

AWS IoT Device Management

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What customers are doing with AWS IoT



Predictive maintenance



Wellness & health solutions



Remote patient monitor



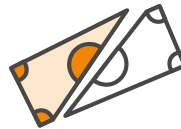
Connected buildings & city systems



Maintain device fleets



Monitor energy efficiency



IoT payment & connected commerce



Safeguard manufacturing facilities

AWS IoT Services Suite

Things

Sense & Act



Secure local triggers, actions, and data sync

Endpoints



Amazon FreeRTOS

Gateway



AWS Greengrass

Cloud

Storage & Compute & Learn



Secure device connectivity and messaging



AWS IoT Core

Fleet onboarding, management and SW updates



AWS IoT Device Management

Fleet audit and protection



AWS IoT Device Defender

IoT data analytics and intelligence



AWS IoT Analytics

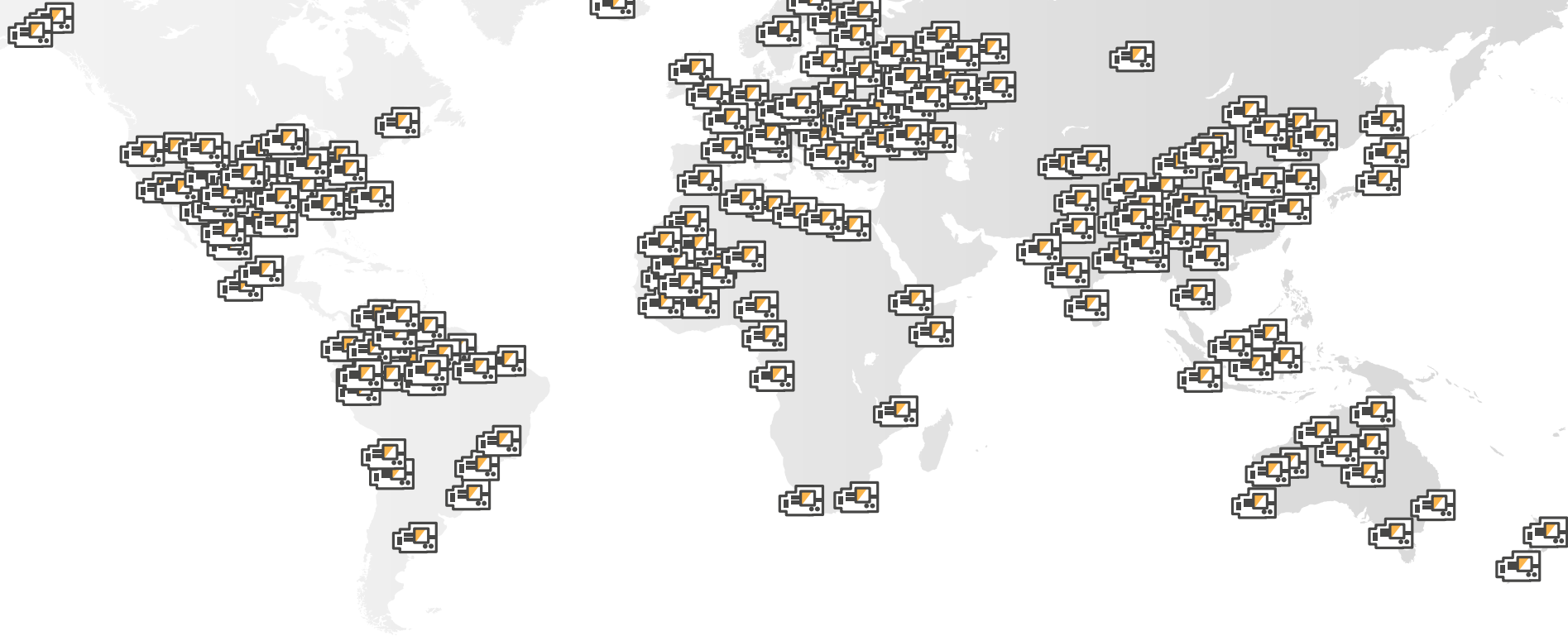


AWS IoT 1-Click

Intelligence

Insights & Logic → Action

How can I manage my growing number of connected devices?

