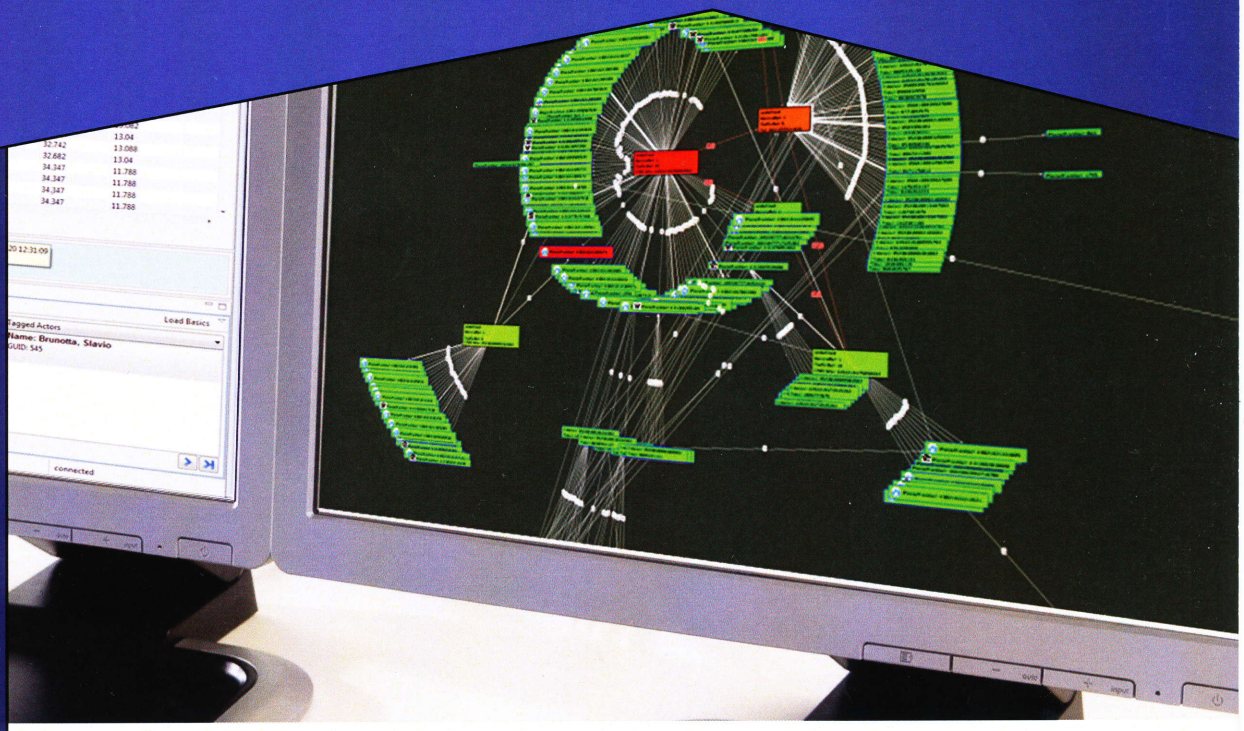
COPS

Communication Profiling System



The Communication Profiling System COPS is a software package for the combined evaluation of connection data for the display and analysis of communication behaviour and network structures.

COPS offers request and display functions for the processing, analysis and visualisation of connection data. Numerous filter functions and different search masks are available for calling up data and results that have already been saved. The results are displayed on an integrated digital map or in a network view. Data currently being recorded is displayed on an overview map using its geographic and chronological reference. In addition, a messaging service checks the incoming data for signals of interest. The intuitive operating concept and the topic-related knowledge management both support different search strategies and evaluation objectives.

- Evaluation of connection data
- Automated display of network structures
- Automated and interactive visualisation of communication
- Integrated interactive map application for geographical display
- Comprehensive evaluation algorithms for network analysis
- Combinable multidimensional filter functions
- Integrated knowledge management
- Sensor-independence

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Usage requirements

V/UHF radio

Mobile communication

SATCOM

Changes to traditional threat scenarios and the technical progress made in analogue and digital transmission technologies require the use of many resources to obtain intelligence.

The large amounts of data created as a result of this must be evaluated and usable in the shortest amount of time possible. They are used for the creation of situation reports and serve as a basis for decision making.

The increased use of conventional commercially-available devices and encrypted transmission processes in threat and conflict scenarios also shows that it is not possible to access the content of every message. Only the connection data and communication behaviour are then used for an assessment.

The demand for masses of data to be processed without delay also increases the necessity of a sensor-independent and multi-sensor-compatible analysis tool.

