Dawn Ahukanna “It’s Cognitive”

IBM

Dawn Ahukanna

Design Lead & Front-End Architect
Watson Internet of Things (IoT)

IBM Design UK

IBM Design

IBM **Design Thinking**

Human-centered outcomes at speed and scale

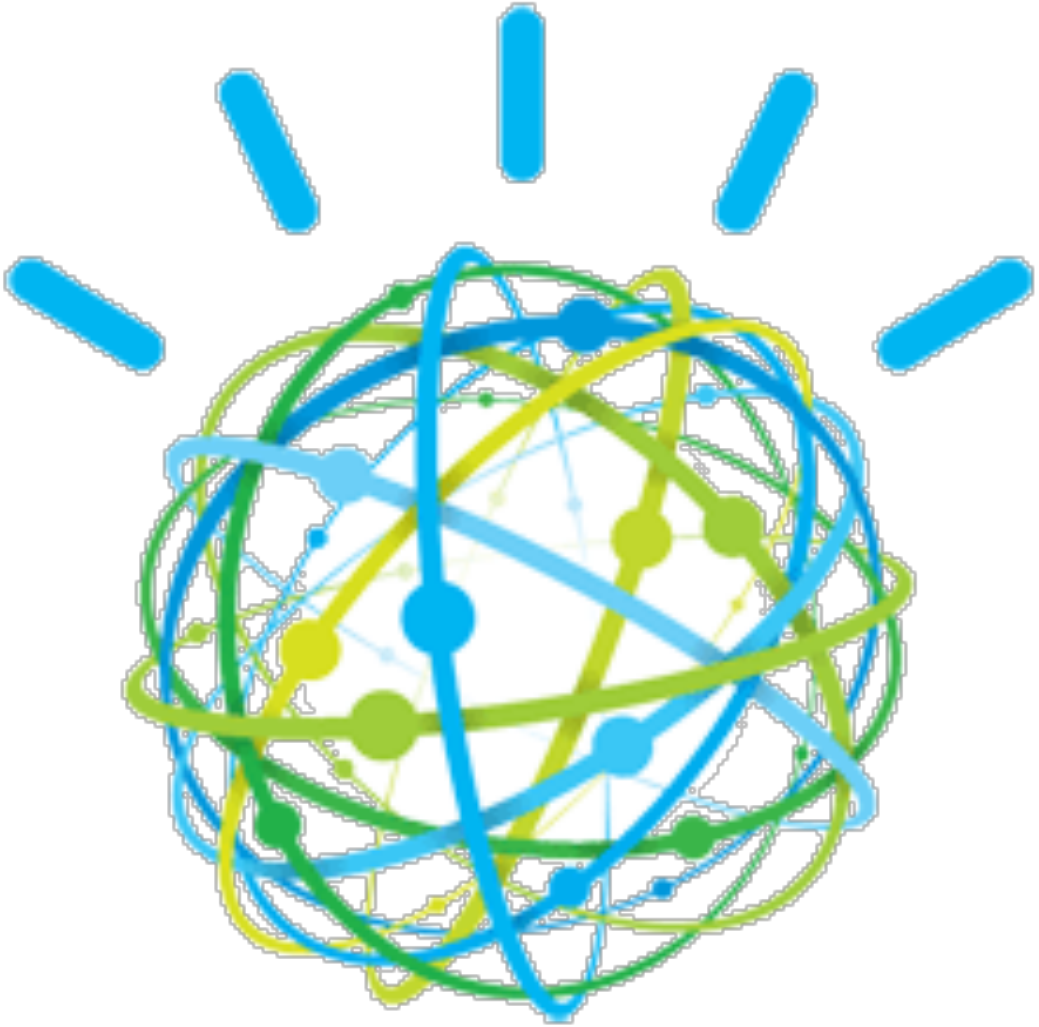
“The mission of IBM Design is to create a sustainable culture of design at IBM.”

— Phil Gilbert, GM IBM Design

Topics

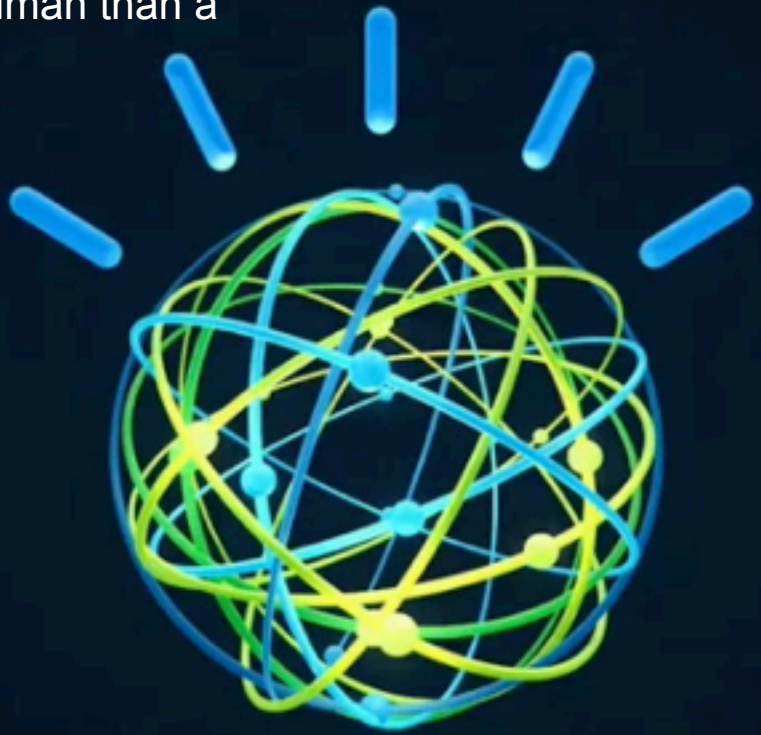
Watson	Watson IoT	Bluemix and Node-RED
– Cognitive System, augmenting human cognition	– Device and sensor connections and data, augmenting existing human senses.	– Augmentation enabler – Connects sensors, devices and gateways to IoT platform
– IoT Brain	– IoT Nervous system	– IoT Senses

Watson



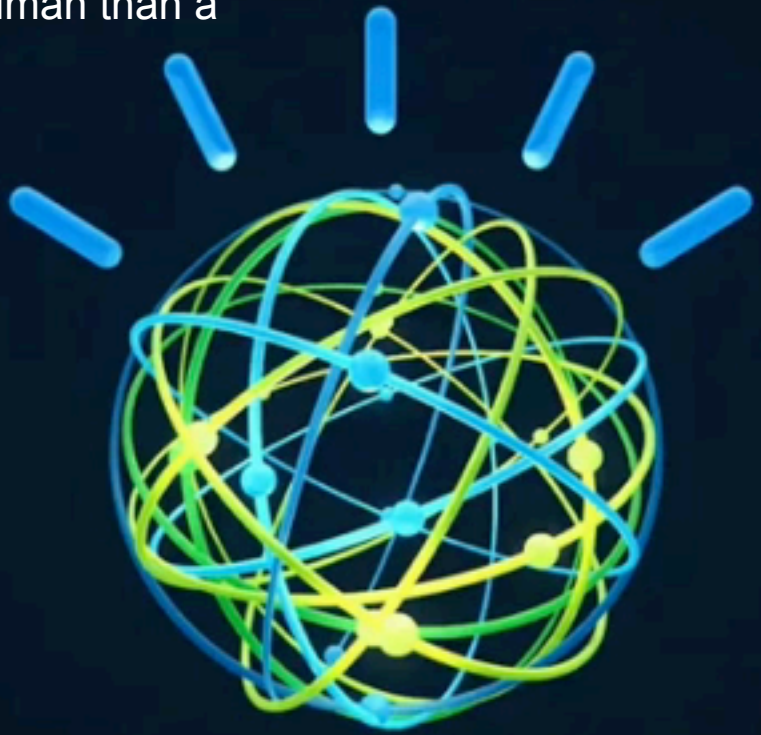
IBM Watson

… is a cognitive technology that processes information more like a human than a computer.



IBM Watson

… is a cognitive technology that processes information more like a human than a computer.



COG · NI · TIVE / käg-nə-tiv

(adjective): of, relating to or involving conscious mental activities (such as thinking, understanding, learning and remembering)

Why do we need “Cognitive Systems”?

We (humans) can’t adapt fast enough to keep up with the world we are creating.

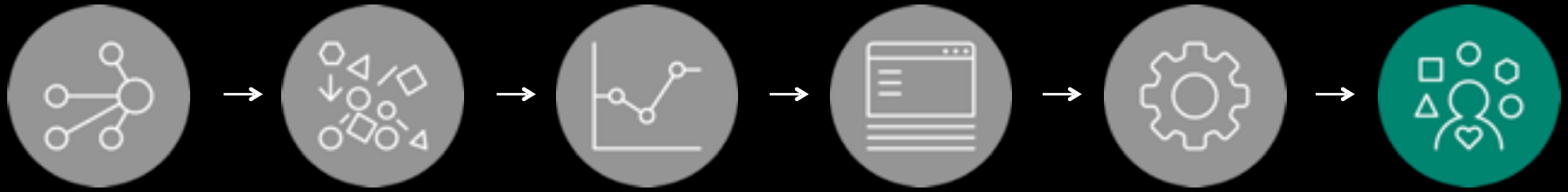
“Sensory overload is like watching and listening to 19 TV channels …

at the same time.”