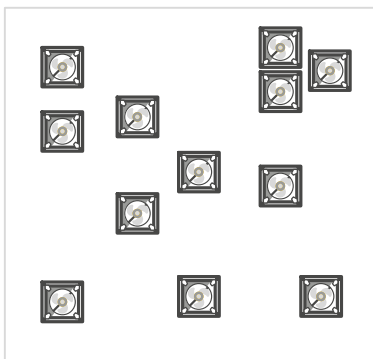




AWS IoT Device Management

Device Management Service

AWS IoT Device Management helps you onboard, organize, monitor, and remotely manage your growing number of connected devices.



Fast device onboarding at scale



Real-time fleet indexing and search

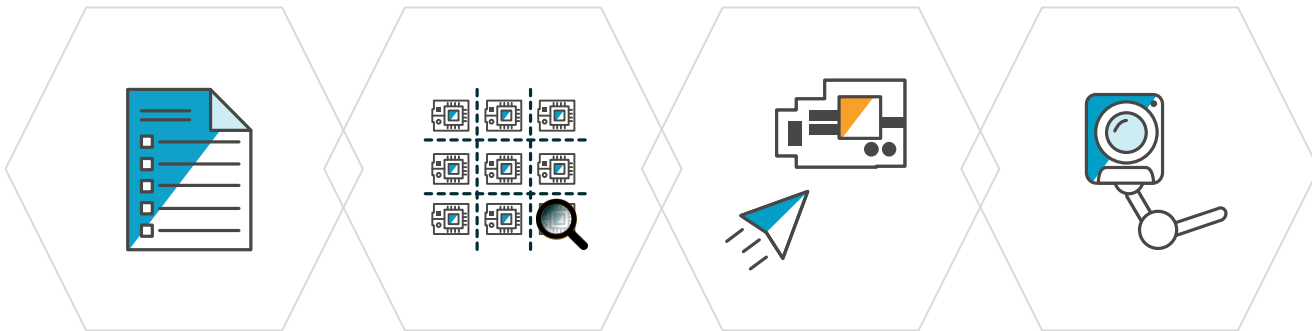


Monitoring and updating devices



AWS IoT Device Management

Maintain Fleet Health



Batch Fleet Provisioning

Real-time Fleet Index & Search

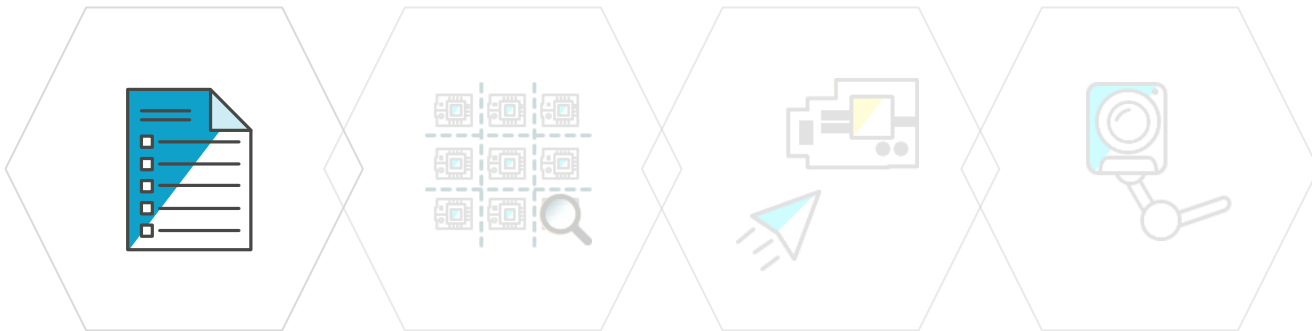
Over the Air Updates

Fine Grained Device Logging & Monitoring



AWS IoT Device Management

Onboarding



Batch Fleet Provisioning

"Parameters" : {

- Provides provisioning parameters for registering device in the IoT resource (ThingName, metadata, certificates, and ThingType).
- JSON template for IoT resource (ThingName, metadata, certificates, and ThingType) that represent device in the cloud.
- Upload via console or CLI.
- StartThingRegistrationJob (AWS IoT console) for registering all devices in bulk.

