The Wearable Application Server

and other aduentures in software engineering

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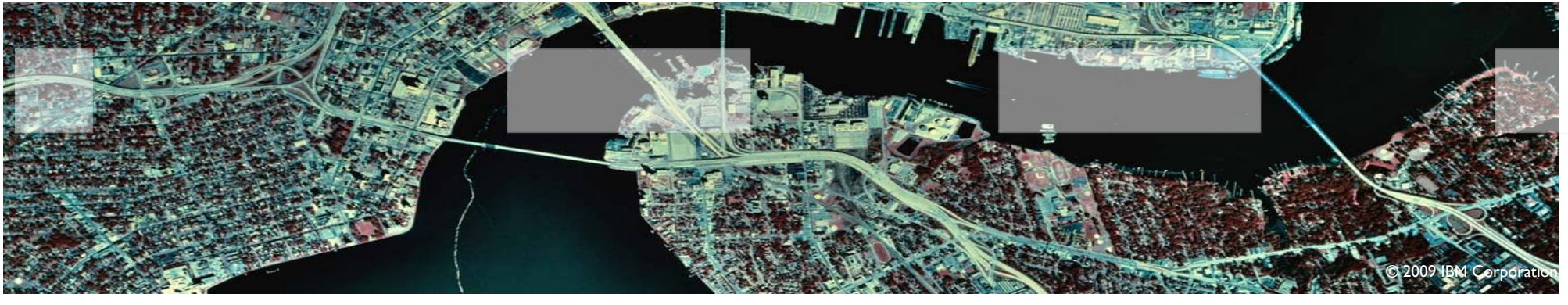


Some context ...

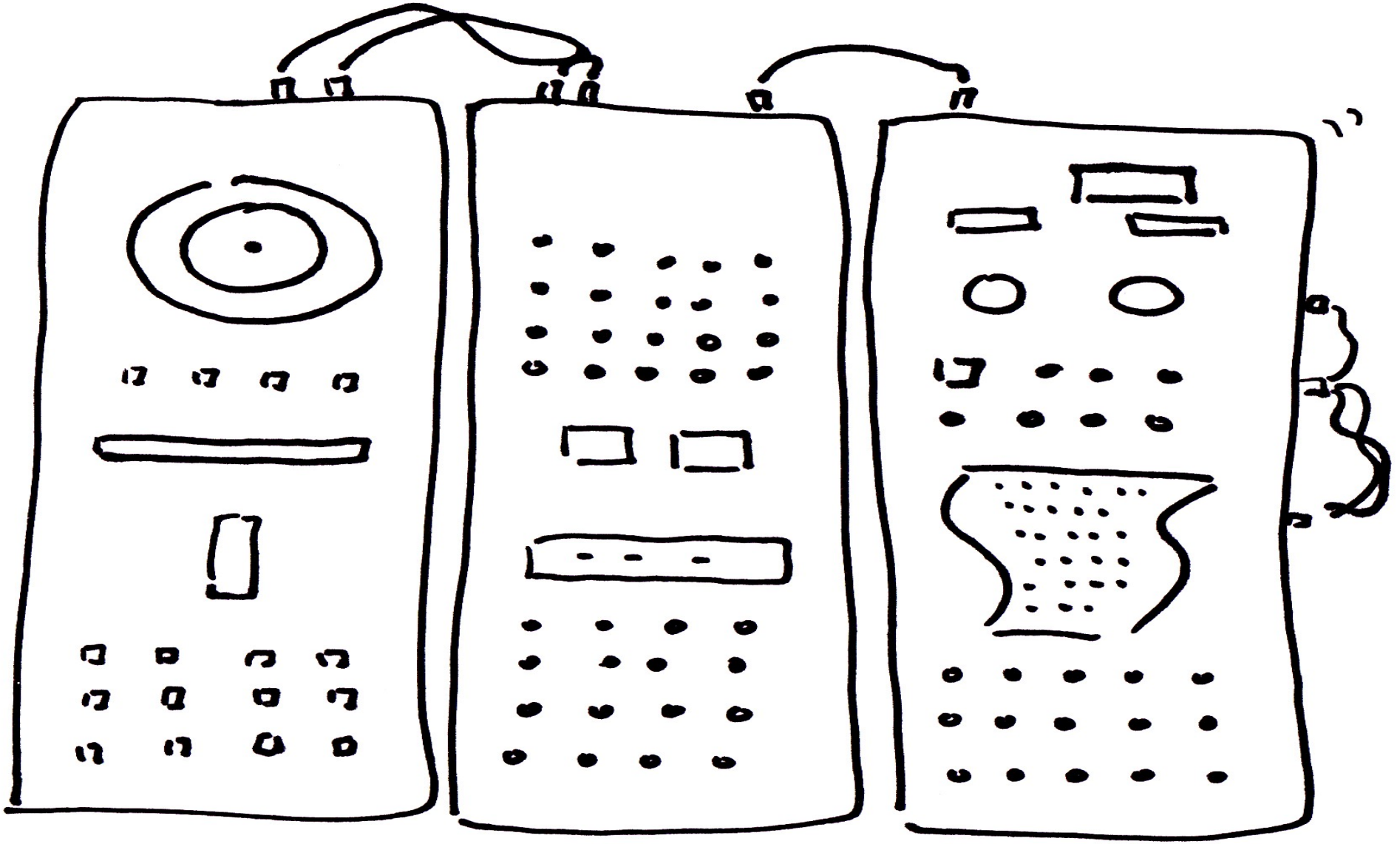
"Computers in the future may weigh no more than 1.5 tons."

