

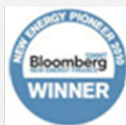
alertme

creating smart homes



Smart Homes at Scale

CIR Smart Homes & Cleanpower 2013 www.hvm-uk.com
pilgrim.beart@alertme.com

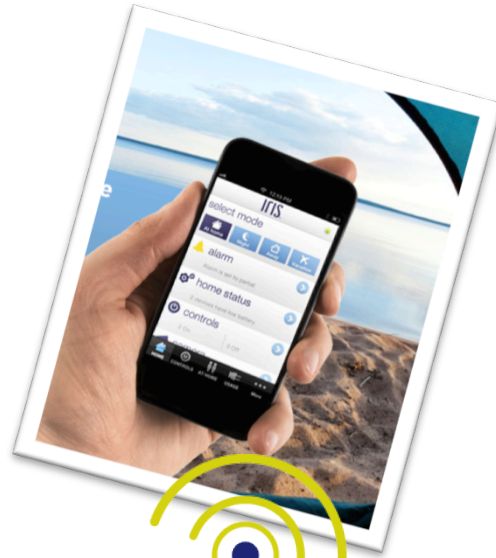


A talk in 3 parts

- Smart Energy Report
- Standards and Openness
- Home Energy Update



2013: Quick update



...



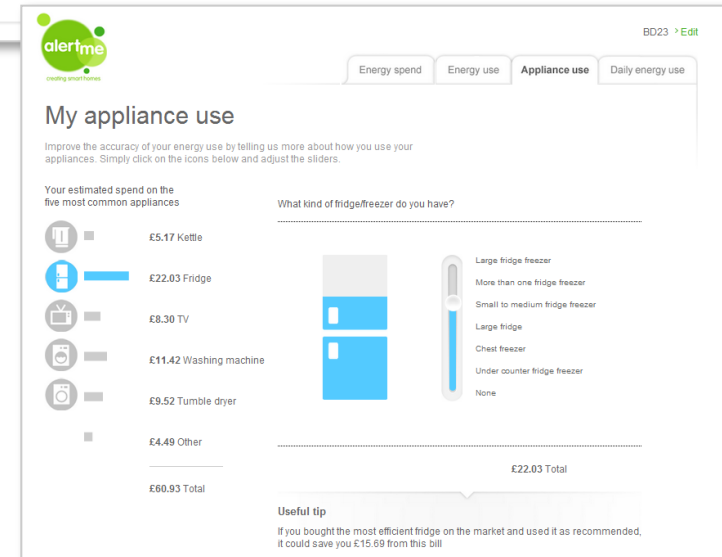
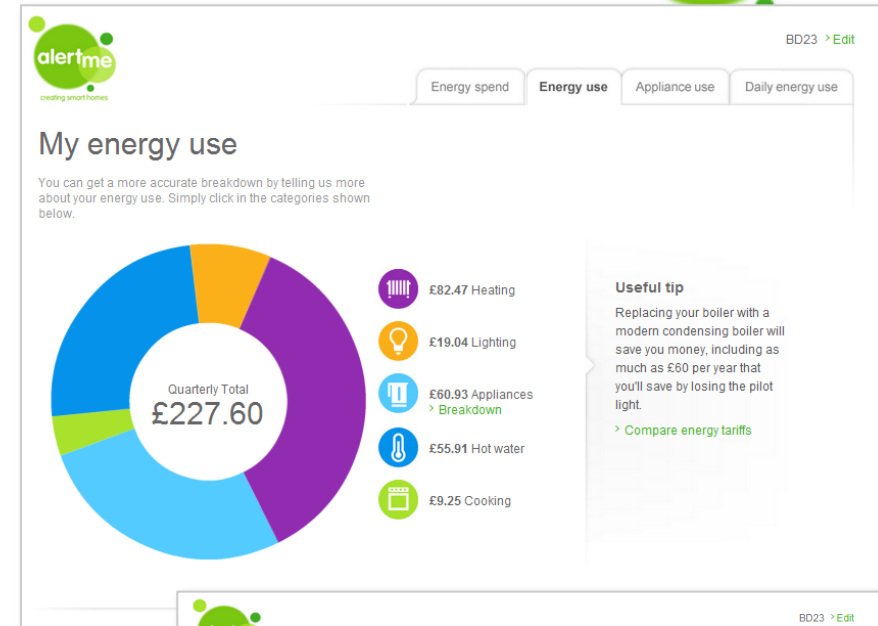


1. Smart Energy Report

Data analytics engine



- An engine that gives insight into household usage patterns for energy consumption
 - Built upon several models
- Models informed by many inputs:
 - Temperature, Location, Type of appliances and usage
 - and others ...
- Models include:
 - Space Heating, Hot water, Cooking, Lighting, Appliances, Occupancy
 - and others ...
- Output improves with more data
 - Supply more information,
 - Get greater insights
 - Supply less information
 - Still has good insight, but based on national/local averages



Multi Channel Communication: Reports



Your winter Smart Energy Report^o

for AN ADDRESS, 123 456

Your customer numbers
Gas: 00 00 00 00 00 00
Electricity: 00 00 00 00 00 00



1 How do I use energy at home?

We've noticed that your boiler is using gas all the time, even when it's not heating your home or hot water - this might be because it's an older-style boiler with a pilot light that needs to stay lit. Keeping this pilot light lit could be costing you as much as £90 per year based on your current price plan.

2 Your energy charges** this winter were

£482.55

This isn't a bill.

