

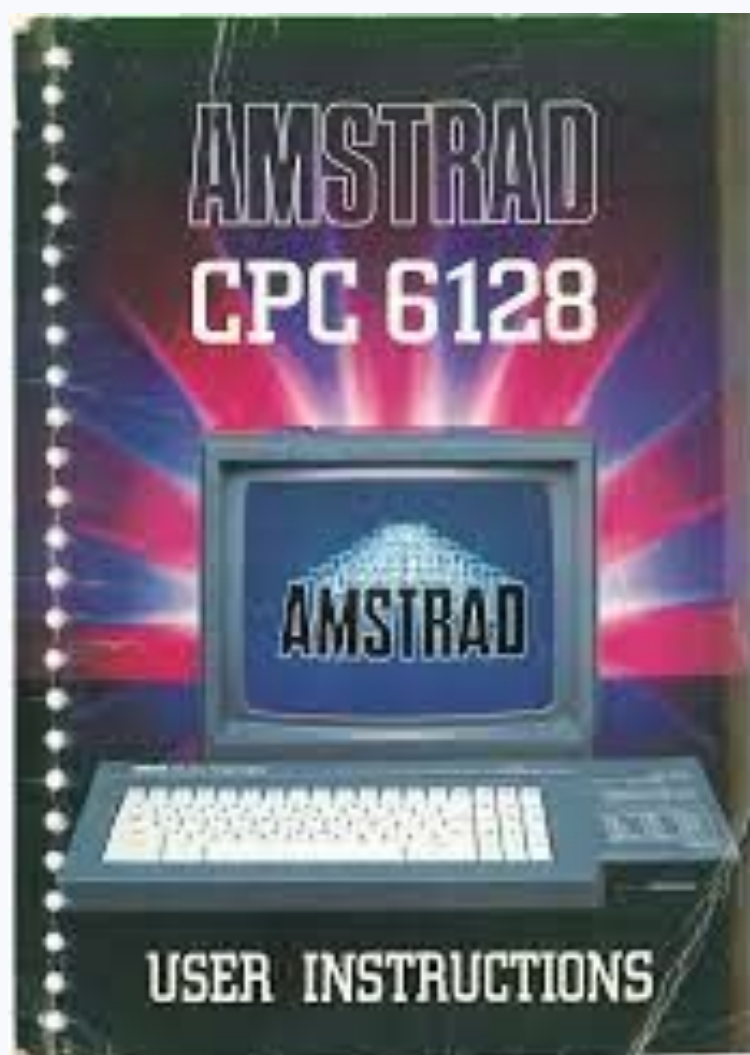


The MING stack for Industrial IoT

Industry 4.0 TV - 13th of July 2023

How did you learn programming?





Did you use any
framework or stack to
reduce friction?





Coined in 1998



Why LAMP succeeded?



Why LAMP succeeded?

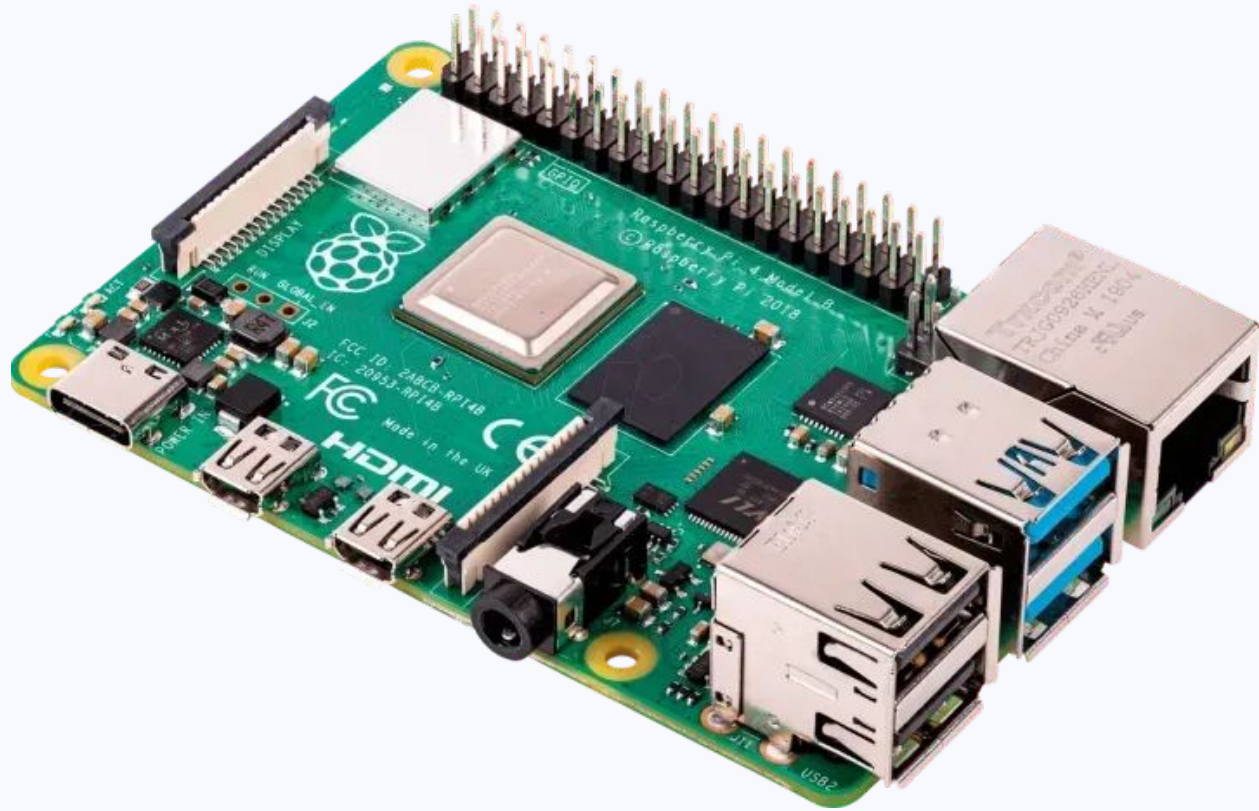
- Reduced the friction to developers
- Open-source and free
- Flexible and scalable
- Wide community support