"ThingName" : { "Type" : "String", "Default" : "WA" },

"SerialNumber" : { "Type" : "String" },

"Location" : { "Type" : "String", "Default" : "WA" },

"CSR" : { "Type" : "String" }

"Resources" : {

"thing" : {

"Type" : "AWS::IoT::Thing",

"Properties" : {

"ThingName" : {"Ref" : "ThingName"},

"AttributePayload" : {

"version" : "v1",

"serialNumber" : {"Ref" : "SerialNumber"}

},

"ThingTypeName" : "lightBulb-versionA",

"ThingGroups" : ["v1-lightbulbs", {"Ref" : "Location"}]

}

},

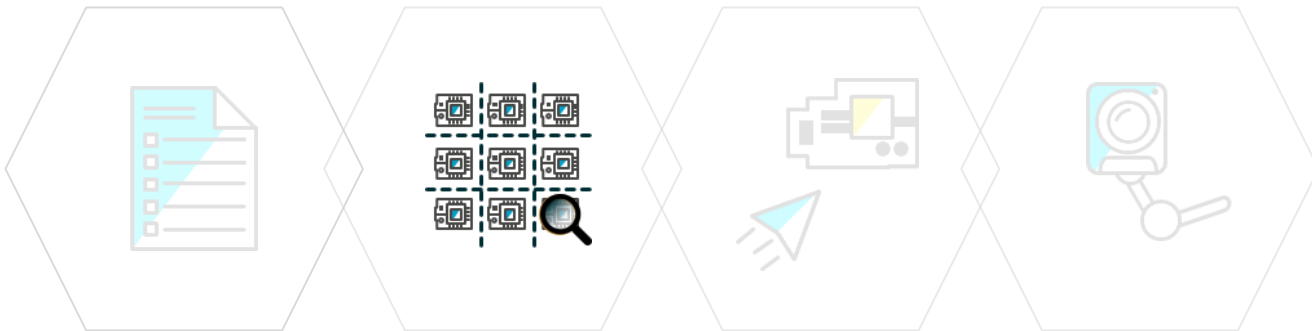
"certificate" : { "Type" : "AWS::IoT::Certificate", "Properties" : {

