Port-o-matic – Smart Port Platform

Solent University students win first prize at TMforum Open Hack Nice May 14-16 2017

Winners TM Forum Open Hack Nice 2017

Joann O Brien (TM Forum), Dr Craig Gallen (Open NMS UK), Michael Sievenpiper (3rd yr. Student) , Joe Appleton (Lecturer Solent Uni) , Marcin Wisniewski(2nd yr. Student) , Jergus Lejko (1st yr. Student)

Southampton Port-o-matic Smart Port Platform

- Southampton Port is the second largest in the UK
  - 52,000 ships a year
  - The UK's number one cruise port, which welcomes 1.7m passengers
  - Each cruise ship up to 6,000 passenger and crew
  - Contributes £1.23 billion to the UK economy
- Port-o-matic
  - Is a platform bringing together shipping companies and ports
- API's provided by:

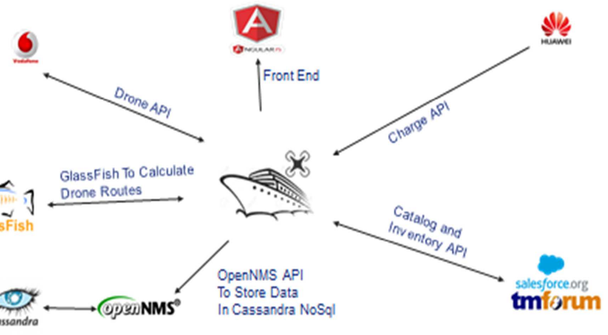
HUAWEI openNMS Vodafone tmforum

Our Platform Solution

Single point for ordering and accessing port services

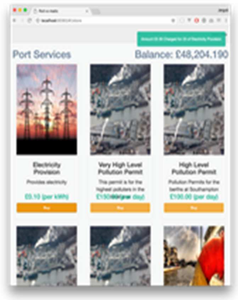
- Service Catalogue
  - Easily discoverable services
  - Aggregation of 3rd part offers
  - Port services (Docking charges, Water, Electricity, Waste Water and Data Communications etc.)
  - Pollution charging (for running generators in port)
- Measurements
  - Ship Side IoT devices Measuring Water, Electricity, Waste Water and Data consumption
  - Flying Drones measuring smoke emissions for pollution charging
- Presentation
  - User Web Application to view, order and access services

System Architecture



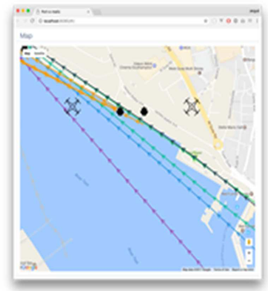
SalesForce & Huawei API integration

- SalesForce Catalog
  - Pulled services
  - Their data/pricing
- Huawei Charging & Balance API
  - Used to charge for services



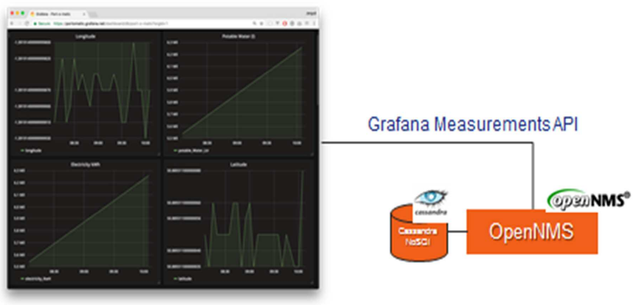
Vodafone Drone API integration

- Real-time data mapping
  - Position, direction
- API's
  - TMForum Address API
  - Vodafone Drone API
- Flight Control Algorithm
  - Automatic mission handling



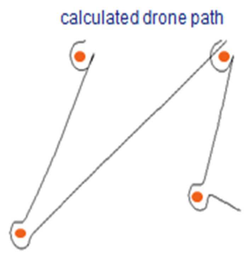
Grafana

Display of real time data from drones and metering devices

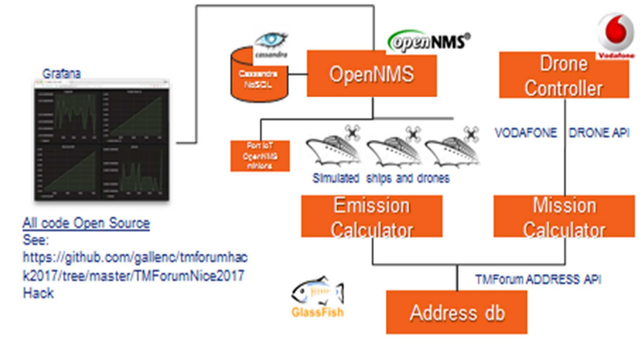


Calculating Measurements

- double measuredCy; is the total measured concentration (µg/m3) at distance Dy;
- double distanceDz; // Dz is the distance from the ship (m) at which concentrations are to be predicted;
- **double predictionCz = ((measuredCy)/ (2.7171)) * (-0.5476 * Math.*log(distanceDz)+2.7171);***



Architecture



All code Open Source
See:
https://github.com/gallenc/tmforumhack2017/tree/master/TMForumNice2017Hack