What can we do for the
IoT and Edge?



What does a developer
need to run a LAMP-like
stack for the IoT and Edge?



YouTube MX

balena meetup grafana

Not secure | https://node-red.dynamicdevices.co.uk:1880/#flow/bcb1148e.6d5d58

CoVid EnviroSensor ASIC Course AES-ZU3EG-1-S... Kettle Compa... (1) Christmas... Mayflower Au... Spriteguard STEM Bids Onshape mystorm Other bookmarks

Node-RED

filter nodes

complete catch status link in link call link out comment

function

function switch change range template delay trigger exec filter basic http auth mqtt

network

mqtt

Kettle Companion Net4IO Cheertunes Caravan Dashboard Varsense Varsense Bot Cellular I debug

interacting with InfluxDB

queries to interact with DB

show all db's show all tables DROP SELECT output

InfluxDB Query Testing

Inject Test Query

manual cost injection to DB

cost in pence/kWh -> db (manual injection)

Insert Details for new a Device

sensor readings -> db & total calculated cost -> db

sub: tasmda Extract Device ID Modify payload for InfluxDB Archive payload / Set price query getPricePencePerKWh Price Calculator total pounds / k

Manual changes to devices/tasmda

change mqtt prefix manually

Prefix2 change Prefix2 value (stat)

change telemetry period

10 seconds (change me) change TelePeriod value

change mqtt prefix manually

Prefix3 change Prefix3 value (tele)

custom cmd

custom cmd cmd

change mqtt prefix manually - change me first

Prefix1 change Prefix1 value (Sub)

daily morning email report (turned off due to it coming through on telegram)

at 8AM send cmd cmd

Activate report email via MQTT

varsense/cmd+email Extract Device ID, get DeviceInfo SELECT Store Device Info and Get Device Images SELECT calculator for today & yday query last 5 days cost SELECT

debug

Alex (@embedded_iot)

