



Air Watch

Air Defense Command and Control System

Introduction

The primary objective of **Air-Watch** is to provide complete information and all support facilities as required in a modern Air Defense Command and Control System (ADCCS), in order to enable commanders and controllers to effectively perform their tasks. The major tasks are:

- Defend own air-space
- Evaluate threats introduced by foe aircraft and by Tactical Ballistic Missiles (TBM)
- Control a range of air-missions
- Provide early warning for population

Technical Concept

The Technical Concept of **Air-Watch** fully supports the Operational Requirements of a modern ADCCS, with emphasis on the following:

- Generation of a high quality Air Situation Picture (ASP), i.e. complete, uniform and accurate.
- Overall optimization of system resources (controllers, sensors, etc.).
- Effective Man-Machine Interface.
- High system survivability and availability.
- Decision Support tools for the commanders and controllers' various tasks.
- Full operational monitoring of system behavior and means to overcome problems in real time.

The need for high quality ASP stems from the fact that the ASP serves as the main source of information for the decision making within all echelons of Air Force Command. The quality of these decisions, in area of threat evaluation, planning and battle management, depends directly upon the quality of the ASP.

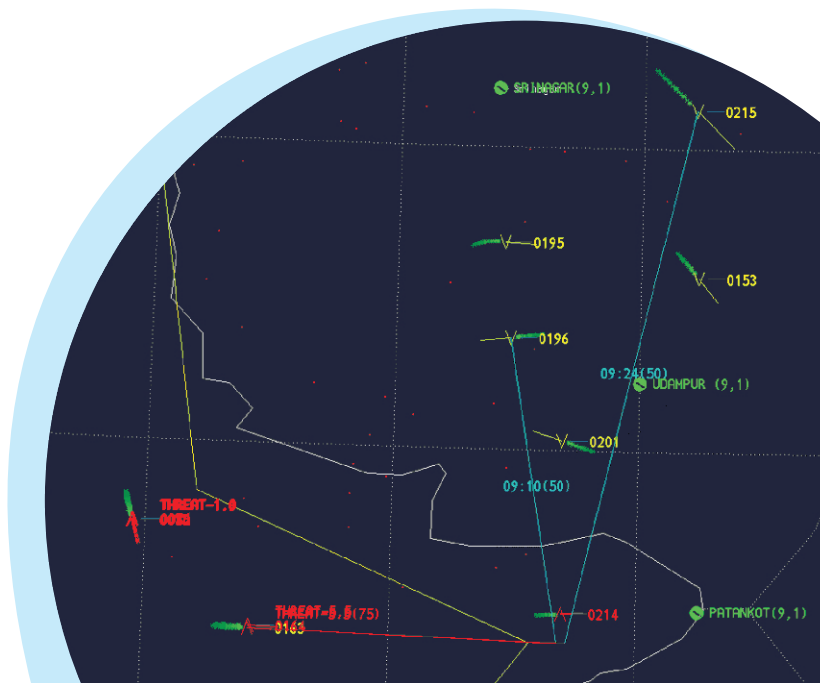
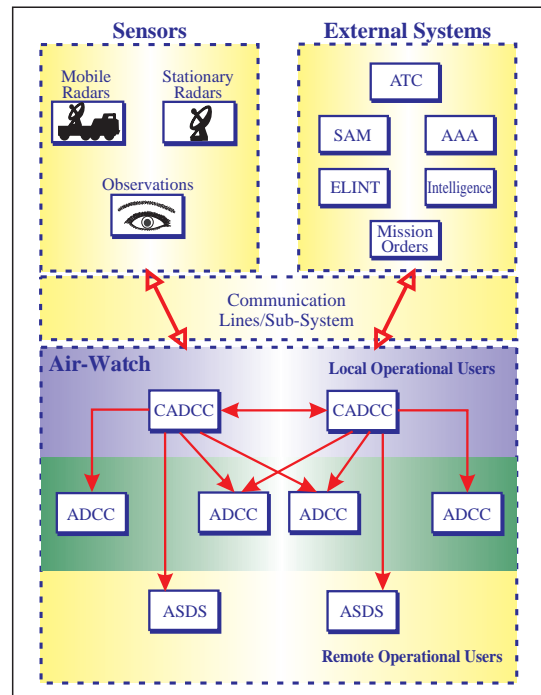
System Architecture

A typical ADCCS consists of:

- Central Air Defense Command Centers (CADCC),
- Air Defense Command Centers (ADCC).
- Remote Users.

The ASP is generated in a CADCC, and disseminated to all the other sites, after being filtered according to their privileges.

The various users (according to their privileges) can interact with the ASP, regardless of their actual geographical location.



Air Watch Main Components

ASPG

Air Situation Picture Generator (ASPG) component provides a comprehensive solution to the Multi-Radar/Multi-Target Tracking problem within the military environment. It consists of the following:

- Advanced ASP Generation Mechanism, based on state-of-the-art developments in the area of multihypothesis ambiguity resolution and hybrid multi-model/variable state dimension update techniques, with a finite memory tracking filter.
- Clutter Rectification.
- Radar Bias Compensation (Registration).
- Tracking On Line Analyzer (TOLA), providing monitoring of sensors.
- Radar Management Package.

BM

The Battle Management (BM) component, provides the required information and support facilities to the commanders and controllers.

Some of the typical packages are:

- Flight Plans generation and Maintenance
- Identification
- Threat Assessment and Weapon Allocation
- Intercept support
- Flight Safety Support
- Recording and Replay
- Generation of early warning alerts

OWS

The Operator WorkStation (OWS) component, provides an effective Man-Machine Interface to all ADCCS users. The OWS is customized to support the operational requirements of each specific user. The OWS's are usually grouped into:

- Operational Complex
- Technical Complex
- Simulation and Training Complex

System Management and Control

This component assures high operational availability by providing monitoring and control of system resources and parameters, and a quick recovery from failures that is transparent to operators, without loss of operational information. Through the Supervisor Station, the operator has the ability to define, monitor and re-configure the various system components and resources.

Additional Related Systems

Simulation

The Simulation Package (SIM) provides for on-going user training, and for system testing.

ASDS

The Air Situation Dissemination and Display System (ASDS), provides the ASP to remote users. The disseminated ASP, is filtered at the CADCC, according to the privileges and area of responsibility at the remote site.

Air Situation Trainer (AST)

AST is an operational trainer for Air Force Commanders. It provides for the generation of operational and technical events, and supports the evaluation of operational commands. AST supports all training levels, from individual training and up to Air Force level training, and supports single or double sided exercises.

TTB

Tracking Test Bed (TTB) serves as an analysis tool as well as a maintenance support facility in terms of system adaptation to changing operational environment and new sensor capabilities. The analysis is based on recorded live data, in addition to the traditional air situation simulation.

Proven Experience

Ness TSG is a leading global command-and-control, intelligence and telecommunications systems House. With over three decades of experience, Ness TSG specializes in the development and integration of advanced, comprehensive solutions for the defense, homeland security, telecom, and utilities sectors. Dedicated to delivering cutting-edge, best-of-class solutions, Ness TSG serves a diverse client base of private, public and governmental organizations worldwide. Leveraging its affiliation with Ness Technologies (NASDAQ: NSTC), a global IT solutions provider with offices in 15 countries and 7,000 employees, Ness TSG offers a one-stop-shop of products, systems and professional services for a range of military, paramilitary and telecom applications. For more information about Ness TSG, visit [Http://www.ness.com](http://www.ness.com).

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