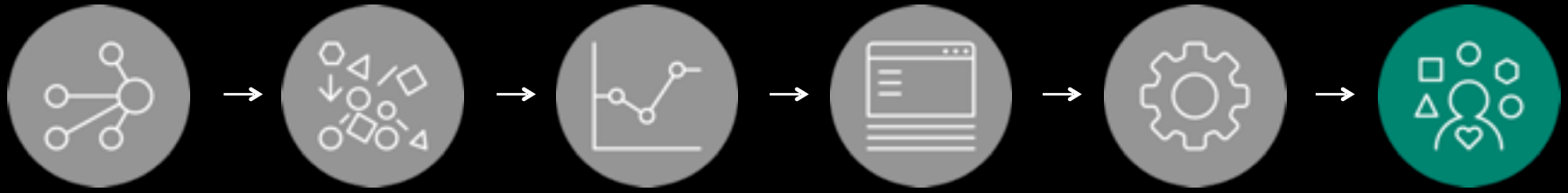
“Intuitive diagnosis is reliable when people have a lot of relevant feedback. But people are very often willing to make intuitive diagnoses even when they're very likely to be wrong.”

- Daniel Kahneman
2002 Nobel Prize Winner

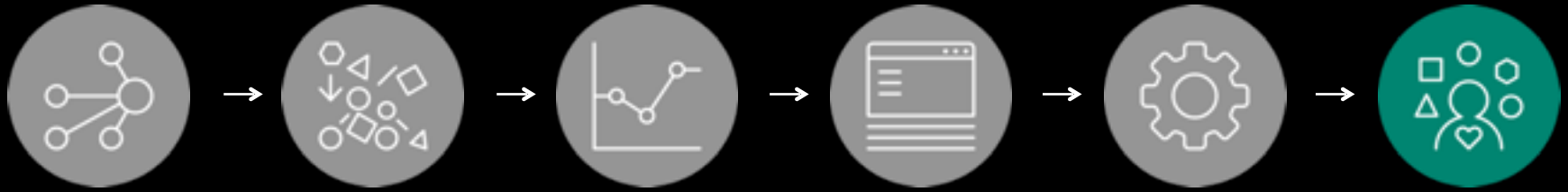
Cognitive human capabilities



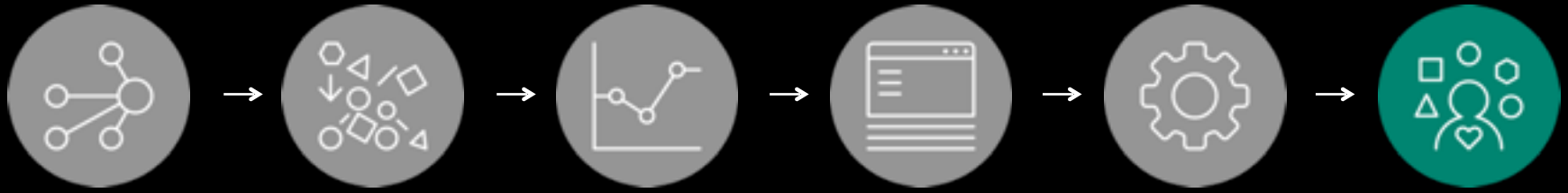
Cognitive human capabilities



Cognitive human capabilities



Cognitive human capabilities

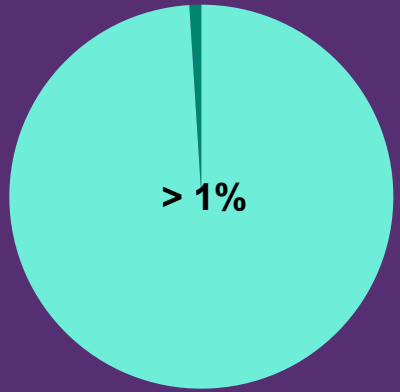


Cognitive human capabilities

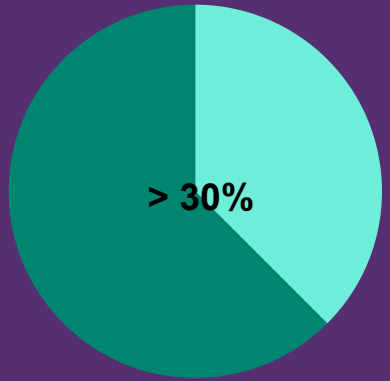
Cognitive human capabilities

Cognitive human capabilities

The human condition



> 1% of light spectrum

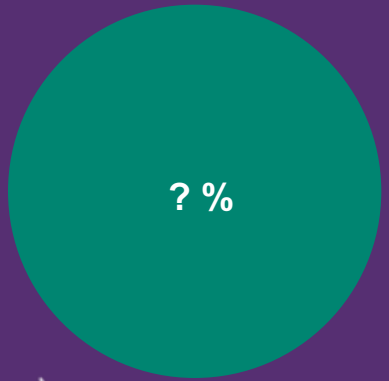


> 30% of audio spectrum

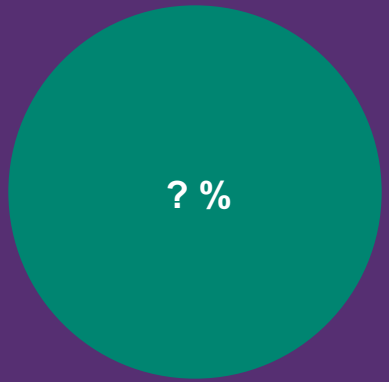
- ?

We have adapted and evolved to operate in very narrow and specific ranges of the light, sound, pressure, smell and taste spectrums.

Cognitive systems will fill the gaps in information and help inform our decision making.

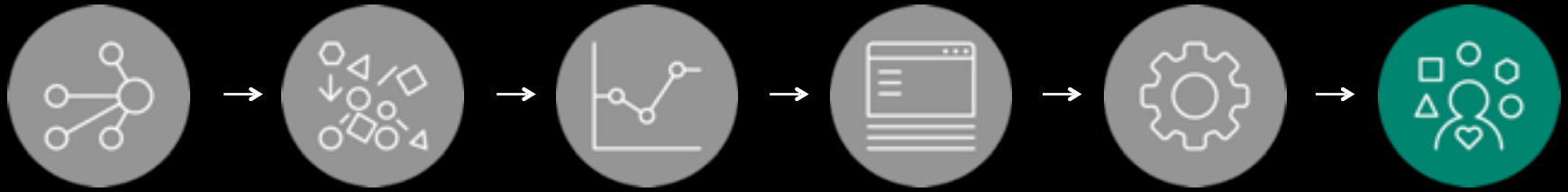


- ?

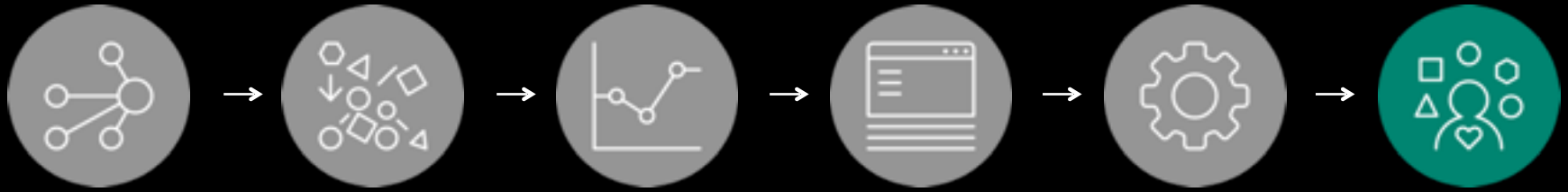


- ?

