

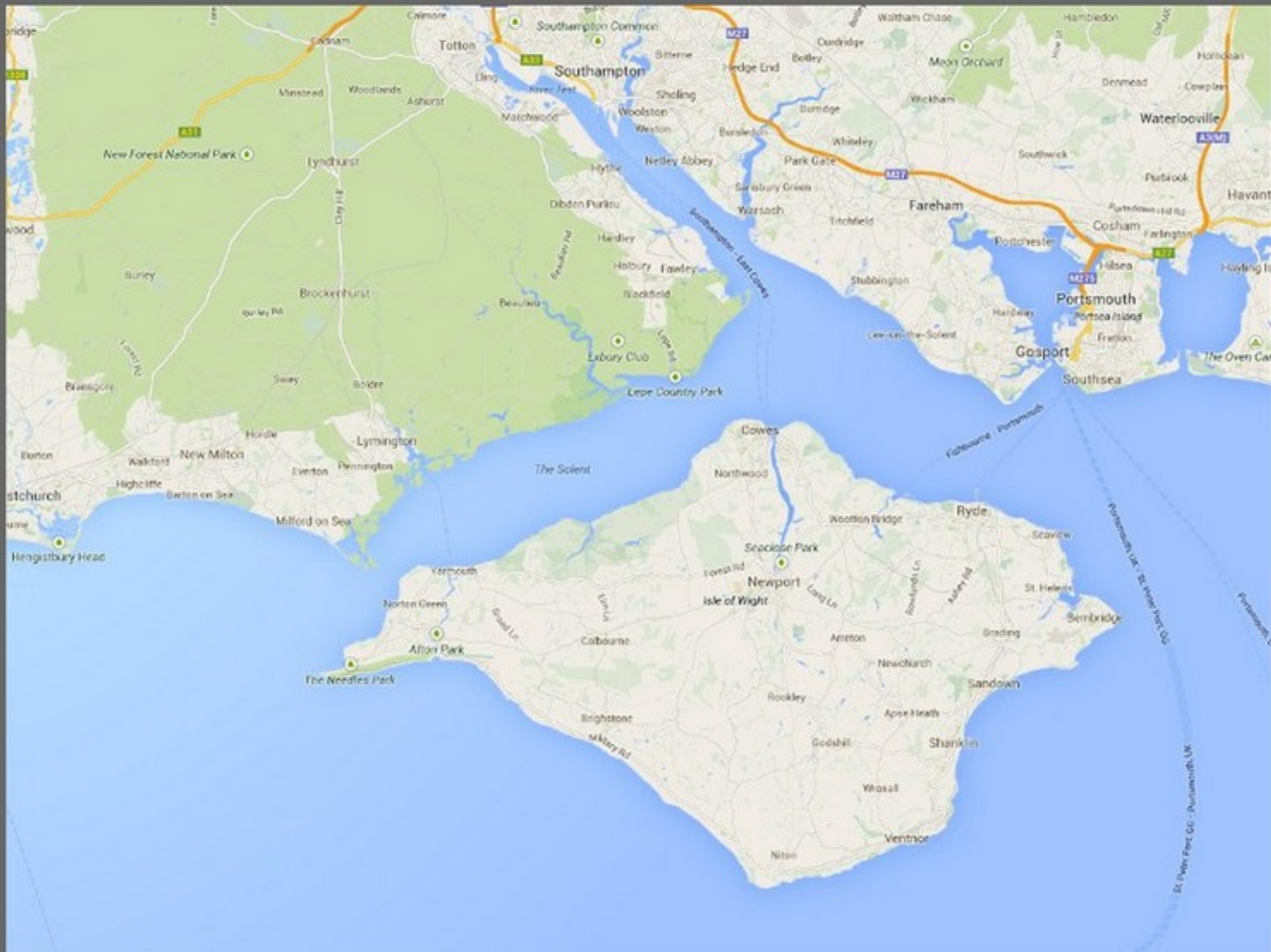
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my talk via the
mobile app!



