

MICHIGAN STATE  
UNIVERSITY

# Alpha Presentation

Alexa – What’s my work schedule  
look like?

The Capstone Experience

Team Union Pacific

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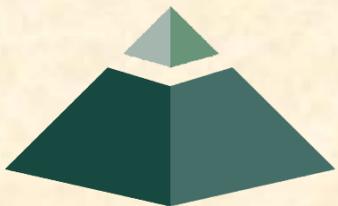
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Spring 2018



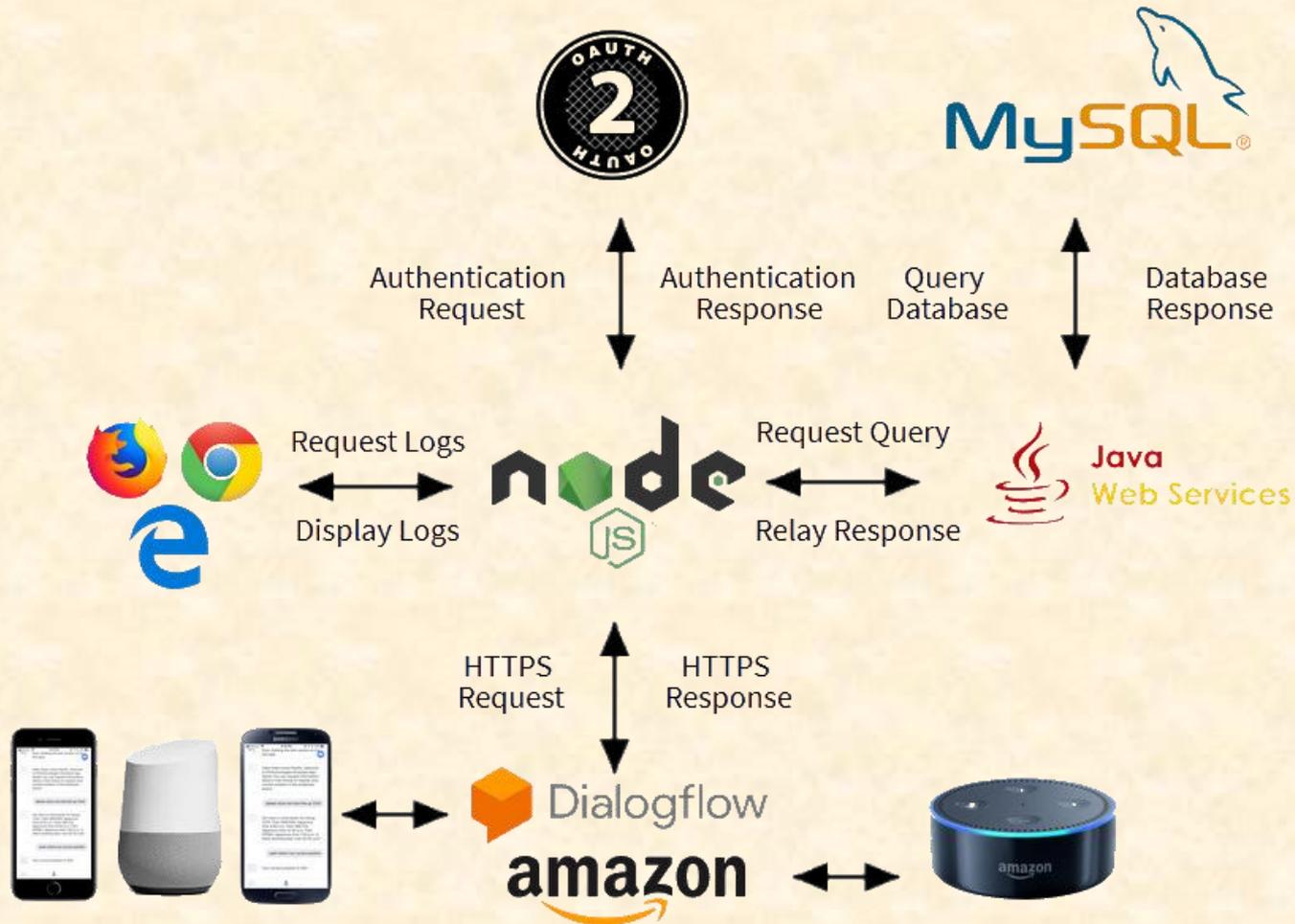
*From Students...  
...to Professionals*