To find out even more about how you use energy go to britishgas.co.uk/smartreport

- Goes out with the bill
- Email and paper versions
- Longer term trends and analysis over the term of the bill
- Monthly digests

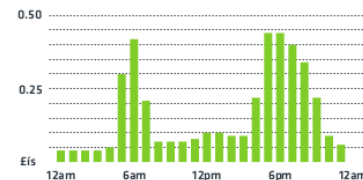
3 How does my energy use break down?

Here's how we think your energy use breaks down:



£201 on heating £42 on hot water £19 on lighting £27 on cooking £84 on appliances

Typically you use most electricity between 5 and 7pm



4 How do I compare with other homes?

We've compared your usage with a similar type of home, based on its age, size, type of construction and number of occupants for a better idea of how you're doing.



You



Households like you

You use **90% more**

5 How could I be saving?

Installing a modern, condensing boiler will save you money - this is because as well as heating your home more efficiently, not having a pilot light lit all the time could save you around £90 a year based on your current price plan.



To find out more, go to britishgas.co.uk/smartreport

Personal Energy Insight & Efficiency Advice



2. Standards and Openness

Standards and Openness



- As a market matures, there is a sudden “flip”
 - From “no-one to be open to”
 - To “openness is essential”
 - Can’t do it all, need ecosystem partners
 - Customers want to have choices
-

TSB IoT Interoperability Demonstrator

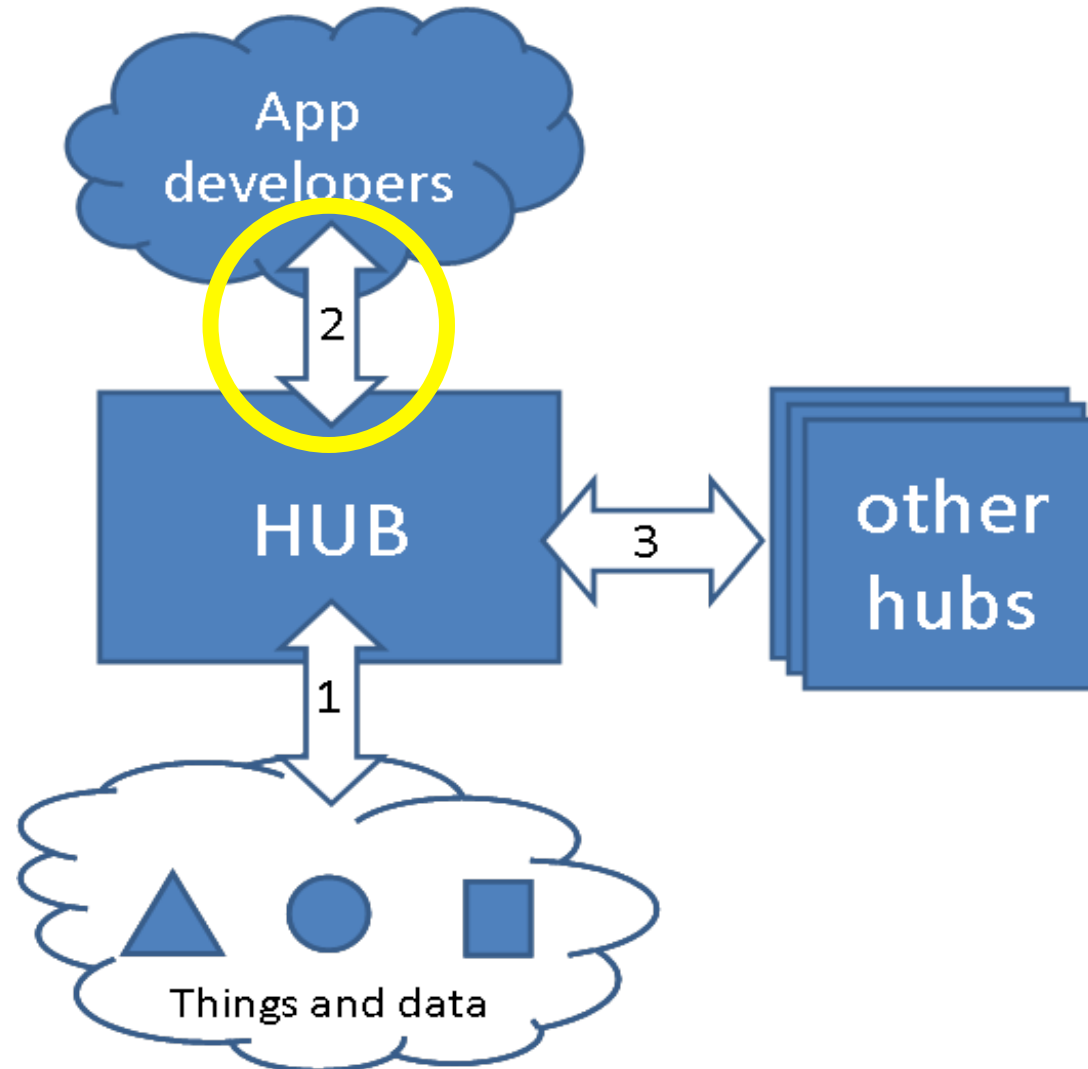


- £6m project, 1 year
- Goal: Break down the vertical M2M silos!
- ~40 entities, most already with vertical end-to-end platforms

1248.io, Aimes Grid Services, **AlertMe**, Amey, ARM, Avanti, BalfourBeatty, BRE, British Telecom, Carillion, Critical Software, Ctrl-Shift, EDF, Enlight, ExplorerHQ, Flexeye, Guildford Borough Council, IBM, Intel, Intellisense.io, Intouch, LivingPlanIT, London City Airport, Merseyside Transport, Milligan Retail, Neul, Open Data Institute, Placr, SH&BA, Stakeholder Design, Traak, UK Highways Agency, Westminster City Council, Xively and the Universities of Birmingham, Cambridge, Lancaster, Surrey, UCL & Open University

