



At a Glance

■ Challenges:

Automate the manual system for cataloging and ordering fire-fighting resources totaling hundreds of thousands of fire-fighting personnel, aircraft, supplies, and special equipment

Reduce inherent inefficiencies introduced by manual operations

■ Versata Solution:

Use the Versata Logic Server to automate and encapsulate the rules for resource status and ordering, and provide a nationwide repository of fire-fighting resources

■ Results:

Near real-time nationwide availability of resource status

Multi-million dollar yearly savings in more efficient operations

Projected three-year payback period

Fighting Wildfires with Versata

When wildfires make headlines, few people realize the massive tactical and logistical mobilization efforts that shift into gear to bring the fires under control. Many state and federal U.S. agencies are required to manage this nation's wildland fire-fighting resources—resources encompassing hundreds of thousands of personnel, fire trucks, specialized aircraft, and the like. Dispatching these resources, first on a local basis and potentially on a geographic or even national basis if the wildfire escalates, is no small feat. It involves several thousand dispatchers from more than 380 dispatch offices nationwide. Currently, this manual process involves multiple telephone calls and e-mails to various agency offices—consuming precious time while the wildfire takes its toll.

This time-consuming process will soon change with the National Wildfire Coordinating Group's (NWCWG) (www.nwcg.gov) new interagency **R**esource **O**rdering and **S**tatus **S**ystem (ROSS) (www.nwcg.gov/ross). ROSS was built by Lockheed Martin using the Versata Logic Server to manage a centralized repository of the nation's fire-fighting resources and the rules for allocating those resources.

With ROSS, a dispatcher in a threatened area will now select from a web-enabled menu of available resources and electronically place an order for the needed people and equipment. According to Jon Skeels, Project Team Leader with the USDA Forest Service, "Not only will the ROSS application save us millions of dollars in terms of more efficient operations, the ultimate and immeasurable impact is getting those fire-fighting resources to the burn area as fast as we can."

Business Rules in Non-Traditional Setting

Business rules can take on a very different meaning when applied outside the traditional business setting. Skeels explains, "ROSS uses the Versata Logic Server to automate an extremely complex process that can involve hundreds of dispatch offices and hundreds of thousands of fire-fighting resources distributed throughout the country. With that many players, you must have rules and processes governing how those assets are managed and allocated."

The dispatch organization and fire-fighting units are organized by geography with a hierarchy of controls and responsibilities. At the top of the pyramid is the National Interagency Coordination Center in Boise, Idaho. The U.S. is then divided into 11 geographic areas, each with its own Coordination center, and each geographic area is then divided into smaller areas, or zones.

Once a local dispatch office makes a decision to mobilize fire-fighting resources, ROSS presents the dispatcher with a list of the closest available resources directly controlled by that center. The dispatcher selects and commits the required resources, and ROSS adjusts their status so that anyone else looking for

resources will see that they have been committed. If everything goes smoothly and the incident is brought under control, the resources return from fighting the fire and the dispatch office changes their status to “available.”

Says Skeels, “This real-time resource status is so important to us. With the manual process, resource status information was often 24 to 48 hours old. With ROSS, we’re talking near real-time; and that can make a huge difference in how fast we respond to a wildfire incident.”

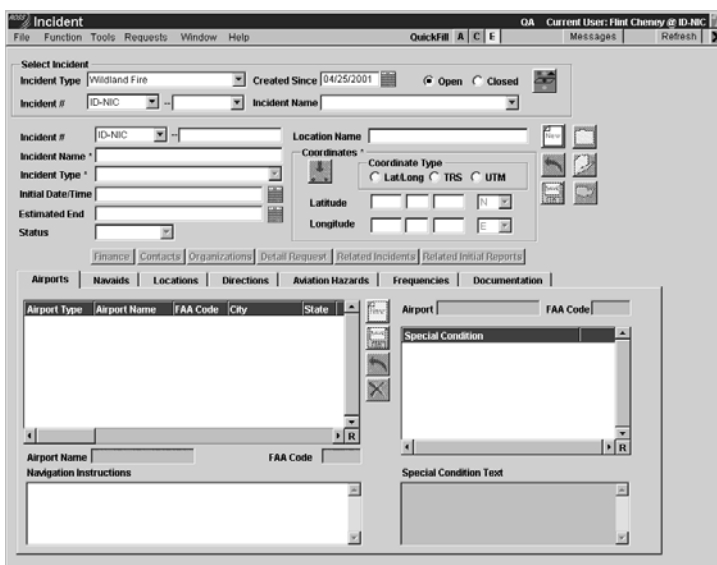
If the fire worsens, a local dispatch office will eventually exhaust its own dedicated resources. In the past, this meant the dispatcher had to get on the telephone to locate additional crews, overhead, aircraft, supplies, and/or equipment. With Versata-powered ROSS, however, a dispatcher can now see, immediately, the numbers and types of resources available in nearby locations.

