



Conversational Things: How Small Businesses Can Use the Internet of Things to Grow Smarter

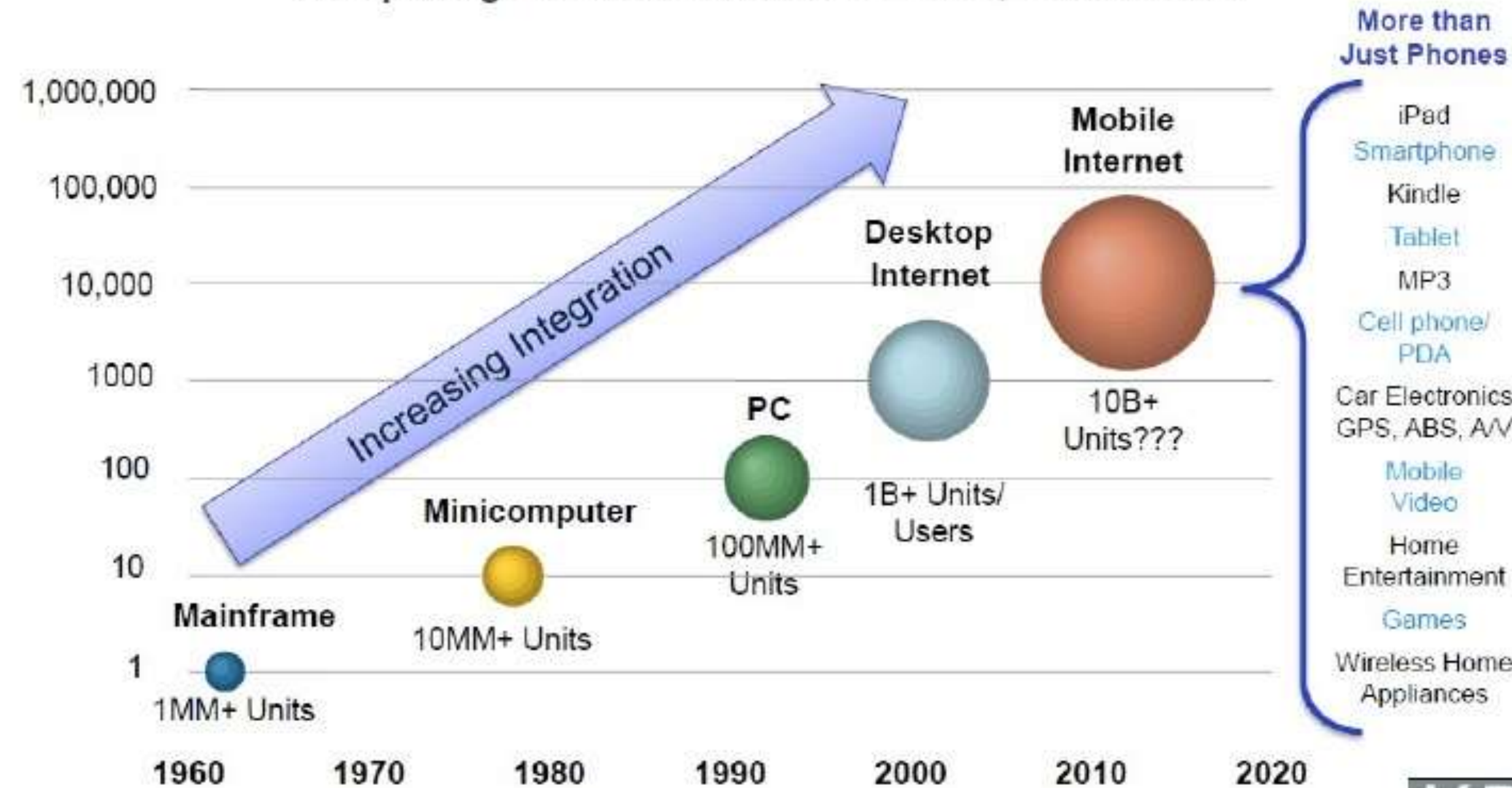
June 6th, 2016

@dhinchcliffe

We Live in Exponential Times

The rate of change is accelerating

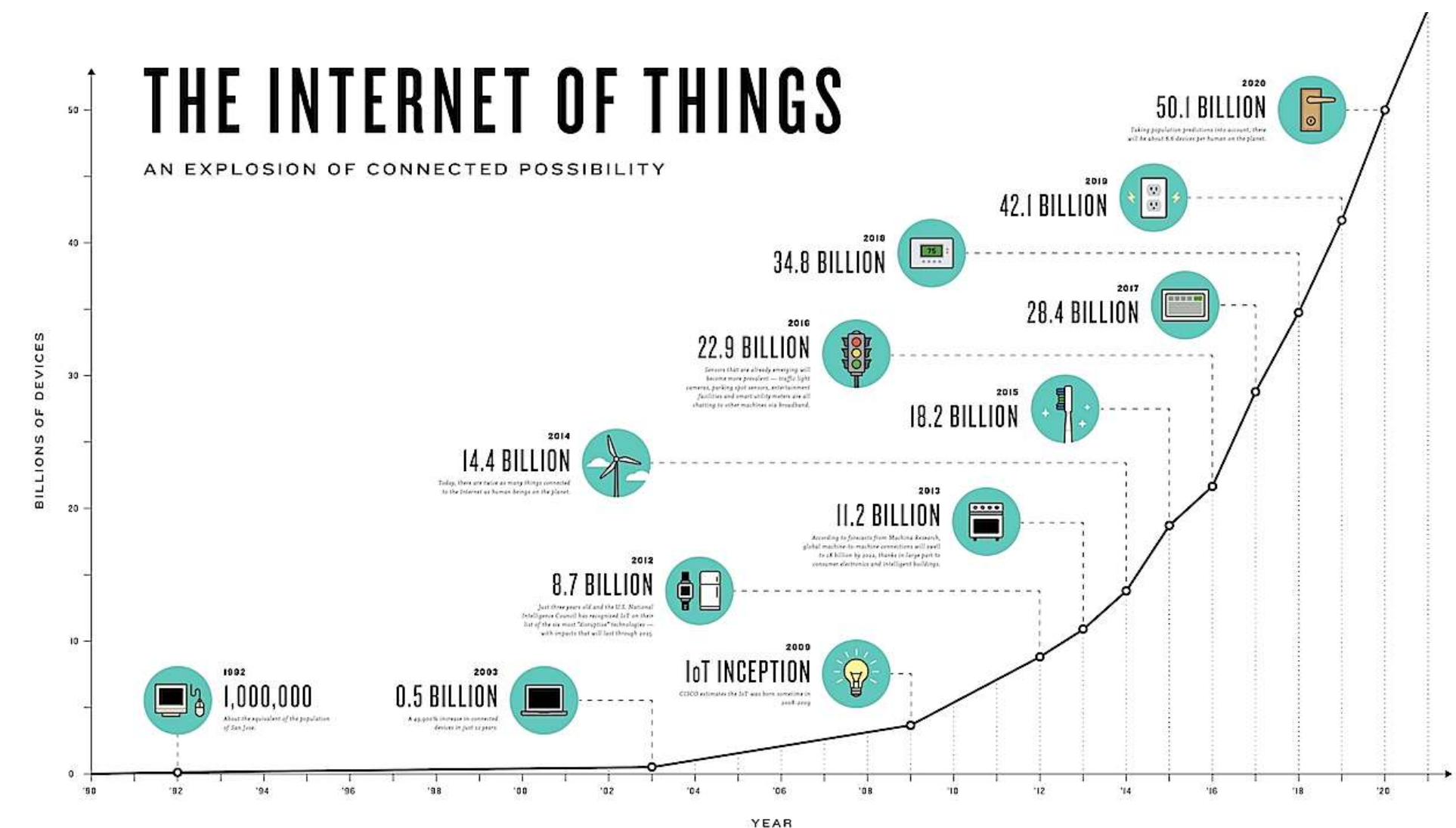
Computing Growth Drivers Over Time, 1960-2020E



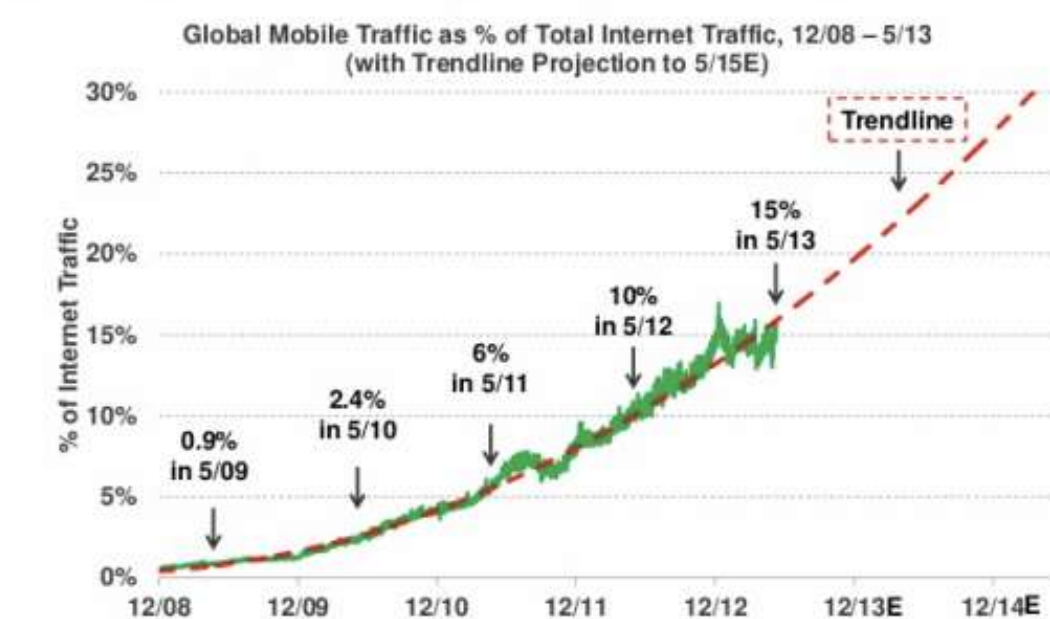
Note: PC installed base reached 100MM in 1993, cellphone/Internet users reached 1B in 2002/2005 respectively;
Source: ITU, Mark Lipacis, Morgan Stanley Research.

