



### Customer

DTN is an innovator in the production and delivery of news and information to more than 120,000 subscribers worldwide

### Challenge

Teams new to Web services are faced with a tight deadline to create and deploy a business-critical Web service for delivering up-to-the-minute news, weather and information both internally and to customer locations across multiple channels

### Solution

Use Mindreef SOAPscope and SOAPscope Server to test and verify the quality of Web services, and to collaborate among development teams

### Benefits

- Quickly test and verify Web service applications
- Meet aggressive timeframes for project delivery
- Community-based sharing of requests and data for regression testing

### Mindreef Contribution

- Jumpstart Web services development, testing and QA efforts
- Collaboration and interoperability between development teams
- Enable quality-driven Web services for efficiency and business agility

Quality-Driven  
SOA

## Mindreef: A Foundation of SOA Quality for DTN

DTN, a private company based in Omaha, Nebraska, is the leading business-to-business provider of real-time market, news and weather information services to agriculture and energy trading markets and other weather-sensitive industries. The company delivers on-demand market information, commodity cash prices, industry news, in-depth analysis, and location-specific weather to over 120,000 subscribers through DTN for agriculture, refined fuels and trading markets, and DTN/Meteorlogix. More information can be found at [www.dtn.com](http://www.dtn.com).

### The Business Case for Web Services

DTN provides round-the-clock information for thousands of diverse customers with one thing in common— they all need live, accurate information to protect their businesses and organizations. This information is delivered via a variety of Internet, satellite and direct data-feed connections, along with highly advanced analysis and integration tools to help its customers make critical decisions that can protect people, property and profits. Content for DTN services is generated in its newsroom by hundreds of full-time journalists and meteorologists, plus a carefully chosen selection of the sharpest advisors in their respective markets. As a growing global business, DTN needed a standardized way to utilize existing systems, while enabling tighter business relationships and more efficient business processes. The company embarked on a transformation to use Web services as the means to deliver near real-time information to its customers, to automate many of their business processes and to integrate disparate customer-specific data sources from multiple, internal departments – such as a change in physical location or order status – for improved efficiency and business agility.

### New Technology and Deadline Creates Quality Assurance Challenges

The initial project involved creating a Web service that makes a prediction or “Precip Timer” about how soon a storm will hit a particular customer’s location. For the Precip Timer, DTN collects, analyzes and delivers weather-related information to customers across various channels. The project involved building the customized Web services, applications and user interfaces that companies use to view the data. According to Mark Stevens, Systems Design Engineer at DTN, “highly accurate weather information is a critical factor for many of our customers. For example, as the official weather provider of the PGA Tour, the information we provide helps organizers adjust schedules or get people off the course if hail or lightning is eminent.”

From the outset, Stevens knew that ensuring the success of this initial

project would be critical to the future adoption of Web services moving forward, so creating a high quality Web service was essential. However, this would be a challenge because Web service development was a completely new undertaking for the DTN team. The existing testing tools they used were custom-built tools designed for a proprietary messaging system, so new testing tools and strategies would be needed.

Additionally, initial WSDL tests were done with custom test scripts, which were quickly determined to be difficult to maintain and keep up with changes, requiring a significant amount of coding. Finally, the DTN team faced an extremely tight deadline, so ease of use and flexibility in a test tool would be essential.

Stevens added, “When our team started out, Web services were a brand new thing to us. We had a major project upon us and were asked to deliver Web service component of the Precip Timer within two months.”

### **Mindreef Ensures a Quality Deployment**

At the project onset, DTN turned to Mindreef SOAPscope Server –an award-winning diagnostic and testing tool that helps individual developers, testers, support engineers, and consultants solve Web services problems quickly. “Mindreef jumpstarted our entire Web services development and testing, and subsequently quality assurance for that project, helping us meet some very tight deadlines,” said Stevens. “After the Precip Timer service was developed, we saw the value in creating Web services to deliver other information – such as an updated latitude and longitude – allowing our satellite

receivers to immediately adjust and deliver the precise data the customer wants to see.” He also noted that SOAPscope Server helped the team to do SOAP with attachments, regression testing, and asynchronous messaging given the dynamic nature of real-time weather data. As the team expanded its development efforts, it was able to leverage SOAPscope Server for group collaboration and integrated tools for governance, testing, diagnostics and support.

