



Washington State Department of Transportation Builds a Data Infrastructure Roadmap on Informatica Data Integration Platform

CHALLENGE

Implement a data integration solution to leverage long-term investments in complex legacy data in mainframe-based Adabas systems and standardize on a single platform for agency-wide data access, management, and analysis

INFORMATICA SOLUTION

- Informatica PowerCenter® and PowerExchange®

BENEFITS

- Reduced development time by 25 to 50 percent and improved systems performance
- Provided native access to mainframe legacy data to drive operational analysis and insight
- Protected long-term investment through standardized data integration
- Increased IT infrastructure flexibility

NUTS AND BOLTS

- Data Integration: Informatica PowerCenter and PowerExchange
- Sources: Packaged/homegrown applications on Adabas/IBM mainframe
- Target: Microsoft SQL Server data marts
- Platform: IBM 2066-0A1 with IFL (Linux engine), 6 CPUs and 8 Gb of Ram

“Informatica PowerCenter has brought consistency to our data environment and helped us modernize our data transfer methods. Its native access to our mainframe Adabas data sources has enabled us to roll out eight data marts in just four years to our analysts, and cut the time our developers used to spend on custom coding by as much as one-half.”

— Chris Kemp, Manager, Data Management Services,
Washington State Department of Transportation

Headquartered in Olympia, the Washington State Department of Transportation (DOT) manages 7,048 miles of road, 3,367 bridges, and a 29-ferry system that moves more than 26 million people a year. Its emphasis on highway safety paid off with a national Safety Leadership Award in May 2005—one year after highway fatalities dropped to 569, the lowest since 1961. The DOT has approximately 6,400 employees and a biennial budget of \$900 million.

The Challenge

Throughout the 20th century, the Washington State Department of Transportation engineered a highway infrastructure that traverses more than 7,000 miles of road and 3,300 bridges, from the wheat fields of Eastern Washington to the rugged coastline of the Pacific Ocean. Washington’s transportation system is recognized as one of the most accessible, efficient, and safe systems in the United States.

Until several years ago, however, the same could not be said of the IT infrastructure that supported the DOT’s financial, construction, maintenance, and traffic safety programs. Most of the agency’s information systems—some dating to the late 1970s—are based on an IBM mainframe and Software AG’s Adabas database, with a highly indexed, hierarchical data structure at odds with modern relational data systems.

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Leveraging legacy data from the insular Adabas environment demanded tedious custom coding, generation of flat files for transformation into relational formats, and high consumption of mainframe computing cycles. Manual development of extraction utilities was costly, inefficient, inflexible to changing requirements, and difficult to maintain by anyone other than the original programmer.

Moreover, this complex, brittle IT infra-structure inhibited access to data that the DOT recognized could be analyzed for insights into improving traffic and highway safety, finance and accounting across multiple divisions, and metrics-driven management of nearly \$300 million a year in capital projects and thousands of contracting firms. To get information into the hands of business-side analysts, the DOT embarked on a data warehousing initiative. The department needed a data integration platform that could:

- Natively access specialized mainframe and Adabas data
- Eliminate customized, ad hoc data access mechanisms
- Supply flexible, high performance data extraction, transformation, and loading
- Provide investment protection through standardized data integration

The Solution

After proof-of-concept testing of the two vendors that offered native access to Adabas data, the DOT in 2001 selected Informatica PowerCenter and PowerExchange for their superior reach into hierarchical Adabas data, simple drag-and-drop development GUI, and the promise to mature into rock-solid technology that would deliver sustained investment protection over many years.

According to Chris Kemp, the DOT’s manager of Data Management Services, the Informatica platform in the ensuing four years has more than delivered on promise.

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As of late 2005, the DOT has used PowerCenter to build and maintain eight data marts, based on a Microsoft SQL Server database with a Web-based Hyperion business intelligence front-end used by roughly 300 DOT managers and analysts. PowerCenter’s pre-built connectivity to Adabas and its ease of use has helped the DOT’s Data Management Services, with two skilled Informatica developers, maintain a brisk pace of deploying about two new data marts each year.

