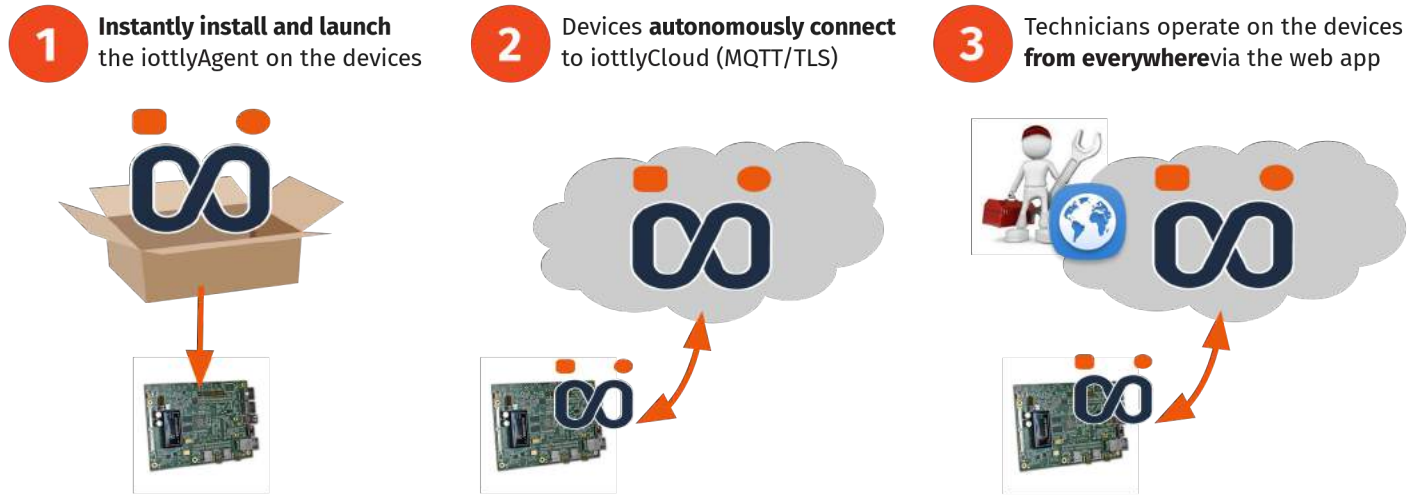


## How it works



## Remote control

### Reboot

- remotely reboot devices to recover from software issues or unexpected conditions

### Restart processes

- remotely restart specific processes to restore their original condition

### Monitor critical processes

- receive real-time notifications about the running status of critical processes

### Instantly transfer diagnostic logs to your PC

- timely obtain valuable information about the device operating status
- no need of usb keys or local ftp

### Transfer files to the devices

- send fix or configurations changes
- remotely as you were directly connected to the device

### Everywhere web SSH

- operate on devices as you were in front of them, wherever you are
- Everywhere web SSH features:

<p><b>Unique access and management console</b></p>	<p><b>100% web based</b> no need to install client software</p>
<p><b>Zero inbound connections</b> no open ports on the device</p>	<p><b>Access enabled by the device</b> via MQTT</p>
<p><b>Customizable access control</b> role based policies</p>	<p><b>Automatic auditing and reporting</b></p>
<p><b>Works behind NATs</b> No need to maintain long IP addresses lists</p>	<p><b>Works with devices connected to mobile networks</b></p>

## Telemetry

### iottly transports data between devices and applications

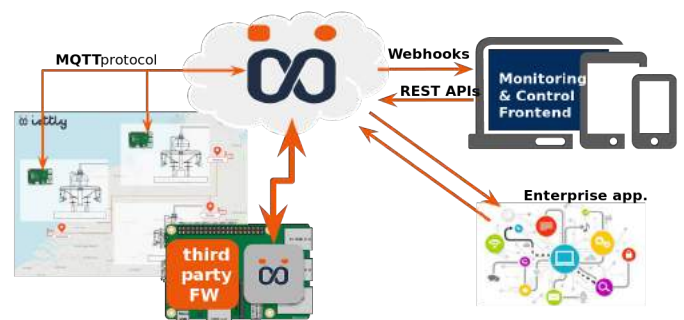
- both SaaS or on-premise
- over secure connections

### Real-time notifications

- iottly pushes messages from the devices to third-party applications, through webhooks

### Trusted active controls

- third-party applications can securely interact with the devices through iottly REST APIs



### iottlyAgent SDK

- third-party firmware can make use of the iottlyAgent SDK to send and receive data to and from high level monitoring applications

