



**e-business case studies**

# GTE:

Leveraging Lotus Domino to capture  
new market opportunities



***Putting e-business to Work***



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Overview

e-business Case Study: GTE

GTE operates an international network that connects more than 250 locations on five continents. In March, 1999, GTE completed the purchase of a controlling interest in the Puerto Rico Telephone Company (PRTC). PRTC is the island's largest provider of telecommunications services to both business and consumer markets, including local exchange, long-distance, wireless and Internet access services. In purchasing a stake in PRTC, GTE sought to strengthen its position in the burgeoning Latin American telecommunications services market.

This case study examines how IBM Business Partner Software Spectrum moved with astonishing speed to help GTE and PRTC capitalize on a major market opportunity created by changes in the regulatory environment. To make the most of a limited window of opportunity, GTE and PRTC required a robust, flexible and intelligent customer management platform that would enable PRTC customer service representatives to quickly and easily log new service orders and manage customer service inquiries. Software Spectrum rose to the occasion by building a Lotus Domino-based solution that not only addressed the immediate need, but also provided a flexible, scalable platform to support a wider range of customers and services as PRTC expanded its service offerings. As this case study shows, Lotus Domino's powerful yet flexible development capabilities proved a key ally as Software Spectrum strove to provide PRTC with the tools it needed to capitalize on a unique market opportunity.

**GTE/PRTC's e-business Solution**

- Transform business processes
- Build new applications
- Run a scalable, available, secure environment
- Leverage knowledge and information

Primary e-business solution attribute  
 Secondary e-business solution attribute

GTE

The Companies

- GTE: Internationally, GTE serves more than 9.4 million access lines and provides wireless services to 3.5 million customers
- PRTC: Puerto Rico's largest provider of telecommunications services

The Web Sites

- [www.gte.com](http://www.gte.com)
- [www.prtc.net](http://www.prtc.net)

The Solution

- Lotus Domino-based Customer Management and Order Entry platform

The Benefits

- GTE estimates that its solution will achieve 100% payback within two years.
- Facilitated growth in the PRTC subscriber base at a rate two to three times ahead of forecast
- Ease of application development enabled the Business Partner to complete the project in one month
- Saved \$200,000 by choosing a Domino-based solution over a proprietary, off-the-shelf solution
- GTE expects to save \$100,000 annually by bringing a large share of application development and support in-house
- Lower training and communications costs; increased administrative efficiency