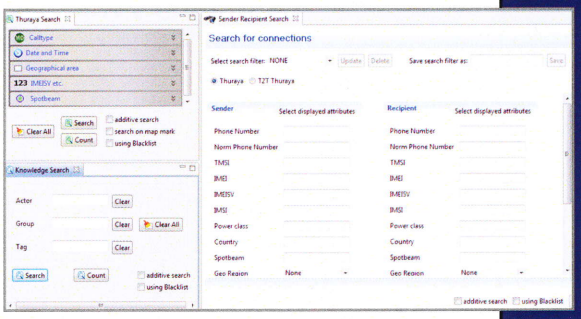
Key functions

COPS is modular and service-orientated software for the evaluation of connection data. Relationships between different participants in a network are formed on the basis of communication data, transfer data and basic knowledge. In doing so, structures from organisational units, dissipation routes of messages and the geo-spatial distribution become visible

As part of pre-processing, the geographic information contained in the incoming data from the sensor systems is extracted and visualised on a digital map. A current overview of activities in the selected regions is therefore displayed.

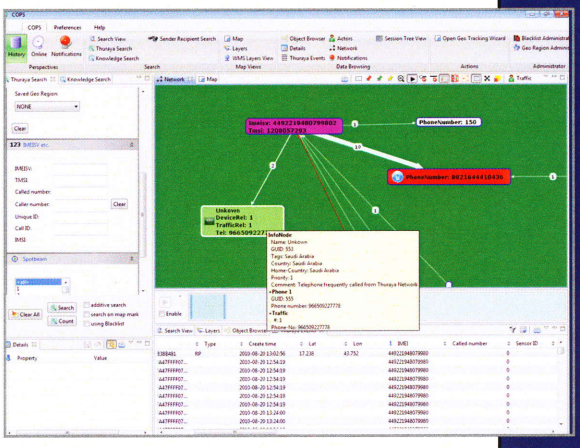
COPS online view

There are different search options and filter functions available for searching current and saved connection data to support the user in finding relevant data quickly. Sensor-specific search fields can be supplemented.



COPS search view

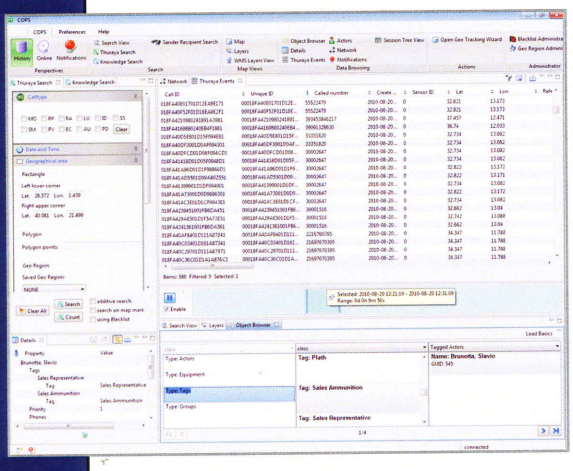
The graphic display of structures and relationships is shown in a network view. This visualisation technology supports different event parameters, in order to be able to portray structures independently. Additional detailed information on the events can be displayed.



COPS network view

Functional blocks

COPS has a modular design and is broken down into function blocks. The data recorded is displayed in views with a table-based breakdown or with different visualisation options.

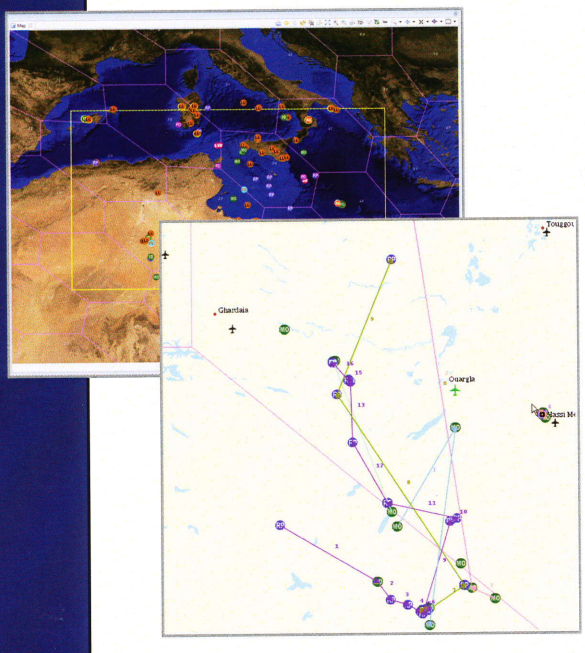


COPS history view

Event tables

The data that is logged is, depending on the source, displayed in different views in a table-based arrangement. There are contextual menus available in these tables for searching, defining filters and selection.