# Project Overview

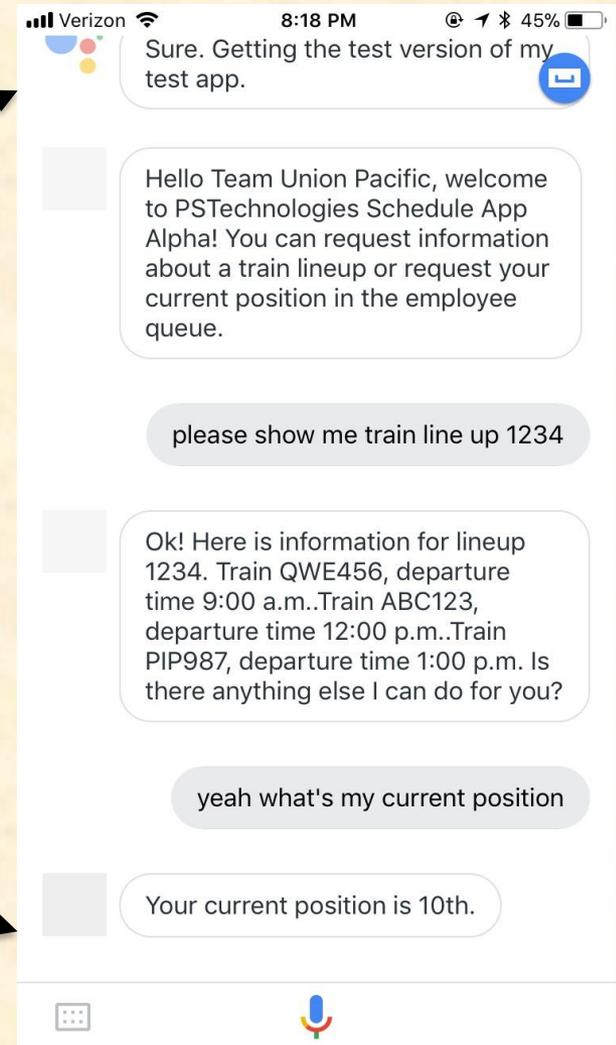
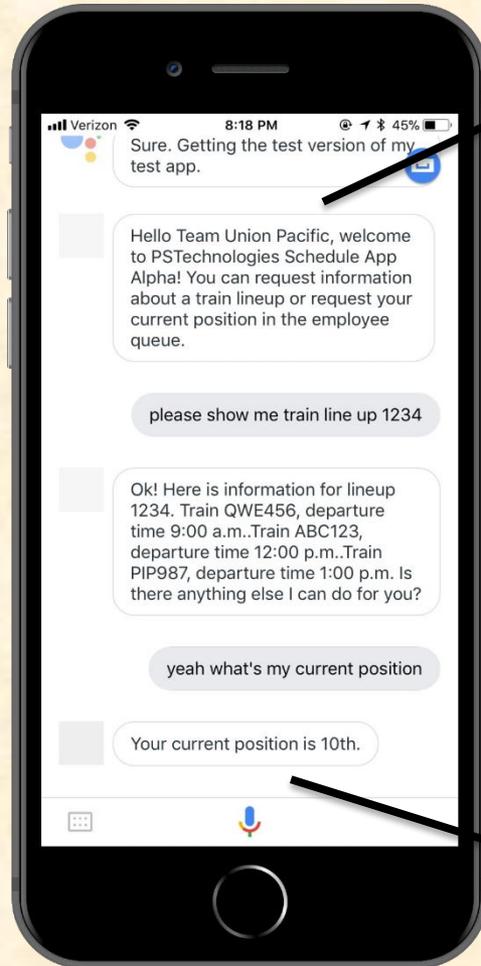
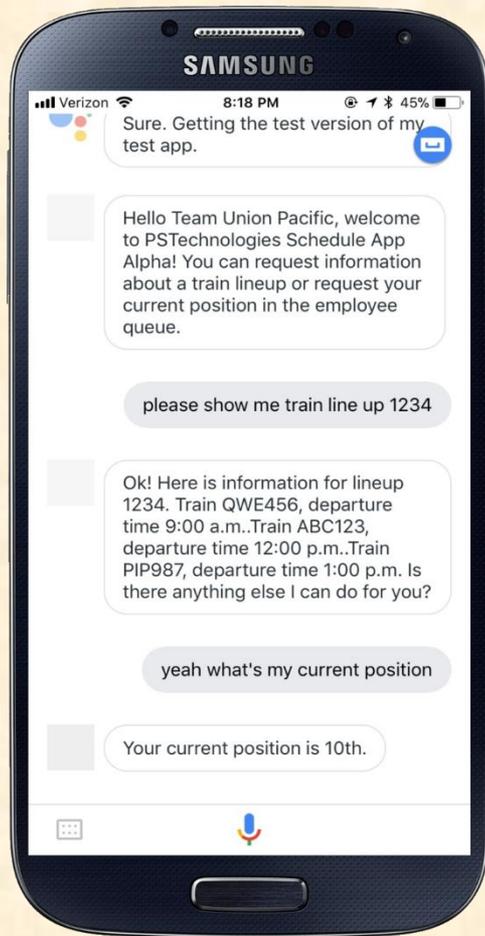
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- Provide voice assistant applications for Google Assistant and Amazon Alexa to inform train drivers of their schedules
- iOS and Android mobile users can utilize the Google Assistant app
- Management has the ability to monitor usage statistics through a web application and generate pdf reports

