

## ABSTRACT

The interface between the *Mobile Switching Centre* (MSC) and *Base Station Controller* (BSC) in GSM networks is called A-Interface. The *Mobile Application Part* (MAP) is a relatively new level 4 protocol used in GSM A-Interface networks.

By filtering, decoding and analyzing the contents of MAP datagram message, we can make an application software that provides a monitoring system that could give us detail information within the GSM A-Interface networks.

The monitoring system serves two functions. The first is to provide visibility to the entire network and everything that goes within the network. The other function is data collection.

Data collection is still somewhat of a new concept for network monitoring system. Although they have had this capability for a while, the concept of capturing signaling data for use others than maintenance and troubleshooting is slowly catching on.

The monitoring system serves as a central interface to this data, using a probe connecting to every signaling link in the network to access the data. The *message signal units* (MSUs) are copied and stored on a server for historical traces and analysis.

Monitoring system can also be used for creating *call detail records* (CDRs). Each time a call is completed, the switch that originated the call creates a CDR.

Signaling networks, on the other hand, are the best source for CDRs. Every call generates a signaling message, which is captured by the monitoring system. The monitoring system can then be used to interface to a number of business applications.

Traffic analysis tools use CDRs as well as traffic reports generated by the monitoring system to ensure *Quality of Service* (QoS), which may be significant

importance when a carrier has *service level agreements* (SLAs) with customers or other carriers.

Finally, the most powerful use of signaling data is data mining. When we examine the contents of a signaling message, we find everything a carrier needs to know about the subscribers using the network. Data mining is used by marketing, sales, engineering operations, and finance departments.



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