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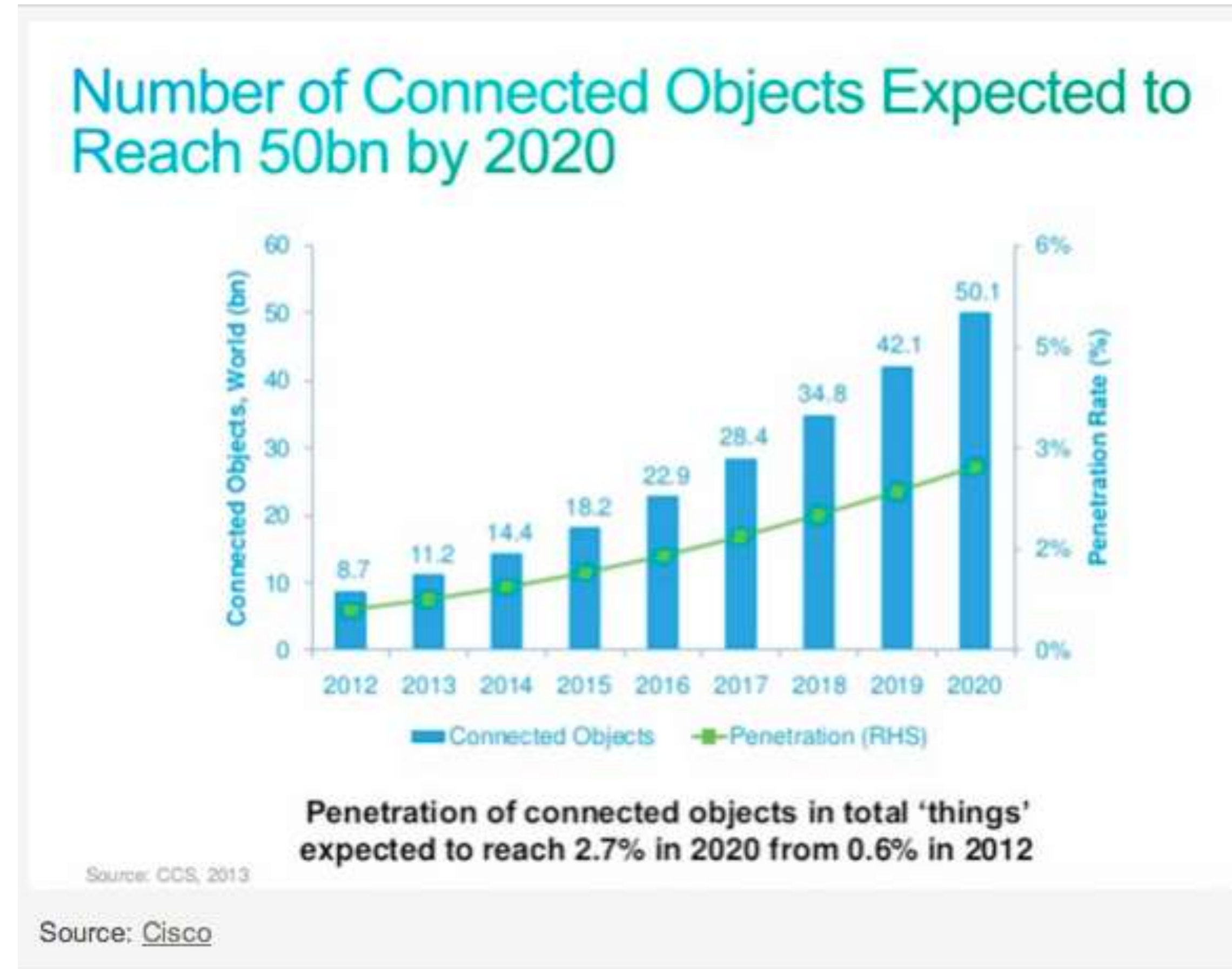


Mobile Traffic as % of Global Internet Traffic =
Growing 1.5x per Year & Likely to Maintain Trajectory or Accelerate



Mobile Traffic through 2020

Vision: Everything that can be connected will be connected



What will do your small business do with this power?

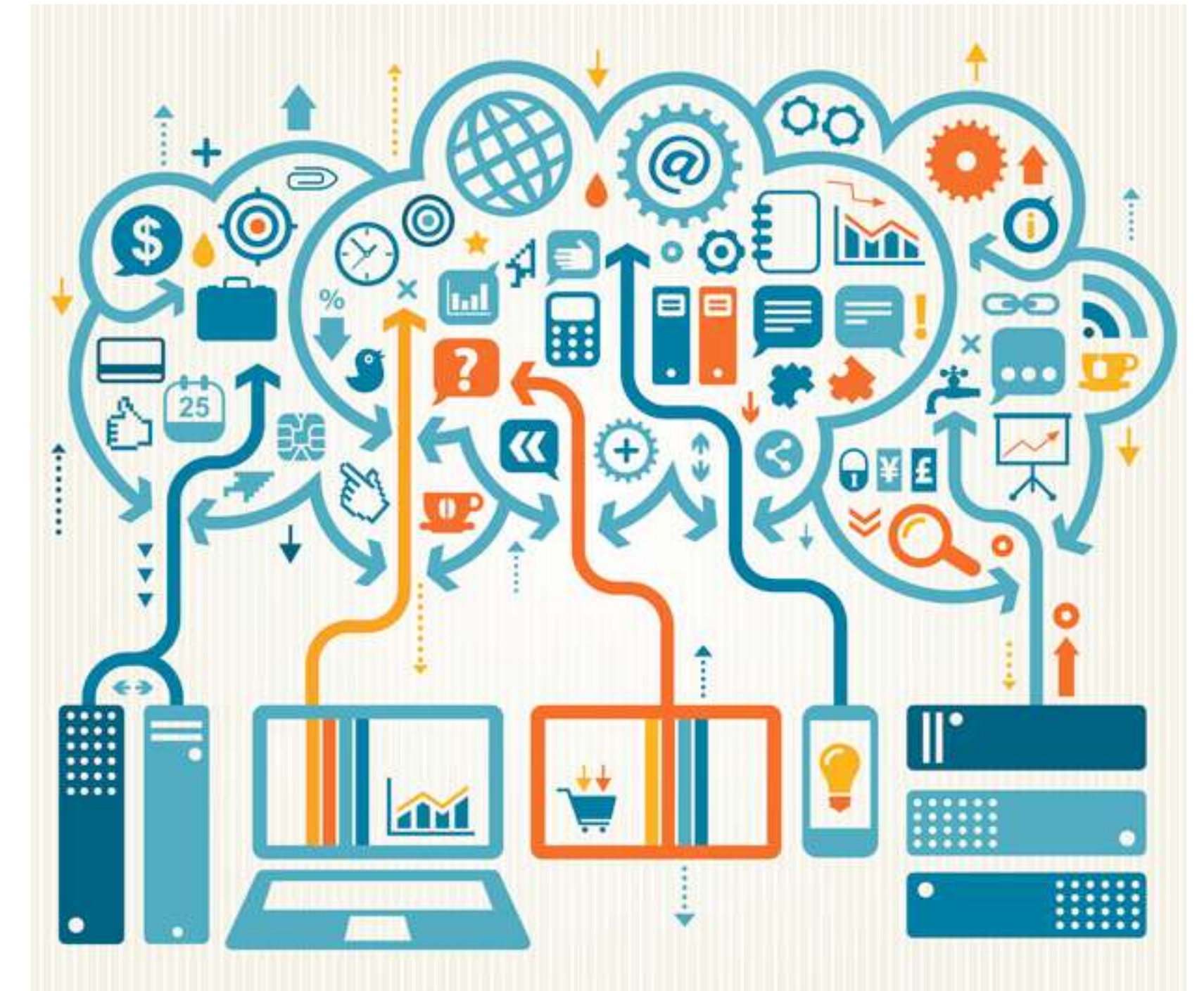
Competitive advantage today is about being connected

- The Internet of Things

- Every non-trivial (and many trivial) object is going to be connected to our networks
- 50 billion objects by 2020
- All your customers
- All their devices
- Value moves from periodic engagement to constant engagement
- Required deriving insight and analytics

