

## 3 Engineers in an RV doing IOT... OMG

splunk>

.conf19



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# The Journey

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Our Epic 14 Day Road Trip to .conf



# Our crazy Splunky idea

What did we get ourselves into...



- ▶ 3 friends who are passionate about Splunk
- ▶ Wanted to do something to extend the fun while being Splunky
- ▶ So we rented an RV, packed up our podcasting equipment, installed some sensors and...

**Embarked on the most epic road trip to .conf!!**

# Our Route

13 Cities

14 Days

3889 Miles



**Boston**

**Charlotte**

**Dallas**

**Denver**

**NYC**

**Nashville**

**Austin**

**Boulder**

**DC**

**Memphis**

**Amarillo**

**Moab**

**Las Vegas**

# Some of the people we met along the way



**Jen Felch**  
Dell Technology CDO



**Chris Burnham**  
Splunk IoT



**Juliana Vida**  
Splunk Public CTA



**Scott & Tanuj**  
Dell SRE Team



**Duane & George**  
Splunk Trust



**Kevin & Ramon**  
Red River



**Anthony Dina**  
Dell Technologies



**Franks & Davitt**  
Arrow ECS



**Gregg & Noah**  
Splunxter

# Tails from the Trip

*What we heard from  
our conversations  
along the way*

1. Splunk can be expensive?!\*\*\*
2. The community is awesome
3. So many things to do with Splunk
4. IoT is hot right now!

