


# IoT interoperability using web technologies: lessons learned and future challenges



A stage set featuring heavy red curtains on the left and right. The backdrop is a painted canvas of a cloudy sky. The floor is made of wooden planks. A potted plant is visible on the left side of the stage.

# SCENE SETTING



**INTER**net of things  
must be  
**INTER**operable



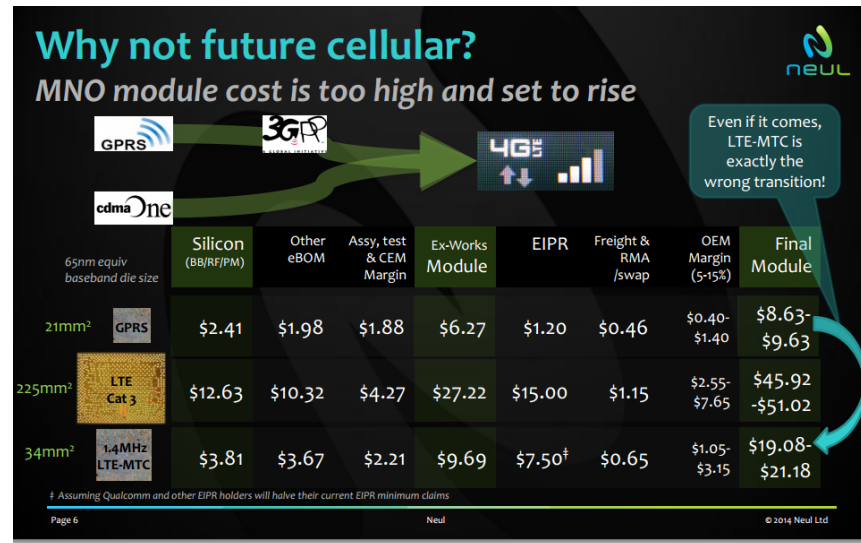
Sorry NO

INTERNET Today

There is no I in IOT

# Radio Technology

- Cost



- Range vs Power



IP is unnecessary expense



**SPEED IS ESSENTIAL**

Recycle

REUSE, REUSE, REUSE....

Reduce







# IOT CHALLENGES

 dreamstime

# CONNECTING DEVICES



**TLS**





# PROVENANCE



# PKI



# ACCESS

# XACML

# ADDRESSING (REMOTE)

*1717*  
*Sea Coast Drive*

**URI**





**DISCOVER**

**FEATURE-URI**

The background of the slide is a photograph showing several hands pointing at a document. A ruler is placed horizontally across the document. The scene suggests a collaborative review or a technical discussion.

# CAPABILITY

# WebIDL

# LOCAL CALL

[illegible]

A blue electronic device, possibly a radio or a specialized computer component, is shown. It has two large circular ports on the front, a central antenna, and various other connectors and components. The device is overlaid with two semi-transparent text boxes: a dark grey one at the top left and a dark blue one at the bottom right.

# INVOKE

# JSON-RPC

The background of the slide is a photograph of various cardboard boxes and shipping materials. Some boxes are stacked, while others are open or partially visible. A shipping label with the text "LE WTC" and "PRIORITY" is visible on one of the boxes. The lighting is warm and slightly dim, creating a sense of a warehouse or shipping area.

# **PACKAGE APPS**

# **DIGITAL CERTIFICATES**





# ADVANCED TOPICS



**ADDRESS LOCAL**

**URI + PKI**

A stylized world map with a blue and green color scheme. Numerous glowing yellow and orange nodes are scattered across the map, representing global locations or data points. The map is set against a dark blue background with a subtle grid pattern.

