### Characteristics

#### Key Features
- Great integration with ATM systems
  - ICARO system implements a system-to-system protocol, based in the XML format, to supply an ATM system with all the meteorological and aeronautical information needed. Such data is rounded off with metadata that allows an efficient and powerful processing, in order to store, consult and draw it easily.

- Easy integration with any system already developed
  - ICARO systems can also work on a transparent or weightless level or flight plan data server of any system demanding such information. Delegated services can be integrated to the level and can be developed for the ATM system. Current references other than SACT A are CDM or ANCC-24 (Aena’s Network Control Center).

#### Technologies
- Multilayer highly scalable J2EE architecture, including Java Web start
- RDBMS (Oracle, RAC optional)
- BEA application server
- Apache Web server
- UNIX HW
- Powerful client
  - Two kinds of technologies:
    1. Advanced user positions run a rich client based in Java Swing library
      - Good interactivity, enhanced by an integrated 100% pure Java database containing data needed for local validations
      - Automated change of versions using Java Web start
      - Platform independence
      - HTTPS communication between the user working position and the server, ensuring reduced bandwidth requirements
    2. HTML based user positions for offline tasks or Internet access
      - No version unloading needed
      - Standard and well-known interface
      - Easy to use
- ESI connection
  - A pure ESI SW solution for EAD connection, avoids the use of third party SW and ensures a smooth evolution

### Benefits
- Availability and security
  - Basic features specified in J2EE architectures are covered by any COTS compliant with J2EE standards.

- Scalability
  - Same SW will support from ten to one thousand users simply by adding HW, splitting the logical layer in more instances or adding more resources to the existing hardware.

- Portability
  - Delegated services can be integrated to the level and can be developed for the ATM system. Current references other than SACT A are CDM or ANCC-24 (Aena’s Network Control Center).

- Every base software element (J2EE server, ESI server, application server, RDBMS, Oracle, RAC, etc.) was chosen based on the portability principle. The selected products are available for most common platforms. All products are well known implementations and are commonly used technologies.
- Powerful client
  - Two kinds of technologies:
    1. Advanced user positions run a rich client based in Java Swing library
    2. HTML based user positions for offline tasks or Internet access

Indra reserves the right to modify these specifications without prior notice.
Characteristics

Key Features

Great integration with ATM systems

ICARO system implements a system-to-
system protocol, based in the XML format,
to supply an ATM system with all the
meteorological and aeronautical information
needed. Such data is round off with meta-
information that allows an efficient and
powerful processing, in order to store,
consult and draw it easily.

Easy integration with any system

With little development, ICARO system is
able to work as meteorological, aeronautical
or flight plan data server of any system
demanding such information. Exchange
protocols are usually based in the XML one
develop for the ATM system. Actual
references other than SACT A are CDM or
ANCC-24 (Aena's Network Control Center).

Technologies

• Multilayer highly scalable J2EE architecture,
  including Java Web start
• RDBMS (Oracle, RAC optional)
• BEA application server
• Apache Web server
• UNIX HW

• Powerful client
  Four kinds of technologies:
  1. Advanced web position with a rich client
     based on Java swing library
  2. HTML based user positions for offline
     tasks or Internet access

Benefits

• Availability and security
  Basic features specified in J2EE
architectures are covered by any COTS
compliant with J2EE standard.

• Scalability
  Same SW will support from ten to one
thousand users simply by adding HW
(splitting the logical layer in more
computers or adding more resources to
the existing hardware).

• Portability
  Deployable in any operating system where
a Java virtual machine could be executed,
what means almost every platform in the
market nowadays.

• ESI connection
  A pure ESI SW solution for EAD connection,
avoids the use of third party SW and ensures
a smooth evolution.

• Easy to use
  Standard and well-known interface
  – Ease to use

AIR TRAFFIC MANAGEMENT

INTEGRATED
COM/AIS/AIP AND
REPORTING OFFICE
AUTOMATION SYSTEM

Suppling ATM systems around the world for more than 30 years

indracompany.com
INTEGRATED COM/AIS/AIP AND REPORTING OFFICE AUTOMATION SYSTEM

ICARO XXI

An integrated working environment to all aeronautical users

ICARO is an integrated and aeronautical information system designed for every individual working system that might provide functionality to support:
- COP operators
- NOF operators
- AFTN
- Airports
- Airlines

ICARO is equipped with a wide range of facilities to support data processing and information exchange, enabling the creation of an integrated environment.

ICARO is an integrated aeronautical briefing environment to all aeronautical users. It allows the creation and distribution of the information relevant to the operators, including static and dynamic data.

ICARO XXI

ICARO is an integrated aeronautical information system designed for every individual working system that might provide functionality to support:
- COP operators
- NOF operators
- AFTN
- Airports
- Airlines

ICARO is equipped with a wide range of facilities to support data processing and information exchange, enabling the creation of an integrated environment.

ICARO is a system that integrates the management of AIS information from various sources and the production of aeronautical information in a single integrated environment. It supports a wide range of functions, including:

- Distribution and maintenance of the AIS database
- Distribution and maintenance of the AIP database
- Time synchronization and data exchange

ICARO is an integrated aeronautical briefing environment to all aeronautical users. It allows the creation and distribution of the information relevant to the operators, including static and dynamic data.

ICARO XXI

ICARO is an integrated aeronautical information system designed for every individual working system that might provide functionality to support:
- COP operators
- NOF operators
- AFTN
- Airports
- Airlines

ICARO is equipped with a wide range of facilities to support data processing and information exchange, enabling the creation of an integrated environment.