Popular Mechanics,
1949

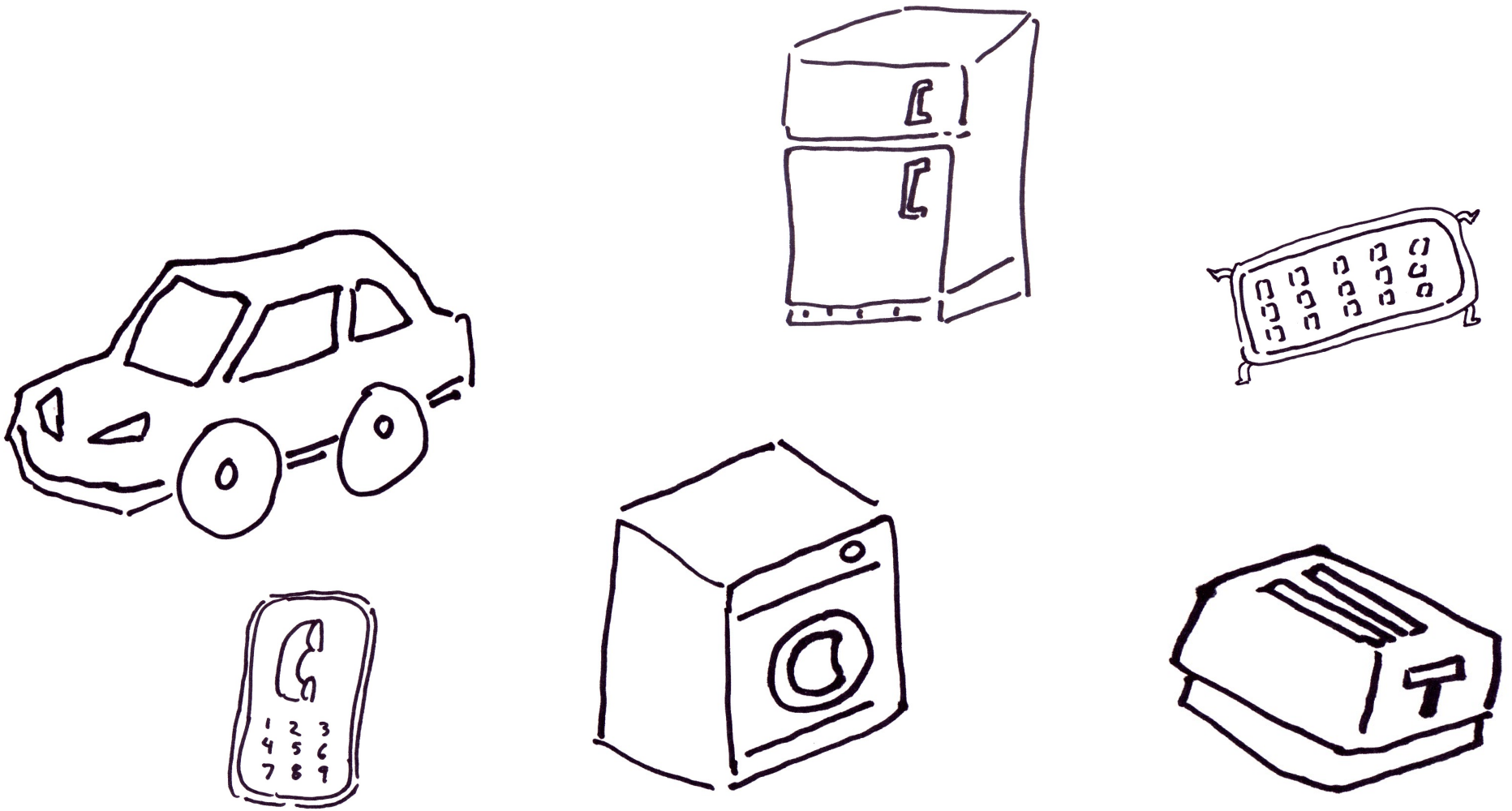
"I think there is a world market for maybe five computers."

