



PROTELION
TECHNOLOGY MADE IN GERMANY

Encrypted Communication



Protelion's Encrypted Communication Solution is the answer to your security issues

Do you know your vulnerabilities? Or does your enemy know about them?

Secure mobile communication has become central to our lives. Voice and information are exchanged on an enormous scale. No type of communication is more vulnerable to interception than mobile communication. Worldwide, immense sums of money and effort are invested in order to get hold of the transmitted communication, data or information. Espionage and counterespionage by governments and private organizations outdo each other and the current enormous volume of industrial espionage has probably not yet reached its peak. Highly efficient trojans and spyware are wreaking mischief on supposedly well-secured mobile communication devices such as smartphones and laptops. Out of convenience, we allow ourselves the luxury of taking no or very little countermeasures, only to bitterly regret this carelessness later.

Today's world demands fast, secure and reliable communication solutions. Encrypted communication always means additional effort. However, this additional load must be low or even automated, so that it is of little nuisance to the user in daily business.

This is achieved by adhering to today's common operating standards. A standard that is used by millions of users without having to think about the underlying application. Such a standard is WhatsApp, for example. From a child to the head of government, everyone can operate this application.

With this in mind, Protelion GmbH in Berlin developed its own Secure Communication System, which allows users to keep their conversations and information always confidential and with integrity. Protelion GmbH offers the system in two versions which can also be combined with each other.



For Governments

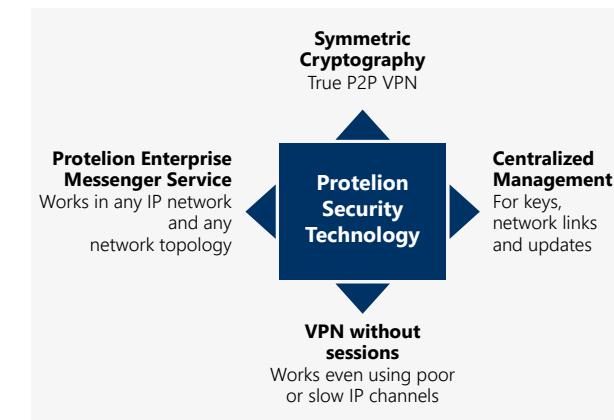
A government version with high eavesdropping resilience and state of the art encryption, that allows presidents and ministers as well as security forces to make calls and exchange data anywhere easily and securely. The government version uses specially hardened and malware proof mobile phones. These are hardened, pre-installed and delivered to the customer by Protelion GmbH. The administration and network infrastructure will be operated and maintained by the customers, mainly government organizations, directly in their country.

For Private Market

A private market version that allows to comply with the new **European General Data Protection Regulation (GDPR)**. This Protelion solution is offered as a highly secure replacement for Whatsapp, Vyber, Signal, etc. WhatsApp and other messenger services are far from complying with the GDPR and may no longer be used in companies that maintain customer data or customer relationships. In the private market version, **the personal cell phones of the participants or customers** are used and integrated into the organization's own secure communication network.

Both solutions are also offered as a service on demand.

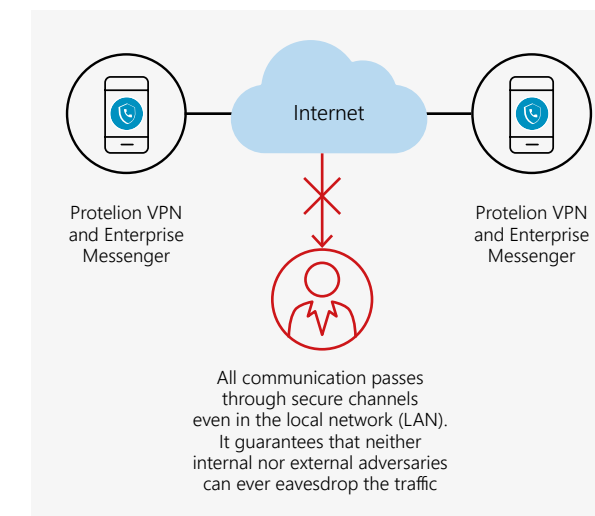
Advantages of the Protelion Security Technology



Symmetric Cryptography

The Protelion Security Technology is based on a symmetric AES 256 encryption and offers beyond that various additional advantages.

