

PROTOTYPE FOR NEW BORDER MANAGEMENT SYSTEM

Leading master systems integrator ARINC develops new integrated platform leveraging Objectivity database scalability, distribution and performance

IN TODAY'S SECURITY conscious world effective national border management is increasingly difficult. Border agencies must overcome the common challenges associated with the movement of people and their belongings while maintaining secure borders as well as the safety and security of national interests.

As part of identity verification, wide ranging disparate types of intelligence data are needed. Additionally, in order to mitigate any risk of delay in the immigration process as a consequence of the investigation process, the intelligence data needs to be instantly available. The types of data that form this intelligence can range from simple watch lists and

systems involved in passenger processing. When a traveller of interest is identified, the investigation process kicks in and additional materials may be captured from all available intelligence sources. This may involve data sourced from public web and subscription sites, including social networking sites such as Bebo, Facebook, Flickr and Twitter as well as broadcast news sites such as BBC, CNN and Al-Jazeera.

In a single installation an IBICS system can scale to manage information on anything from a few million passengers per year to more than 200 million travellers per year totalling several terabytes and possibly up to petabytes of data. Interfaces that collect passenger and biometric data from a self-service check-in kiosk will transmit

for database administrators that relational databases require, saving on average a third to a half of staff time and cost.

DATABASE ARCHITECTURE MODEL

ARINC's architecture for delivering an intelligence led approach to border management enables border control agencies, and other related agencies, to amass extensive intelligence on travellers thus enabling rapid, knowledge-based decision making.

The modular architecture allows traveller data from a broad spectrum of sources to be ingested, including airlines, airports, cruise lines, ground transportation and sea ports. Data is received by an external ARINC electronic border message switch which then cleans and transforms it into an agreed format before sending it to an Ingest Application or Ingest Web Service.

A data fusion engine is used to enable searching and fusion of internal organisations' data, and by using a web service, searching beyond the organisation is possible. Data is then consolidated from across the Internet with internal data and traveller data in a rapid find and retrieve environment.

Objectivity/DB plays a significant role in managing the huge volume of data, intelligence analytics, as well as direct relationship traversal that are orders of magnitude faster for speedy decision support. When further investigation and intelligence analysis is required, then relationships between travellers may extend beyond five degrees of separation. Persisting these relationships and the subsequent queries, be it navigational or traversal, when done in an Objectivity/DB is faster, dynamic and more efficient.

"Objectivity/DB fits neatly into ARINC's philosophy of maximising customer return on investment by adopting a forward looking approach which maps seamlessly with future requirements," said Ray Batt, director Government & Security, ARINC EMEA. "Objectivity's key factors in protecting investment from obsolescence and delivering a realisable return include its flexibility and extensibility, ability to scale over a highly distributed environment and interoperability across platforms, all in a heterogeneous environment."

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web documents to social networking sites, and audio and video news clips. In practice, this involves intra-service, inter-agency and international stakeholder cooperation to provide robust control of both immigration and emigration.

ARINC, the leading master systems integrator of air travel solutions, communications and engineering, is combining in its core Identity Management and Biometric technology, its expertise in networks and Advanced Passenger Information System, and its vast aviation industry experience into a new integrated solutions platform called Integrated Border Information and Control Systems (IBICS). IBICS will be developed as a platform delivering a holistic approach to security and border management. This will be a complete modular, scalable, turnkey offering that will enable governments and other stakeholders to employ a comprehensive, standards-based approach to border management.

INTEGRATED SOLUTION

With IBICS, advanced passenger information, document authentication, biometric and biographic data collection and authentication systems are integrated with check-in, baggage, boarding and other

that data to an airline's departure control system for delivery to the government agency system. Maintaining the delicate balance between identifying inadmissible travellers (e.g. those on watch-lists) and keeping passenger traffic and cargo flowing smoothly is a huge challenge.

The choice of database type/model for a border control and management system has direct and proportional impact on key metrics that will, in turn, directly impact the return on investment that a border control agency achieves. Selecting the correct database type/model is critical to enabling:

- better managed integration and reduced operational support costs
- improved security and maintenance of data integrity
- optimisation of performance and reduction of infrastructure costs.

Relational and object databases were both evaluated for IBICS. Objectivity/DB, an object database was selected for its scalability, distribution and performance. Additionally, since Objectivity/DB requires no object or relational mapping code, ARINC found that a third of the application overhead could be eliminated and far better performance achieved together with significant hardware savings. Eliminating this mapping layer also removes the need

FOR MORE INFORMATION

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