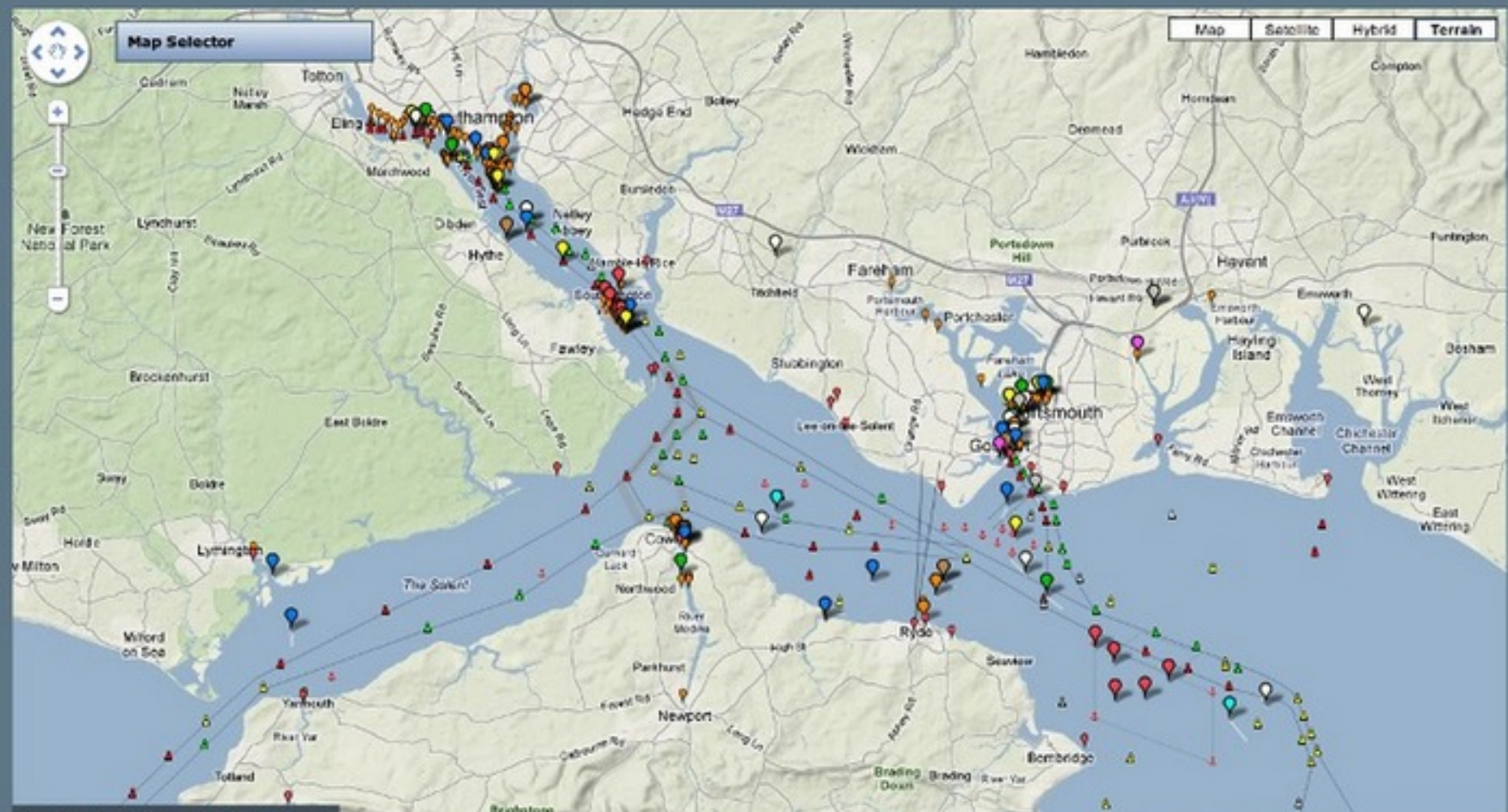
Wiring the Internet of Things

nick o'leary • @knolleary

IBM Emerging Technology Services



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Use the Isle of Wight Map if ship positions are frozen or do not show

