

# **Internet of Things**

## **What It Means For Developers**

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**Lo**

Any Ideas?

# Lo

First message sent over ARPANET  
Intended message was login (1969)

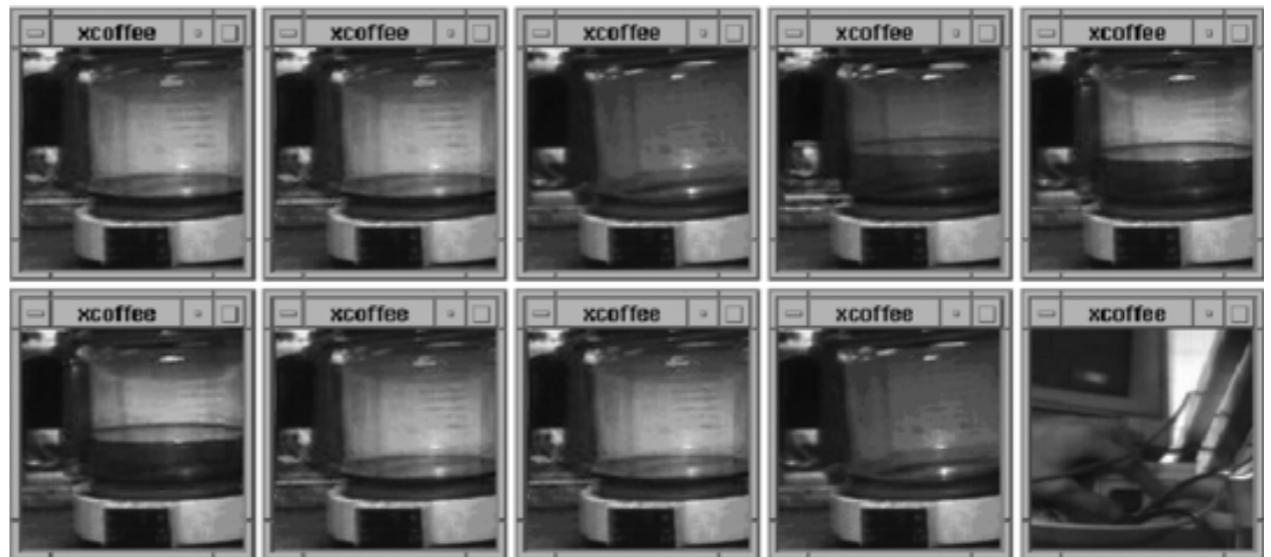
# Any Coke?

Connected coke machine  
CS department CMU (1982)



# Coffee?

First webcam  
Univ. of Cambridge (1991)



# **So What?**

# **1 Billion People**

Use the internet  
Soon, it will be 2 billion

# **26 Billion Units**

Will be connected by 2020  
According to a Gartner report (Dec, 2013)

# Things?





Goods, vehicles, machines, animals, objects,  
people, buildings, appliances, etc...