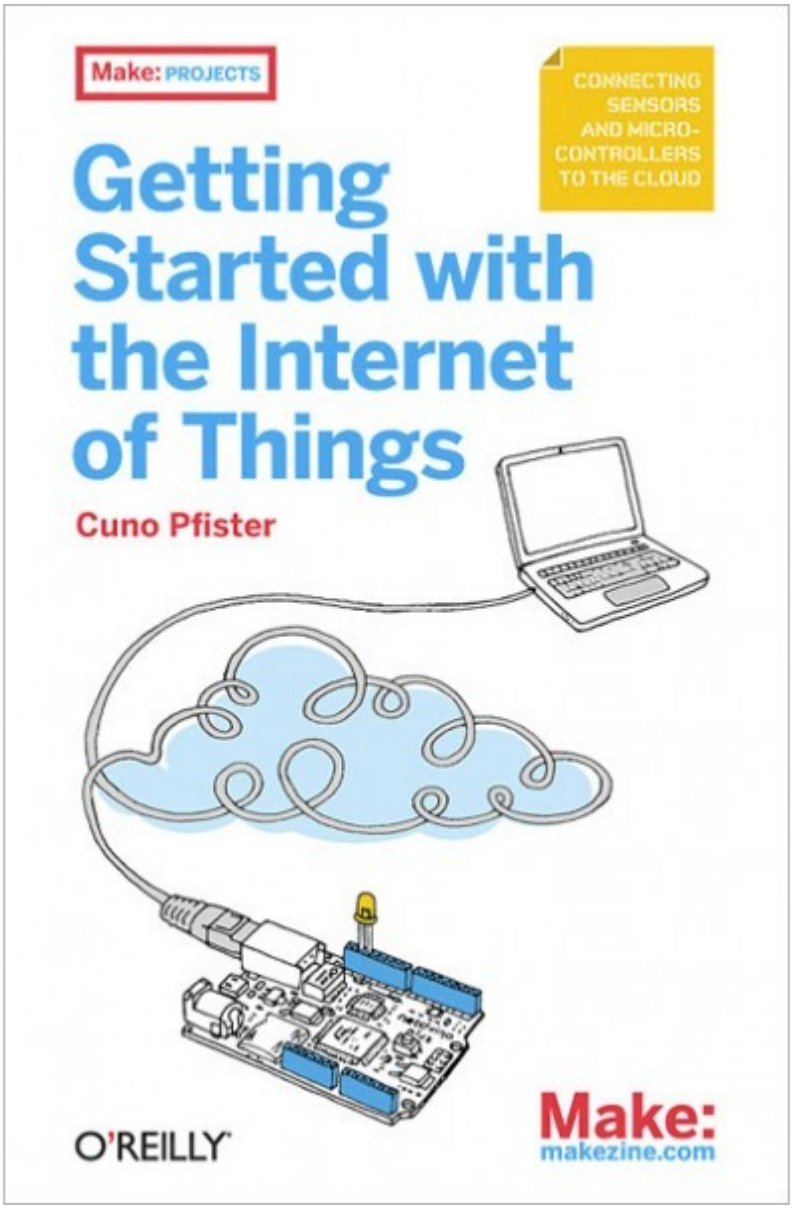
Thomas Watson
chairman of IBM
1943

Then: HARDware



Now: Everyware



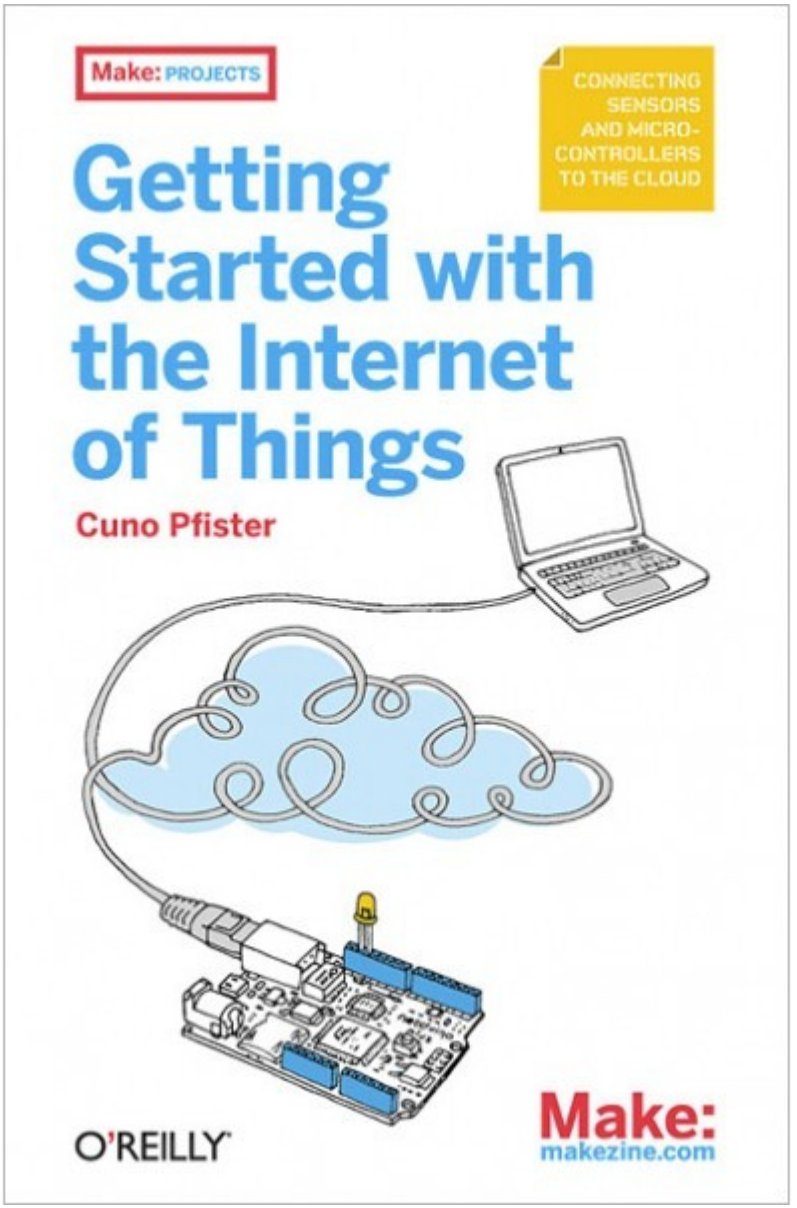


"If your background is in the programming of PCs or even more powerful computers, a fair warning: embedded programming for low-cost devices means working with very limited resources ..."

"... This is in shocking contrast with the World Wide Web, where technologies usually seem to be created with utmost inefficiency as a goal..."

"... Embedded programming requires more careful consideration of how resources are used than what is needed for PCs or servers..."

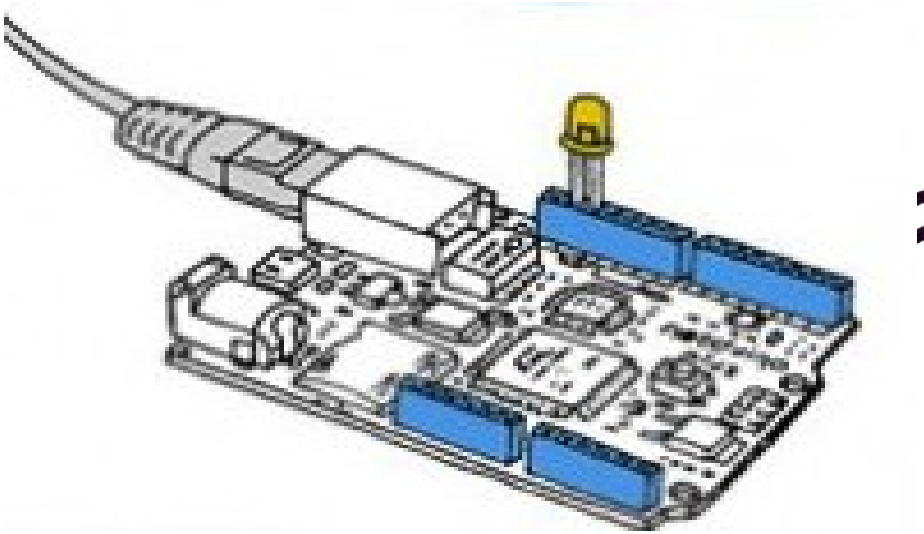
"... Embedded platforms only provide small sub- sets of the functionality of their larger cousins, which may require some inventiveness and work where a desired feature is not available directly."



