



# Aeris Developer Workshop

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# Problem Statement

Building M2M and IoT applications is too difficult and takes too long today

# High Level Value Proposition

**AerCloud and Application Express**  
help our customers deliver better M2M  
and IoT applications faster

# AerCloud Principles

From prototype to  
**Production**

Fully  
**Customizable**

**Developer**  
Friendly

**Scalable**

**Reliable**

# What Is AerCloud?

**AerCloud is a platform for collecting, managing and analyzing sensor data**

# How AerCloud works?

**Connect devices to AerCloud & receive data**



- Any device
- HTTP or MQTT protocols
- Enables to push / pull data from device

**Manage devices & data streams in AerCloud**



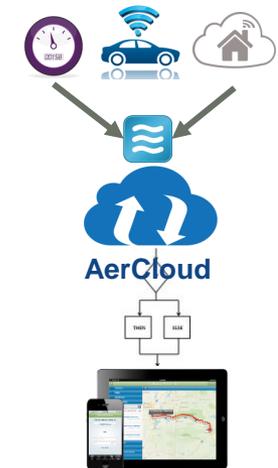
- Enables to deploy, provision & manage devices
- Manage data, set alerts, action based on alerts, etc.

**Build app using AerCloud App Express**



- AerCloud App Express has embedded LifeRay capabilities
- Develop app using drag drop widgets

**Run your IoT application and realize efficiencies**



- AerPort, AerCloud and AAE platform are integrated
- Enable end to end capability to IoT and M2M applications