# System Architecture



# Sample Google Assistant Interaction



# Sample Alexa Interaction



# Java Web Service Execution

```
mcmill139@cse498-TeamUnionPacific:/var/www/web-app/html/java_ws/trainlineup$ java -cp
../ trainlineup.TrainLineupPublisher
WS Status = true
```

```
mcmill139@cse498-TeamUnionPacific:/var/www/web-app/html/java_ws/JWS_Test$ node in
dex.js
{ lineupId: 1234,
  columns: [ 'TrainId', 'DepartureTime', 'Name', 'LineupId' ],
  rows:
    [ [ '1', '09:00:00', 'qwe456', '1234' ],
      [ '2', '12:00:00', 'abc123', '1234' ],
      [ '3', '13:00:00', 'pip987', '1234' ] ] }
```

```
mcmill139@cse498-TeamUnionPacific:/var/www/web-app/html/java_ws/trainlineup$ java -cp
../ trainlineup.TrainLineupPublisher
WS Status = true
Connection Succeeded!
```



# Web App Reporting Page Mock



# Web App Reporting Page Alpha

The screenshot displays a web application interface for reporting. The browser window shows the URL <https://www.tup-capstone.tk/reporting/landing.html>. The page includes a Union Pacific logo and a welcome message for the 'Default Role' user.

**Total Number of Queries**

This section contains a line graph showing the number of queries over time for two assistants: Amazon Alexa (blue line) and Google Assistant (red line). The y-axis is labeled 'Number of Queries' and ranges from 0 to 100. The x-axis is labeled 'Time'. Both assistants show an increasing trend in queries over the period shown.

**Breakdown by Query**

This section features a pie chart illustrating the distribution of query types. The data is as follows:

Query Type	Percentage
Request Position	43%
Request Train Lineup	50%
Change Settings	(Small slice)
Failed	(Small slice)

**Generate Report**

This section provides controls for generating a report. It includes a 'Date Range' field with input boxes for 'mm / dd / yyyy' and 'to mm / dd / yyyy'. Below this are checkboxes for 'Assistant' (Amazon Alexa, Google Assistant) and 'Queries' (Train Lineup, Position, Settings, Failed). A 'User(s)' dropdown menu and a 'Generate Report' button are also present.

**Administration Controls**

This section contains four buttons for user management: 'Add User', 'View Users', 'View Roles', and 'Grant Permissions'.

# Alexa Dialog Processing

Intents Name

TrainLine

Sample Utterances (6) ?

What might a user say to invoke this intent?

"lineup {Train}"

"line up {Train}"

"train lineup {Train}"

"train line up {Train}"

"what is train lineup {Train}"

"what is train line up {Train}"

Intent Slots (1) ?

ORDER	REQ	SLOT
1	<input checked="" type="checkbox"/>	Train

TRAIN\_LINE

```
if (request.type === "LaunchRequest") {
  handleLaunchRequest(context);
} else if (request.type === "IntentRequest") {
  if (request.intent.name === "TrainLine") {
    handleTrainLineIntent(request, context, session);
  }
  else if (request.intent.name === "Position") {
```



# Alexa Dialog Processing

## Alexa Skills Kit: Processing a request



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# What's left to do?

- Implement OAuth with assistants
- Publish java web service so always running and accessible from any machine
- Connect web services to assistants to retrieve live information
- Log each usage of voice assistants for reporting
- Implement custom user settings for assistants (time format and username preference)



# Questions?

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