



SIGNALING, ROUTING  
AND SECURITY

Product Data Sheet

# Diameter Signaling Controller (DSC)

## ✓ Business Benefits

- Centralized, simplified solution to network Diameter connectivity.
- Simplifies, reduces OPEX and increases network reliability.
- Supports routing, rate limiting, screening and SLA enforcement.
- Advanced features include message transformation and topology hiding.
- Message forking supported for inbound and outbound messages.
- Deployed on field hardened Titan platform.

# Product Data Sheet Diameter Signaling Controller (DSC)

## + The Challenge

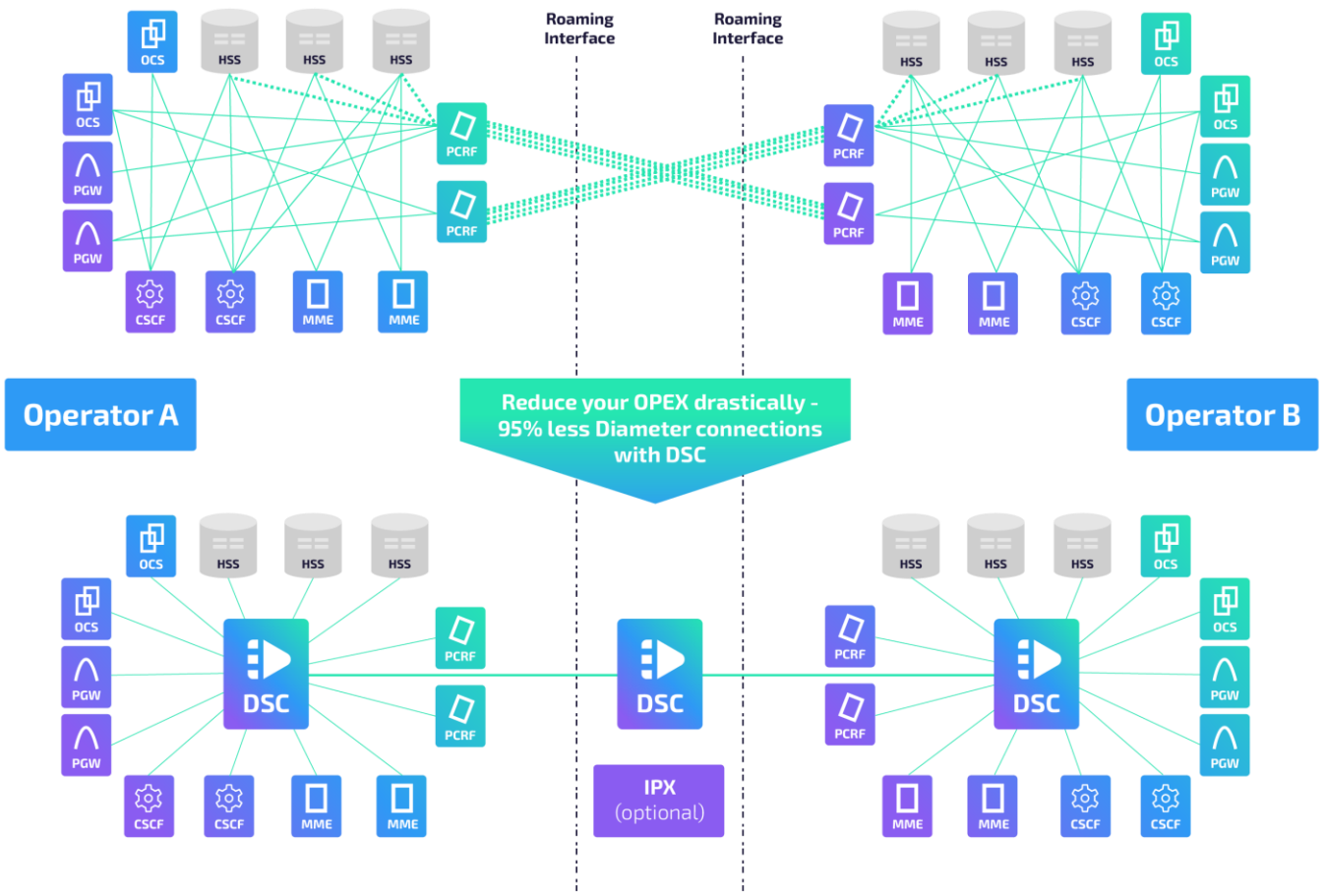
Evolved packet core (EPC) networks provide mobile data services to 2G, 3G, and 4G subscribers in parallel. Alongside these networks, many operators are deploying advanced policy control solutions and IP multimedia subsystem (IMS) networks in order to create new service offerings, such as Voice-over-LTE (VoLTE) and Voice-over-WiFi (VoWiFi), and to optimize their network core. The emergence of 5G networks adds yet another network variant to the mix.

All these networks rely extensively on internode communication carried over the Diameter protocol. With many dozens of connected nodes, a mesh of point-to-point connections is expensive, error prone and difficult to both administer and troubleshoot.

An efficient and centralized Diameter routing solution is needed to streamline and simplify core node connectivity, transforming an ever-growing n-way mesh into an easily understood and maintained hub and spoke architecture.

## ∨ The Titan.ium Solution

Titan.ium’s Diameter Signaling Controller (DSC) provides a highly scalable, NFV-ready Diameter signaling control element that can be used to manage the rapid growth of the Diameter signaling network. This is critical to the operator’s success and is essential for continued revenue growth.



