It's 50 below and where is my bus?!
Where is Yellowknife?
City of Yellowknife

- Population – 20,960
- Distance to Edmonton – 934 Miles
- Distance to San Diego – 2689 Miles
- Latitude – 60 Degrees North
  - The warm season has an average daily high temperature above $55^\circ F$.
  - The hottest day of the year is July 22, with an average high of $71^\circ F$.
  - The cold season has an average daily high temperature below $9^\circ F$.
  - The coldest day of the year is January 15, with an average low of $-21^\circ F$. 
Why the need for a GPS Transit Solution?

- Public can locate buses in cold weather (students, elderly)
- Public can locate buses during construction season
- Pinpoint location of buses for accidents, complaints
- Route Planning
Selection Criteria:

- Ability to host locally
- Integration with our ESRI suite
- Expansion
- Cost
Initial Setup
• Connections
• Issues
• Solutions
Current Technology

- Geocortex®
- ArcGIS Server
- Microsoft SQL Server 2012
- ArcGIS GeoEvent Server
  Real-Time Mapping and Analytics
- CompassCom
- CompassLDE™
  Version 4.0
Modem On Board

Cal Amp
LMU 2720

CompassLDE™
Version 4.0
### GeoEvent Services

<table>
<thead>
<tr>
<th>Name</th>
<th>Status</th>
<th>In/Out</th>
<th>Count</th>
<th>Rate (over last 5 mins)</th>
<th>Max Rate</th>
<th>Time Since Last</th>
</tr>
</thead>
<tbody>
<tr>
<td>YellowknifeService</td>
<td>STARTED</td>
<td>In Out</td>
<td>171142</td>
<td>0.20 /sec</td>
<td>10.75 /sec</td>
<td>00:00:02</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>171142</td>
<td>0.20 /sec</td>
<td>10.75 /sec</td>
<td></td>
</tr>
</tbody>
</table>

### Inputs

<table>
<thead>
<tr>
<th>Name</th>
<th>Status</th>
<th>Count</th>
<th>Rate (over last 5 mins)</th>
<th>Max Rate</th>
<th>Time Since Last</th>
</tr>
</thead>
<tbody>
<tr>
<td>CompassLDEConnector</td>
<td>STARTED</td>
<td>171142</td>
<td>0.20 /sec</td>
<td>10.75 /sec</td>
<td>00:00:02</td>
</tr>
</tbody>
</table>

### Outputs

<table>
<thead>
<tr>
<th>Name</th>
<th>Status</th>
<th>Count</th>
<th>Rate (over last 5 mins)</th>
<th>Max Rate</th>
<th>Time Since Last</th>
</tr>
</thead>
<tbody>
<tr>
<td>UpdateYellowknifeFeature</td>
<td>STARTED</td>
<td>171142</td>
<td>0.20 /sec</td>
<td>10.75 /sec</td>
<td>00:00:02</td>
</tr>
</tbody>
</table>
Database

```
SELECT TOP 1000 OBJECTID, unit_id, [ENGINE_RUNNING], [ROUTE], [ROUTE_A], [ROUTE_B], [ROUTE_C], [SHAPE]
FROM [GISPRD1].[YK_SPATIAL].[AVL_BUS_LOCATIONS]
```

<table>
<thead>
<tr>
<th>OBJECTID</th>
<th>unit_id</th>
<th>ENGINE_RUNNING</th>
<th>ROUTE</th>
<th>ROUTE_A</th>
<th>ROUTE_B</th>
<th>ROUTE_C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>62805</td>
<td>4681281397</td>
<td>OFFLINE</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>62806</td>
<td>4681223866</td>
<td>OFFLINE</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>63205</td>
<td>4681330307</td>
<td>Route B</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>63206</td>
<td>4681227866</td>
<td>Route A</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>63605</td>
<td>4681281307</td>
<td>Route C</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>
Live Buses on iPad

Blue Dot represents current location (usually zooms to dot)
Future Directions

- Upgrade from CompassCom LDE Parser to Server Service
- Re-write queries to access CompassCom’s SQL Server directly (No GeoEvent)
- Use CompassReports, CompassAlerts and CompassDiagnostic to analyze data:
  - Mileage
  - Idle Analysis (Green Initiatives)
  - Geo-fence
  - Snow Events
  - SMS Alerts for Speeding or Geo-fence areas
Future Directions

- Enable Predictive Ability (“Your next bus is due in 3 minutes”)
- Real-time GTFS (Google Transit)
  - Service Alerts
  - Trip Updates
  - Vehicle Positions (most likely)

- Enable GPS of other City Equipment:
  - Snow Plows (“is the plow up or down at this location at this time”)
  - Sanders (“was sand spread on this corner”)
  - Street sweepers

NOTE: Units can be moved from one vehicle to another so that seasonal equipment always have a GPS.
Thanks!