The technology features the ability to create true point to point VPN connections and provides therefore the capability to transmit IP packets from one end point to another directly without intermediary servers.



Protelion Enterprise Messenger Service

Our Security Technology provides the necessary applications to establish secure Enterprise Messenger Services which can be used in all types of IP networks.

VPN without sessions

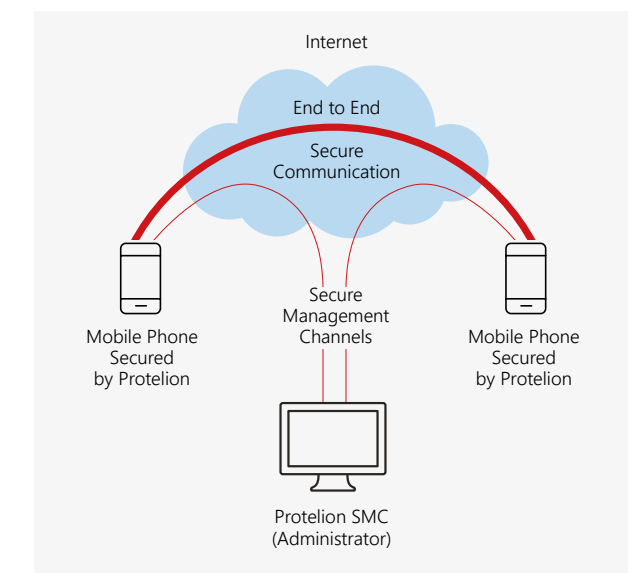
The Protelion VPN is a non-sessional VPN. This feature allows the VPN services to work with acceptable performance even through bad quality channels since there is no need for handshakes with servers to transmit data. The first IP packet already contains payload.



Customers can also move or change between channels and mobile providers without interruptions.

Centralized Management





The Protelion Security Technology offers a centralized management platform to manage and update all security and network parameters of each component using a single device – The Protelion Security Management Center (SMC).





Structure of the Protelion Communication Security System (CSS)

The Protelion CSS solution consists of the following set of components:

-  **Protelion VPN Components –**
Devices to protect information/data while transmitted over IP networks
-  **Protelion Enterprise Messenger –**
Unified communication tool
-  **Protelion Mobile AR –**
Secure and hardened mobile phone
-  **Protelion SMC –**
Secure key and network management center