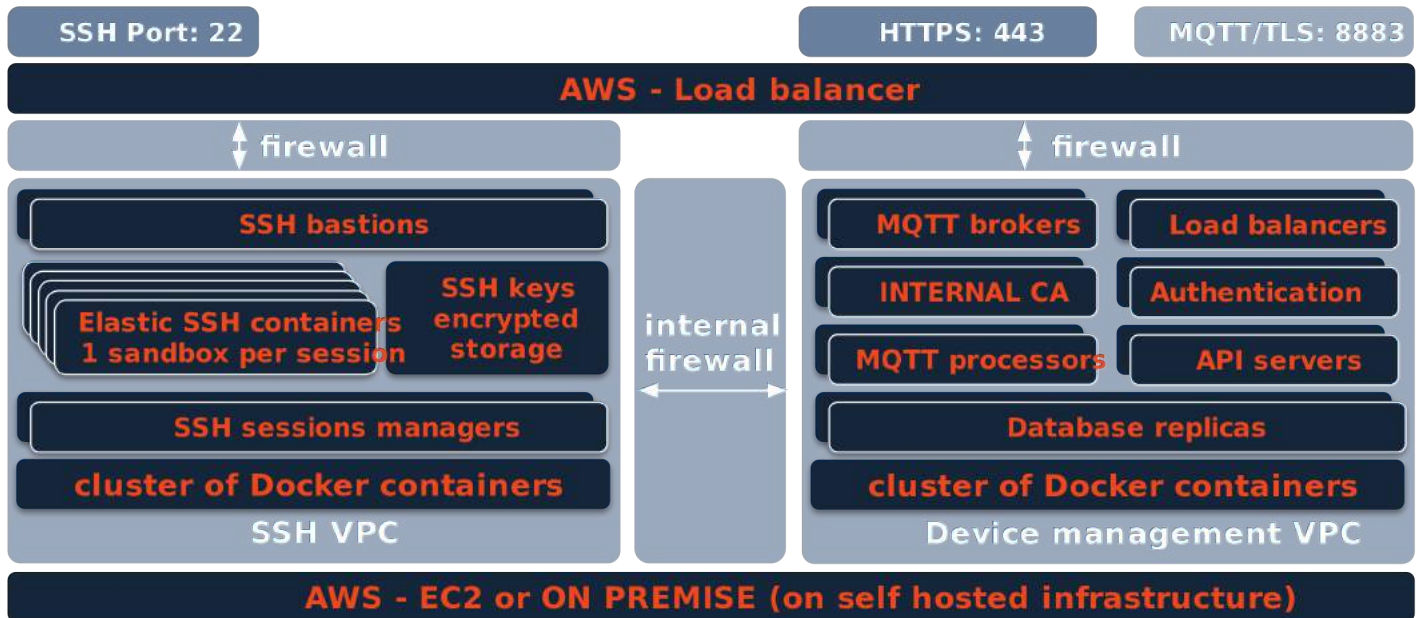
### One standard interface to any device

- all of the devices communicate in the same way, and can be managed in the same way, independently of the specific functions they are running

### Remote management of third-party firmware

- test, debug, upgrade, maintain the custom application on the device

## iottlyCloud: architecture



### Core features



#### X.509 off the shelf security

- devices' certificates (2048 bit) are signed by the internal CA
- mutual authentication between the device and the broker



#### on-device SDK

- easily integrate the iottlyAgent into any firmware via a simple send/receive SDK



#### on-device python scripting engine

- easily and remotely add functions to the devices via OTA updates of python scripts



#### Telemetry middleware via cloud APIs

- trigger actions on the devices from third-party apps via REST APIs (HTTPS, token authenticated)
- real-time notifications from devices to third-party apps via channel based web callbacks (webhooks)



#### everywhere web SSH

- access the devices from a terminal in the browser via reverse SSH and pubkey authentication
- one dedicated ephemeral sandbox for each ssh session



#### real-time control panel

- remotely reboot, upgrade or check the status of each device from a unified control panel
- (coming soon)

### iottlyAgent: technical specs



#### Easy device setup

- drop-in install; no need of rebuilding the image
- one-click pairing of single devices
- self-pairing devices can be prepared in bulk
- safely installs alongside third-party firmwares
- footprint: 30Mb flash, 6Mb RAM



#### For Linux on ARMv5 ARMv6+ AMD64 i386

- fully self contained; no dependencies on system libs
- we tailor the static python 3.6 shipped with the agent
- allows refitting of devices which are already deployed
- rapid portability on any other platform



#### Outbound Connections Only

- persistent MQTT/TLS: mqtt.iottly.com 8883
- user triggered SSH: bastion.iottly.com 2200



#### Connectivity: LAN, WiFi, LTE, GPRS

- idle traffic can be set as low as 750Kb / month
- access to devices with unknown IP address

### iottlyAgent: architecture



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