# host=IOT\_RV

---



# Disclaimer:



We are not Splunk SPL experts



This is not the ultimate IoT use case



We are passionate about Splunk and wanted to do something cool

# Questions we wanted Splunk to Answer



**Location**



**RV Comfort**



**Music**

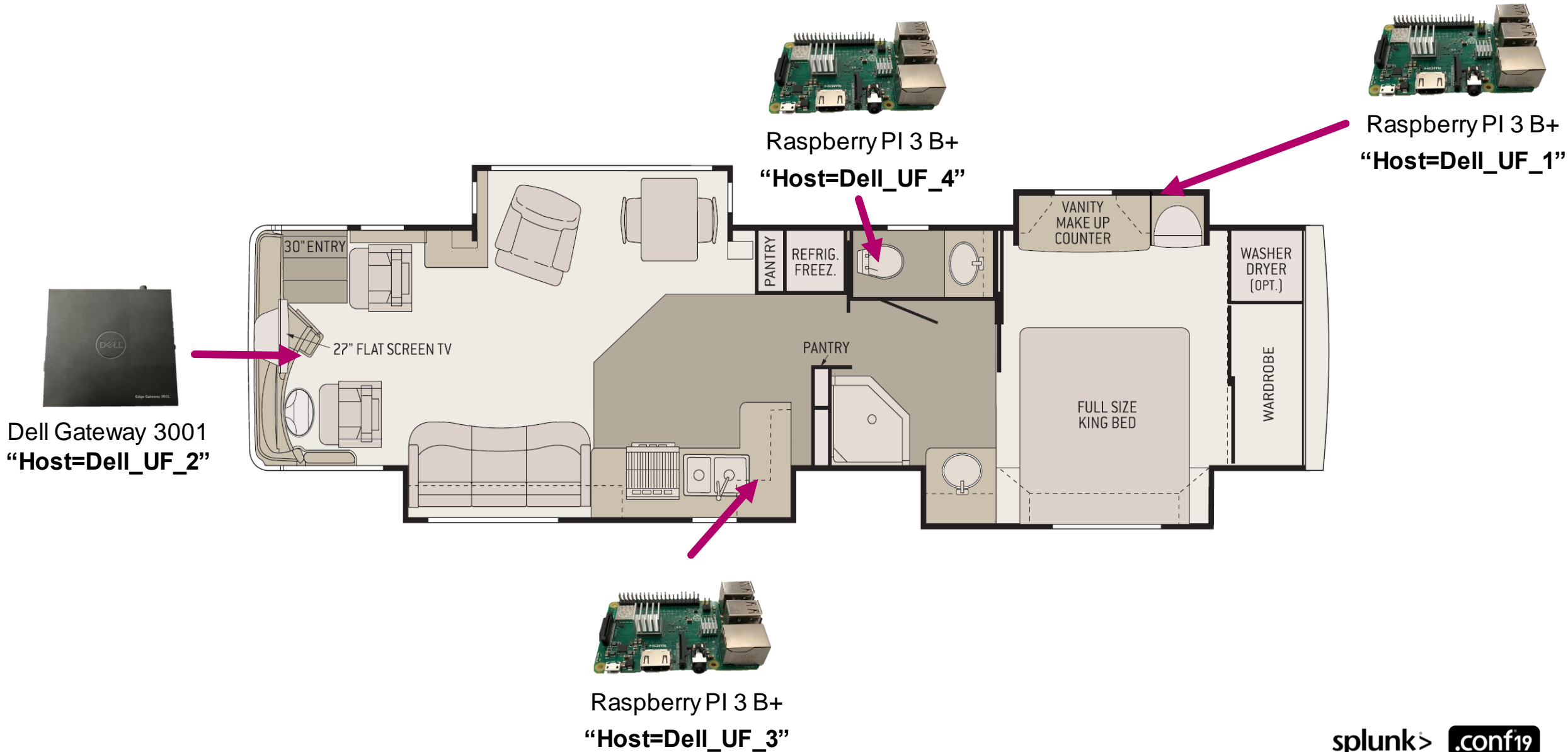


**Bathroom**

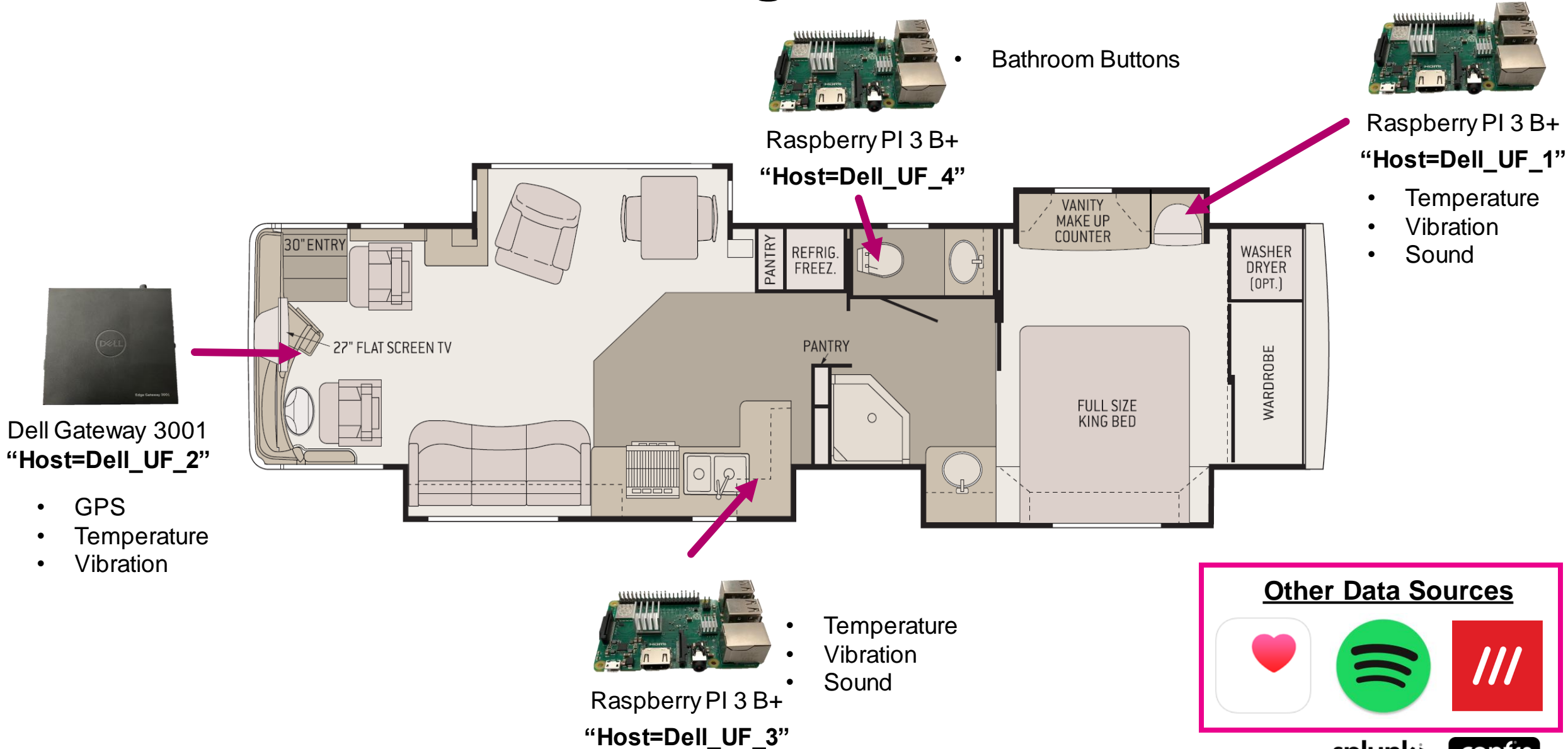
# Host=IOT\_RV



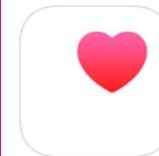
# Installing the Edge Devices



# Collecting the data

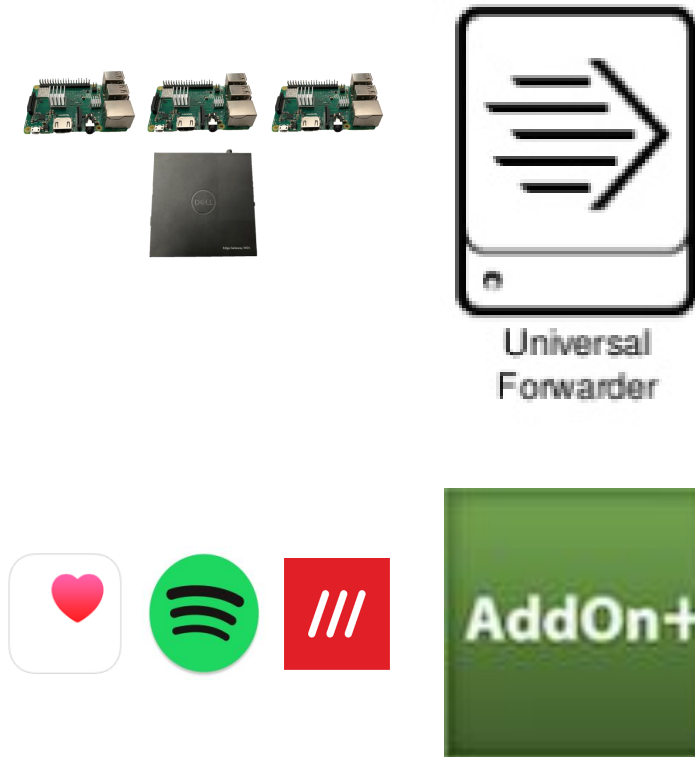


## Other Data Sources



# Getting the Data into Splunk

Edge



Core



Cloud



splunk>enterprise

LAN

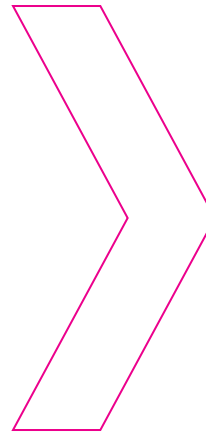
WAN

splunk> .conf19



# Location

## Pt. 1 – Getting the data



```
Time: 2019-10-19T15:56:31.000Z Latitude: 38.680899167 Longitude: -109.6924485  
Altitude(m): 1388.4 Speed(m/s): 29.28 climb: 0.0 Speed Error(m/s): nan Long  
