

Tokyo JS

Websocket for bidirectional communication in an IoT project

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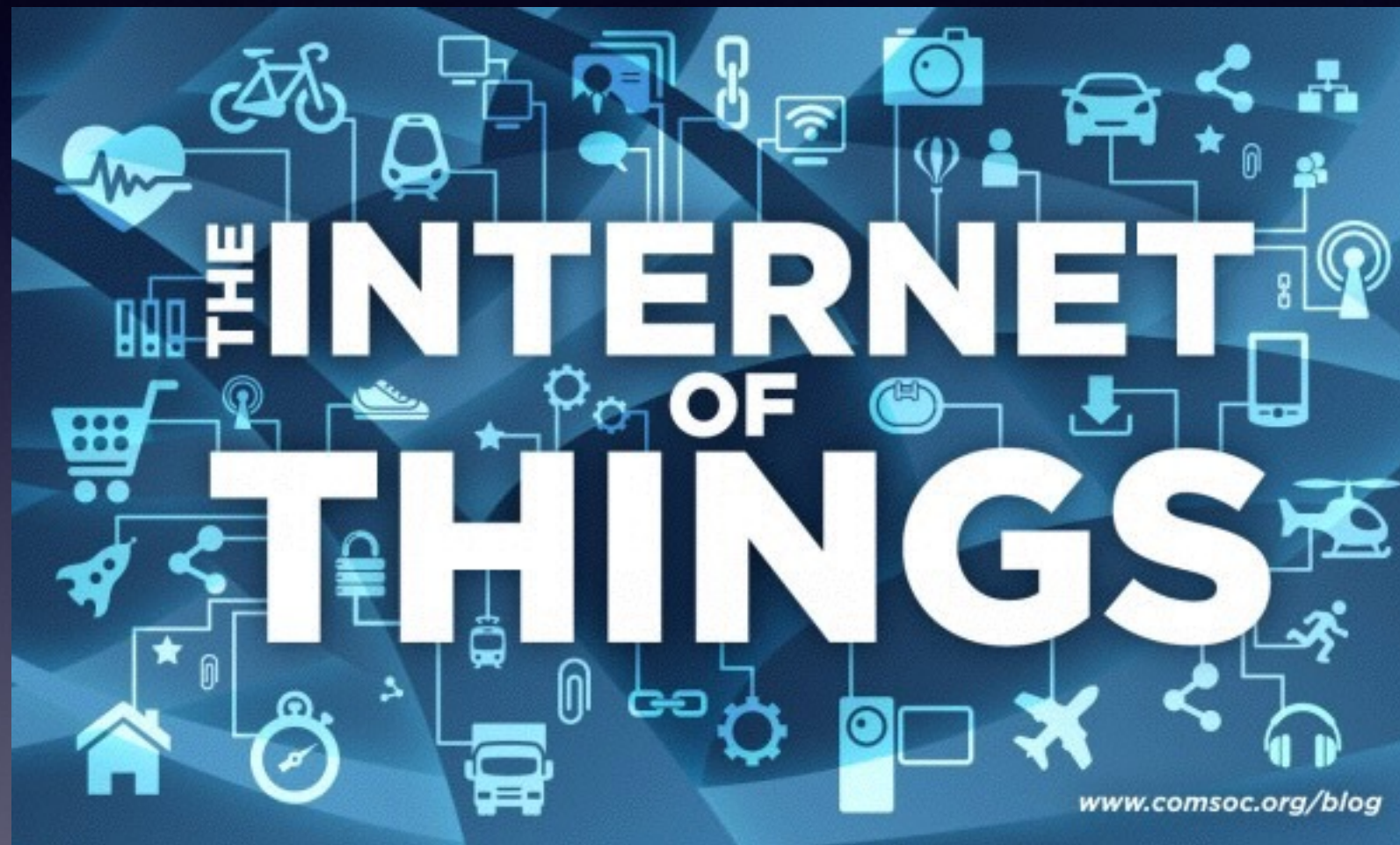
About me

- Name: Yohei Onishi
- Past: embedded software engineer
- Now: IoT “prototyping” engineer
 - develop everything (device, server, browser) for a prototype.
 - write JS code for an app on browser

