RidePilot: Open Source Scheduling for Small Transportation Providers

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Overview

- Motivations for Computer-Aided DRT Scheduling
- Challenges for Smaller Transportation Providers
- Overview of RidePilot Open Source Scheduling Software
- UTA’s Innovative Deployment of RidePilot
- Next Steps for RidePilot
Benefits of Computer-Aided DRT Scheduling

- DRT management is logistically challenging
  » Computerized tools can help find the most efficient trip schedules, driver assignments, and management and maintenance of vehicles, thereby making the most out of available resources

- DRT services require data-intensive grant reporting
  » Computerized scheduling tools can track required information and generate reports on demand

- State of the industry:
  » Most medium and larger DRT providers rely on robust commercial solutions with sophisticated scheduling algorithms
  » Many small, rural providers rely on manual methods scheduling and data tracking methods: pen-and-paper, whiteboard, Excel, etc.
Challenges for Smaller Providers

- Commercial scheduling packages are unaffordable for many smaller providers (less than 5-to-10 vehicles), including many non-profit organizations
  - Significant licensing fees
  - Feature overkill

- Problems with relying on manual tracking methods:
  - Less likely to use resources as efficiently as possible
  - Much more manual labor required
  - Greater chance of human error
RidePilot Scheduling Software

- Open source
- Initially developed by RideConnection in Portland
- Subsequently enhanced and deployed by UTA as a tool for the use of smaller providers in the Salt Lake region
  - A single deployment can accommodate multiple providers
- Best suited for smaller providers (< 5-10 vehicles)
  - Good data entry and reporting capabilities
  - Screens to assist with manual scheduling and dispatching
  - NO current support for automated scheduling (although this is envisioned for future upgrades)
Key RidePilot Features

- Enter customers, vehicles, and drivers
- Create customers trips, including subscription (recurring) trips
- Create runs with vehicles and drivers, typically recurring
- Schedule trips to runs and track outcomes
- Create and track recurring compliance events for drivers (e.g. license renewal) and vehicles (e.g. periodic maintenance, annual registration)
- Generate a range of reports
- Enable automated scheduling requests from trip planners (e.g. 1-Click) via application programming interface (API)
RidePilot: Enter a New Trip
## RidePilot: Manage Trips

### Trips: Sep 18, 2016 - Sep 24, 2016

<table>
<thead>
<tr>
<th>Pickup Date</th>
<th>Customer</th>
<th>Phone</th>
<th>Trip Direction</th>
<th>Pickup Address</th>
<th>Pickup Time</th>
<th>Dropoff Address</th>
<th>Appointment Time</th>
<th>Status</th>
<th>Called back?</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>19-Sep-2016</td>
<td>LANELLE</td>
<td>8012025626</td>
<td>Outbound</td>
<td>777 White Pine Drive, Tooele, UT 84074</td>
<td>9:00 am</td>
<td>321 West Plum Street, Grantsville, UT 84029</td>
<td>9:30 am</td>
<td>101 am</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19-Sep-2016</td>
<td>SADIE</td>
<td>8012625626</td>
<td>Outbound</td>
<td>599 Morning Lane, Tooele, UT 84074</td>
<td>10:00 am</td>
<td>222 West Cherry Street, Grantsville, UT 84029</td>
<td>10:30 am</td>
<td>101 am</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19-Sep-2016</td>
<td>Mickey Mouse</td>
<td>801-555-5555</td>
<td>Outbound</td>
<td>3610 900 West, South Salt Lake, UT 84119</td>
<td>10:00 am</td>
<td>1275 West 2320 South, West Valley City, UT 84119</td>
<td>10:30 am</td>
<td></td>
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<tr>
<td>19-Sep-2016</td>
<td>SADIE</td>
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<td>222 West Cherry Street, Grantsville, UT 84029</td>
<td>12:30 pm</td>
<td>959 Morning Lane, Tooele, UT 84074</td>
<td>2:00 pm</td>
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<td>777 White Pine Drive, Tooele, UT 84074</td>
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<td>2:15 pm</td>
<td>888 East 750 North, Tooele, UT 84074</td>
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<td>801-555-5555</td>
<td>Return</td>
<td>1275 West 2320 South, West Valley City, UT 84119</td>
<td>3:00 pm</td>
<td>3610 000 West South Salt Lake, UT 84119</td>
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<td>Outbound</td>
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<td>9:00 am</td>
<td>321 West Plum Street, Grantsville, UT 84029</td>
<td>9:30 am</td>
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<tr>
<td>20-Sep-2016</td>
<td>Joy Smith</td>
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<td>123 West Vine Street, Tooele, UT 84074</td>
<td>9:15 am</td>
<td>456 Quirk Street, Grantsville, UT 84029</td>
<td>10:05 am</td>
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</tbody>
</table>
RidePilot: Enter a New Run
## RidePilot: Manage Runs

