

IoT for Home Automation Trends

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Agenda

Evolution

IoT from the Consumer POV

IoT from the Vendor POV

Conclusion and prediction of future innovation

Evolution

Collection of many devices not connected to anything

New concept appeared where devices were to be connected to the internet and broadcast status

Silo solutions appear in the market from single device solutions to automated homes.

Current Issues

Future State:

- *Standardize technology
- *Improve Customer experience
- *Reduce vendor costs

1982

2000

2015

2020



AT&T	Google Nest	Apple	Samsung	Amazon	Microsoft	ADT
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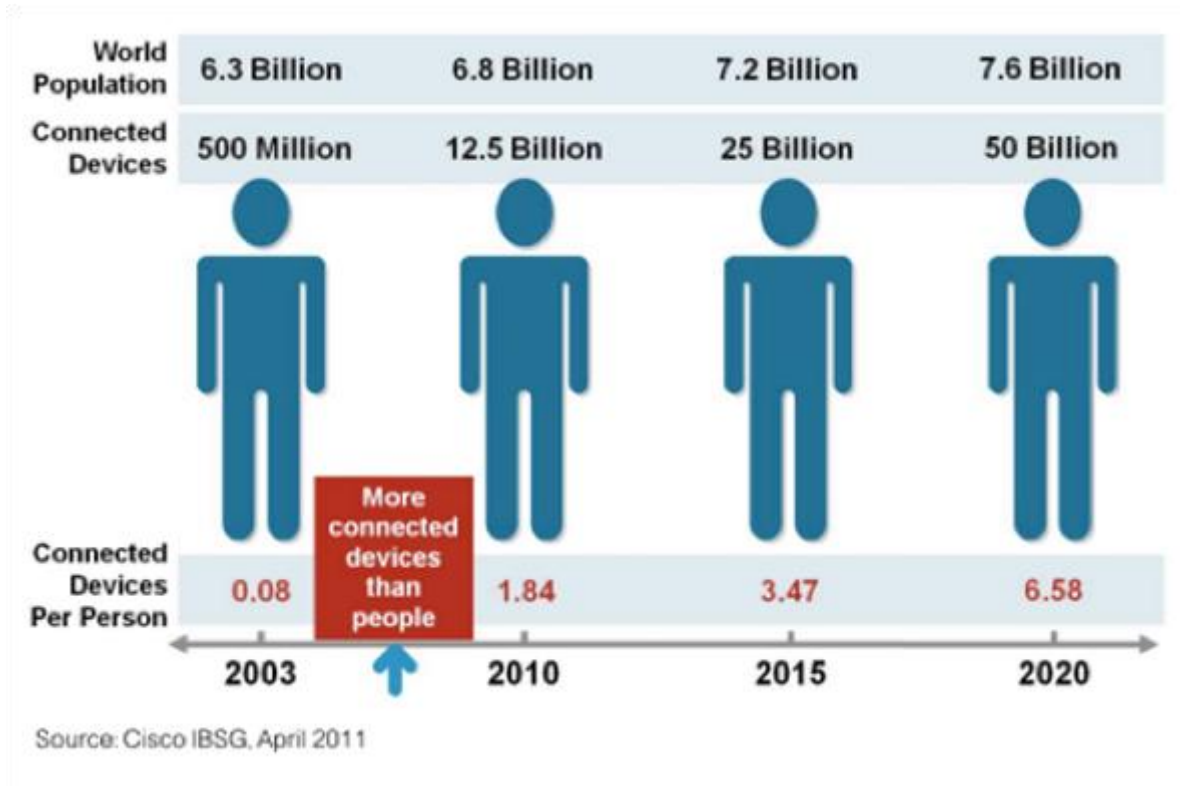
- *High vendor implementation costs
- *Bad customer experience impossible to manage all devices
- *Unclear use cases
- *Security Challenges
- *Lack of standardization prevents the creation of an interoperable solutions

- Vendor:**
- *Standardize on technology to allow plug & play experience and communication protocols
 - *Create new revenue streams by gathering usage data and automate user workflows