- 8 clusters with diverse use-cases:
 - Airports
 - Transport logistics
 - Schools and Campuses
 - Streets
 - Homes
-

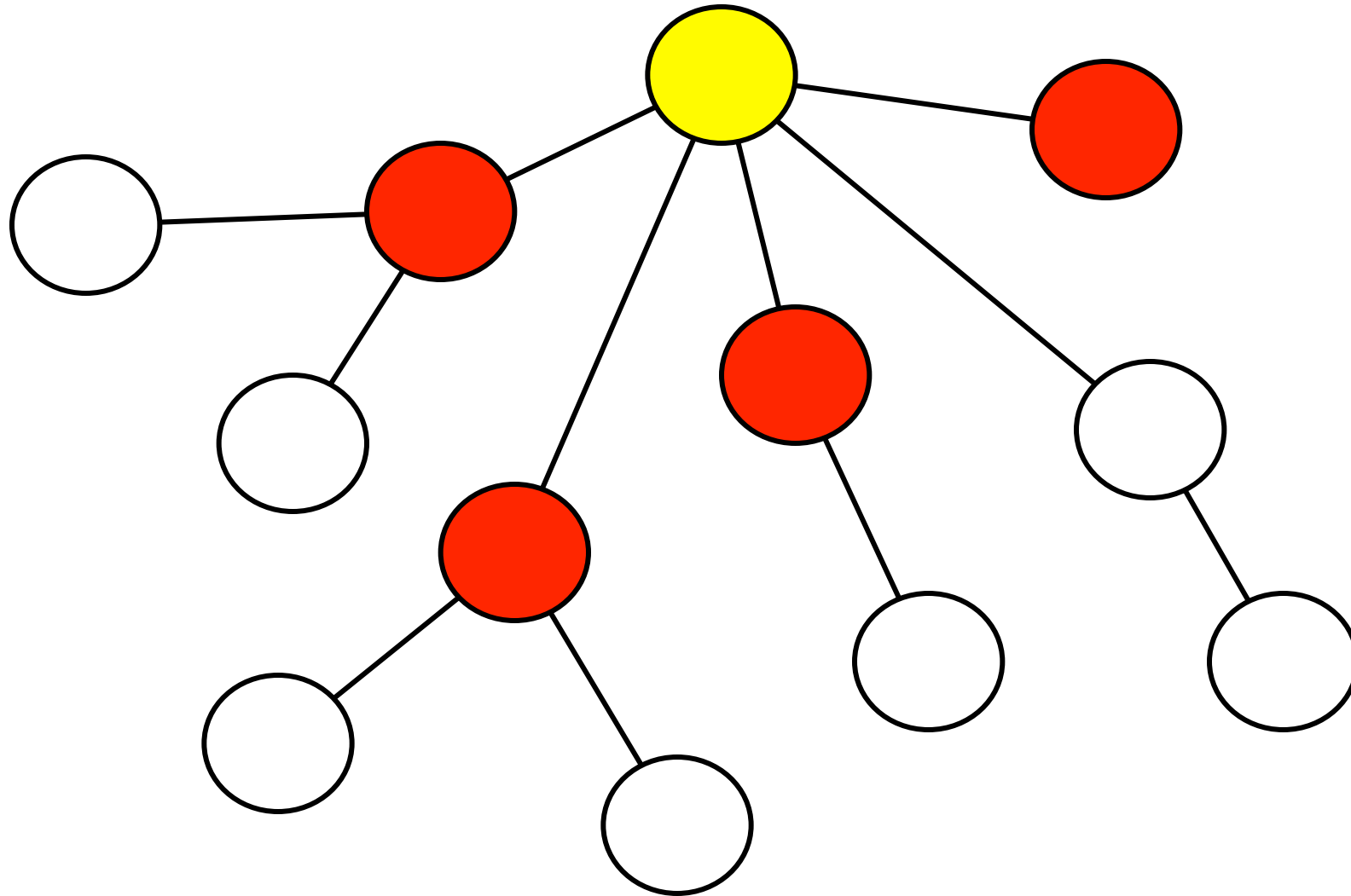
Everyone's system architecture





HYPER/CAT

You need data from several services



All services use open standards



JSON

JavaScript Object Notation

RESTful API

GET PUT POST DELETE

https: 