Suffolk Wildlife Trust

# Badgers

It's even possible to track them

# How?

# Identity

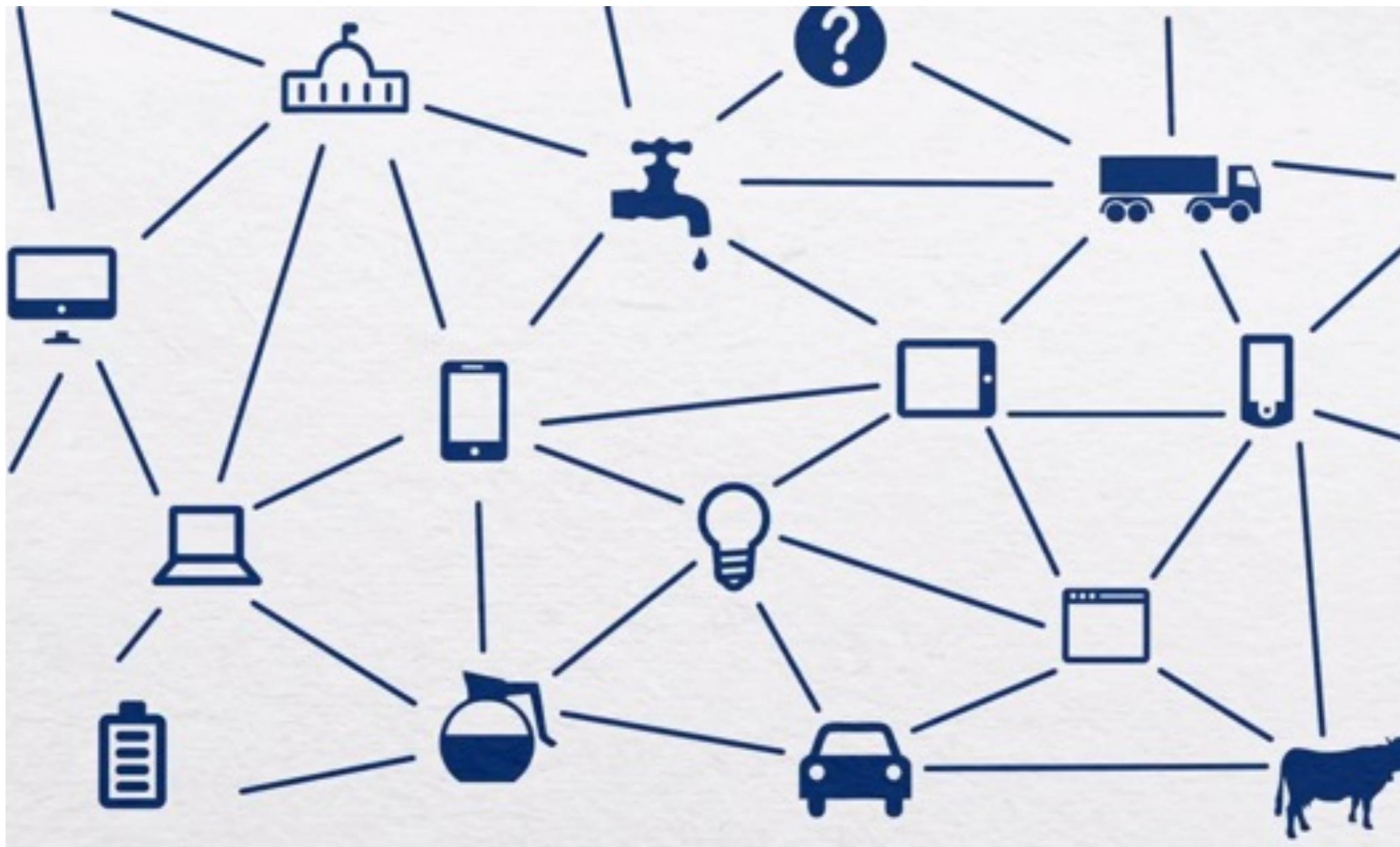
Each thing could be uniquely identified

# **Communication**

Each thing could communicate

# Sensors

Each thing should have some sensors



# System of Systems

# Monitor Things

# Search

## Things

# Manage Things



**IT'S AMAZING**

# **Where's My Keys?**

You just left them at home