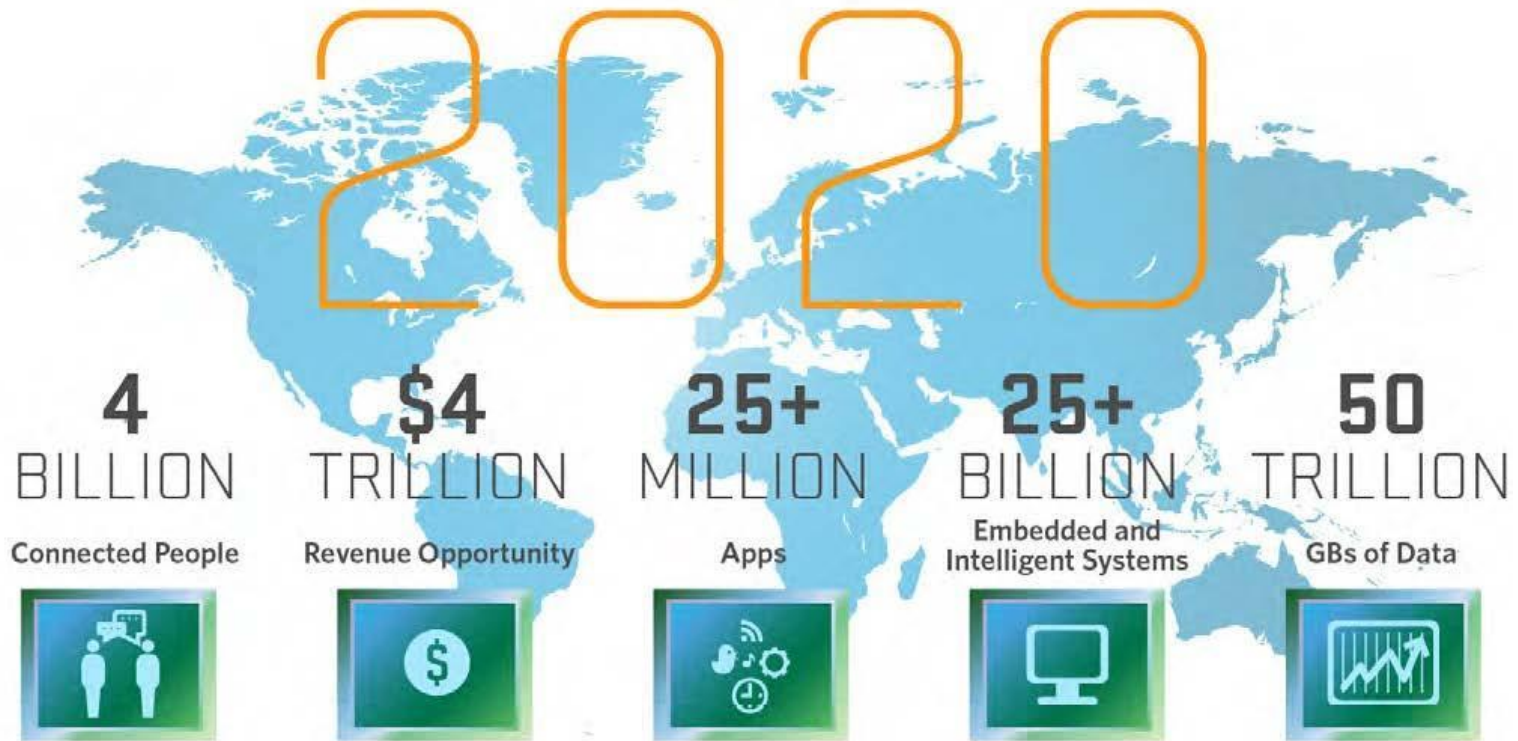
- Consumer:**
- *Build a single management console for all device.
 - *Automate maintenance and warranty policies
 - *Simplify the management of all devices

- Marketplace:**
- *Connect existing solutions to IoT devices to increase revenue and improve device experience
 - *Introduce a single place for acquiring parts and services for ALL devices

Internet Usage and Population Statistics



Internet Usage and Population Statistics



Source: Mario Morales, IDC

Consumer IoT Challenges



Images - courtesy Google

Consumer IoT Challenges (cont.)

- Consumer IoT pain points and challenges
 - **Number of apps** increases as IoT adoption progresses
 - Learn **multiple User Interfaces** / Apps.
 - Set up **security** for each device individually
 - Manage **billing/credit card** for each service
 - Devices runs in **isolation**, can't communicate with each other
 - Multiple **Analytics & Dashboards**
- Highly Competitive, Fragmented and Overlapped market
 - Gartner estimates that **2.9 billion connected** things will be in use in the consumer sector in 2015 and will reach over 13 billion in 2020
 - Consumer IoT forecast to be **~40%** of market in 2020.



Consumer IoT Innovation



Before iPhone

- Single Application Interface for IOT devices

Discover -> Configure -> Manage -> Analyze -> Maintain

Consumer Value Proposition



Pantas and Ting

Sutardja Center

for Entrepreneurship & Technology

Berkeley Engineering

Non-Users Frequently Exhibit Behaviors That Indicate Latent Demand for Connected Solutions.



51%

accidentally leave lights on.



41%

accidentally leave televisions/appliances on.



36%

wonder what's happening at home while away.



35%

leave a/c running (even when it's comfortable).



31%

can't remember if they locked doors/windows.