Protelion VPN Components

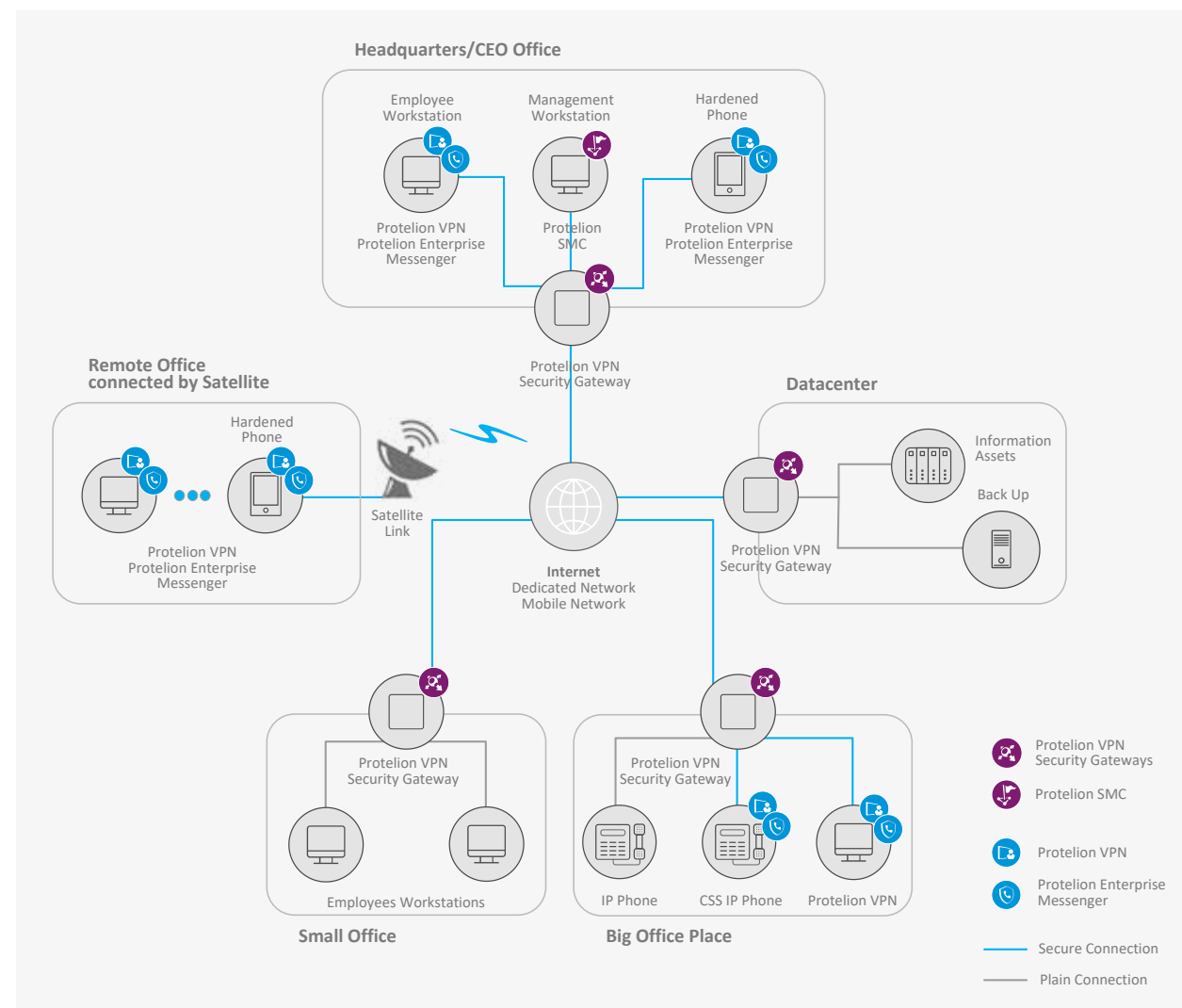
The Protelion VPN Components protect user devices against internal and external attacks and provide secure access to corporate resources over the Internet and LAN networks. Different types (hard/software) of Protelion Security VPN Gateways and the Protelion VPN Client create a secure environment for restricted data exchange over public networks and dedicated communication channels by deploying a virtual private network (VPN).

Protelion VPN Components support all the services that modern IP-networks offer and are indifferent to the kind of physical communication channels used to transport the data, like optical fibers, microwave or satellite links.

The Protelion VPN Client Application can be installed on almost any device that runs under iOS, Android, Windows, macOS and Linux.

 Protelion VPN – VPN client to connect securely to protected Protelion networks

Possible Scenario for Protelion VPN Components

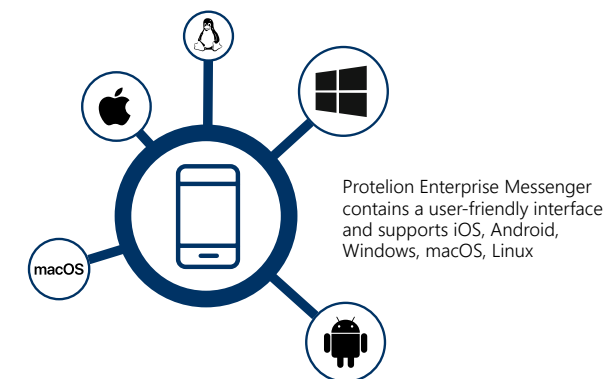


Protelion Enterprise Messenger

The Protelion Enterprise Messenger is an alternative to unsafe public messenger applications and allows corporate users to communicate securely and easily due to its implemented Protelion Security Technology.