*“Mindreef allows us to quickly test and verify our Web services applications, and make sure they are high quality and function as expected.”*

-- Mark Stevens, Systems Design Engineer, DTN

### **Trusted, High Quality Web Service Leads to Adoption and Expansion**

With the help of Mindreef, DTN was able to successfully deliver the Precip Timer Web service within two months. The initial, high-quality rollout initiated such trust in DTN’s Web services capabilities that development efforts were expanded for the creation of several new Web services. “Each of our business units has a set of customers ranging from the thousands to tens of thousands of companies. Now whenever

an update happens to one of their associated customers, we can immediately route that information via a Web service, alerting our representatives to the change. We also use Web services to command and control certain satellite receivers via the SAVIS network to perform a variety of functions.” One DTN customer estimates that it saves “tens of thousands, if not hundreds of thousands of dollars, annually” because of good decisions based on the best weather information provided by DTN.

As a result of using SOAPscope Server, the team at DTN received the help they needed in the development and testing of high quality Web services, enabling them to share testing data and collaborate among their various teams. “Mindreef allows us to quickly test and verify our Web services applications, and make sure they are high quality and function as expected,” continued Stevens.

### Development

“As a development group, Mindreef allowed us to work through development and testing, and share that knowledge with other teams. We also liked the community based sharing of different requests, and the ability to track and repeat testing for regression testing.” Stevens further noted that Mindreef helps DTN ensure interoperability between internal groups using a defined WSDL and an underlying implementation of GSOAP. DTN also created a Web service interface for legacy OCL messages, and to request information needed to chart what a particular commodity’s 3-year contract average is for a given elevator. “This ongoing development is another way in which Mindreef helped provide interoperability between groups either on Linux or Solaris, as we have a common WSDL and are both using an underlying implementation of GSOAP to create new services.”

### Testing and QA

“For us, it was a tremendous benefit not having to test our own Web service clients. With Mindreef, we simply re-imported our WSDL and the user interface was there, allowing us to go ahead and test with minimal effort, capture a set of tests, and then use that information for regression testing. Mindreef also allows us quickly make changes to the WSDL, lay them out, and show someone without having something fully developed yet. Even if there’s only a skeleton in place, SOAPscope gives them a visual view very quickly of the information we’re trying to transmit, which is much easier than having someone read the actual WSDL.”

### Quality is the Foundation for SOA Success

While the initial implementation of Web services and service-oriented architecture can be a daunting task, DTN focused on quality at design time rather than waiting problems to occur in production, or putting their

deadline at risk with lengthy testing cycles. Their proactive approach to quality across multiple teams involved in the project was critical to the success of the Precip Timer Web service, providing a level of trust that was needed to promote additional SOA projects. DTN’s testing and quality initiatives were faster, easy to execute and more efficient, leading to collaborative quality efforts throughout the service lifecycle. By laying a foundation for quality at the outset of their initial Web services project with Mindreef, DTN has established a process for success that will become a standard practice as new services are added to their SOA, ensuring consistent trust and reuse.

**Mindreef, Inc.** is a leading provider of solutions for the successful development of Web services, enabling organizations to meet their goals for high-quality SOA adoption. Mindreef products enable business analysts, architects, application developers, testers, operations, and support staff to build, deploy, and maintain software for an SOA. Mindreef products are in use by more than three thousand customers worldwide. Mindreef is a private company, venture backed by Kodiak Partners. For more information, visit [www.mindreef.com](http://www.mindreef.com).

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