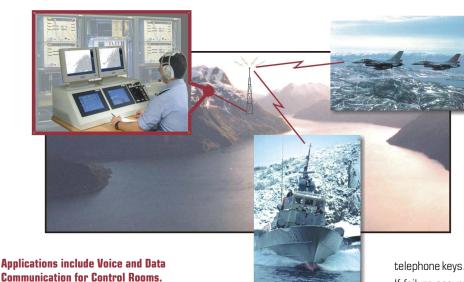




THALES Communications AS, the principal supplier and developer of secure military communication and information systems for the Norwegian Defence, is delivering ACEcom. This system represents a new standard for Voice and Data Communication Systems (VCS), designed to NATO ACCS specifications.



The system incorporates Voice and Broadband Data into the same network, based on COTS products, both for hardware and software. Connects local or remote radios via direct lines or switched network for increased survivability.

The main other features of ACEcom are:

HMI based on Touch Screens, one or two panels, gives adaptive display control according to the logged in role with resources predefined by the management.

ACEcom handles both secure and non secure traffic to and from the same operator position. The system offers complete Radio,

> Telephony and Intercom functionality. Both secure and non secure networking between sites, enabling intercommunication between operators and use of radios allocated to other sites. An added feature is that telephone subscribers can be given access to radios with PTT capability from the telephone.

Separate operational and technical management and complete management for radios including encryption and frequency hopping.

ACEcom Flexibility

Each operator logs in with his defined role at any Operator Position and receives the allocated resources like radio, interphone and direct

If failure occurs on an Operator Position, the operator is free to move to another position and log in again and receive the same resources in order to continue working.

The use of the switched network for radio connections means that one site can disconnect the radio and another site can use it instead

Use of the switched network also means that alternative routes can automatically be found in case of transmission failure.

A system targeted for:

Air Control and Surveillance

Naval Control and Surveillance

Harbour and Coastline Control and Surveillance

Other paramilitary Control and Surveillance

The system is created with the most modern and effective COTS building blocks (products) on the market today, as e.g. IP/ATM switching, ISDN switching/IP-gateways, SNMP management, Windows GUIs, APIs etc.

The system is designed to handle all types of narrow- and broadband traffic including:

Data (e.g. all types of commercial LANs, ISDN, X- and Vseries and Data for information display systems)

Voice (analogue, ISDN etc.)

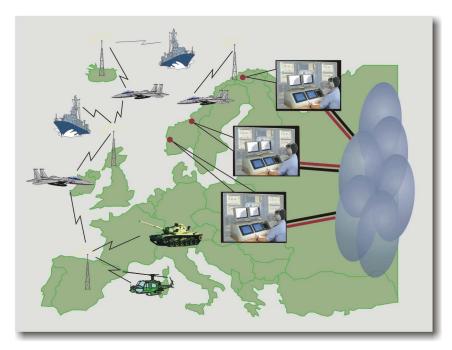
Video (e.g. radar)

The system can include commercial information services such as:

Web

Databases

Workflow



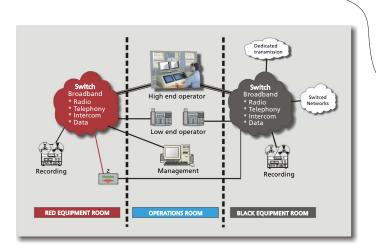
The ACEcom has a modern broadband architecture meaning that the functionality is implemented in the terminals and adapters connected via a COTS broadband network (ATM/IP)

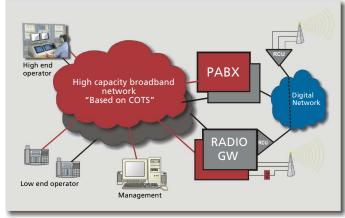
The System

Radio communications includes possibilities for remote control of all relevant parameters in the radios. Radio connections can be set up on demand and gives the possibility to organise a "radio pool" to all the control rooms.

Telephone communications offers the operators fully ISDN compliant telephony services or IP services

Operator-to-operator communications is an internal "one-touch" communication service, with a flexible group call service, enabling the operators/functions to freely join conferences at any time.





A comprehensive, yet effective, HMI is presented on the touch screen for radio, telephony and operator-to-operator communication.

