R&S®PACE 2 plug-in information

MOBILE TETHERING DETECTION

Detecting tethered traffic flows behind a hotspot or tethering device is a common challenge. Routers, wireless access points or smartphones with enabled tethering option map multiple devices to one publicly exposed IP address. Since multiple network devices with their distinct private IP addresses masquerade as a single public IP address, network resources can be misused. Subscribers exploit tethering to use mobile internet access for laptops or tablets, or to grant secondary users free access to their data plans.

TETHERING DETECTION SOLUTION

The mobile tethering detection plug-in is a patented extension of the deep packet inspection (DPI) software R&S®PACE 2 that identifies devices in tethering or hotspot scenarios using dedicated methods of IP traffic analytics. The plug-in is based on application and operating system (OS) characteristics as well as property fragments of physical devices from the network traffic. The patented mobile tethering detection plug-in combines multiple heuristic methods to ensure high accuracy and reliability. The heuristic methods include:
► Google QUIC user agent
► TTL
► TCP timestamp

Combining multiple heuristics prevents false positives and enables the identification of various operating systems behind a tethering device with network traffic using the transmission control protocol (TCP) or user datagram protocol (UDP). Through continuous performance and reliability testing, ipoque, a Rohde & Schwarz company, offers the highest traffic detection rate and the best traffic classification accuracy available on the market. In case of an OS update, there is a dedicated team of software engineers maintaining the advanced extension on a regular basis to ensure a high level of accuracy in detecting tethering scenarios.

Operating system coverage:
► Windows
► Linux/Android
► macOS
► iOS

KEY FUNCTIONALITIES

► Real-time IP traffic analytics
► Passive detection of tethering scenarios
► Low memory footprint
► Reliable main device detection & calculation of distinct device count behind a hotspot

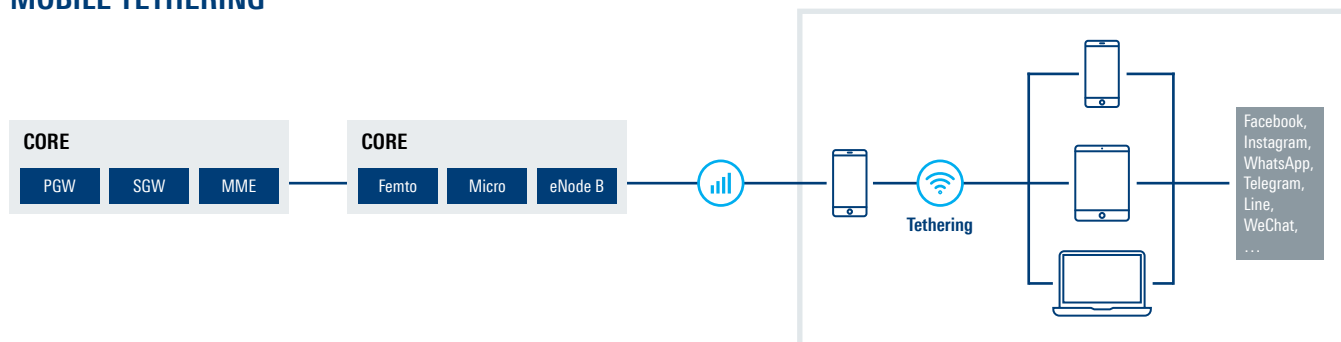**ROHDE & SCHWARZ**

Make ideas real

TETHERING DATA MODEL

In addition to detecting tethering scenarios, presenting the obtained information is of vital importance. The patented mobile tethering transparency plug-in provides a central hub to manage gathered information in a well-defined data structure, thereby helping to reduce implementation complexity in the integrated software solution. The new data model is highly flexible and makes it easy to implement additional methods or integrate new results. The data model ensures optimal data efficiency by allowing all plug-in components to share global information. Global information includes, for example, information about the tethering detection state, main devices, the number of detected devices and device groups, as well as information about currently used heuristic methods. The plug-in immediately reports obtained data and transparently stores its decisions in an easily accessible conclusion tree.

SOLUTION INTEGRATION

The advanced mobile tethering transparency software component is integrated as a plug-in. It requires the DPI software R&S®PACE 2 as a processing foundation. Both R&S®PACE 2 and the plug-in itself are easy to integrate and simple to manage with open APIs and no vendor lock-in.

CARRIER NETWORKS

The patented mobile tethering detection plug-in by Rohde & Schwarz is an essential software tool for network solution manufacturers focusing on visibility for fixed and mobile carrier networks that want to reliably detect unauthorized devices using tethering. The following use case demonstrates how the plug-in can reveal tethering or hotspot devices in a specific network.

Policy and charging control: tethering fraud

Subscribers exploit tethering to use mobile internet access for laptops or tablets, or to grant secondary users free access to their data plans. Using the tethering detection technology, communication service providers can detect and bill customers for unpaid data usage.

Key benefits
- ▶ Increase average revenue per user through optional tethering plans
- ▶ Block illegal tethering
- ▶ Increase customer satisfaction

MOBILE TETHERING

The plug-in in combination with the leading DPI engine R&S®PACE 2 detects tethering and devices behind the corresponding routing device and the application used.

3608432232