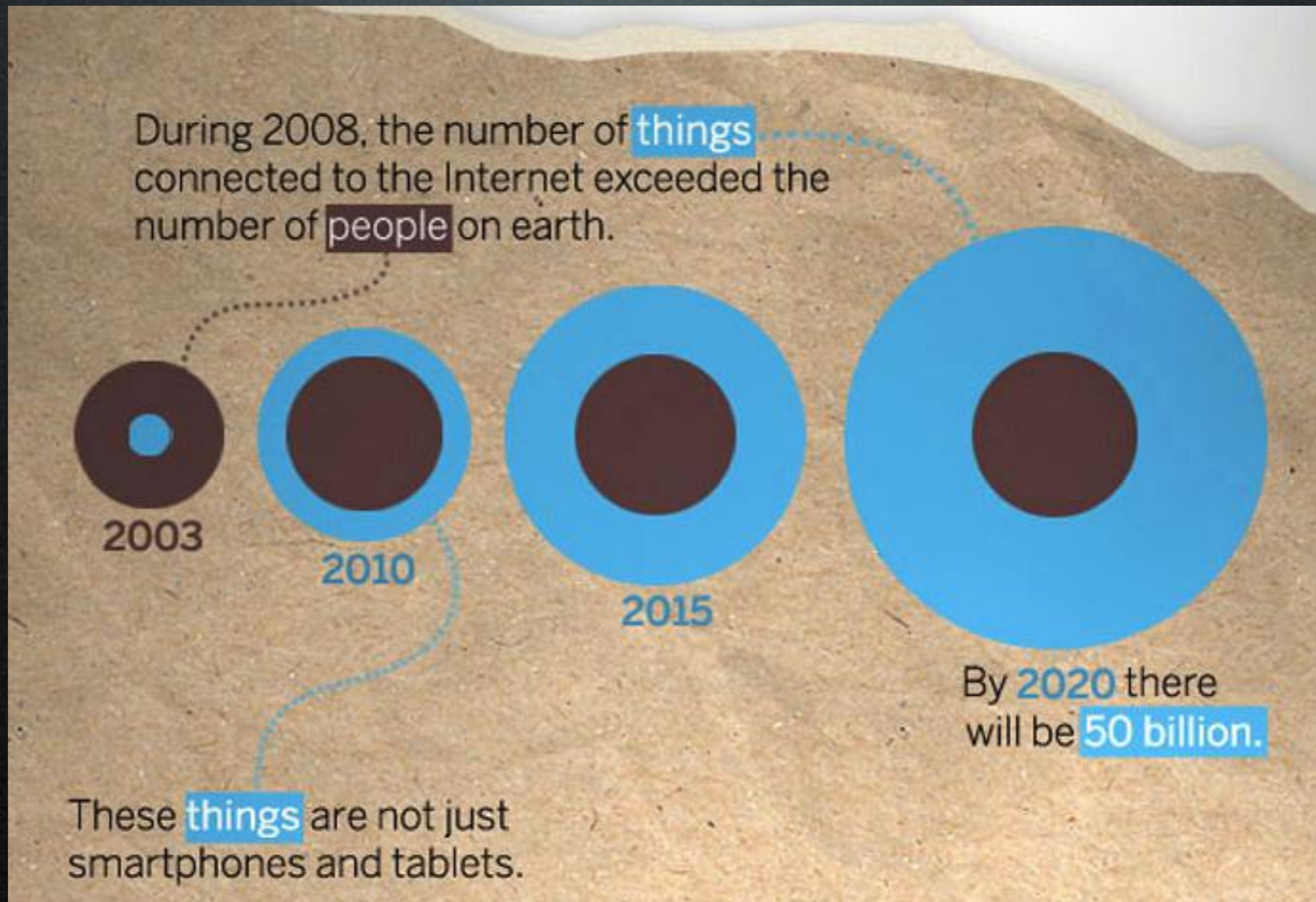


The State of (the Internet) of Things

Teddb0t “0x73DB07” Case-Hayes

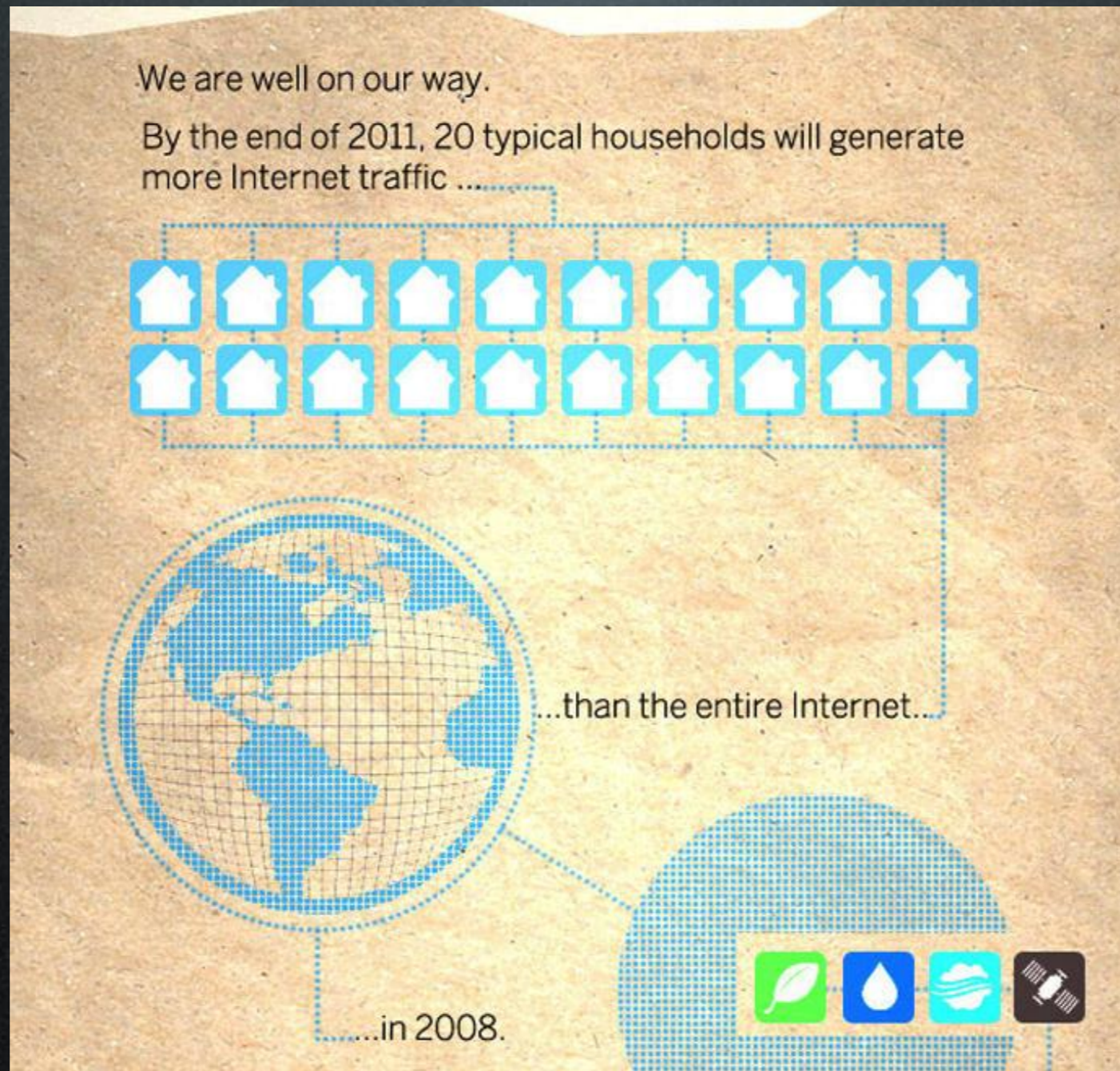
t3db0t@gmail.com

Rise of Connected Devices



<http://share.cisco.com/internet-of-things.html>

Rise of Connected Devices



<http://share.cisco.com/internet-of-things.html>

Hype Much?

Web Search interest: "internet of things". Worldwide, 2004 - present.



Interest over time



The number 100 represents the peak search interest

News headlines

Forecast



What's in a Name?

- The internet has always been comprised of things!
- Ubiquitous/Pervasive Computing
- M2M—“Machine to Machine”
- “Spimes”—Bruce Sterling
- “Physical Graph”—SmartThings
- What role do people play?—“Internet Ecology”
- <http://postscapes.com/internet-of-things-history>

The naming of this idea is practically a history of this idea

Tom Igoe - What is the real cost of the internet and its hardware?