# **Turn On The Heat**

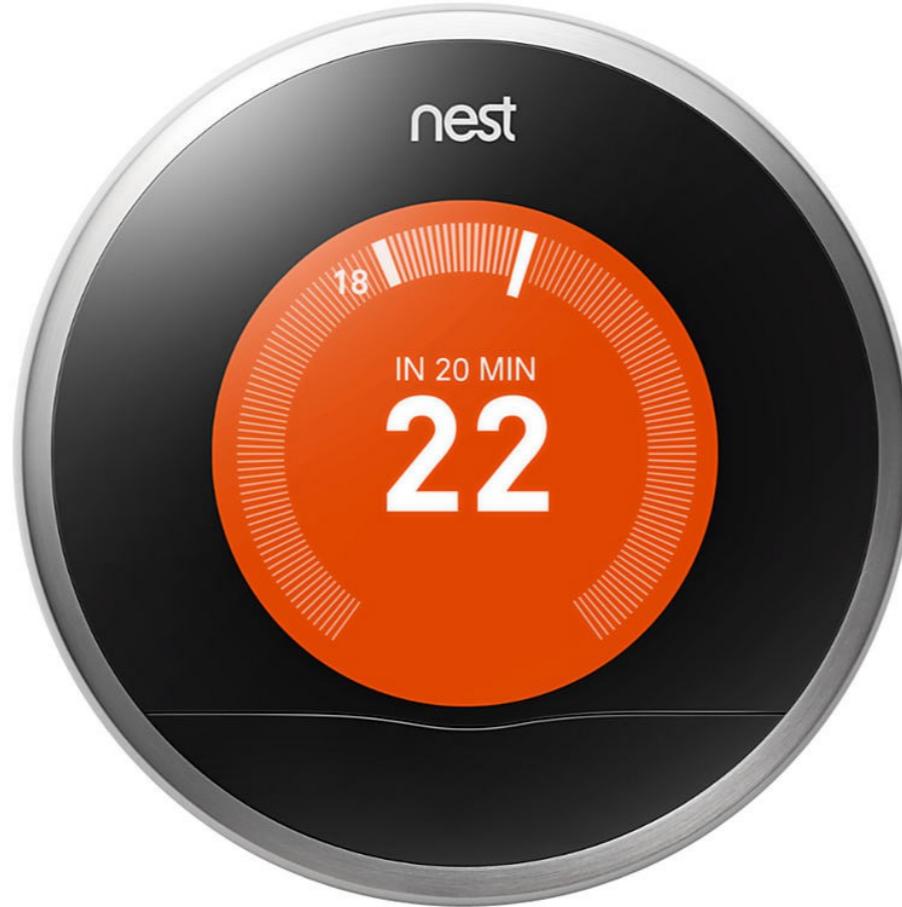
If it gets colder

# **Buy Milk**

If you need to

# **Just A Few Things**

There are already many



# Nest Thermostat

Learns from your heating habits



# Fitbit Surge

Right data, within glance



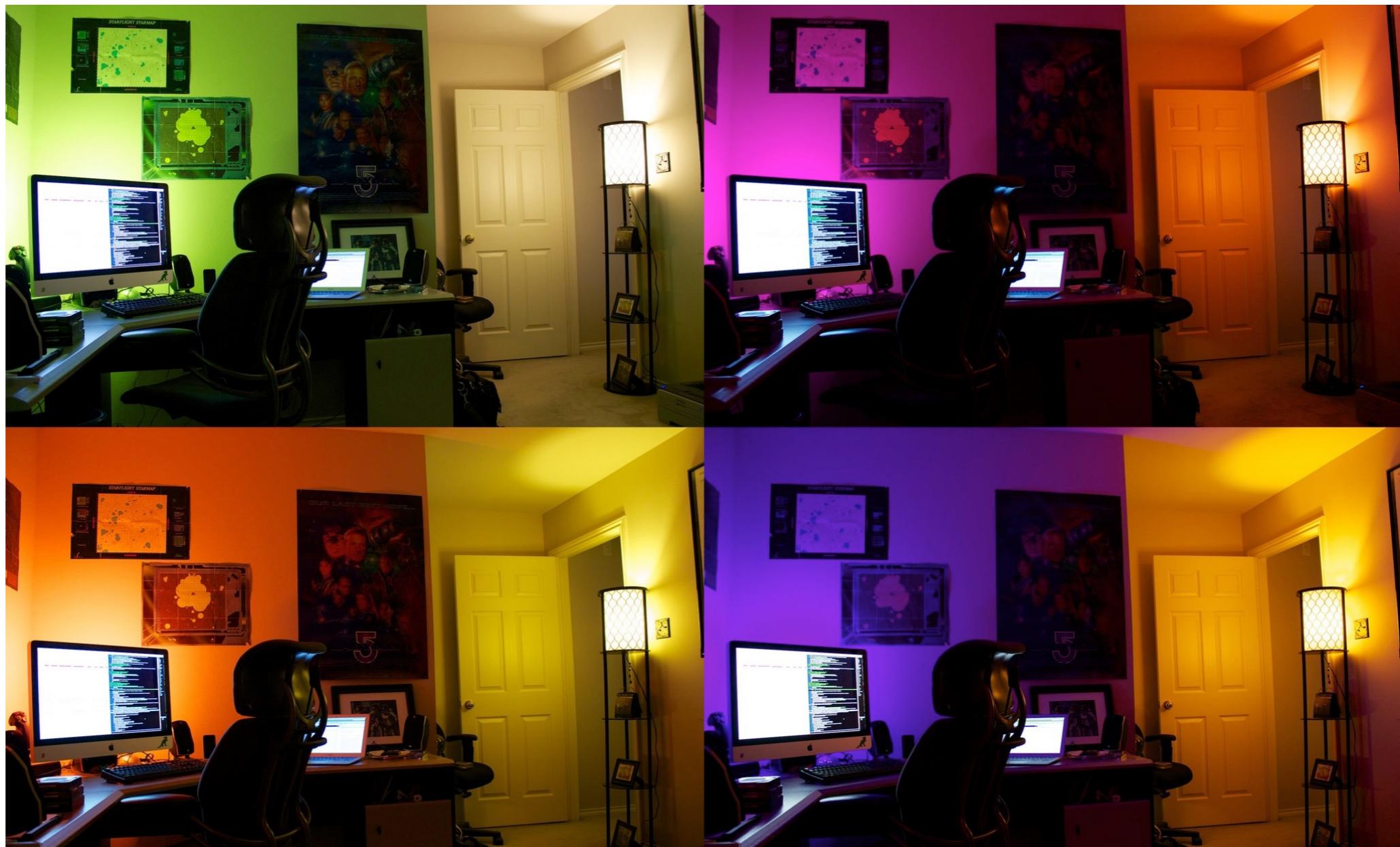
# WeMo Switch

One switch to rule them all



# Crock-Pot Wemo

Dinner is ready!