"CertificateSigningRequest": {"Ref" : "CSR"}, "Status" : "ACTIVE" } }



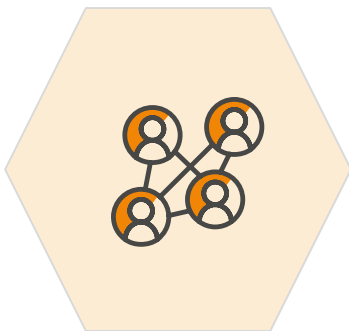
AWS IoT Device Management

Organizing

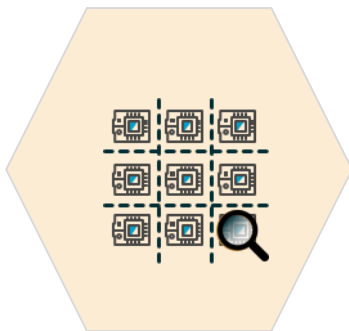




Grouping and Searching for Devices



Organize
devices into
logical
hierarchies



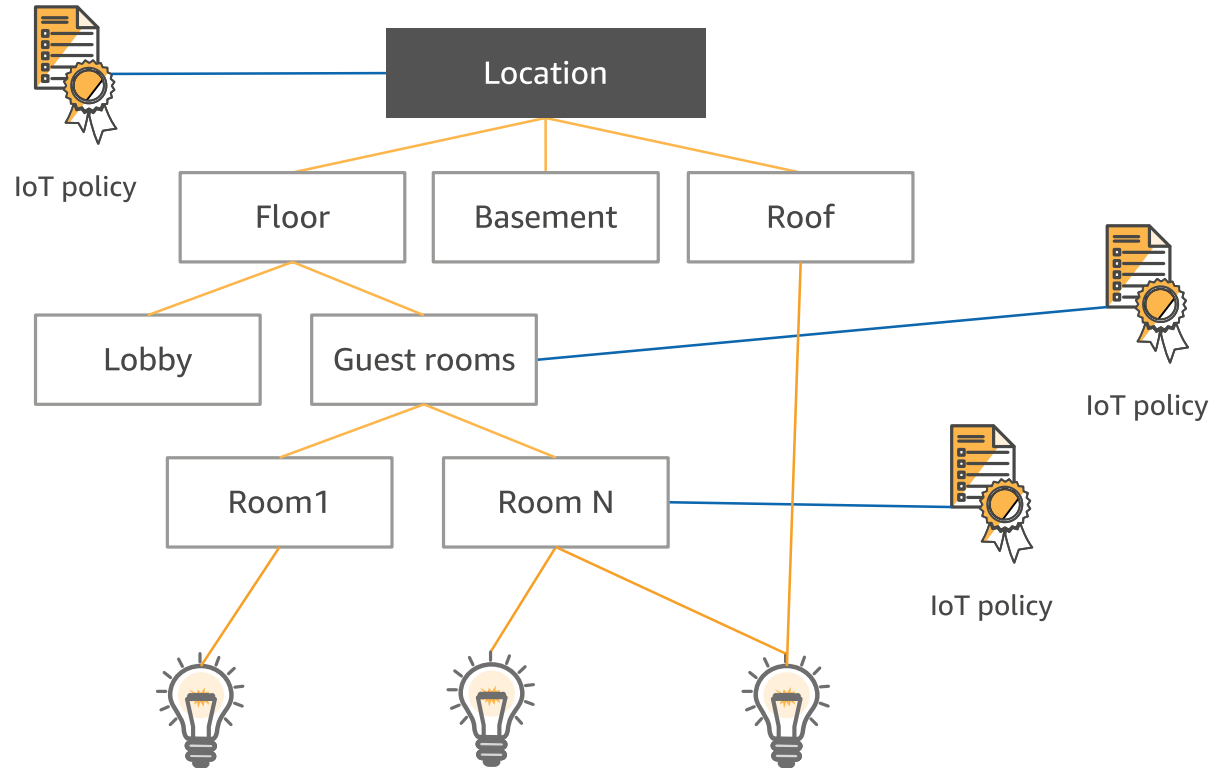
Search both the
Registry and
Device Shadow



