

Best-Of-Breed Mobility Pays Off

By Brian Albright, *Field Technologies* magazine

United Rentals shows how using a mix of software solutions is sometimes the best approach for improving routing and vehicle utilization.



Mobile application providers have increasingly expanded their functionality over the past several years. Where there used to be a host of software providers serving specific functions (field service, fleet management, routing/dispatching, delivery management, etc.), now it is possible to automate multiple functions using a single tool. But not every company can meet its needs using a single provider. Although deploying multiple solutions can sometimes increase integration costs and complexity, companies with unique requirements — like United Rentals — must often take a “best-of-breed” approach.

United Rentals is the world’s largest equipment rental company, offering 3,900 classes of equipment (everything from power washers and air compressors to earth moving equipment, forklifts, and cranes) valued at \$7 billion. Timely delivery and pickup are key to the company’s success, from both a customer service and revenue standpoint. Idle equipment does not generate revenue. To keep its rental assets moving, the company has a fleet of 2,000 trucks spread out across 900 branch locations in the U.S. and Canada.

Until recently, all of those delivery operations were managed manually, which made it difficult to optimize delivery routes and equipment utilization. United’s operations are unique; the company is not delivering packages or flowers or food. The equipment it delivers is large and heavy and requires specialized vehicles for transport. Because its needs were complex and because United wanted to automate both its delivery and fleet management operations, it has deployed its new Field Automation Strategy and Technology (FAST) solution that combines automated delivery, dispatch, and fleet tracking technology, along with rugged mobile computers and real-time communications.

From 900 Manual Solutions To One Automated Solution

Prior to FAST, United relied on paper-based processes to manage deliveries. Depots had to print multiple copies of each rental contract, rental protection plan, and equipment condition report, and provide this documentation to both drivers and customers. That paperwork then had to be returned from the field and filed. “We had this tremendous paper-based system, where the driver could not deliver a piece of gear unless he had this paperwork in hand,” says Kevin Neville, director of technology and enterprise architect, logistics and field operations, United Rentals. “They didn’t know what to load without that paperwork, and they had to get proof of delivery using the paperwork.”

Each branch manually scheduled the drivers. If there were any changes to the schedule throughout the day, the dispatchers had to call drivers on the phone to provide new delivery information. Further, the drivers had to fill out and maintain paper-based vehicle inspection reports and hours of service logs, all of which ate into valuable time the drivers could have been using to pick up and deliver equipment.

“With 900 branches, we essentially had 900 independent, manual solutions to manage,” Neville says. “The people dispatching the drivers were also answering phones to fill new orders. Reps did not have the bandwidth necessary to effectively optimize truck routes. They did the best they could, but we simply were not optimizing the utilization of our resources.”

All of these paper-based processes increased the time it took for drivers to start and complete their routes, required extra trips to each branch to process paperwork, and often resulted in mistakes because of the manual process. This made it difficult to fully optimize the delivery routes so that drivers could complete both deliveries and pickups in one trip. Incomplete paperwork delayed billing and payment, and rental assets already deployed in the field were underutilized because pickups were not scheduled in a timely fashion.

United also wanted to improve safety using fleet management technologies. “Safety is ingrained in our culture, and we want to make sure everybody goes home in the same shape they came to work,” Neville says. “We wanted to leverage the solution to ensure that our CSA [Compliance, Safety, Accountability] requirements were met.”

What To Do When The Solution You Need Doesn’t Exist

United needed an end-to-end solution to automate dispatch, loading, scheduling, vehicle monitoring, safety, pickup and delivery operations, as well back office administrative

tasks. But as Neville and his team evaluated the available solutions, they discovered the solution they were looking for didn't exist. "We launched an RFP. We hoped we'd be able to find a single vendor that could solve our problems," Neville says. "After an exhaustive search, we realized no one vendor could provide the level of capability we needed. So we decided on a best-of-breed approach."