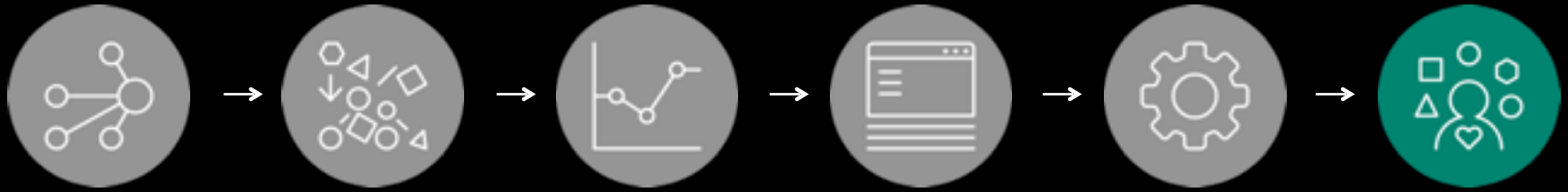
Cognitive system capabilities

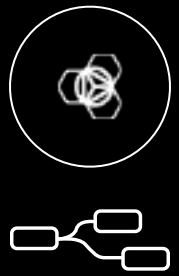


Cognitive system capabilities



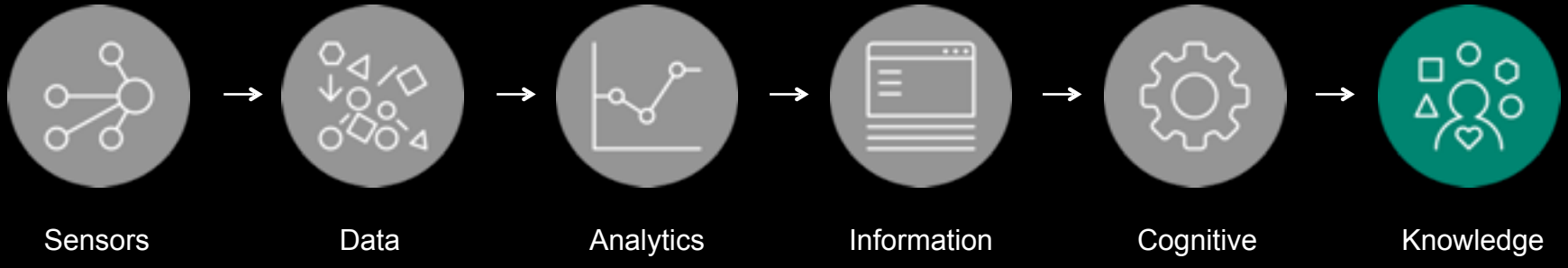
Cognitive system capabilities





Cognitive system capabilities

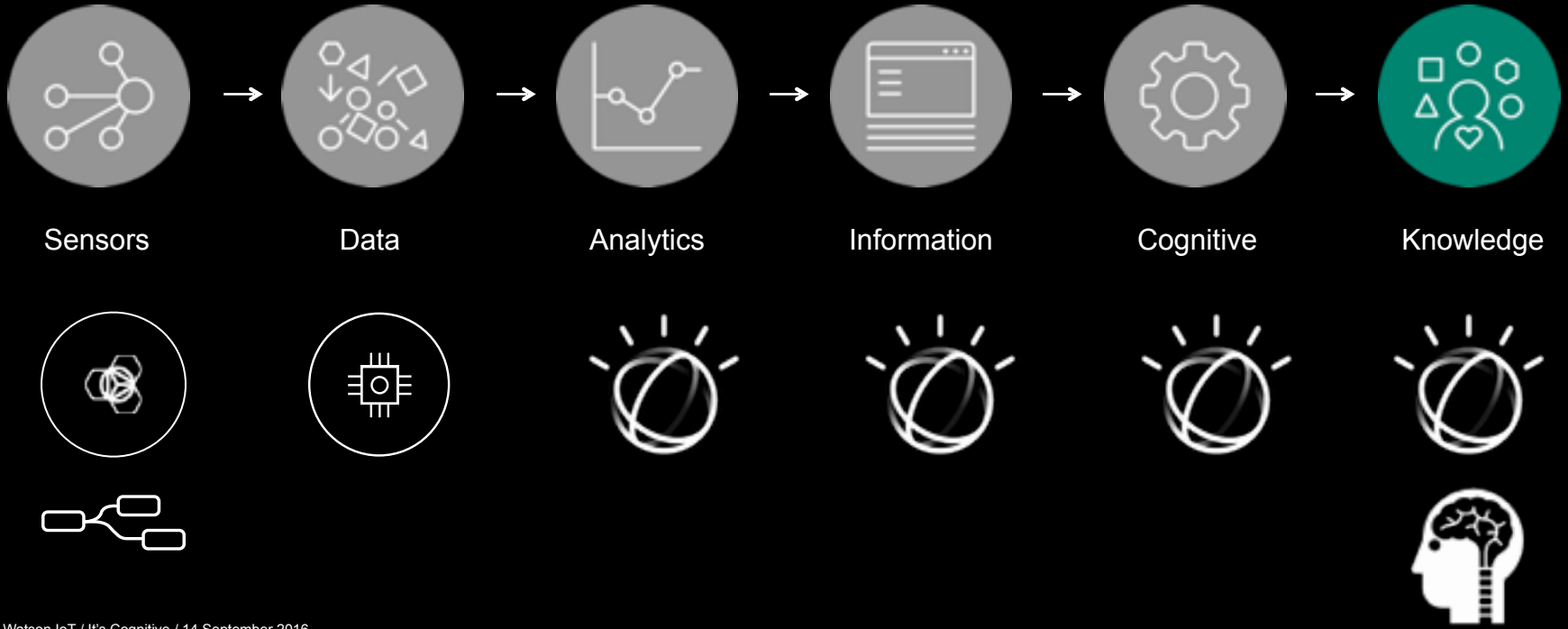
Cognitive system capabilities



Cognitive system capabilities

Cognitive system capabilities

Cognitive system capabilities



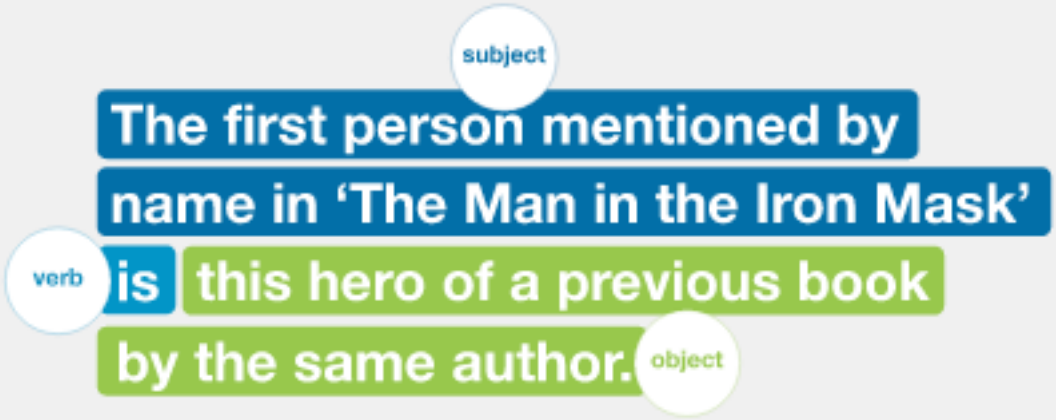
How does Watson “work”?

Analyses unstructured data

Uses natural language processing to understand grammar and context

Semantically understands complex questions

Evaluates all possible meanings and determines what is being asked



Presents answers and solutions

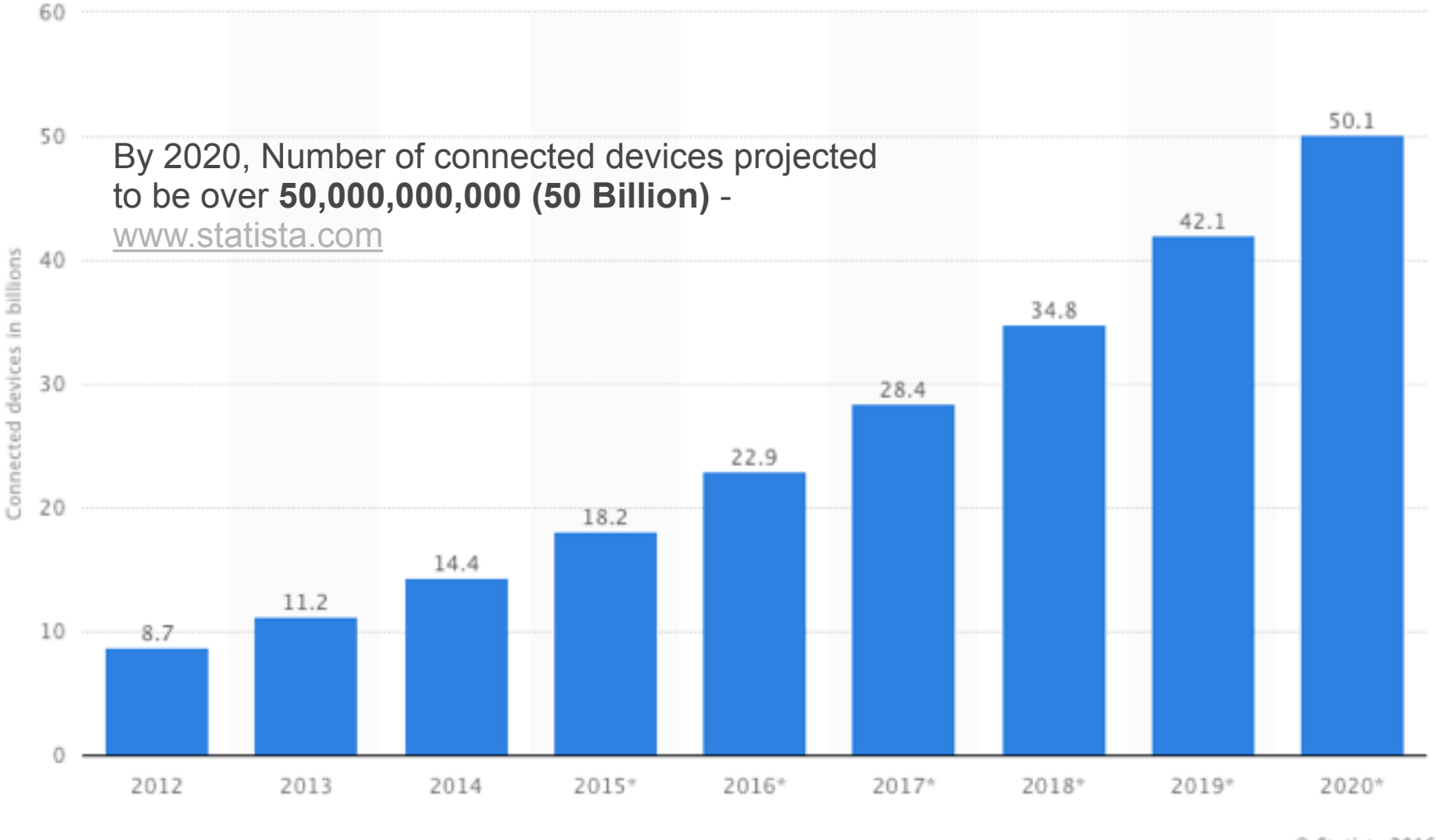
Based on supporting evidence and quality of information found