Marc Pous

Lizzie Epton

Mikhail Volkov

Mikhail Volkov

41:31 / 1:05:48



MING





MQTT

DATA COMMUNICATION

InfluxDB

DATA STORAGE

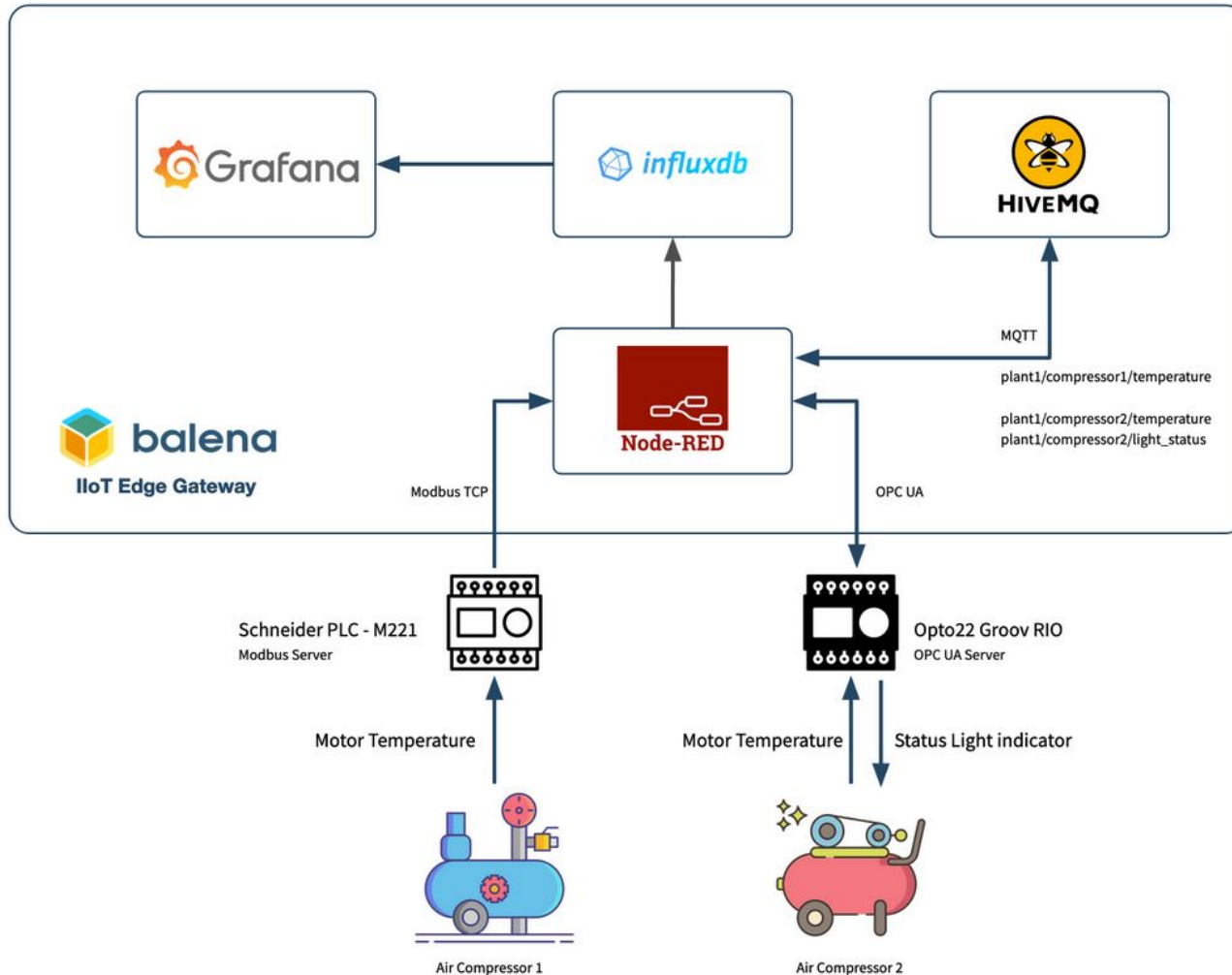
NodeRED

DATA PROCESSING / ACQUISITION

Grafana

DATA VISUALIZATION

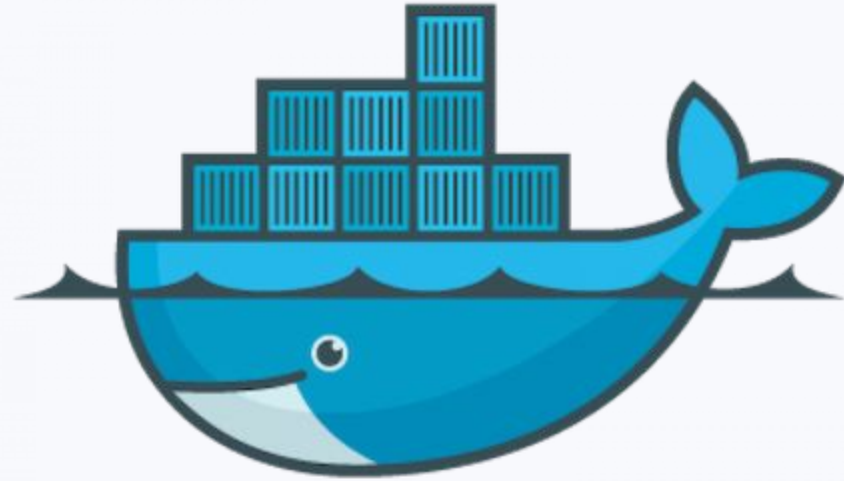




How can I get started?