June, 2011

Spot the difference

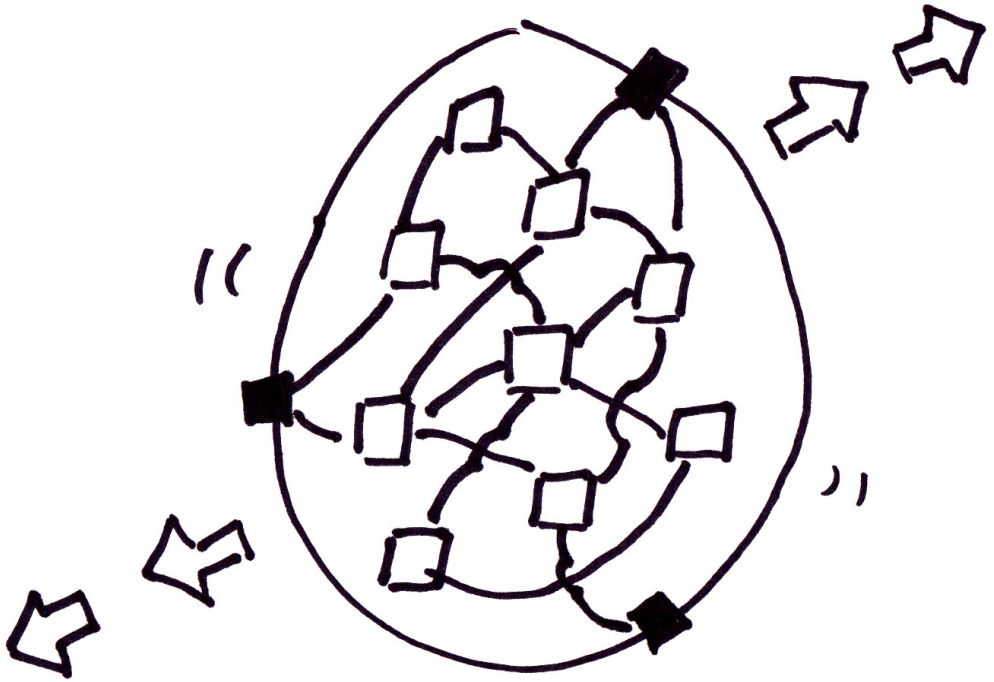
- Netduino Plus



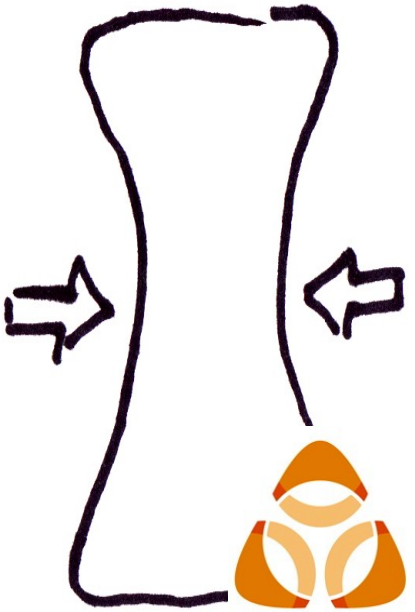
- Raspberry Pi

Spot the difference

- Application server, circa 2010



- Application server, circa 2012

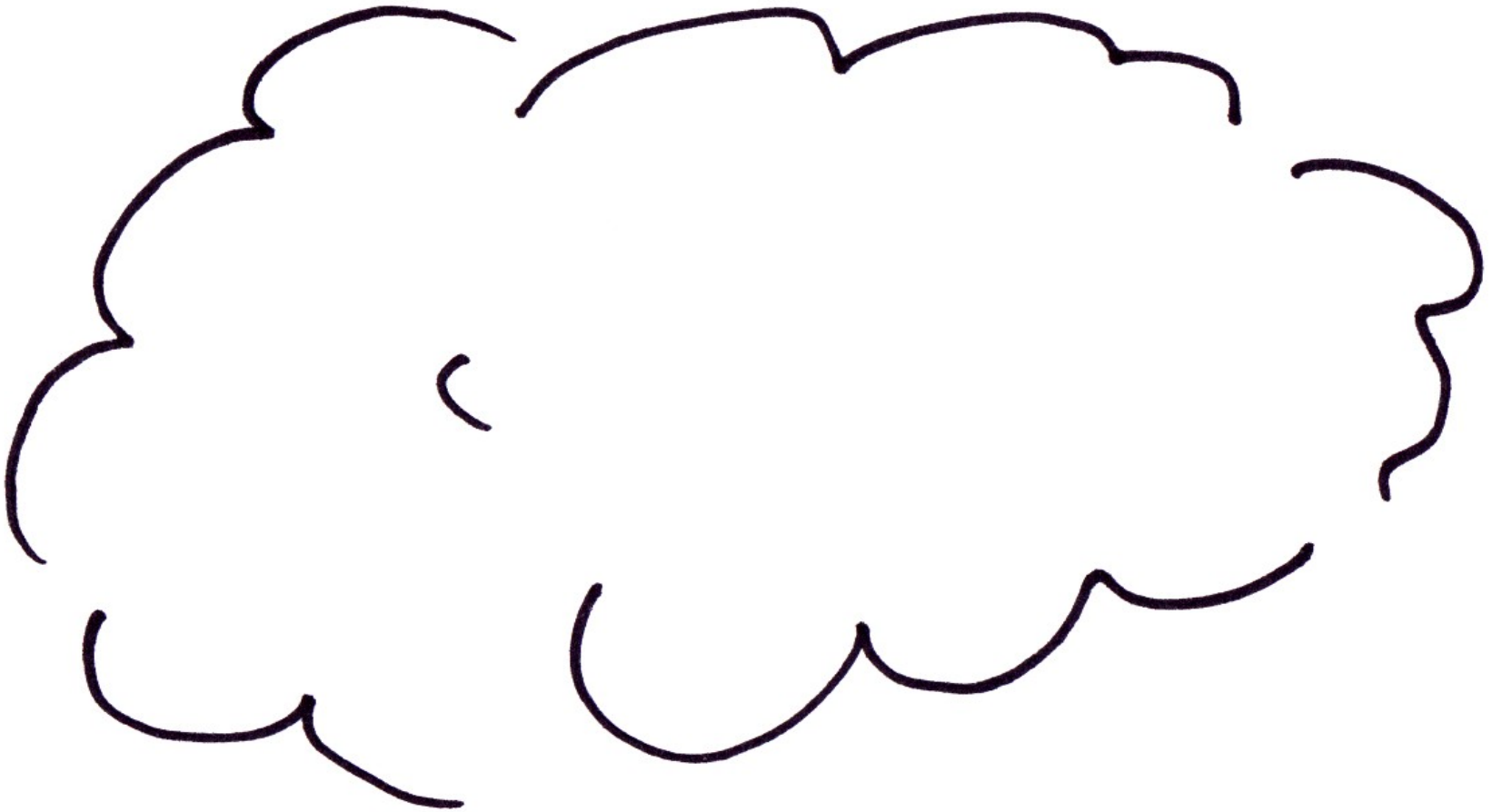


What's it good for?