Prior to selecting the software components, Neville outlined the goals for the new solution. United needed to improve on-time arrivals, reduce the time spent at each delivery site, and increase the number of stops per day, while improving equipment turn times in an effort to boost utilization. Fleet management capabilities would enable the company to reduce fuel costs and improve safety, while automating driver logs and inspection reports. Using mobile computers, the company aimed to reduce phone calls and paperwork, while providing advanced proof-of-delivery and condition reports.

While he knew United would need assistance from multiple technology providers, Neville wanted to keep the driver interface as simple as possible. "We needed to make it seamless to the end users," Neville says. "Whether we had one vendor or several, the field users should be isolated from that integration and just see one application."

For the hardware, the company selected Motorola MC75A rugged mobile computers with bar code scanning and camera functionality, as well as wide area wireless and Bluetooth connectivity. Visual Control Room software from Telogis would manage scheduling and load optimization, as well as dispatching and vehicle tracking. XRS Turnpike was selected for fleet management, safety monitoring, and providing data for the hours of service and inspection reports. Finally, Apacheta's TransportACE software would manage delivery and pickup workflow. Reseller Barcoding Inc. managed mobile device provisioning and installation, along with technical support.

Conquering Best-Of-Breed Integration

United rolled out the new system after nearly a year of development. Neville laid the groundwork for keeping the multiple entities involved working in concert as the solution was being designed. "I made it clear early on that we were going to work as one virtual team, and the vendors all needed to be on the same page," Neville says. "We brought the vendors in face to face, so they would know one another. Starting with the early design phase, we had the vendors in at the same time, overlapping their visits."

The biggest challenge was maintaining the data structures across the three primary software solutions and the existing RentalMan ERP system from Wynne Systems. "There were a lot of differences in the way the vendors thought about data and how to store it, and what level of data was stored in each system," Neville says. "We all had to agree on that, and each had to change their structures to some degree to make it work."

During this process, the company piloted the solution in different branch locations and used feedback from the field to enhance the development. The pilots were run across entire branches, rather than a few trucks at a given location. "Early on, the pilots were longer in duration because we had more to learn. They got shorter as we went along," Neville says. "We still pilot new functionality. Pilots mitigate risk. We just did a new iteration of our mapping engine and route optimization engine, so we piloted that at a few dozen branches left it out there for a month, tweaked the solution, and then propagated it to all branches."

Best-Of-Breed Solution Optimizes Routes, Reduces Paperwork

When a request for a delivery comes in, it is entered into the ERP solution and sent to the dispatching system to determine whether the company has the capacity to deliver the equipment at a specific time. If that time slot is not available, alternate times are provided to give the customer more delivery options. "Right away that improved our process," Neville says. "We used to schedule everything for an 8 a.m. delivery because that's what everybody wanted. But you can't deliver to everyone at 8 a.m. Now we can give them a realistic alternate time."

Equipment is matched up with delivery trucks in the fleet (some trucks are built specifically for certain types of equipment). The service department is automatically notified when a piece of equipment needs to be inspected and staged for rental. "That used to involve manual paperwork," Neville says. "Now we can present that information electronically to the service technicians. They can work on the highest priority items first. Once they are staged, the system sends out an automatic notification."

The Telogis Visual Control Room solution creates an optimized schedule for each driver and then sends the schedule and route to the driver's mobile computer. The driver inspects the truck prior to departure, entering the inspection data directly into the mobile computer. As equipment is loaded on the truck, the drivers also use the mobile computers to scan the bar codes on each item to confirm the correct equipment has been loaded. Once at the customer site, the equipment is scanned again as it is unloaded. If there are pickups along the driver's route, they can make those stops during the return trip, again scanning the equipment as it is loaded.

Using the handheld computers, drivers can present rental protection program information, contracts, and other data to the customer and collect electronic signatures for proof of delivery. The handhelds also provide access to condition reports, so that drivers can perform inspections when they pick up the equipment. "We send down the reports to the driver so they know the condition of the equipment when it was delivered, and they can compare it," Neville says. "We can also back that up with photos."

While on the road, the XRS Turnpike solution monitors speed, braking, location, and other data, while automatically logging hours of service and mileage information. United managers can monitor the fleet in real time, which allows them to proactively manage driver behavior and check the status of each truck to make sure the deliveries arrive on time.

