

**Non-Intrusive SS7
Signaling Monitoring Probe
Multi-Signaling Platform 1010**

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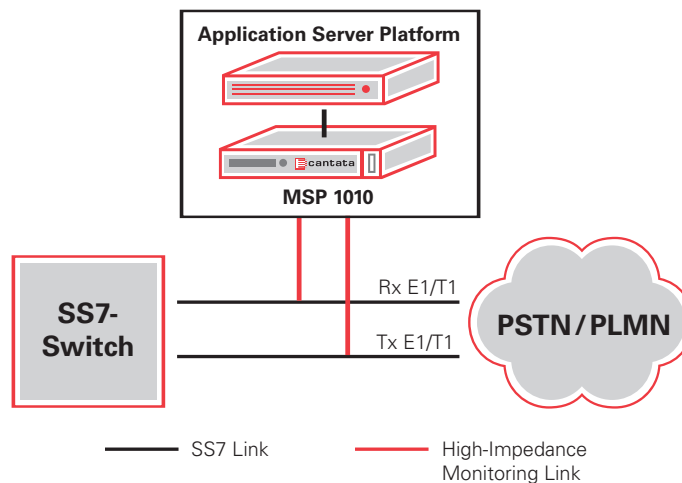
introduction

Increasingly tough competition in the wireless networking market compels service providers and network operators to offer new services and applications to attract and retain customers. However, implementing new services in wireless networks is neither inexpensive nor easy. It requires changing the SS7 network, adding new SS7 elements, and increasing cost and maintenance expenditures. One simple and easy way to implement these services is by monitoring SS7 traffic. Without affecting network performance or changing the SS7 network, SS7 Monitoring interprets events in the network and uses them to trigger applications.

The recently introduced Excel Multi-Signaling Platform (MSP) 1010 enables real-time SS7 Monitoring, filtering, and recording of signaling data.

The MSP 1010 accomplishes SS7 Monitoring using a “tap and listen” mode on a live SS7 signaling link. The signaling data is captured and interpreted automatically, with no intervention by a service provider or intrusion into the SS7 network.

Figure 1: The MSP 1010 Performing Non-Intrusive SS7 Monitoring



SS7 monitoring – major benefits

Service providers and network operators deploying the MSP 1010 will experience many benefits, including, but not limited to, the following:

- Flexibility for configuring and supporting multiple applications, enabling message filtering and replication of monitored traffic.
- High filtering capabilities for the advanced filtering of multi-parameters in different SS7 layers, simplifying the creation and design of new services.
- Extended capacity, eliminating the need for cross-connect devices, and enabling 21E1/28T1 connections to multiple SS7 links in different spans.

SS7 monitoring – key features

Service providers using the MSP 1010 enjoy all of the following features:

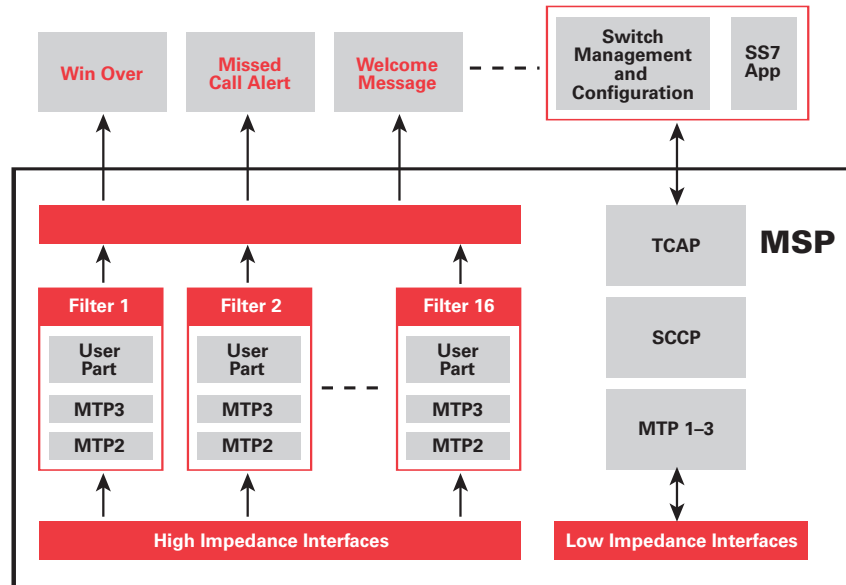
- Tapping up to 64 duplex SS7 links or 128 unidirectional channels.
- Large capacity: 21 E1s or 28 T1s, configurable as high impedance or low impedance interface for SS7 monitoring or terminating live SS7 links.
- Tapping MTP2 traffic: By tapping the MTP2 traffic, all the information about the events in the networks is available, allowing developers to create any type of application.
- Filtering of non-acknowledged, FISU, and LSSU messages, frees the application server from filtering these messages.
- Filtering any combination of User Parts (ISUP, TUP, SCCP or MTP management).
- Filtering messages from a specific OPC to a specific DPC.
- Support of 16 configurable filters: MSP 1010 is a flexible platform that allows the developer to implement many applications on a single platform, each with different filtering requirements.
- Support of 16 different Application Servers: this feature enables 16 different application servers to receive the tapped traffic. This traffic can be routed from a single filter or from multiple filters.
- Support of low and high impedance SS7 links on the same platform.
- High performance, up to 1 erlang per link of non-circuit related signaling.