But each is organised differently



— /customers/building/room/temperature



— /users/hubs/devices/



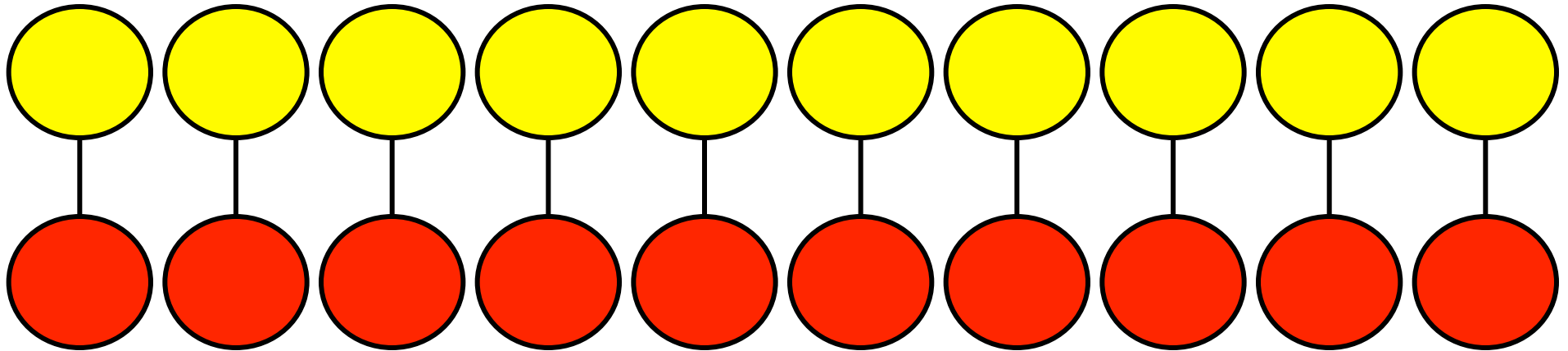
— /localauthority/street/post

So for each service you have to...



- Read the documentation
- Write code specific to that service

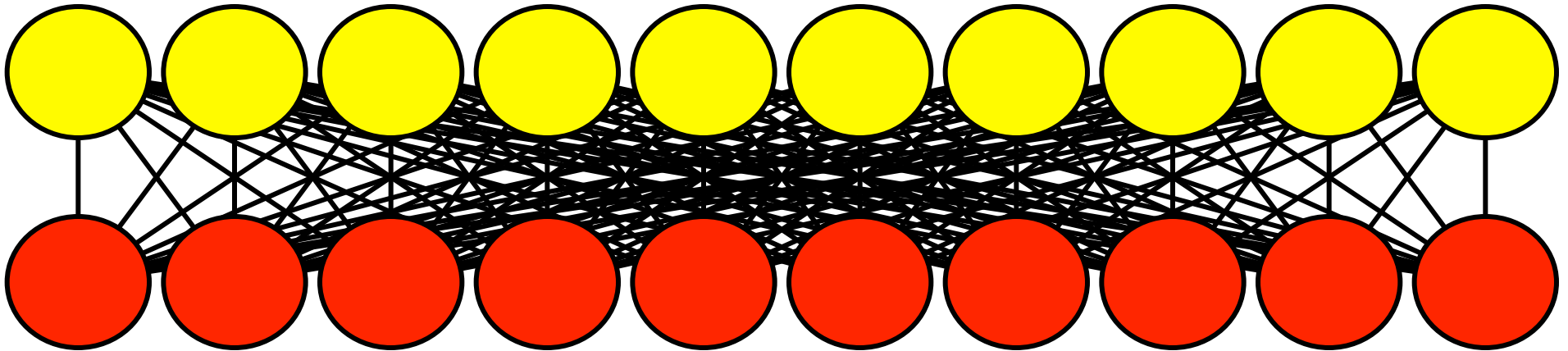
Everyone wants an ecosystem



If each application is specific to each service we call it “vertical-integration”.

To grow, we need to go “horizontal” and build an ecosystem where all applications work with all services

...but Humans Don't Scale



But adapting 10 Applications x 10 services
= 100 pieces of code to write

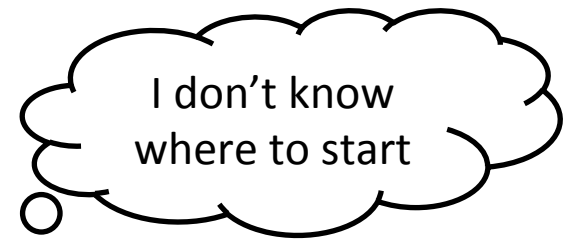
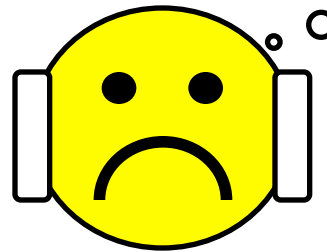
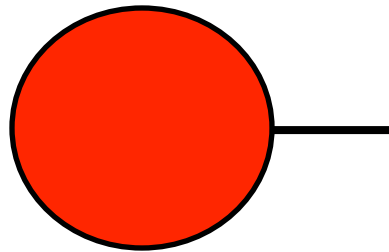
(and imagine 1,000,000 Applications...)

Problem:



Services not machine-browsable

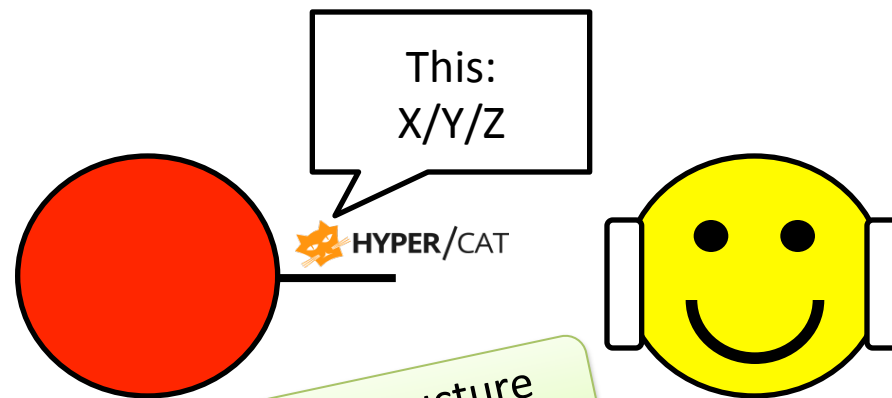
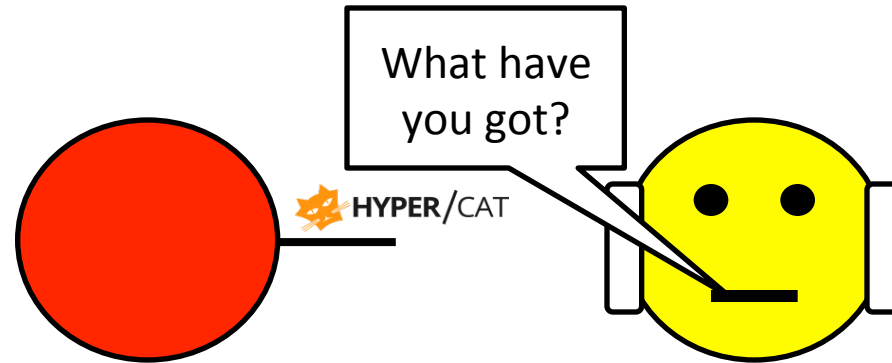
An application cannot automatically discover a new service's resources ... so a human has to write code every time to enable it to do that.



