INTRODUCTION
Every good soldier knows that the success of an operation depends on equipment, training and morale along with other factors, but he also knows that Communications is a decisive factor.
The Romans used signaling towers, the Indians used smoke signals and today we have the Communication Information System, called CIS.

NRDC-IT CIS CONCEPT
The NRDC CIS concept is based upon a military tactical CIS system that provides the following secure and insecure information services:
- Voice
- Telegraph
- Facsimile
- Data circuits to provide:
  - the NATO SECRET WAN
  - the Mission or Theatre Classified WAN
  - the NATO Unclassified WAN or Internet
  - C2 Tools (based on SIACCON)
  - Video Teleconferencing (VTC)
  - Air System (ICC)
  - Functional Area Sub Services (FAS)
The 1st Signal Regiment provides CIS to the NRDC – IT.

CIS ARCHITECTURE
The NRDC-IT CIS is explained in detail below with particular emphasis on the Communications System and the Information System that together make up the Communications Information System (CIS).

COMMUNICATIONS SYSTEM (CS)
The NRDC-IT Communications System (CS) is based on SOTRIN which stands for “Sottosistema di TRasmissioni Integrato” (integrated communications subsystem) and is enhanced and supported by a number of other systems. SOTRIN is a communication net, the nodes of which are connected through several kinds of links. The 1st Signals Regt. has the equipment and skills to set up SATCOM, Line of Sight (LOS), and copper and fibre links. The use of different kinds of links enables not only flexibility but also reliability of the system.
The System can be easily integrated thanks to the structure of the nodes that allow easy expansion of the net and the addition of further nodes through other links without any major technical problems.
The core of the SOTRIN node is Marconi’s digital switchboard (CD - 11x). The CD automatically manages the entire net and with special add-on cards is also capable of providing voice and data. Recently the Marconi equipment based on ATM (Asynchronous Transfer Mode) technology has been purchased. It allows voice and data traffic to be optimized over the SOTRIN net.

a. SATCOM Since the use of the SATCOM provides the necessary redundancy to the whole communications systems and, when deployed, NRDC Early Entry CPs require SATCOM connectivity, both the Italian Military SAT (SICRAL) and the commercial SAT systems can be used. Provision of space segment for NRDC-IT communications is normally negotiated by Italy and NATO. In addition to this a high capacity static SATCOM hub at PHQ SOLBIATE OLONA is installed to link the PHQ to the SATCOM net when deployed.
b. LOS Lines of Sight are normally employed to create a trunk node network where close formation HQs are linked.
c. E1 In some cases, when distance allows, it is cost effective to insert cable links in E1 standard.
INFORMATION SYSTEMS (IS)

The Information Systems are provided via three Wide Area Networks (WANS). These are the NATO SECRET WAN, Mission/Theatre Classified WAN and NATO UNCLASSIFIED WAN.

a. NATO SECRET WAN (NSW). The NSW provides Office Automation for NATO HQs. NRDC PHQ is connected to the NSW allowing the NRDC staff to exchange information with other NATO staffs. On deployment the NSW is extended into the NRDC CPs from the NATO DCM/MCM. The following FAS are provided via the NSW (see Picture 1)

(1) NATO WIDE WEB There is a NATO Intranet facility available on the NSW called the NATO WIDE WEB. It facilitates the sharing of information throughout NATO.

(2) Intelligence FAS BICES (Battlefield Information Collection and Exploitation System) is a web enabled, multi-national intelligence system. It provides national intelligence (releasable to NATO) via a number of National Contributory Databases. LOCE (Linked Operations Intelligence Centre Europe) is a US owned and administered web enabled system. These systems are used by NRDC to access all Intelligence information.

(3) Logistic FAS (LOGFAS) Elements of the SHAPE LOGFAS (principally ADAMS) are used within the NRDC CPs and subordinate formations.

(4) Integrated Command and Control system for Air (ICC). AOCC(L) uses the ICC to pass on and receive air C2, planning and NATO Initial Common Operational Picture (iCOP) information. The ICC system is administered, deployed and maintained by the NRDC AOCC(L).

b. INTERNET The world wide web is available to users at NRDC PHQ. INTERNET links to operations are received through the use of PTT or the DCM/MCM from SHAPE.

c. Mission/Theatre SECRET WAN (M/T S WAN) The Mission/Theatre SECRET WAN allows the staff at NRDC CPs to exchange NRDC Classified information with subordinate formations within each OP. Each LAN made it possible to exchange e-mail, to browse web pages and to share files. The classified LANS enabled SIACCON (Italian Automated C2 System) and NATO Functional Sub System (FASS) to be used as LOCE, ADAMS and ICC.

EX LIGHT SHIP 02

To give an overview of the CIS services available at NRDC-IT and the 1st Signals Regt. capabilities, it is worth mentioning EXER LIGHT SHIP 02 (EX LS02). EX LS02 was the conclusive test for NRDC IT to achieve Full Operational Capability (FOC). It took place in Civitavecchia last autumn and involved the complete NRDC IT in which four completely equipped Command Posts (CPs) were deployed - MAIN, RAS, RSC and TACtical. Two further CPs were deployed to demonstrate the Corps ability to deliver CIS services to subordinate Units.

The 1st Signal Regt. set up:
- a telephone network (with teleconferencing, fax and encryption devices)
- a secure VTC system connecting all CPs deployed
- three different Local Area Networks (LANs) connected to two classified Wide Area Networks (WAN) and one unclassified WAN within each OP

Each LAN made it possible to exchange e-mail, to browse web pages and to share files. The classified LANs enabled SIACCON (Italian Automated C2 System) and NATO Functional Sub System (FASS) to be used as LOCE, ADAMS and ICC.

CONCLUSION

Communication is paramount for a modern Army, albeit highly challenging and demanding for the communicators. An example of the efforts made by the 1st Signal Regt. during LS02 can be seen with the following:

- employed personnel:
  • Officers: 34
  • NCOs: 82
  • Troops: 278
- vehicles employed: 94
- telephones employed: 520
- Personal Computers employed: 497

Signalers must be able to work hard every day planning what might have to be done the day after, knowing that tomorrow is not going to be better than today.