Refresh Map

Last upload:

Monday May 21 11:13:40

Updating ship positions in 7 sec



redjets
@redjets
Isle of Wight Redjet ferries. By @andysc
Southampton, UK <http://redjetfunnel.co.uk>

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@redjets

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Tweets Hidden 0 tweets

- redjets** @redjets 46s
11:18 - Red Jet 4 is leaving West Cowes
Expand
- redjets** @redjets 9m
11:09 - Red Jet 4 has arrived at West Cowes
Expand
- redjets** @redjets 9m
11:09 - Red Jet 4 is leaving West Cowes
Expand
- redjets** @redjets 10m
11:08 - Red Jet 4 has arrived at West Cowes
Expand
- redjets** @redjets 30m
10:39 - Red Jet 4 has arrived at Southampton
Expand
- redjets** @redjets 59m
10:18 - Red Jet 3 has arrived at Southampton
Expand
- redjets** @redjets 1h

Ferry Routes

Red Jet Hi-Speed service

Timetable

Fares/Offer to the IoW

Fares/Offer from the IoW

Ticketing & Check-in

Terminal Facilities

Luggage, Pets & Bicycles

Hazardous Goods, Parcels

Accessibility Information

Smoking Policy

Hi-Speed Fleet

Vehicle Ferry service

Service status

Frequent travellers

Corporate/Business Travel

Coach & Group Travel

Schools Groups and Clubs

Travel Agents & Multiples

Red Jet Hi-Speed Timetable



Red Jet Timetable - Southampton <> West Cowes (Isle of Wight)

Current Live Positions

redjets: 19:48 - Red Jet 4 is leaving West Cowes
 redjets: 19:42 - Red Jet 4 has arrived at West Cowes
 redjets: 19:38 - Red Jet 3 has arrived at Southampton
 redjets: 19:19 - Red Jet 4 is leaving Southampton

From Southampton T2



More Sun

From Mon 3 service will during the d making it the speed serv

Fastest re London V

The Red Jet



Red Jet Timetable - Southampton <-> West Cowes (Isle of Wight)

