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TWIC Lives

Edited by Joseph Keefe

In the decade since 9/11, Port Authorities and Terminal Operators have been slow to adopt the technology necessary to read the biometric data contained in the Transportation Worker Identification Credential (TWIC). That said; when SSA Marine and LVS Consulting, in partnership with TRL Security Systems and Cogent (a Division of 3M) recently announced the deployment of the first of its kind TWIC System in Long Beach, CA, the puzzle of producing TWIC readers that actually work may have finally been solved. SSA Marine recently demonstrated the operational capabilities of the new TWIC system – the “BeastBox” – for the Marine Exchange and the Port of Authorities of Long Beach and Los Angeles.

TWIC

The Maritime Transportation Security Act (MTSA) requires that individuals needing unescorted access to MTSA-regulated Facilities and Vessels must first obtain a TWIC. To obtain a TWIC Card, an individual must meet certain eligibility requirements and pass a security threat assessment conducted by the Transportation Security Administration (TSA). Individuals are then issued a tamper-resistant credential containing the cardholders biometric fingerprint data, which provides a conclusive link between the card and the individual cardholder. The final piece of that equation involves a TWIC card “reader” at the marine terminal, something that has proven to be an enormous headache. It has also led to vociferous calls by many to end the so-far ineffective and exorbitantly expensive program. That’s because a reliable and robust solution

has unfortunately eluded terminal operators and the federal government. Until now.

Early Efforts

SSA Marine successfully re-engineered the Port of Oakland’s first attempt at TWIC in 2005 and again in 2006. After an individual circumvented the perimeter of the Port, stowing away on a ship heading to the Far East for the 5th time in less than a year, it was suggested to the Coast Guard that the stow-away could teach everyone the finer points of circumventing access control, however the Captain of the Port didn’t find humor in this suggestion and directed the Port Stakeholders to find another solution instead. Stakeholders eventually settled on the Embedded Chip Number Card Program facilitated by the Pacific Maritime Association (PMA). The pre-TWIC PMA Embedded Chip Number Card Program era (August 2006 - February 2009) was considered a notch above what “Fast Pass” is today.

In October of 2007, SSA Director of Maritime Security Curt Campbell was asked to manage the TWIC Program for his company. Campbell then sat down with Ray Bell, the former head of CISCO Engineering, and owner of IT based network companies Smart Pipes, Silver Spring and Grid-Net (the company who partnered with GE to build residential ‘smart’ meters). Together, they sketched out the whole system; even down to the Multiplexer transmitters and receivers needed as an option for Terminals that failed to recognize the powers of light speed.

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Campbell continued to dedicate himself to finding a successful solution for the TWIC program that would exceed all expectations. In the months to follow, he became the newly elected chairman of the West Coast Maritime Terminal Operators Association’s Subcommittee, which focused its initial efforts on a Regional TWIC Database for the Ports of Long Beach and Los Angeles. Eventually, however, the Regional Database discussion went back on the shelf.

In April 2009, the final rollout for TWIC implementation took place on the Port Complex of Long Beach and Los Angeles. The TWIC Card in effect would become a “Fast-Pass.” Port Authorities and Terminal Operators would spend the next several years submitting Investment Justifications (IJ’s) while lobbying for Port Security Grant Funding, to build-out TWIC Systems that supported a Biometric configuration, as per MTSA design.

Challenges and Solutions

In October that same year, SSA’s Prototype Project encountered the first of several obstacles in the design phase, one of which was the absence of the “TWIC Card Reader Final Rule” leaving the selection of “ICE List” approved card readers up to the individual Grant recipients. Intense lobbying by TSA and the NMSAC TWIC sub-committee’s plethora of card reader manufacturers pushed hard for Proximity Card Reader Technology. According to Campbell, implementation of a biometric technology solution based on a Proximity Card Reader Interface was not feasible for the Prototype Tests. No regional database existed at the Terminal level, and Prototype participants were ill-prepared to build a database, one trucker at a time.

Early Prototype Projects stalled because they couldn’t compress the National TWIC Database into regional files by uploading the database out to the participants. As it turned out, 70 percent of TWIC Cards over 3 years old were broken and Proximity Card Readers don’t work with broken cards (antennas) and trying to encourage Truckers to renew or replace

their TWIC, while the Maritime Industry was in the “Flash Pass Era” was an impossible task.

Since Proximity Card Readers need an antenna and a local database to function, the Pilot Projects were arguably doomed from the start. In the end, building the Prototype Systems around TSA’s timelines became a matter of guesswork. To this day, no one knows what to expect in the TWIC Card Reader Final Rule.

Because of the ambiguous nature of USCG Policy when it comes to the MTSA, implementation of the Final Rule will likely be left up to the discretion of the Terminal operator. As long as the Facility Security Plan covers every possible contingency and the TWIC System meets the minimum standard at all MARSEC Levels, Port Authorities and Terminal Operators will be able to adapt to anything that supersedes “Flash Pass.” That being said, anything less than a Biometric configuration for Priority 1 Ports would be considered a massive failure. The positive side to the “minimum standard outcome” is that 2.5 million people have been vetted against the FBI’s Criminal History Database and the Terrorist Watch-List. 10 years after 9/11 – and for better or worse – the TWIC Program has become the foundation of Port Security in every corner and waterway of the United States.

In 2008 and when SSA’s TWIC project fell short of expectations, Campbell brought in LVS Consulting and TRL Security Systems, who helped make the system pass muster with the Federal Auditors; a required step in projects of this nature. He challenged TRL Systems to take his conceptual design and build a system that could not only verify the identity of thousands of TWIC card holders, and also ban certain individuals from future entry. After months of strategy meetings with TRL’s Security Division, Campbell turned TRL loose. Later - in November 2011 - 3M Cogent’s recent addition to the ICE List, the newly developed MiY Biometric Access Control Reader, was vetted and employed to form a part of SSA Marine’s fully automated system. From this consortium, the “BeastBox” was created.