ICARO is a system that integrates the management of AIS information from various sources and the production of aeronautical information in a single integrated environment. It supports a wide range of functions, including:

- Distribution and maintenance of the AIS database
- Distribution and maintenance of the AIP database
- Time synchronization and data exchange

ICARO is an integrated aeronautical briefing environment to all aeronautical users. It allows the creation and distribution of the information relevant to the operators, including static and dynamic data.
ICARO XXI

An integrated working environment to all aeronautical users

Introduction
ICARO is an integrated aeronautical briefing system designed to improve every individual working on an aeronautical data exchange system. ICARO is designed to provide an interface for all the main parties involved in air traffic management, allowing them to access and use the information provided.

ICARO is a software application that consolidates and processes information from various sources, providing a single interface for users to access and manage aeronautical data. It is designed to support several types of users, including air traffic control, flight planning, and meteorological services.

The benefits of ICARO include:
- Improved access to data
- Streamlined processes for data exchange
- Reduced human errors
- Enhanced situational awareness

ICARO's architecture allows for a high level of customization, enabling it to be adapted to the specific needs of each user. This flexibility makes ICARO a valuable tool for air traffic management, flight planning, and meteorological services.

Main Features
ICARO supports a wide range of functions, including:
- Management of flight plans
- Meteorological data management
- Traffic management
- Air Traffic Control Services

ICARO is designed to be user-friendly, with a graphical interface that simplifies the process of accessing and managing aeronautical information. It also comes with a comprehensive set of tools for data analysis and visualization, enabling users to gain deeper insights into the data.

ICARO is available in multiple versions, each tailored to the specific needs of different user groups. These versions include:
- ICARO Lite
- ICARO Pro
- ICARO Enterprise

ICARO Lite is designed for individual users, while ICARO Pro and Enterprise are designed for organizations and agencies.

Technical Overview
ICARO's technical specifications include:
- Operating system: Windows
- Programming language: C++
- Platform: Multi-platform

ICARO is designed to be highly scalable, allowing it to support a large number of users and data processing tasks simultaneously. It also includes features for data encryption and secure communication, ensuring the confidentiality and integrity of the data exchanged.

Conclusion
ICARO is a powerful tool for air traffic management, flight planning, and meteorological services. Its flexible architecture and comprehensive set of features make it a valuable asset for improving the efficiency and effectiveness of aeronautical data exchange.
ICARO XXI

An integrated working environment to all aeronautical users

ICARO is an integrated aeronautical briefing system designed to provide a single, integrated source of aeronautical information to all users, where data is derived from various aeronautical databases. The system allows users to view AFTN and AMHS messages, as well as ATFCM messages, and provides a means to display aeronautical data on a map.

The system is designed to provide a single source of aeronautical information for all users, including pilots, flight dispatchers, and air traffic controllers. The system is intended to be user-friendly and intuitive, providing easy-to-understand information in a clear and concise manner.

The system is capable of handling a large volume of data, with the ability to process and display information from a variety of sources. The system is also capable of handling different formats of data, including text, audio, and visual.

The system is designed to be highly configurable, allowing users to customize the system to meet their specific needs. The system is also designed to be highly scalable, allowing it to handle an increasing amount of data as the need arises.

The system is designed to be highly secure, with robust security measures in place to protect data and ensure privacy. The system is also designed to be highly reliable, with high availability and uptime.
ICARO AF

AIR TRAFFIC MANAGEMENT

INTEGRATED COM/AIS/AIP AND REPORTING OFFICE AUTOMATION SYSTEM

Suppling ATM systems around the world for more than 30 years

indracompany.com

Characteristics

Key Features

Great integration with ATM systems

ICARO system implements a system-to-system protocol, based on XML format, to supply an ATM system with all the meteorological and aeronautical information needed. Such data is rounded off with meta-information that allows an efficient and powerful processing, in order to store, consult and draw it easily.

Easy integration with any system

With little development, ICARO system is able to work as a meteorological, aeronautical or flight plan data server of any system demanding such information. Exchange protocols are usually based on the XML one developed for the ATM system. Actual references other than SACT A are CDM or ANCC-24 (Aena’s Network Control Center).

Technologies

• Multilayer highly scalable J2EE architecture, including Java Web Start
• RDBMS (Oracle, RAC optional)
• BEA application server
• Apache Web server
• UNIX HW

• Powerful client
  • Five levels of technologies:
    1. Advanced and positions an rich client based on Java Swing library
    2. Good interactivity, enhanced by an integrated 100% pure Java database containing data needed for local validations
    3. Automated exchange of versions using Java Web Start
    4. Platform independence
    5. HTTPS communication between the user working position and the server, ensuring reduced bandwidth requirements
  • Two kinds of technologies:
    1. Advanced user positions run a rich client based on Java swing library
      - Good interactivity, enhanced by an integrated 100% pure Java database containing data needed for local validations
      - Automated exchange of versions using Java Web Start
      - Platform independence
      - HTTPS communication between the user working position and the server, ensuring reduced bandwidth requirements
    2. HTML based user positions for offline tasks or Internet access
      - No version unloading needed
      - Standard and well-known interface
      - Ease to use
  • ESI connection
    A pure ESI SW solution for EAD connection, avoids the use of third part SW and ensures a smooth evolution

Benefits

• Availability and security
  • Basic features specified in J2E architecture are covered by any COTS compliant with J2E standard.
• Scalability
  • Same SW will support from ten to one thousand users simply by adding JVMs (upping the logical layer in more resources is an easier task in this technology).
• Portability
  • Multiplatform technology: within the operating system where a Java application is executed, Java Swing library is used to manage the user interface.

• ESI connection
  • A pure ESI SW solution for EAD connection, avoids the use of third part SW and ensures a smooth evolution.

V.1-02-2009