





Exploring Alternative Models for Procuring Back Office Software and Services

By *Fred Philipson*

This article explores alternatives to the current models used to procure back office software and related customer services for toll authorities. One presently viable alternative is to consolidate back office operations, combining the efforts of two or more tolling authorities. The article examines the current state of these consolidations, the related benefits, and potential future developments.

The back office has evolved over the course of the past two decades. In the early 1990's, toll gates came off with the onset of electronic transactions. This decreased the need for toll collectors, and budgets grew rapidly for hardware, software and a new breed of toll industry participant—the IT consultants to keep the systems running.

Within the most recent decade, open road tolling came into prominence, increasing the reliance on the back office even more. As these changes took place, operations kept pace, changing processes and the software that supported them so the growing multitude of electronic transactions, customer accounts, invoices and transponders could be managed. As our industry takes the next logical step, albeit in the midst of an economic downturn, many tolling authorities are revisiting their business rules and the back office software systems they use to carry them out in preparation for the next sea change - going cashless.

As authorities plan for this change, we can find operational guidance by examining the approach of a concessionaire operating a cashless system. According to Antonio Santiago, President and CEO of 407 ETR Concession Company Limited, a Cintra concession, it's all about the information.

“When we took over the operation in 1999, we found the previous system to be good, but it didn't meet our expectations,” explains Mr. Santiago. Tackling issues in one of the most complex operations in the world given its all electronic, open access, closed system business model was an initial priority. “We needed more visibility into the operational problems. We knew some things were not working, but we also knew where to start looking. We started by listening to our customers.”

continues to be managed by employees, rather than by consultants. The system introduced a deeper level of actionable information.

“If you don't measure, you cannot manage things. If you do not measure, you don't understand,” according to Mr. Santiago, who ensures all meaningful performance measurements are rolled up and viewed in one dashboard tool. When it comes to spending money on system changes, Santiago insists on additional analysis via business cases to prove the change is worth the money.

Although public sector operators do not face the unforgiving scrutiny of an investment community fixated on ever-increasing quarterly financial results, start up and brown-field operators alike must seek to contain operational costs as they transition to all electronic tolling in an economic climate that limits their borrowing

Toll operators must contain operational costs as they move to all electronic tolling in a down economy that limits their borrowing power and casts a bright light on leakage.

Once the focus groups had their say, business analysis followed and the requirements for a workflow-based information system were created. The team took what they had learned and developed a new system built on PeopleSoft's existing platform, which

power and casts a brighter light on leakage. Those operators seeking new information systems have probably found their choices wanting.

The most pervasive option is to use design-build to procure a turnkey solution from one of a small number

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of vendors, each of whom will retain ownership of the code, limiting the authority’s ability to source maintenance and enhancement work competitively. The initial “rent” of this code will run from two million US dollars on the very low end to more than five million dollars. Then, plan on spending that much or more annually for “enhancements,” or changes to the system. Although your integrator will add these enhancements to their base system and sell it to others, do not count on sharing in the intellectual property rights, royalties or revenue. Add the millions more spent to engage consultants to keep the IT infrastructure running on millions of dollars of hardware that needs to be replaced every four to five years, add a redundant data center location and you have made quite an investment of the public funds entrusted to you.

In a recent survey of industry IT directors, most respondents said they would replace their back office software systems within five years. This, combined with the re-thinking that naturally comes with a change in process or a downturn in revenue such as we are experiencing now, has

promoted a renewed discussion of alternative means to an end. That is, if all we really want to do is process transactions, keep our customer accounts updated and manage our businesses: do we all need to have our own unique system? If so, is design build the right approach or is it simply that with which we are most familiar?

One “shovel ready” alternative to design-build is to piggyback on the back office software and the related customer service center (CSC) services of another authority. “It wasn’t a hard decision,” according to Mike Stone, who was on the board of directors overseeing Fort Bend County Toll Road Authority’s decision to “subscribe” to the back office software and CSC services already used by the nearby Harris County Toll Road Authority (HCTRA). “We’re not here to build a bureaucracy. We have 18 miles tolled, yet we only employ two part-time people at the authority and they office at home, serving principally as contract oversight.”