Current Live Positions

redjets: 12:55 - Red Jet 4 has arrived at Milton Keynes #aprilfools

redjets: 12:48 - Red Jet 1 is leaving Southampton

redjets: 12:45 - Red Jet 3 is leaving West Cowes

redjets: 12:40 - Red Jet 3 has arrived at West Cowes

From Southampton T2

Mar to
27 Mar 09

28 Mar to
20 Oct 09

21 Oct to
23 Dec 09

Christmas Eve
24 Dec 09

Boxing Day
26 Dec 09

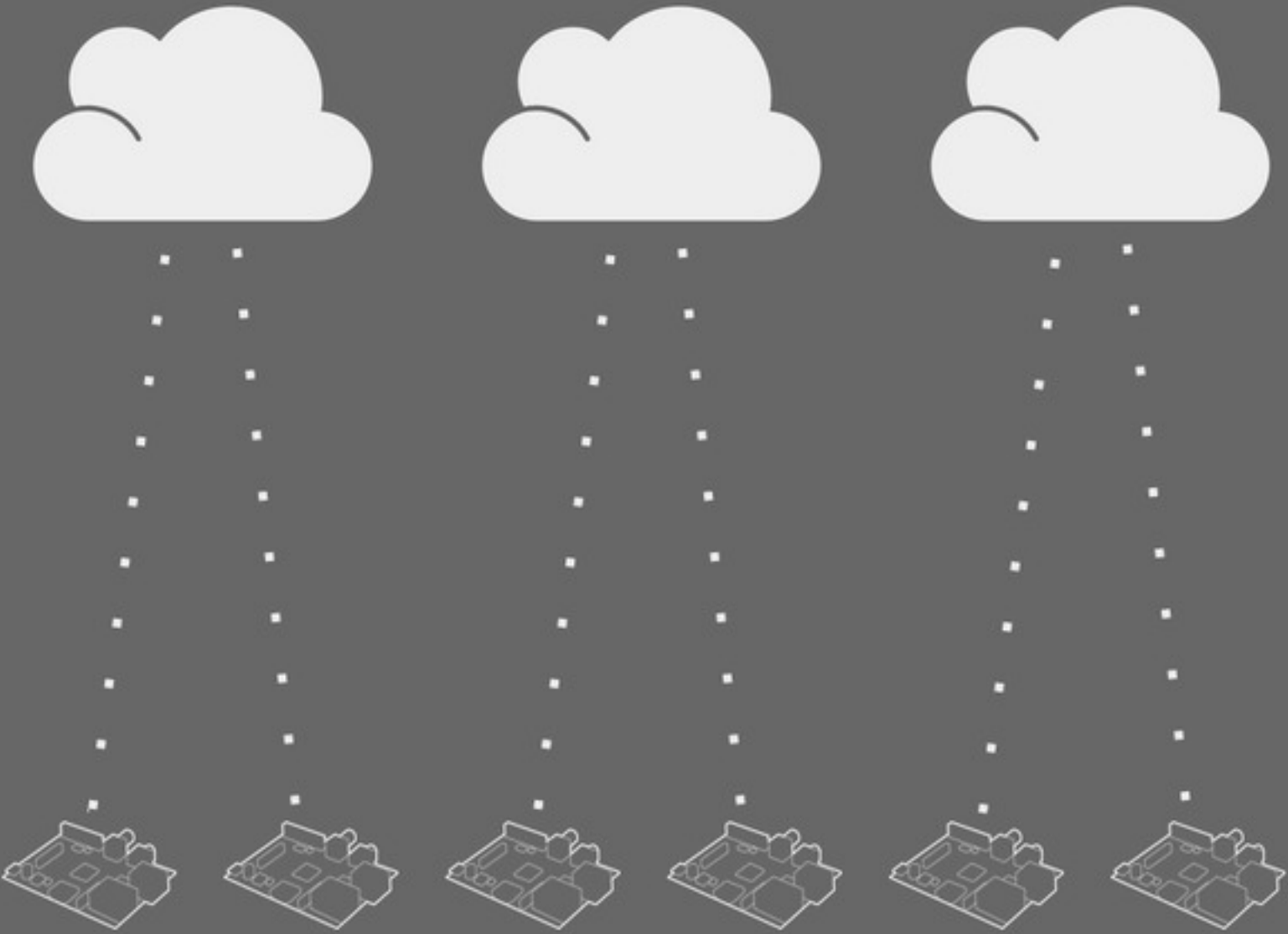
27 Dec to
20 Dec 09

New Year's Eve
27 Dec 09

New Year's Day
Jan 10

Jan to
Jan 10

the Internet of Things



the Internet of Things



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THIS controls THAT



WEMO HOME

HOME AUTOMATION

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MY DEVICE

[iPad](#) (4)[iPhone](#) (4)[iPod](#) (4)[Kindle](#) (3)[Other Devices](#) (3)[Samsung](#) (3)

WeMo Insight Switch



WeMo Switch

£39.99



WeMo Baby

£79.99

...because of WeMo's success, we are looking at ways to expand the platform to make it more robust and secure, as well as providing support for our development partners. This may mean that we need to secure the open protocols that are currently being used...

MY DEVICE

- iPad (4)
- iPhone (4)
- iPod (4)
- Kindle (3)
- Other Devices (3)
- Samsung (3)



WeMo Insight Switch



WeMo Switch

£39.99



WeMo Baby

£79.99



Node.js is a platform built on **Chrome's JavaScript runtime** for easily building fast, scalable network applications. Node.js uses an event-driven, non-blocking I/O model that makes it lightweight and efficient, perfect for data-intensive real-time applications that run across distributed devices.

