



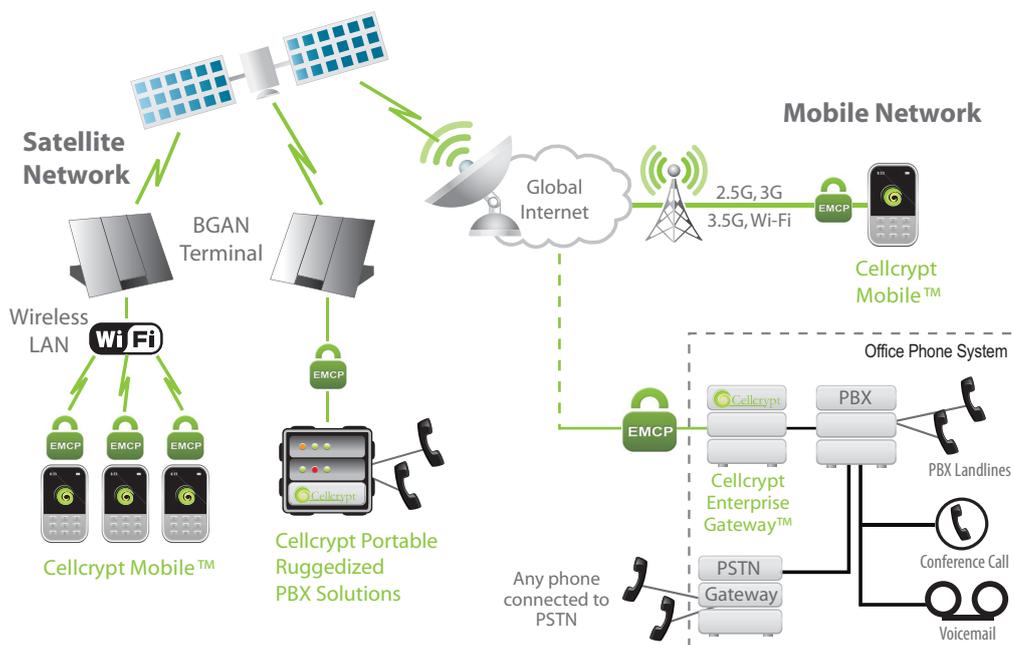
Cellcrypt Solutions for Satellite

Speak with confidence using everyday mobile phones

Cellcrypt Mobile™ lets you use standard mobile phones to make private and secure voice calls over satellite.

Protecting Valuable Information

Organisations make significant efforts to protect their valuable data from loss or interception – particularly when operating in remote locations. But until now, solutions for protecting satellite-based voice calls have not combined the simplicity and benefits of off-the-shelf mobile phones with strong encryption and high performance.



Speak With Confidence

Cellcrypt Mobile is an easy-to-use, next generation software solution for voice encryption that runs on standard mobile phones and uses IP (Internet Protocol) networks to serve up unparalleled voice quality, high strength security and low voice delay. All that is required for encrypted calls over satellites is a wireless or fixed router connected to a satellite system running IP, such as Inmarsat BGAN terminals.

Because Cellcrypt Mobile runs on popular smartphones all the latest market-leading phone features are available and a single device is used for making encrypted calls over cellular networks (GPRS /CDMA, 1xRTT and above) and Wi-Fi™ as well as satellite.

Cellcrypt also provides voice encryption for PBXs that extends voice security to landlines in corporate offices and – with its portable and ruggedized PBX solutions – to teams operating in remote locations. These portable solutions easily connect to broadband satellite systems to provide a completely secure, rapidly-deployed private communications network that comprises mobile phones and fixed landlines.

Key Features

- **Security**
 - Strong end-to-end encryption
 - US Government FIPS 140-2 validated (cert number 1310)
- **Simplicity**
 - Runs on popular smartphones such as Android™, BlackBerry®, iPhone® and Nokia® smartphones
 - No additional equipment or configuration required: smart phones connect via Wi-Fi to satellite terminal's wireless router, and landlines connect via portable PBX server to Ethernet port
 - Intuitive user experience, as easy as making a normal mobile phone call
- **Performance**
 - High call quality with low latency (c.1 sec over BGAN and c. 2 secs if both phones connected to BGAN terminals)
 - Supports secure voice calling to fixed landlines and mobile phones on mobile and Wi-Fi networks
 - Operates on mobile and Wi-Fi networks as well as satellite
 - International mobile calling in over 200 countries
 - Less expensive than normal satellite-based voice calls
- **Network Support**
 - Any IP-enabled network, e.g.
 - GSM/CDMA
 - 2G
 - 3G
 - 4G
 - Satellite
 - Wi-Fi™



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Applications

Cellcrypt Mobile for Satellite has a wide range of applications across many vertical markets including:

- Oil, Gas and Mining: secures private conversations at potential or developed extraction sites in remote or risky locations
- Government: enables secure communications from overseas offices whilst avoiding local untrusted communications networks
- Military: enables services personnel to securely and simultaneously call home from conflict locations using normal mobile phones whilst sharing the satellite connection
- Maritime: enables crews on vessels and rigs to use their normal mobile phones to make secure calls without additional equipment
- Disaster Recovery: secure communications to continue business operations, and government services, in the event that normal communications are disabled

Cellcrypt's Technology

Cellcrypt's advanced solution leads the industry in delivering multi-layered security to establish a high-performance encrypted voice call between trusted wireless devices. It utilises Encrypted Mobile Content Protocol (EMCP), a set of standards-based protocols for optimising delivery of encrypted real-time content between mobile phones over low-bandwidth wireless networks. Cellcrypt's products are certified to the FIPS 140-2 standard, approved by the US National Institute of Standards & Technology (NIST).

Cryptography & Random Number Generation

Cellcrypt uses standard encryption technologies including:

- Advanced Encryption Standard (AES) for symmetric encryption
- Elliptic-Curve Digital Signature Algorithm (ECDSA) for digital signatures
- Elliptic Curve Diffie-Hellman (ECDH) for key agreement
- Secure Hash Algorithm (SHA) for message digest

In addition, before these algorithms are processed, Cellcrypt uses additional algorithms for added security (double-wrapping). For example, the voice call is first encrypted using RC4-256 bit and then encrypted again using AES-256 bit.

Public Cryptography (2048-bit RSA & ECDSA using curves with 384-bit prime moduli)

RSA and ECDSA are used for authentication. The key pairs are generated on the phone during the installation and are unique to each phone. A private key is never shared. The Elliptic Curve Diffie-Hellman (ECDH) and RSA algorithms are used for key exchange. The session key is only valid for one phone call and securely destroyed after use.

Symmetric Cryptography (AES & RC4, both 256 bits)

Both encryption algorithms are used at the same time. The data packet is first encrypted with RC4 and the cipher text is then encrypted again with AES in Counter Mode (CTR). Both algorithms are initialised with the exchanged session key.

Hashing Algorithms (SHA512)

Industry standard hashing algorithms are used for increased integrity assurance.

Random Number Generation

A 2048 bit seed pool is generated during the installation and is periodically updated. The initial seed is derived from the microphone input.

About Cellcrypt

Cellcrypt is the leading provider of encrypted voice calling on mobile phones. Founded in 2005 to develop high security encryption solutions for mobile devices, it developed Encrypted Mobile Content Protocol (EMCP) to solve performance challenges in the industry. EMCP is a standards-based technology that uses IP (internet protocol) to provide optimised delivery of encrypted data.

Today, Cellcrypt solutions are used routinely by governments, enterprises and senior-level executives worldwide. Cellcrypt is a privately-held, venture-backed company with headquarters in London, UK and offices in USA and Middle East.



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