HyperCat:



Makes services machine-browsable



browse by structure
search by metadata

HyperCat: Easier life for everyone

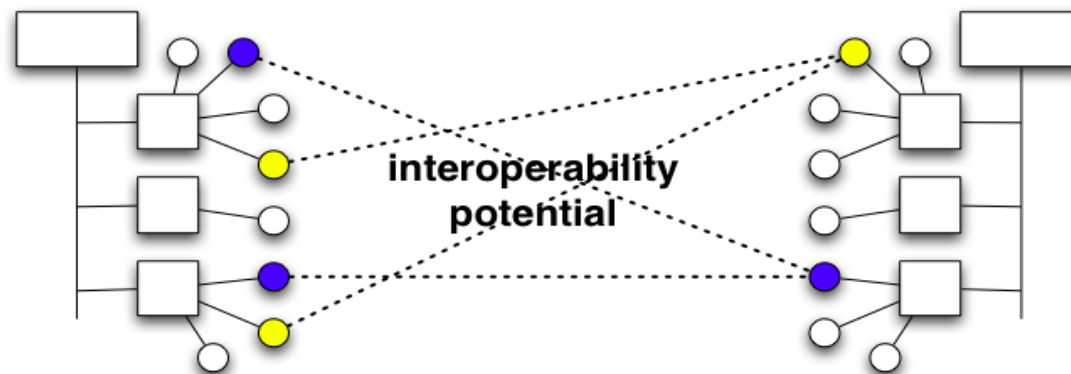


- Developers
 - More data, quicker
 - Service and Data providers
 - More customers
 - End-customers
 - More choice
 - Ecosystems and markets
 - Removes barriers
-

HyperCat is not a panacea



- Applications and Services still have to agree on high level semantics
 - i.e. if a service provides temperatures in °C then the application needs to understand °C
- What HyperCat does is enable an application to find those things that it does understand, in any service
 - e.g. “show me all the resources which are in °C”



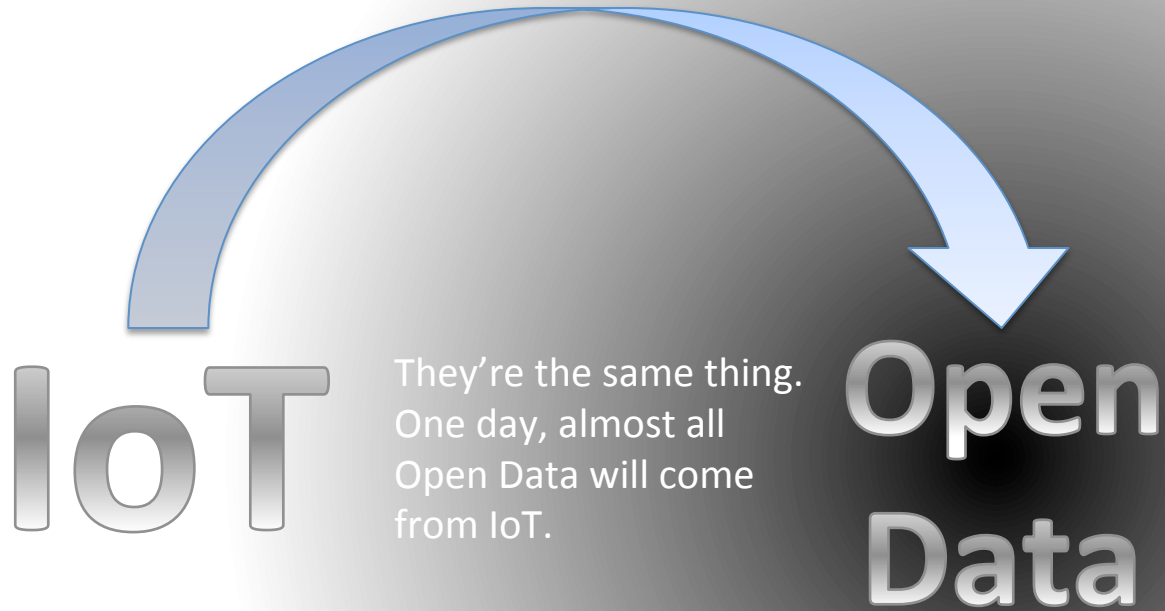
Work in progress...



All the things we kicked out of scope!