Watson IoT

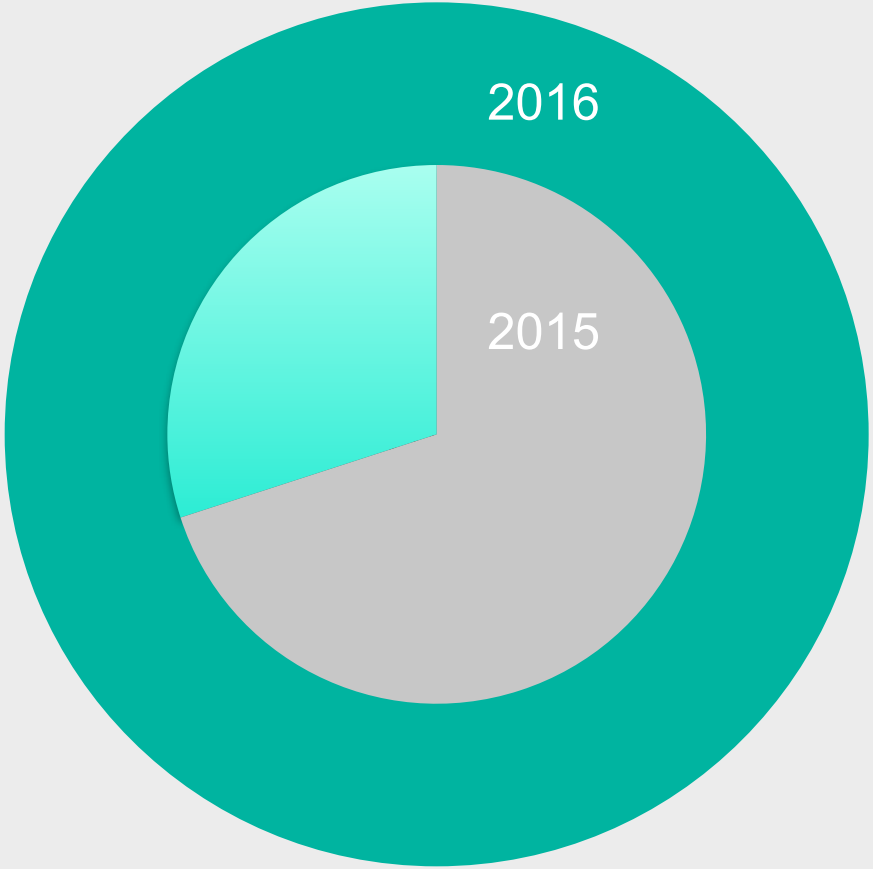
api
Your device or gateway
MQTT and HTTP
IBM Watson IoT Platform
REST and real-time APIs
Your application and analytics

How many connected devices?

By 2020, Number of connected devices projected to be over **50,000,000,000 (50 Billion)** - www.statista.com



In 2016, the number of connected devices is 6.4 Billion, up 30% from 2015 - www.gartner.com



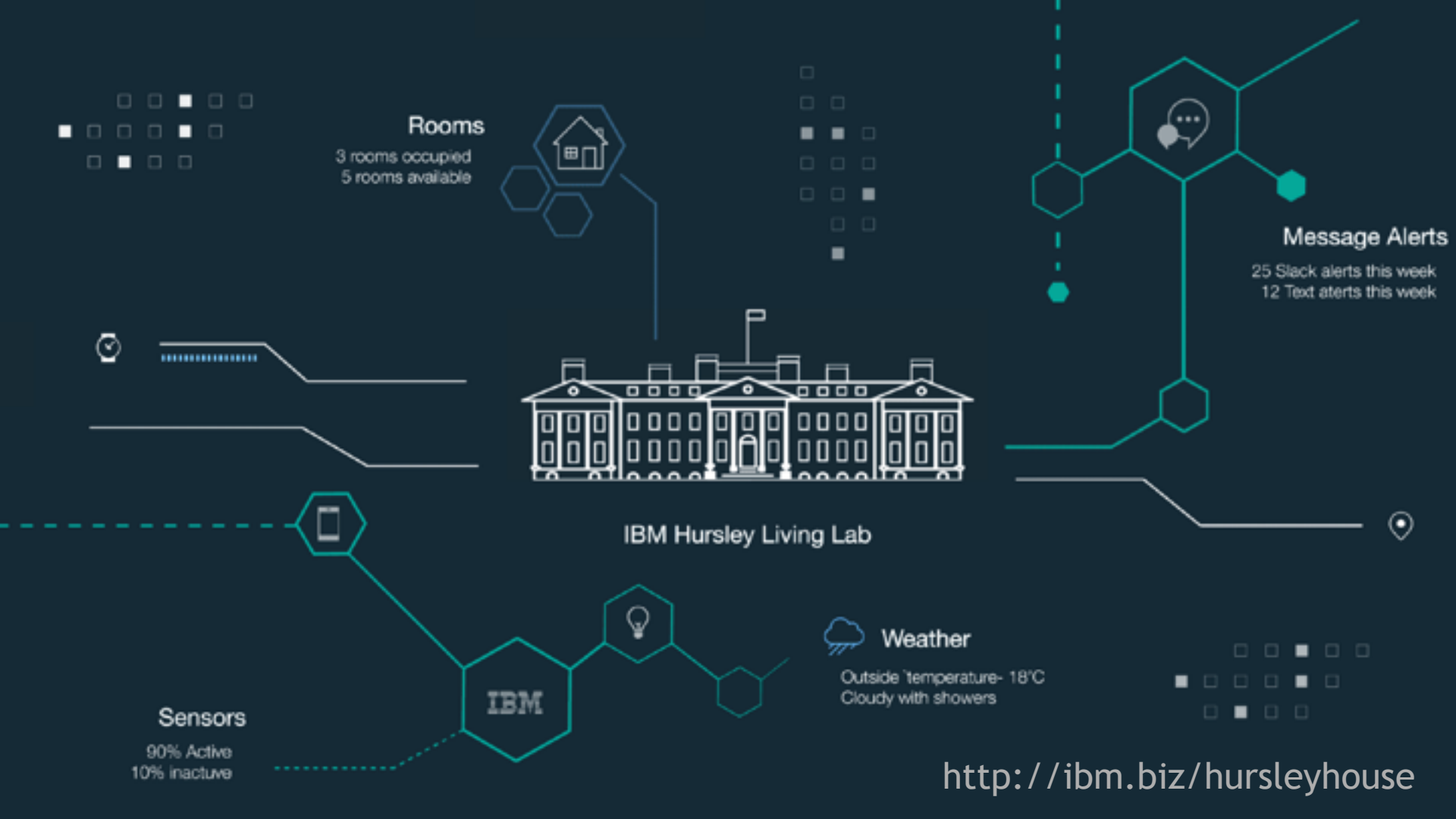
How much is it worth?

“Potentially $7.1 Trillion industry and market by 2020”

- IDC, 2015

* Gartner - $300 billion

Give me an example?


Rooms
3 rooms occupied
5 rooms available
Message Alerts
25 Slack alerts this week
12 Text aterts this week
IBM Hursley Living Lab
Weather
Outside temperature- 18°C
Cloudy with showers
Sensors
90% Active
10% inactuve
IBM
http://ibm.biz/hursleyhouse

PhotonStar™

x 6

x 20

Node-RED

Hosted on a PC

IBM Bluemix

IBM Cloudant®

dashDB

OUR WEB DASHBOARD

IBM Watson Internet of Things Platform

Watson IoT Discover and Play Experience

Try our sample app and see live visualizations of your phone's sensor data

You'll need a smartphone and a device with a larger screen.

The main NODE.js application requires a user to register a unique user name and PIN on their laptop or tablet. Once authorized using the correct combination of user name and PIN on the companion smartphone web site, the main application renders a number of realtime visualizations representing the movement of the device associated with that user.

Play

Watson IoT Discover and Play Experience (Demo)

http://discover-iot.eu-gb.mybluemix.net/#/play

Play with our platform now

Connect a networked device to the IBM Watson IoT Platform in IBM Bluemix and watch live sensor data stream into a sample dashboard.