To make this happen, Fort Bend County pays HCTRA for each toll transaction, or about a million dollars a year in exchange for providing back



office services such as call center, invoicing, tag distribution and payment processing. Moreover, their agreement allows Fort Bend to participate in HCTRA's contracts for road maintenance and incident management, leveraging the larger authority's pricing power as well as their back office investment. "The low rent operation was a deliberate decision," according to Stone. "We would need to charge 30 percent more in tolls if HCTRA wasn't around."

Fort Bend hopes to collect \$17-18 million in toll revenue from its all electronic road system this year, leaving them with an expense-to-revenue ratio other tolling operators dream of. Additional subscriber benefits include the fact that the subscribing authority's managers are freed up to focus more

closely on carrying out their authority's charter, which probably has much more to do with building and operating roads than renting and enhancing software and managing a CSC services vendor. Caveats are that the participating authorities must accommodate any differences in business rules, the provider must perform as well as the subscriber expects them to, and the political climate must be conducive to such an arrangement.

How does the providing authority benefit? The provider fares well because the additional workload allows them to take advantage of economies of scale, experiencing a lower per unit cost as output increases. This allows the provider to supply more services without spending more than the cost of the incremental services, which in

turn allows them to charge a favorable amount for these services compared to a design-build operation.

Let's say, for instance, that a provider contracts with a subscriber to reimburse them for the costs directly associated with supporting them. If the provider's average cost to process a transponder-based transaction is \$0.38 on a fully burdened basis, they need only ask the subscribing authority for the costs for each *subsequent* transaction. Such costs may be made up of an allocation of merchant fees, system, telecom and customer contact costs. The result can be a two-thirds reduction in the fully allocated cost.

The entire region wins under the provider/subscriber scenario, as the expense reduction for participating authorities allows the toll dollars collected to be applied to something other than needlessly duplicated electronic infrastructure and related back office services. This savings, in turn may keep toll rates in check for longer periods of time. Toll customers receive additional benefits when

business rules within a region are streamlined so that there is only one contact center.

Historically, brown-field authorities in the United States that have consolidated back office operations have seen the benefit of lower expenses. In California, the Bay Area Transportation Authority (BATA), Cal Trans, and Golden Gate Bridge, Highway and Transportation District consolidated operations in 2003. "We were procuring anyway and already had a relationship," said Beth Zelinski, senior program coordinator for BATA. "The fact that the executive-level leadership from the involved authorities worked well together allowed us to avoid issues that may have otherwise constrained the effort."

With the power struggle in check, the team could focus on creating consistent business rules, finding a new vendor and migrating two back office information systems with multiple terabytes of data to one new system. When seeking agreement on consistent business rules, they looked to an

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“80-percent” rule, knowing that they would not agree on all business rules given differing priorities. In the end, they achieved the cost reduction and increased customer service levels they were seeking in spite of the twenty-percent difference.

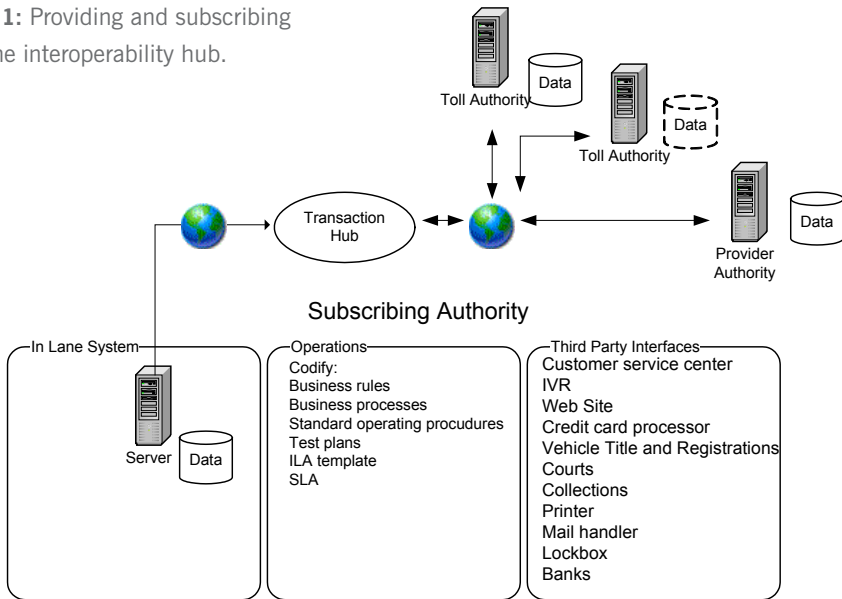
Similar to the California project, the impetus for the consolidation of the back office operation supporting the New Jersey Turnpike, the Garden State Parkway, the South Jersey Transportation Authority, and the Delaware DOT was motivated by the desire to achieve economies of scale. Here, the “80-percent” rule was readily achieved, but the deployment of the back office, coupled with software and technology

errors in the lane created operational issues that caught the attention of the media and ultimately the state legislature.