Today's topic:

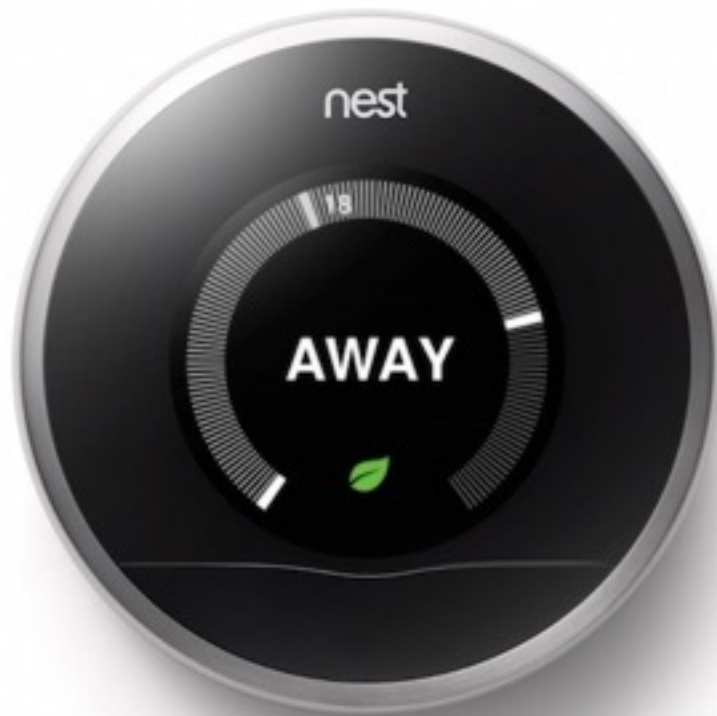
- Rise of IoT
- Websocket as key technology in IoT

IoT?



