



Welcome to the SRA America Newsletter

Express Yard and PostgreSQL

There was a time when the only way to travel was by rail. Recall your childhood history class and you learned the west was won by expanding the Railroad across the continent.

A lot has changed since then. In the space of just a hundred years we have witnessed the displacement of the rail system as the prime mover of people in favor of the automobile and airplane. Most people are under the impression now that the rail road is obsolete: well, they're wrong.

Today, the North American railroad system is very much alive and recently is undergoing a large amount of growth. Its relevance however has shifted from moving people to that of moving goods. You can always tell when something works right because you never hear about it. The objective of this executive summary is to shed some light on how SSG Innovations LLC keeps the growing fleets of the railroad working and on time with their online system using PostgreSQL called Express Yard.

The Company Background

SSG Innovations LLC is more than just a software development house. SSG is what you might call a full service establishment. Not only do they furnish software solutions for a given environment but they work with the client to understand what they want, and more importantly what they need, to carry out their business functions. Their systems analysis approach looks at the big picture, beginning with an understanding of the client's business operation, assessing the current software and hardware configuration and ending with the client's bottom line. The best solution works because it's based on a realistic budget.

You can only always tell you've got a good team working for you by looking at their customer base. SSG Innovations counts clients from the small business of less than 10 employees to those of the enterprise with over 1,000 workers.

Currently, SSG is working on projects that leverage the Internet using wireless hand held devices and standalone PC applications. These cutting edge solutions have found a home in industries that include the transportation, telecommunications, financial and retail sectors respectively.

The Challenge

The railroad industry is currently going through a series of upheavals. The Association of American Railroads estimates that over 200,000 employees currently work in the nation's railroad infrastructure. In a press statement, Edward R. Hamberger, President and CEO of the Association of American Railroads, North American freight railroads are expected to hire 80,000 workers over the next 6 years. These hires will all be in an effort to keep up as the industry expands its role as the most efficient and environmentally friendly industry that moves the freight of the nation.

Due to the recent increase in traffic on American roadways and a dramatic rise in fuel prices since 9/11, the railroad has become a handsome alternative to trucking. In an effort to keep up with the rising demands, many railroads are working to quickly expand their fleets and rail infrastructure.

With the growth of rail fleets comes the inherent growth of maintenance needs which in-turn produces mountains of billing information to process.

The Situation

Today's rail-yard is a hive of constant activity. Cars are constantly coming and going and being directed in a number of directions carrying all sorts of material. Maintenance is an ongoing activity at all hours of the day. With growing traffic volumes requiring more efficient management, it leaves little to no room for error. Now railroad clerks are being forced to process more information in less time. Existing, archaic paper systems simply can't keep up with the growing demand for accuracy, efficiency and quicker accountability.

Making the need for efficiency even more of a nightmare, the rules, pricing and standards for freight car repair are continuously changing and becoming even stricter. Field inspectors, repair crews and office staff can quickly become bogged down trying to make sure that the information that they are using to report and price repairs is accurate and up to date.

Doing all of the above, while at the same time saving money, sounds like too much to ask but SSG Innovation's Express Yard System is the right tool for the job.



Express Yard is an on-line, wireless hand held based system for managing the daily operations of a railcar repair and maintenance facility. Express Yard permits you to monitor car movements and operations such as railcar repair and cleaning. It also tracks billing, inventory control and work order generation. The database back-end is of course PostgreSQL.

The Recipe for Success

The Express Yard team didn't initially consider PostgreSQL. As reported by Robert S Wojciechowski Jr, SSG's lead software architect, SSG Innovation first looked at the traditional "enterprise" offerings.

Oracle was rejected outright because it was simply too expensive. MySQL was found insufficient because of its lack of features. For a time, Microsoft SQL server was courted as a potential candidate. However, it too was dropped when it was realized that its feature set wasn't as close to the requirement needs that PostgreSQL could fulfill. PostgreSQL was also found to have a more cost effective initial implementation and upgrade path than MS SQL Server.

Dependability was a crucial decision factor. Robert says, *"Our customers put much faith in us when they utilize Express Yard as the only place to record all of the activities for a facility. We take that responsibility very seriously ..."*

Combined with FreeBSD, another BSD licensed product where no license fees are necessary proved a potent combination since it leveraged the existing platform at no extra cost. Thus allowing SSG Innovations to pass on the savings to their customers.

Success

Robert reports, *"Over the last few years PostgreSQL has proven itself to be a reliable and trusted database for our customer's data."*

Justin Gillam, spokesman for SSG Innovations told us that *"PostgreSQL has proven to be stable, fast and reliable. Not only does it support most of the latest SQL standards but it also supports many innovative features not found in other commercial and free databases (user defined data types, the ability to program stored procedures in a multitude of languages). Multi Version Concurrency Control*

(MVCC) has also proven to be extremely helpful, which many database lack and require more complex database layer code to handle locking issues correctly."

SSG's use of PostgreSQL has allowed them to develop an application that can keep up with the changing demands of the railroad industry without having to inflate the cost for their customers. The object-oriented nature of PostgreSQL makes Express Yard easy to develop for and maintain.

Dennis Deacon, Manager of Freight Car Services for the Escanaba & Lake Superior Railroad Company said, *"With my previous system, I was always getting CDs in the mail to update my system. I don't think it was ever up to date, but with Express Yard, I don't even have to worry about updates like that, they are all done for me. Now my company is saving money and has a better billing system."*

As John Brough, Express Yard customer and General Manager of OWS Railcar Services put it, "The Express Yard system is leaps and bounds ahead of its competition and light years ahead in technology".

Justin also says, *"Ever since we have chosen PostgreSQL as our database we have never been disappointed with it. The design is intuitive and the database is a pleasure to work with. It has saved our company in costly licensing fees and allowed us to leverage the latest SQL features and PostgreSQL extensions to create a database design that would have been very difficult to do in any other database. PostgreSQL is by far, in our opinion, the best open source database."*

Express Yard is just the first step into the railroad industry for SSG. SSG has many plans to expand its applications capabilities and customer base.

Future Success

Thanks to the high performance of PostgreSQL, Express Yard is already being used by several railroads and contract rail car repair and cleaning facilities. PostgreSQL is even being used in other, similar projects; one of them was a recently completed project with CSX which is the third largest and Class 1 railroad in the United States.

However, they need not fear for two reasons. The first is Software Research Associates' (SRA) own threaded "windowized" version of PostgreSQL known as PowerGres, <http://sraapowergres.com>. PowerGres comes with a comprehensive commercial support package from SRA. The 2nd reason? Why the newly released PostgreSQL 8.0 with its own native MS windows port.

Yes indeed, the trains are running on time.

References:

<http://www.ssginnovations.com>

<http://www.expressyard.com>

<http://www.aar.org> (Association of American Railroads)

<http://postgresql.org>

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