- Data formats (SenML)
 - Ontologies (general, and more & more specific)
 - Registration
 - Standard Licenses
 - Key management
 - Monetisation models
-

From edge to centre



Billions of
tiny sensors

Very large
databases

“Open”



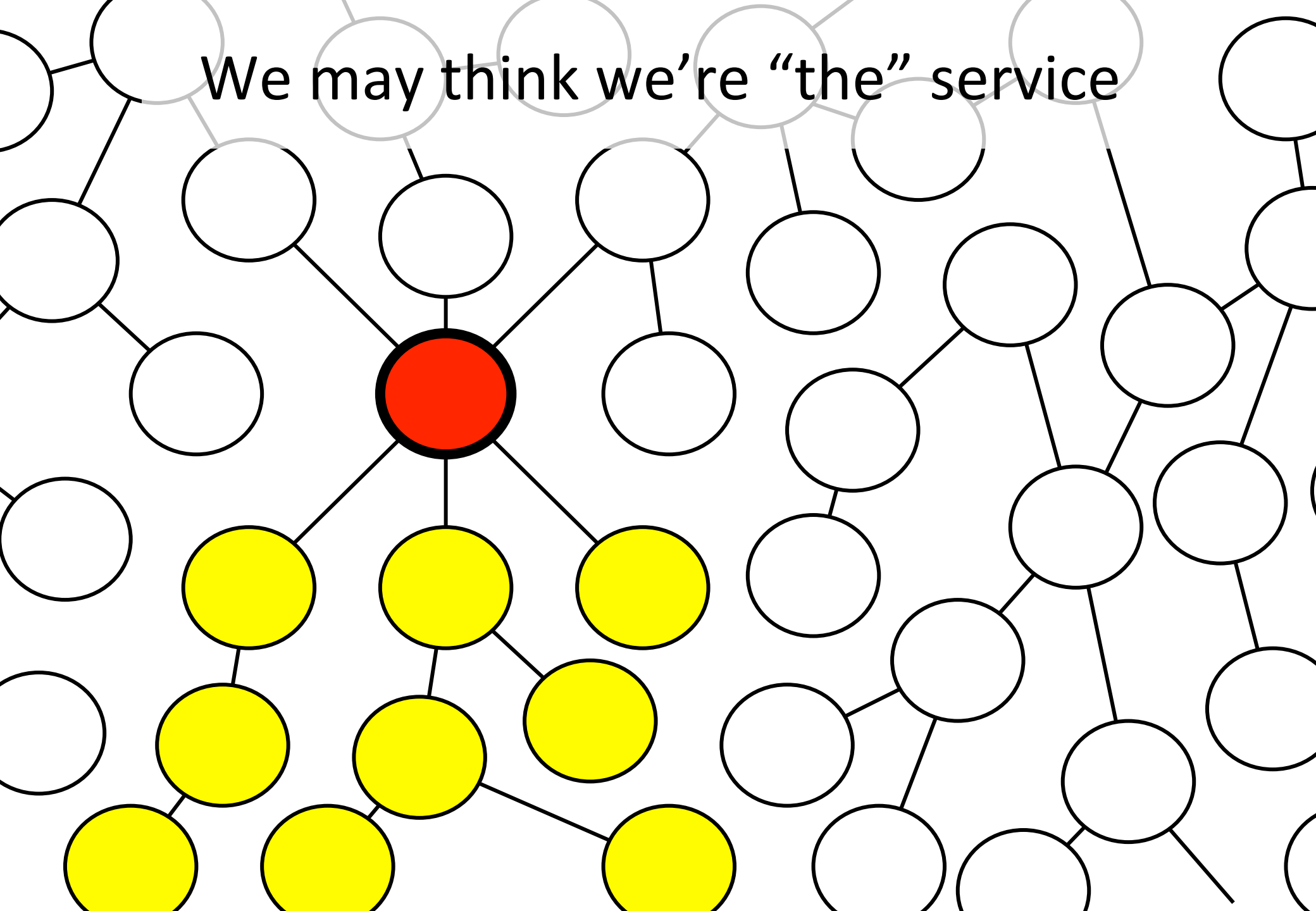
Not (necessarily):

