

Transforming an Airline Cargo Management System and its Operations

About the Client

The Air Cargo complexes at Trivandrum and Calicut Airports in Kerala, India are being managed by the Airports Authority through our client, a Holding company of the Government of Kerala who deals with cargo shipping and its movement across the country as well as internationally. Operating since 1973 and having their base set up in 5 business centres across the state of Kerala, the client has achieved in bringing all the import & export operations happening in Kerala under one roof.

Business Challenge

The Cargo handling was earlier being processed through an old FoxPro/DoS based system written in 1991. With the need for connectivity to Statutory Agencies (Customs and Excise) and the interchange of data electronically between Airports, this system had become highly inadequate.

- Though the Trivandrum and Calicut Airports were one of the first to use computers for handling cargo, the method of operating and the softwares had soon become obsolete. The client required their systems to be upgraded in a running environment without affecting the current airport operations.
- The conventional system at the Airport Cargo Complexes in Thiruvananthapuram & Calicut airports were based on DoS and FoxPro and had to be upgraded to a modern environment depending on the best practices followed in the current industry.
- As part of the modernization process, the Government of India decided to refresh and replace conventional messaging systems in all airports with modern and flexible computer-based EDI / XML based messaging systems. The new design had to communicate with the Government Systems, which were in the development stage during the time.

InApp's Solution

InApp replaced the system with a modern web based and communications enabled system, thereby making it possible to include users like Forwarding Agents, Statutory Government Agencies and Global Airports into the system. We developed the Cargo Management System for the two Cargo Complexes, to interact with the Government's ICE-Gate, Customs Department along with all the required functionality for Warehouse Management. In line with the International Conventions, messaging in Indian Airports is handled through an EDI network. We replaced the system with a modern web based and communications enabled mechanism, thereby making it possible to include users like Forwarding Agents, Statutory Government Agencies and Global Airports into the network. A central server of the Indian Customs and Excise Department (ICE-Gate) relays EDI messages to the Air Cargo Complexes throughout the country. This messaging system collects messages from International Airports, validates them and supplies the information to the Airports in India. The messages from the Indian Airports to other parts of the world are also channelized through the EDI system. Messages meant for any airport in the world is sent to the central server from where it is then relayed to the specific airport.

InApp integrated the three distinct functions such as Handling of Import & Export Cargo and the warehousing operations. The Integrated system needed to be robust, scalable and adaptable to frequent change. The application was developed using JBoss Application Server tools and technologies. Web services were used to receive and send data between the three modules. The application was also enhanced later on to include the GST preferences of the Indian Government which enabled hassle-free transactions.

We divided the system functionality into four well-defined services: Import / Export / Warehousing and Goods Checkout. The systems are linked to each other through custom web services. InApp developed the relevant framework and contracts between the 4 modules in the year 2004 when the concept of Service-Oriented Architecture (SOA) was very new with access to minimal tools.

■ Import:

The Import module receives the EDI Manifest and makes it available for verification to the ground staff. After verification, if there are any discrepancies, it is intimated to the customs and the Government of India for security purposes. Once the manifest is found to be in accordance with the goods received, it is then handed over to the Warehouse Server.

■ Export:

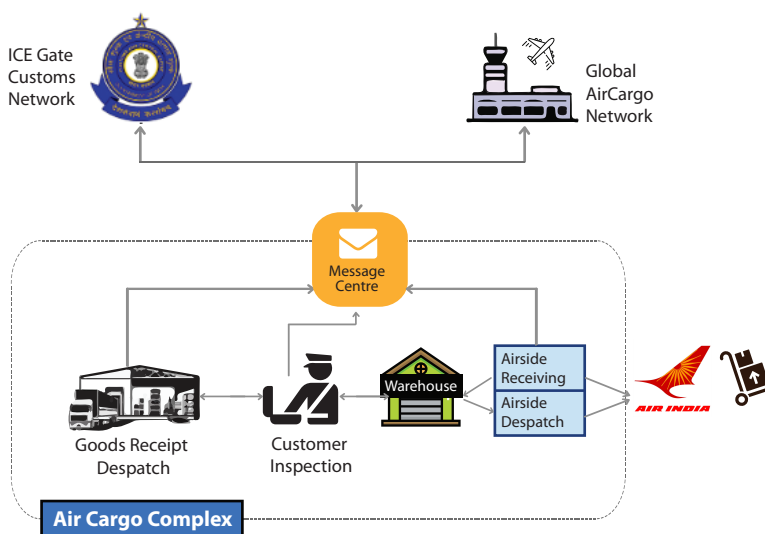
The Export module receives the list of goods to be exported along with their destination and other information. A bill is prepared based on the weight of goods. On payment of the charges, a "Goods Arrived" message is sent to the customs server. After physical inspection, the customs server issues a 'Let Export Order'.

■ Warehouse Management:

The warehousing server receives the manifest and calculates the product charges. In addition to that, it is also used to manage and track the goods received to the exact location inside the warehouse.

■ Goods Checkout:

The Checkout system is used for providing imported goods to the agents or customers. The customer is required to provide their Airway bill to claim their respective goods.



Business Benefit

- The new solution built by InApp on SOA tools and technologies helped the client in growing into an on-demand business.
- The system now supports new business requirements such as closer collaboration with participants in the global supply chain.
- More user-friendly application that is flexible and adaptable to frequent new changes.
- Major changes made in the Checkout module and the EDI Messaging system directly resulted in an increase of satisfied customers.
- The Cargo Management was enhanced based on the GST requirements of the Indian Government which paved way for smoother transactions.



InApp is a software services company operating since 2000. As a world-class business solution provider, we are passionate about technology and building transformative business solutions that empower our clients worldwide, ranging from Fortune 500 companies to SMBs. We take pride in being a technology partner for the long haul, delivering exceptional value to customers through innovation and excellence. We offer an integrated portfolio of software services including Application Services, Software Product Engineering, Disruptive Technology Solutions, DevOps, Mobility Solutions, Independent Testing and more.