# Cellusys°
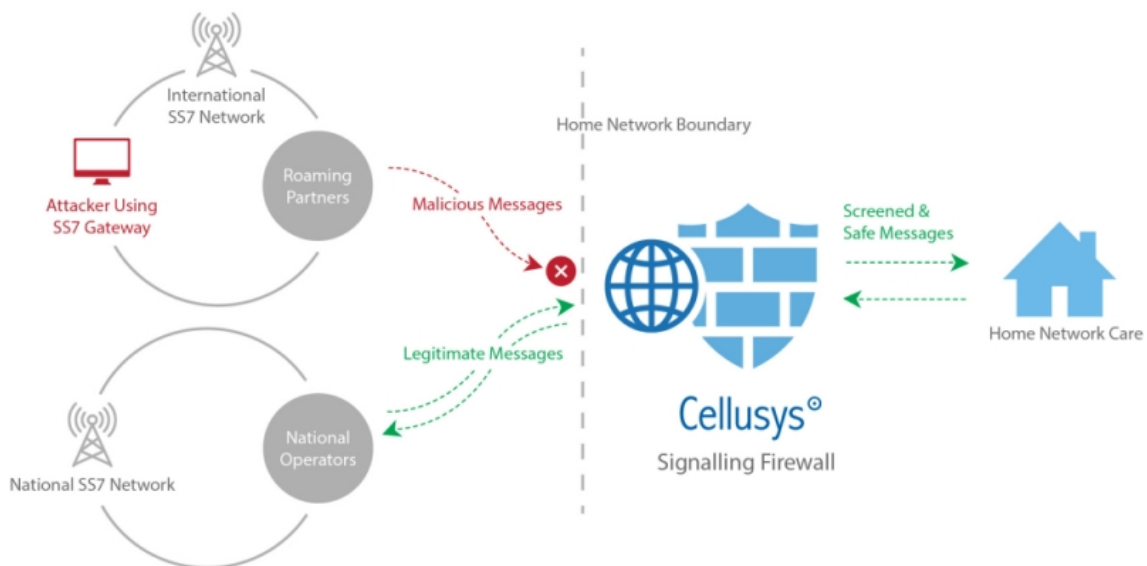
# Signalling Firewall

Real-time Prevention and Detection of Attacks on Mobile Signalling Networks

## Mobile Network Security

The current discussion regarding mobile network security is dominated by vulnerabilities within Signalling System 7 (SS7) networks and protocols. To some degree, the conversation has been expanded to include the Diameter protocol and the Evolved Packet Core (EPC) since the same methodologies used in SS7 were incorporated into Diameter. Given the current breaches in 2G, 3G & 4G/LTE networks worldwide, the dialog about telecom security is, therefore, somewhat limited and should be around the overall signalling infrastructure including SS7, Diameter, GPRS Tunneling Protocol Control (GTP-C), Session Initiation Protocol (SIP), and others yet to be defined.

Given these problems, Operators should now give serious thought to deploying SS7, Sigtran and Diameter based Signalling Firewalls in their network to prevent known threats and detect unknown threats. In short, networks deploying the Cellusys Signalling Firewall will then have a comprehensive insurance policy in place, to secure their networks from both current and future threats.



## Cellusys Signalling Firewall

The Cellusys Signalling Firewall combines SS7, Sigtran and Diameter protocols onto a single platform to implement complex 2G, 3G & 4G/LTE signalling security procedures.

The Cellusys Signalling Firewall utilizes a four-tiered approach to providing the most comprehensive, flexible and extensible telecommunications signalling security system available, which include Message Screening, Contextual Awareness, Near Real-time Streaming Analysis and Reporting.

## Message Screening

- Any Protocol (Diameter, SS7, Sigtran, GTP-C, SIP)      - Any Layer
- Any Parameter / Attribute Value Pair (AVP)      - Any Message

The Cellusys Signalling Firewall's Four ANYs of message processing insure that message-filtering rules can be written to cover any and all security breaches within each protocol. Additionally, message-filtering rules can be implemented that use the interactions between multiple protocols. These features provide the necessary flexibility and extensibility to handle any current and future threat against mobile networks

## Contextual Awareness Process

There are times that threats to the network and its subscribers use valid signaling messages that are formatted and delivered correctly. However, on a contextual basis the message is fraudulent.

> An example is when the home network receives a message from one of its subscribers that seems to be roaming. However, on further investigation the subscriber is not roaming but is in the home network. In this case, based on the location context, the message would not be allowed.

This feature provides a powerful tool in determining whether valid messages are a threat to the network or its subscribers, based on their context.

## Near Real-time Streaming Analysis

Upon completion of the Message Screening and Contextual Awareness functions, the messages are copied and streamed to the analysis engine. This module uses a powerful near real-time hysteresis loop scoring and analysis capability , which allows user defined triggers (GTT, Network, etc.) to be used to define a category for scoring. Each received message under the control of user-defined rules will add or subtract from the category scores. The resultant scores are sent over to the message screening module to dynamically affect the appropriate rule.

## Reporting

Our Signalling Firewall includes a comprehensive and configurable reporting system. Users are provided with complete insight into the security of their signalling network via its extensive reporting capabilities. Users can define metrics for each report. Furthermore, definitions of thresholds and alerts are an integral part of the Signalling Firewall reporting feature. These reporting capabilities provide operators with valuable tools in delivering network signalling security information to the many departments with security responsibilities.

# Cellusys°

Cellusys founded in 2004 is a privately held company, based in Dublin, Ireland. It provides leading edge solutions for mobile networks including comprehensive Data Solutions, Security Solutions and Roaming Management Solutions.

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