Programming for developers

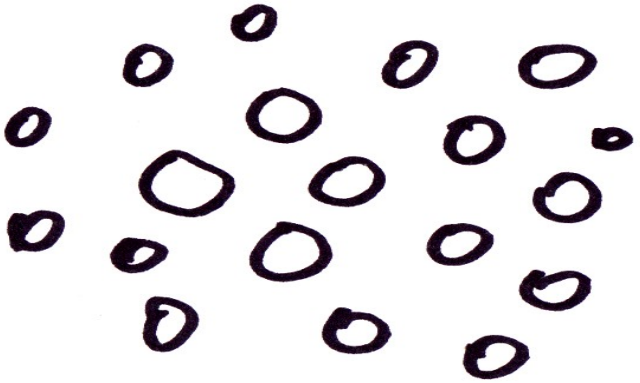
- Easy install
- Fast server start
- Fast and transparent application deployment
- Convention over configuration
- Source-controllable configuration
- Nifty t-shirts

What's it good for? (ii)



Programming for the Cloud

Density

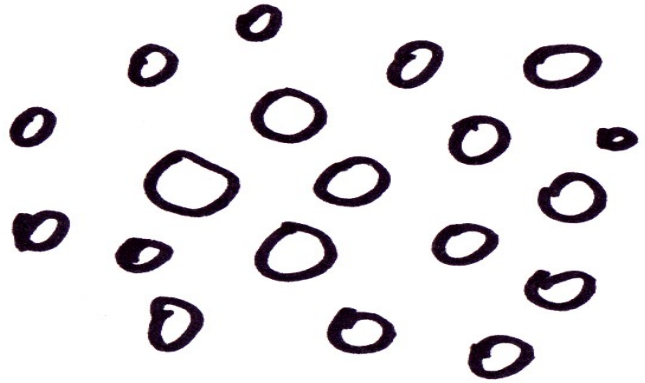


Elasticity

- Small download
- Small memory footprint

Programming for the Cloud

Density



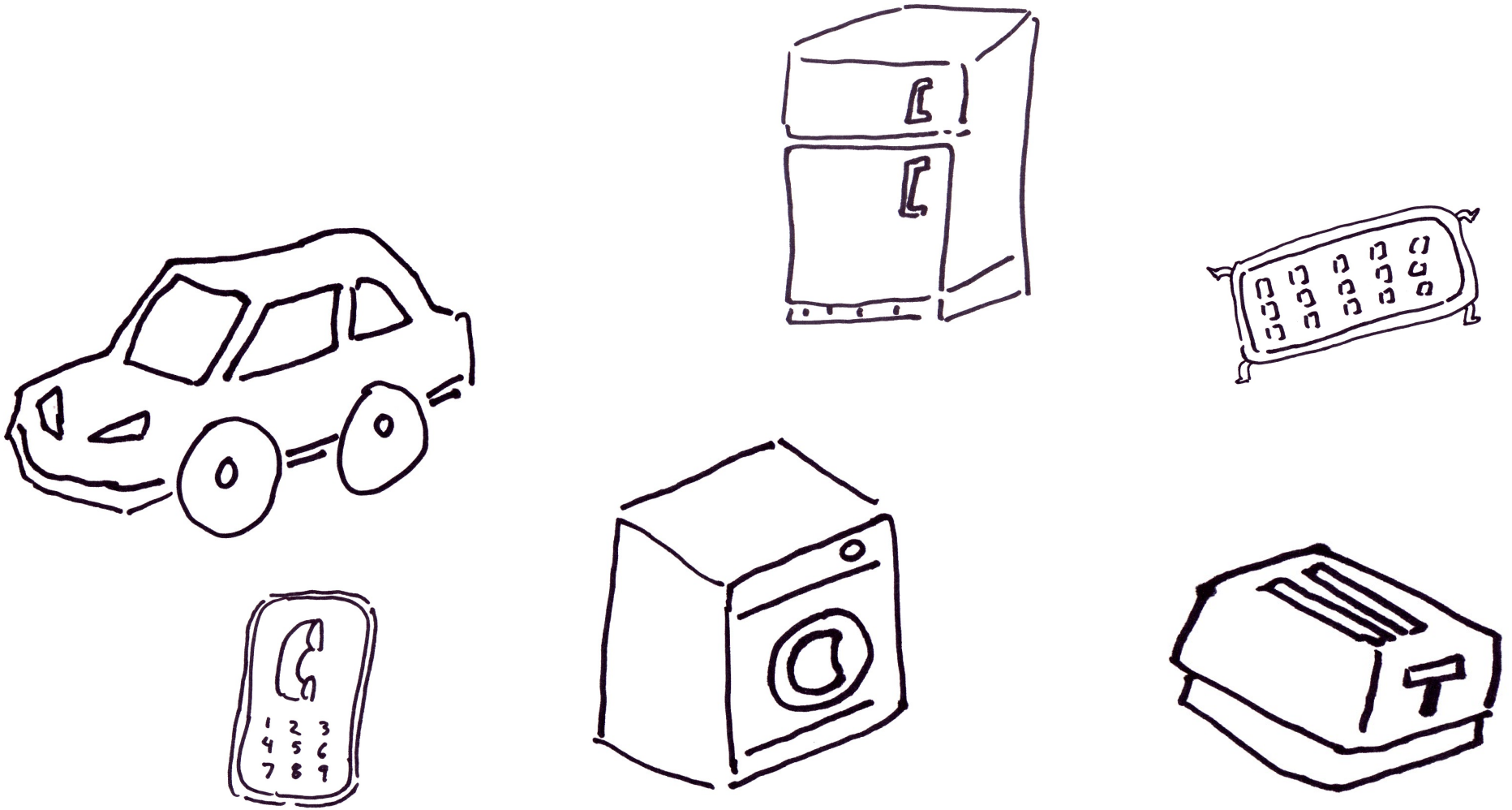
- Small download
- Small memory footprint