Current Version: v0.10.22

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Nick O'Leary

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Node Packaged Modules

Total Packages: 49 339

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Patches welcome!

Any package can be installed by using `npm install`.

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
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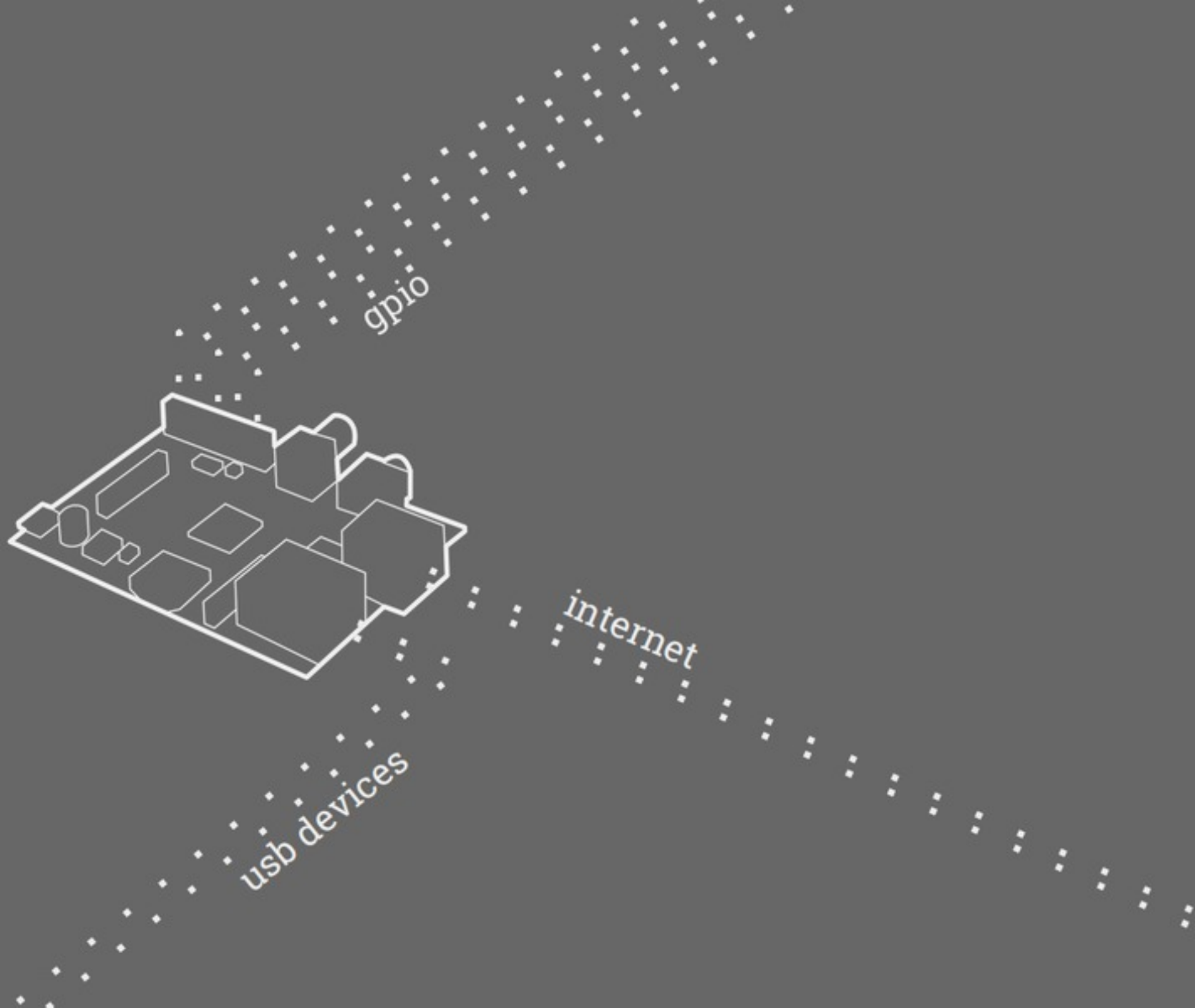
wemonode

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A Belkin Wemo controller framework

[belkin](#), [wemo](#), [device](#), [upnp](#)

Page 1





Dan Lockton

@danlockton



Built an 'annoying home thermometer' that plays Arduino 'Twinkle Twinkle Little Star' example on loop while room temp is above 25 degrees.