# Device data has specialized needs

Device friendly  
**APIs**

**Scale**

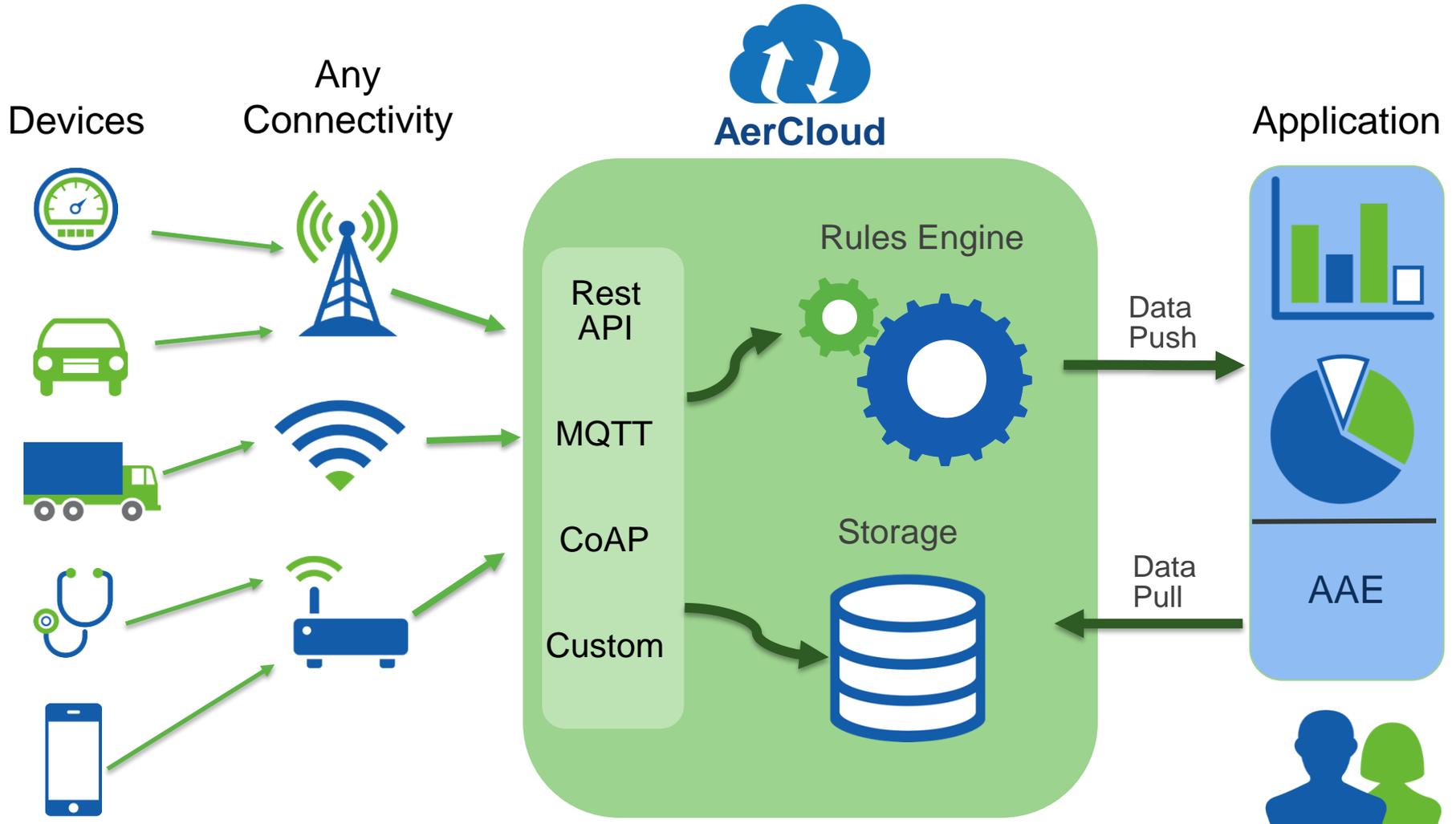
Rules Based  
**Alerting**

Connectivity & Sensor  
**Analytics**

Secure Data  
**Sharing**

Schema  
**Flexibility**

# AerCloud Provides The Data Infrastructure



# Key features of platform

- **Data collection**
  - Data from device & sensors collected in AerCloud
  - Use HTTP REST API to push XML or JSON encoded data from devices to AerCloud
  - Secure data using HTTPS, data encryption, checksums, etc
- **Data Storage**
  - AerCloud has build-in NoSQL database
  - Data replication
  - Access data using PUSH & PULL mechanisms through APIs
- **Listeners, Rules & Triggers**
  - Rules based queuing and routing
  - Define action in response to specific data receive, store, device connect/disconnect ..
  - Identify corresponding alarms and triggers
- **Device management**
  - Remotely maintain, interact and control devices
- **SDK Application Engine**
  - Enable developer to develop apps quickly
- **Debug logs**
  - Use connectivity analytics and logs to see how the devices interact with AerCloud
- **Custom UI**
  - Leverage existing widgets to develop customer UI
- **Data Export**
  - Ability to export data to other storage services
- **API Key Management**
  - API access is controlled by API keys. This enables fine-grained privilege and visibility management
- **User management**
  - Corporate users can manage other user accounts to help manage account & define custom privileges & visibility

# What Is AerCloud Application Express?

**AerCloud Application Express** is a toolkit for rapidly building web applications on top of AerCloud

# Developer can leverage existing widgets

Welcome
Live
Detail
Chart
Admin

**Fleet**

- 1018
- 1021
- 1041
- 1043
- 1044
- 1046
- 1047
- 1048
- 1049
- 1050
- 1051
- 1052
- 1053
- 1055
- 1056
- 1059
- 1062
- 1064
- 1068
- 1072

**Device Detail:** 1046

Custom Attribute >

Device Info >

Heading	Latitude	Longitude	Speed(Km/Hr)	Time
120	37.7834777	-122.2359924	8	1416443922
135	37.7907943	-122.247734	8	1416443745
135	37.7956886	-122.2535247	3	1416443684
135	37.7981338	-122.2564849	3	1416443627
105	37.8000068	-122.2666473	5	1416443449

**SCL (Device):** 1046     **Container:** actransit-container     **Data Field:** speedKmHr

JS chart by amCharts

# UI Widgets

- AAE is Set of user interface widgets
  - Covers a range of M2M and IoT use-cases
    - Location Tracking
    - Asset Monitoring (Solar, Charging Stations, Tank Monitoring, etc)
- Source code available to customer
  - Full customization supported
  - Widgets are javascript
    - Angular is the toolkit
  - Assumption is that some customization will be needed for every deployment
    - Implies that the customer needs some software development capabilities