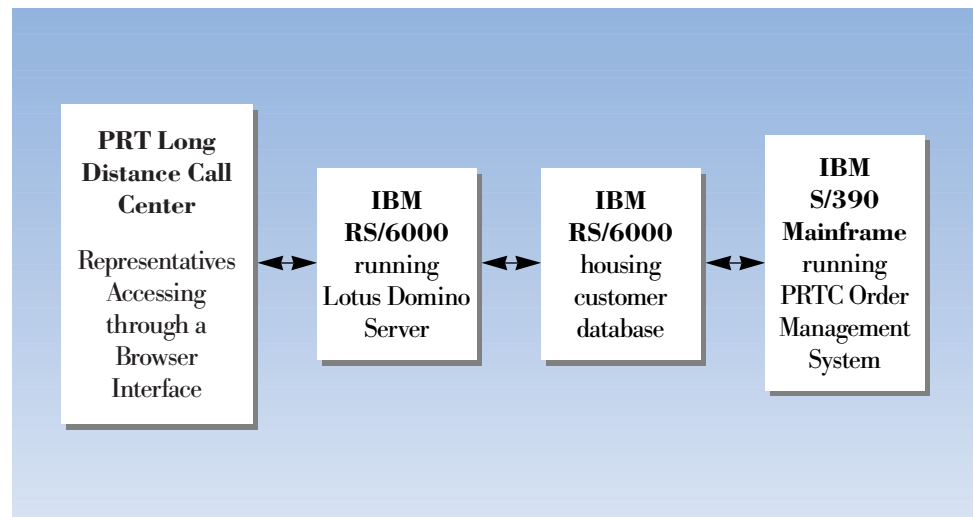
The Technology

- Lotus® Domino™
- IBM RS/6000®
- IBM S/390®

Business Partner

- Software Spectrum

## e-business Solution Profile



Source: GTE and Software Spectrum

Figure 1. Basic System Architecture of the GTE/PRTC e-business Solution

In early 1999, GTE purchased a controlling stake in the Puerto Rico Telephone Company (PRTC), the island's largest telecom services provider. GTE's acquisition of a major stake in PRTC is linked to its broader goal of positioning itself to capitalize on the long-term growth of the Latin American telecommunications services market. Importantly, GTE also saw the opportunity to leverage PRTC's advanced telecom switching infrastructure, through which GTE could deliver a range of new telecom services, thus increasing the size of PRTC's customer base.

The first major services initiative between GTE and PRTC was the formation of a new long distance service, known as PRT Long Distance, through which PRTC could offer "off-island" long distance (*i.e.*, long-distance service outside of Puerto Rico). PRTC's market entry strategy for off-island long distance was built on two main pillars: speedy service deployment and an advanced customer management solution, with the latter providing the platform necessary to support the rapid customer growth it anticipated. To develop this platform, GTE chose IBM Business Partner Software Spectrum, which built an advanced customer service solution using Lotus Domino and IBM RS/6000 servers.

GTE, which exerted the primary influence in specifying the platform's requirements, indicated that its most basic goal was to deploy a customer management solution within PRTC that would be robust, reliable and easy to use. GTE considered user friendliness an important requirement for the solution, reflecting its belief that the ability to move nimbly would be critical to capturing the emerging market opportunity. Moreover, GTE's plans to develop a new system was, in effect, an acknowledgment that PRTC's older order management platform would present a potential bottleneck, since it was more limited in its functionality. By building a new system using the Lotus Domino platform, GTE was largely able to circumvent this potential bottleneck, and in the process gain access to advanced functionality. While the solution's core function is to log new long distance subscribers and handle customer inquiries, it also performs advanced data warehousing functions such as the tracking of usage patterns, billing history, and other information which can be used by PRTC to cross-sell new services to customers.

## Featured IBM Technology

### Lotus Domino

The Domino family of servers delivers messaging, applications and online collaboration fast and reliably for organizations from the smallest businesses to the largest enterprises. Domino helps you reduce costs by making the server easier to administer and the desktop easier to manage.

[www.lotus.com/domino](http://www.lotus.com/domino)

### RS/6000

As the fastest UNIX enterprise server available, IBM's RS/6000 delivers business value while supporting the newest applications in e-business. If you are looking for industry-leading performance for your e-business applications, you don't need to look any further than RS/6000, the engine behind millions of e-business transactions completed every day.

[www.rs6000.ibm.com](http://www.rs6000.ibm.com)

### S/390 Parallel Enterprise Server

S/390 can help you define the standard of enterprise computing by providing scalability, availability, security, openness, the flexibility to handle mixed workloads and a low total cost of computing.

[www.ibm.com/s390](http://www.ibm.com/s390)

PRTC's e-business solution is comprised of a Lotus Domino server running on an IBM RS/6000, which is linked to another RS/6000 running an Oracle database containing customer information ranging from name and address to usage and billing history. The solution also employs Javascript for a number of tasks, including data formatting and validation. The newly-developed Domino-based system interacts with PRTC's core order management system, running on an IBM S/390 Parallel Enterprise Server, in two ways. First, to facilitate the periodic updating of the general customer data file stored in the RS/6000 database, customer data is periodically uploaded from the mainframe to the server database, where it is accessed by PRTC customer service representatives. Data also flows from the Domino-based system to the legacy customer management system through daily batch process runs, during which data on new customers is downloaded to databases resident on the mainframe. This data is then used as the basis for such core operational processes as billing and service provisioning, which continue to run off PRTC's mainframe-based system.

