



IOT & Big Data: Foundation, Applied, and Futures

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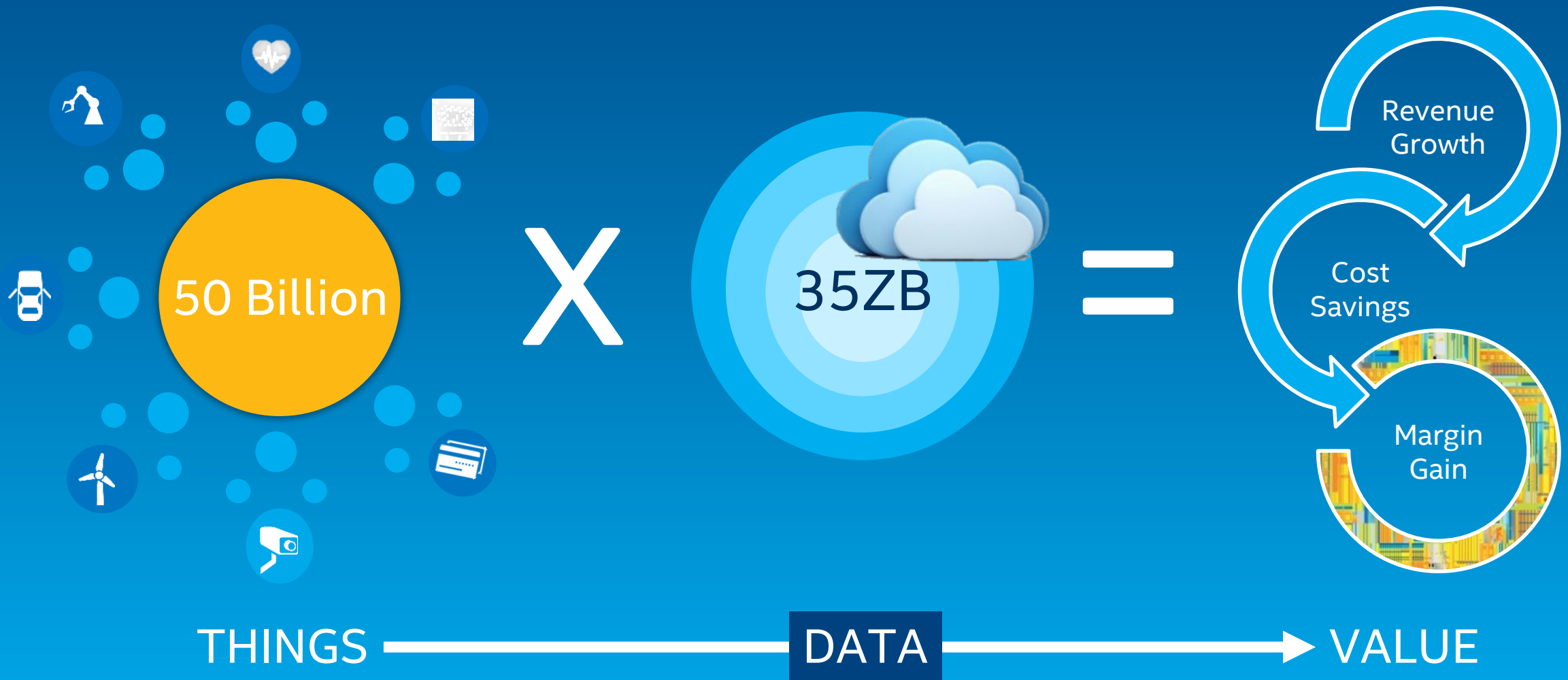
September 3, 2014



