ENEA
AdaptiveMobile Security

PRODUCT OVERVIEW

AdaptiveMobile Signalling Protection

SECURING THE NETWORK AGAINST PRIVACY & FRAUD ATTACKS

Signalling networks using protocols such as SS7, Diameter and GTP-C are under attack from adversaries and fraudsters, exploiting loopholes in the protocols across the global interconnect to breach subscriber privacy, deny access to key services and to directly defraud mobile operators. Mobile operators urgently need to implement a signalling firewall and threat intelligence solution to ensure ongoing trust in their networks before their brand, customers, partners and subsequent revenues are negatively impacted.

SS7 was once an obscure protocol protected by a strong 'walled garden' of large government-owned telecom providers. With deregulation and the global expansion of mass mobile communications, SS7 access is now commonplace, and entry to the walled-garden can be accessed for legitimate and illegitimate means.

Diameter, a newer signalling protocol used in LTE and IMS is also at risk. Developed with an IP perspective, many more adversaries and fraudsters already possess the knowledge and skills required to carry out security exploits.

GTP-C, the data signalling protocol used within all recent generation mobile networks, has now emerged as an additional weakness and requires its own set of signalling defences in addition to SS7 and Diameter.

AdaptiveMobile Signalling Protection secures the SS7, Diameter and GTP-C networks using a unique combination of a carrier-grade signalling firewall, advanced reporting and a global threat intelligence service. The solution goes well beyond just a signalling firewall to block current attacks on the network and to react to emerging threats that seek to bypass standard SS7, Diameter and GTP-C firewall capability.

Typical Attacks Prevented

Signalling Protection can secure the mobile network against the following types of SS7, Diameter and GTP-C-based privacy and fraud attacks:

Subscriber Location

- Blocks unauthorized queries for subscriber location data
- Prevents SS7, Diameter and GTP-C cross protocol location attacks

Call and Data Interception

- Blocks manipulation of network and subscriber data that could lead to ‘man in the middle’ attacks
- Secures encryption keys against attack
- Prevents unauthorized access to APN and credentials abuse

Fraud

- Early detection of protocol anomalies deters and stops fraudsters from exploiting subscriber and network data leading to direct revenue loss
- Stops data billing avoidance by subscriber impersonation

Denial of Service

- Secures subscriber data against malicious attacks removing access to key services

Benefits

Monitor and block attacks without major network disruption

- Located at strategic network positions to ensure blocking of known and emerging attacks
- Fully transparent approach enables seamless protection of your network

Detects new types of attacks

- Prevents GSMA Category 1,2 and 3 and low-layer attacks
- Smart machine-learning algorithms uncover suspicious activity
- Global Threat Intelligence Service leverages real world intelligence from customer sites on 5 continents

Threat reporting enabling fast and accurate risk assessment

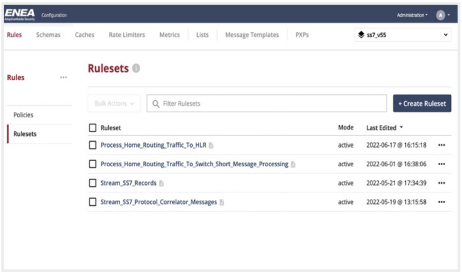
- Combined SS7, Diameter and GTP-C dashboard provides unique insights with drilldown to full details of original source packet
- Deep actionable insights delivered through threat exploration across multiple attributes

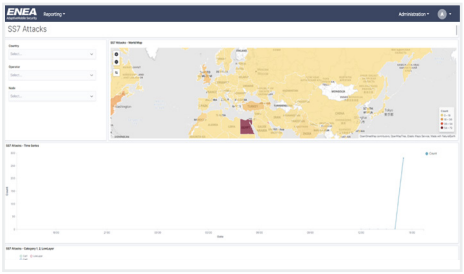
Multiple operating modes allowing a flexible and phased approach

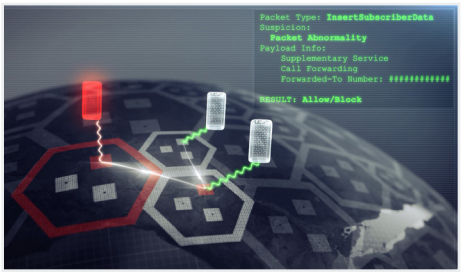
- Passive monitoring, active routing & blocking, or combined mode

The AdaptiveMobile Approach

AdaptiveMobile's unique three-point defence against Signalling-based threats combines our signalling firewall, security-focussed advanced analytics algorithms and reporting, and our global threat intelligence service to ensure network borders are continually secured against the most sophisticated attacks.