Kemp estimated that PowerCenter has enabled DOT to reduce the development time required to build Adabas data mappings and transformations by 25 to 50 percent, compared to previous custom-coding techniques. Moreover, the DOT was able to redeploy six full-time employees who were previously dedicated to data extraction and report generation to more strategic IT initiatives.

Streamlined data integration was instrumental in enabling DOT to rapidly realize its primary objective—improved analysis, insight, decision-making, and management of tax dollars by highway planners, construction engineers, project managers, and other DOT personnel. Its first data mart, the Capital Program Management System (CPMS), has been vital in helping DOT fine-tune management and budgeting of more than 500 projects in a 6-year pipeline.

Other data marts consolidate collision data and support analysis of road conditions, traffic volumes, and other accident factors. It is a key resource in DOT's overall efforts to improve highway safety. In 2004, there were 569 fatalities on state-owned roads—the fewest since 1961—even though the number of registered vehicles had grown to more than to 5.6 million.

Other data marts are geared for accounting, consumable inventory such as road salt and sand, roadway characteristics, DOT facilities, traffic patterns and volumes, and project scheduling. Future data marts will cover employee labor, human resources, real estate, construction, equipment, and budgeting. In all, the warehousing environment includes about 204 GB of data.

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The Benefits

Reduction of 25 to 50 Percent in Development Time and Improved Systems Performance

Since its deployment in 2001, PowerCenter has helped DOT's Data Management Services developers reduce the time otherwise required for custom coding by 25 to 50 percent and redeploy six individuals previously tasked with manual data extracts and report generation. Those benefits will extend over a number of years as the DOT broadens PowerCenter's role as the agency standard for data integration and eliminates the need for costly resources with specialization in Adabas data access. With an upgrade to PowerCenter 7.2, the DOT has found a substantial reduction in load processing times, so that nightly movement of 2.5 GB is accomplished in less than half the four hours allotted.

Native Access to Mainframe Legacy Data to Drive Analysis and Insight

PowerCenter has provided the DOT with the data extraction and integration component essential to enable it to rapidly roll out data marts that some 300 business analysts rely on for cost-effective project management, budgeting and financial analysis, improved highway safety, and reduction in accidents, injuries, and fatalities. The data marts have been embraced by analysts who previously struggled with mainframe reporting and exporting information to Excel spreadsheets for analysis.

Long-Term Investment Protection through Standardized Data Integration

DOT officials view the agency's deployment of PowerCenter as a sound long-term investment that will pay dividends for years to come by supplying a standardized data integration environment, as well as enabling it to protect and leverage its existing investments in mission-critical legacy data housed in its IBM mainframe and Adabas databases. The DOT also gives Informatica high marks for technical support that has helped it to maximize the value of its data integration platform.

Flexibility for Continued Data-Driven Modernization

With enhanced functionality for data integration in a service-oriented architecture, or SOA, Informatica PowerCenter is likely to play a key role if the agency embarks on an initiative to modernize its 12 key Adabas-based applications into an SOA using Web services standards such as SOAP and WSDL. (In December 2005, the project was under assessment and pending legislative funding approval.) Also on the DOT's roadmap is replacing hand-coded system interfaces with Informatica mappings, and leveraging PowerCenter to transform Adabas data into a spatial format for use by ESRI GIS (geographic information system) mapping applications.

ABOUT INFORMATICA

Informatica delivers software and services to solve a problem facing most large organizations: the fragmentation of data across disparate systems. We help organizations gain greater business value from their information assets by integrating their enterprise data. Informatica's open platform-neutral software reduces costs, speeds time to results, and scales to handle data integration projects of any size or complexity. With a proven track record of success, Informatica helps lead companies worldwide realize the full business potential of their enterprise data. That's why Informatica is known as the data integration company.

More than 2,300 companies worldwide rely on Informatica for their enterprise data integration needs. For more information, please visit www.informatica.com.

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