Group Policies



Thing Groups

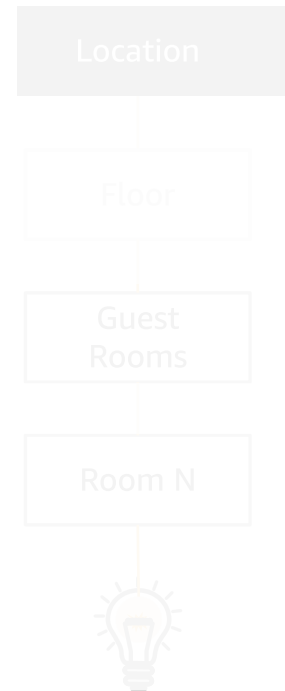




Thing Groups - Effective Policies

Guest Rooms

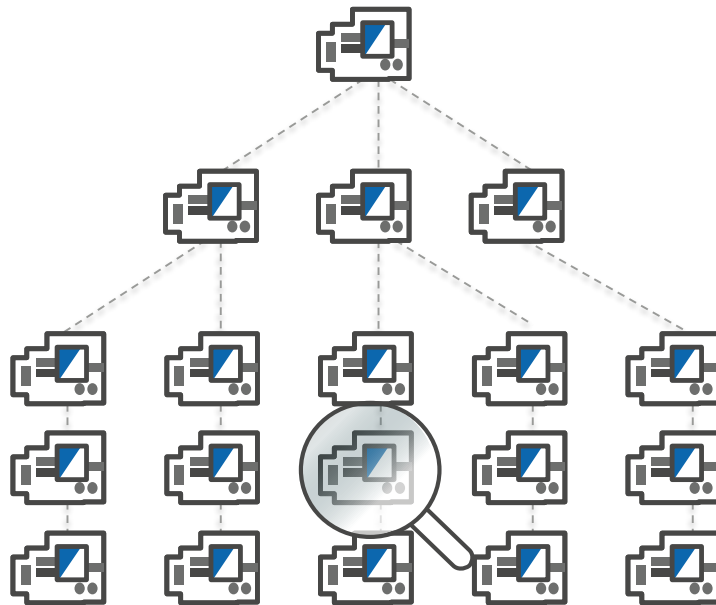
```
{  
  "Version": "2012-10-17",  
  "Statement": {  
    "Effect": "Allow",  
    "Action": ["iot:Publish"],  
    "Resource": ["arn:aws:iot:us-east-1:123456789012:topic/lights/${iot:ClientId}/status"]  
  }  
},  
  "Action": ["iot:Publish"],  
  "Resource": ["arn:aws:iot:us-east-1:123456789012:topic/lights/${iot:ClientId}/status"]  
},  
{  
  "Effect": "Allow",  
  "Action": ["iot:Publish"],  
  "Resource": ["arn:aws:iot:us-east-1:123456789012:topic/lights/roomN/status"]  
}  
}
```





Search both Registry and Device Shadow

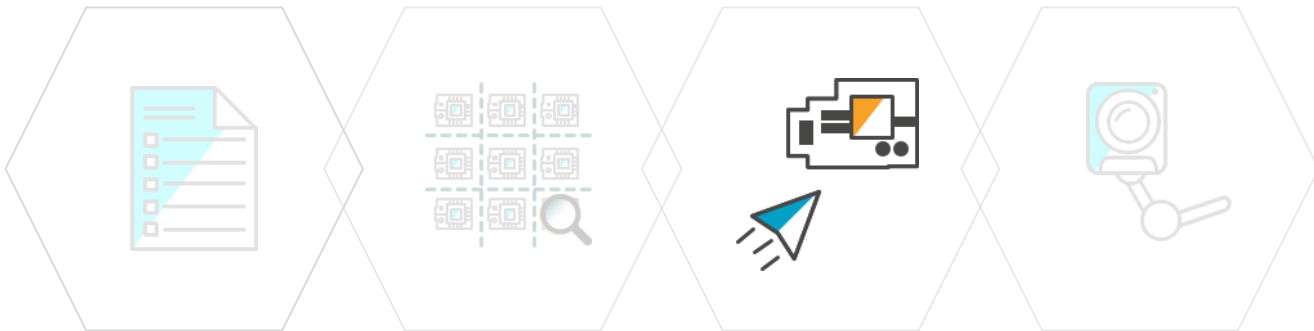
- Find all my lightbulbs that are currently on and with no one present in the room
- Get me all the widgets running firmware v6 that are currently charging