MSP 1010 software architecture

The flexibility of the MSP 1010 architecture is demonstrated in Figure 2. The architecture enables the connection of each SS7 link to 16 filters-either to a single filter or in parallel to multiple filters. This flexibility allows developers to filter different events and messages on the same SS7 links. The output of the filters can be routed to a single Application Server or in parallel to multiple servers. This feature allows developers to use the same events to trigger different applications. The application receives only the information it requires, allowing the system to scale to much higher densities for a lower initial investment.

The MSP 1010 is designed to support both uni-directional monitoring links and bi-directional live SS7 links, which allows the application to take action in the SS7 network.

Figure 2: The Cantata SS7 Monitoring Architecture



applications

The MSP 1010 enables a variety of applications, in landline and wireless networks. These applications can be utilized by service providers and operators to increase the revenue (*by enabling popular applications*), reduce expenses (*with billing applications*) and improve quality of service (*by monitoring the network performance*). These applications include, but are not limited to, the following:

- **Missed call alert:** Allows operators to increase revenue. The service detects missed calls in a wireless network and sends an SMS message to alert the customer. The customer can then call the originator back and complete this call.
- **Welcome roamers:** The welcome message is an attractive family of services, because service providers can capture roamers and log them into their network. The welcome message can be sent periodically to the roamer during his/her stay in the visiting country, and can contain useful information such as weather forecasts, currency exchange rates, and local favorites restaurants. Service providers can reach out to both the inbound and outbound roamers with customized information, thereby improving the service experience for the mobile roamer and increasing their loyalty toward the service provider.
- **Win back:** Allows wireless operators to retain customers in their network. The service detects roamers that switchover to adjacent networks and offers them, through an SMS message, to log back into the network.
- **Win over:** Allows wireless operators to attract foreign roamers to their networks. The service captures outbound SMS messages to roamers in adjacent networks, and sends them an SMS message to switchover to its network.

- **Optimal routing:** An innovative mobile service that encourages roaming subscribers from any foreign country to stay in the roamed mobile operator's network. The application offers a more cost effective way to make calls to an inbound roamer by bypassing the International Direct Dialing paths via the roamer's home network.
- **Location-based services:** Mobile operators can offer enterprises a chance to "push" their company's presence to mobile subscribers who are in the same "area." Whenever a mobile subscriber moves between two different "areas" of the mobile network, the mobile station (MS) sends a location update to the network. When the application detects the location update, it searches the database for advertisements to "push" to this customer.
- **Traffic engineering & network traffic:** Provides continuous real-time measurements on SS7 traffic across the network, providing immediate warning of abnormal activity that could threaten network performance. An immediate alert is produced when any of the thresholds set by the operator are breached. This allows immediate action to be taken to avoid catastrophic failure.
- **Network billing and CDR generation checking:** A telecommunication operators tool for arbitrating interconnections. This application can be used to arbitrate for voice traffic or SMS traffic. Some operators use it as an "Auditing" tool for existing CDR or billing records generated from the network's switches.
- **Fraud detection:** Detects scenarios commonly recognized by the industry and network service providers as methods of attack, and allows administrative actions to prevent these attacks.



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