- The Internet of Customers

- Connected relationships in scale
- Through all devices and channels
- Enabled by platforms and applications
 - That orchestrate, analyze, and provide insight



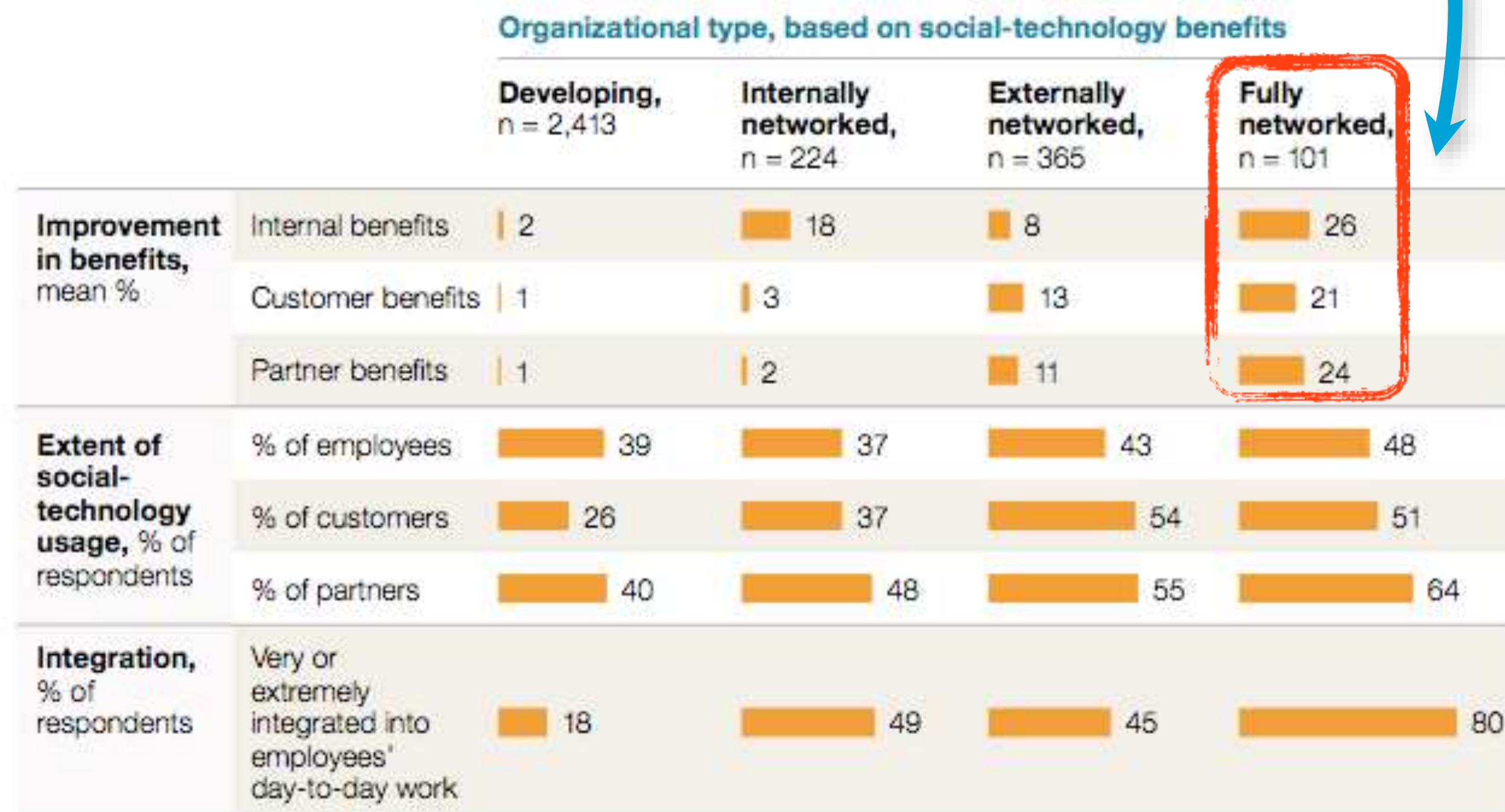
The Motivation for IoT is the Opportunity

- **Your small business is connected to all 2.5B connected people in the world 24 hours a day through their devices and digital touchpoints**
 - What will you do with this historic opportunity?
 - While there is still first mover advantage
- **They generate visible data continuously**
 - On social media
 - From their mobile devices
 - From applications
 - From everything connected
- **This will enable you to make unprecedented insights in real-time.**
- **To drive high impact results and create new business opportunities**



We've learned that digitally networked organizations get outsized benefits

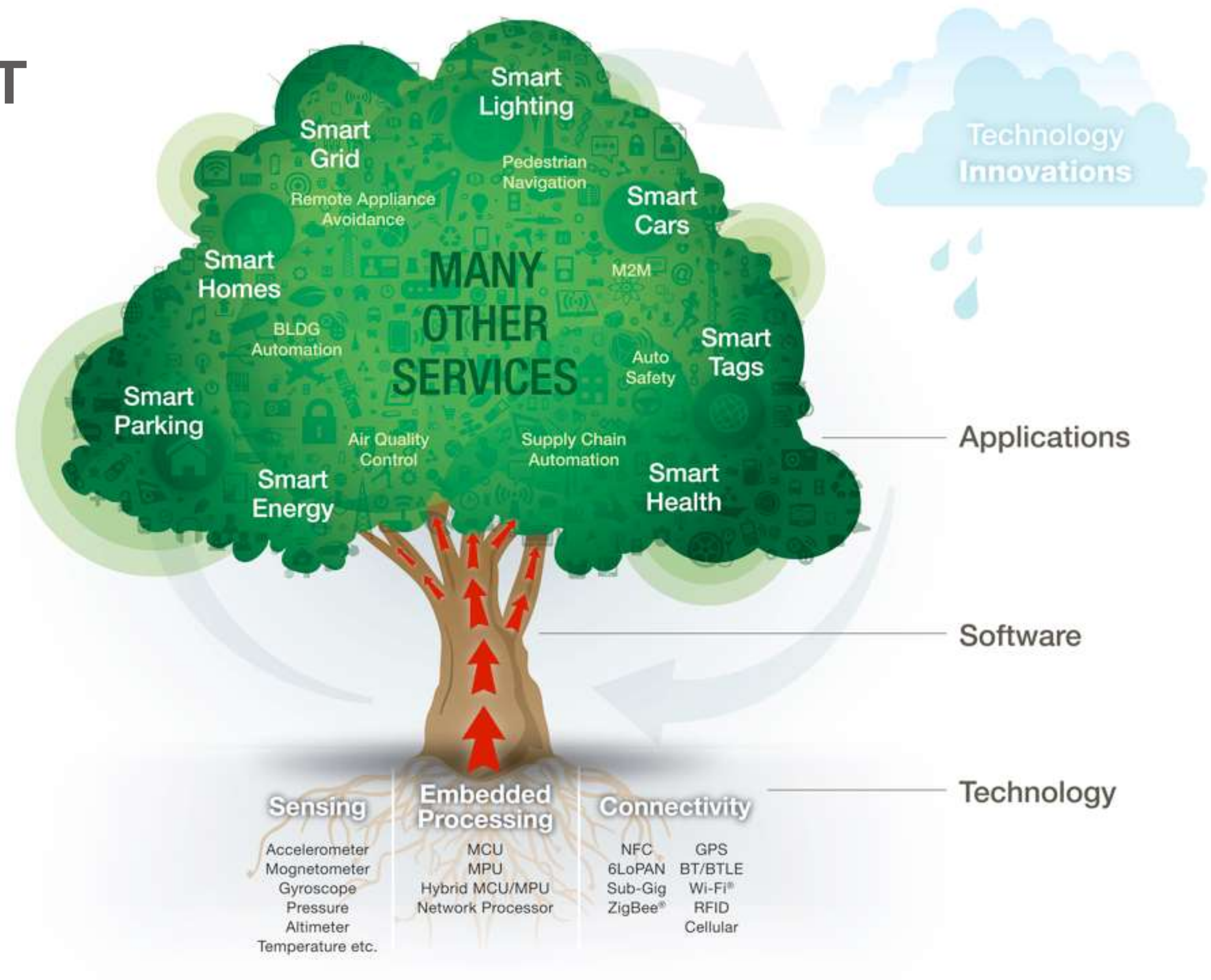
Tracking the four types of organizations