The main users of the system, customer care representatives, access the system via a Web browser. After new customers subscribe to PRT Long Distance service, customer service representatives use the system to create service orders, which are then stored on the RS/6000 back-end database server. The service order process is completed when the new customer data is delivered from the RS/6000 back-end database to PRTC's mainframe-based service order entry system.



## Planning and Decision Environment

**“From the very beginning, we were impressed with their knowledge of the requirements of the long distance market... In addition to a strong knowledge of the Domino environment, Software Spectrum experts had a good understanding of the competitive environment, as well as the technology associated with providing long-distance services. We came away feeling confident.”**

— Tommy Daughetee,  
Group Manager, International  
Product and System Support  
at GTE

Planning for the PRT Long Distance customer management solution, begun in November, 1998, was driven by GTE's Product and Systems Support Service organization. According to Tommy Daughetee, Group Manager, International Product and System Support at GTE, the main imperative governing the planning process was the need to have a system in place by February 2, 1999, when the new service was to be launched. “We needed to build a customer management solution from the ground up – and in a very short time frame,” says Daughetee, who spearheaded the planning of the solution. “This meant that our first criterion in choosing a platform was that it provided an environment for rapid application development. On this basis, Lotus Domino emerged early on as the strongest contender.”

While rapid application development capability was a crucial requirement, GTE also demanded advanced functionality, such as the ability to track billing and calling history. “We've always viewed easily accessible customer information as a vital part of our plan to introduce new services in this market,” says Daughetee. “Our challenge was to quickly put into place a cost-effective solution that would also provide us with a strong customer management and marketing tool for the future.” Early in the evaluation stage, GTE considered a handful of packaged customer care solutions designed to support long distance service providers, but soon found their costs prohibitive. The final requirement for the new customer care platform was user-friendliness, which would both shorten and smooth the process of training new representatives to use the new system. “We needed a system that we could easily train our reps on because it was really a new environment for them,” says Daughetee.

In late November, 1998, GTE made the general decision to use Lotus Domino as its core platform technology, primarily citing its rapid development capability as well as its overall flexibility and versatility as a platform. The next step in the process was to decide whether to build a solution from scratch, or to acquire a ready-made Domino solution. According to Daughetee, the fast approaching launch date for the new long distance service initially increased the appeal of an off-the-shelf solution, which promised a shorter overall time to deployment. However, GTE soon concluded that there were no packaged Domino-based applications available that could provide the functionality that it demanded. Enter Software Spectrum.

GTE first met with Software Spectrum, an IBM Business Partner, in late December, 1998, barely five weeks before the new off-island long distance service was to be announced. Daughetee notes that his initial meeting with Software Spectrum left GTE favorably impressed. “From the very beginning, we were impressed with their knowledge of the requirements of the long distance market, which they had acquired from numerous engagements in that area before,” says Daughetee. “In addition to a strong knowledge of the Domino environment, Software Spectrum experts had a good understanding of the competitive environment, as well as the technology associated with providing long-distance services. We came away feeling confident that we'd have a solution up and running by February 2, 1999.”



## Goals and Business Drivers

GTE's Puerto Rico initiatives have been driven by the market opportunities recently unleashed by regulatory changes, the most important of which is the implementation of "dialing parity." Under this new scheme, which was designed to level the competitive playing field in Puerto Rico, PRTC's customers now have the ability to use PRTC for off-island long distance service. According to Daughetee, PRTC's market opportunity stems from the advantages inherent in having a large customer base for on-island long distance services. "As the off-island opportunity opened up and became more competitive, our challenge was to capitalize on PRTC's large base of on-island long distance customers by also making them off-island customers," says Daughetee. "We needed to capitalize on the strength of PRTC's customer base, which provides us with a major source of competitive advantage."

As PRTC sought to shift its existing customers to off-island long distance service, one of the key challenges was to create a customer service infrastructure that could adequately accommodate the influx of customers. Daughetee sees the PRT Long Distance initiative as a prime example of the importance of customer service capability to GTE's globalization strategy. "Our strategy for globalization is built on a foundation of strong customer service capability," he says. "In terms of strategic importance, it's one of the top hitters and it figured prominently in our assessment of what we needed to do to succeed with the PRT Long Distance initiative."



