SPACE SYSTEMS SYMPOSIUM (D1)
Enabling Technologies for Space Systems (2)

Author: Mr. Henning Karleif Øye
Norway, hko@eidel.no

FUTURE SOLUTION PRESENT TODAY: REMOTE CRYPTO DISTRIBUTION SYSTEM (RCDS)

Abstract

Scope:

Highlight different ideas on how the concept of the Remote Crypto Distribution System (RCDS) can be used in space applications to enhance security. Highlight the system capabilities with emphasis on crypto integrity, crypto management and crypto distribution for both ground systems and space hardware.

Background:

The concept itself was first introduced to the Data Link program in the Norwegian Armed Forces. The Fundamental idea behind the Remote Crypto Distribution System (RCDS) is to facilitate the distribution of encryption keys to unmanned sites.

Space Study Concept:

The RCDS concept is not bound to one type of platform or application; there are many scenarios within the segment of space applications which can benefit from the capabilities of the system. The main purpose of implementing RCDS in space applications is to further preserve the integrity of the numerous globally operating satellite network links. Furthermore, the RCDS adds a significant control dimension to these network links by enabling remote rekeying access. The RCDS can facilitate the important object in making sure the space application is fully redundant transmission wise and keeping highly modular and expandable system architecture. Key elements for keeping crypto integrity are CV handling, intrusion, authentication, encryption and security mechanisms built into the system.

Results and Directions:

A conceptual study of utilizing RCDS in space applications has been performed in 2007 and the second part of the study is currently running; covering target implementation platforms. The further RCDS roadmap targets many interesting applications in which information security plays an outmost important role.

Conclusion:

The introduced RCDS is the present and future system that enables a solid method of performing crypto management and distribution to various space applications and platforms. The system is maintaining the crypto integrity and, at the same time, overcoming some important security issues. Other significant features are the highly modular and easily expandable system architecture, covering both simple and complex network implementations.