Oxford English Dictionary

- **Internet of things**, n.: a proposed development of the Internet in which everyday objects have network connectivity, allowing them to send and receive data.

<http://qz.com/119200/oxford-dictionary-adds-twerk-derp-selfie-phablet-and-more-voquish-vocabulary/>

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- **food baby**, n.: a protruding stomach caused by eating a large quantity of food and supposedly resembling that of a woman in the early stages of pregnancy.

<http://qz.com/119200/oxford-dictionary-adds-twerk-derp-selfie-phablet-and-more-voquish-vocabulary/>

Use-Cases: Single-Purpose Applications

- Telehealth: remote or real-time pervasive monitoring of patients, diagnosis and drug delivery
- Continuous monitoring of, and firmware upgrades for, vehicles
- Asset tracking of goods on the move
- Automatic traffic management
- Remote security and control
- Environmental monitoring and control
- Home and industrial building automation
- “Smart” applications, including cities, water, agriculture, buildings, grid, meters, broadband, cars, appliances, tags, animal farming and the environment, to name a few
- http://www.freescale.com/files/32bit/doc/white_paper/INTOTHNGSWP.pdf

Use-Cases: Intelligent Systems / Composable Systems (?)

"My alarm clock went off at the right time because it's hooked up to my diary to know what time my first meeting was and it backtracked which ferry I need to get and what time I need to get up, "



Technologies

WiFi: bad UX; electric imp?
TI smart config?

- WiFi
- Personal Area Networks
 - 802.15.4, ZigBee, 6LoWPAN (and a bazillion more)
- Cellular

It's my personal (and perhaps professional) opinion that cellular will play an increasingly important role

Platforms & Projects: Open Hardware

- Pinocc.io
- NinjaBlocks
- Flutter
- SparkCore
- EVE Alpha
- Freakduino

Platforms & Projects: Open Software

- Contiki: Firmware Stack
- FreakZ: ZigBee Stack
- Cloud Platforms
 - DeviceHive
 - Nimbits

Contiki is an open-source firmware stack for a number of microcontrollers and radios, mainly 6LoWPAN; A ton of work has been put into it

Why?

- Continuation of the notion of peripheral devices
- So far: mainly single purpose apps
- How do devices know what they should do?
- Criticism



Sat, Aug 4, 2012 01:16 PM

Hide Memo Detach

why the fuck does my fridge need twittr

- Media
- Photos
- Applications
- Calendar
- Reminders
- App Store
- Pages
- Twitter
- Settings

Intelligent Dispenser

Wonder It...

Everything you want on your refrigerator without the clutter

Look no further for your smart home. Simply push your iPhone/iPad, phone or PC card into your Google refrigerator. Get recipes from YouTube, and more on an 4" Wide LED Screen with Apps.

Use manually as...

Never take it out of the door or to the refrigerator for a second.

Visit www.samsung.com for more information. Samsung LED is the global energy efficiency leader. For more information on Google, please contact Google at www.google.com. © 2012 Samsung Electronics Co., Ltd. All rights reserved.

“Why the hell does this mouse need to connect to the Internet?”

Razer asks users to activate gaming mice online, uproar follows.

by Jon Brodtkin - Nov 8 2012, 4:10pm EST

CLOUD

PC GAMING

165



To get the most out of this mouse, Razer says you need a "cloud-based driver."

Privacy?

- *“With a patchwork of different data privacy regulations in countries throughout Europe, considerable confusion exists over which laws in which countries have jurisdiction over cloud computing.”*

<http://www.designculturelab.org/2011/07/20/an-internet-of-cows-and-sheeps/>

Security?

- High-profile security failures: Shodan
<http://www.wired.com/wiredenterprise/2013/07/shodan-search-engine/>
- <http://www.shodanhq.com/search?q=Default%3A%2Badmin>
- *“Shodan’s probes cycle through internet protocol addresses. Sometimes, it finds webcams or databases, sometimes control panels for large caterpillar tractors, or even medical devices.”*

Security?

- 10,000+ Industrial control systems

<http://www.wired.com/threatlevel/2012/01/10000-control-systems-online/>

- Only 17% required authorization!

Open-Source Composable Systems

- Open APIs
- Security
- Intelligence? Is a personal assistant really what we need?
- WSDL for devices?

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