Error(m): 1.857 Vert Error(m): 7.763 Course: 329.37
```



# Location

## Pt. 2 – Sending the data to Splunk

### Event

```
time: 2019-10-19T16:01:32.000Z Latitude: 38.750833 Longitude: -109.738844 Altitude(m): 1380.900000 Speed(m/s): 30.521000 climb: 0.000000 Speed Error(m/s): nan Long Error(m): 1.845000 Vert Error(m): 7.590000 Course: 346.050000
```

```
host = Dell_UF_2 | source = /home/pi/Desktop/GPS/log/gps.log | sourcetype = gps-too_small
```

```
index=main sourcetype="gps-too_small" Speed>1 Latitude!=nan
| eval type="RV"
| table _time Latitude Longitude type Speed
| rename Latitude as latitude Longitude as longitude Speed as speed
| streamstats count as order
| eval markerVisibility=if(order=1,"","hidden")
| eval speed=round(speed, 2)
| eval antPath="true"
| fields - order
| sort 0 _time
```

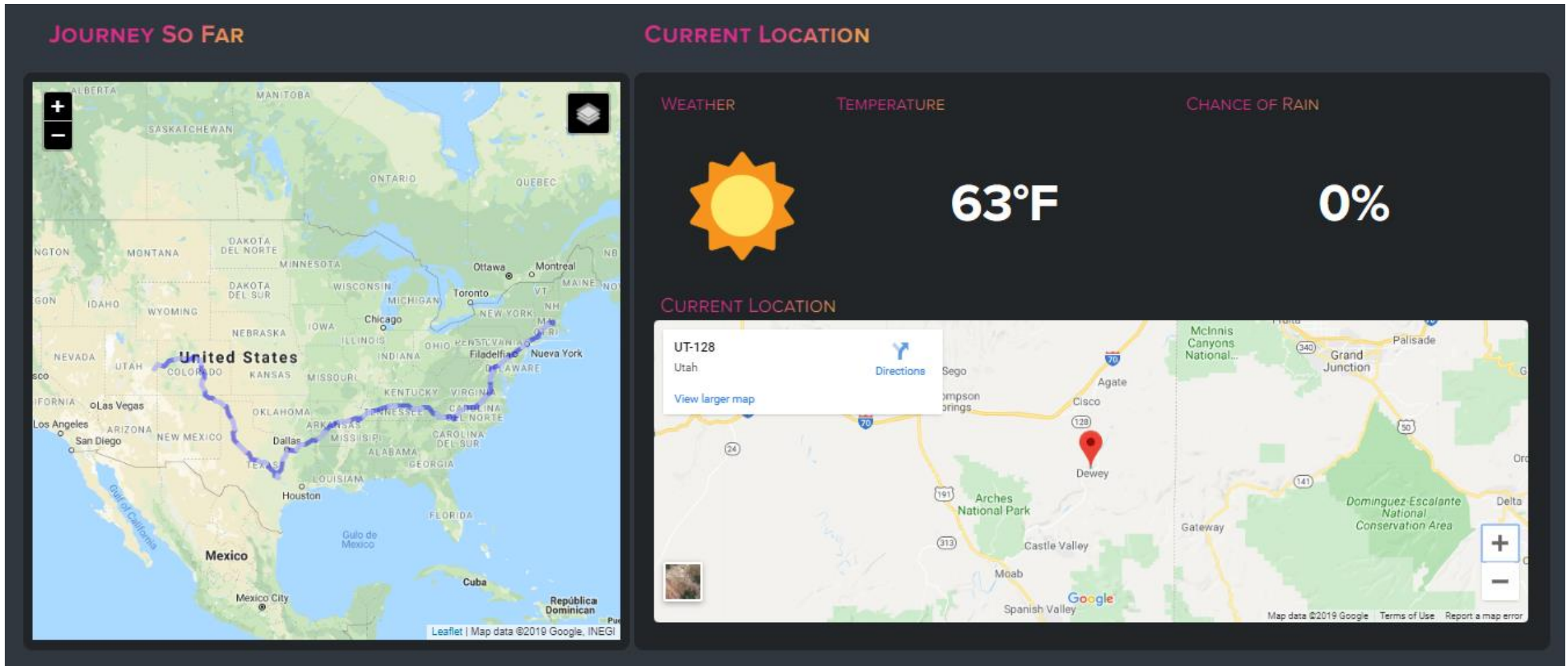
What's our current location?