Customers can install Protelion Enterprise Messenger application on devices running under iOS, Android, Windows, macOS and Linux.

 Protelion Enterprise Messenger –
Unified communication tool for highly secure corporate messenger services



Protelion VPN Technology on Mobile Phones

Based on protected channels by the Protelion VPN Client Appliance, the Protelion Enterprise Messenger allows employees to securely communicate by voice calls, video calls, voice-messaging and supports file exchange and messaging in chats on computers, laptops, and mobile phone devices with different operation systems. Protelion provides this high communication security due to its own AES 256 encryption and end to end VPN connections that don't require intermediary servers.



Call Features

- Put call on hold without hanging up
- Receive GSM calls
- Disable speakers or microphone
- Send messages during a call

Messenger Features

- Edit and delete messages
- Paste files and pictures from the clipboard
- Drag files from other chats
- Search for messages within a specific chat or in all chats

Protelion VPN Technology on Notebooks and Desktops



Together with the Protelion VPN Client the Protelion Enterprise Messenger Application converts laptops or desktop computers in a fully integrated and protected part of the client's secured communication system. The customer gains therefore on these computers the same abilities and features to communicate as on a cellular phone.

Protelion VPN Technology on CSS IP Phones



The Protelion CSS IP Phone is compatible with various enterprise SIP servers. This makes it possible to replace pre-existing IP phones without much effort, ensuring therefore the confidentiality of your communication, due to pre-implemented Protelion VPN applications.



Protelion Mobile AR

The Protelion Mobile AR Security Solution is the answer to government's need for secure and reliable mobile communication. The solution provides highly protected communication capabilities with secure and verified content.



The Google Pixel Smartphone as a hardware device example for the Protelion Hardened Mobile Phone

The Protelion Mobile AR consists of two main components. The Protelion VPN Encryption and Security Appliances and an off-the-shelf Android mobile phone hardened by implementing Protelion's own developed Android-based ProtelionOS.

Overview of the pre-installed appliances on the Protelion Hardened Mobile Phone

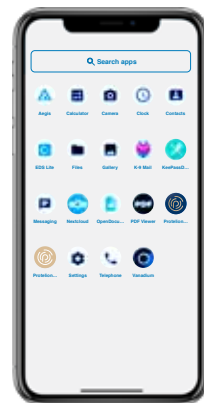
The basic appliances package for the Protelion Hardened Mobile Phone includes:



Protelion VPN – VPN client to connect securely to protected Protelion networks



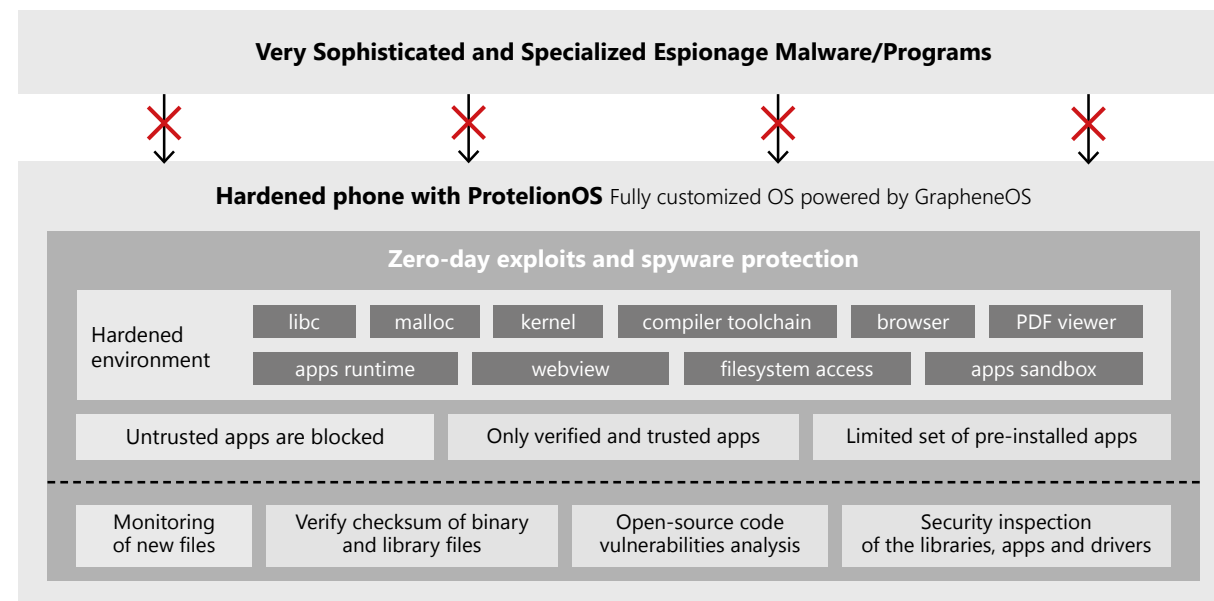
Protelion Enterprise Messenger – Unified communication tool for highly secure corporate messenger services



