CASE STUDY: Mass-Transit Computerized Ticketing Systems
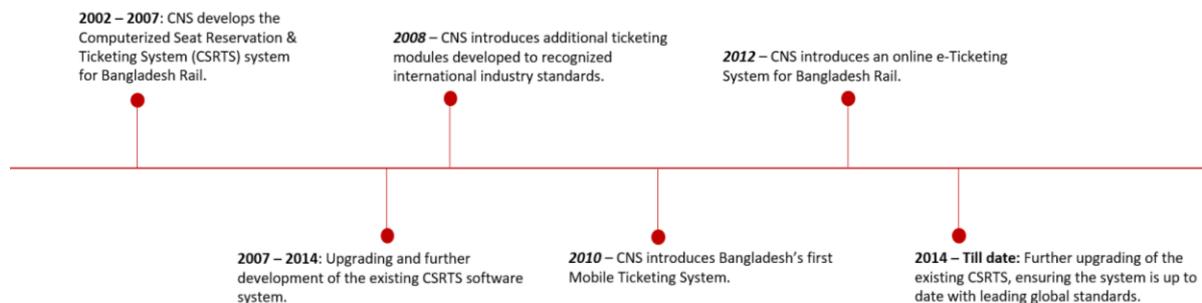
Esheba, Bangladesh Rail Ticketing System

CNS' Mass-Transit Computerized Ticketing System (MTCTS) is a proven, modern software solution for Mass-Transit looking to utilise a world leading service to their customers. In use with the Bangladesh Railway, this innovative system can be custom-built to meet the demands of any mass-transit system. All of our MTCTS solutions offer multi-dimensional modules to ensure that they can operate on fault-tolerant heterogeneous hardware and existing network infrastructure.

Our History in MTCTS

CNS' History in MTCTS dates back to 2002 when CNS delivered the first Computerised Seat Reservation Ticketing System (CSRTS) software solution for Bangladesh Rail. Since then, we have continued to further develop the CSRTS software solution for the railway year on year building upon our extensive experience whilst incorporating innovative technological solutions.

Two Decades of MTCTS

2002 – 2007: CNS develops the Computerized Seat Reservation & Ticketing System (CSRTS) system for Bangladesh Rail.

2008 – CNS introduces additional ticketing modules developed to recognized international industry standards.

2012 – CNS introduces an online e-Ticketing System for Bangladesh Rail.

2007 – 2014: Upgrading and further development of the existing CSRTS software system.

2010 – CNS introduces Bangladesh's first Mobile Ticketing System.

2014 – Till date: Further upgrading of the existing CSRTS, ensuring the system is up to date with leading global standards.

Our repeated success in delivering for Bangladesh Rail has led to almost two decades of CNS' continued involvement in Bangladesh Rail. Building upon the expertise developed in this field CNS has gone on to develop the proven MTCTS system, adaptable to all forms of Mass Transit including (but not limited to) Rail, Bus, Metro and Tram.

Operator Benefits

Boasting an open-ended architecture allowing for the rapid introduction and use of different ticket purchasing platforms beyond those already in use, MTCTS provides Mass Transit operators with a reliable, yet entirely flexible, platform. A proven success already, with Bangladesh Railway dedicating 25% of the network's ticket reservation quota to the MTCTS. A streamlined, easy to use, and accountable system with industry leading functionalities the MTCTS has repeatedly delivered substantial financial benefits to operators.

Railway ticketing and Seat reservation services for the Bangladesh Railway

CNS's innovative software has resulted in significant growth of annual revenue from digital ticket sales for Bangla Rail. Annual revenue from this service has increased from $29,413,000 – in 2014 to over $35,296,650 – today.

▲ After: $35,296,000

▲ Before: $29,413,000

With a robust monitoring and auditing system that tracks ticket sales and payment reconciliation the MTCTS has delivered large revenue increases as demonstrated in the case of Bangladesh Rail.

Furthermore, anti-counterfeiting measures such as the inclusion of photo-ids and QR codes on tickets have limited the scope for the unauthorized reselling of tickets, further increasing the revenue of MTCTS users whilst clamping down on such activities.

Following a record of success in Bangladesh, this leading ticketing software solution has been further developed to exist as a Commercial Of The Shelf (COTS) system, ready to be deployed and improve the efficiency of Mass-Transit Systems around the world.

CNS Technology

CNS' MTCTS technology is developed from our longstanding Rail Ticketing System (RTS), the base application system for Ticketing Service Provision where other application software(s) can be built around it. In the core of the RTS, a data aware executable component (a custom-built Servlet) named "Core Ticketing Engine (CTE)" resides as a memory resident program (TSR). The CTE takes care of accepting (or rejecting) ticket issue/refund/reservation requests, validating the same and storing the values into resident database instances over the cloud only to retrieve the same upon similar request. There being no other interface than a specially built Application Programming Interface (API), it can only listen to a secured port after Diffie–Hellman Key Challenge and Necessary key exchanges between the client and the server (the caller and the responder) has been performed appropriately as per set protocol. The session would be necessarily encrypted with DES3 Algorithm and this would provide brick solid security at network and software level abstracting database with the API and would also provide security against phishing and packet sniffing by intruders.

This innovative technology enables Railway Operator Company or the Client to use the CTE as a web service secured enough to be used as a servlet to cater any and all requests using industry standard JSON/SOAP data structure. These components make up, along with other key elements, the core of the CSRTS that is used by Bangladesh Rail. To Bangladesh Railway, in plain English, this means that any standard device, application, software, database or web service can consume the core ticketing engine service's data providing endless possibilities to include mobile ticketing, internet-based ticketing and of course traditional ticketing from POS counters from application software built around the core ticketing engine. Messaging, Storage and Web platforms can also be pushed through the API to host the entire system on top of the Cloud Computing Platform.

The importance of having a core ticketing engine adaptable to industry standard generic web service is enormous. Rapidly changing technology is a challenge for most of the large investment project where technology limits itself to adaptation impairments. Use of RESTful API with well perceived data consumption ecology enables the Clients to introduce any newer technology on top of the core ticketing engine. This will also enable general public to discover the services being provided through popular social networking sites like Facebook or simply through an app downloadable from the Android Marketplace. On top of that, with the increasing popularity of Cloud Computing, the entire system can be hosted over the cloud providing platform, protocol and storage to the users in Client Users.

The System has four major aspects:

- Counter Based Point of Sales (POS) Application in Railway Counters
- Mobile Based Ticketing (mTicketing) System (Click Here to Download White Paper)
- Web Based eTicketing System (Click Here to Download White Paper)
- Single Point Reconciliation and Back Office System for Railway Ticketing