***"Our strategy for globalization is built on a foundation of strong customer service capability. In terms of strategic importance, it's one of the top hitters and it figured prominently in our assessment of what we needed to do to succeed."***

— Tommy Daughetee, GTE

## Implementation Timetable and Strategy

**“We put in some long hours. In fact, it was not unusual to see some of our developers working 24 hours, around the clock. This is because we were bound by an extremely challenging timetable, and we were committed to making it.”**

— Vince Dade, Software Spectrum project manager of the PRTC engagement



With time short, Software Spectrum began designing and building the solution in late December, just days after the initial meeting. According to Vince Dade, project manager of the six-member Spectrum Software team, the PRTC implementation was very unique from the start. “Our usual practice is to first plan the solution based on its specifications, then build it based on those plans and specs,” he says. “But for the PRTC project, all the planning, development, and implementation had to essentially be done simultaneously, with us delivering a turnkey solution to the customer. This presented some unique challenges.”

As a result of the compressed time frame within which it was required to deliver a solution, Software Spectrum’s approach to the design of the solution differed substantially from its usual practice. “Most of our development plan was done by whiteboard, which was new for us,” notes Dade. “Due to the speed with which GTE’s initiative had to move, there was really no time for them to put together a requirements document or set of specifications, which is usually at the core of our design approach. So we were effectively going out on a limb because we had to *interpret* what they wanted, and in many ways that was a moving target.”

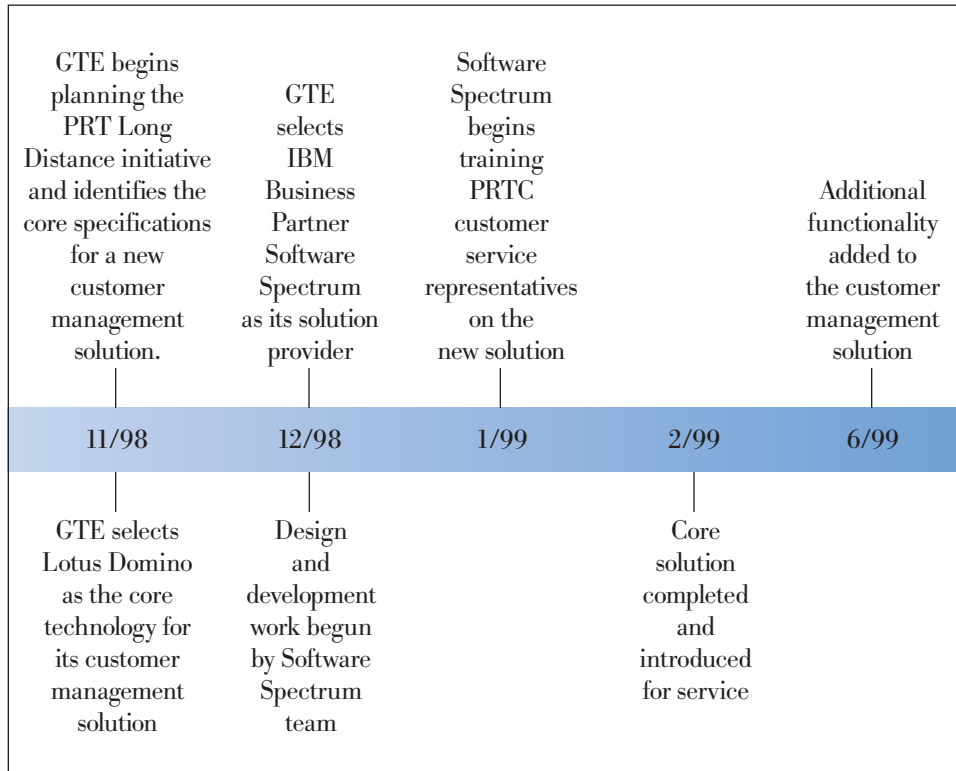
Software Spectrum adapted its design strategy by constructing the solution in a modular fashion, with specific members of the development team working on different elements of the solution, which included:

- the new order-processing component which generated the letter of authorization for new service;
- two billing components (billing detail and billing history);
- customers’ service and usage history, and
- the solution’s interface and navigation structure.