### Runs: Sep 18, 2016 - Sep 24, 2016

**Filter**
- From Date: 18-Sep-2016 Sun
- To Date: 24-Sep-2016 Sat
- Days of Week: All
- Vehicle: All
- Driver: All
- Result: All

### Calendar View

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<th>Day</th>
<th>12am</th>
<th>1am</th>
<th>2am</th>
<th>3am</th>
<th>4am</th>
<th>5am</th>
<th>6am</th>
<th>7am</th>
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<th>9am</th>
<th>10am</th>
<th>11am</th>
<th>12pm</th>
<th>1pm</th>
<th>2pm</th>
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<td>Mon, Sep 19, 2016</td>
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<td>Fri, Sep 23, 2016</td>
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<tr>
<td>Sat, Sep 24, 2016</td>
<td>101 am</td>
<td>101 am</td>
<td>101 am</td>
<td>101 am</td>
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</table>

### Result Summary

<table>
<thead>
<tr>
<th>Name</th>
<th>Date</th>
<th>Start Time</th>
<th>End Time</th>
<th>Vehicle</th>
<th>Driver</th>
<th>Result</th>
<th>Reimbursement</th>
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<tbody>
<tr>
<td>View</td>
<td>Test run 1</td>
<td>Mon, Sep 19, 2016</td>
<td>08:00 AM</td>
<td>MV1-12</td>
<td>Xudong</td>
<td>Incomplete</td>
<td>$0.00</td>
</tr>
<tr>
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<td>Mon, Sep 19, 2016</td>
<td>12:00 PM</td>
<td>101-1F</td>
<td>Xudong</td>
<td>Incomplete</td>
<td>$0.00</td>
</tr>
<tr>
<td>View</td>
<td>101 am</td>
<td>Mon, Sep 19, 2016</td>
<td>06:00 AM</td>
<td>MV1-12</td>
<td>JAX-JAX</td>
<td>Incomplete</td>
<td>$0.00</td>
</tr>
<tr>
<td>View</td>
<td>RT 220 PM</td>
<td>Mon, Sep 19, 2016</td>
<td>08:00 AM</td>
<td>MV1-12</td>
<td>No driver</td>
<td>Incomplete</td>
<td>$0.00</td>
</tr>
<tr>
<td>View</td>
<td>Test run 1</td>
<td>Tue, Sep 20, 2016</td>
<td>08:00 AM</td>
<td>MV1-12</td>
<td>Xudong</td>
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<tr>
<td>View</td>
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<td>MV1-12</td>
<td>JAX-JAX</td>
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</tr>
<tr>
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<tr>
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</tr>
<tr>
<td>View</td>
<td>101 pm</td>
<td>Wed, Sep 21, 2016</td>
<td>12:00 PM</td>
<td>101-1F</td>
<td>Xudong</td>
<td>Incomplete</td>
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<tr>
<td>View</td>
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<td>MV1-12</td>
<td>JAX-JAX</td>
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</tr>
<tr>
<td>View</td>
<td>RT 220 PM</td>
<td>Wed, Sep 21, 2016</td>
<td>08:00 AM</td>
<td>MV1-12</td>
<td>No driver</td>
<td>Incomplete</td>
<td>$0.00</td>
</tr>
</tbody>
</table>
RidePilot: Assign (Schedule) Trips to Runs

UTA RidePilot

Trips-Runs: Sep 19, 2016

Filter
- Date: 19-Sep-2016 Mon
- Vehicle: All
- Driver: All
- Status: All
- Result: All
- Trip Result: All

Pickup Time | Appointment Time | Customer       | Pickup Address                        | Dropoff Address                          | Status
--- | --- | --- | --- | --- | ---
9:00am     | 9:30am     | LANELLE BUTTERFLY | 777 White Pine Drive, Tooele, UT 84074 | 321 West Plum Street, Grantsville, UT 84020 | 101 am
10:00am    | 10:30am    | SADIE SWEET      | 999 Morning Lane, Tooele, UT 84074     | 222 West Cherry Street, Grantsville, UT 84029 | 101 am
10:00am    | 10:30am    | Mickey Mouse     | 3610 900 West, South Salt Lake, UT 84119 | 1275 West 2320 South, West Valley City, UT 84119 | Unscheduled
### RidePilot: Managing Drivers