AWS IoT Device Management

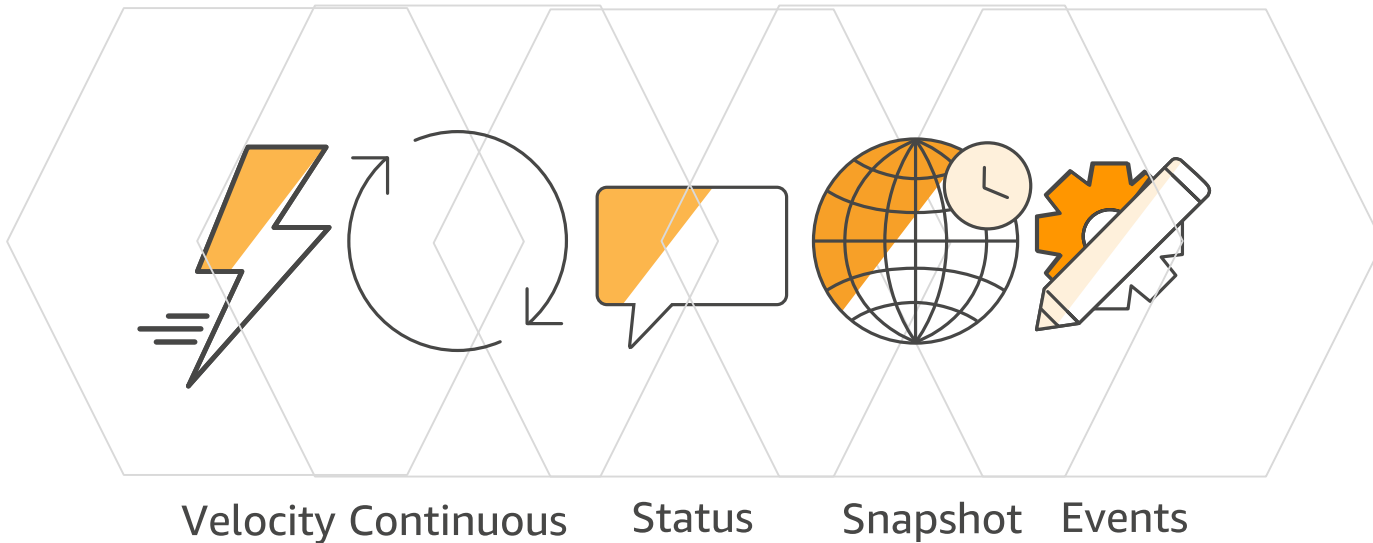
Over the Air Updates





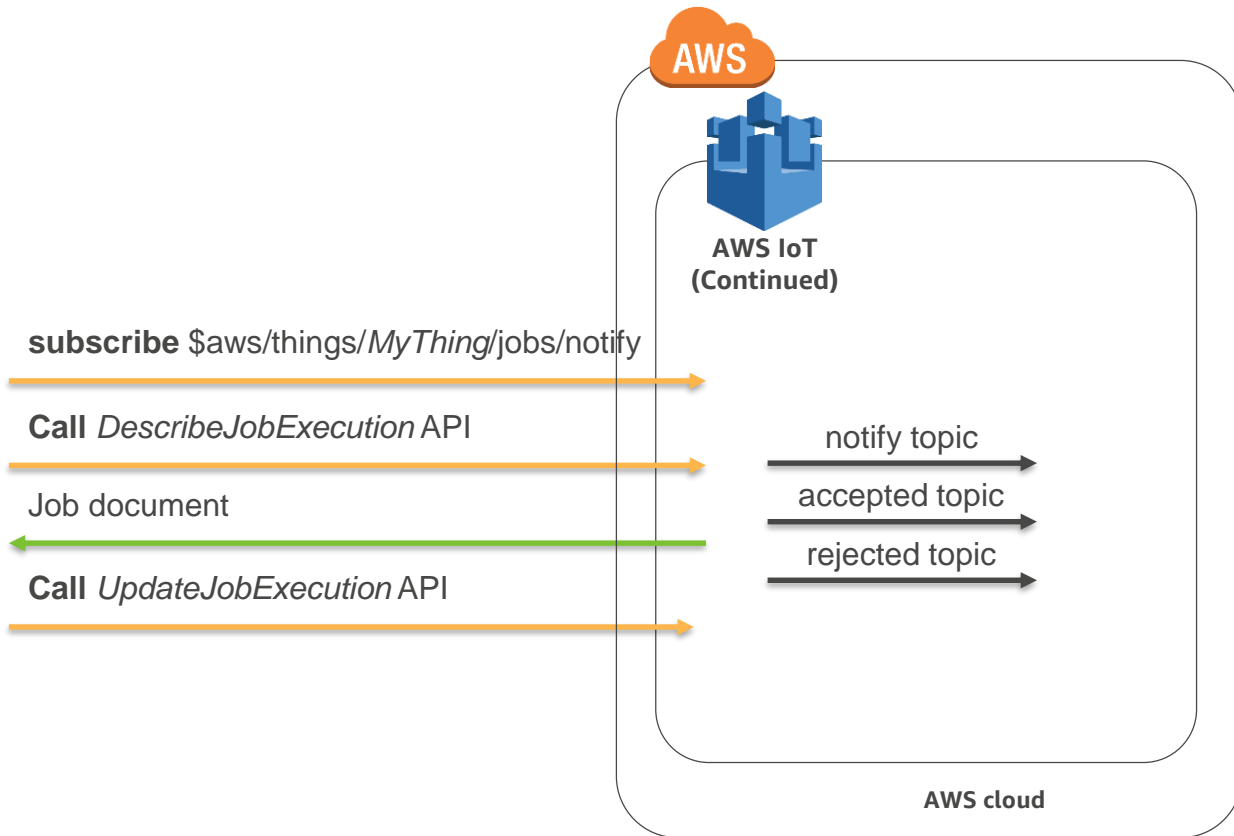
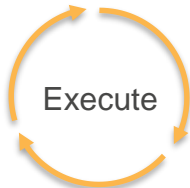
Jobs – Control + Monitoring

Different scheduling models





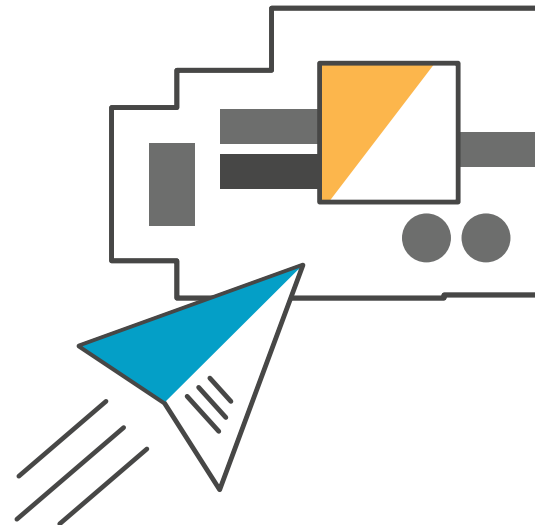
Job Workflow using AWS IoT Device Management