Elasticity

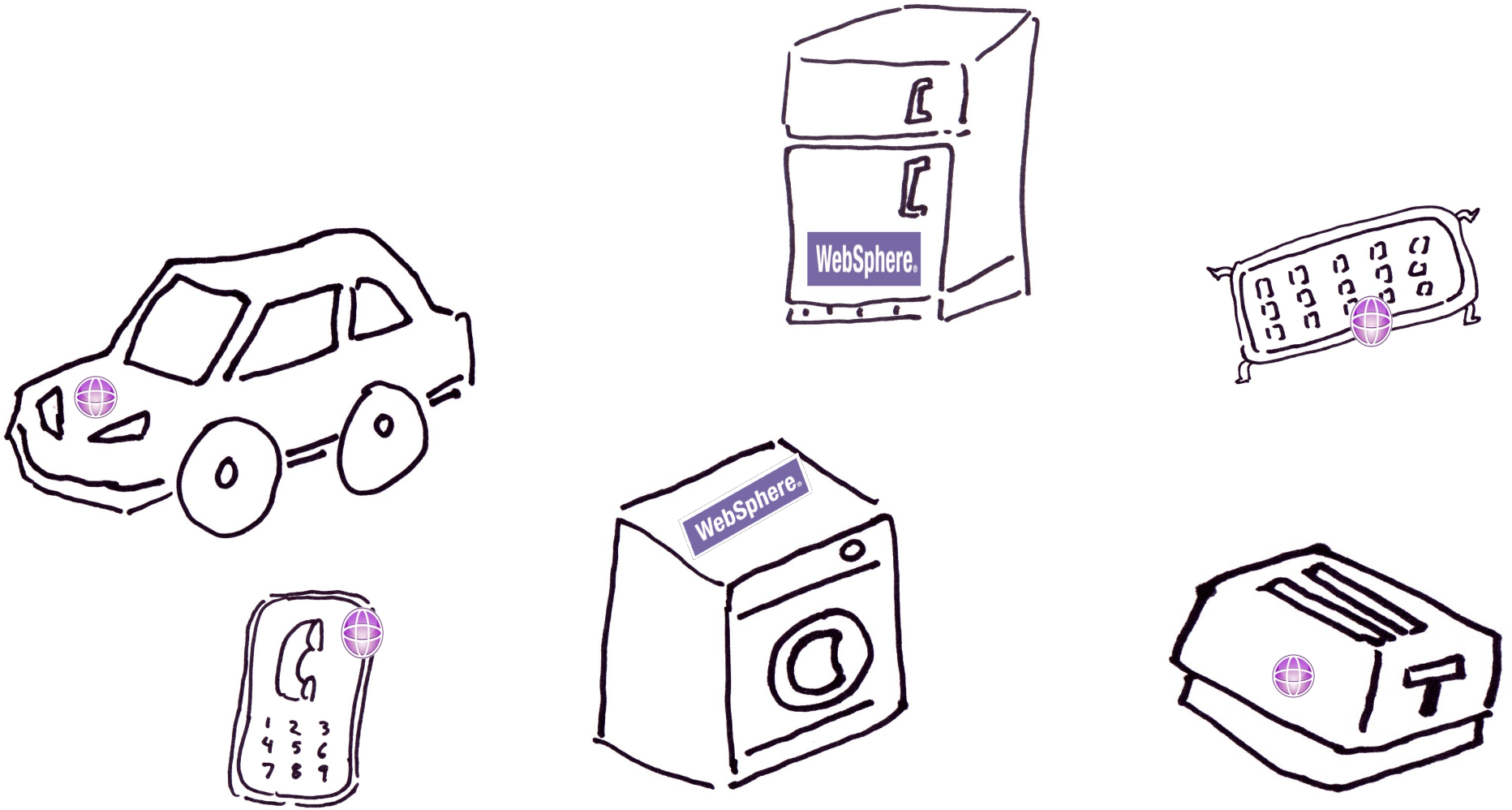
- Enable and disable function
  - For extra points, do it dynamically
- Easy install
  - Easy uninstall

Good for anything else?

Ubiquitous computing++



Ubiquitous computing++



Old new-world

- Mobile technology a trend only on the client-side
- Why?
- Clients are mobile
- Servers are not mobile
  - Obviously

New new-world

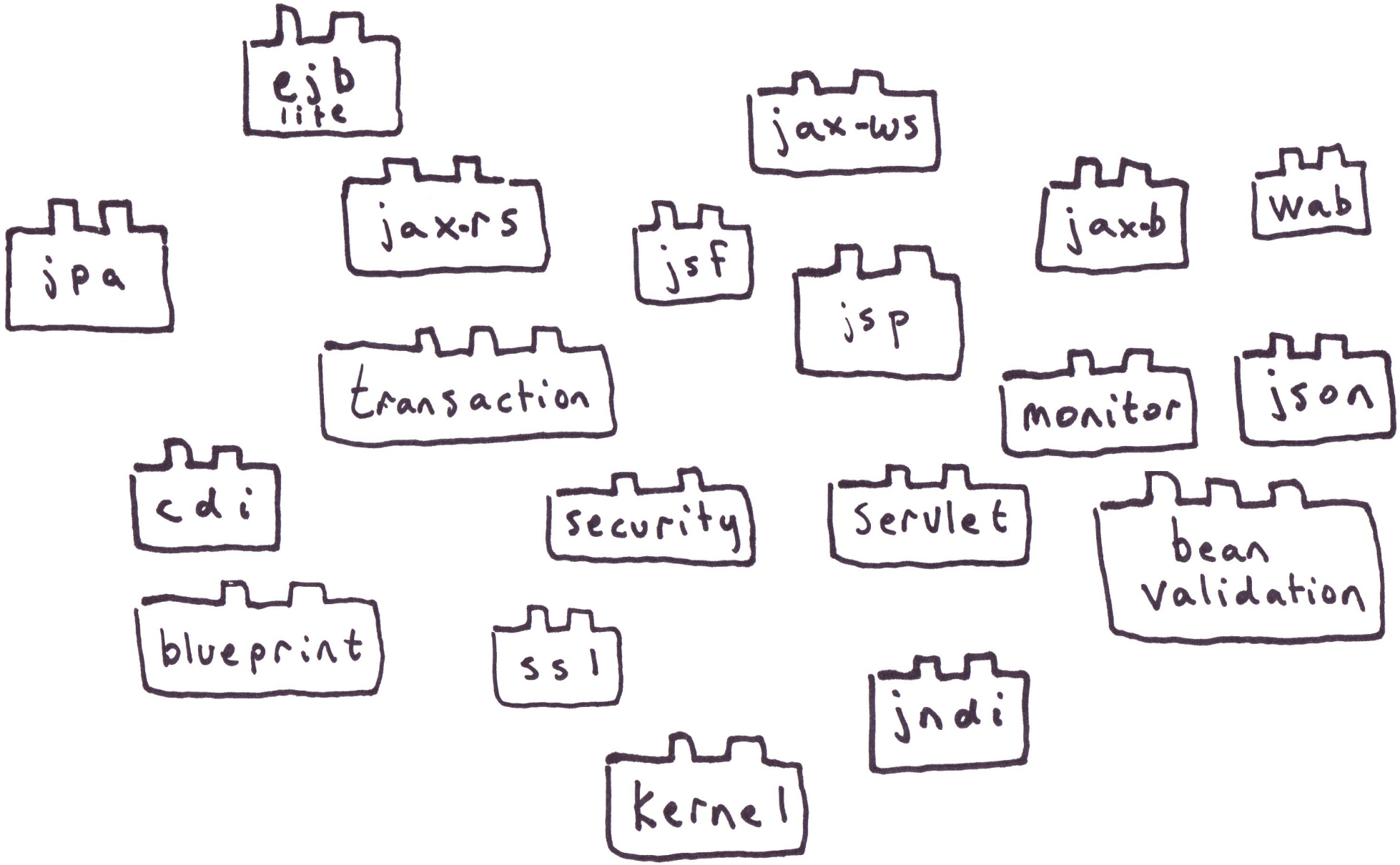
- Servers are lightweight
- Seriously - they literally don't weigh much
- Move from location-based services to *locate-able services*