- Free
- Public

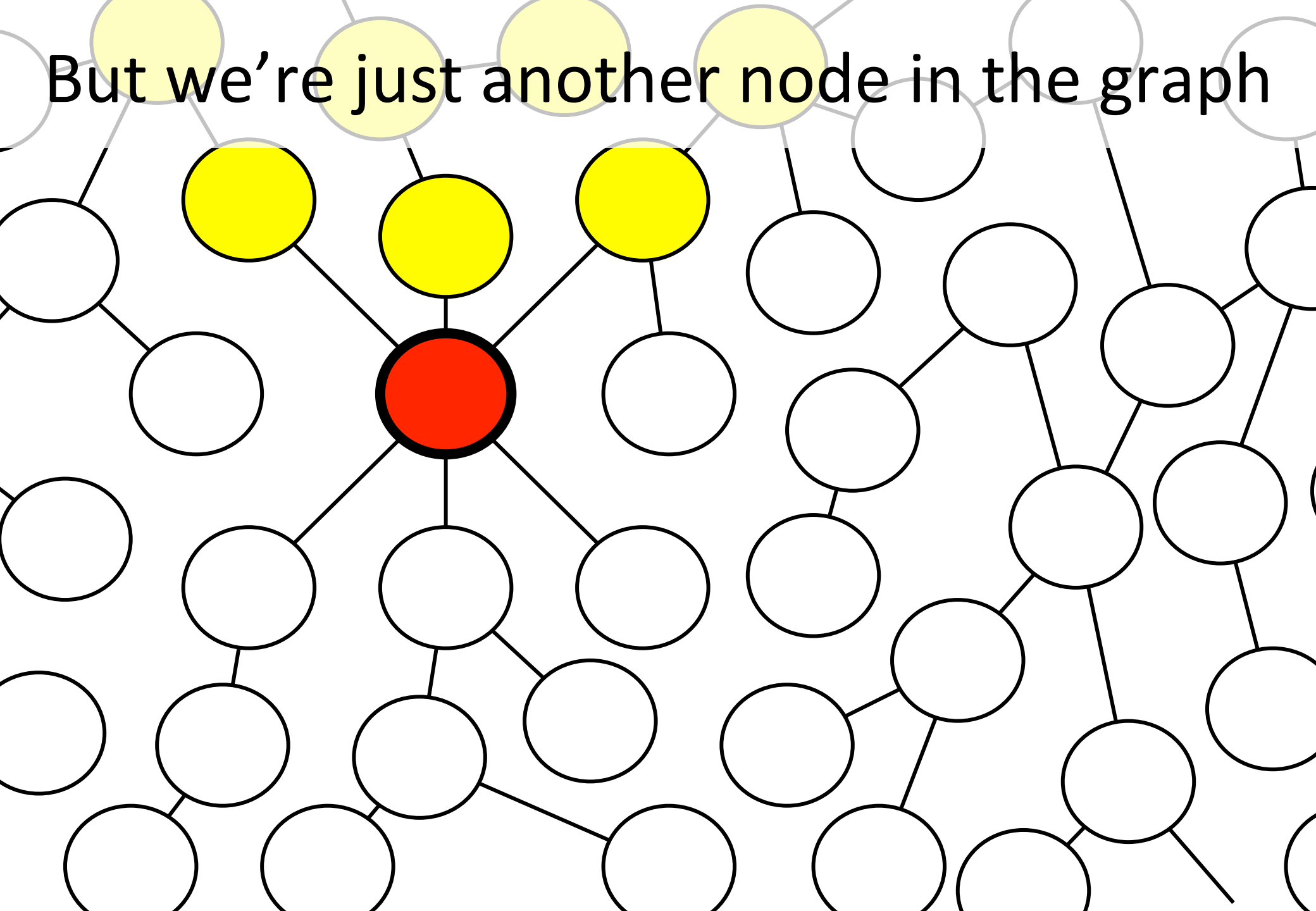
Means:

- My service works with your service
 - We can swap providers without a lot of effort
 - Requires less trust
-

We may think we're "the" service



But we're just another node in the graph



Smart Meters: T-2 years & counting



Here come:

- Consumer Access Devices
- Authorised Third Parties

3. Home Energy Use Update

Home appliances & devices



65 million

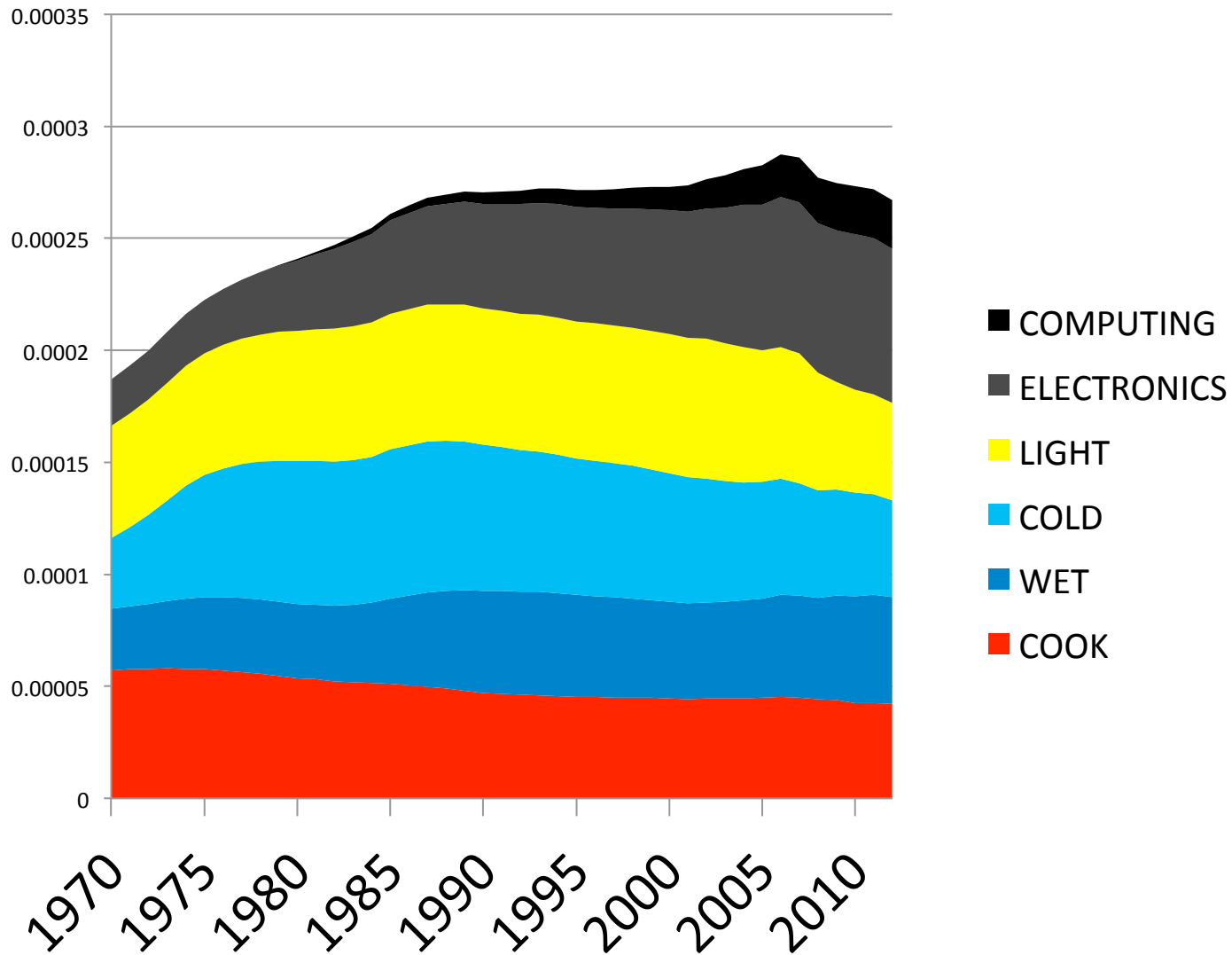
the number of devices in British homes – including desktop and laptop computers, and peripherals like scanners, printers, disk drives – rose from 30 million to 65 million.³⁴