There is a detailed view for each of the individual events. A playback function plays back the events in chronological order.



COPS map view

Map display

The events are displayed in the network view or on the digital map.

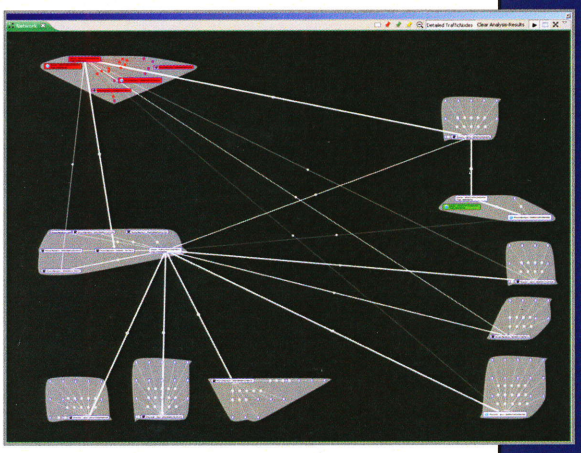
The events are displayed on the interactive map on the basis of its geographical information. Additional information in the form of symbols, images or comments can be entered in the map image in the view-based display.

The chronological/area-based linking of the individual events shows movements and areas where activity takes place.

For the evaluation of large amounts of data, COPS is equipped with numerous functions for visualisation, analysis and adding to data. A two-way interface to the content evaluation system assists with combined searches for relevant data content.

Network view

The communication relationships are automatically displayed in circular or grid structures using the connection and basic data. Groups, hierarchies and role systems within the network can be recognised using cluster and concentration analyses. Additional findings, for example from evaluation of the content, are also added manually to the display of the network.

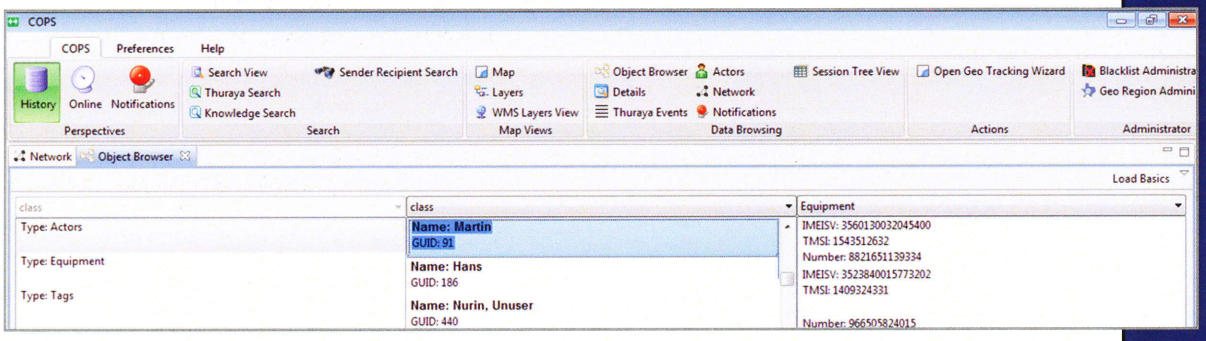


COPS network cluster

Topic orientation

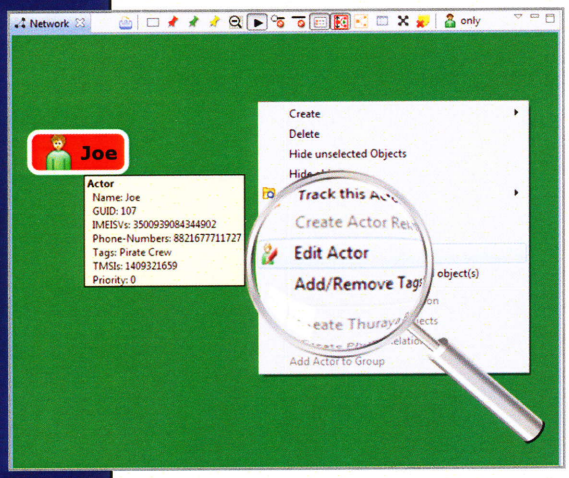
COPS works with all sensors using the universal and dynamic data model of the evaluation platform and supports topic-based search. To this end, topic-related attributes are subsumed to the events in the processing and evaluation.

A topic-orientated object browser uses these characteristics to find the topic-related events and basic data quickly and with a clear overview.