Data communication is available in the system today. All data services supplied by modern IP/ATM/LAN and ISDN switches are included in the system. A fully multimedia operational mode can be offered optionally .

The services are modular and built up like a building block system; functions that are necessary for the Control rooms generally and for the operators especially, can be equipped in a modular way.

Operator Position

General

The ACEcom concept offers a set of different low cost ways to utilize the radio, telephone and interphone possibilities, including:

ACEcom software package to be included in the existing COTS computer i.e. for the management and data users on the IP network $\,$

Via analog telephone users in the PABX or via COTS ISDN and IP telephone users in the PABX/IP network

Via Advanced Touch Screen based terminals (1 or 2 screens per operator) for your heavy users and operators

Ops Room, Flexibility

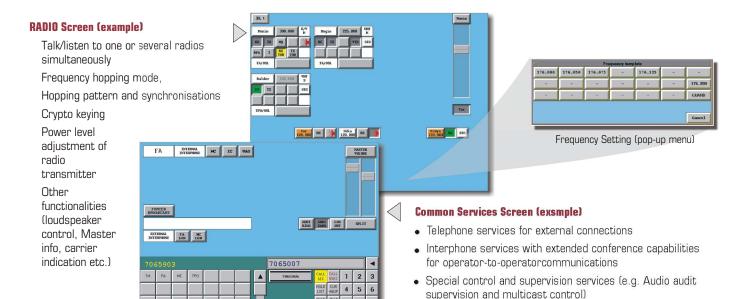
 Data communications services (e.g. information transfer, mail applications and other future

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applications)

Failure in one Operator Position has no effect on the other positions due to the star topology of the network.

In case operator services fail, the Resource Allocator can reorganise the resource from his management position. Unavailable radios due to internal or external failures, may be re-routed to circumvent the failure. All basic communications are independent of centralised resources.



ACEcom Management

Operational and Technical Management can be co-located or separated with the Operational Management in the operation room for resource allocation and Technical Management in the technical room.

Operator Resource management giving flexibility

The operator resource management is based on a flexible role definition with multiple role scenarios to handle different operational scenarios. The rescourse management tasks are to assign different resources (radio, interphone and telephone) with comprehensive, yet effective, HMI based on commercial workstations and X-windows. Operator Resource management gives you the flexibility to adapt the operational procedures to the given situation.

Modern COTS Technical Management

The technical management main tasks are:

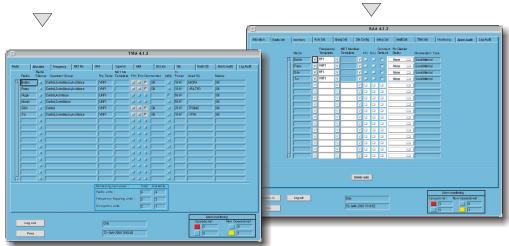
supervision

configuration

performance

security

The tasks are performed with comprehensive, yet effective, HMI based on commercial workstations and X-windows.



Examples of management foils

Why ACEcom?

Security has been a vital issue in the design of the ACEcom system. The system gives the opportunity for Multi-level security communications from the same Operator Position for military purposes. The system is capable of operating in a system high mode or a single level mode.

Integration of voice and data

The ACEcom uses future safe technology like IP, ATM, ISDN, SNMP and Windows in order to provide a viable solution for a long term Control Room Communications platform, taken into account the possibility to closely integrate e.g. voice, video, radar display, and message handling systems (data systems, CPDLC...).

Reuse of existing COTS equipment and easy upgrades

The ACEcom utilises standard commercial off-the-shelf system components, enabling customer re-use of invested equipment and granting easy upgrading of equipment for increased system power as technology improves and matures.

No system limitations

The ACEcom has no practical limits related to the number of operators, computers or radios in the total system.

Further, ACEcom strong points are:

Handling of voice, video and data in a true/real multi media environment

Modular system upgradable to very high capacity and very high connectivity

Totally redundant and distributed design for extreme survivability

CTI. computer telephone integration

CRI, computer radio integration

CII, computer Intercom integration

IP based data, signalling and management data traffic Fiber optical technology for easy installation and security Spare parts common with commercial IP/ATM/ISDN switches

World wide delivery and support with local expertise Variety of type-approved national network(data and voice) interfaces

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