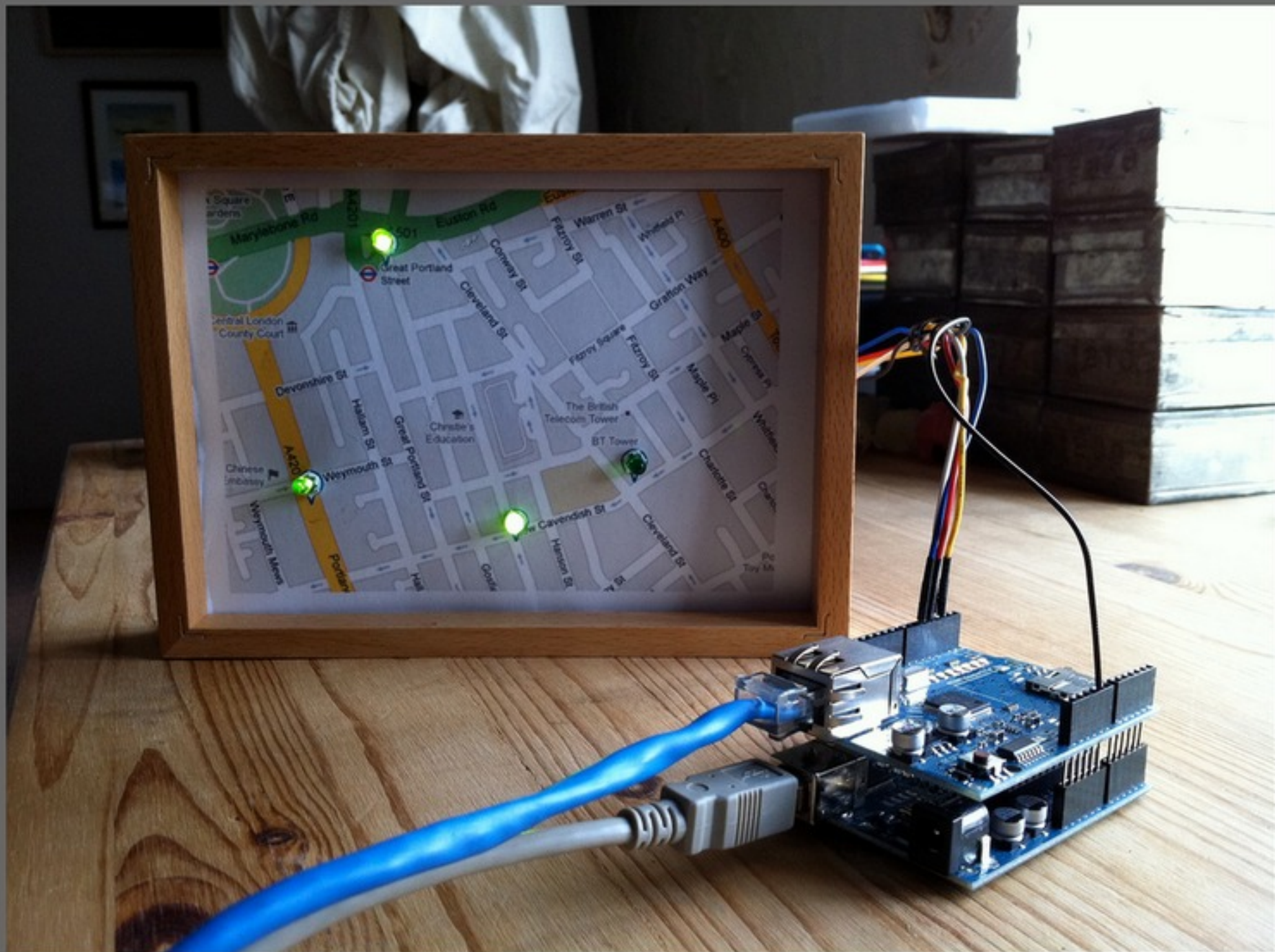
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3
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1
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11:51 PM - 21 Oct 13