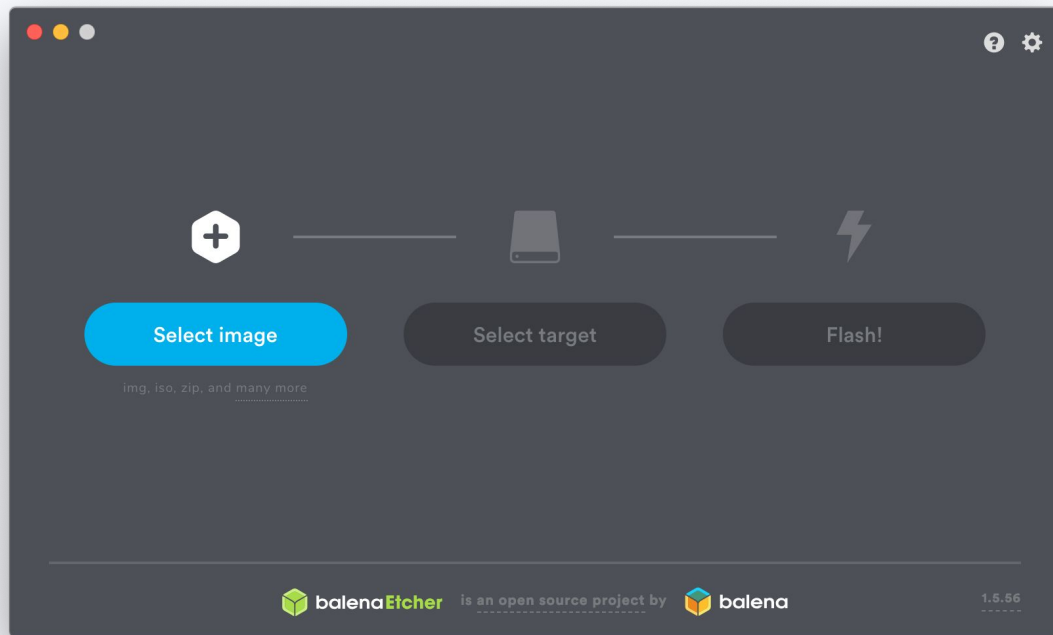




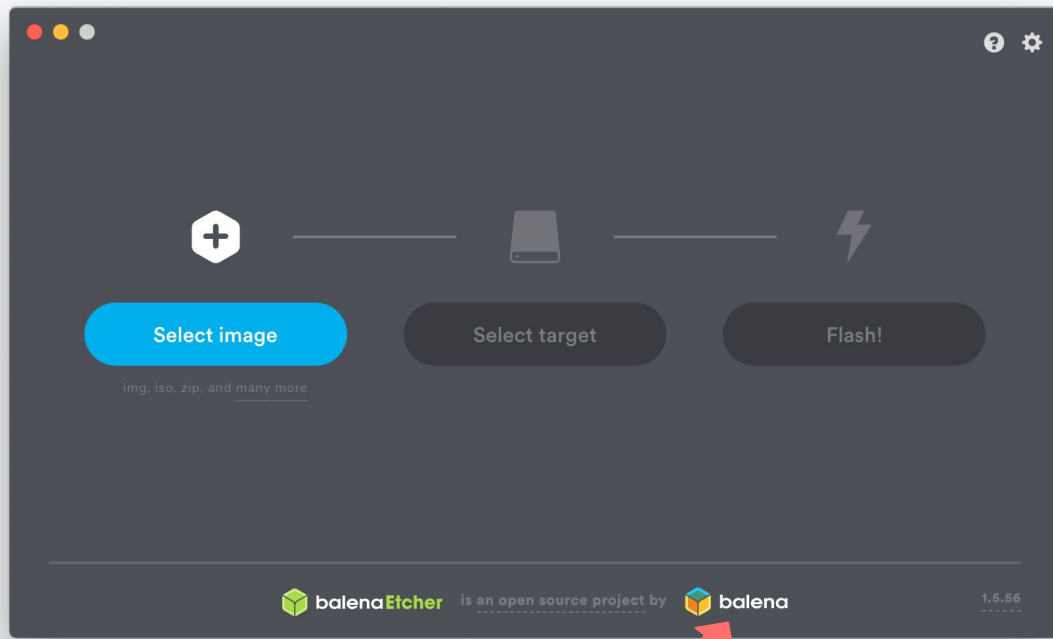
docker