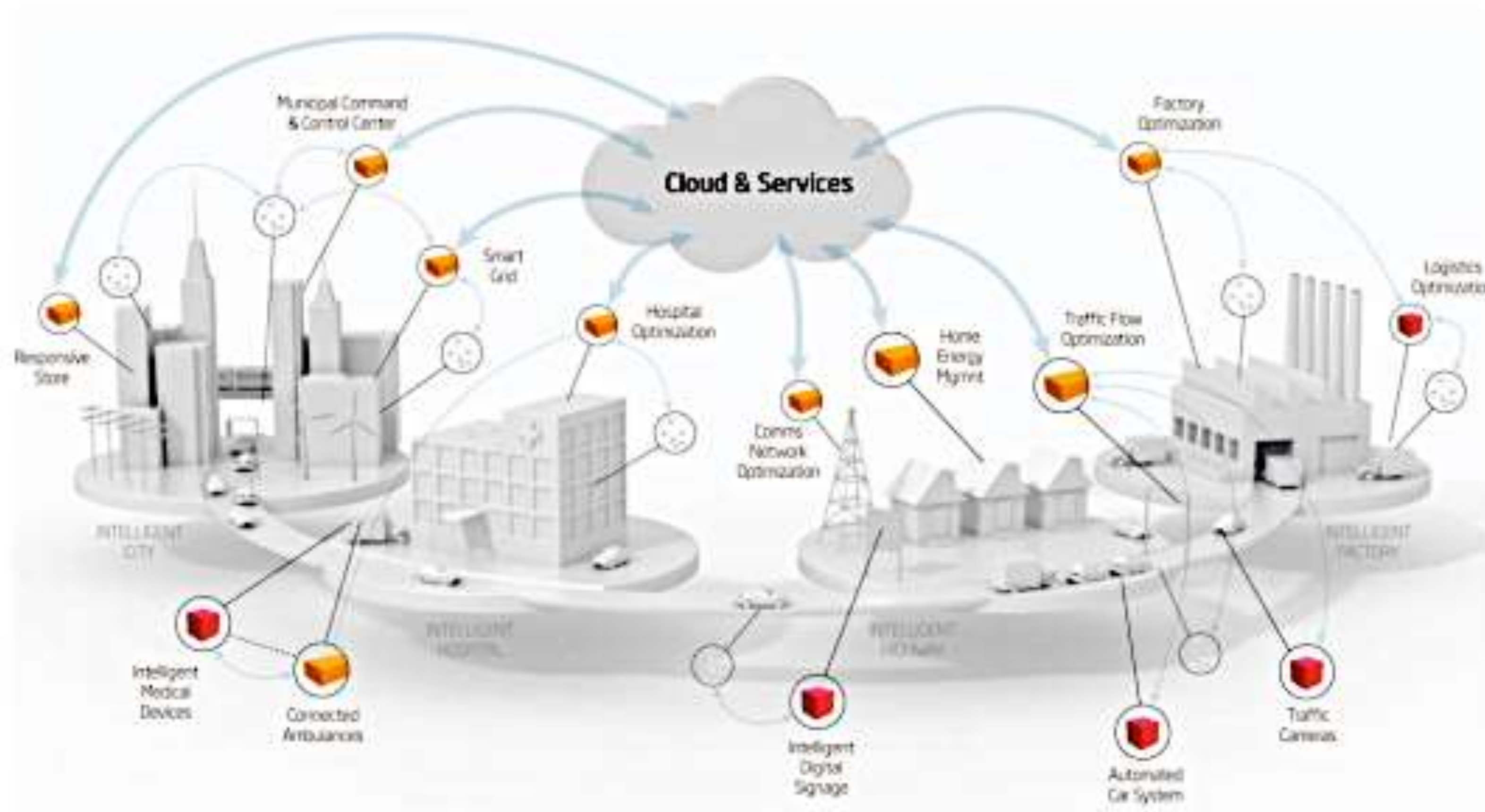
**25% average
improvement
in small
business
outcomes**

Source: McKinsey Network Technology Survey (3,000 firms)

The Major Types of IoT

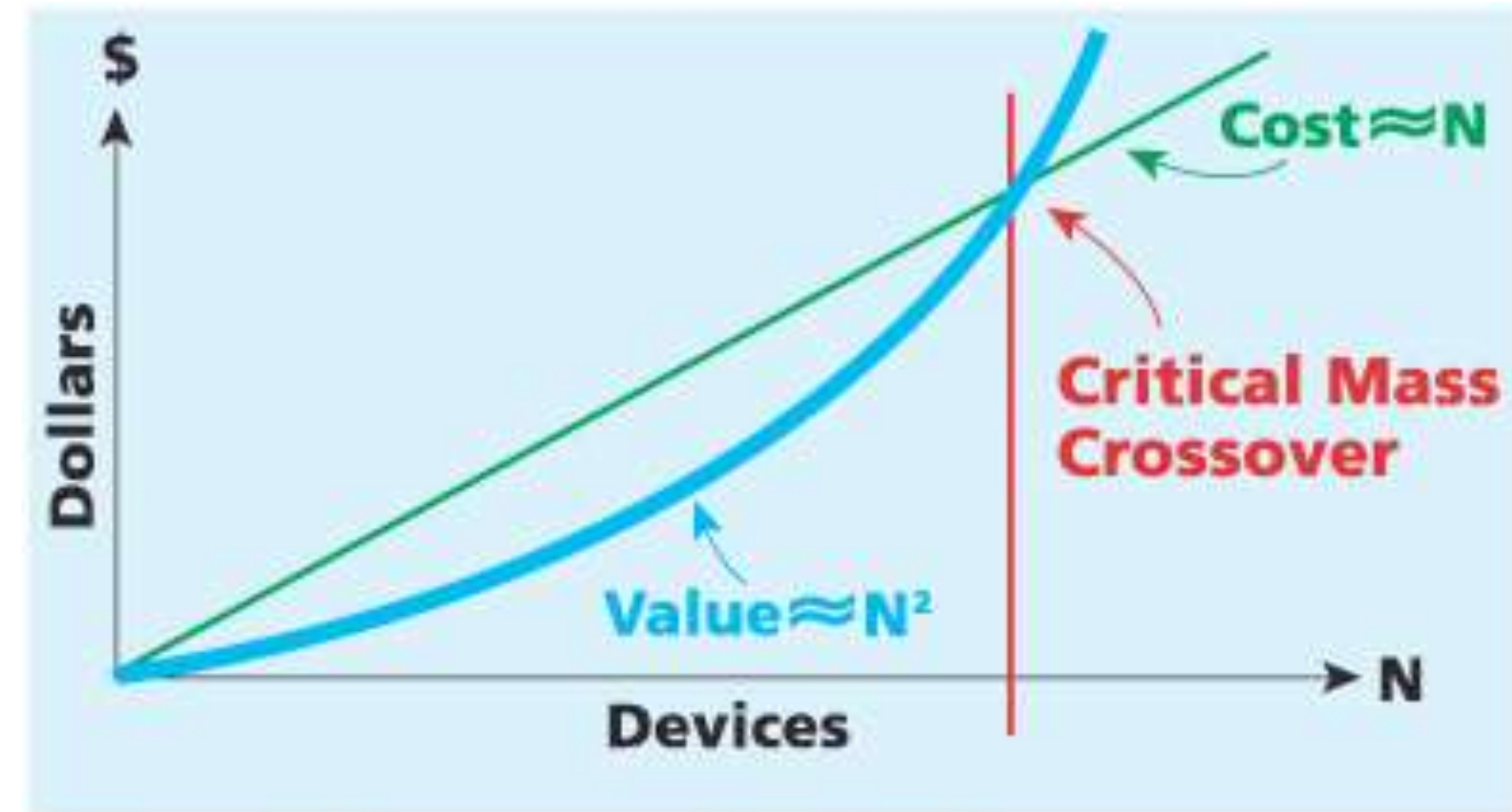


Internet of Things has begun to run our cities, businesses, and homes



Network effects still the strategy, but IoT revolutionizes the game

- Network effects have long become the new 'digital marketshare'
- **Definition:** Anything that has value the more than other people have it too
- Value is based on an exponential growth curve
- Is a force multiplier
 - But more importantly a zero sum game
- The Internet of Things is going to shift the networked value conversation two orders of magnitudes to the right