Where have we been?



# Location

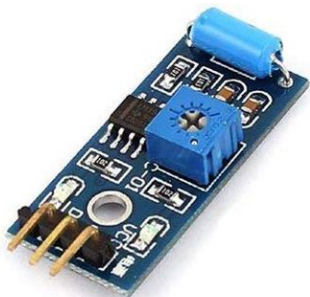
## Pt. 3 – Visualizations





# RV Comfort

## Pt. 1 – Getting the data



*python collect\_DHT22.py*  
*python collect\_SW-180P.py*  
*python collect\_GPS.py*

```
pi@DellGateway2:~/Desktop/SW-18010P $ sudo python collect_SW-18010P.py
sudo: unable to resolve host DellGateway2: No address associated with hostname
Vibration Detected
Vibration Detected
Vibration Detected
```

```
pi@DellGateway2:~/Desktop/DHT11 $ sudo python collect_dht11.py
sudo: unable to resolve host DellGateway2: No address associated with hostname
Time 2019-10-19 12:30:07.807870 Temperature: 68 F Humidity: 19.8%
```

```
Time: 2019-10-19T15:56:31.000Z Latitude: 38.680899167 Longitude: -109.6924485
Altitude(m): 1388.4 Speed(m/s): 29.28 climb: 0.0 Speed Error(m/s): nan Long
Error(m): 1.857 Vert Error(m): 7.763 Course: 329.37
```



# RV Comfort

## Pt. 2 – Sending the data to Splunk

```
host="dell_uf_*" Latitude=*  
[ search host="dell_uf_2"  
  | timechart span=1m count(Action) as vibration  
  | sort - vibration  
  | head 1  
  | eval earliest= _time - 10  
  | eval latest= _time + 10  
  | return earliest latest]  
| return lat=Latitude long=Longitude]  
| fields components formatted geometry annotations  
| spath input=components  
| spath input=annotations |  
| spath input=geometry  
| eval lat = round(lat,2)  
| eval lng = round(lng,2)  
| fields lat lng what3words.words formatted house_number road neighbourhood suburb city county state postcode type roadinfo.road state_code timezone.offset_sec timezone.offset_string timezone.short_name  
| rename what3words.words as what3words, roadinfo.road as roadinfo_road, timezone.offset_sec as timezone_offset_sec, timezone.offset_string as timezone_offset_string, timezone.short_name as timezone_short_name
```

Which roads are the worst on our Journey?

What is the temp throughout the RV?

Is one part of the RV more comfortable?



# RV Comfort

## Pt. 3 – Visualizations





# Music

## Pt. 1 – Getting the Data into Splunk

Add Spotify Music

Name \*
Enter a unique name for the data input

Interval \*
Time interval of input in seconds.

Index \*
default

Client ID \*

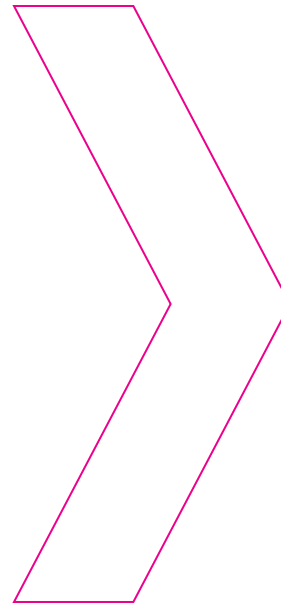
Client Secret \*

Access Code \*

Audio Analysis
☐
Get Audio Analysis. NOTE: This is a large message so should be used with a degree of caution

Audio Features
☐
Get Spotify audio features such as tempo

Cancel
Add



Time	Event
>	
10/19/19	{ [-]
12:14:15.000 PM	<pre> actions: { [+] } context: { [+] } currently_playing_type: track is_playing: false item: { [-] album: { [-] album_type: album artists: { [-] { [-] external_urls: { [+] href: https://api.spotify.com/v1/artists/3bclBxvaI7GsBzGp3WHmwQ id: 3bclBxvaI7GsBzGp3WHmwQ name: Nickel Creek type: artist uri: spotify:artist:3bclBxvaI7GsBzGp3WHmwQ } } available_markets: [ [+] } external_urls: { [+] } href: https://api.spotify.com/v1/albums/3ujidZyCiCruwocS8b0mt2 id: 3ujidZyCiCruwocS8b0mt2 images: [ [+] ] name: A Dotted Line release_date: 2014-03-28 release_date_precision: day total_tracks: 10 type: album uri: spotify:album:3ujidZyCiCruwocS8b0mt2 } artists: { [+] } available_markets: [ [+] } disc_number: 1 duration_ms: 231240 explicit: false </pre>