✔ Select your device

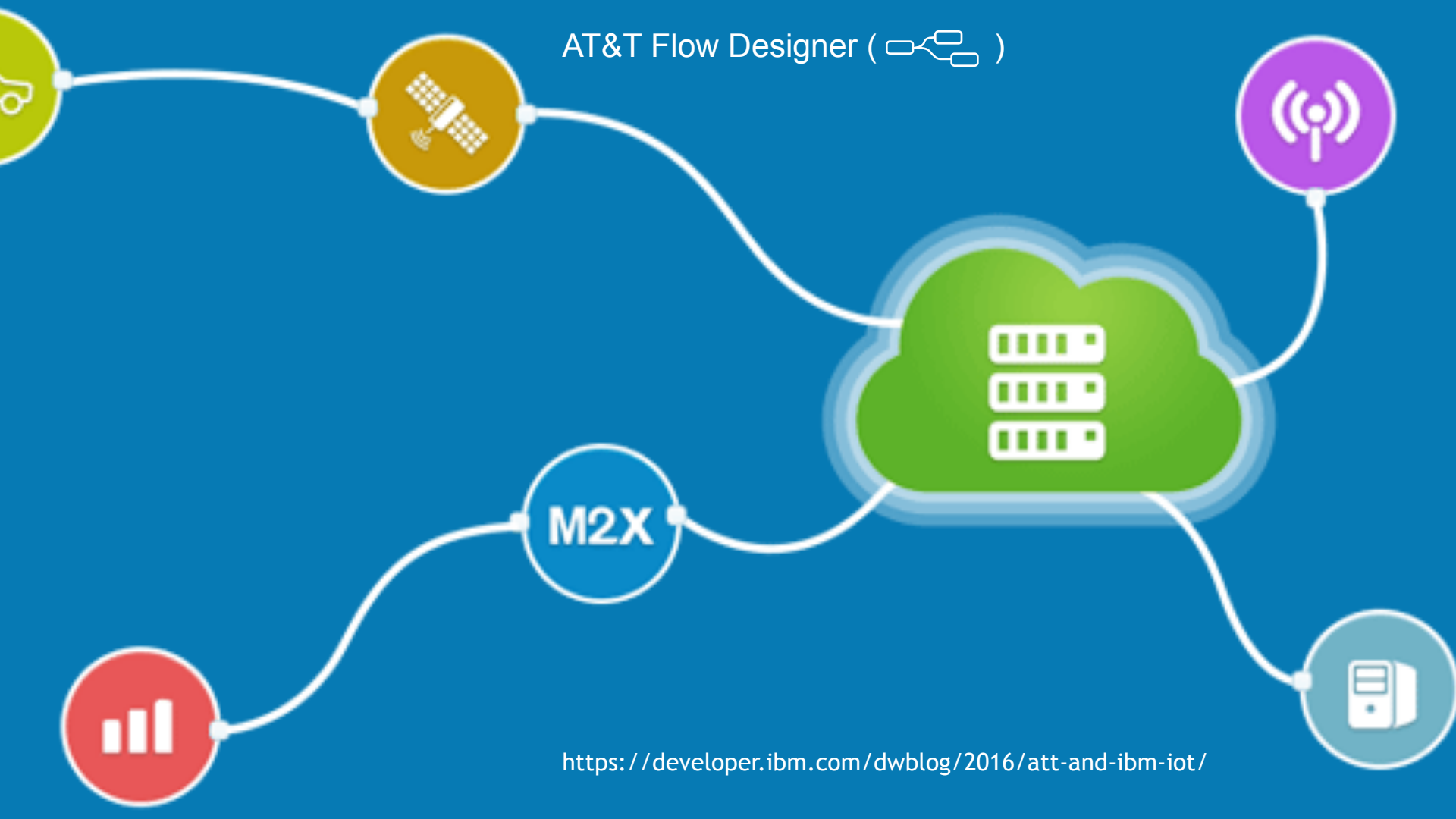
✔ Enter your Smartphone information

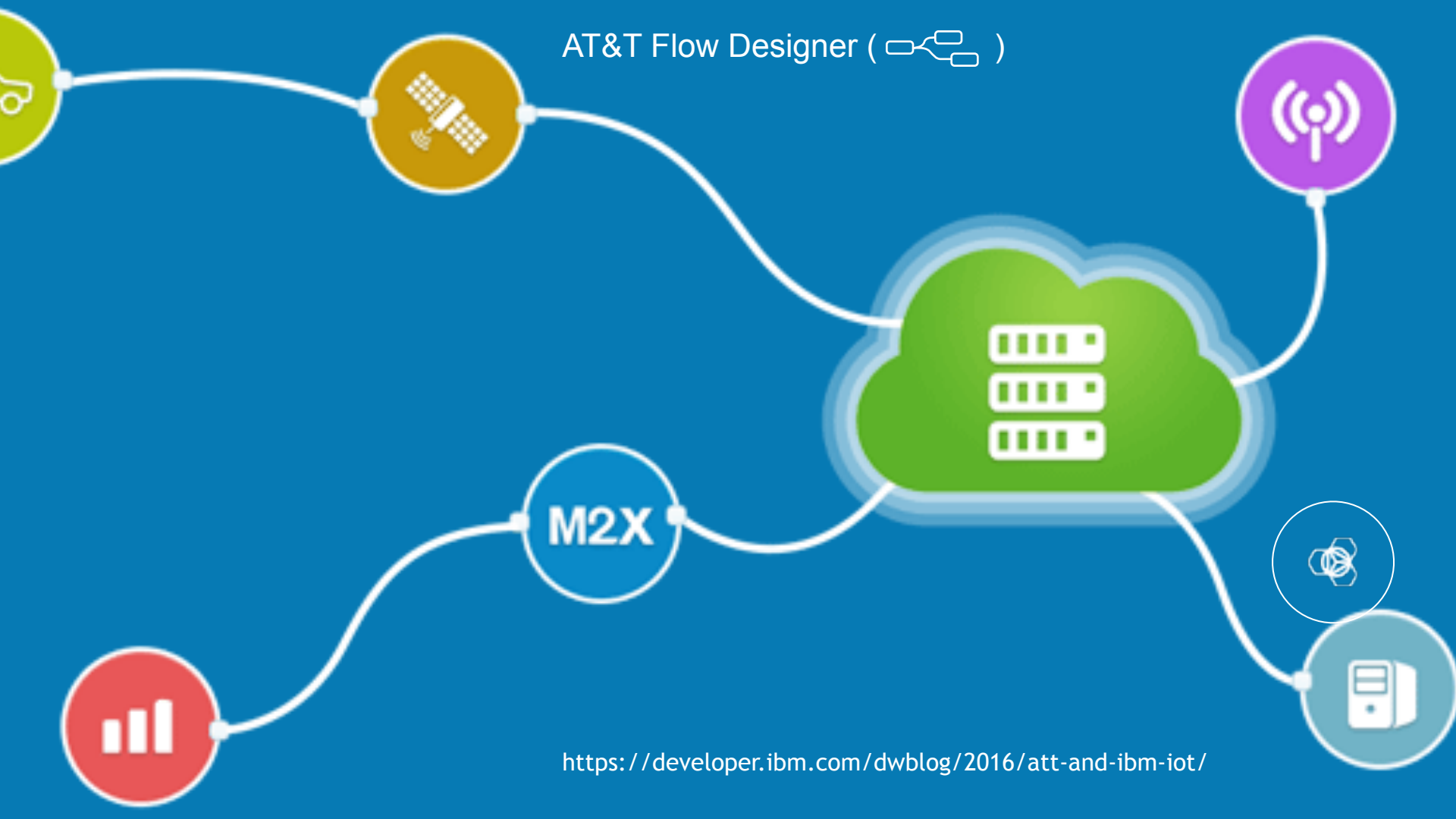
3 View live data from your Smartphone

Go to this URL on your smartphone to start the connection

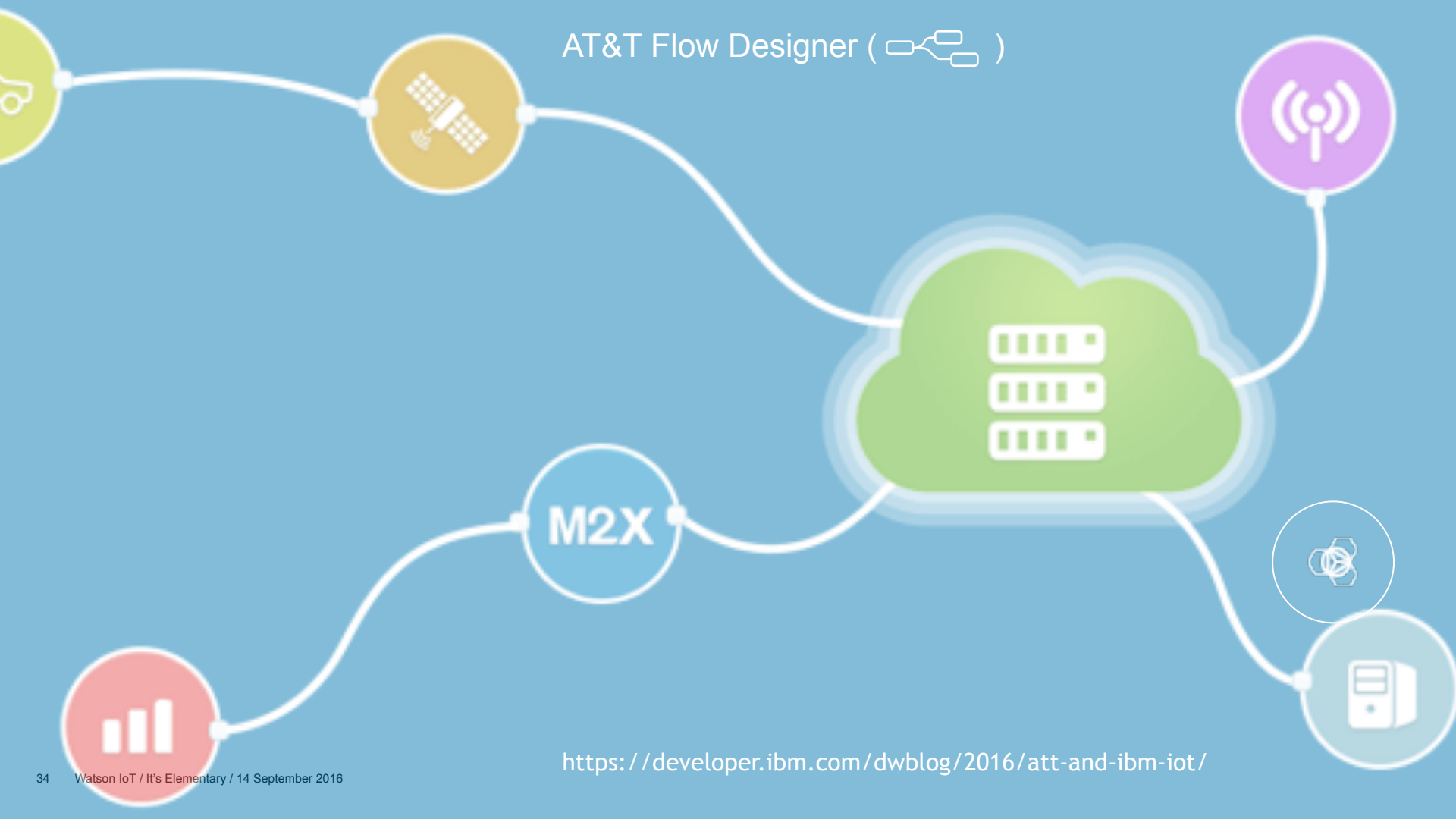
Your smartphone device will connect to the IBM Watson IoT Platform and start sending live data.

Who else is “doing” IoT?


AT&T Flow Designer ( )
M2X
https://developer.ibm.com/dwblog/2016/att-and-ibm-iot/


AT&T Flow Designer ( )
M2X
https://developer.ibm.com/dwblog/2016/att-and-ibm-iot/

AT&T Flow Designer ( )



https://developer.ibm.com/dwblog/2016/att-and-ibm-iot/

News room > News releases >

AT&T and IBM Team to Bring Enhanced Internet of Things Capabilities to Developers on IBM Cloud

IoT Developers Can Gain Deeper Insights from Data on Connected Devices With New Open Standards- Based Capabilities

Select a topic or year

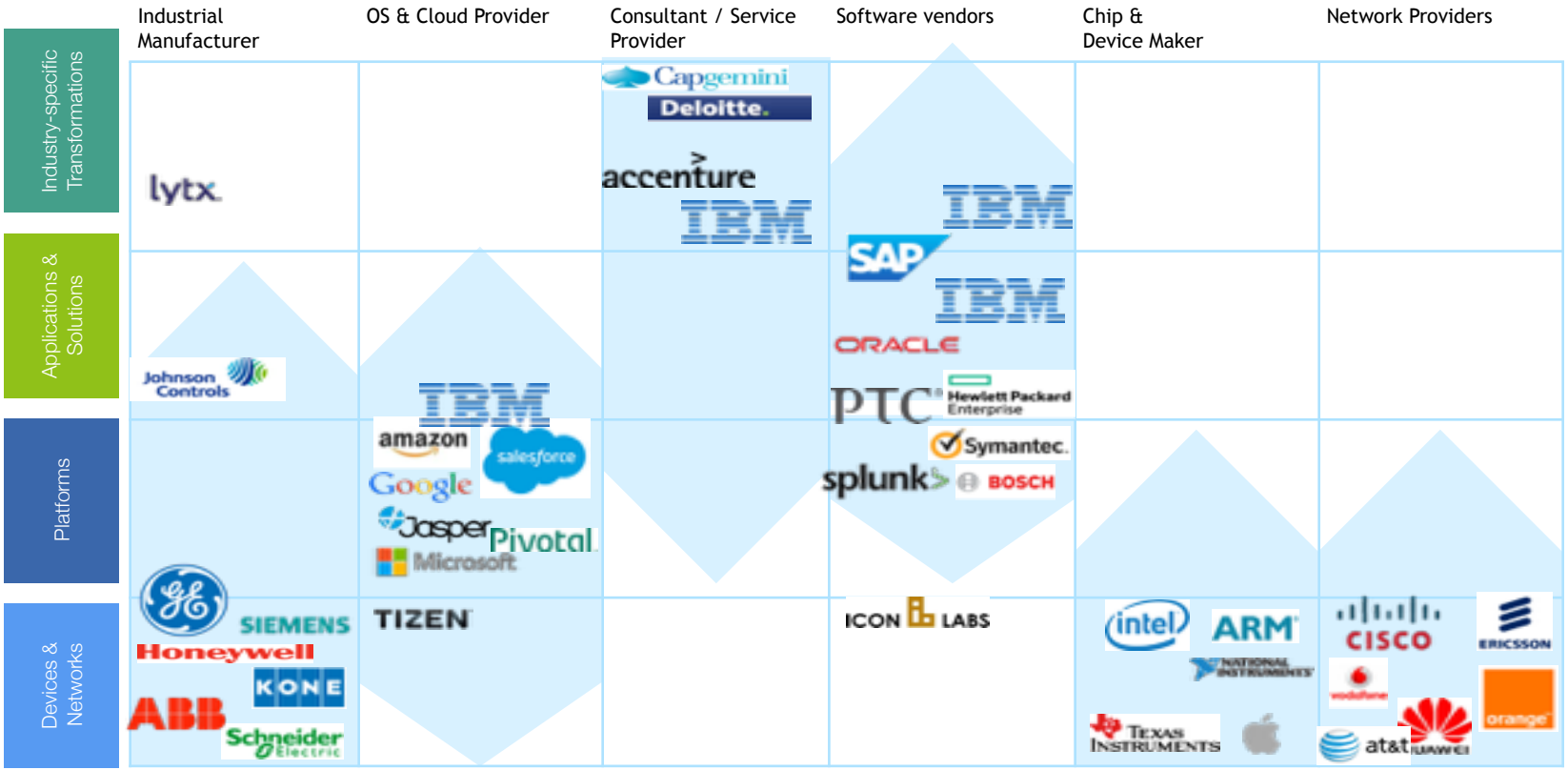
↓ News release

↓ Contact(s) information

↓ Related XML feeds

DALLAS, TX and ARMONK, NY - 13 Jul 2016: AT&T* and IBM (NYSE: IBM) are working together to help businesses accelerate their Internet of Things (IoT) initiatives. The two companies will combine their unique strengths in cognitive computing and global connectivity to create open standards-based tools on the IBM Cloud to enable developers to more quickly build and implement a wide variety of IoT solutions.