Signalling Firewall

Blocks malicious traffic before damage occurs

- Comprehensive shielding of your network borders
- Placed at signalling Interconnect points to secure network against attacks
- Sophisticated Management and Filtering Engine utilising smart algorithms and traffic analysis

Advanced Reporting

Analyse, report and act on threats to the network

- Flexible and extendable packet analysis to search for signalling abnormalities
- State-of-the-art threat reporting with a built-in Big-Data approach, drill down threat details and actionable insights
- Threat exploration through SDK and/or business intelligence tool of choice

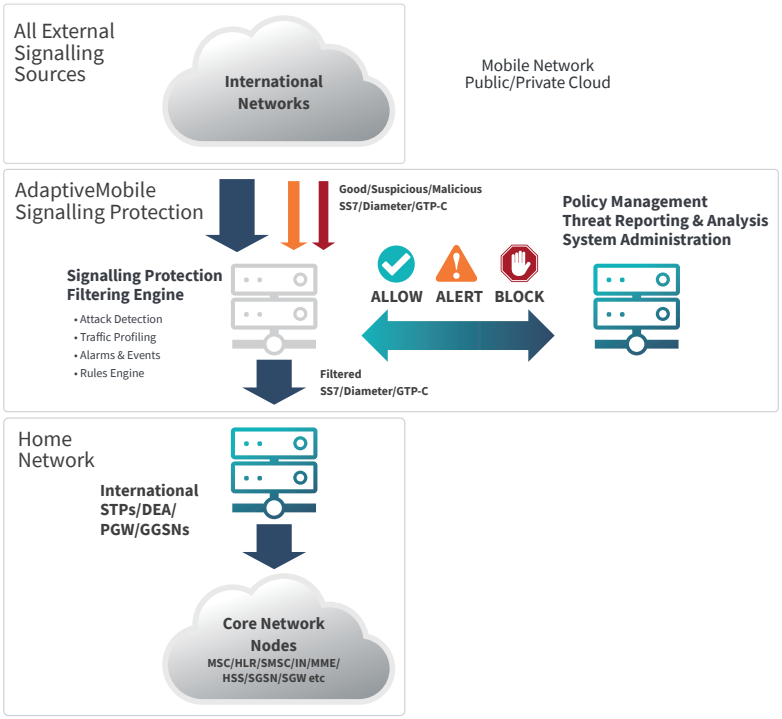
Threat Intelligence

Discovery of new and emerging threats

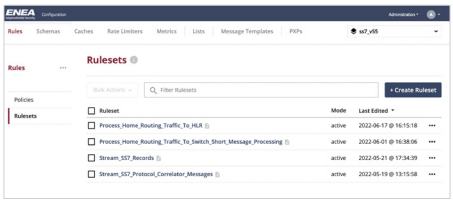
- Extensive expertise in SS7, Diameter and GTP-C security to deal with signalling threats beyond GSMA guidelines
- Pioneering research and development of signalling intelligence cloud services
- Unrivalled network threat intelligence from over 80 operator deployments globally

Network Integration

AdaptiveMobile Signalling Protection seamlessly fits into existing network flows



Rules UI



Reporting

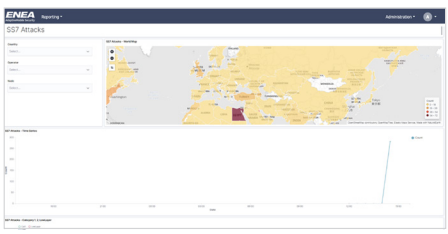


Figure 1 – AdaptiveMobile Signalling Protection Architecture

Key Features

Signalling Firewall

- Identify source & target of security attacks
- GSMA Cat 1, 2, 3 and low-layer (SS7, Diameter, GTP-C)
- Real time application of rules & filters
- Black and White-List configuration (SS7: GT, Number Plan, OpCode & Diameter: Host and Realm & GTP-C: source and destination IP address)
- Configurable Watchlist for defining and monitoring signalling traffic of subscribers of interest