WAS Liberty Profile

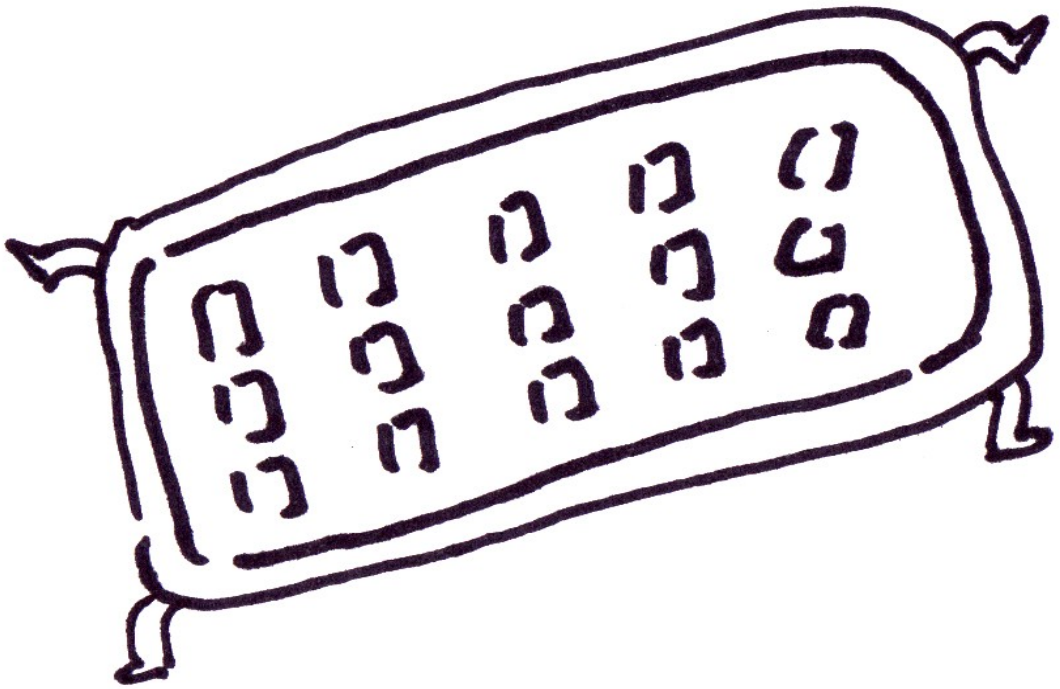
- New in WebSphere Application Server 8.5
- Free for developers
- Free tools
- Very very lightweight
  - 50 MB download
  - 60 MB footprint for biggish JEE app
  - Starts in under 5s
- Entirely modular and dynamic

Modularity and dynamism

How can it be full-featured?

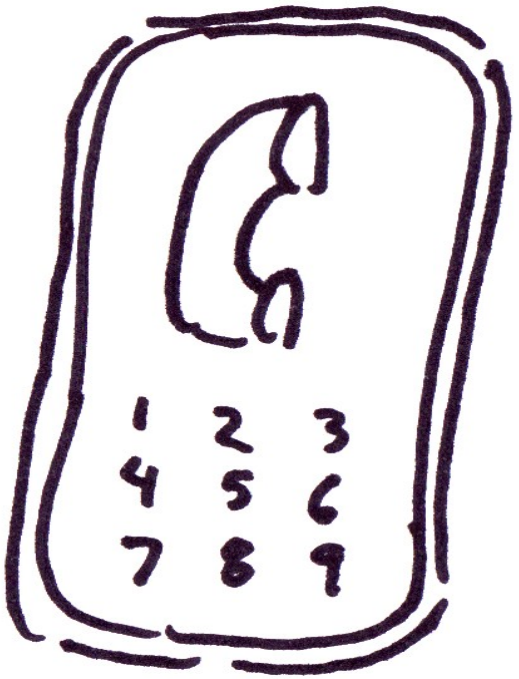


Where can the Liberty profile go?



Nexus 7 tablet
Asus Transformer

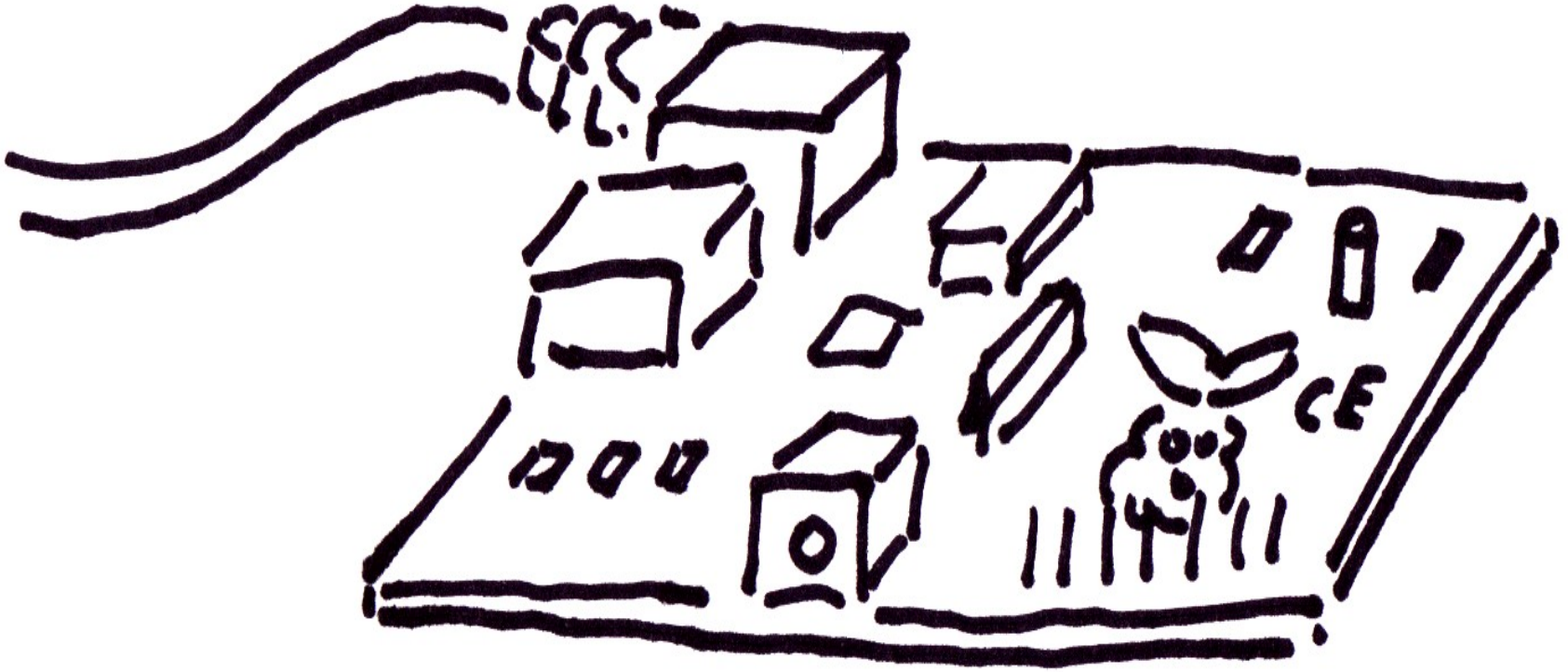
Where can the Liberty profile go?



