IOT interoperability using web technologies: lessons learned and future challenges
Internet of things must be interoperable
Sorry NO
INTERNET Today

There is no I in IOT
Radio Technology

- Cost

- Range vs Power

IP is unnecessary expense
SPEED IS ESSENTIAL
REUSE, REUSE, REUSE....
IOT CHALLENGES
PROVENANCE

PKI
ADDRESSING (REMOTE)
DISCOVER

SERVICE

FEATURE-URI
CAPABILITY

WebIDL
INVOKE

JSON-RPC
PACKAGE APPS

DIGITAL CERTIFICATES
ADVANCED TOPICS
ADDRESS LOCAL

URI + PKI
DISTRIBUTED

NO SINGLE POINT OF CONTROL
WOT is the scope?

Browser
- JavaScript

Internet
- Hard use case with limited footprint

Server
- JavaScript

JavaScript

Hub
- Multiplexing hub using driver metaphor to convert to common language
- Serial
- RF
- Blue
- Zigbee
- MQTT

Hub
- JavaScript

Peer to Peer connections

All connections TLS mutually authenticated with PKI certs

Embedded server

Hard use case with limited footprint
• Technology whitepaper
  – www.webinos.org
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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
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