Alpha Presentation
Connect Vehicle Protocol Test Harness
The Capstone Experience

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Project Overview

• Test Harness uses a variety of messaging protocols
• Using the Discovery Box talk to a server
• Performance benchmark
• Test results viewed with a web interface
• Why is our project important?
  ▪ Protocol Efficiency/Reliability
  ▪ Protocol Ease of Use
System Architecture

Connected Vehicle Protocol Test Harness and Evaluation

**Server Side Architecture**
- **Sender**
- **Receiver**
- **RabbitMQ**
- **MS SQL Server 2012**
- **WebSphere/TomCat**

**Internet**
- HTTPS for secure transport [OpenLDAP touch point with Active Directory]

**Client Side Architecture**
- **Internal Web UI**
  - HTML5 Web Interface
  - Bootstrap/CSS
  - Graphs/Test Visualizer (DXL.js)
  - Input forms for criteria
Risks

✓ Machine to Machine Protocols
✓ Data Visualization
✓ Hardware and Limited Storage
✓ Version Control
✓ Scope Creep
Discovery Box GUI
### Test Results

<table>
<thead>
<tr>
<th>Trial</th>
<th>Protocol</th>
<th>Packets Sent</th>
<th>Packets Received</th>
<th>Packets Resent</th>
<th>Loss Ratio (%)</th>
<th>Time (ms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MQTT</td>
<td>6</td>
<td>4</td>
<td>X</td>
<td>0.33</td>
<td>100</td>
</tr>
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<td>24</td>
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<td>X</td>
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<td>100</td>
</tr>
</tbody>
</table>

Showing 1 to 19 of 10 entries
Web Dashboard Visualization

Test Results

Values

Time

1 2 3 4 5

MQTT AMQP REST Average
What’s left to do?

• Combine the protocols in a modular fashion
• Record test results
• Finish Web Interface to view test results
• Junit Testing
• Package manipulation
• Bigger files