Lee Hutchinson

# Philips Hue

Change color by your mood



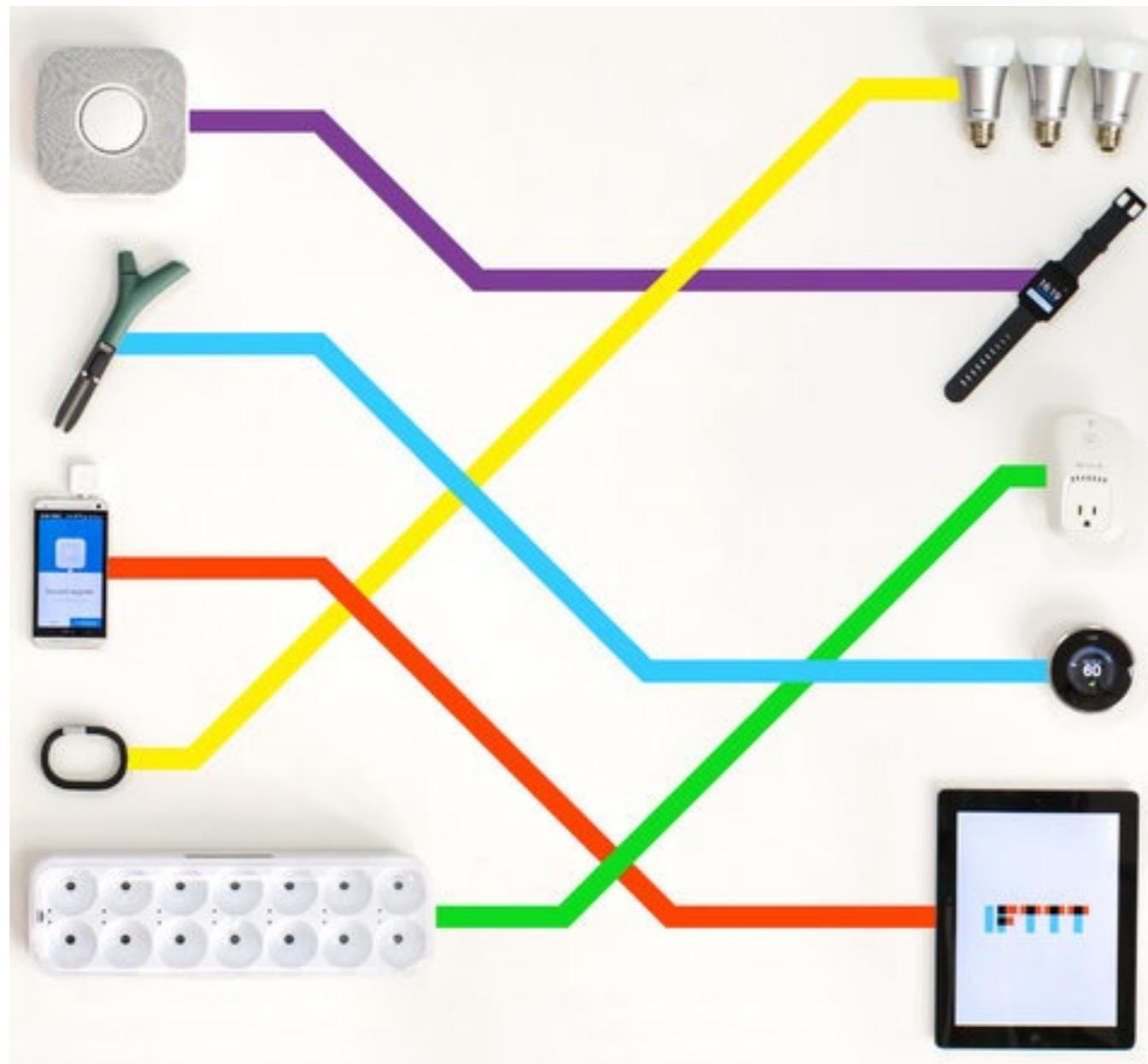
# August Smart Lock

Get in with no keys



# Dropcam

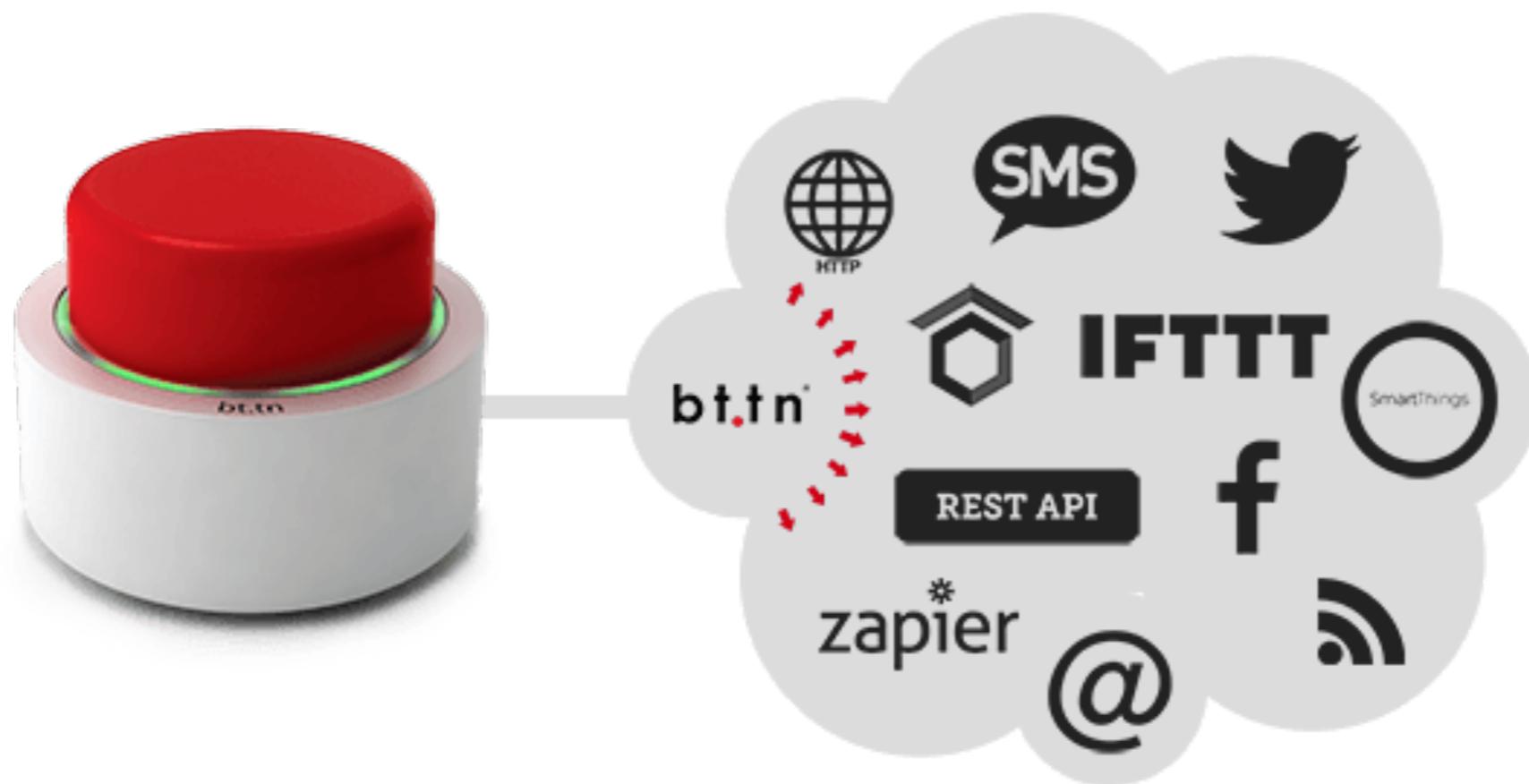
Home monitoring



Shiva Kilaru

# If This Then That

Put the internet to work for you



# btn

With the push of a button control almost any  
Internet-enabled device or service

# **Issues**

**With great power, comes the responsibility**

# **Security Issue**

What if the thing gets hacked?

