

SIGTRAN MONITORING 'PROBE' (SMP1) SYSTEM

The technique for determining mobile location information for applications such as real-time road traffic information has to-date successfully used installed, or newly installed, nonintrusive, A-link E1/T1 'probe' systems. However, with operators transitioning towards an all IP based communications backbone network, e.g. MPLS, such conventional 'hardwired' probe systems are not always necessary. It is now possible to create and deliver an IP based 'probe' solution for operators who have switched over completely.

To enable continued support for existing SS7 messages the SIGTRAN protocol has been introduced to support SS7 based information across the increasing number of IP infrastructure networks. Such networks cater for both 2G and 3G deployments as well as carrying multimedia and signalling information.

In such circumstances conventional E1/T1 hardware 'probe' solutions are not always necessary and a new 'soft' IP probe solution is provided. This may be used to supplement an existing probe installation during switch over, replace a traditional probe system, or provide a new and valuable probing infrastructure. Arcanum SMP1 is such a solution.

It is a wholly IP based Probe solution and dovetails into Arcanum's receiver software and the already deployed AMR/ALS software providing a single vendor end to end solution for location based information.

PRODUCT OVERVIEW

This section describes the features of the SMP1 SIGTRAN monitoring module and how it can be used and managed.

The Arcanum SMP1 allows SS7 messages to be monitored on SIGTRAN SCTP Associations. SCTP Messages from one or more ports are analysed and decoded to SCCP and MAP before being passed to the AMR/ALS in real time, using our 'receiver' software code. The full functionality of standard message protocols is therefore maintained and used effectively to provide a seamless, real time, source of information.

PHYSICAL CONNECTION

The SIGTRAN signalling traffic to be monitored must be made available to the monitoring system on one or more ports. It is recommended this be accomplished in one of two ways:

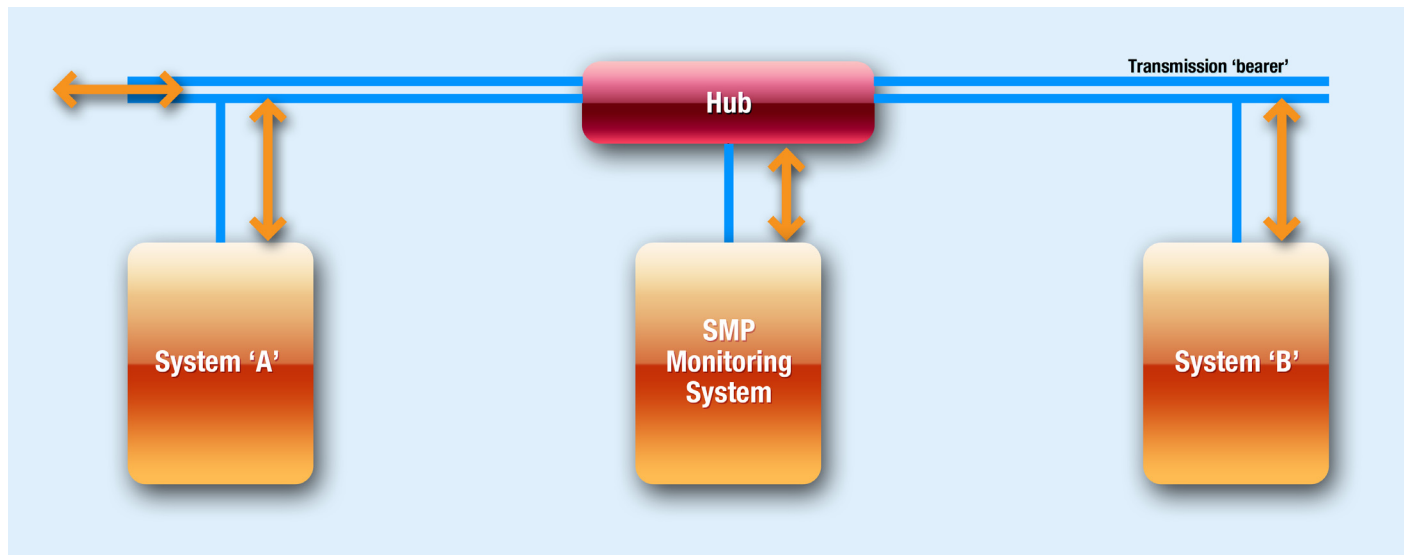
1. Using a 'Hub' to connect to the link to be monitored
2. Using a managed switch to copy the traffic to be monitored

BENEFITS

- Real time access to SS7 mobile signalling data
- Scalable platform solution
- Soft version available for ease of deployment
- OPEX reduction through resource efficiency and optimisation
- Reduced CAPEX
- Revenue and Profit enhancement through Mobile VAS
- Non-intrusive, non-disruptive
- Future-proof NGN / LTE migration