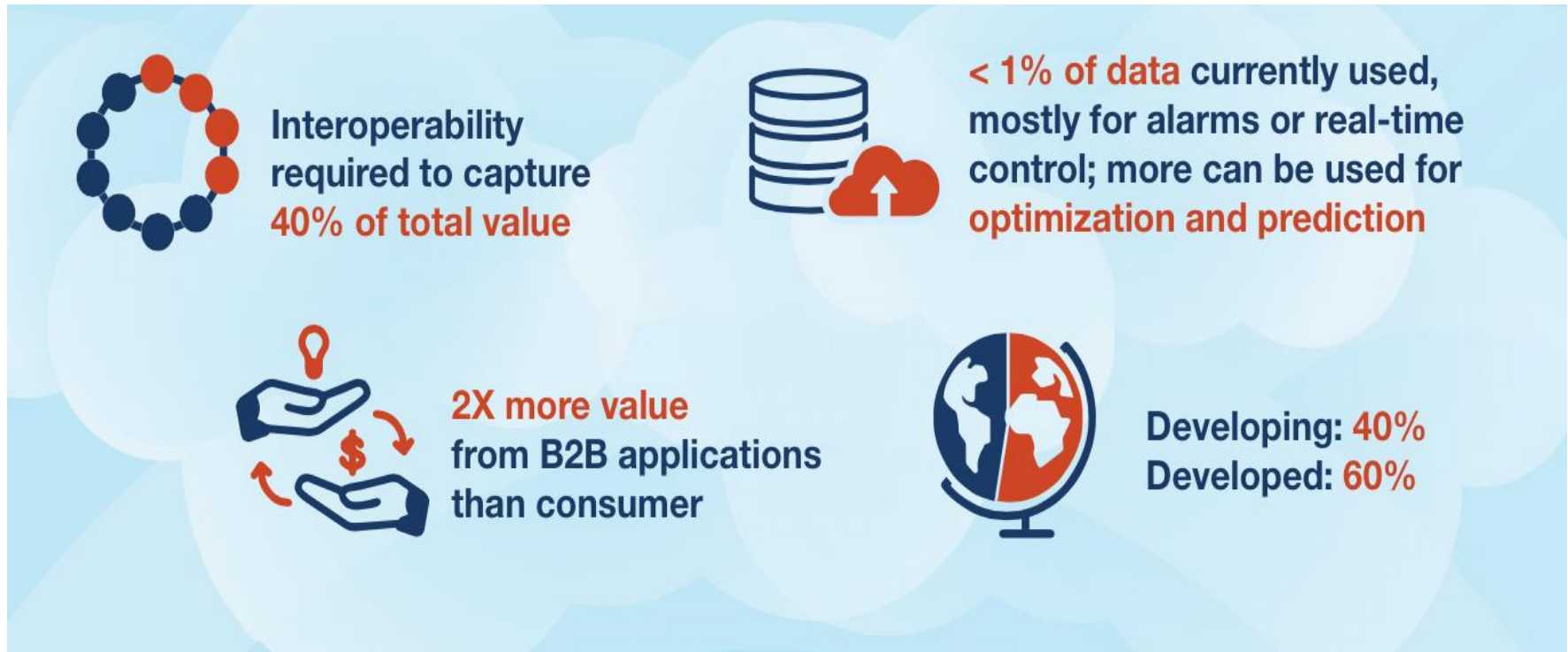
* Percent of non-users who exhibit behavior at least once a week.

Source: "Connected Home Survey," 2015, McKinsey & Company

Vendor IOT Projection



Where is the value potential?



McKinsey Global Institute - Unlocking the potential of IOT June 2015

Enablers and Barriers

Interoperability

Two or more IOT applications that need vertical or horizontal integration-
blocking 40% of potential value

Full security across entire signal path

Integrity of data must be assured- government regulations

Privacy and confidentiality

Consumer opt in / opt out- government regulations

Technology

ipV6 rollout- still ongoing vs Mesh networks

Cost effectiveness and lower power: sensors, RFID tags,
MCUs

Next Phases in IOT

Software Integrators

Bridge interoperability gaps for Complex IOT solutions

End to end platform frameworks

AWS, Verizon

Shift to software analytics solutions from hardware connectivity Phase

Most IOT sensor data collected today is not being used

Offshore oil rigs < 1%- 30K sensors

Remote monitoring plus marketplace: Anything as a Service

Future adjacent business models based on technology needs

Like Google Search, Yahoo publisher sites created during Internet Wave.

Innovation in the Marketplace

- A single place(s) where both services and parts can searched and acquired
- Majority of orders would be automated (e.g using standard APIs)
- Future marketplace would facilitate the order of a required service or replacement part from an IoT devices

$$\text{Future Marketplace} = \left(\text{Angie's list} + \text{a} \right) \times \text{Automation}$$

IoT - Business Model

- **Consumer Subscription** fees for Home Automation
 - Discover, Manage, Configure devices
 - Analytics Dashboard
 - Best Maintenance Offers
- **Vendors**
 - Charge for Bandwidth, SDK and Consumer Analytics
 - Data analysis for marketing and sales
- **Marketplace**
 - Vendors pay per transaction fees
 - Advertising

Summary

Companies adapting to the evolving IoT business models presented during the different phases of IOT evolution will generate **significant savings, increase productivity and dominate** their industry during the next 10 years