas & instances monitor their traffic load interacting with the Service-Router to throttle traffic and/or auto-scale BSF services as needed to handle any overload.

Events and Tracing
Raise an Event actions when defined situations occur or disappear, for example with the onset of a certain load level or when it abates. You can also enable tracing for a certain service instance for diagnostics purposes.

Statistics and Key Performance Indicators (KPI)
The BSF generates Statistics and KPIs so that external servers can retrieve them for performance & health tracking purposes (e.g., the number of inbound & outbound requests per unit time). BSF service logic also uses these statistics for congestion control and for routing decisions based on load/latency of route entries.

Transaction Detail Records (TDRs)
The BSF allows configurable generation of TDRs for inbound and/or outbound service transactions. The operator can select which Information Elements (IE) to include into different TDR data feeds (e.g., for Analytics or Forensics).

🔧 Optional Features

The following features may optionally be added to the BSF deployment as needed.

HTTP2 Message Transformation
This feature enables the operator to invoke configurable message Dissectors and Rules-based Actions to transform message content as needed, for example to aid in 5G to 3G/4G interworking.

HTTP2 Traffic Mirroring
Traffic mirroring interface towards external Probing/Monitoring/Analytics system via gRPC protocol. It provides observability over alarms, events and statistics.
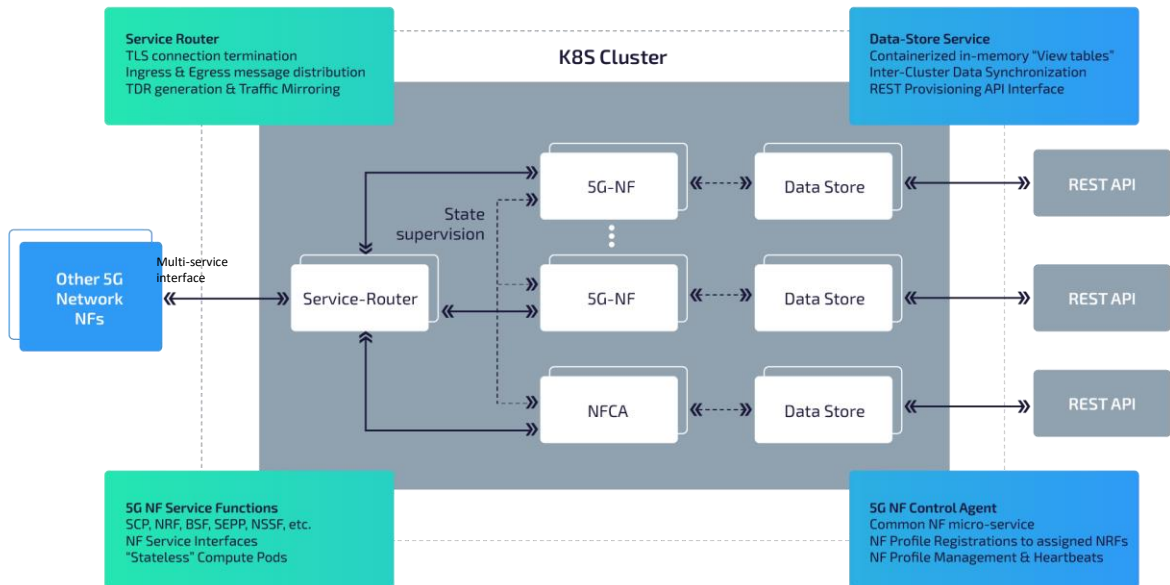
Additional Related Products
Titan.ium also offers an Element Management System (EMS) system which may be used for centralized configuration, performance and fault management of distributed BSFs as needed.

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🔲 5G Container-Native Architecture

The BSF is implemented as a set of containerized micro-services, decomposed into the following; Service-Router function; BSF compute front-end functions; and back-end Data Store micro-service for persistent storage. All component micro-services may be replicated within a Kubernetes (K8S) Cluster both for resiliency & scalability purposes. In addition, two or more K8S Clusters may comprise a single Titan.ium system deployment to achieve multi-site system geo-redundancy, with cross-site Datastore replication to assure a common view of BSF persistent data.

The Service-Router provides HTTP1/2 routing services & securely exposes SBI interfaces to external IP networks. All Titan.ium 5G NF's share a common "Network Function Control Agent" (NFCA) micro-service responsible for common NF management, e.g., to handle Registration of NF-Profiles to their assigned NRF(s) and keep these NF-Profile registrations up to date via heart-beats.

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 sales@titaniumplatform.com

About Titan.ium
Titan.ium Platform is a leader in signaling, routing, subscriber data management, and security software and services.
Our solutions are deployed in more than 80 countries by over 180 companies, including eight of the world's top ten communications service providers and all of the top five. Titan.ium supports any network, domain, signaling protocol, and infrastructure with advanced routing capabilities and a unified end-user experience.

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