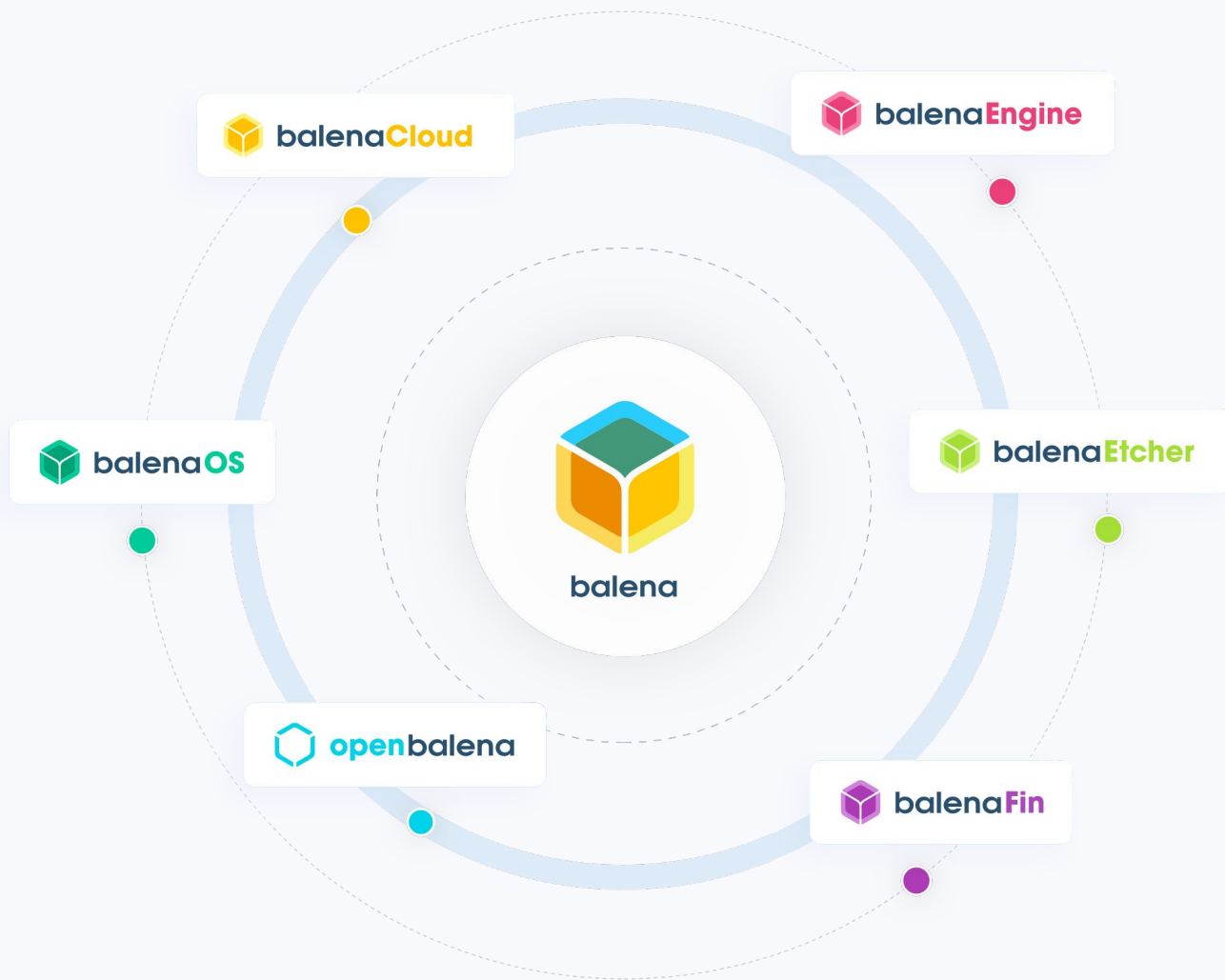


Anyone know this?

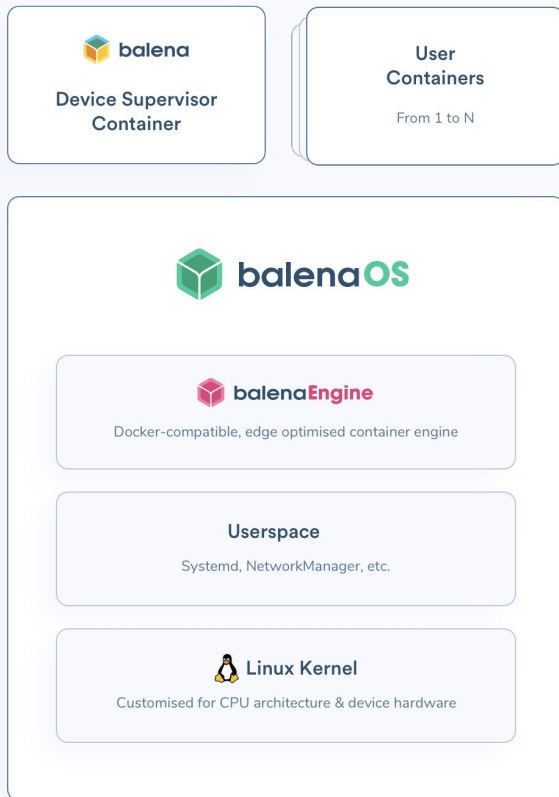


Anyone know this?