The final – and arguably most important – phase of the implementation was the synthesis of each of these elements into a tight, cohesive, and fully functional solution. Dade believes that his team’s commitment to making the February 2 deadline was shown most clearly in this phase of the project. “We put in some long hours,” says Dade. “In fact, it was not unusual to see some of our developers working 24 hours, around the clock. This is because we were bound by an extremely challenging timetable, and we were committed to making it.” And on February 1, 1999, they did.

Once the core system had been deployed, the Software Spectrum team met with a group of customer service representatives to get their feedback on the system and to train them to use it. Dade notes that satisfaction with the system was high from the outset. “The representatives liked the ease-of-use provided by the Web-based user interface, as well as the access to customer information that it provided,” says Dade. GTE’s Daughette concurs, “There was a lot of excitement about the new technology at PRTC, and that made the transition easy. All in all, the system required very little training.” This despite the fact many PRTC employees had never used a PC.

In the months following the launch of the core solution, Software Spectrum made significant enhancements to its functionality, including the ability to offer additional calling plans to customers. In June, 1999, after the Software Spectrum engagement ended, PRTC’s IT personnel assumed the primary supporting role for the system. Looking back, Dade attributes his team’s success to an excellent working relationship between the Software Spectrum team and PRTC’s internal IT staff. Dade also cites both his team’s coolness under pressure and single-minded determination as critical factors. “As we got closer to completion, we were all on pins and needles because we realized that we had essentially no margin for error,” says Dade. “But we did it, and it took a lot of work.”



Source: GTE and Software Spectrum

Figure 2. Implementation Timetable for the GTE/PRTC e-business Solution

## Return on Investment

**“Domino was definitely the optimal platform for us because we could do our development rapidly and prototype really quickly. Literally every few hours we could go back to the customer and get their feedback, which could then be channeled back into the development effort. It was definitely the best platform that we could use, given our situation and demands.”**

— Vince Dade,  
Software Spectrum

One of the most revealing testaments to the overall effectiveness of the new PRTC Domino-based e-business solution is the fact that it has performed flawlessly even as its new subscriber growth has run two to three times ahead of forecast. In this respect, the PRTC solution has achieved its primary goal: to enable GTE to quickly and cost-effectively capitalize on the market opportunity presented by changes in the regulatory framework. The decision to use the Domino platform as the foundation of its customer management platform also yielded a number of subsidiary benefits, nearly all of which are related to Domino’s inherent functional strengths.

For GTE, the main benefits derived from using Lotus Domino are related to its speed and flexibility as an application development tool, without which PRTC’s ability to introduce long distance service – on time and on budget – would have been in doubt. “The most important benefit for us was the ease-of-use and ease-of-development of the Domino platform, which enabled us to get the solution up and running in very short time,” says GTE’s Daughetee. Domino’s inherent flexibility and versatility have also benefited GTE by laying the groundwork for easy modifications, thus enabling reuse of the core platform in other initiatives. “GTE’s strategy was to build a solution that was both configurable and could be reused in other settings by our affiliates,” says Daughetee. “We would be hard pressed to find a more flexible and versatile platform than Domino.”

On a practical level, Software Spectrum’s Dade explains that Domino earned its stripes in the heat of a highly iterative development process, that required close collaboration with the customer on an almost constant basis. “Domino was definitely the optimal platform for us because we could do our development rapidly and prototype really quickly. Literally every few hours we could go back to the customer and get their feedback, which could then be channeled back into the development effort. It was definitely the best platform that we could use, given our situation and demands.”

Domino also proved a more cost effective environment for Dade’s team, in large part because of its rich integration capabilities. “Domino gave us both a messaging backbone and tools that allowed us to integrate the solution with a back-end database. This meant that we didn’t have to go out and buy additional components,” says Dade. “Because we had everything we needed right out of the box, we were able to work with Domino without having to incorporate a lot of different skill sets. This made the project easier to manage, streamlined our efforts, and shortened the development cycle.”