Over-the-Air Updates with Amazon FreeRTOS

Beta

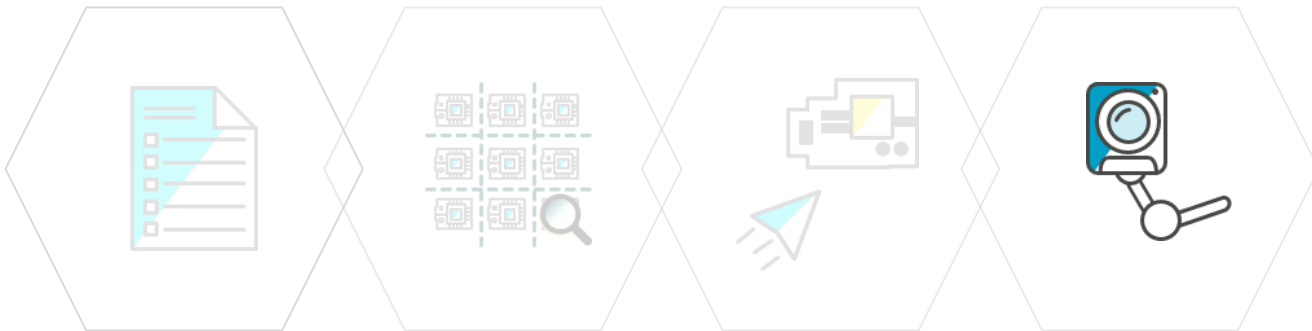
- Stream updates to your device over MQTT
- Validate signature on device
- APIs to control installation and reboot logic
- Code sign new firmware images
- Control authorship and ensure devices only run trusted code
- Memory efficient updated client