Rules Management

- Sophisticated Rules UI enabling operator admin to configure and customise rules for each individual message
- Preconfigured rules are validated with real world data from across 5 continents
- Flexible powerful rule definitions across an exhaustive list of fields
- Support for SS7: MAP, CAMEL, TCAP, SCCP, SIGTRAN, & Diameter: S6a/d/c, S9, Sh interfaces, & GTP-C: Gp, S8
- Heuristics detection algorithms/machine learning
- Rules enabling stateful inspection of SS7, Diameter and GTP-C traffic
- Location correlation across SS7, Diameter and GTP-C
- Thresholds on allowed traffic rate per operation type per node
- Nodal intelligence*

**Roadmap*

Specification subject to change without notice

Advantages

Security as a focus

- Leverages the expertise acquired from processing 40 billion security events per day
- Existing knowledge base of threats and attacks can be applied to SS7, Diameter and GTP-C Firewall
- Community feedback with automatic cartridge updates
- Leading influencers of industry-wide recommendations within major industry bodies for signalling protection in mobile networks

Future Proof

- New signalling protocols can be added as threats emerge
- Roadmap of planned enhancements across full Network Protection Platform

Network Deployment

- SS7 firewall deployed inline or adjunct with STP
- Diameter Signalling Gateway deployed inline in front of DEA
- Active and Monitoring operational modes
- Support for SS7: TDM, SIGTRAN & Diameter: SCTP & GTP-C: UDP

Advanced Threat Reporting

- Customizable Dashboard
- Role-level authentication
- High level, cross protocol (SS7, Diameter, GTP-C) views of attacks with drill-down to full details of the original source message
- Scheduled reports emailed to key stakeholders
- Built-in report suite with customizable options
- Threat exploration using state-of-the-art data visualization tool
- Streaming SDK enabling third party BI tool integration for deeper interactive investigation and customer driven reports
- Dedicated workflow for Analysis Mode investigation

Architecture

- Support for geographically distributed and resilient signalling firewalls
- Centralized firewall management and reporting
- Trusted signalling architecture deployed at scale in Tier 1 operators
- Bare metal and virtualized today, future proofing for NFV
- Intelligence sharing with open APIs for external analytics platforms
- Security hardened platform
- Fully ready for integration with signalling intelligence platforms

Designed for carriers

- Built by the leading experts in mobile network security
- Proven platform scale handling billions of daily transactions
- Global Threat Intelligence Service leveraging real world intelligence from customer sites on 5 continents

Risk Free Decision

- AdaptiveMobile has the SS7, Diameter, GTP-C and security real world expertise to deal with the emerging signalling network threats
- By working with the industry leader, you are assured of access to unrivalled market intelligence that can proactively identify and deal with new sources of attacks before they impact your network
- Option to introduce passive monitoring before active blocking

About Enea AdaptiveMobile Security

Enea AdaptiveMobile Security is a world leader in mobile network security, everyday protecting over 80 Mobile Operators and billions of mobile subscribers and devices globally from fraudsters, criminals and nation states. We have the strongest 5G core network security team, who are designing, planning and building the very best in 5G core network security solutions focussing on threat-intelligence, security heritage and protocol correlation.

Enea AdaptiveMobile Security brings a unique security perspective on real-time mobile network traffic. The global insight provided by our 5G, Signalling and Messaging thought leaders, security specialist teams and Threat Intelligence Unit, combined with our signalling and network protection software that sits at the heart of the network, ensures Enea AdaptiveMobile Security remains at the forefront of the latest advancements in mobile networks and their security, and continues to be the trusted partner of many of the world's largest Mobile Operators.

For more information on how Enea AdaptiveMobile Security can help you protect your communications infrastructure, subscribers and revenues, please contact **sales@adaptivemobile.com**.

Legal Notices

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