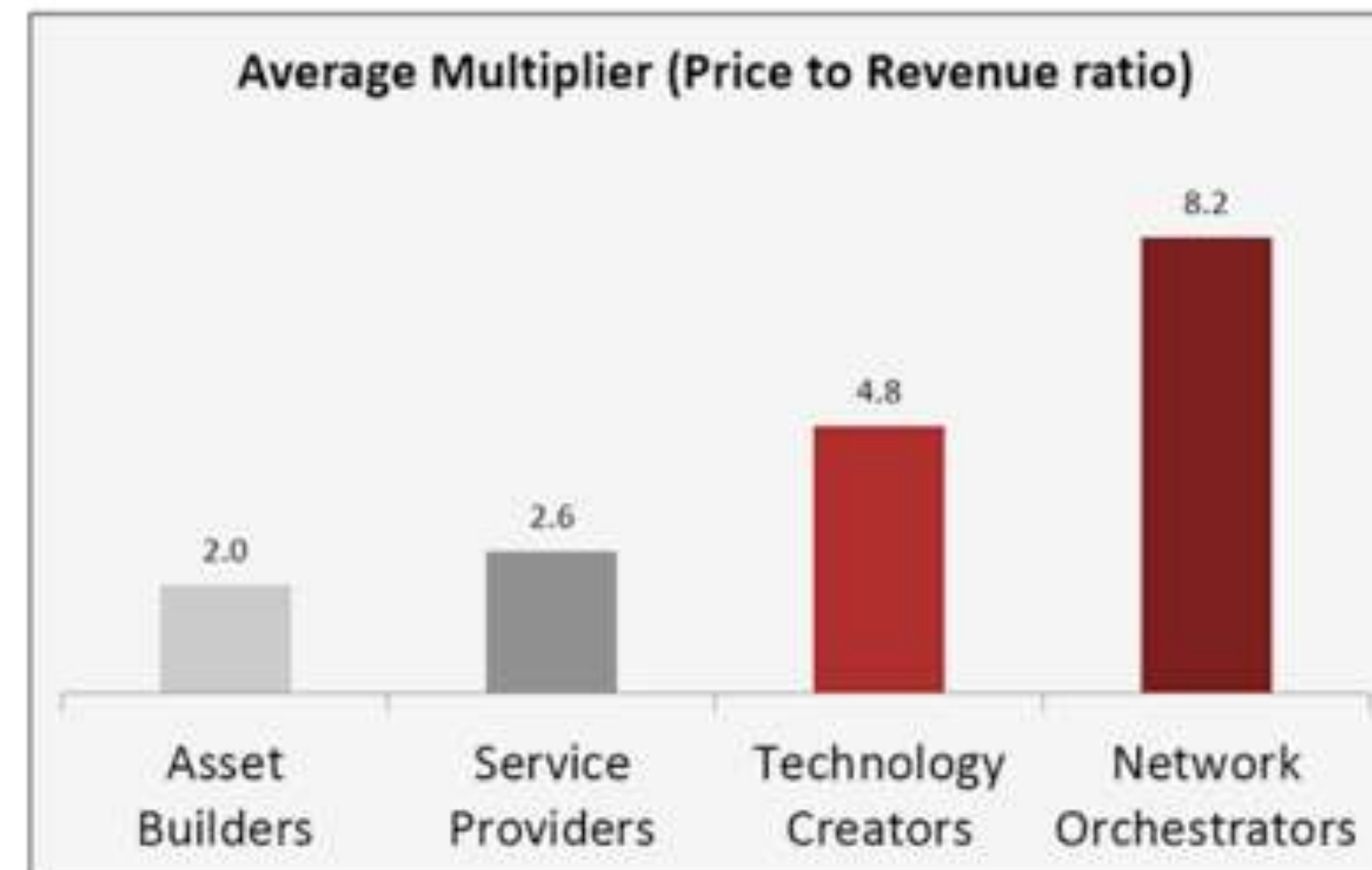


The Network Effect

Originally conceived as a way to sell more Ethernet cards, Metcalfe's Law postulates that the value of a network is proportional to the square of the number of users. In this essay the author wonders whether his law applies to other networks—namely, neurons in the human brain and transistors in supercomputers.

The Future Belongs to the Network Orchestrators of Devices

Technology Creators and Network Operators generate significant enterprise value premiums



Note: Based on analysis of the S&P 500 companies
Source: Data pulled from Capital IQ database in October 2013; Revenue is prior 12 months

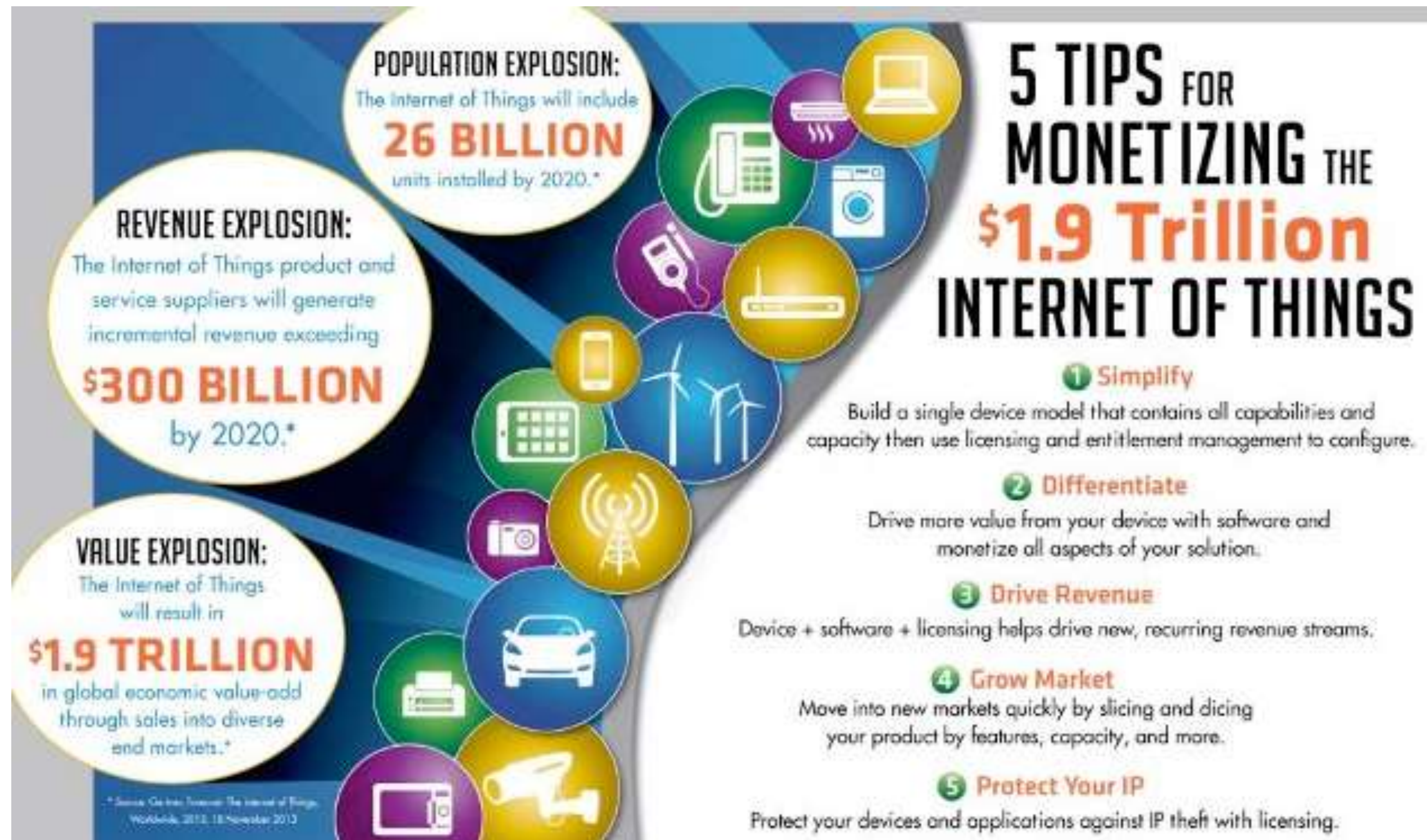


Why IoT is different than previous connected strategies

- Recent ubiquity
- A way to stay truly connected to customers 24/7
- Standardization is here
- Protocols and hubs that can support the numbers of devices
- Far richer sensor data
- Much lower cost floors
- Small and lower power devices
- Advent of wearables and embeddables
 - Smart everything



How to turn the IoT into a real business for your small business



Source: Flexera

How to capture the strategic value with IoT

THE INTERNET OF THINGS REQUIRES A MINDSET SHIFT

Because you'll create and capture value differently.

		TRADITIONAL PRODUCT MINDSET	INTERNET OF THINGS MINDSET
VALUE CREATION	Customer needs	Solve for existing needs and lifestyle in a reactive manner	Address real-time and emergent needs in a predictive manner
	Offering	Stand alone product that becomes obsolete over time	Product refreshes through over-the-air updates and has synergy value
	Role of data	Single point data is used for future product requirements	Information convergence creates the experience for current products and enables services
VALUE CAPTURE	Path to profit	Sell the next product or device	Enable recurring revenue
	Control points	Potentially includes commodity advantages, IP ownership, & brand	Adds personalization and context; network effects between products
	Capability development	Leverage core competencies, existing resources & processes	Understand how other ecosystem partners make money

SOURCE SMART DESIGN

HBR.ORG

The (conservative) IoT business case

Internet of Things: What If, We Deliver a 1% Improvement?

Industry	Segment	Type of Savings	Estimated Value Over 15 Years (Billion nominal USD)
Aviation	Commercial	1% fuel savings	\$30B
Power	Gas-fired Generation	1% fuel savings	\$66B
Healthcare	System-wide	1% Reduction in System Inefficiency	\$63B
Rail	Freight	1% Reduction in System Inefficiency	\$27B
Oil & Gas	Exploration & Development	1% Reduction in Capital Expenditures	\$90B
Total			\$276B

Source: "Industrial Internet: Pushing the Boundaries of Minds and Machines," GE, November 26, 2012

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Representative Examples of Internet of Things for Small Businesses

- 12 key examples of Internet of Things
 - in the consumer and business world that show the possibilities for small businesses
- Many of which you've probably not heard
 - Well beyond Nest, Fitbit, Dropcam, Belkin Wemo, Withings scale
- And which will project an all new volume of data
 - The device proliferation will require handling dynamic data types



Delphi Connect

- A connected way of keeping in touch with your car, allowing remote control of automobile features and the ability to perform diagnostics



Sen.se Mother

- Sense Mother is at the head of a family of small connected sensors that blend into your daily life to make it serene, healthy and pleasurable
- Used by small, boutique hotels