## Product Data Sheet

### Diameter Signaling Controller (DSC)

#### ⌵ The Titan.ium Solution (continued)

The DSC provides capabilities that transform, forward, route, and load balance Diameter signaling traffic within 2G, 3G, LTE, and IMS networks. In combination with Diameter screening functions, these capabilities fully protect the Diameter network, especially critical for versatile LTE roaming use cases. The resulting simplification of Diameter routing in the core network reduces complexity, increases reliability and drives down OPEX support costs.

Depending on its configuration, the DSC can seamlessly act as a Diameter Relay, Proxy, Redirect, and Translation Agent per RFC 6733 and as Diameter Edge Agent per GSMA IR.88.

To keep track of all processed Diameter traffic for logging and accounting purposes, the DSC can be configured to provide versatile, fully user-configurable Transaction Detail Records (TDRs).

The DSC makes full use of the flexible Diameter protocol stack of the Titan platform. Furthermore, the DSC utilizes the highly scalable in-memory Titan databases for capabilities like subscriber-specific redirection, session binding and topology hiding. Using the advanced Titan database technology, operators can replicate session and topology hiding data across all DSC nodes. Furthermore, the DSC supports configurable and rule-based message forking to one or more destinations for the Diameter messages that the DSC processes.

A key advantage of the DSC is its ability to co-locate its Diameter functions with SS7/STP, SIP, and ENUM/DNS services on a common Titan platform, employing Titan's dynamic service chaining mechanisms to provide truly integrated services. The resulting Titan solution radically simplifies signaling, control, and routing in the network.

#### ✓ Business Benefits

By deploying Titan.ium's DSC, operators can realize an efficient and centralized Diameter routing solution, streamlining and simplifying core network connectivity and transforming what would have been an ever-growing complexity into an easily understood and maintained hub and spoke connection architecture. This simplifies connectivity, reduces OPEX and increases network reliability.

The DSC does all this by providing capabilities that transform, forward, route, and load balance Diameter signaling traffic within 2G, 3G, LTE, and IMS networks. In combination with its Diameter screening functions, the DSC fully protects the Diameter network, an especially important asset for demanding LTE roaming use cases.

Finally, the DSC's interworking capabilities, such as preventing DoS attacks and enforcing SLAs between operators, provide very important protections for LTE Roaming and WiFi Offload scenarios.

## Product Data Sheet

# Diameter Signaling Controller (DSC)

### Key Capabilities

#### **Diameter Connectivity**

In accordance with RFC 6733 and RFC 6737, the Titan.ium DSC can be connected to Diameter client and server peers in a highly flexible and secure fashion.

- Support of IPv4 and IPv6 in parallel via different connections.
- Support of TCP in parallel via different connections.
- Support of SCTP.
- Support of optional IPsec encryption for TCP.
- Support of passive and active modes of operation. Via per Diameter connection configuration, the DSC can passively wait for connection establishment requests from other peers or actively try to establish Diameter connections itself.

#### **Diameter Connectivity**

In accordance with RFC 6733 and RFC 6737, the Titan.ium DSC can be connected to Diameter client and server peers in a highly flexible and secure fashion.

- Support of IPv4 and IPv6 in parallel via different connections.
- Support of TCP in parallel via different connections.
- Support of SCTP.
- Support of optional IPsec encryption for TCP.
- Support of passive and active modes of operation. Via per Diameter connection configuration, the DSC can passively wait for connection establishment requests from other peers or actively try to establish Diameter connections itself.

#### **Diameter Screening Function**

Provides advanced network security and interworking.

- Thorough message inspection and access control.
- Flexible use of centrally provisioned white, gray, and blacklists.
- Versatile logging of message parameters and screening actions.

#### **Diameter Transformation Function**

Provides seamless integration in legacy networks.

- Highly flexible inbound and outbound message transformation.
- Transformation of Diameter answers based on the corresponding request.
- Bit setting or unsetting of feature bits.
- Powerful stateless and stateful topology hiding.

#### **Diameter Routing Function**

Provides optimized routing and traffic distribution.

- Versatile and fully configurable request routing and accounting.
- Contextual and deterministic load balancing.
- Complete session management and session binding.

## Product Data Sheet

# Diameter Signaling Controller (DSC)

### Key Capabilities (continued)

#### Diameter Redirect Function

Supports versatile subscriber-based services.

- Identity and subscriber individual routing.
- Flexible use of Titan databases for routing decisions.
- IMS Subscription Locator Function (SLF).

#### Diameter Accounting Function

Provides flexible generation of accounting records.

- Use of pre-defined and user-defined information elements.
- Use of user-defined accounting record templates.
- Accounting data anonymization for user privacy control.

#### Diameter Message Forking Function

Provides message copying to one or more destinations.

- Ability to individually copy every inbound and outbound Diameter request and answer.
- Configurable inbound and outbound peer-based triggers, where parameter-based rules can further filter every trigger.
- Configurable list of peers or peer-groups which the system sends Diameter messages to and where a parameter-based rule can further filter each peer or peer group.

#### Carrier Grade Platform

Brings telecom-grade reliability to Diameter signaling

- The DSC is a telco-grade, real-time signaling element built on Titan.ium's carrier-grade, field-hardened Titan platform.
- The Titan platform enables a comprehensive DSC solution using active Titan DSC nodes that can be geographically distributed across the network.
- This approach is fully compliant to the SDN/NFV security paradigm of specialized signaling controllers per local application instance.

### Contact Titan.ium Today

Please visit [www.titaniumplatform.com](http://www.titaniumplatform.com) for product or solution information. For configuration and pricing details, please contact your local account representative via [sales@titaniumplatform.com](mailto: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.