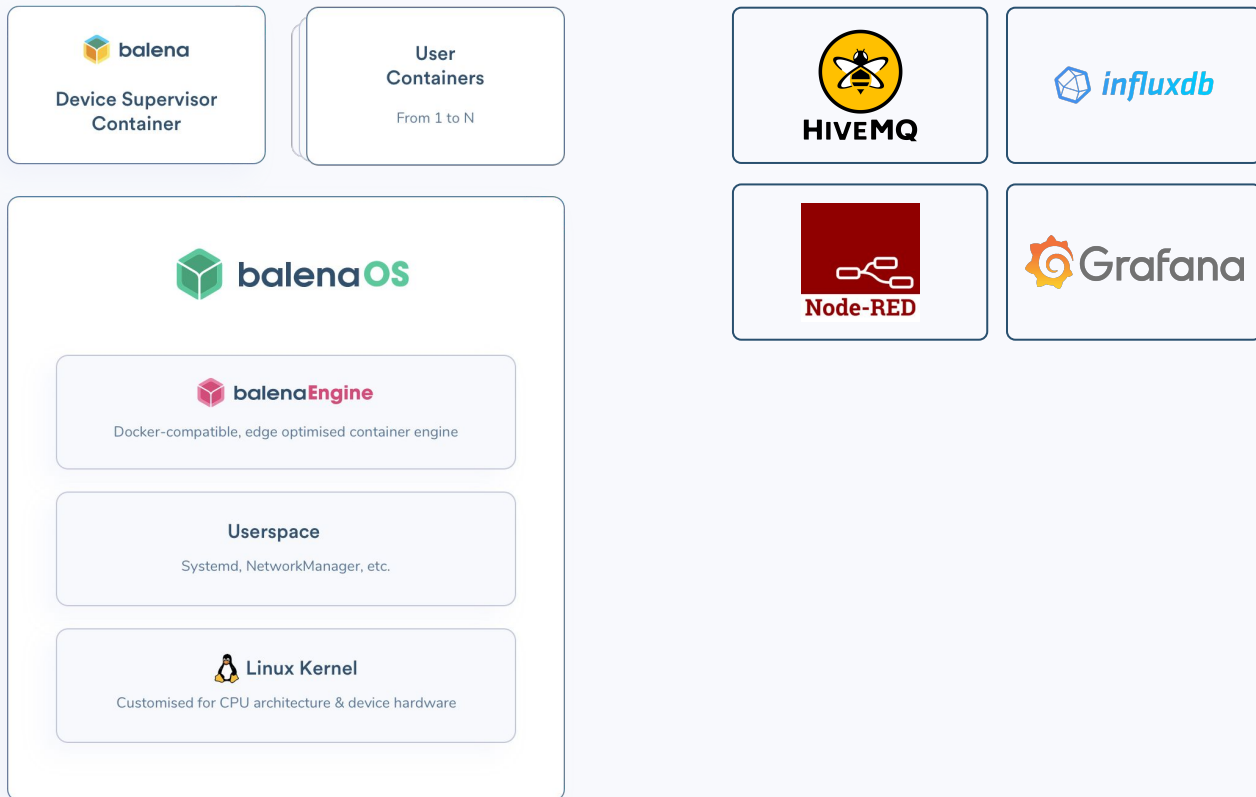




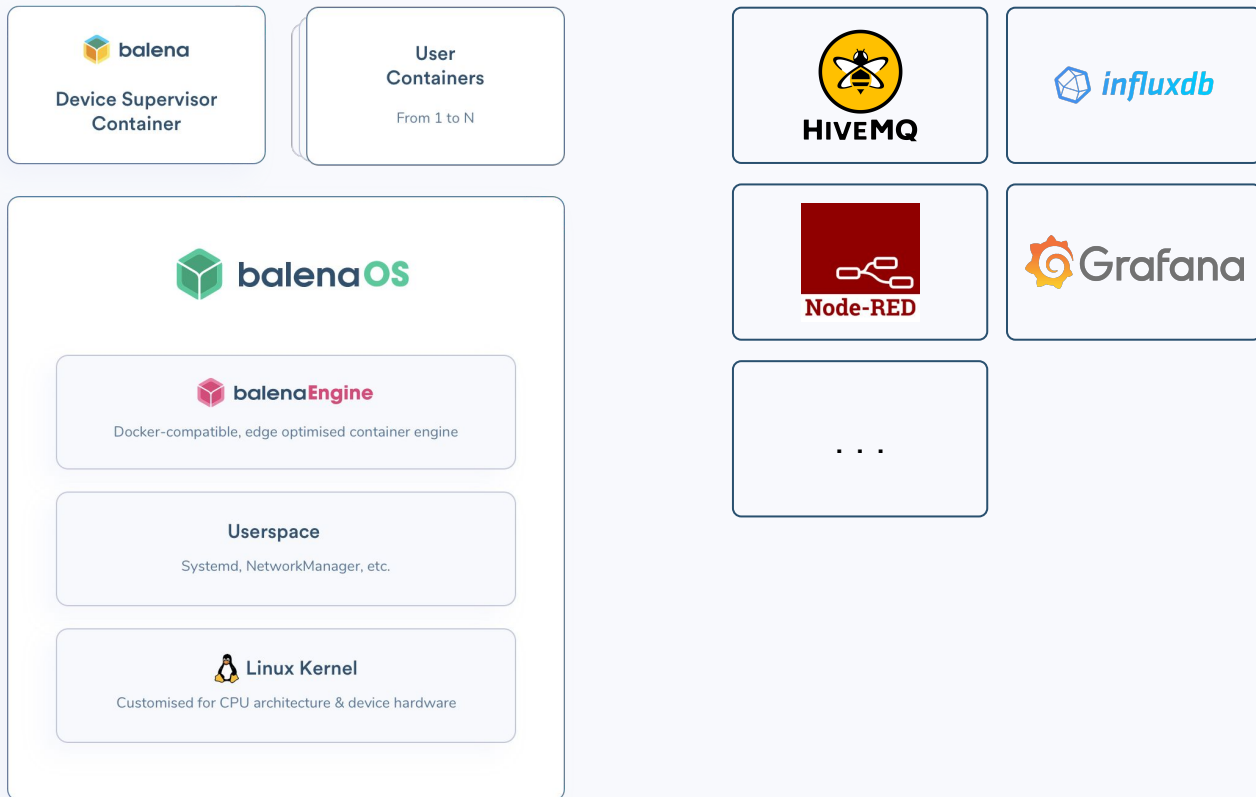
Let's take advantage of the containers in the Edge



Let's take advantage of the containers in the Edge



Let's take advantage of the containers in the Edge



MING by Marc Pous - Balena

https://hub.balena.io/apps/1874947/MING

balenaHub IoT Marketplace

Apps Blocks Fleets for Good balenaCloud IoT Dashboard

balenaHub has a new look! Read more on our blog

Home / Apps / MING

Share

Free

Deploy

View code Report issue

App overview

Version
0.0.0+rev10

Size
14MB

Last Update
7/10/2022

Supported Devices

- Raspberry Pi 3 (using 64bit OS)
- Raspberry Pi 4 (using 64bit OS)
- Raspberry Pi 400
- Raspberry Pi CM4 IO Board

Description

No description

Release notes

No release notes

balena

Terms of use

<https://hub.balena.io/apps/2043314/ming-hivemq-industrial-gateway>



balenaCloud

Organizations

Marc Pous

Fleets

ming-noderedCon22

Devices

mean-rainfall

Summary

Device Variables

Device Configuration

Actions

Settings

Diagnostics

Location

Changelog v15.2.0

mean-rainfall

Actions

STATUS

Online

UUID

79274f1c47d09ad5888d3d092a01e049

TYPE

Balena Fin (CM3)