Open standards-based tools allow developers to improve their skills and avoid the churn of learning new tools, which helps protect the investments businesses have made in IoT solution development. As demand for IoT solutions grows, so does the demand for skilled IoT developers. According to the VisionMobile 2016 Internet of Things Megatrends report, nearly 10 million developers will be active in IoT by 2020, doubling the estimated 5 million today. As businesses discover the need to more efficiently develop and bring IoT solutions to market, they must invest in developers to stay competitive.


Industry-specific Transformations
Applications & Solutions
Platforms
Devices & Networks
Industrial Manufacturer
OS & Cloud Provider
Consultant / Service Provider
Software vendors
Chip & Device Maker
Network Providers
lytx
Capgemini
Deloitte.
accenture
IBM
SAP
IBM
ORACLE
Johnson Controls
IBM
PTC
Hewlett Packard Enterprise
amazon
salesforce
Symantec.
Google
splunk>
BOSCH
Jasper
Pivotal
Microsoft
SIEMENS
TIZEN
ICON LABS
intel
ARM
CISCO
ERICSSON
Honeywell
NATIONAL INSTRUMENTS
KONE
ABB
Schneider Electric
Texas Instruments
at&t
HUAWEI
orange

Bluemix

Bluemix

Bluemix is a **cloud** platform that unifies infrastructure and platform capabilities, adding differentiated services that developers can easily compose into their mission critical applications.

https://console.ng.bluemix.net

Welcome to **Bluemix**

Start Using the Bluemix Platform

Bluemix is the home of 130+ unique services, including offerings like IBM Watson and Weather.com, and millions of running applications, containers, servers, and more.

Go to Catalog

Ready to start?