Improved Asset Utilization Pays Off

United's routes have been optimized so that drivers can both leave and return with a full truck as often as possible, and equipment utilization has increased. The number of trips made per day has increased, while the time spent at each delivery site has decreased because of the reduction in paperwork. United can offer more accurate time frames for deliveries to its customers and has been able to reduce poor driver behaviors like idling, hard braking, and speeding.

United has also been able to right-size its fleet of delivery trucks. "We've been able to take a good number of trucks out of our delivery fleet because we identified excess capacity with the insight we didn't have before," Neville says. "That frees up dollars because we no longer have to own and maintain that equipment."

One of the most important improvements from a revenue standpoint has been in scheduling pickups. "We've seen a tremendous change in the number of days prior to pickup, which is the time between when the equipment is called off rent and when it is actually picked up," Neville says. Because United can now use the data generated by the delivery and fleet management solutions to measure pickup turns, the branches can capture unrealized revenue by getting equipment back into circulation faster. "Pickup was always considered a cost of doing business," Neville says. "With FAST, we know exactly where each driver is going and at what time, so we can fold in pickups along the way. They come back fully loaded as much as possible. That compresses the amount of time we have these pieces of equipment not collecting rent for us on a job site, and it minimizes the need for inventory. We have a \$7 billion equipment base, so every point we can take off is worth \$70 million to us. If we can be more efficient by one day, that's millions in potential capital outlay we can defer."

The company now has instant access to utilization data that can be used to level-set the mix of equipment at each branch based on usage. "We can keep track of how many deliveries and pickups are happening at each branch, and we can change things as customer demand changes," Neville says. "We can make sure they have the right delivery equipment, as well. We send out a scorecard to each branch every week letting them know their fleet utilization. Before FAST, we had no way to measure this."

Words Of Wisdom On Best-Of-Breed Deployments

If he had to do it all over again, Neville says the one change he would make would be to take a more phased approach, deploying the different components at different times. "I

would not have been as ambitious in trying to do all of these things at once," he says. "I would have been a little bit more discriminating about addressing parts of the business at different times to simplify the deployment process."

There is still more to come — United is targeting its field service division for further automation. The company will be able to leverage the existing technology in the FAST system part of that effort. "We will segregate the field service piece in its own database, but we can leverage most of the processes and integration points in the FAST architecture," Nevill says. The combined fleet, delivery, and field service management solutions will help United continue to cut costs, boost revenues, and make it easier for customers to do business with the company.

Flexible Software Solution Necessary For Complex Requirements

United Rentals, the world's largest equipment rental company, wanted to automate its delivery and fleet management operations, but was unable to find a single solution that provided all of the capabilities it required to improve efficiency and visibility. Instead, the company took a "best-of-breed" approach to constructing its Field Automation Strategy and Technology (FAST) solution and integrated three separate software solutions, as well as deploying rugged mobile computers to its fleet drivers.



While United selected a solution from Telogis to provide schedule and load optimization along with dynamic dispatching and a fleet management tool from XI Turnpike, it turned to Apacheta's TransportACE to manage its pickup and delivery workflow.

"We needed a partner with a flexible framework that would allow us to layer in our philosophy and rental flow process right into application, and Apacheta fit the mold," says Kevin Neville, director of technology and enterprise architect, logistics and field operations, for United Rentals.

TransportACE is a mobile transport application for pickup/delivery and proof-of-delivery operations. The solution provides load management, dynamic trip management, and realtime delivery status updates; proof-of-delivery and electronic signature capture; electronic manifests; support for bar code scanning; an optional GPS tracking. It also provides Department of Transportation-compliant vehicle inspection and electronic hours of service (HOS) logs, which United has leveraged for its own compliance efforts.

The software also integrated easily with both the Telogis and XRS Turnpike applications that the company rolled out in conjunction with TransportACE. In addition, Apacheta was able to provide the application in both English and French. United deployed the French language version to its fleet in Quebec. For more information, visit www.apacheta.com.



Do you run outside to answer your phone?
If this happens to you,

We Can Help.