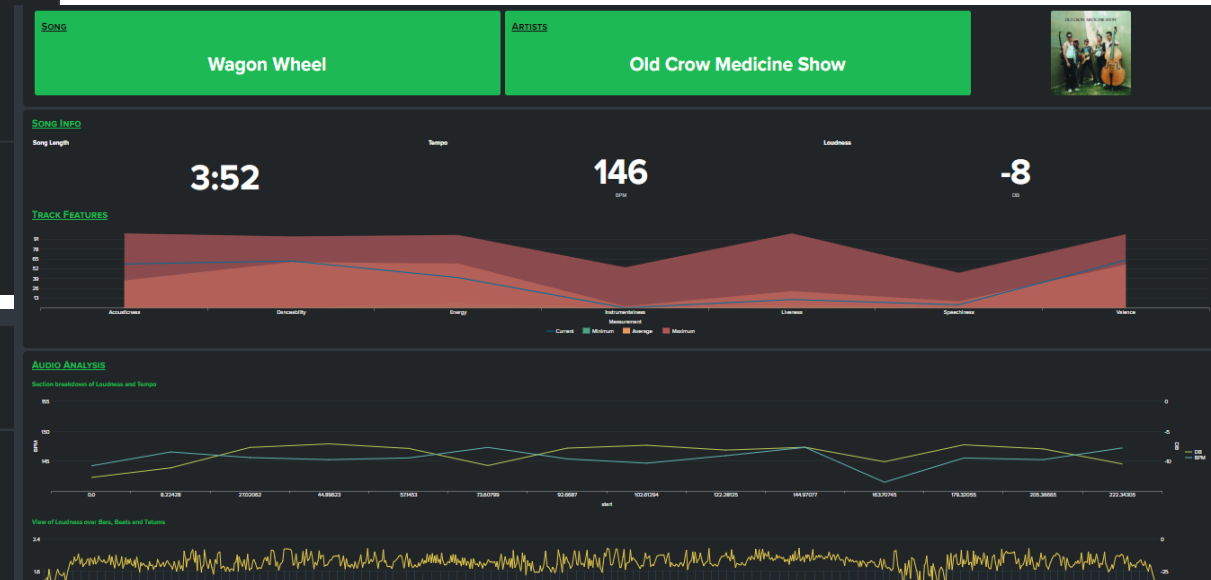
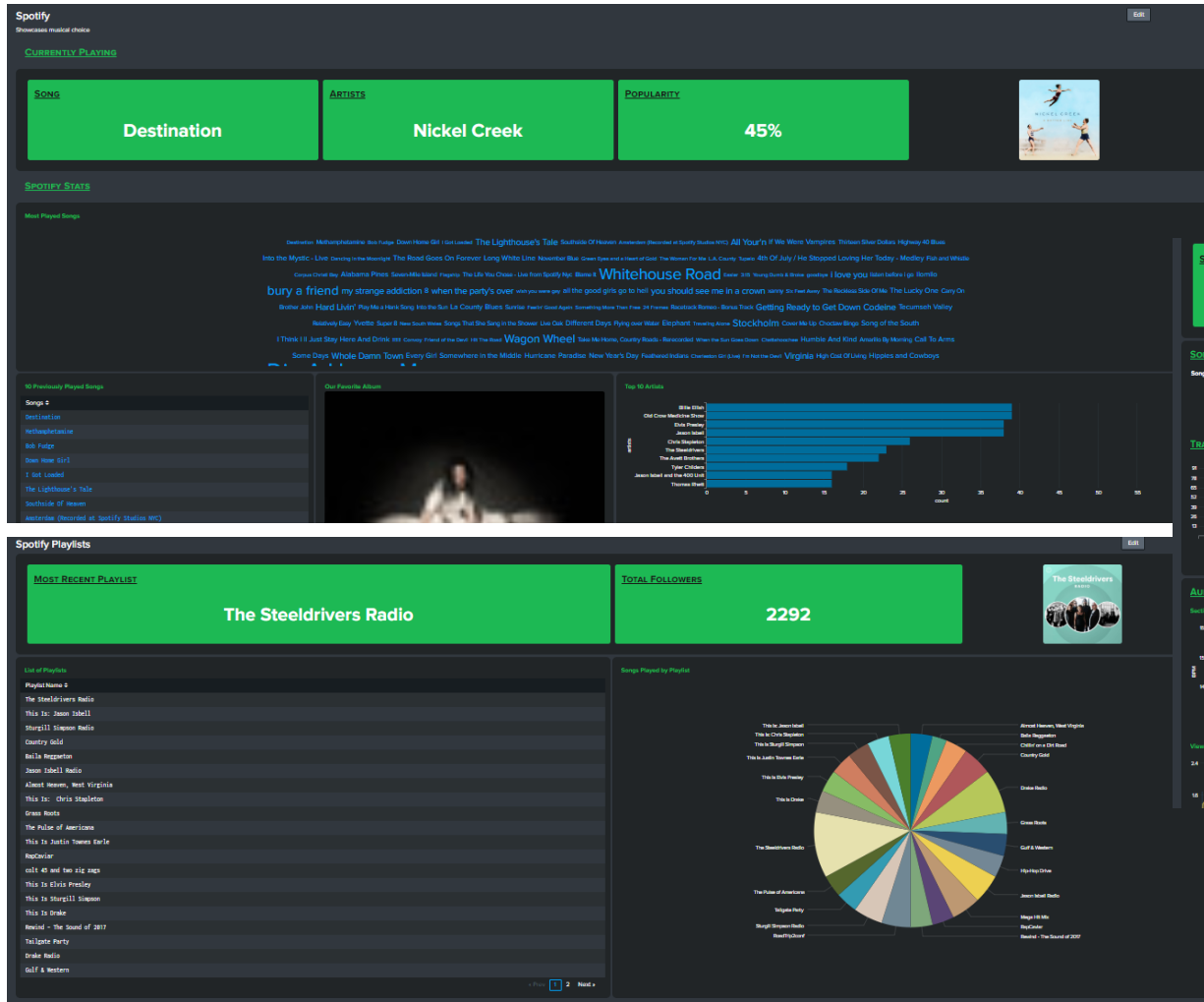
## Spotify TA on Splunkbase