Furthermore –
By the customer selected and by Protelion verified email client for corporate email exchange

By the customer selected and by Protelion verified specific and necessary applications

Protection Features of the Protelion Hardened Mobile Phone



ProtelionOS is a highly secure and fully customized mobile phone OS. It has been developed to provide the highest level of privacy and security while using smartphones for communications.

The smartphones, which are hardened in the Protelion Production and Development Center in Berlin are taken directly from the shelf. Protelion uses different supply chains to order smartphones without any disclosure of the final customers or

scenarios. Therefore, there is no 3rd party involvement from the smartphone distributor to the customer.

Most important ability of the ProtelionOS appliances is the provided secure remote- and physical access, which protects from cyberattacks and specialized spyware products that use zero-day exploits to intrude and infect operation systems.

What services are blocked on the Protelion Mobile AR Security Solution

- Protelion Mobile AR fixes, in agreement with the customer, a list of restrictions and preinstalled applications
- Protelion Mobile AR restricts access to the Google Play Market App Store
- Protelion Mobile AR blocks the installation of not verified and signed applications on the device
- Protelion Mobile AR limits the visibility of the phone's system applications and services. The actual list of restrictions will be agreed with the customer
- Protelion Mobile AR prohibits the possibility of flashing the device or accessing the operation system bootloader
- Protelion Mobile AR denies any connection bypassing VPN
- Protelion Mobile AR denies the ability to reset the device to factory settings
- Protelion Mobile AR prohibits any uncontrolled updating of the operation system version
- Protelion Mobile AR blocks GSM services. All communication is conducted only through protected IP VPN channels



- Divide Protelion Enterprise Messenger users into groups depending on their profile by establish specific links between them
- Manage Protelion networks for each organization, user accounts, devices etc.
- Manage the Enterprise Messenger Address Book in the Protelion SMC platform. Any alteration can only be done, internally or remotely, by the organization's assigned security administrator

SMC Protelion SMC

The Protelion SMC is an all-in-one management platform that serves to manage and control different Protelion products and solutions. It supports web graphic user interfaces and allows to:

- Facilitate Protelion security products deployment, management, key generation/delivery and license management
- Distribute/Manage licenses for Protelion products to organizations

Protelion SMC – On-premise or Cloud based

Protelion SMC can be deployed On-Premise, Remote in a secure environment (Bunker) or in a Cloud. The latter options can be used for customer organizations that don't want to install any management components on their premises. In any case, customers will always be able to operate their management centers through highly secured remote access channels.

CSS KEY BENEFITS

- Protelion Communication Security System provides a highly secure protected communication system for everyday use by means of a military standard AES encryption
- Protelion Communication Security System is made for voice- and video calls, group chat and file exchange (similar WhatsApp)
- Protelion Communication Security System is easy to use through a modern and intuitive UI design that requires no special skills from users
- Protelion Communication Security System contact list is created by the Protelion SMC centrally. It is isolated and protected
- Protelion Communication Security System is the ultimate mobile communication protection for government and business use
- Technology made in Germany



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