ONLINE FOR

5 days

HOST OS VERSION

balenaOS 2.83.21+rev1

SUPERVISOR VERSION

12.10.3

CURRENT RELEASE

4e72605

TARGET RELEASE

4e72605

LOCAL IP ADDRESS

10.136.218.127

PUBLIC IP ADDRESS

192.168.1.34

MAC ADDRESS

B8:27:EB:F0:4F:09
AC:3F:A4:EB:21:EC
AC:3F:A4:EB:20:EC

TAGS

No tags configured yet

PUBLIC DEVICE URL

SERVICES

Service	Status	Release	
grafana	Running	4e72605	
influxdb	Running	4e72605	
mqtt	Running	4e72605	
node-red	Running	4e72605	
wifi-connect	Running	4e72605	

CPU

~42%

Temperature

~50C

Memory

350 MB/970 MB

Storage

1.0 GB/6.4 GB

Logs

07.10.22 02:35:02 (+0000) influxdb [httpd] 172.18.0.2 - - [07/Oct/2022:02:35:02 +0000] "GET /query?db=balena&q=show+field+keys HTTP/1.1" 200 70 "-" "Python-urllib/3.7" a549f3ed-45e8-11ed-8075-0242ac120003 1 159

07.10.22 02:35:02 (+0000) grafana Interim dashboard sync skipped: No schema found.

07.10.22 02:35:12 (+0000) influxdb [httpd] 172.18.0.2 - - [07/Oct/2022:02:35:12 +0000] "GET /query?db=balena&q=show+field+keys HTTP/1.1" 200 70 "-" "Python-urllib/3.7" ab42ab82-45e8-11ed-8076-0242ac120003 1 382

07.10.22 02:35:12 (+0000) grafana Interim dashboard sync skipped: No schema found.

07.10.22 02:35:22 (+0000) influxdb [httpd] 172.18.0.2 - - [07/Oct/2022:02:35:22 +0000] "GET /query?db=balena&q=show+field+keys HTTP/1.1" 200 70 "-" "Python-urllib/3.7" b13b454f-45e8-11ed-8077-0242ac120003 1 974

07.10.22 02:35:22 (+0000) grafana Interim dashboard sync skipped: No schema found.