Spurred by the desire to remedy the situation, a new Executive Director was appointed that quickly addressed the problems. The remediation project was extremely successful in both eliminating the operational problems and bringing nearly 25 percent of all E-ZPass accounts in the nation under one roof. Consolidation can work well even on the largest of scales when agency partners are willing to work cooperatively for the greater good.

Given this success, why do we not see more of the larger, experienced

DRAWING 1: Providing and subscribing through the interoperability hub.



authorities consolidating their CSC operations? Leaders often cite lack of control, the need for congruent business rules between the authorities, politics, and bandwidth considerations as roadblocks. Although each operator's situation is unique, none of these hurdles is insurmountable as those that have gone before us show so well.

Risk and level of service can be controlled by contracts that articulate the governance mechanisms used by interoperable agencies. Business rule differences can be accommodated within the information systems. And legislation that drives business rule differences can and sometimes should be changed.

Historically, the political climate has been both a solution, as in New Jersey's case, and the sole remaining hurdle in others. To an extent, the political nature of toll authority operations can be bridged by promoting discussion, which in turn increases understanding. Current economic conditions may accelerate these discussions, giving the industry an impetus it has not had in the past.

In Texas, for instance, the interoperability hub that each Texas tolling authority uses to route tag-based toll transaction information to each other allows each patron to receive one statement and own just one transponder. The North Texas Tollway Authority is a hub participant that has



moved swiftly toward an all electronic tolling strategy. According to Clayton Howe, the Authority's Assistant Executive Director of Operations, the shift requires focusing their efforts in four areas; increasing transponder usage (the least expensive transaction type), increasing the number of pursuable transactions (system leakage minimized), increasing the effectiveness of the collection process, and lowering operational costs. According to Mr. Howe, "By working together with our interoperable partners via the hub, each of these areas has improved."

The Team Texas organization plans to upgrade the hub so it can transmit image-based transaction information as it currently does tag files. Once the software is updated, any authority using the hub can ostensibly use one of the other authorities as a service provider.

As depicted in Drawing 1, if the subscribing authority's business rules and third-party interfaces are codified and shared, their lane level data can

be carried to any authority subscribing to the hub for processing, allowing a multitude of provider choices for subscribers. If a relationship between a provider and subscriber doesn't work out, there are comparatively low switching costs involved in sourcing a new provider, thus reducing subscriber risk, increasing flexibility and maintaining competitive pricing and service levels.

Similar thoughts are brewing in Florida. "About six years ago, we began thinking about consolidating systems for all Florida tolling authorities. To date, there have been a lot of inter-



relational conflicts that prohibit this," according to Steve Andriuk, deputy executive director/director of toll operations of the Miami-Dade Expressway (MDX). Currently MDX

uses the Florida Turnpike Enterprise (FTE) statewide SunPass back office to maintain customer accounts. MDX has written an RFP for a back office software system that any other authority may use to procure their services. Other toll authorities have shown interest and some are in the discussion stage.

Along these lines, Florida tolling authorities in the Alliance for Toll Interoperability have begun sharing license plate data with the E-Z Pass network in a pilot program.

Under any of these regional service center scenarios, costs will most likely be shared fairly among participants. An add-on benefit from these efforts is that the costs of providing these services are becoming known and shared, adding transparency to our industry. Because the models allocate indirect costs in a consistent manner for each authority, valuable cost and process benchmarking becomes a reality for the first time.

The "Benchmarking: Valuable Tool or Waste of Time" article in the Tollways Winter 2007/2008 edition, along with the subsequent "Customer Support Benchmark Study," published by those authors in conjunction with OmniAir, clearly demonstrates the industry's willingness to share the details of back office operations that were previously well-guarded.

The study clearly shows a lower cost structure in account ownership for the higher volume agencies that

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participated in the study. But even so, are the resulting fees for these services as provided by the authorities going to be as low as if the providers were profit-driven entities?

