Norfolk Southern uses integration and analytics to increase operational visibility and customer service

25%
REDUCTION IN TIME TO MARKET

20,000
ROUTE MILES MONITORED

Challenge

"Norfolk Southern is a very asset-intensive business, and we have to be very careful about how we manage these assets," explains Fred Ehlers, vice president of information technology. "Our business is going through tremendous change, from handling bulk commodity industrial products to consumer goods using intermodal containers, which is really where the growth is. With that growth comes service sensitivity and customer demand for knowing where their product is and if it's going to get to the destination on time. It requires a much higher level of service and communication with customers."

"Our number one objective is providing very high-quality service, and because we're so asset-intensive, we have to be good stewards of our assets so we can be very efficient. Some of our challenges are typical of large corporations: We had a lot of legacy information, a lot of point-to-point messaging solutions. We were spending a lot of time building stuff over and over," says Ehlers.

"Our systems and our customers were getting dated and inconsistent information, and that's really what we're trying to resolve. If we weren't able to, it would slow us down. We have a lot of good projects underway, and if it takes us longer to execute, it's just going to delay the benefits," says Ehlers.

"The Spotfire and TIBCO benefit is really across all the platforms, enabling near real-time, concise, coherent data. We save a lot of development time, making time to market a lot quicker."

— Fred Ehlers,
   Vice President of
   Information Technology

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DATA FEEDS CENTRALIZED

"To support the business, our technology objective was to modernize our key systems," says Bob Miller, manager of enterprise architecture. "We wanted high-performance technology that would allow us to create a common, real-time view of core assets—railcars, locomotives, crews, and locations—and analytics to provide a 360-degree view of the state of the railroad to help the business make more informed decisions."

Transformation

"We began our relationship with TIBCO in 2010," says Ehlers. "We were working on a very complex and very expensive Positive Train Control project and needed an integration platform. After working with TIBCO for a while, it became very obvious that we could expand to the whole enterprise suite of production applications. We added Spotfire solutions to do this."

Benefits

"We turn projects around quickly," says Ehlers. "The benefit of Spotfire and TIBCO is really across all the platforms. Together, their solutions enable near real-time, concise, and coherent data. We save a lot of development time because we have centralized business rules, and it just makes time to market a lot quicker. These solutions really allow us to complete projects faster and more efficiently."

With Spotfire and TIBCO solutions, Norfolk Southern improved the efficiency of intermodal terminal operations, reduced contractor costs, and increased capacity. The company now has accurate visibility into inventory at the terminals, and a mobile application provides real-time communication with truckers.

Norfolk Southern

A leading North American transportation provider, Norfolk Southern serves every major container port in the Eastern US and provides efficient connections to other rail carriers for the delivery of coal, automotive, and industrial products. It operates about 20,000 rail miles and is the most extensive intermodal network in the Eastern US.

There are improved planning algorithms for train loading and unloading; additionally, yard operations include optimization models of an electronic work order system for in-terminal trucks and cranes.

"Our event-enabled platform allows us to track and trace assets, recognize threats and opportunities, and provide a mechanism for notifying the business so they can act faster," says Miller. Norfolk Southern increased railcar fleet utilization and reduced rental payments for hired cars. Its detailed tracking model now projects supply and demand, and it can optimize customer railcar assignments and supply the right car at the right time for loading and unloading to make best use of scarce assets.

"TIBCO enables us to create better systems by providing better access to core information," continues Miller. "Customers benefit from our ability to give them more visibility into their shipments." The company's integrated view provides the complete lifecycle of each shipment. It can supply highly accurate and real-time shipment tracking, alerts when shipments are delayed or encounter an unplanned event, and tight integration with customer systems through APIs.

Future

"Now that we have a strong foundation, we want to get into some other areas like predictive analytics within Spotfire," says Ehlers. "We have a lot of Internet-connected devices we can leverage for service recovery. Our employees are coming up with some great analytics use cases. We want to do supply and demand forecasting, and be able to see the network 10, 20, 30 hours into the future."

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