# Privacy Issue

Can things keep your secrets?

# **Standards Issue**

No standards at all!\*

# **Architecture Issue**

**Billions of things using the internet?**

# **Cost Issue**

Things will melt your servers

# Solutions?

Just a few wild ideas



# Developers

Developers, Developers, Developers

# **Care For Security**

You are responsible

# **Know Your Data**

Get ready for huge amounts of them

# **Be Transparent**

Employ state-of-the-art methods

# **Write Your Own API's**

Your app should be your first consumer

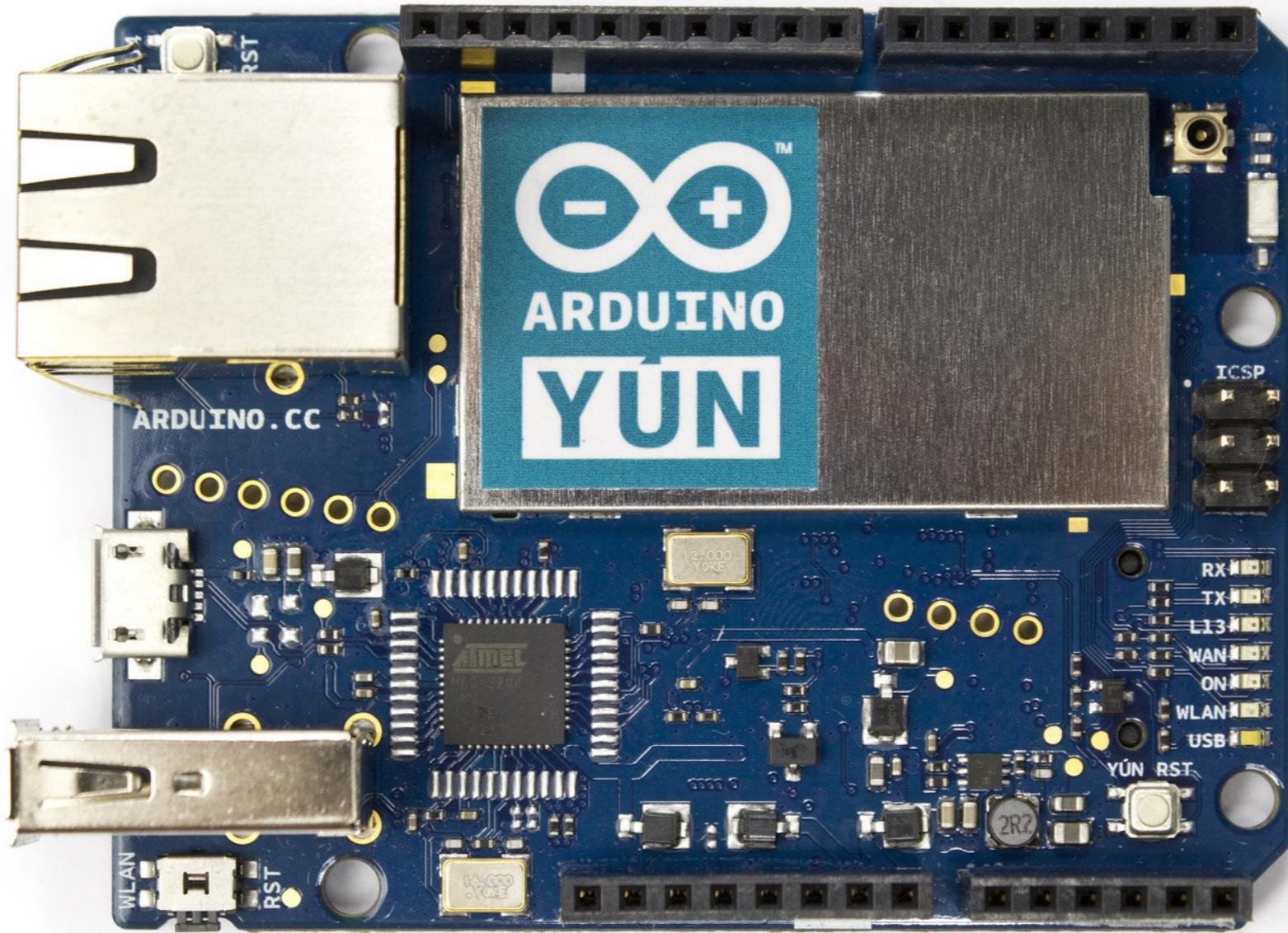
# Opportunities

There are many



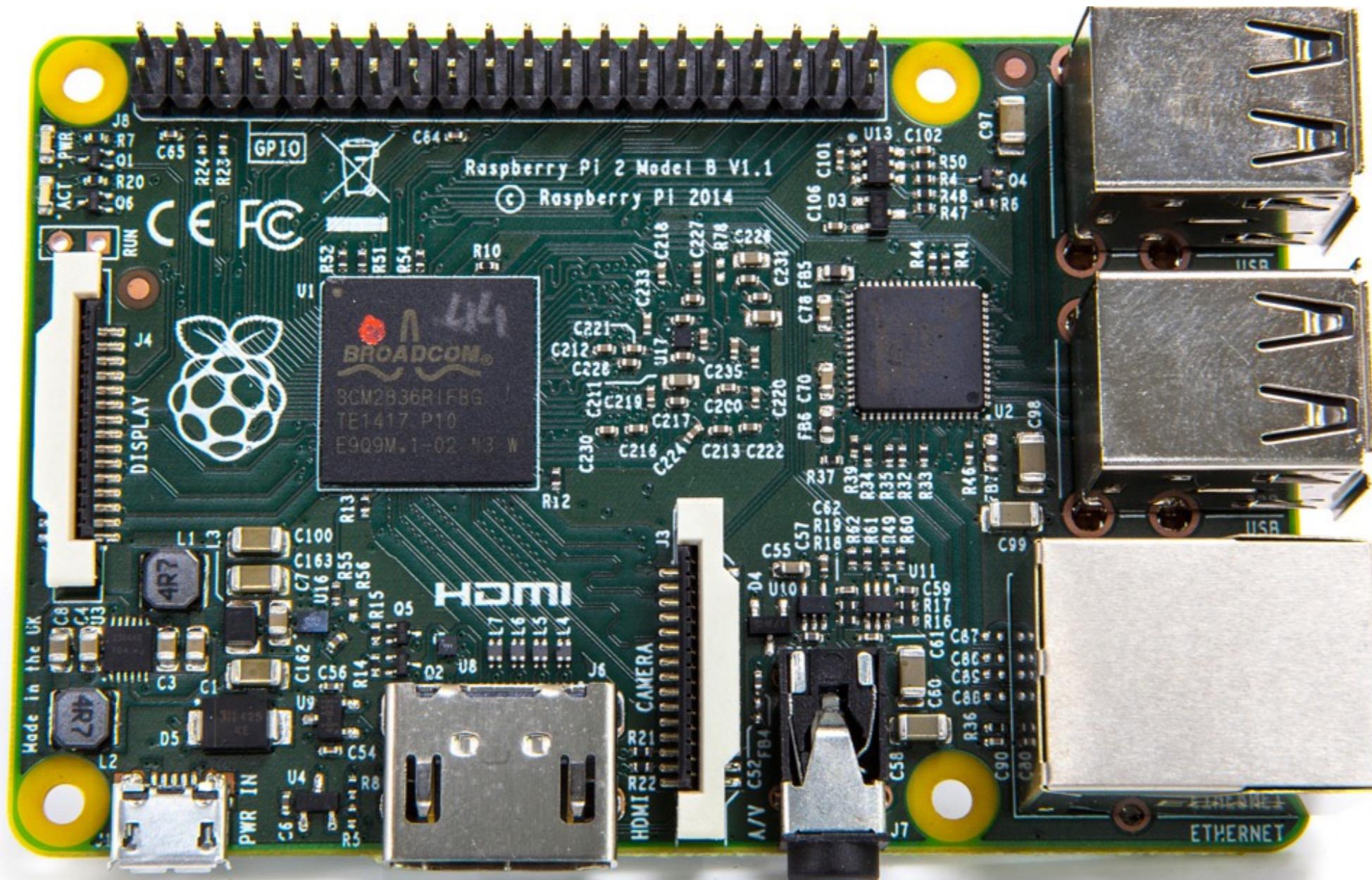
# Prototype

Your IoT Idea!



# Arduino Yún

Open-source electronics platform



# Raspberry Pi

Credit-card sized computer



**Raspberry Pi**  
@Raspberry\_Pi

Just confirmed the big news we've all been  
waiting for: we've now sold more than 5  
million Raspberry Pis.