<http://www.comsoc.org/blog>

Not like these consumer products for my case



Nest: <https://nest.com/>

世界
最小*
スマートロック

Qrio 【キュリオ】
Smart Lock

* サムターンカバー型スマートロックとして。2014年12月時点



Qrio Smart Lock:
<https://www.makuake.com/project/qrio-smart-lock/>

my case: remote control and monitoring devices for B2B

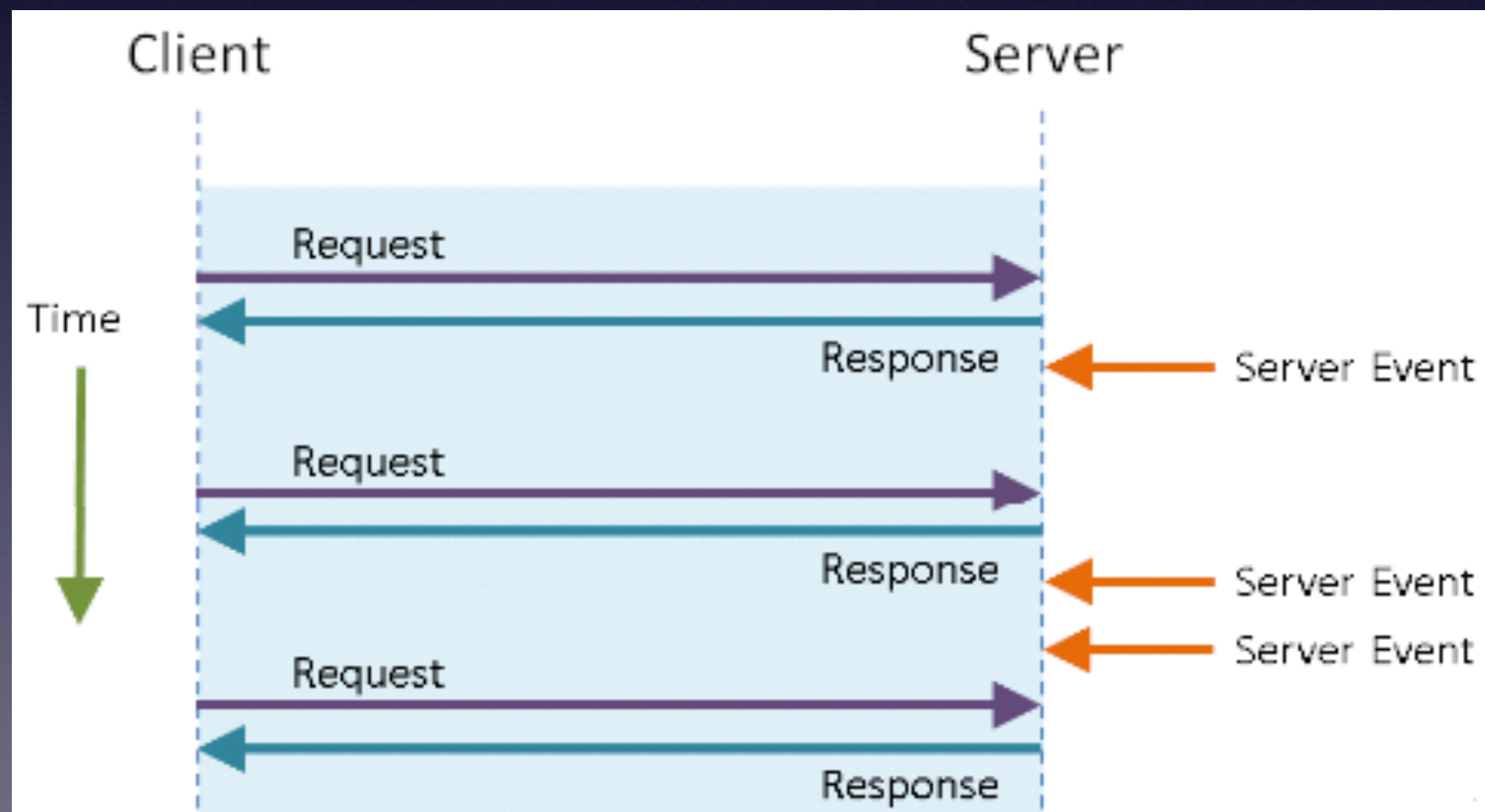
- security camera

Why we connect those devices to the Internet?

