



Diameter Signaling and the SS7 Interworking Function

As communications service providers (CSPs) build next-generation 4G LTE networks, they're challenged with managing many architectural design changes in the new network core as they must integrate old and new elements seamlessly. While the 3GPP has selected Diameter signaling as the industry standard protocol in 4G LTE networks, CSPs will also continue to use SS7-based 2G and 3G networks in parallel to deploying 4G LTE. The F5® Traffix™ Signaling Delivery Controller™ (SDC) provides an SS7 interworking function (IWF) that allows you to create interoperability between legacy and Diameter signaling elements. This is essential to making a smooth transition to 4G LTE, for roaming, and to preserving your existing investments.

Integrating the Old with the New

As many CSPs deploy 4G LTE, they will also continue to use their legacy infrastructure because it's often too costly and complex to replace completely. As a result, there will continue to be components in your network that use the SS7 signaling protocol, which doesn't support Diameter signaling. Legacy infrastructure also doesn't scale well, and it contains customized interfaces or parameters that have been introduced over time and are unique to each CSP. Finally, it's a challenge to enable roaming between your new 4G LTE network and your roaming partners that are still using legacy infrastructure.

Implementing an IWF (as defined by 3GPP specification TS 29.305) can ease your transition from legacy to next-generation infrastructure, because it enables your 2.5G and 3G elements to communicate with 4G LTE elements. With higher interoperability, you can take advantage of new Diameter-based infrastructure alongside legacy infrastructure and more easily manage the migration of any parts of the core network to 4G LTE—ensuring that your rollout meets business objectives.

The SDC provides a Diameter gateway, a Diameter load balancer, and Diameter router solutions to answer your need for cost-effective connectivity, scalability, and control in the migration to 4G LTE. The SDC's Diameter Routing Agent (DRA) and Diameter Edge Agent (DEA) enable you to centrally manage signaling messaging and routing to achieve unmatched scalability and fault tolerance for the highest possible network availability. And, industry leading agent support allows for a flexible deployment methodology as proxy, redirect, relay, or translation agents.

In addition to SS7, the SDC supports a wide range of message-oriented protocols, enabling an interconnected environment and providing you with a smooth migration path to a new architecture. It also allows you to preserve existing investments by reusing legacy resources, for maximum cost-savings with minimal service disruption to your subscribers.

Key features

- **IWF Mobility Management**—MAP/Diameter interworking for S6a, S6d, and S13 interfaces based on TS 29.305
- **Roaming**—MAP/Diameter roaming interworking for S6a and S6d
- **Scalability**—Load balancing and proven failover technologies to ensure availability and scalability
- **Context Awareness**—Stateful connections allow for proper interpretation and translation of signaling messages
- **Signaling Translation Function**—Supports the widest range of message-oriented protocols (including SS7, RADIUS, HTTP/SOAP, LDAP, GTP', JMS, and others) ranging from simple message translation and adaptation to complex multi-protocol translation of state machines (including Diameter Session<->TCAP Dialogues)

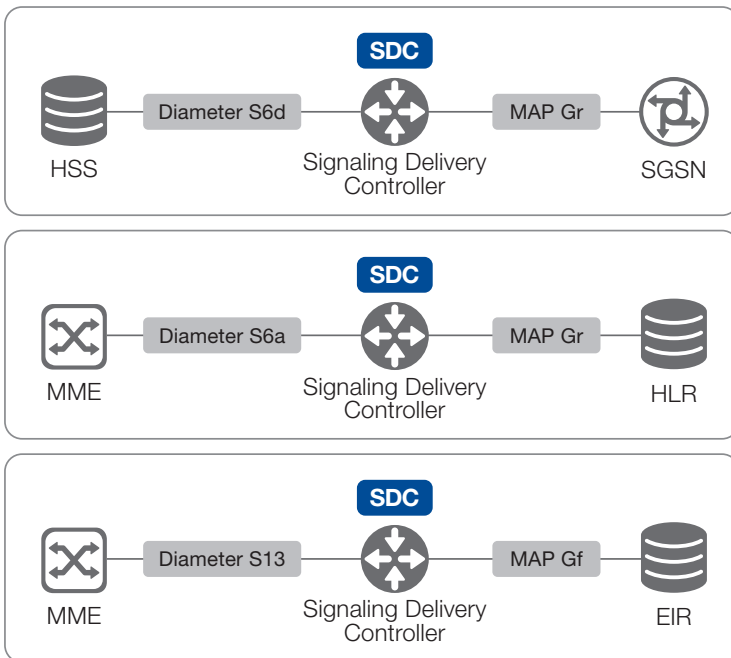
Key benefits

- **Cost Savings**—Preserves existing investments by enabling the use of legacy SS7 components
- **Seamless Connectivity**—Integrates legacy 2G/3G-SS7/MAP infrastructures to Diameter
- **New Revenue Streams**—Enables reciprocal roaming, expanding coverage areas for 4G LTE providers with non-LTE networks

Solution

The F5 Traffix SDC provides the following features and capabilities to ensure seamless connectivity between legacy SS7 and Diameter environments:

- Enhanced signaling congestion flow control and failover management mechanisms.
- Enhanced signaling admission control, topology hiding, and steering mechanisms.
- Advanced context-aware routing, based on any combination of AVPs (attribute-value pairs) and other dynamic parameters like network health or time.
- Advanced session binding capabilities beyond Gx/Rx binding.
- Support for all existing Diameter interfaces—more than 50, total.
- Support for most messaging protocols for routing, load balancing, and transformation.
- An active/active deployment mode that exemplifies single node from connected peers' perspective.
- Support for SCTP, TCP, TLS, IPsec, IPv4, and IPv6.
- Control plane visibility, which enables you to align and synchronize for different subscriber and service signaling flows for a real-time, unified view of network signaling and usage.



Diameter - MAP Interworking Function (IWF) enabled by the SDC to connect with legacy signaling.

Learn more

For more information about the F5 Traffix SDC, please see the following resources or use the search function on f5.com.

Web pages

[F5 Traffix Signaling Delivery Controller Diameter Signaling](#)

White papers

[Intelligent Traffic Management with the F5 BIG-IP Platform](#)

[Optimizing Diameter Signaling Networks](#)

Solution profile

[Take Control of Diameter Signaling to Grow Your Network](#)

Datasheet

[F5 Traffix Signaling Delivery Controller Datasheet](#)

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