“ Geocities of Things ”

Andy Huntington



"Creating something personal, even of moderate quality, has a different kind of appeal than consuming something made by others, even something of high quality."



INTERNET OF THINGS LANDSCAPE

Platforms & Enablement (Horizontal)

<p>Connectivity</p>	<p>Open Source Platforms</p>	<p>Software Platforms</p>	<p>Sensor Networks</p>	<p>Enabling Networks</p>	<p>Corporates</p>
---------------------	------------------------------	---------------------------	------------------------	--------------------------	-------------------

Applications (Verticals)

<p>Quantified Self</p> <p>Wearable Computing: GLASS, Pebble</p> <p>Fitness: Withings, fitbit, JAWBONE</p> <p>Health: HAPIfork, wahoo FITNESS, NuMetrex</p> <p>Family: Lively, Good Night Lamp, Withings</p>	<p>Lifestyle</p> <p>Leisure: blossom, ICA Kitchen, remee, iGrill, HEXBRIGHT, sobi</p> <p>Pets: gibi, FITBARK</p> <p>Toys: sifteo, MakieLab, KAROTZ, greenGOOSE!</p> <p>Music: LAR</p> <p>Gardening: BITPONICS, plantlink, Koubachi</p> <p>Home Improv.: Radiator Labs, netatmo</p>	<p>Connected Home</p> <p>Home Automation: SmartThings, NINJABLOCKS, revolv, Ubi, lapka, Wovyn</p> <p>Energy Efficiency: knut, nest, tado°, LIFX, ecobee, belkin echo, micasaverde</p> <p>Security: Kwikset, ALARM.COM, Bosch, Lockitron, CANARY, HomeMonitor, iSmartAlarm</p> <p>New Interfaces: NeuroSoul, gestigon, sphero, PrimeSense, EQUISO, emotivo, Interaxon, LEAP</p>	<p>Industries</p> <p>Retail: Nomi, euclid, placemeter</p> <p>Healthcare: VISI MOBILE, AdhereTech, AliveCor, TELCARE, intelligentM</p> <p>Automotive: Dashiabs, SYNC, OpenXC, enture</p> <p>Smart Buildings: APOGEE SYSTEMS, Johnson Controls, Schneider Electric</p>	<p>Industrial Internet</p> <p>Robotics: KIVA Systems, Double Robotics, Airware, ROBOTEX, 3D Robotics, MOMENTUM</p> <p>Greentech: BigBelly, Axeda, SOLAR, enlightened, GRIDMOBILITY</p> <p>3D Printing: Stratasys, formlabs, shapeways, MakerBot INDUSTRIES, RepRap</p>
--	---	---	---	---

Building Blocks

<p>Connection Protocols</p>	<p>Telecom</p>	<p>M2M</p>
<p>Software</p>	<p>Mobile</p>	<p>Hardware</p>
<p>Parts / Kits</p>	<p>Services</p>	<p>Incubators</p>
<p>Funding</p>	<p>Distribution</p>	



Node-RED is...