## Event Data



# Music

## Pt. 2 – Visualizations



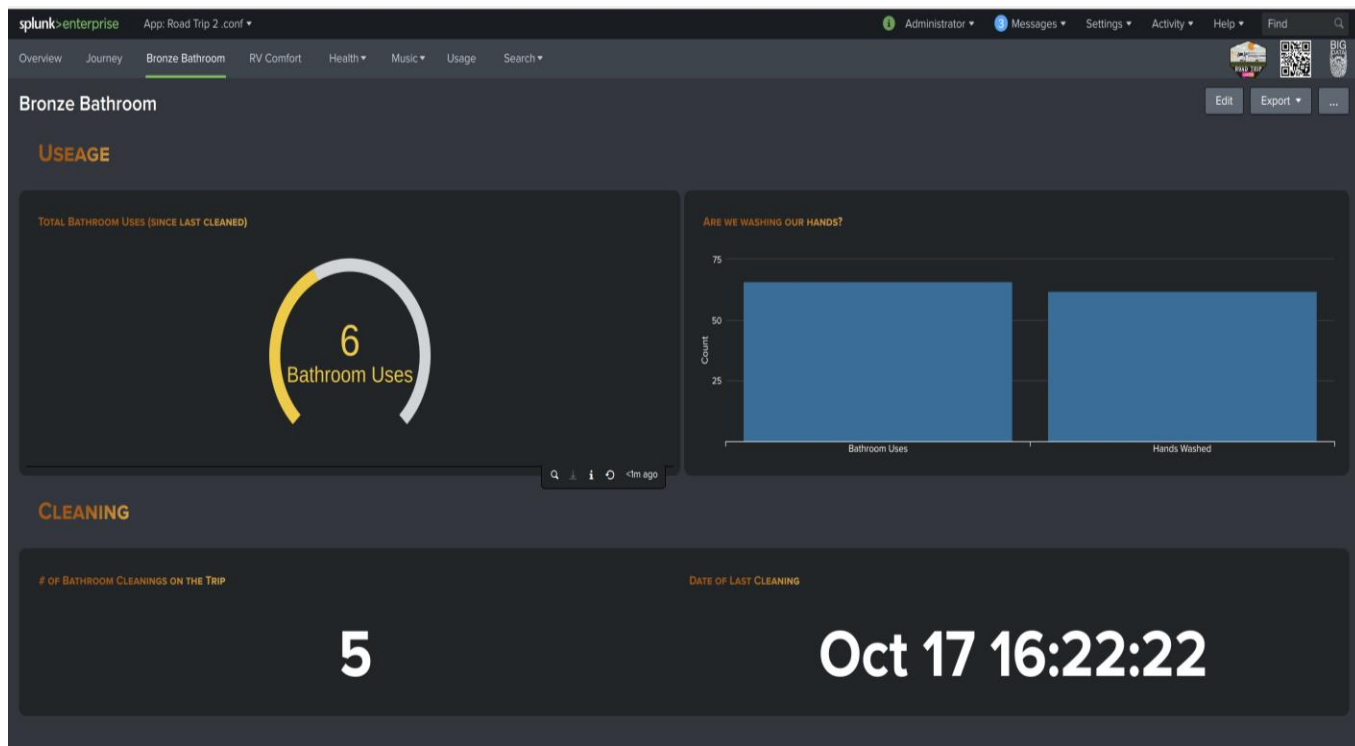


# Bronze Bathroom





# Bronze Bathroom



When do we need to clean the bathroom?

Are we washing our hands?

Where have we dumped tanks?

## From analytics to action

### Someone Didn't Wash Their Hands

October 8, 2019 at 11:00 PM



Who was the dirty person who just went to the bathroom and didn't wash their hands?