While cost-based comparisons are difficult to make – because the service is new and there was essentially no infrastructure to replace – GTE sees various cost reduction benefits from using the Domino platform. One of the most important and immediate is the substantial savings GTE realized in selecting a custom Domino solution over a packaged, proprietary solution. Daughetee estimates that GTE saved \$200,000 in upfront costs by selecting a Domino-based solution over a packaged solution. Daughetee also believes that the selection of Domino will reduce GTE’s ongoing support and development costs, by virtue of GTE’s ability to perform its own development going forward. “The simplicity of the Domino solution has made the issue of technology transfer much more practical,” says Daughetee. “As a result, we’re now going to be able to do much more ongoing development and application support in-house, which should save us more than \$100,000 annually. We expect investment in the new solution to pay for itself entirely within two years.”

Other upfront cost benefits include lower training costs, which both Daughetee and Dade see as a direct result of the system's ease-of-use. Another source of cost reduction is the general increase in the efficiency of communications associated with the processing of new orders and customer inquiries. These include eliminating the practice of faxing forms and other inefficient forms of communication.

<b>Overall Benefits</b>	
<b>Function</b>	<b>Benefit</b>
Scalability	Platform facilitated growth in the PRTC subscriber base at a rate two to three times ahead of forecast
Application Development	Ability to perform rapid application prototyping Flexibility of the Domino platform will allow GTE/PRTC to reconfigure the solution to perform in other settings
Cost Savings and Avoidance	Solution expected to achieve 100% payback within two years Saved \$200,000 by choosing a Domino-based solution over a proprietary, off-the-shelf solution Expects to save \$100,000 annually by bringing a large share of application development and support in-house (made possible by the simplicity of the Domino-based solution) Lower training costs Lower communications costs and increased administrative efficiency Domino's "out-of-the-box" capabilities eliminated need to invest in other software components

*Source: GTE and Software Spectrum*

*Figure 3. Benefits of GTE/PRTC e-business Solution*

## Implementation Issues/Lessons Learned

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**“We found that we were often changing the solution’s design parameters on the fly — going along day by day — which meant we had to be highly flexible.”**

— Vince Dade,  
Software Spectrum

Software Spectrum’s Dade believes that the most significant implementation issue his team encountered was the completely “blank slate” it encountered at the start of the project. Indeed, Dade and his team saw themselves as operating in a virtual vacuum, since there was neither an existing platform against which to benchmark nor a clear set of specifications provided by GTE. According to Dade, these conditions made resourcefulness and project management expertise even more critical to the successful execution of the project. “In the early stages of the project, each member of the team had developed their own vision of the solution’s architecture, and how it should work,” he notes. “Our challenge was to fuse together all of these different visions in a short time frame and make it work as a robust solution.”

Aside from having no reference points for the PRTC customer management solution, the development team also had to contend with a constantly shifting set of customer demands. “We found that we were often changing the solution’s design parameters on the fly — going along day by day — which meant we had to be highly flexible,” notes Dade. One major example of this “change on the fly” approach was seen in the design of the user interface. Dade explains: “When we took on the project, it was originally defined as an English-only application. But two weeks into the development process, we met with a user representative who tested the interface and declared that for the system to work, it must also support a Spanish-language interface. We addressed this change without losing our stride, and it now represents a part of the solution that we’re especially proud of.”

Dade and Daughetee both initially thought that the issues of training and acceptance of the technology would present barriers to getting the system staffed and running under its tight time frame. “Many of the people who would be using the system had been using green screens for years and years,” notes Daughetee. “Not surprisingly, a key concern of ours was that fear of the unknown would lead to push back. But our fears proved unfounded, since they really embraced the technology. I think the design of the solution really had a lot to do with getting such broad buy-in from the PRTC staff. This is just what we needed to move forward and make the most of the opportunity before us.”





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