Create a Free Account | Log In

Learn More about Bluemix:

Pricing Products Blog Status

Explore by Category:

- Compute
- Network
- Storage
- Data & Analytics
- Watson
- Internet of Things
- APIs
- DevOps
- Security
- Application Services
- Mobile
- Integrate

All Categories
Boilerplates
Compute
Network
Storage
Data & Analytics
Watson
Internet of Things
APIs
DevOps
Security
Application Services
Mobile
Integrate

Search Filter

Boilerplates

ASP.NET Core Cloudant Starter
Use the Cloudant NoSQL DB Service in an ASP.NET Core application.
IBM

Internet of Things Platform Starter
Get started with IBM Watson IoT platform using the Node-RED Node.js sample application. With the
IBM

IoT for Electronics Starter
IoT for Electronics is a integrated end-to-
(made of multiple services and apps)
IBM

Java Cloudant Web Starter
Use the Cloudant NoSQL DB service with the 'Liberty for Java™' runtime.
IBM

Java Workload Scheduler Web Starter
This application demonstrates how to use the Workload Scheduler service, with the 'Liberty for Java™'
IBM

LoopBack Starter
This is a sample StrongLoop LoopBack
application, powered by the open source
IBM

MobileFirst Services Starter
Start building your next mobile app with mobile services on Bluemix.
IBM

Node.js Cloudant DB Web Starter
Use the Cloudant NoSQL DB service with the 'SDK for Node.js™' runtime.
IBM

Personality Insights Java Web Starter
A simple Java app that uses the Personality
service to analyze text to derive personality
IBM

Personality Insights Node.js Web Starter
A simple Node.js app that uses Personality Insights to analyze text to derive personality traits.
IBM

StrongLoop Arc
This application is the StrongLoop Arc graphical UI, which includes tools for building, profiling and
IBM

Mendix Rapid Apps
Model driven rapid app platform that allow
integrate and deploy web and mobile applic
Community

Node-RED Starter
This application demonstrates how to run the Node-RED

Python Flask
A simple Python Flask application that will get you up and

Ruby Sinatra
Develop a Ruby web application using the

Cognitive Commerce is a service provided by Cognitive Scale.

Third Party

Cognitive Graph is a service provided by Cognitive Scale.

Third Party

All Categories >

- Boilerplates
- Compute
- Network
- Storage
- Data & Analytics
- Watson
- Internet of Things
- APIs
- DevOps
- Security
- Application Services
- Mobile

Internet of Things

Internet of Things Platform

This service is the hub of all things IBM IoT, it is where you can set up and manage your connected devices

IBM

Context Mapping

IBM Watson IoT Context Mapping Service brings the power to your application to analyze moving object

IBM

IoT for Electronics

IoT for Electronics is preconfigured to work with the IoT for Electronics starter to connect your devices and

IBM

flowthings.io

agile intelligence for IoT

Third Party

APIs

API Connect

Create, manage, enforce, and run APIs.

IBM

Sign up for IBM Bluemix

Your 30-day trial is free, with no credit card required. You get access to 2 GB of runtime and container memory to run apps, unlimited IBM services and APIs, and complimentary support.

Already signed up for Bluemix? Log in

Email Address*

First Name*

Last Name*

Company

Country or Region

Phone Number*

Password*

Re-enter Password*

Security Question*

Security Answer*

Keep me informed of products, services, and offerings from IBM companies worldwide:

By email By telephone

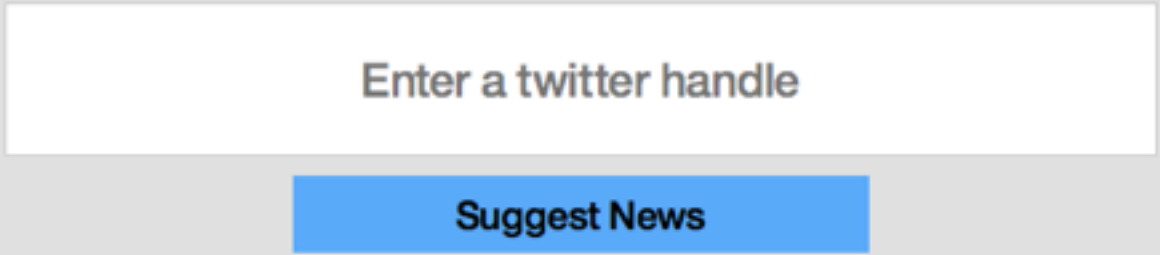
Create Account

By clicking Create Account, I accept the Bluemix privacy policy and Bluemix terms.

Give me an example?

Voltron

Twitter Link Curator



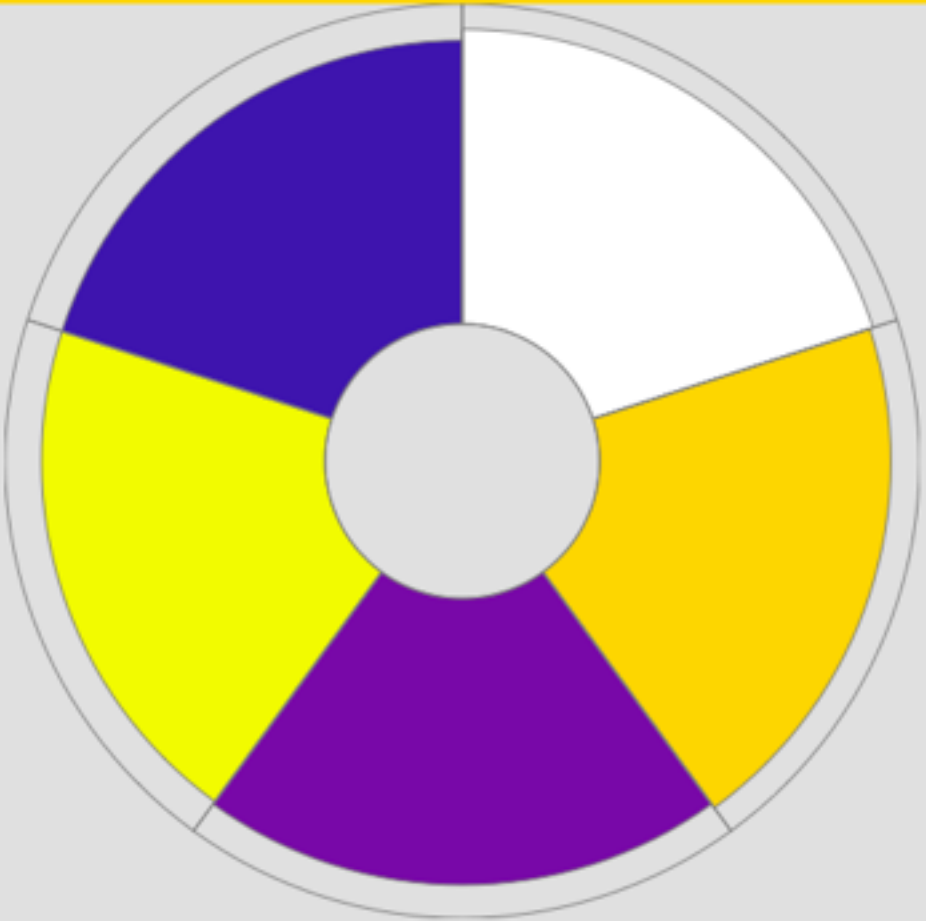
https://voltron.mybluemix.net/

Architectural Summary for 1 day Bluemix Hackathon

We Chose	Because
Vanilla Javascript, HTML, CSS	No complex frameworks that we don't understand.
NodeJS	Common skills, front and back end. Easy. Composable tools.
Twitter API	Personalised source data.
IBM Alchemy Language API	To analyse keywords and concepts in dataset.
IBM Alchemy News API	To discover new content
D3	Compatible with RAVE2, IBM approved. Looks cool.
IBM Design assets	Consistent experience, explorer assets.