Why are rules critical to ordering these resources? Skeels explains: “When a local (zone or unit) dispatch office is in need of additional resources, they typically go to their neighboring units for help. If neighboring units are not able to assist, the resource request is escalated to the Geographic Area Coordination Center (GACC) that serves the area. GACC personnel then request resources from other units within the geographic area. Once those resources are exhausted, the next level is the National Interagency Coordination Center (NICC), which has access to the entire nation’s fire-fighting resources. NICC personnel then request resources from other GACCs until the order is either filled or designated as unable-to-fill.”

All of these rules (used in the manual system) are imposed by ROSS and the Versata Logic Server and, according to Skeels, “We know from past experience it will save us the expense and time of moving crews and equipment long distance when, all the time, there were identical resources much closer.”

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Jon Skeels
Project Team Leader
USDA Forest Service



Prototype of a ROSS Incident Screen

What's The Payback?

With so many federal, state, and local government agencies involved, one primary challenge was developing an accurate cost-benefit analysis—a necessary first-step before the project would be given the green light by the NWCG. Since ROSS was the first project of its type, Skeels was breaking new ground with the analysis.

As with any analysis, assumptions had to be made relative to the cost of the software contract and operational labor costs. Because there was no historical data, it was difficult to forecast savings, so the cost analysis was strictly based on savings in dispatch order workload and time requirements. The result of the analysis showed yearly savings totaling millions of dollars and a *payback period of less than three years*.

The Implementation

In March 1999, the U.S. Forest Service (the lead agency) awarded the contract to the Falls Church, VA-based Lockheed Martin Services Group (www.lockheed.com). With its heavy emphasis on rules, Lockheed Martin believed the ROSS project was a natural match for the Versata Logic Server.

Another critical criterion was platform independence. Explains Skeels, “That independence is really important, as we have absolutely *no* control over the systems in those 350+ dispatch offices. And, in critical situations, we’ve had to set up temporary offices in some strange places; for example, at West Yellowstone during the 1988 Yellowstone fires.” As Lockheed Martin moved into the development stage, the ability to extend the Versata Logic Server environment and incorporate custom Java coding for exceptionally complex issues also became critical.

Lockheed Martin delivered the base pre-release version of ROSS in February 2001. Given the dramatic operational changes and the large number of dispatchers who need to be trained, the project team has opted for a staged roll-out that began with the Rocky Mountain Area in March and will progress across the country.

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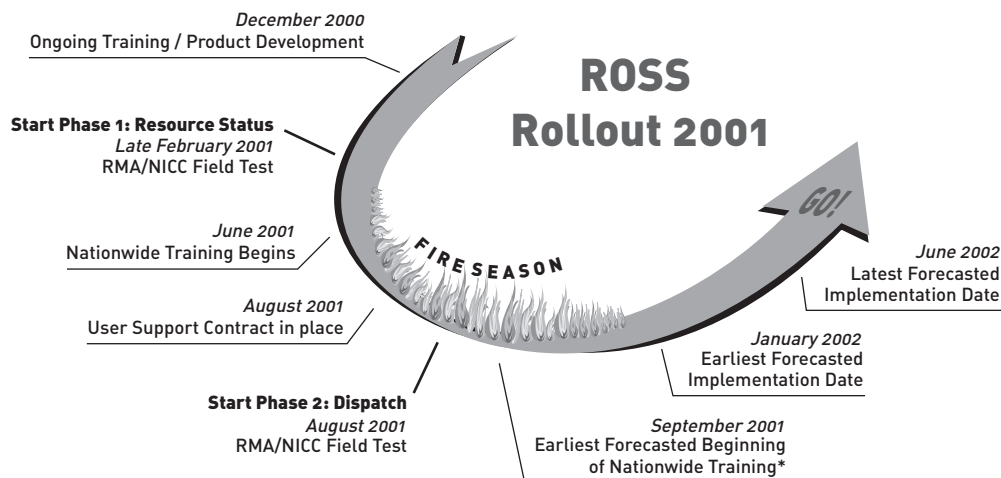
Jon Skeels
Project Team Leader
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ROSS—Not Just About Fire Fighting

ROSS represents a true sense of collaboration among the various agencies empowered with this country's wildland fire-fighting resources. The result of the collaboration—the Versata-powered ROSS application—is this nation's first automated system that utilizes information technology in the deeply complex task of marshalling these cross-agency resources.

Yet, even as the ROSS rollout continues and the system proves itself in the fire-fighting arena, other federal, state, and local disaster relief agencies are watching with keen interest. Floods in the Midwest, hurricanes in Florida, earth-quakes on the West Coast—these and a myriad of other situations represent incidents that require the cross-organization coordination of disaster-relief resources.

While the venues may change, perhaps one day we will see ROSS and the Versata Logic server helping to counter all the destructive forces of nature.



*Training dates contingent upon successful field testing at RMA and NICC.

Automated By Versata

Began Development:
October 1999

Deployment date:
March 2001

Number of users:
Approximately 6,000 full-time and part-time dispatches when fully deployed

Number of developers:
10 to 15 developers with heavy general development experience; 1 developer with Versata Logic Server experience

Business rules:
In the thousands

Integration with other technologies:
ESRI—geographic information system (GIS), Brio Technology—report generation, Starbase—configuration management, DeNova's JExpress—client-side Java download

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