e-Services@ ONE.MOTORING

Fast and Secure Online Services

ncs
making IT happen

Land Transport Authority

The Land Transport Authority (LTA) continuously strives to make life easier on and off the road for the motorists through leveraging technology. In 2000, LTA launched the ONE.MOTORING portal, providing road and traffic information to motorists. Since then, the system has undergone several changes. In 2004, the enhanced ONE. MOTORING portal was launched combining public e-services, regulatory information and commercial services.

To make services more attractive and convenient, LTA engaged NCS, the region's leading IT and communications engineering service provider, to provide vehicle owners and partners in the motor trade industry, with a wide range of user friendly, convenient, one-stop, fully-integrated services for vehicle related enquiries and transactions. NCS designed and developed the e-Services@ONE.MOTORING.

MANAGING COMPLEX BUSINESS RULES

There are more than 1,300 sets of rules defined over 20 years and implemented through more than a million lines of codes. In addition, new business rules had to be incorporated for new and enhanced features.

In the new system, rules were streamlined, restructured and designed to be flexible for future changes and maintainability. Despite the additional 1,420 sets of new rules built into the new system, the number of program codes needed was reduced by 300%.

MANAGING DATA MIGRATION

More than 20 million vehicle and transactions records had to be migrated to the new system while maintaining the highest level of data integrity. The whole migration process would take weeks to complete. To overcome this, NCS took a "snapshot" of the full database images from all the data sources and migrated a baseline version of the data a month before cut-over to the new system.
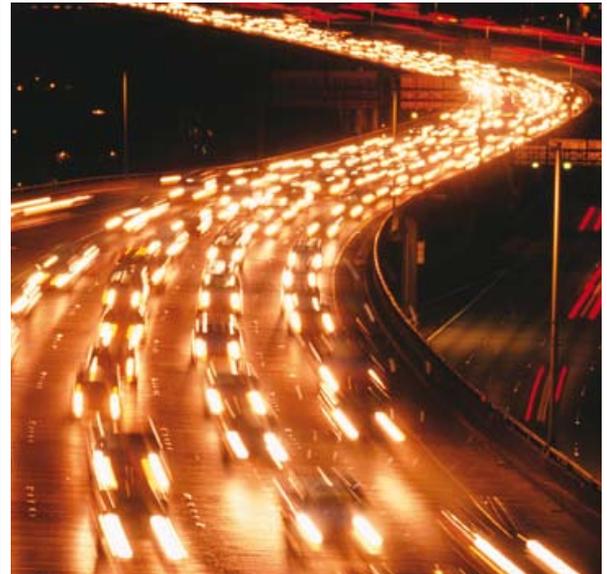
CHALLENGES

- Complexity of the IT solution required
- Involvement of multiple parties and the disparate diversity of their existing operations and IT capabilities
- Scale of system integration
- Migration of 20 years of data

SOLUTION

- A straight-through processing system
- Centralised vehicle data hub
- Real-time and batch system-to-system interfaces
- Multiple access channels and payment modes

BENEFITS

- Greater convenience and accessibility
- User friendly and one-stop services
- Secure transactions
- Improved productivity for all parties

Daily operational data changes were captured and synchronised daily through an incremental update approach up to the last day of the old system operation. Special programs and utilities were developed to facilitate this migration approach. Mock migration exercises were carried out to ensure data accuracy. Data migration to the new system was completed successfully due to this intensive testing. A total of 27 million records were extracted and 35 million records loaded into the new system, with another 1,000 plus batch files to establish the necessary historical information within the new system.

SCALE OF INTEGRATION AND DESIGN COMPLEXITY

The new system has to support multi-channels such as the Internet, LTA counters (intranet), self-service kiosks, and agents' counter (extranet - VPN). Hence, the scale of integration and implementation is massive. It involved putting together a mainframe, 15 AIX servers and 35 Window servers, and involving more than 50 different software components that needs to be integrated together.

More than 30 external parties, including government and private organisations, with their respective systems that operate on different platforms and at different levels of technology maturity, and having different business processes, had to be integrated. Hence, different approaches of technical integration infrastructure with different levels of security were adopted within the new system in order to minimise the impact to these external parties' existing systems. NCS worked closely with external parties to establish and realign their existing data.

This synergy helped to result in overall efficiency and effectiveness of the way the business is operated by the authority and the industry partners; as well as ensuring that their interests, especially in the area of financial implications, were taken care of. It also ensured that the ease of use has improved for the public users and motorists.

MULTI-LEVEL SECURITY

The system catered to a diversified group of public users and industry business partners such as motor car dealers, used vehicle dealers, parallel importers, heavy vehicle park operators, government agencies, law firms and town councils. Hence, the new system has to incorporate multi-dimensional security access appropriate to the nature of business operations, access needs of the different types of users and transactions while ensuring ease of use. Security measures implemented include:

- Free access for non-sensitive query on information and business transactions

- Access to vehicle specific tax information to facilitate selling/ buying of vehicles through simple authentication like matching vehicle registration number and owner ID

- Access granted through national ID and password (SingPass) or LTA-issued user ID and password to view personal and confidential information and business transactions that has ownership and financial impact

- Access granted with 2-factor authentication using token for authorised users in the motor trade industry to submit transactions for their own account and that of their customers

GREATER CONVENIENCE AND ACCESSIBILITY

Functions and transactions that used to be carried out by LTA are now made available in the system. With a click of the mouse, users can carry out the transactions themselves at their own homes/offices. This eliminates queuing time at LTA's office and transport costs. They can also access the system outside office hours as it operates from 6 am to midnight.

STRAIGHT-THOUGH PROCESSING & IMPROVED PRODUCTIVITY

A major benefit is the saving of time. Information required by the various industry partners such as insurance companies, financing companies and government agencies, is retrieved automatically via the system without the motorists and dealers having to submit physical documentary proof to the LTA. This greatly enhances the productivity for all parties.

SECURED TRANSACTIONS

To facilitate electronic transactions, physical documents like vehicle registration cards, rebate certificates and Vehicle Parking Certificates that were previously issued by LTA were dispensed with. To prevent unauthorised transactions, single-use transaction personal identification numbers are required to perform transactions involving changing the ownership status of a vehicle or rebate (i.e. transfer and de-registration of vehicle, and transfer and splitting of rebates).

"e-Services@ONE.MOTORING is the result of our collaboration with NCS and in consultation with other industry partners such as motor dealers, insurance and finance companies, to make available our services online for the convenience of motorists,"

said Mrs Rosina Howe-Teo, LTA's Group Director for Innovation and Infocomm Technology