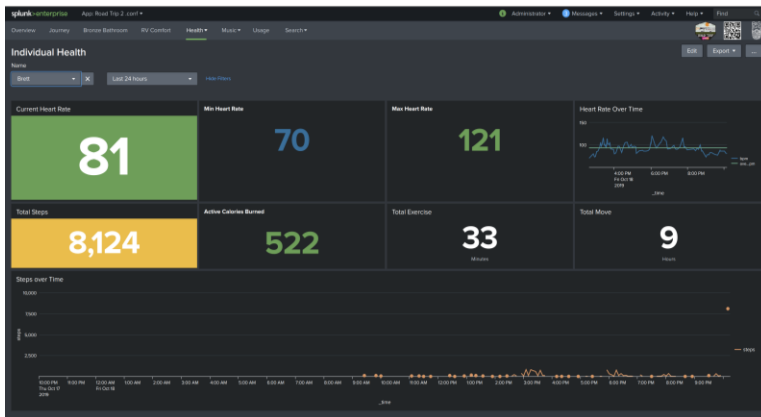
Alert Title: Someone Didn't Wash Their



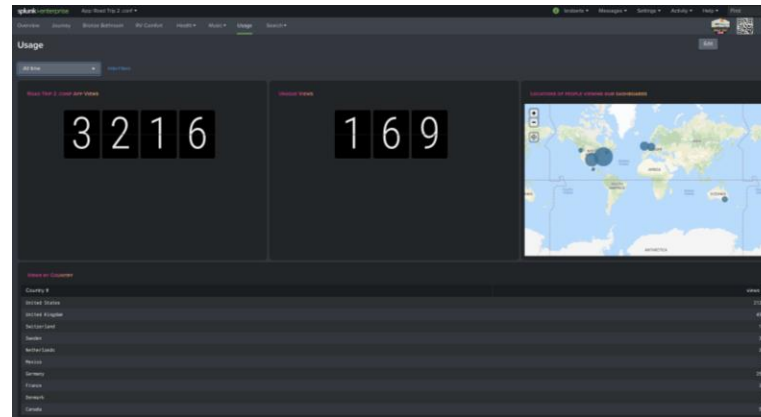
**RoadTrip2conf** APP 7:45 AM

Someone didnt wash their hands

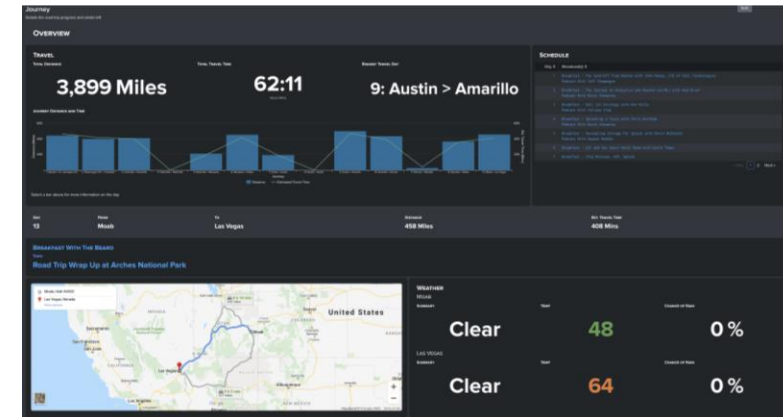
# Other Use Cases



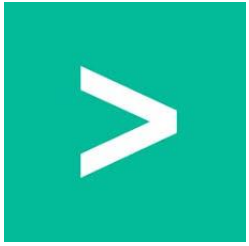
Health



Usage

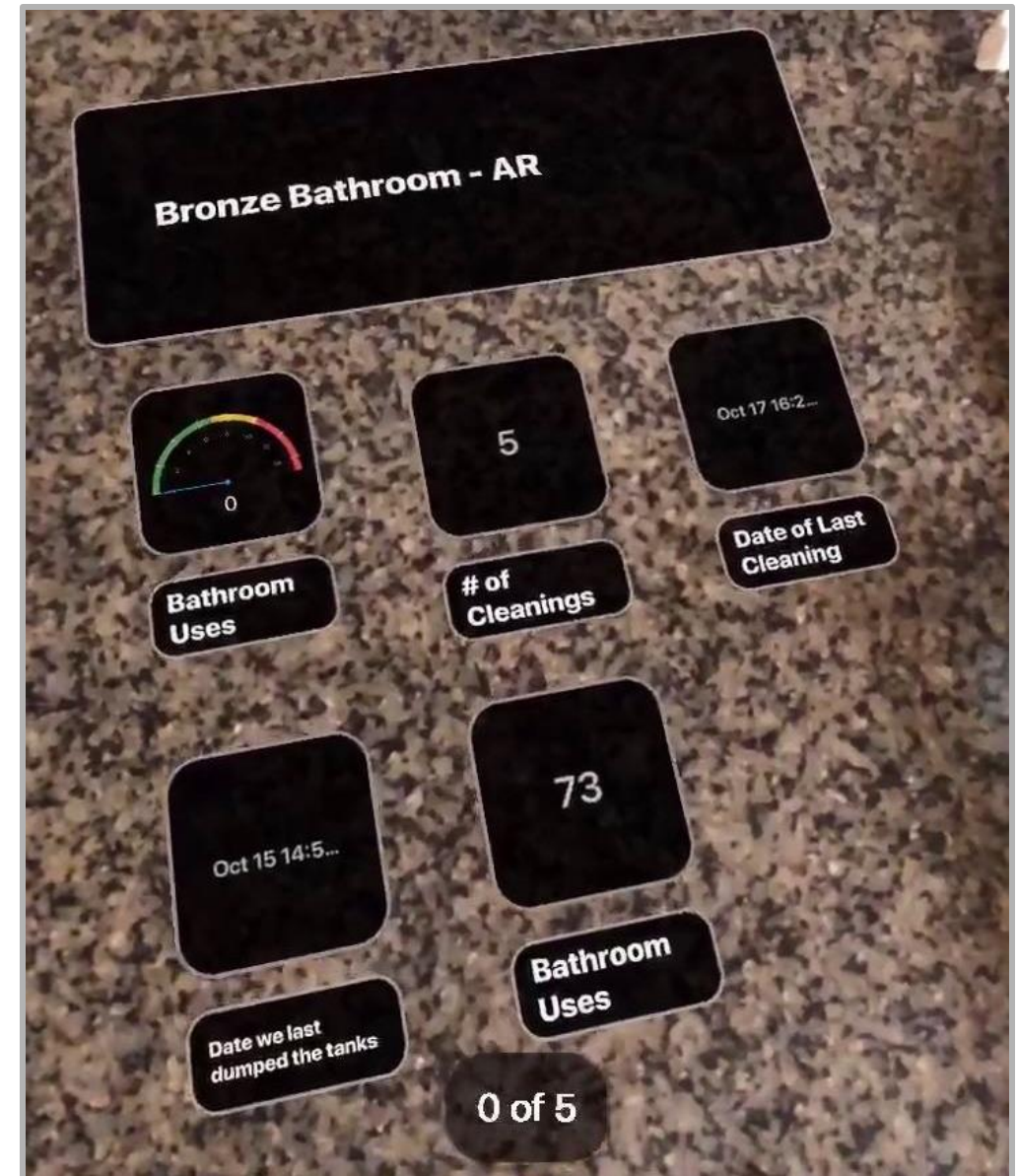


Journey



# Splunk AR

- Great way of showing data at the edge
- Easy to set up
- Only supports single value and radial panels
- Dashboards with advanced xml do not show up
- Had to create dashboards specifically for AR



# Splunk Apps We Used



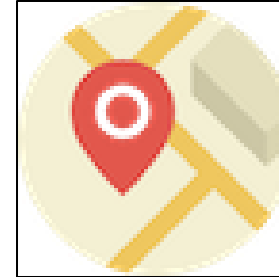
## HealthKit App

By: Ryan O'Connor



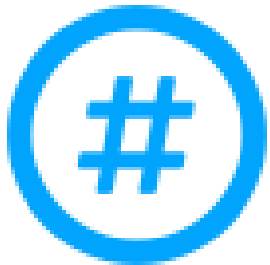
## Forza Telemetry

By: Brett Adams



## Maps +

By: Splunk Works



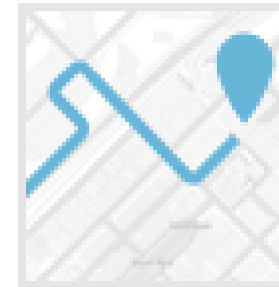
## Number Display

By: Chris Younger



## Splunk Dashboard

By: Splunk



## Location Tracker

By: Splunk

# Splunk Apps Created



Dark Sky API Search Command  
By: Tom West



Spotify TA  
By: Tom West & Brett Roberts



What3Words API Search Command  
By: Tom West



Spotify App  
By: Tom West & Brett Roberts



OpenCage Geocoder API Search Command  
By: Tom West

# Challenges

1. Networking... 4G is rough in Utah
2. Edge Operations Strategy
3. Consistency
4. Data Creation & Onboarding
5. SPL in an RV

# Key Takeaways

1. Splunkbase is your friend
2. Optimizing searches helps... a lot!
3. Start with use cases and rest will follow
4. There are some really cool things you can do with Splunk

# Thank you to our amazing partners

The Dell Technologies logo, featuring the word "DELL" in blue with a stylized "E" and the word "Technologies" in grey.

The Red River logo, featuring the words "Red River" in a black serif font with a red wavy line underneath.

The NetScout Systems logo, featuring the word "NetScout" in a bold, black, stylized font.

The VMware logo, featuring the word "vmware" in a grey, lowercase, sans-serif font with a registered trademark symbol.

The Converging Data logo, featuring the words "CONVERGING DATA" in a grey, uppercase, sans-serif font next to a graphic of four overlapping circles in green and yellow.

# How you can catch up on all the RV action

Access our Dashboards



Scan me!!

RV on showroom floor pic



[www.bigdatabeard.com](http://www.bigdatabeard.com)

[Bit.ly/BDB\\_YouTube](https://bit.ly/BDB_YouTube)



**Thank  
You!**

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