Terminal

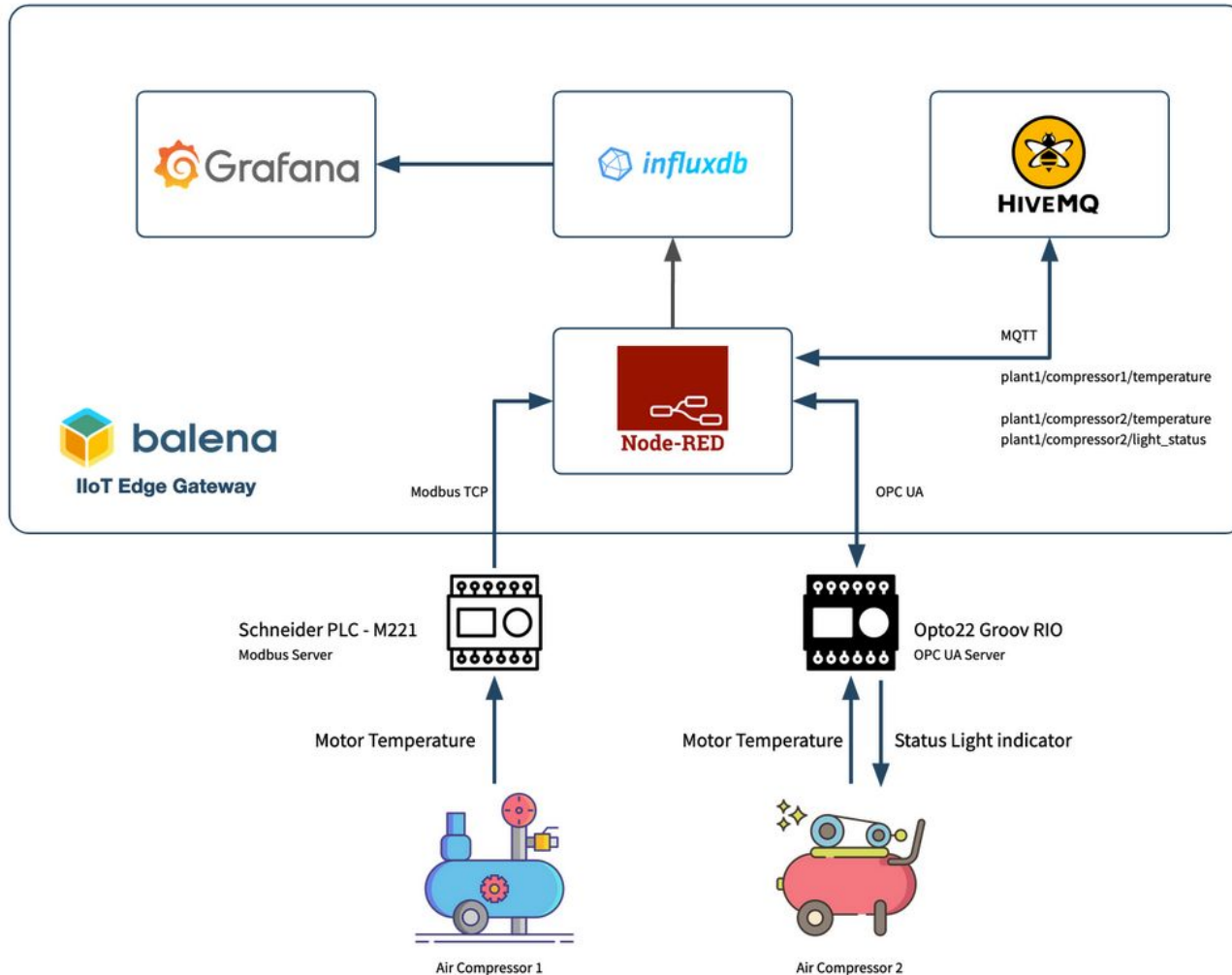
Select a target

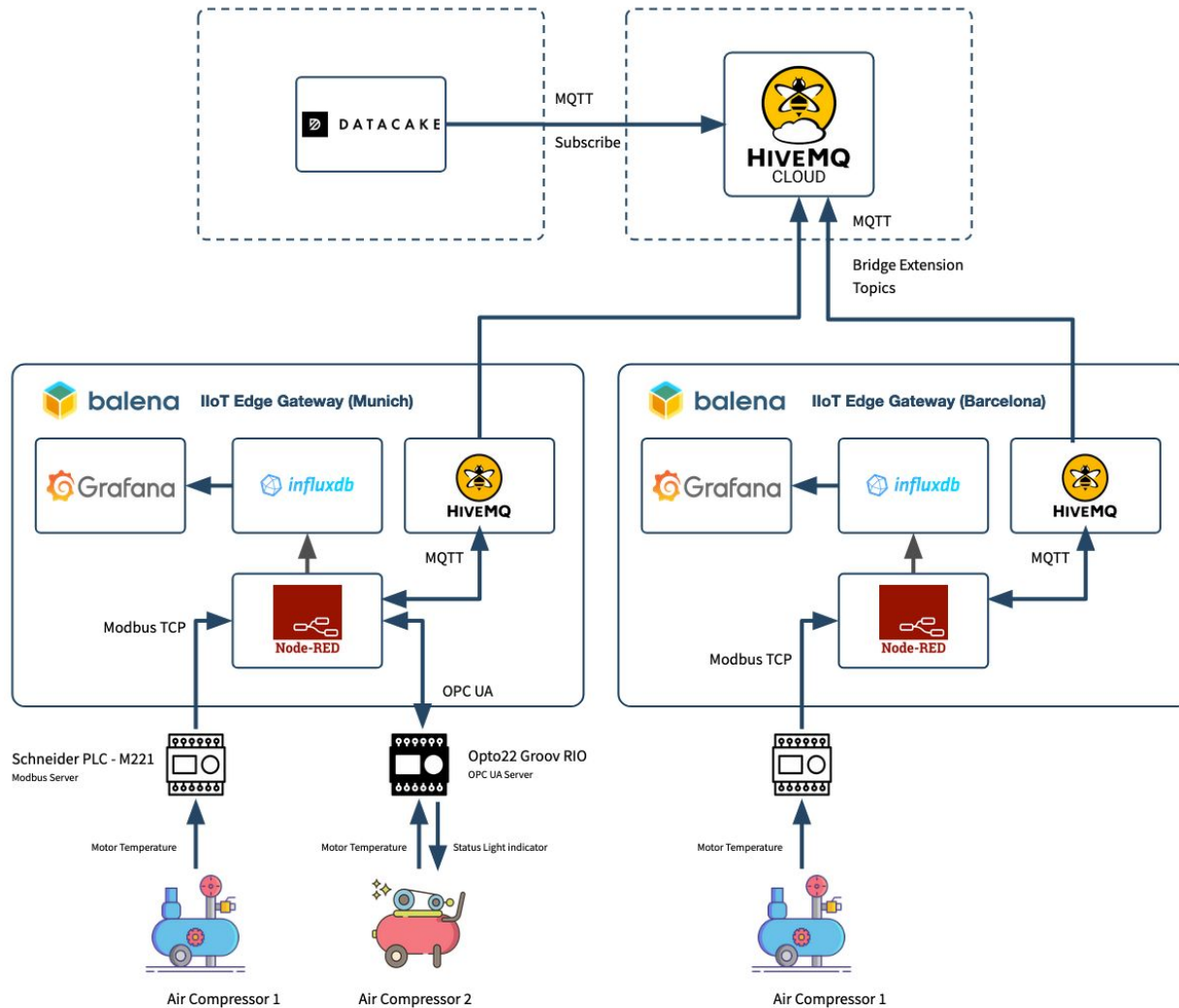
Start terminal session



Let's build it together?









Questions?



Marc Pous

Developer Advocate @ balena.io

e: marc@balena.io

t: [@gy4nt](https://twitter.com/gy4nt)



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