



# Customer Success Story

## International Civil Aviation Organization

### The Challenge

The International Civil Aviation Organization (ICAO) is a specialized agency of the United Nations that promotes the orderly development of international civil aviation among its 190 Member States. It sets technical and operational standards and regulations for, amongst other aspects, producing machine readable travel documents, such as ePassports, and facilitating passenger flows at airports. ICAO established a Public Key Directory (PKD) as a strategic element of a framework for global interoperability and verification of ePassports. After an international bidding exercise, the Organization selected Netrust to operate the PKD on its behalf.

Netrust Pte Ltd, a Singapore-based Certificate Authority, has been running Certificate Authority operations for over 10 years. The ICAO PKD required hosting from two separate geographical locations, both of which are online and in sync. Participating countries would be allowed to upload directly to a scratch directory in either location which would require very strict access control. The unique identifier for each entry in the directory (Distinguished Name) would be constructed based on the contents of each uploaded certificate, requiring parsing of the certificate information. As part of the due diligence procedure that ICAO would be undertaking, workflow rules for data flow needed to be established. An important requirement of the system was that any future changes to the workflow would need to be rapidly deployed with minimum downtime to the system.

### The Solution

After reviewing several options, Netrust chose Critical Path's *Directory* and *Meta-Directory*, part of the Memova® suite of applications and services. The *Directory*, with its rich set of access controls, was configured to restrict read/write access depending on the credentials presented for the many personnel who access the directory. The *Meta-Directory* was used to implement the workflows for the due diligence process to be followed by ICAO, and to parse the contents of the certificates and Certificate Revocation List and to create the correct entries in the download directory.

The *Meta-Directory* was also used to handle the synchronization at the two sites while ensuring that integrity of the data was not compromised. *Meta-Directory* was also used to implement critical Disaster Recovery procedures for a number of possible outage scenarios.



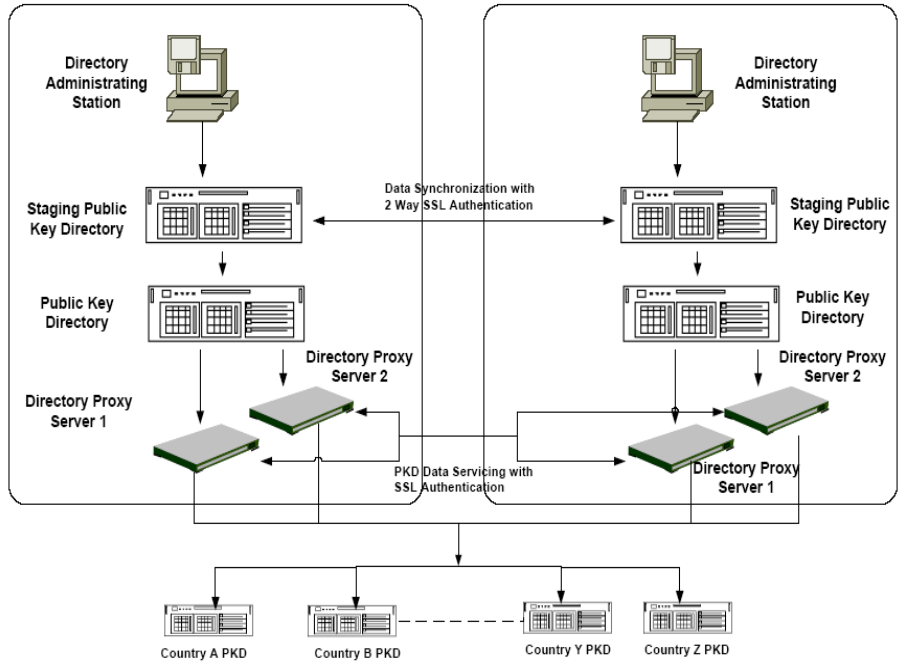


Figure 1 – *Directory and Meta-Directory* configuration for ICAO's Public Key Directory

## Why Critical Path?

Due to the nature of the access controls, Critical Path's full function *Directory* provided the reliability and scalability that was a key requirement for ICAO. *Meta-Directory* was chosen for a number of key reasons:

- ❶ Changes are processed as they happen, and not stored for batch processing.
- ❷ The level of transformation for entry names and attributes is the most richly defined and easily configurable compared to competing products, where a few weeks of programming would be required for what is accomplished with a rule setup in *Meta-Directory* that only take 5 minutes.
- ❸ Scripting based on contents of certain attributes, which require attribute analysis, was very straightforward along with easy extensibility using Perl or JavaScript.
- ❹ Development and deployment time and easy maintenance were key decision factors, especially since the data flow rules will need to be changed in the future without causing significant downtime to the environment (24x7 operation).
- ❺ Most importantly, *Meta-Directory* is the only product of those reviewed that allows "back-flow". This feature enables changes to be written back to the source after an update of the target. This is crucial, since changes are not just flowed one way, but on completion of flow, the source is modified based on a different set of criteria.





## Business Advantages

- Yields CAPEX/OPEX savings for ICAO due to the high scalability, flexibility and simple configurability of the solution.
- Provides reliable 24x7 service to all border control agencies.
- The flexible architecture can incorporate changes to respond to future requirements for travel document authenticity.
- Enables simplified processes for ensuring compliance.

## A Winning Partnership

“Critical Path was the clear choice when we were developing and executing the International Civil Aviation Organization’s Public Key Directory framework,” says R. Rajeshkumar, Dy. CEO, Netrust. “Due to the complex nature of its business, ICAO had several unique challenges. Critical Path’s solutions are reliable, scalable and flexible and standards compliant which met the strict requirements for this implementation. They enabled us to minimize our development and implementation timeframes whilst enabling ongoing support and maintenance to be carried out efficiently and cost-effectively”.

## Critical Path, Inc.

Critical Path’s Memova® suite of applications and services are chosen by leading service providers and enterprises around the world to enable millions of users to communicate, connect, share and organize while providing industry-leading safety and assurance. With offices around the globe, Critical Path supports companies with their deployments of Memova solutions to drive revenue, boost loyalty, streamline operations and reduce costs.

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