# **GLOBAL PROTECTION**

# **POLICY SYNC**





**LEGACY**

**DRIVER MODEL**

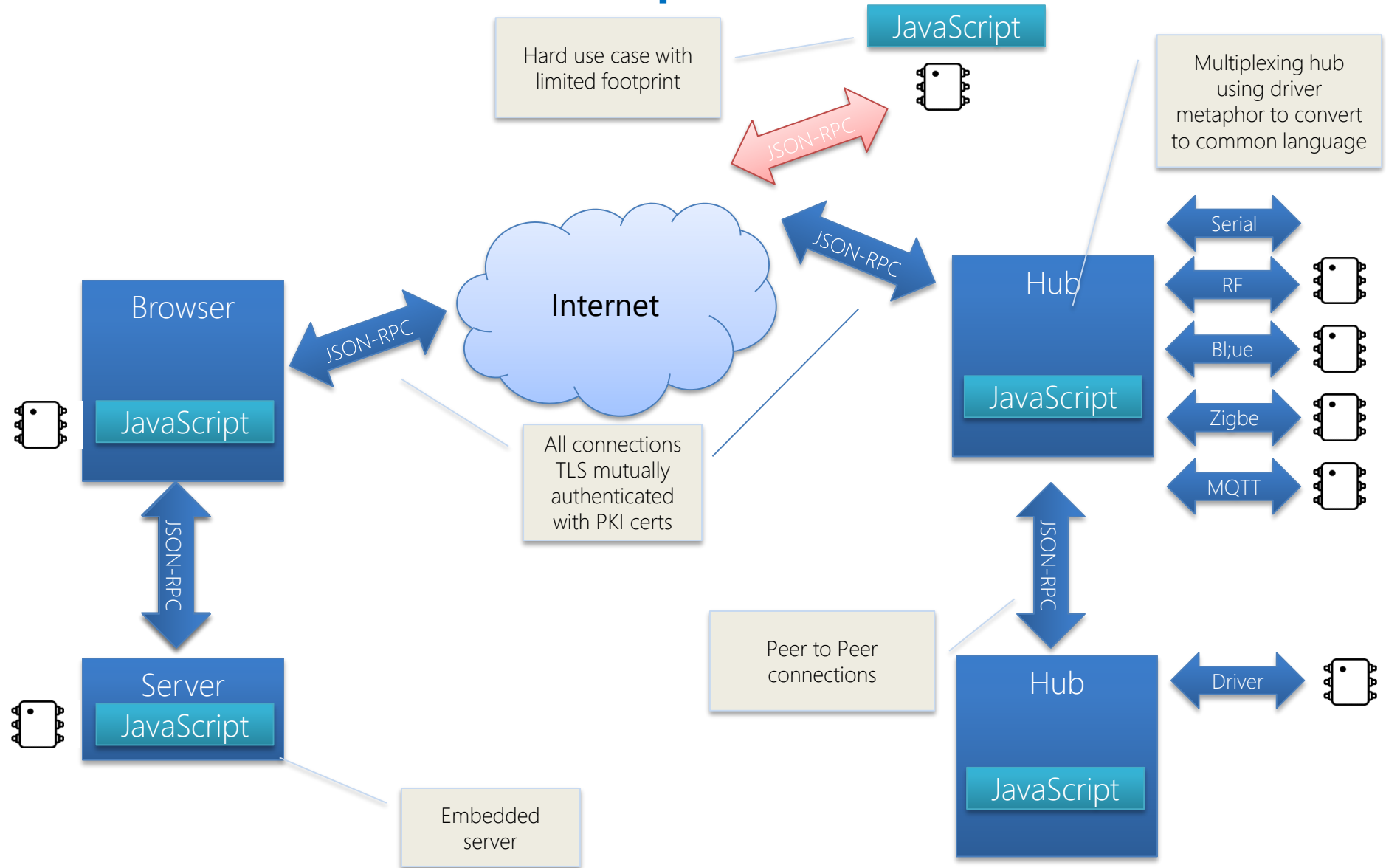
The background of the image is a complex network diagram. It features numerous black, spherical nodes of varying sizes, some of which are connected by thin, white lines. These connections form a web-like structure across the entire frame. The nodes are distributed in a way that suggests a decentralized or distributed system. The overall color palette is dark, with the white lines providing a high-contrast visual element.

**DISTRIBUTED**

**NO SINGLE  
POINT OF  
CONTROL**



# WOT is the scope?



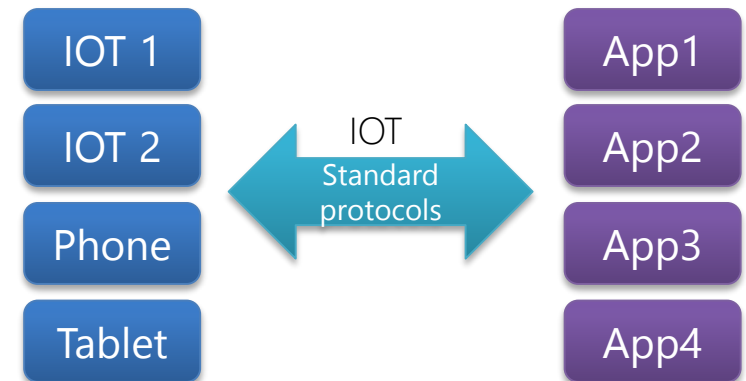
- Technology whitepaper
  - [www.webinos.org](http://www.webinos.org)

Nick Allott  
nick@ubiapps.com  
+44 (0) 7714 145711

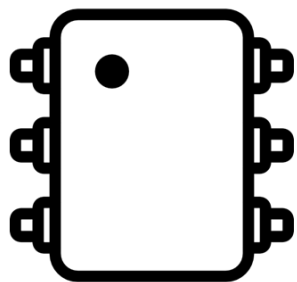
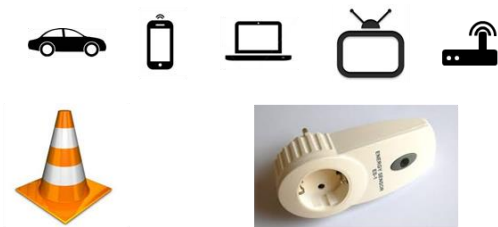
# Background



- IOT Device interoperability
- Locally: IOT devices work with phones, tablets, PCs
- Remotely: many applications can make use of the same device (and data on that device)
- M2M vs IOT



Delivers the vision of devices working with each other.  
Wide application interoperability



**Open Source Ecosystem**  
Devices Ported



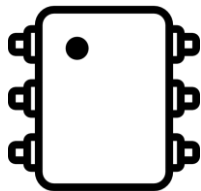
How does it work

**Identity Address  
Routing**

IPv4/v6 – IP address  
MSISDN  
DNS  
URI (+PKI)



# An Open and Secure End2End IOT platform



Open source IOT platform. Open ecosystem, cheap device development



Cloud asset management platform. Control of cloud agents and processing resources



Multi device application development platform. Bring IOT data to life