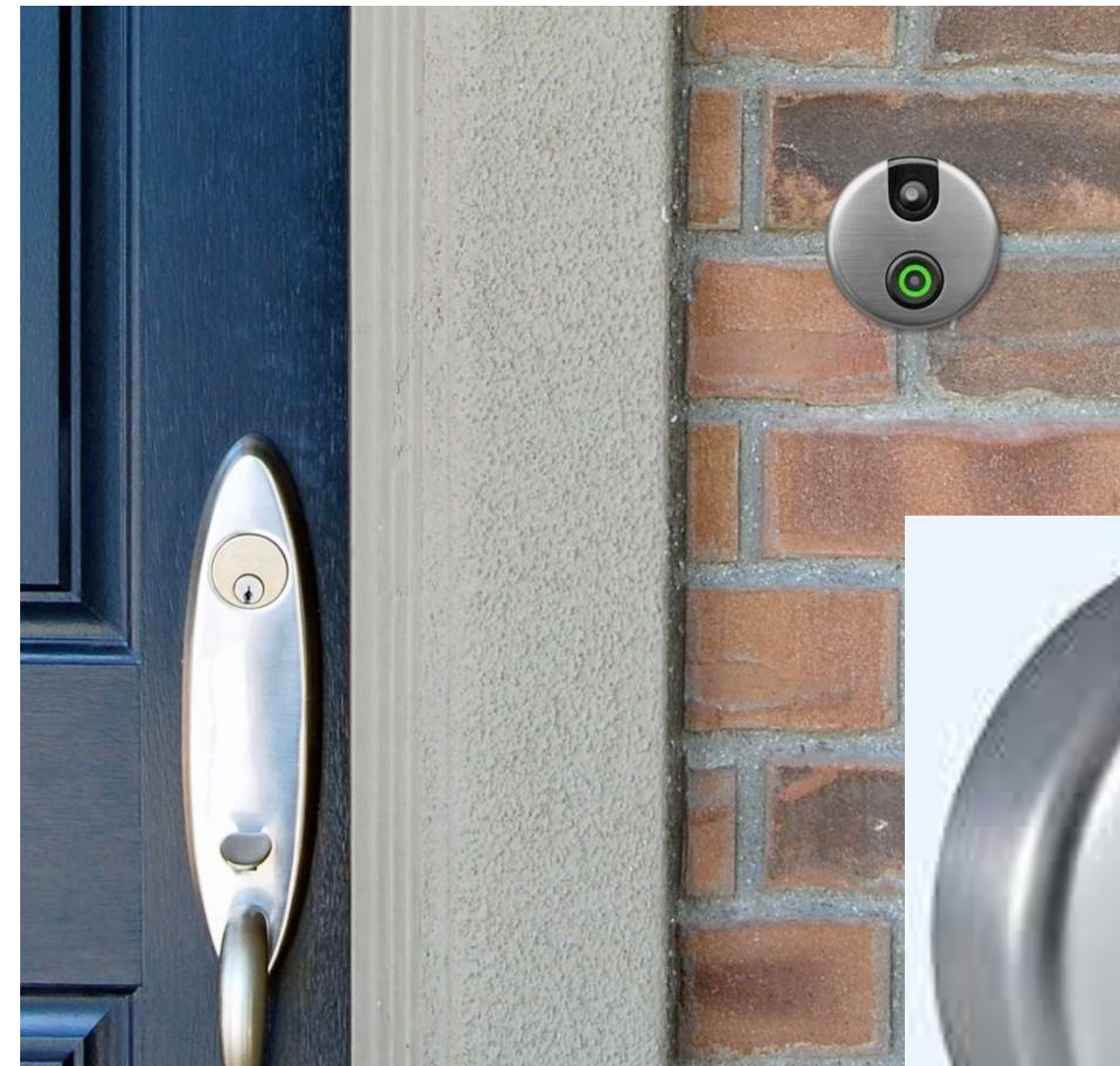
Trakdot

- A connected device to continuously keep track of your luggage anywhere in the world
- Uses networks of opportunity in 180+ countries
- Useful for small logistics services or companies that ship a lot of high value items to create their own tracking network



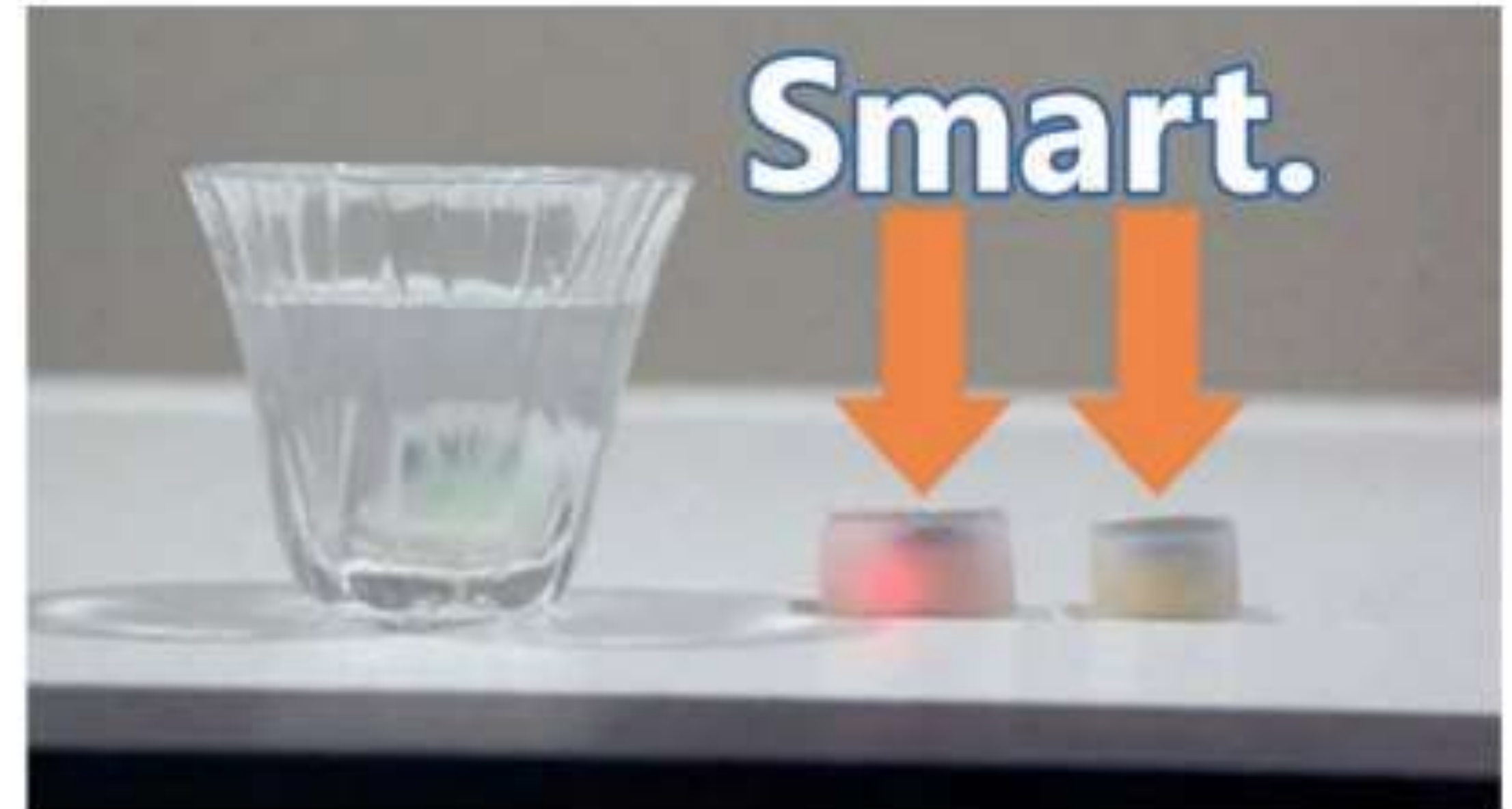
Skybell

- SkyBell is a smart WiFi doorbell with video camera, speaker, microphone and motion sensor. See, Hear and Speak with your visitor from iOS and Android and provide access if appropriate
- Useful for small business property managers to screen visitors and provide access to properties



Smart Ice Cubes

- Digital ice cubes which pulse to the beat of the music
- But also monitor your drinking
 - How much
 - How fast
- Useful for small bars and restaurants for those that want to offer unique, cutting edge experiences



