Data Sheet

VIAVI
TeraVM 5G Core Security Test

Overview

With 5G standalone Core Networks being deployed worldwide new security concerns are emerging. The introduction of Service Based Architecture, the separation of Control and User Plane (CUPS), the disaggregation of Core Network Functions allowing Operators mix and match best of breed components, the use of open-source SW, porting Core functions to the cloud etc. are all increasing the attack surface.

Mobile Network Operators (MNO) are continuously looking at ways to protect their networks from being attacked and their customers data from being breached.

While 3GPP and O-RAN Alliance are busy writing specifications designed to protect the 5G architecture from attack, many feel there is more to be done to protect the network to minimize the risks.

One area being adopted by more and more MNOs is placing a Next Generation Firewall (NGFW) inside the 5G Core Network. This helps protect the network from unwanted traffic such as malware and cyberthreats and is vital in ensuring an uninterrupted experience to the end user. Without this protection malicious traffic can find its way in, build up in the network and within a very short space of time, bring down the network completely.

Features

- First to market 5G Core Firewall Test
- Scales to hundreds of Gbps
- Supports Real Stateful Traffic
- Mix threat and malware traffic into genuine traffic
- Runs in lightweight VM on standard x86 hardware
- Runs on all Cloud Platforms

5G Core Firewall Testing

Security firewalls up to now have only had to support IP traffic but 5G presents a completely different challenge. Inside a 5G SA Core network, different network nodes perform different tasks. For example, the AMF (Access & Mobility Management Function) handles the Control Plane traffic over the N1 and N2 interfaces while the UPF (User Plane Function) handles all User Plane traffic over the N3 interface. A firewall embedded in the 5G core needs to be trained to understand 3GPP protocols, unpick the control plane messages on one set of interfaces and match these to the user plane flows on a different interface. Once this is mastered it needs to do this at scale, then with real cyberthreats and real stateful network traffic which can be deep inspected for malicious packets and finally on the cloud platform of operator choice.

All of this can now be done with one easy to use tool – TeraVM 5G Core Firewall Test.

VIAVI Solutions provides a combination of real stateful traffic mixed with threats and malware at scale and hosted on cloud platforms to prepare, train and test the NGFW before it is inserted into 5G SA Core networks.

Different MNOs will be looking to place firewalls on different SBA interfaces – VIAVI 5G Core Security test can test any implementation of firewall on any SBA interface.

Fig 1 shows an example of firewalls inserted on each of the interfaces N1/N2, N3, N4 and N11 to inspect:

- User plane traffic on the N3 interface
- Control plane traffic on N1, N2, N4 and N11 to establish user identity and IP address of the devices sending the threat traffic

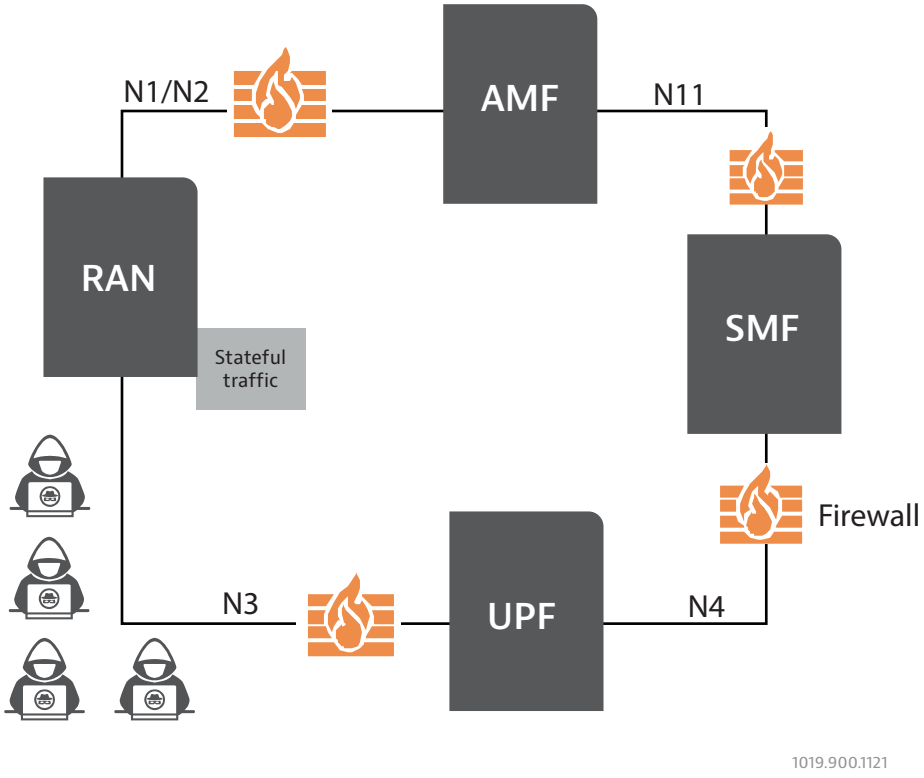

Fig.1 SBA Interface Firewall test

Scale, Threat and Cloud Test

Once the task of matching 3GPP control plane traffic to User plane is done the testing moves to scale test. TeraVM can emulate hundreds of Gbps of stateful traffic to test the performance of the Firewall at scale and ensure no additional delay is introduced and performance remains unaffected.

The next step involves mixing threat traffic in with the genuine emulated user traffic using threats and malware from a VIAVI threat database of over 40,000 industry threats to test the Firewall performs its task of weeding out threats before they propagate further into the network.

Finally, the Cloud platform of MNO choice needs to be tested to ensure the Firewall functions as expected on the cloud platform.

Order Codes

TeraVM 5G Core Security Test is available with the following base product codes - additional codes will be required depending on the SBA interface under test:

Part Number	Description	Capacity	Support
TVM3000	Dell Server for Core Test	–	HWSUP PPG15
TVM3167	5G vRAN Emulator	1 User	SWSUPPPG-CORE-TESTER
TVM3160	5G vRAN Control Plane capacity	100k UE, 1k gNB, 10k TPS	SWSUPPPG-CORE-TESTER
TVM3161	5G vRAN User Plane capacity	1 License	SWSUPPPG-CORE-TESTER
TVM4104	5G Core Emulator	1 User	SWSUPPPG-CORE-TESTER
TVM4114	5G Core Emulator Control Plane capacity	25 gNB, 1k UE, 1k TPS	SWSUPPPG-CORE-TESTER
TVM4115	5G Core Emulator User Plane capacity	2.5 Gbps	SWSUPPPG-CORE-TESTER
TVM3152	Application Traffic HTTP/FTP/OTT voice	1 License	SWSUPPPG-CORE-TESTER
TVM4109	IMS Server Emulation	1 License	SWSUPPPG-CORE-TESTER
TVM3227	Application Traffic UDP/TCP replay	1 License	SWSUPPPG-CORE-TESTER
TVM3233	Application Traffic HTTP streaming	1 License	SWSUPPPG-CORE-TESTER
TVM3236	Application Traffic SMTP	1 License	SWSUPPPG-CORE-TESTER
TVM3157	AWS Support	1 License	SWSUPPPG-CORE-TESTER
TVM3168	GCP Support	1 License	SWSUPPPG-CORE-TESTER
TVM3159	Azure Support	1 License	SWSUPPPG-CORE-TESTER

VIAVI Solutions

Contact Us **+1 844 GO VIAVI**
(+1 844 468 4284)

To reach the VIAVI office nearest you,
visit viavisolutions.com/contact

teravm-5gcore-security-ds-wir-nse-ae
30193657 900 0123