# Liferay

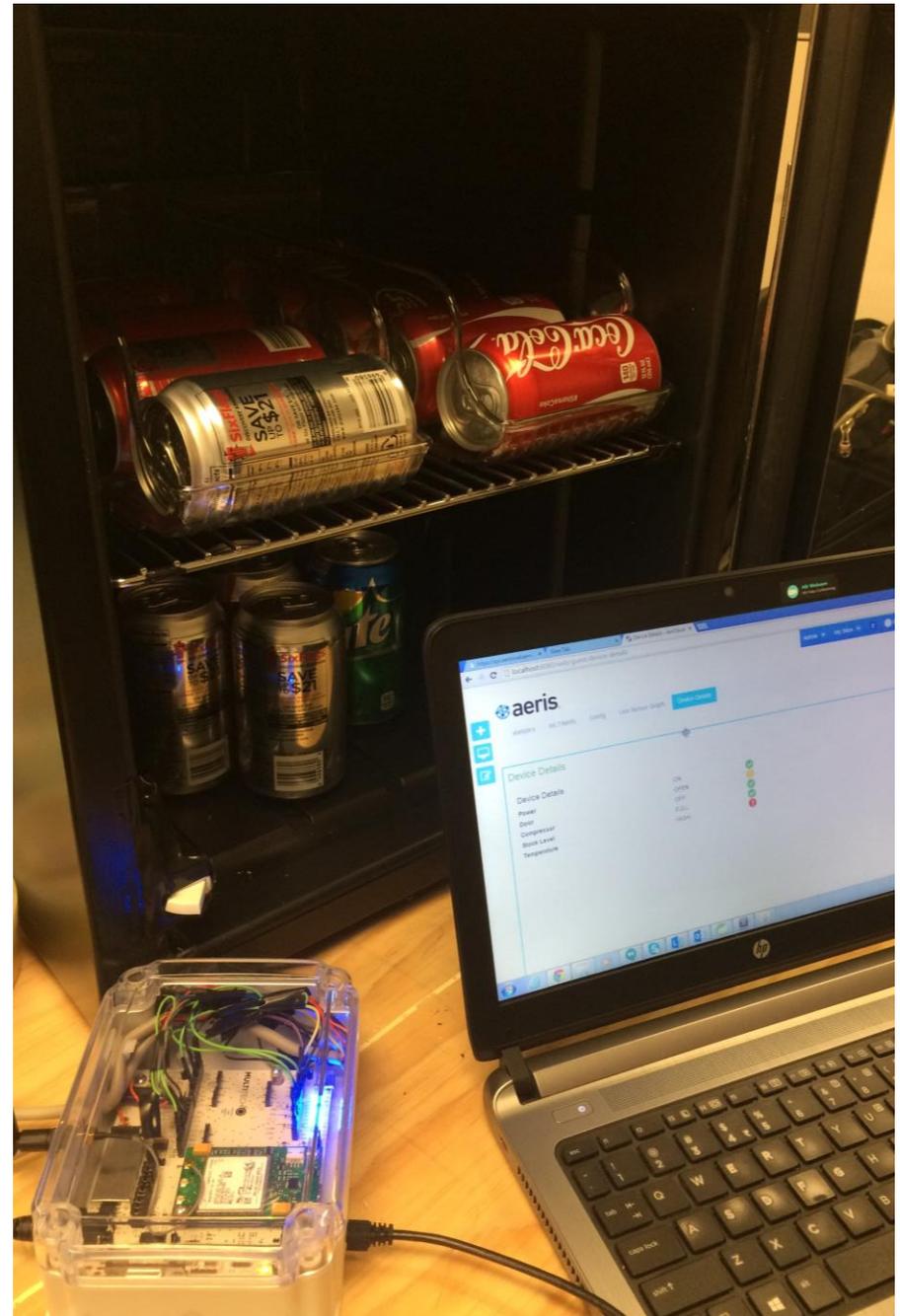
- Liferay is the reference architecture
  - Widgets are portable to other portals
- About Liferay
  - Liferay is an industrial-grade open source platform for building web applications
    - AerPort is built on-top of Liferay
  - Provides user management, user roles, authorization, session management
  - Drag and Drop Widget Layout

# Deployment Model: Customer Hosted

- Unlike AerCloud, AAE is customer hosted today
- What's needed:
  - Linux Virtual Machine
    - On AWS, we recommend an m3.large instance
  - MySQL
  - Liferay

# Demo Time

Industrial Refrigerator



# Demo overview

- **Application:**
  - An industrial refrigerator management application with capability to track inventory, temperature, failure of power & compressor and door status
- **Key functionality**
  - Track inventory and send alert when it is too low
  - Alert if someone left the door open to ensure optimal operation
  - Track temperature to ensure meeting the food safety requirements
  - Ensure the compressor is functioning properly and kicks in as required
  - Alert if compressor fails
  - Alert if power failure