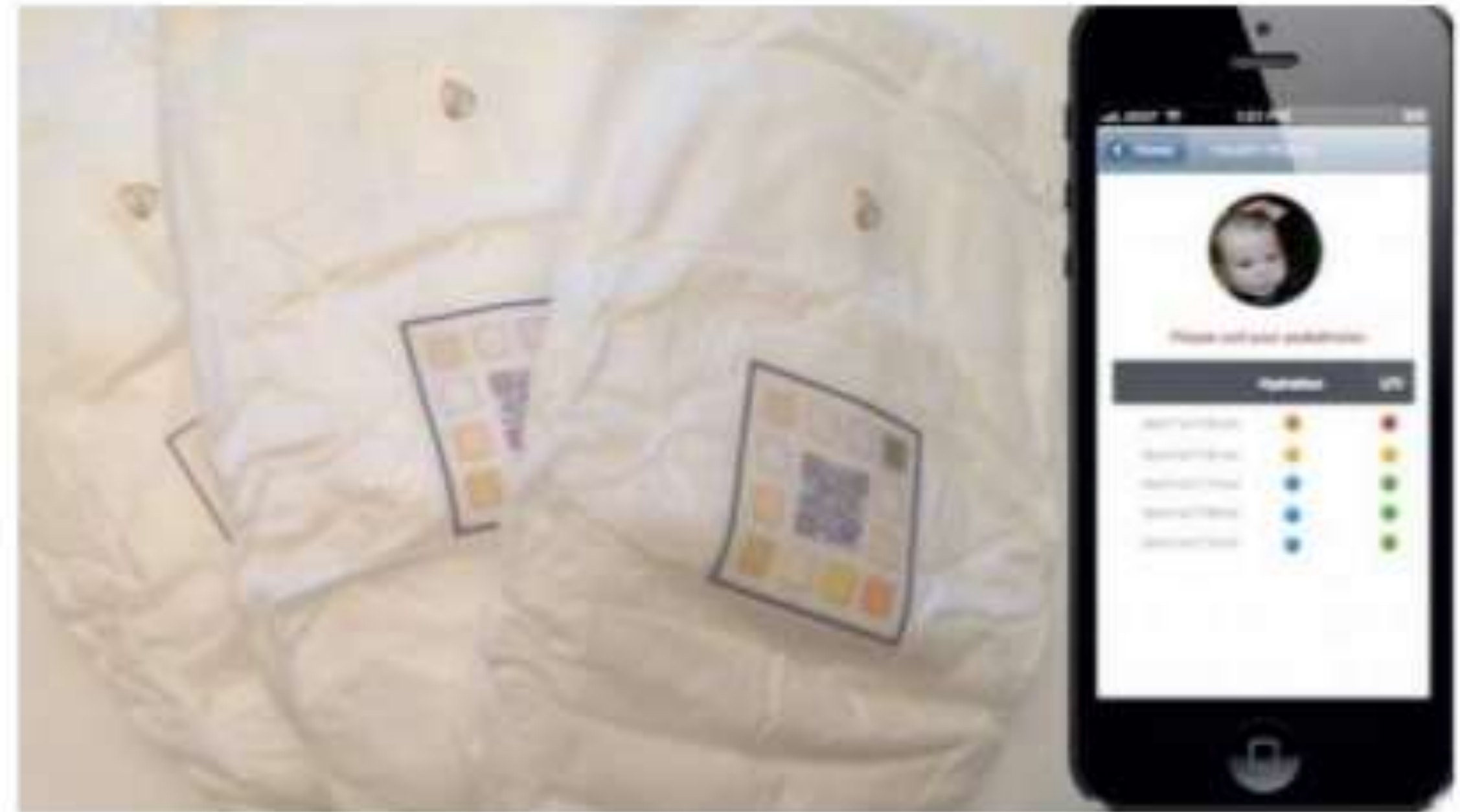
Bikn (*beacon*)

- Tiny electronic tags you can attach to any of your devices and then locate them through your phone's GPS
- Useful for small businesses to track important items for their staff in their hotels, stores, and other properties



Smart Diapers

- Disposable digital diapers with built-in sensors that parents can use to track
- And pediatricians can use to track baby health
- Useful for small health care offices to help mothers that have babies with related issues



Telcare's Smart Diabetes Monitor

Glucose Monitoring

A cellular-powered glucose meter transmits each test result to a secure server and provides instant feedback and coaching to patients. This equips doctors, nurses, diabetes educators with real-time clinical data.



The image shows a Telcare Smart Diabetes Monitor device and a smartphone displaying the associated app. The device screen displays a glucose reading of 118 mg/dL, a color-coded bar graph, and a status message: 'Data sent successfully. Your before breakfast Avg is 107 mg/dL'. The smartphone screen shows a detailed glucose log with a line graph and various data points.

<http://www.telcare.com/>

Source: Vala Afshar

Quirky's Smart Propane Tank



Source: Vala Afshar

Lono's Smart Sprinkler Control System



Source: Vala Afshar

BigBelly's Smart Garbage Container and Management System



Smart Dust

- A new formal standard for micro and nano-scale IoT objects
- Contains sensors (temperature, humidity, location, video, audio, etc.)
- Can transmit low power streams of data
- Can be used to instrument just about anything
- Nano-pollution will be an issue
- Will generate trillions of continuous data streams



The Existential IoT Challenge

June 6th, 2016

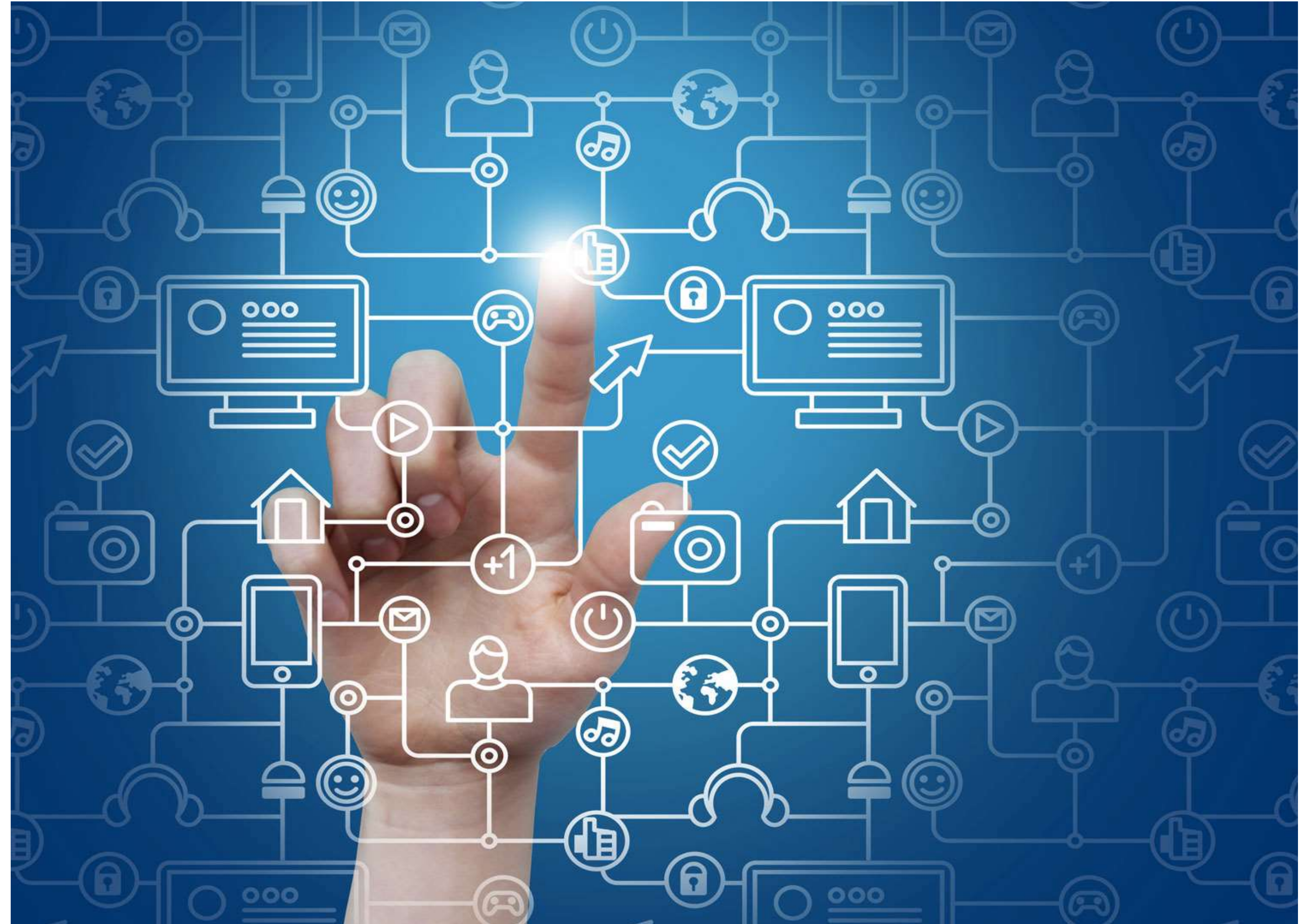
IoT's Proliferation Quandary




How Can We Possibly Interact with, Monitor, and Control All These Devices?

Without Solving This, IoT is Trapped in an Engagement Paradox

- The more IoT devices we have, the less they will be used
- And therefore the less that they will be in demand
- How can we:
 - Make them more accessible?
 - More easily monitor them?
 - Control them en masse
 - In other words:
 - **How can we reduce friction of engaging with IoT devices to zero whenever possible?**



Simple Control from Well Known Platforms: Apple Has a Strategy for IoT


 **Developer**


Platforms


Resources

Program

Support

 Account





HomeKit

HomeKit is a framework for communicating with and controlling connected accessories in a user's home. You can enable users to discover HomeKit accessories in their home and configure them, or you can create actions to control those devices. Users can group actions together and trigger them using Siri.

App Developers

If your iOS app is primarily designed to provide home configuration or home automation services such as turning on a light or opening a garage door, learn more about the HomeKit APIs used for communicating with HomeKit accessories.