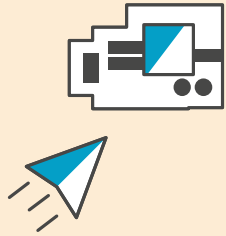
AWS IoT Device Management

Monitoring



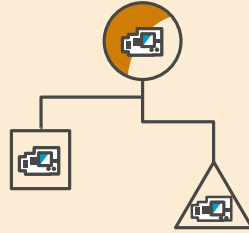


Monitoring Device Events



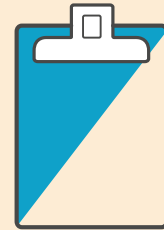
Jobs

Monitoring of
Device Updates



Devices, Groups

Monitor Devices
Joining Groups



Policies

Monitor Device
Security Policies



Fine-grained Logging

Deep diving



Security



Operations



Customer support

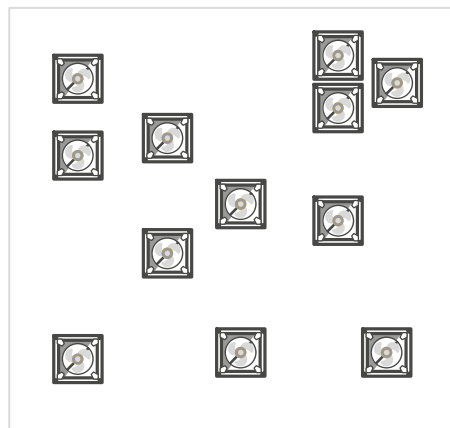
JSON format in CloudWatch



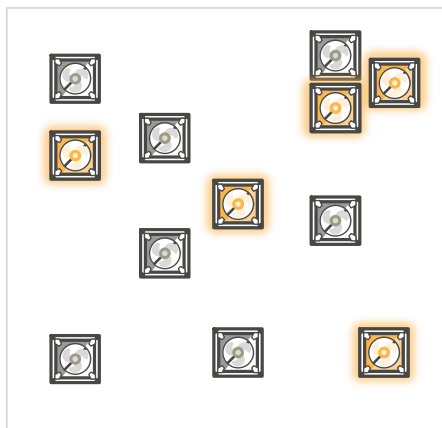
CloudWatch



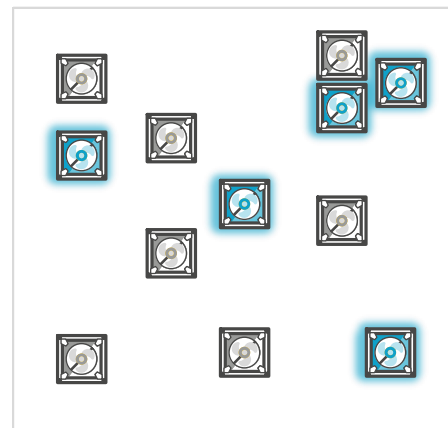
AWS IoT Device Management



1. Fast device onboarding at scale



2. Real-time fleet indexing and search



3. Over the air updates

THANK YOU!

Contact us at: aws-iot-dm-info@amazon.com