Old Android phone

Where can the Liberty profile go?

Raspberry Pi



The Raspberry Pi

- £25
- **£25!**
- 1.6 oz

- 700 MHz ARM 11 processor
- 256 MB RAM (shared with GPU)
- Up to 4 GB SanDisk

But what about the hat?

- And why on earth would you want to do that?
- 'True' location-based service
- Collaboration without internet

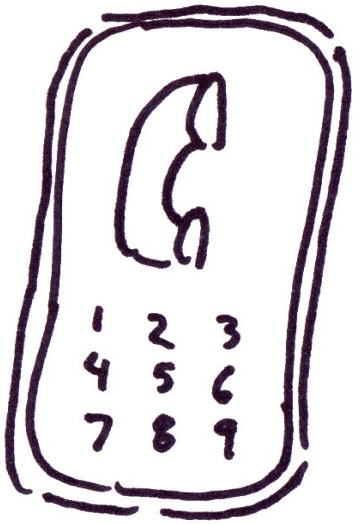
Demo-time

www.wasdev.net

Pi lessons learned

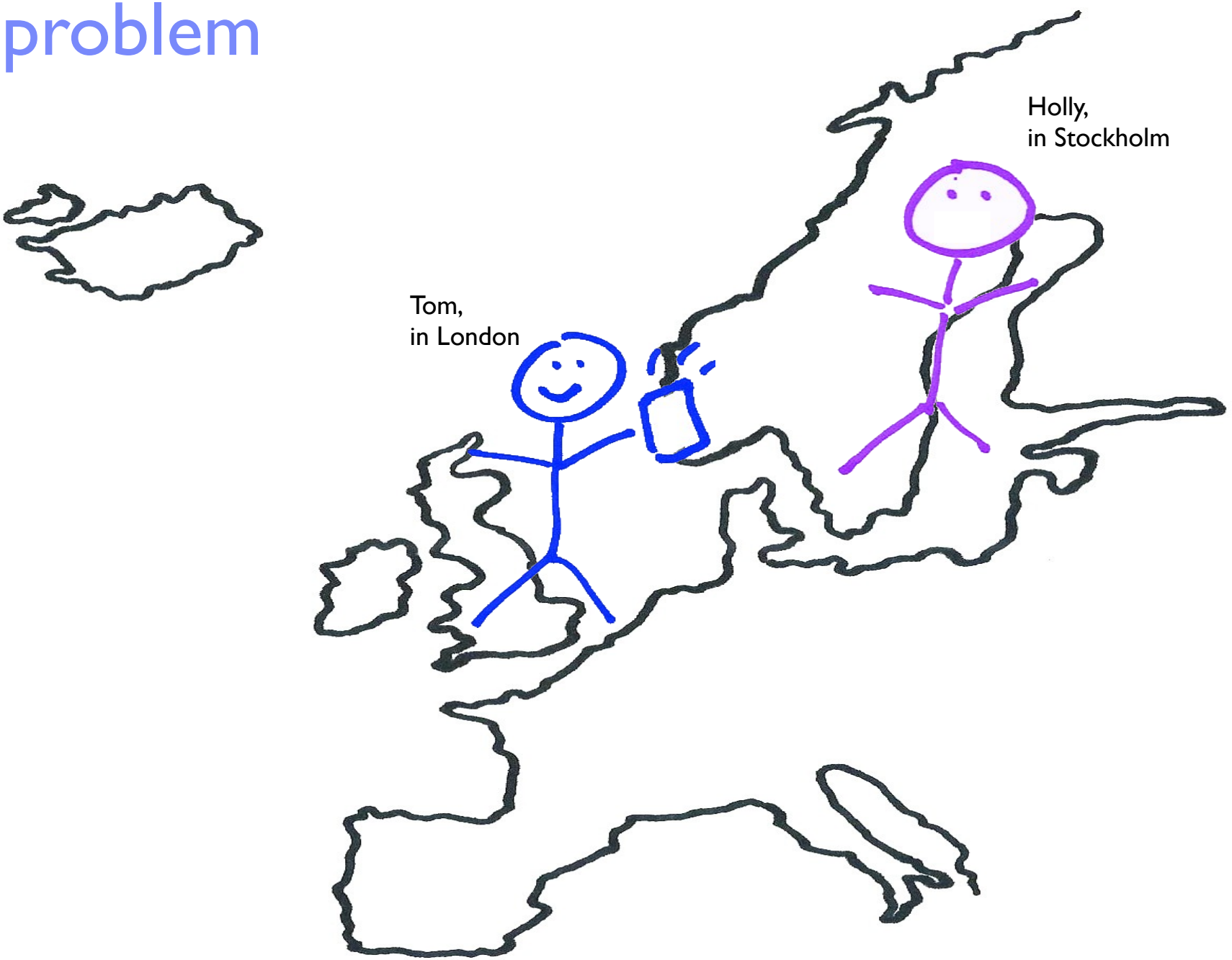
- James Bond Wifi
  - "For your eyes only"
  - Power supply is an issue
- A hat is a hot environment for a server :)
- Solution: failover pi!
  - At £25, why not?

Can we do better?



- Yes.
- Built-in battery
  - A built-in battery can't work itself loose mid-demo :)
  - Built-in wi-fi
  - Built-in wi-fi doesn't die mid-demo
  - A phone has enough (electric) power to host an ad-hoc wifi network

The problem



No problem!

- We have a Nexus 7, too!

Demo-time

(again)

www.wasdev.net

The problem

- We updated the Nexus 7 :(
  - It needs rooting again

Any questions?

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