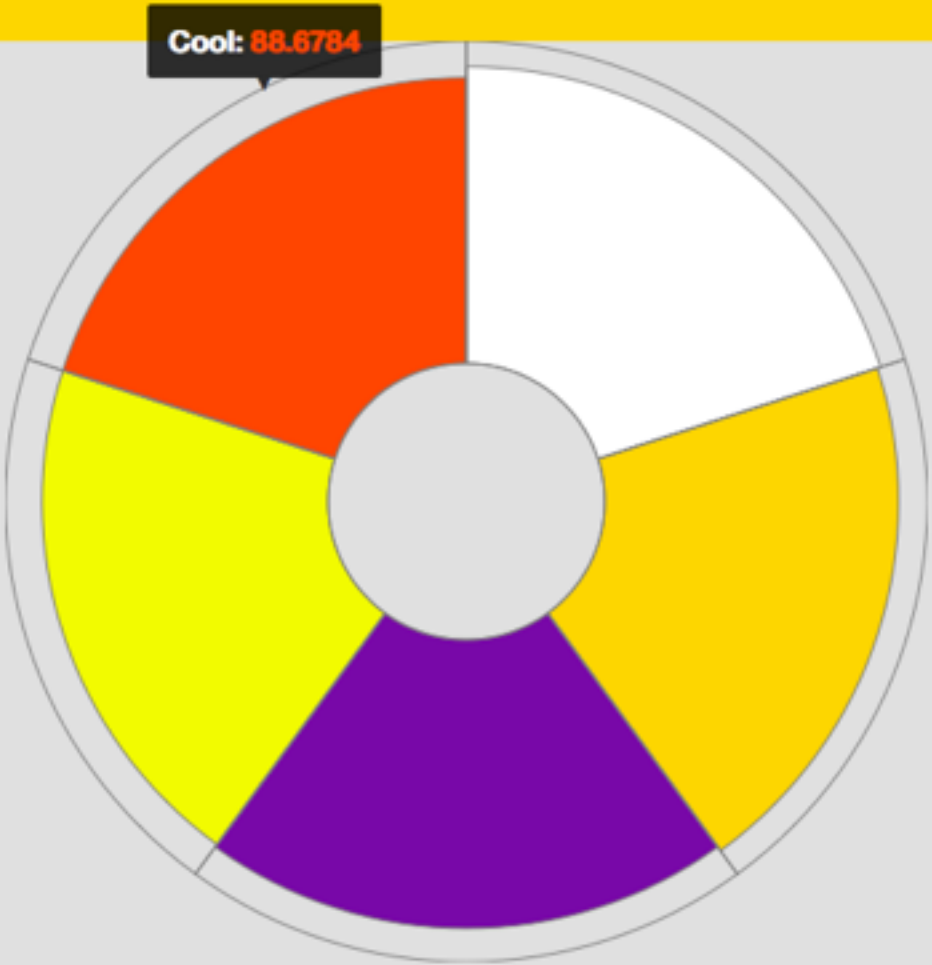
Voltron

Twitter Link Curator



Voltron

Twitter Link Curator



Voltron

Twitter Link Curator

IOL

Amends for the Infamously Horrible Atari Game

14/09/2016

Theresa Davis' mermaid magic

14/09/2016

All The Celebrity Action From NYFW SS17

14/09/2016

Global markets show signs of steadying after volatile period

14/09/2016

Crystal Rock Holdings, Inc. Announces Financial Results for Its Fiscal Third Quarter and Nine Months Ended July 31, 2016

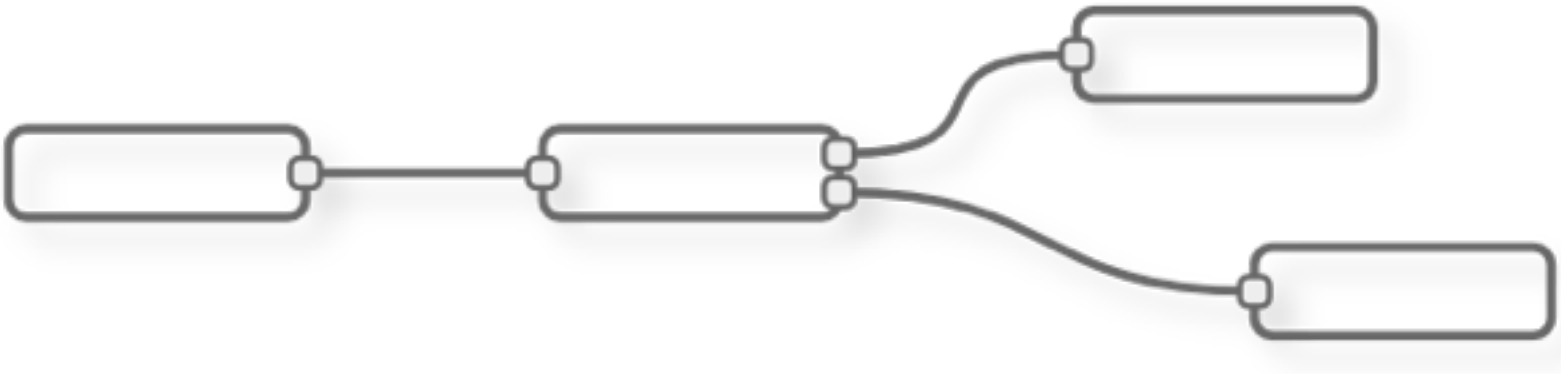
14/09/2016

Have You Seen This? 15K domino chain reaction

14/09/2016

Today I Love Cool Morning After Rain Smells

Node-RED



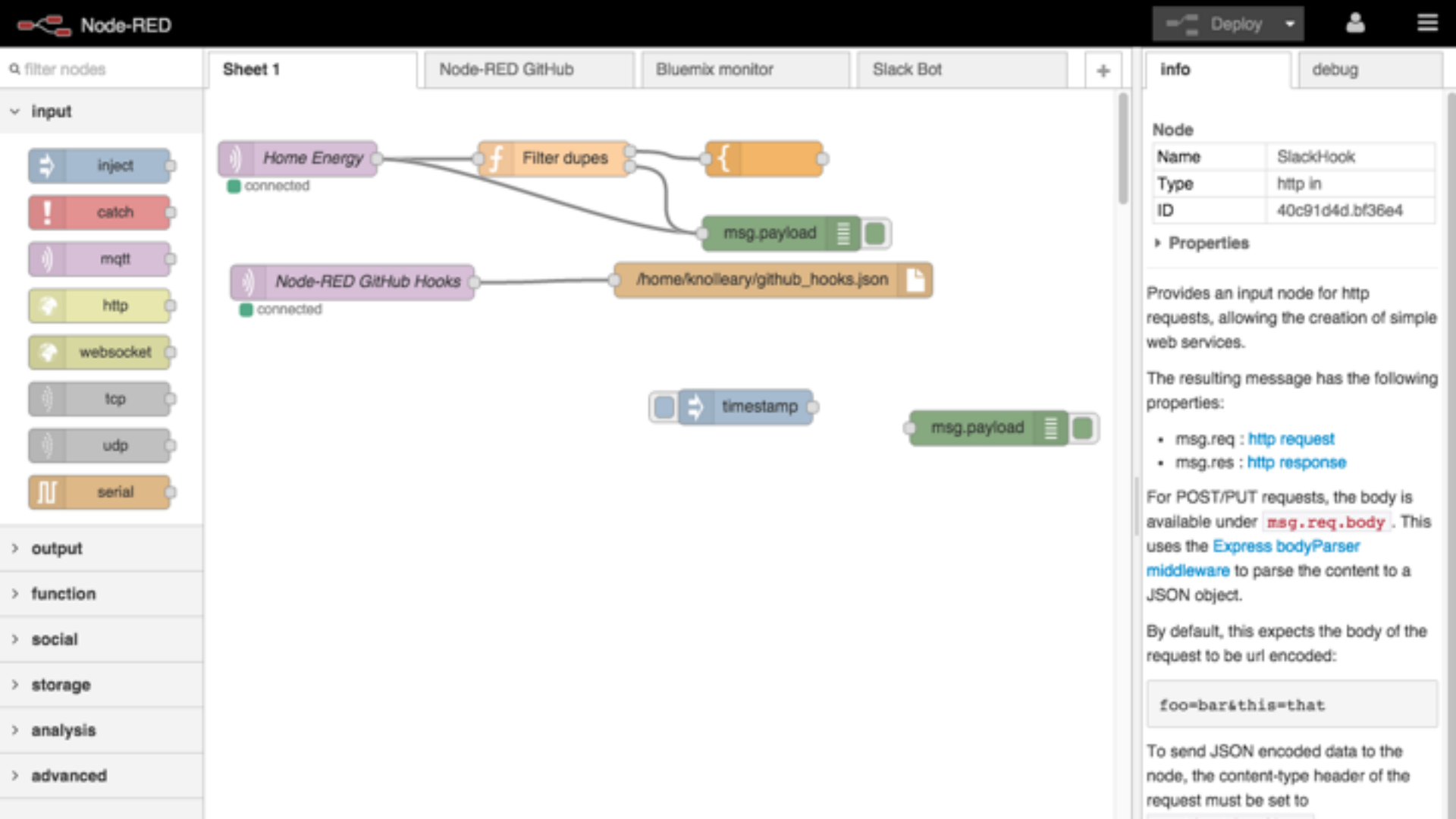
Node-RED

Node-RED is a visual, rapid development tool for wiring together hardware devices, APIs and online services in new and interesting ways to create IoT applications.

Created by **IBM Emerging Technologies** and released as **open source** on GitHub.

Latest version 0.14.6 was released as open source on Github 29 Jul 2016.

http://nodered.org/
https://github.com/node-red/node-red


Node-RED
Deploy
filter nodes
input
inject
catch
mqtt
http
websocket
tcp
udp
serial
output
function
social
storage
analysis
advanced
Sheet 1
Node-RED GitHub
Bluemix monitor
Slack Bot
Home Energy
connected
Filter dupes
msg.payload
Node-RED GitHub Hooks
connected
/home/knolleary/github_hooks.json
timestamp
msg.payload
info
debug
Node
Name
SlackHook
Type
http in
ID
40c91d4d.bf36e4
Properties
Provides an input node for http requests, allowing the creation of simple web services.
The resulting message has the following properties:
msg.req : http request
msg.res : http response
For POST/PUT requests, the body is available under msg.req.body. This uses the Express bodyParser middleware to parse the content to a JSON object.
By default, this expects the body of the request to be url encoded:
foo=bar&this=that
To send JSON encoded data to the node, the content-type header of the request must be set to

Questions ?