#### Drivers

<table>
<thead>
<tr>
<th>Name</th>
<th>Active</th>
<th>Paid</th>
<th>Available</th>
<th>Overdue Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frank Farcus</td>
<td>Active</td>
<td>Paid</td>
<td>Driver is not available</td>
<td>Yes</td>
</tr>
<tr>
<td>JAX-JAX</td>
<td>Active</td>
<td>Paid</td>
<td>Available</td>
<td>Yes</td>
</tr>
<tr>
<td>Tim Jones</td>
<td>Active</td>
<td>Volunteer</td>
<td>Driver is not available</td>
<td>Yes</td>
</tr>
<tr>
<td>Xudong</td>
<td>Active</td>
<td>Paid</td>
<td>Available</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Help
Version 1.4.5
RidePilot: Setting Up Driver Compliance Events

Recurring Event

Event Details
- Event Name: CDL MEDICAL CERTIFICATION RENEWAL
- Event Notes
- Recurrence Notes

Scheduling Options
- Use Compliance based scheduling
- If a driver were to complete the first occurrence 1 day after the due date, their next event would be due:
  - Thu, Mar 09, 2017

New Driver Scheduling
- Future Start Rule: Immediately (1st event due upon next task generation, typically daily at midn
- If a new driver was created 1 day after the first due date, their first event would be due:
  - Wed, Mar 09, 2016

Based on the schedule above and the compliance date based scheduling option, the first event for each driver would be due:
- Tue, Mar 08, 2016
UTA, Serving the Greater Salt Lake Region

- Serves 1.1 million residents, 75% of Utah’s population
- Largest fixed-route transit provider in state
- Provides commuter rail, light rail, street cars, bus service, paratransit, and over 500 vanpools
- Serves as federal grant administrator and regional coordinator for paratransit and other specialized transportation services for disabled and aging populations
UTA’s Adoption of RidePilot for Region

- Tooele County received VTCLI grant for scheduling
  - But lacked matching funds and IT know-how
  - Sought assistance of UTA

- UTA agreed to help
  - Secured matching funds from state agency, with proviso that procured scheduling system be made available to all of the region’s transportation providers

- UTA selected open source RidePilot as best fit for needs
  - Ability to enhance system to meet UTA needs
  - Single deployment of RidePilot handles multiple agencies
  - No ongoing licensing fees
  - No incremental fees for additional agencies

- RidePilot currently in use at Tooele County as “pilot” user, will be rolled out to other agencies soon.
Current and Future UTA RidePilot Agencies

- Utah County
- Salt Lake County
- Davis County
- Weber County
- Tooele County

Map of Utah regions highlighting agencies and services.
“The agencies and nonprofits that serve people with disabilities and the aging population are striving to improve the quality of life for these individuals. It’s important to the UTA to play its part in this big engine and help these providers serve their clients.”

- Ryan Taylor, UTA Coordinated Mobility Manager
“In the beginning, all of our dispatch was done by hand or spreadsheets. Now we use RidePilot for all pickups and drop-offs and all driver and trip scheduling. If we were still doing this manually, we wouldn’t be able to keep up. RidePilot has made our lives so much nicer and easier.”

- Cissy Morton, Tooele County Mobility Manager
Replicable for Other Regions?

- Leverages coordination and IT capabilities of larger provider in region
  - Offers low cost solution (although not free)
    - Open source, so no ongoing licensing fees
    - Costs associated with enhancements, hosting, maintenance, and support can be shared across multiple agencies
  - Provides much needed help for smaller agencies
    - More efficient schedules, with less labor and fewer mistakes
    - Standardized processes and data capture to for required reporting
What’s Next for RidePilot: UTA Objectives

- **Near term goal:** make this more useful for current set of user agencies
  - Ongoing user interface improvements
  - Modest AVL (via web app for mobile devices)

- **Longer term goal:** expand capabilities to enable most efficient use of resources, expand potential user base
  - Some level of scheduling automation
  - Real time dispatching / ride matching

- Interest in building broader community of RidePilot agencies – share funding, accelerate improvements, share benefits
Thanks! Questions & Comments?