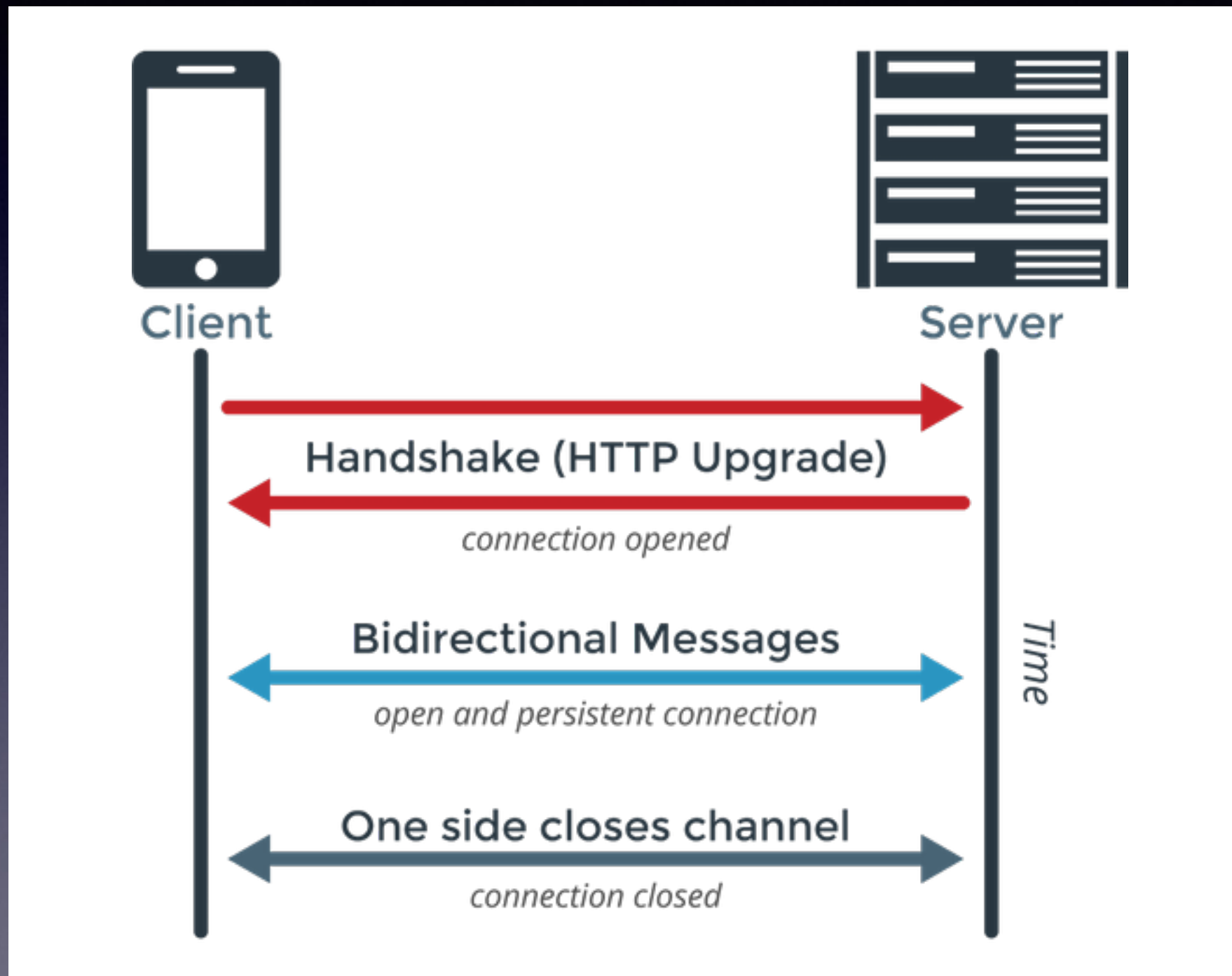
- Industrial machine
 - reading a sign of emergency situation
 - avoid any troubles and cost saving
- Security camera
 - detection of entry to a no-entry area

Issue 1: Long HTTP polling

- HTTP does not fit for real time and bidirectional communication



Solution: WebSocket



Issue 2: Scale out

- Implementing a web socket server by yourself by Node.js is good for tiny scale prototyping
- But what if a number of client device increase 5000 every year?

Solution: use of PaaS



<http://www.pubnub.com/>

Use cases

Interactive audience participation
e.g. baseball, soccer game



Stream financial data

ORCL \$45.84 +12.03 (26.24%) Last Trade 2:10:47pm VOL: 8420 ON	ZNGA \$2.66 -0.18 (-6.77%) Last Trade 2:10:31pm VOL: 3320 OFF	TRI \$62.80 +29.03 (46.23%) Last Trade 2:10:47pm VOL: 1380 ON	YHOO \$24.68 -2.36 (-9.56%) Last Trade 2:10:46pm VOL: 5660 ON	FB \$37.30 +13.01 (34.88%) Last Trade 2:10:31pm VOL: 2770 OFF	BIDU \$103.38 +0.71 (0.69%) Last Trade 2:10:47pm VOL: 5320 ON
AAPL \$496.18 +54.37 (10.96%) Last Trade 2:10:39pm VOL: 7640 OFF	MSFT \$23.91 -11.76 (-49.18%) Last Trade 2:10:46pm VOL: 2160 ON	GOOG \$1467.85 +588.12 (40.07%) Last Trade 2:10:32pm VOL: 5690 OFF	EA \$23.05 -0.56 (-2.43%) Last Trade 2:10:46pm VOL: 1150 ON	LNKD \$298.36 +127.66 (42.79%) Last Trade 2:10:46pm VOL: 2010 ON	F \$14.75 -0.98 (-6.64%) Last Trade 2:10:47pm VOL: 9430 ON

<http://www.pubnub.com/use-cases/>

Demo

- chat app for two clients (Java/JavaScript)
- No server, I just use pubnub service

Summary

- Rise of IoT
- Websocket is a key technology in IoT
- Use of PaaS for quick release