5:33 PM - 17 Feb 2015



**Raspberry Pi**  
@Raspberry\_Pi

We think that this means that in just under 3 years, we've gone from zero to being the biggest selling UK computer manufacturer ever. Yowza.

5:41 PM - 17 Feb 2015

# To Sum Up

# IoT Is Amazing

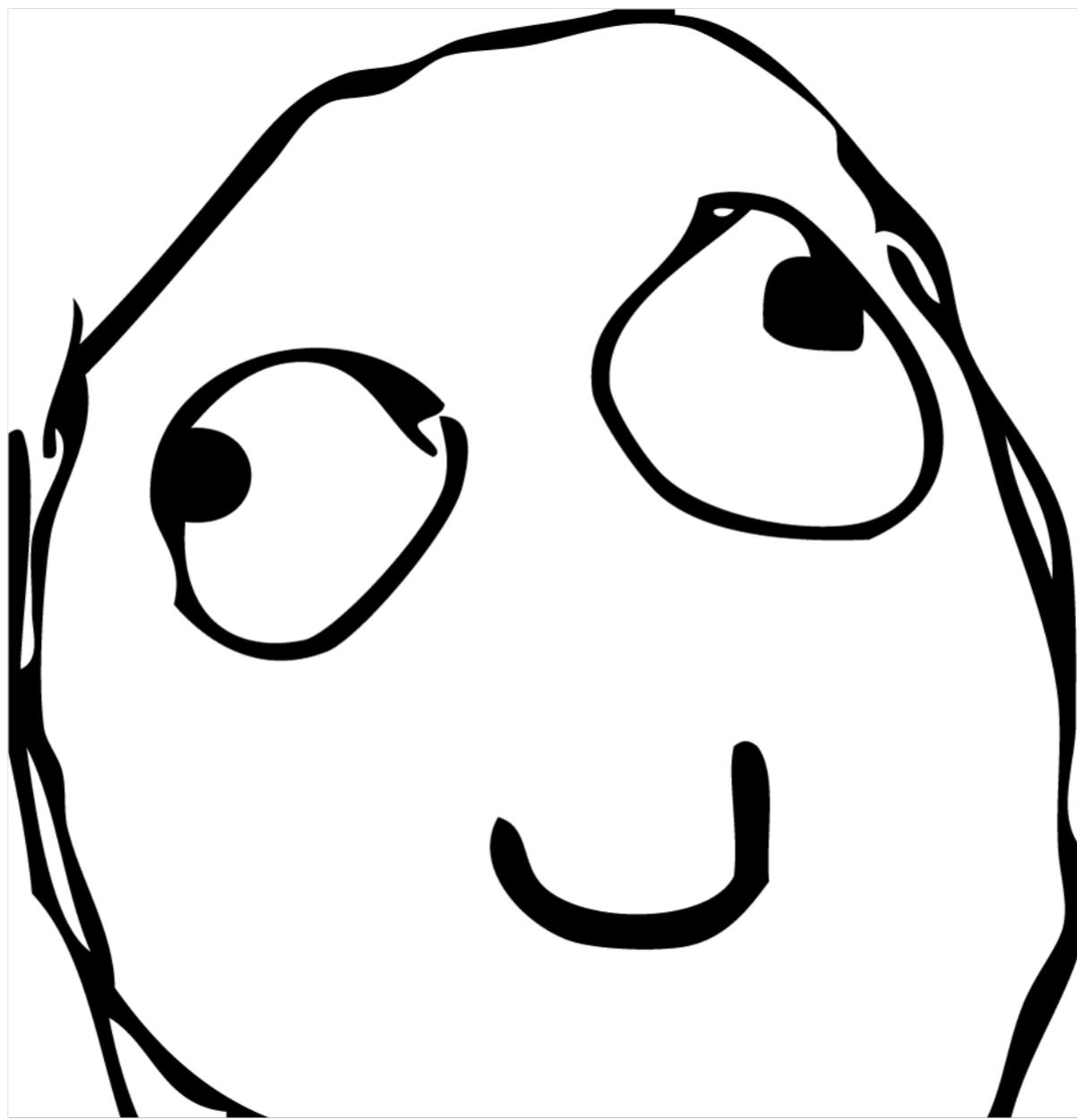
**It Has Huge Potential**

**It's A New Territory**

# **Plenty of Issues**

# **Several Opportunities**

# Happy Hacking



# **Get In Touch!**

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