**Centralized Command & Control****Meet the “BeastBox”**

Housed in stainless steel, the BeastBox is robust and designed for the hardened maritime environment. Using a “2 is 1 and 1 is none” philosophy, there are no less than 2 BeastBoxes built in to each access control location. At turnstiles, this reduces the bottlenecking during “surge periods” and “shift changes.” Throughput speed is a key metric and the additional BeastBoxes offset heavy foot traffic and provide a backup system in the event of failure. With high readers for truckers and low readers for everyone else, terminals can optimize gate moves in a single trucking lane. As truckers and pedestrians insert their TWIC into the card reader, the system records each transaction, while authenticating the individual cardholder against the TSA cancelled card list granting access to the terminal. In the event of an “Access Denied,” “Biometric Mismatch,” or “Card on Cancelled Card List,” the system registers the discrepancies simultaneously releasing an audible alert in the Guard Shack, while sending out an “Automated Email Notification” that activates the FSO’s cell phone or

computer. In addition to the transaction report on the watchmen’s flat screen monitor, closed circuit television (CCTV) captures and records video of the TWIC, the cardholder, and the area surrounding the access control entry point. Turnstiles are especially tricky, and CCTV does an especially good job of catching pedestrians, who attempt to ‘piggy back’ their way in, or pass a TWIC Card back to another individual, who does not have a TWIC in his or her possession.

The BeastBox is designed for every possible configuration including an emergency override positioned in the guard shack that can shut down the Inbound Turnstiles instantly during a breach of security, or in the event of an active shooter scenario. The HD CCTV card reader camera and facial recognition cameras uses Genetec software that provides cutting edge archive video retrieval technology, the icing on the cake. Supporting access control upwards of 3,500+ gate moves and 1,000 pedestrians daily, the system is configured for the most complex aspect of access control, pedestrian turnstiles and trucking lanes. Beyond this, the BeastBox provides off-the-

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In fully automated Biometric Mode for example once a cardholder is authenticated the system fires the turnstiles, green lights or gate arms in less than 4 seconds. In Card Only Mode, it fires those same mechanisms in less than 2. In Flash Pass Mode – the slowest of all configurations – throughput speed hinges on the ability of the watchmen to press a button to allow access.

By creating its own database, the BeastBox eliminates the need for “Database Enrollment,” an enormous advantage from a future cost perspective. Campbell says, “What we’ve created here is unique. When a TWIC transaction (including first-time attempts) takes place at our gates, the BeastBox automatically captures all of the required elements and fields from the TWIC Card needed to support a well-rounded database. This data is reflected in Transactions Reports on both a flat screen monitor located in the guard shack and the FSO’s workstation, automatically distributing the data into several different formats that are easily retrievable.” Transaction Reports then provide the time and date of the transaction, the cardholder’s name, TWIC card number and a jpeg image of the cardholder, which reflects elements specific to the card. And, because TRL was able to capture the jpeg image off the card without having to dive in to the Pin Code, it allowed SSA to eliminate the need for pre-registration of the Card prior to terminal entry. Campbell adds, “This affords us another way of implementing a ‘Local/Global Banning Strategy’ which keeps individuals who violate our safety rules off our Terminals and assists the USCG during investigations, random screenings, or during Facility Security Inspections. This also helps us during Bomb Threats and when exercising the Emergency Action Plans from an accountability standpoint.”

Networking, Connectivity and Economy of Scale, too

While network-to-network connectivity between Terminal Operators can exist between sequel capable servers to cross-deck-data across the Port Complex, the cost of adding

an Enterprise System to the infrastructure is more of a Port Authority Initiative and doesn’t serve the individual Terminal Operator. Campbell explains, “When we have an issue with a cardholder at one Terminal in Long Beach that same individual is normally banned from all of our other operations. However, these types of events are so rare that, rather than banning the individual by linking all the servers, we simply pick up the phone instead.” Security breaches need to be discussed between FSO’s and FSO’s, who should regularly interact with the BeastBox to become one with the system. By providing a negative transaction report out to other FSO’s, they can sniff out the bad guys in a microsecond, because the system populates itself almost instantly.

The BeastBox can be strategically and ergonomically placed to ensure the safety of truckers and pedestrians during the TWIC authentication process. By incorporating other Terminal Operating Systems (TOS), such as “Clean Truck” into one box (the BeastBox), this further reduces conflicts at the trucking lanes. Full automation allows terminal operators, port authorities and other entities to operate from one centralized location, reducing threat interface, eliminating exorbitant costs, all while exceeding the expectations of the MTSA.

At SSA, TWIC is not a Four Letter Word

Curt Campbell is the Chief Architect of the “Maritime Security Program” for the largest privately held American Stevedoring Company in the World, SSA Marine. He also stepped up to create a working prototype of what could become the model for all other terminals and port authorities who have the need for a robust TWIC Card reader that fulfills the original intent of the MTSA. Where others moaned about the lack of suitable readers for millions of TWIC cards, SSA and Campbell simply went and devised a unique system of their own.

It’s been said that ‘necessity is the mother of all invention.’ It therefore shouldn’t surprise anyone that a marine terminal operator would ultimately be the driver for what looks like the first ever workable TWIC solution. In doing so, SSA may have saved the federal government from having to shutter a program that has cost the taxpayers plenty, with little to show for it (so far). For now, TWIC Lives.