

Sentinel

Quortus Sentinel provides the cellular core network functionality of a multi-technology Managed Access System (MAS) covering CDMA, 2G, 3G & 4G LTE

Illicit use of mobile phones is a significant issue in correctional facilities. In one case, after the deployment of our solution, an amnesty was declared on phone possession, resulting in over 1200 phones being surrendered.

The solution replaces primitive jamming solutions which prevent both legal and illegal use.

Quortus Sentinel allows whitelist and blacklist-based management to restrict illegal non-authorized usage but also allow neighbours and staff the ability to use the system as a communications tool.

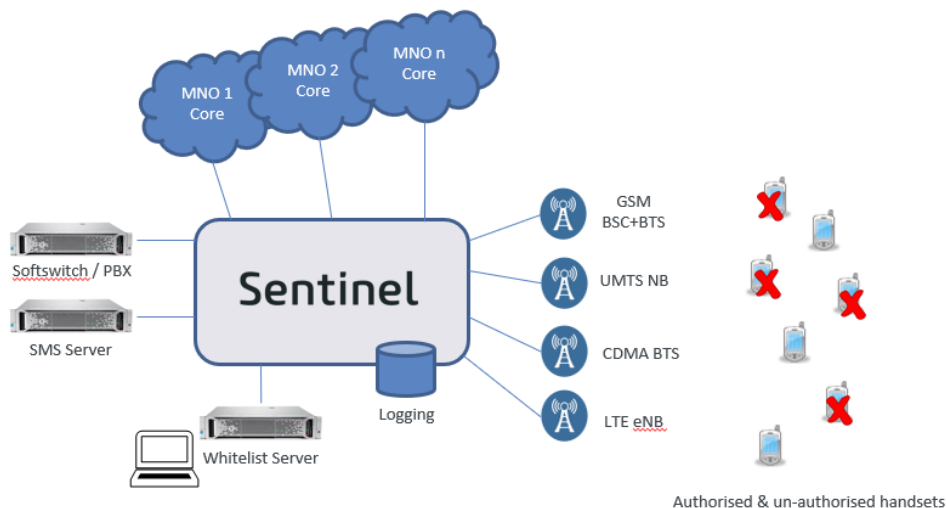
Multi-standard Cellular radios are deployed within the prison with signal levels designed to “force” handsets off any surrounding macro-sites, typically this is based on antenna

clusters or a DAS system within the prison building and perimeter.

Calls and data to and from unauthorised handsets are redirected, blocked or diverted.

Authorised handsets (e.g. Prison staff) are allowed through to the MNO network and continue to work unaffected.

Authorised handsets are managed via a “whitelist”. Sentinel supports an API to partners’ own whitelist servers.



Highlights

- Roaming interfaces for multiple MNO interconnects
- MAP & Diameter based
- IMSI and ESN aware whitelist server API
- IMSI & ESN timestamped logging
- External SIP interface for redirection to pre-recorded message
- Standard SMS response to SMS messages from unauthorised handsets
- Emergency call handling

Software specifications

What's included	Quortus Core 4G ECX-FEAT-CDMA ECX-RTUEXT-2G - ECX Multi-Technology License Extension for 2G ECX-RTUEXT-3G - ECX Multi-Technology License Extension for 3G
Optional Features	ECX-FEAT-DIA - External Diameter Interface Quortus Feature License ECX-FEAT-MAP - External MAP Interface ECX Feature License ECX-RTU-LS-FULL-P - ECX Server Hosted License Server RTU Full License
Integrated core elements	HSS, MME, SGW and PGW Release 10+
MME features	Multiple eNodeB vendor support. Intra-MME handover: S1 and X2 Multiple bearers per UE: default and dedicated. Support for both Intra and Inter MME handovers (X2 and S1)
CN side interfaces	SIP/RTP for voice, SGI (for packet data)
Management (OAM) interfaces	Command line, SOAP XML interface, Web screens, SNMP, Remote syslog output.
IP interfaces	User plane data drops directly to local LAN (SGi interface), IPv4 or IPv6.
External interfaces	SGs interface to CS VLR for SMS and legacy mobility. Interface to external HSS (DIAMETER/S6a), Rx (PCRF control), S10 (MME), SGI (LAN) Support for S5 to remote/central PGW
Authentication, integrity and ciphering	EIA1 (SNOW) for integrity protection. Ciphering available subject to radio support
HSS per-user session control	Configurable UL/DL AMBR thresholds, and EPS QoS/QCI configurable for GBR and non-GBR sessions
Packet gateway features	Support for default and dedicated bearers Multiple APN and PDP address pools. Multicast & broadcast support, with IGMP management. IP subnet bridging
PCRF features	Dynamic rules for bearer creation. Per user, per service type mapping to provisioned QoS. QoS selection based on DSCP packet tag and/or TFTs.
Voice interfaces	Embedded IMS / P-CSCF, allowing localized VoLTE for 'CS' offload SIPv2 UAC (REGISTER, INVITE, REFER, NOTIFY). Local call switching to IP-PBX, short-code dialing. MO and MT calls. Offload based on MNO controlled filters on dialed digits DTMF: RFC2833, in-band or SIP INFO. Call waiting, transfer, hold & retrieve SS services.
VoLTE support	Embedded IMS core (including P/CSCF) supports voice with QoS (native VoLTE) Internal MMTel AS supports calls between handsets and as SIP out to IP-PBXs or PSTN.
SMS	Full SMS-over-4G support. Local store-and-forward SMSC with SMPP interface.
Subscription management	Local embedded HSS for isolated/standalone operation. Or optional reach-back to MNO HSS.
Management (OAM) interfaces	CLI, Web GUI, SNMP and SOAP/XML for automated access counters and KPIs.
Server hardware	x86, ARM, MIPS
Operating System	Linux (typically CentOS 6 32-bit & 64-bit or CentOS 7 64-bit)
Operating environment	VirtualBox, VMware, VMware vSphere, VMware OpenStack, KVM, Docker, plus more