a light-weight, edge of network,
application builder

easy to use, drag and drop interface

a tool that allows the developer to
focus on the task at hand

no more



shaving





·

```
"payload": "Hello World!"  
"topic": "foo"  
...  
...
```

·



Can be scheduled to automatically inject at fixed intervals

Debug node

Shows message content, either just payload or entire object in the debug sidebar

Function node

Runs user-defined js against the messages flowing past

Template node

Renders messages into a `{{mustache}}` template

TCP/UDP nodes

Connects out, or listens for incoming connections

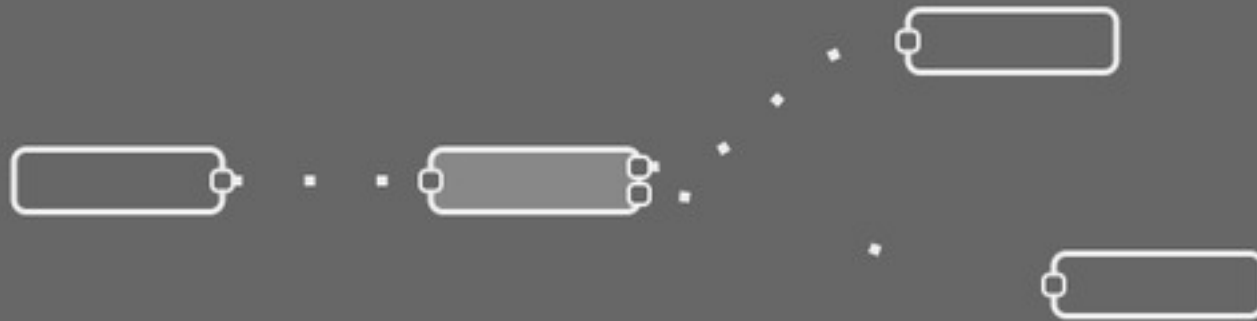
HTTP nodes

Define http endpoints for incoming requests, or

Function Node

Runs user-defined javascript code in a sandbox

`console`, `util`, `Buffer` included for convenience,
but easy to add anything via settings



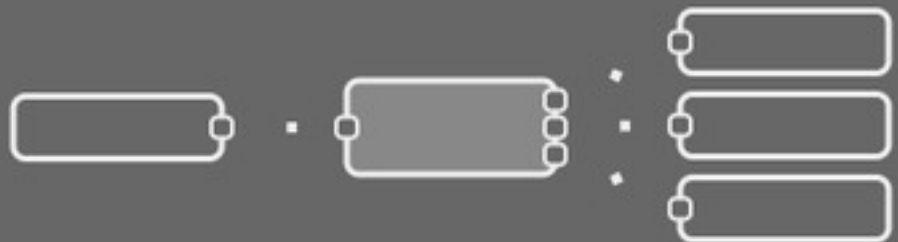
Function Node

Returning messages

```
return msg;
```



```
return [msg1, msg2, msg3];
```



```
return [msg1, [msgA, msgB] ];
```



Function Context

Each function node has its own **context** object to save state between calls.

```
context.count = (context.count||0);  
context.count += 1;  
var countMessage = { payload: context.count };  
return [msg, countMessage];
```



Function Global Context

in settings.js

```
...  
functionGlobalContext: {  
  arDrone: require('ar-drone')  
}  
...
```

then...

the first steps towards Node-RED-copter

```
context.client = context.client || context.global.arDrone.createClient();

if (msg.payload == "takeoff") {
    context.client.takeoff();
} else if (msg.payload == "land") {
    context.client.land();
}
```

Easy to wrap any npm module into
a palette node*

* once we get the API documented

Each node defined in a pair of files:

`.js` : server-side behaviour

`.html` : appearance in editor & help



"My God, it's full of JSON"

```
[{"id": "3e4aa4b4.c1b55c", "type": "inject", "name": "", "topic": "", "payload":  
"Hello #qconlondon", "repeat": "", "crontab": "", "once": false, "x": 98, "y":  
174, "wires": [{"b347e57e.4cb818"}]}, {"id": "b347e57e.4cb818", "type":  
"debug", "name": "", "active": true, "complete": false, "x": 358, "y": 211,  
"wires": []}]
```



Node-RED

A Visual Tool for Wiring the Internet of Things

<http://nodered.org>

@nodered

chat.freenode.net/#nodered



nick o'leary • @knolleary
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