COPS object browser

Example applications



Adding data

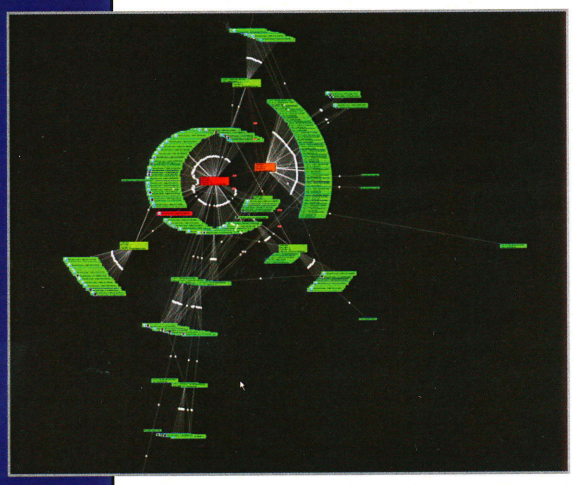
The data that is logged is supplemented and enhanced with findings from further sources of information.

An input dialogue supports structured archiving.

Selection of relevant content

COPS has a two-way interface to a content evaluation system.

This enables relevant data content to be selected directly from the network display, map view or event table and the content to be evaluated.



Role assignment

In the network view, the influencing factors become visible, based on the frequency and intensity of the communication through clustering and relationship analyses.

These allow inferences to be made in relation to role distribution and the organisational structure.

Workflow

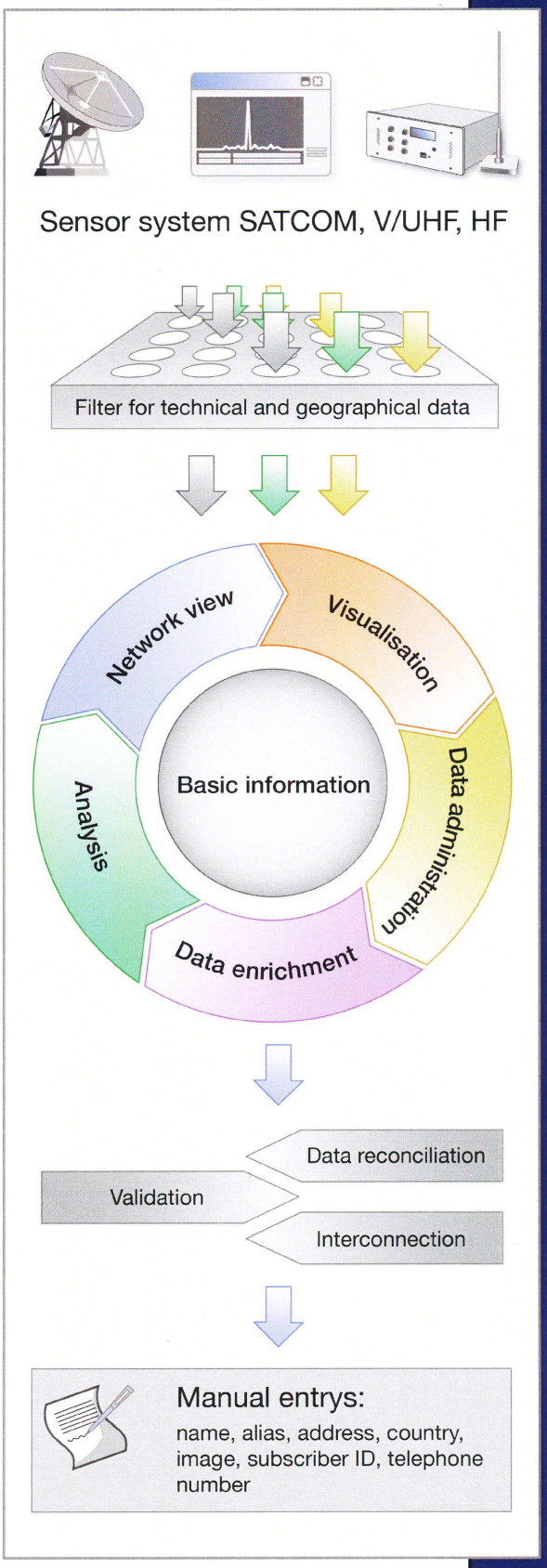
The data from different sensor systems is transferred to the evaluation system.

Technical and geographic information is extracted in the preprocessing stage and displayed on the map application.

Selected technical parameters of signals of interest (such as frequency or modulation type) can be used for a notification.

The data is linked to a network display, inventory data is supplemented with current events and additional knowledge is added to the basics. A clear image of the structures is thus created.

Findings from reports and other sources are written to the database manually by the operator using the network view and input dialogue. Analogue information can therefore be used for adding data enrichment and administering basic information.



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