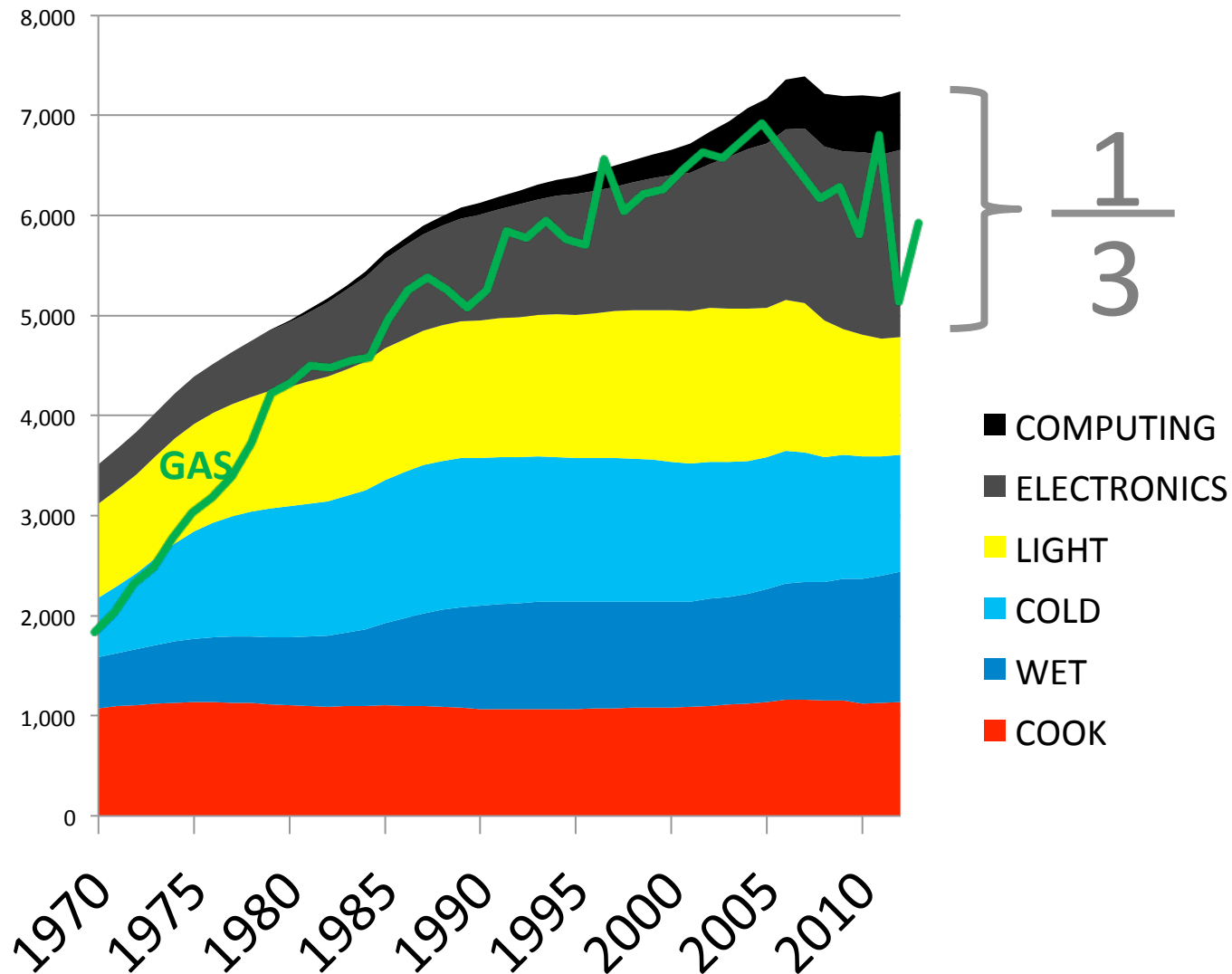
In 2009 the average household owned 11 times more consumer electronics items than they had in 1970, and three and a half times more than in 1990

[Av home has 41 appliances today]

Electricity- per Home



Electricity – all homes





([bubbles](#)-internet)

([bubbles](#)-this mac)

Bill = Price x Usage



- Energy **prices** are rising
 - Household **bills** are rising
 - But slower, and not hugely above inflation
 - Because per-house **usage** is falling

 - Still a long way to go (up & therefore down!)
 - Political talk of banishing green taxes...
 - The real issues remain:
 - Insulation
 - Gadgets
-

The logo features the word "alertme" in a white, lowercase, sans-serif font. It is centered within a large, bright green circle. Surrounding this central circle are several smaller green circles of varying sizes, some of which are semi-transparent. In the bottom right corner, there is a lens flare effect consisting of a bright white light source with several overlapping circles in shades of red, orange, and blue, creating a bokeh-like glow.

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@pilgrimbeart