Hardware Developers

If you're interested in creating a HomeKit-enabled hardware accessory, you need to be an MFi licensee to access the resources for manufacturing hardware that integrates HomeKit technology. MFi licensees receive:

Showing us one possible — and better — future of IoT engagement



“Hey Siri, please turn on the lights at the office, set the thermostat to 72, and start our delivery van with the AC on.”

Turning engagement with 3 IoT apps and several dozen taps into a single sentence

Now We Might Have an IoT that is Actually Usable in Scale

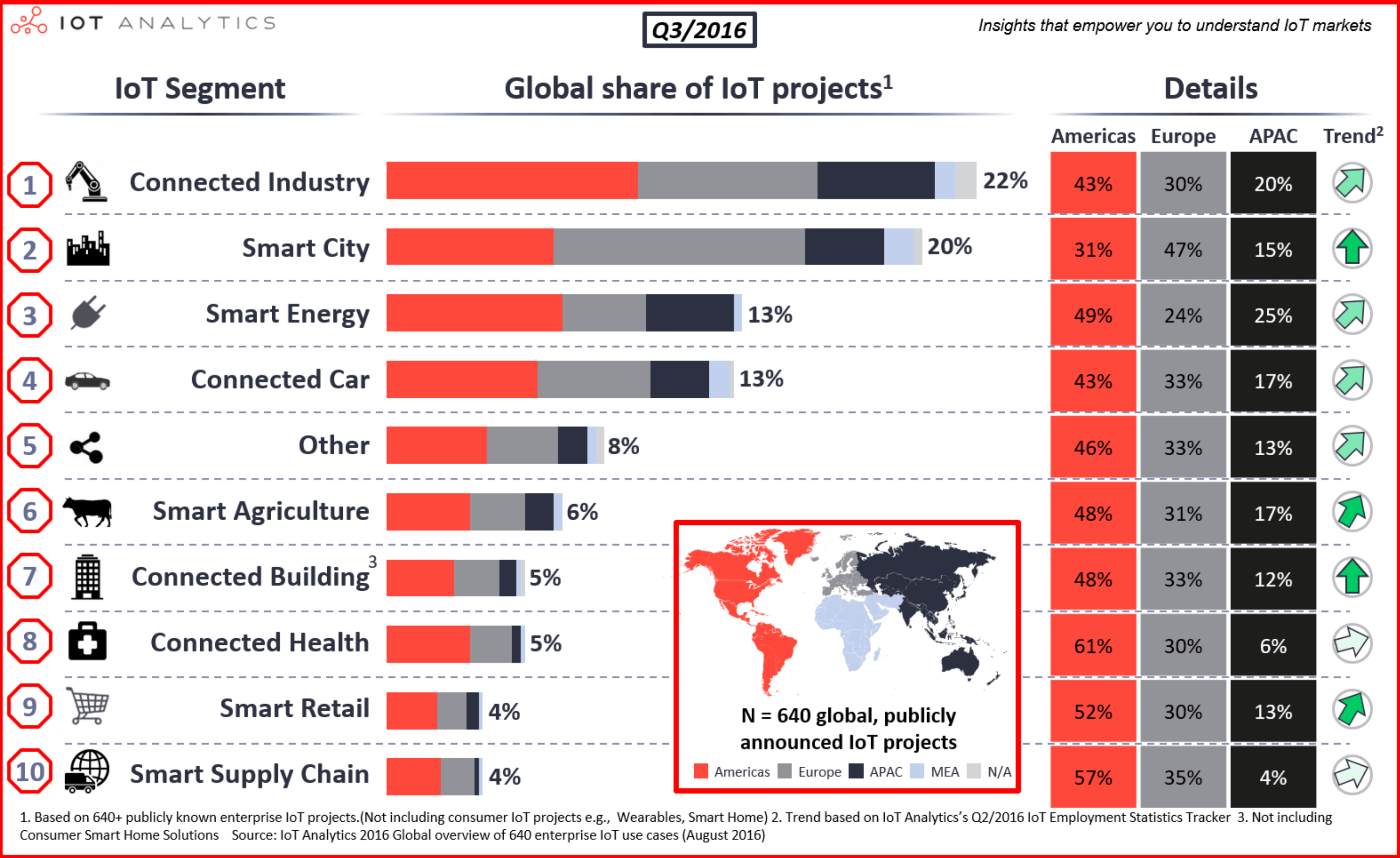


Because the IoT apps are going to keep coming...



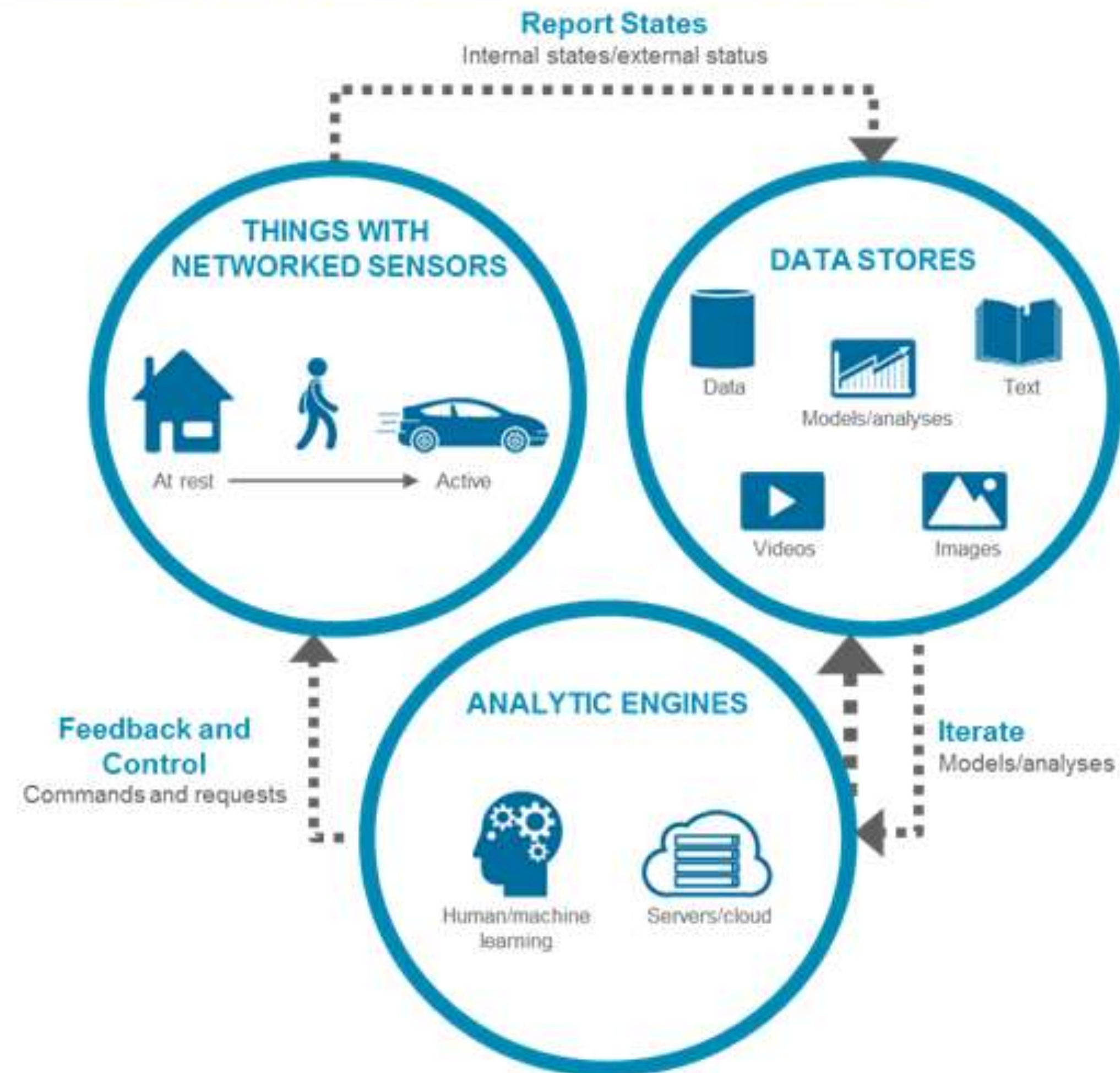
And coming...

Where IoT Will Be Most Significant for Businesses Large and Small



Helping Customers Automatically is the End State for Most Small Business IoT

Interaction Between the Three Components of the Internet of Things



The Business Case

Why Are IoT Analytics Important?

1% savings from efficient Industrial Internet solutions could save billions in operational costs

\$30B

fuel cost saving
in aviation
industry



\$66B

fuel cost saving
in gas powered
fleets



\$63B

productivity
improvement in
healthcare



\$90B

reduction in
Cap X in oil & gas
exploration and
development



\$27B

productivity
improvement in
rail industry



Small Businesses Need an Straightforward IoT Strategy



- IoT will instrument your business and supply chain
- But newer platforms are likely to have better analytics support and roadmap
- Benefits are strategic to the business for customer experience and competitive data analytics
- Don't wait for standards to emerge, experiment proactively with emerging IoT solutions for small business

A person in a dark jacket is seen from behind, looking out over a calm lake. The lake reflects the sky and the surrounding mountains. The sky is filled with large, dark clouds, and the mountains in the background are partially covered in snow. The overall scene is serene and majestic.

Thank You

June 6th, 2016