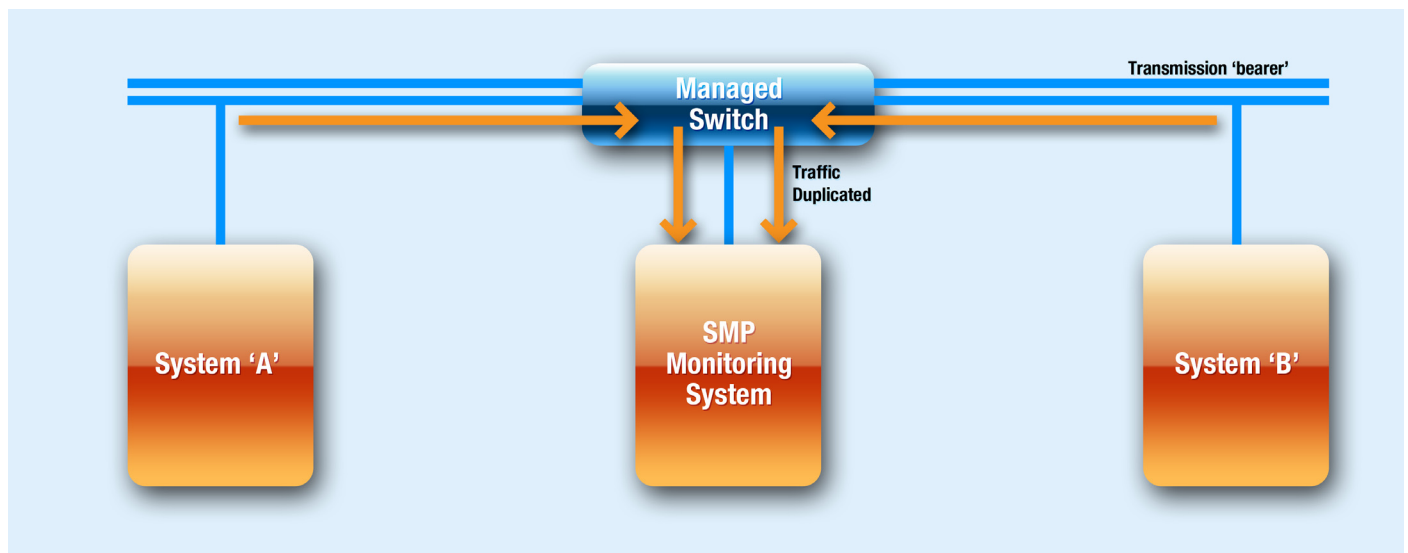
USING A HUB

As illustrated below, a 'Hub' interconnects all of the systems/devices connecting into it so as to make it appear the devices are on the same communications segment. This allows the SMP1 System to see directly the traffic to be monitored.



USING A MANAGED SWITCH

Many Managed IP Switches allow packets on one Segment to be copied to another Segment. The traffic required to be monitored may be copied directly onto the SMP1 monitoring system. This allows the number of connections brought to the monitoring device to be independent of the number of connections on which the traffic actually is distributed across. For example, the traffic to be monitored may be distributed across eight 'cables'. These may be brought into a Managed Switch, which, in addition to forward routing the IP packets, may take a copy of the messages and forward them to the SMP1 Monitoring System across two Cables.



PORT CONFIGURATION

The SMP1 system can monitor a number of ports simultaneously. Each port to be monitored must be configured with its own port configuration message. Once it is known how the SMP1 monitoring system is to be connected to the network it should also be known which ports are to be used and what are the device names for the ports.

MONITORING MESSAGE SELECTION

Once a number of Ports have been configured, the types of messages to be monitored are selected. To suit different application requirements, SMP1 allows specific types of messages to be selected and other messages to be discarded.

A number of message selections may be made, each as part of a separate configuration. Message Selection allows individual messages to be selected, such as individual ISUP messages or M3UA Control Messages. Arcanum SMP1 will always separate bundled SCTP messages or 'chunks' into their individual parts, hiding any associated complexity.

FLOW CONTROL

The Arcanum SMP1 application and the RDS/CLS provide flow control characteristics to manage very large volumes of data and provide functionality to manage unusual peaks, outages, drops or spikes of data. SMP1 can buffer a number of messages - the exact number can be set when the module is first configured. This buffering prevents messages from being discarded if congestion occurs. Once congestion abates, the buffered messages will be sent to the AMR/ALS. This buffer will provide a congestion indication when it is half full and a discard indication if it becomes completely full.

GROWTH CAPABILITY

The Arcanum SMP1 supports a licensing scheme that provides for the delivery of the Arcanum SMP1 for small, regular and large networks. The licencing is based upon signalling traffic channels being monitored and therefore the throughput of traffic.

STATISTICS

The SMP1 supports the gathering of different types of statistics to assist in the maintenance of the system. The statistics are gathered independently for each source of data, and for the system as a whole. In addition to this functionality, the throughput licensing scheme used by the SMP1 maintains statistics useful for observing licence utilisation.

The Arcanum SMP1 provides a ready made, low risk, non-intrusive probe solution for network operators moving to an all IP or mixed TDM/IP network. It is easy to install, maintain and expand at a price below conventional 'hardwired' E1/T1 probe solutions.