Rather than compete for toll authority dollars by selling closed, proprietary systems, the systems providers that also participate in the CSC services market could extend their expertise to initiate regional or even national service centers. Rather than a cost-sharing strategy, these centers would be driven by the profit motive, competing with each other and with the public-sector offerings based on service level differentiation and cost. The more subscribers, the greater the economies of scale. The more scale, the lower the average cost of supplying the services, thus providing all involved sufficient incentive to drive costs lower and level of service higher.

One recent example of the adoption of this model is where the Delaware River Joint Toll Bridge Commission (DRJTBC) contracted directly with a systems provider for both CSC systems and CSC operations, which are supported nearly 1,500

miles away—in Texas. This software as a service model delivers many of the economic benefits of a provider-subscriber relationship, yet here the authority has additional flexibility such as implementing its unique business rules.

An increasingly viable opportunity for cost reduction in the back office may arrive via vendors that provide authorities with merchant services; processing credit, debit and ACH payments. After all, don't the Visas and Mastercards of the world already process transactions, send out invoices, update your account, take your phone calls and provide you with a statement? Additionally, those in the merchant services space already process transactions directly for governments for tax receipts, license fees and payments from the court systems. The systems gap is depicted in Drawing 2.

In Germany, among several toll payment methods for registered users, tolling operator TollCollect uses the services of Lufthansa's AirPlus, which performs all transaction processing services including procurement after taking the transaction files generated by onboard units installed in trucks. "We

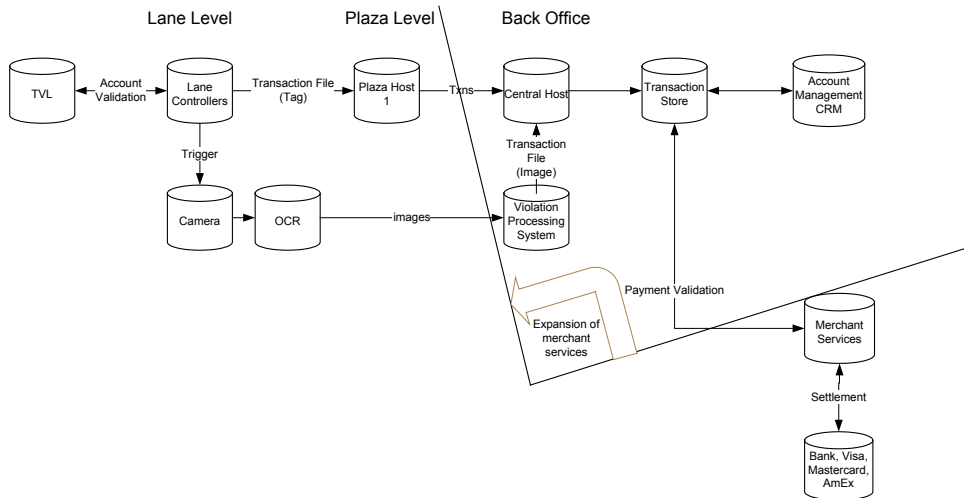
are a country-wide payment processor now and will soon provide the same services for France and Italy, which will be entirely interoperable,” according to Christian Kersten, Executive Director of Tolls for AirPlus. When this is implemented, AirPlus and the subscribing European toll authorities will have overcome a broad range of business rule, legal and political differences that greatly surpass those confronting tolling authorities in the US.

In a much distant future, it is possible to envision third parties offering toll patrons interoperable passage apart from that offered by

tolling authorities. We currently see these companies offering interoperability within and between states for fleet vehicles such as rental cars for both image and tag-based transactions. A more encompassing third party offering would be a logical extension of this trend. If accepted by the tolling authorities, it could break the current paradigm of customer relationships with a single toll agency.

To date, there have been some very real and necessary changes in tolling and the related service offerings have adjusted in an efficient manner, for the most part, relying on information technology to automate

DRAWING 2: Transaction Direct from Lane to Merchant Services Provider





processes and keep costs in line. Change is needed again as authorities take on the risk and additional customer service responsibilities inherent in an all-electronic tolling operation.

The current downturn in toll revenue could provide a catalyst for

accelerating this change. If tolling leaders select and implement the right model for their organizations, they can emerge from the present challenging environment with a better operation that is sustainable for years to come. Making a break from the current scenario will require leadership.

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