Agenda

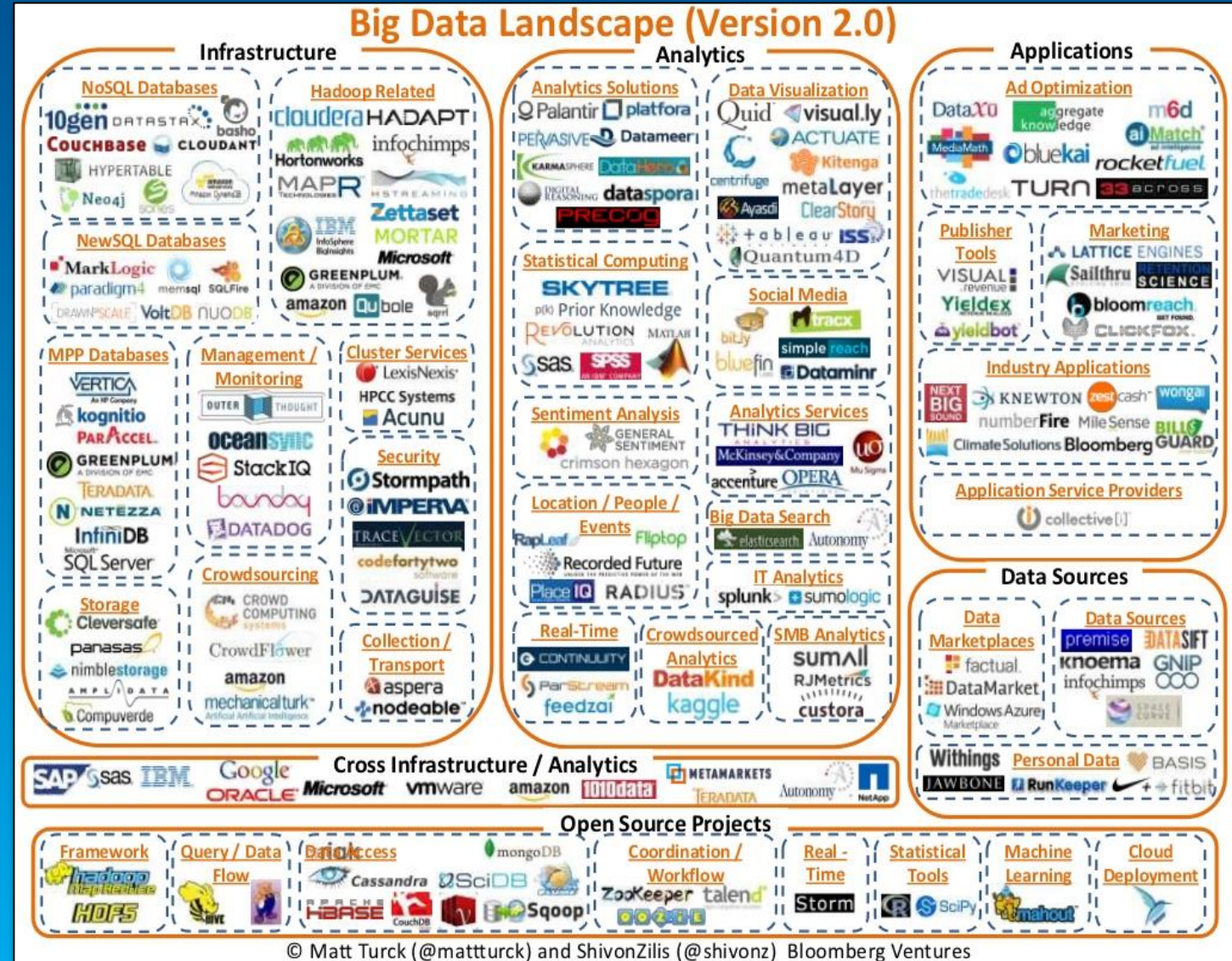
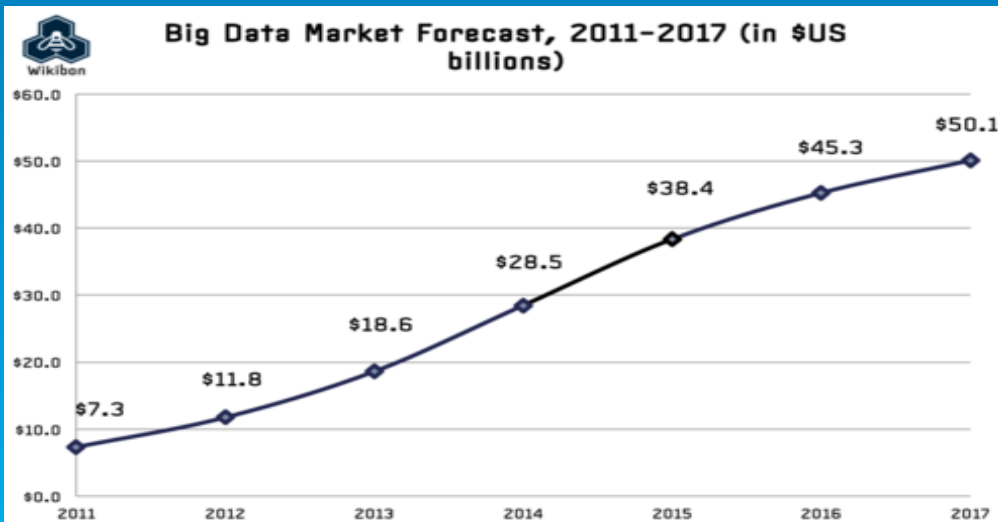
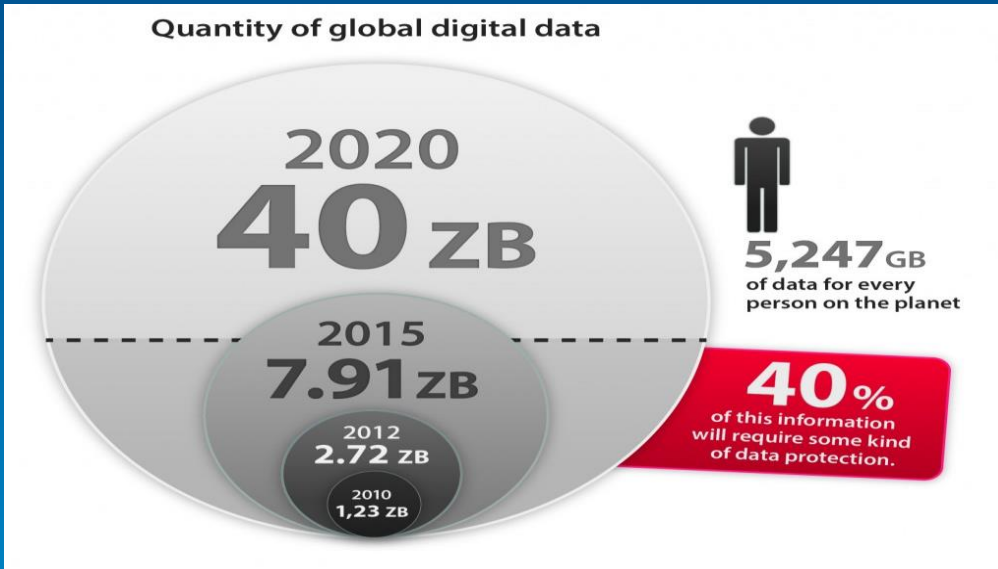
- Intel IOT & Big Data Foundation
- IOT & Big Data Applied: Big Data Science for Parkinson's Disease
- Futures

Internet of Things x Big Data = Unprecedented Value (Perhaps Not This easy)

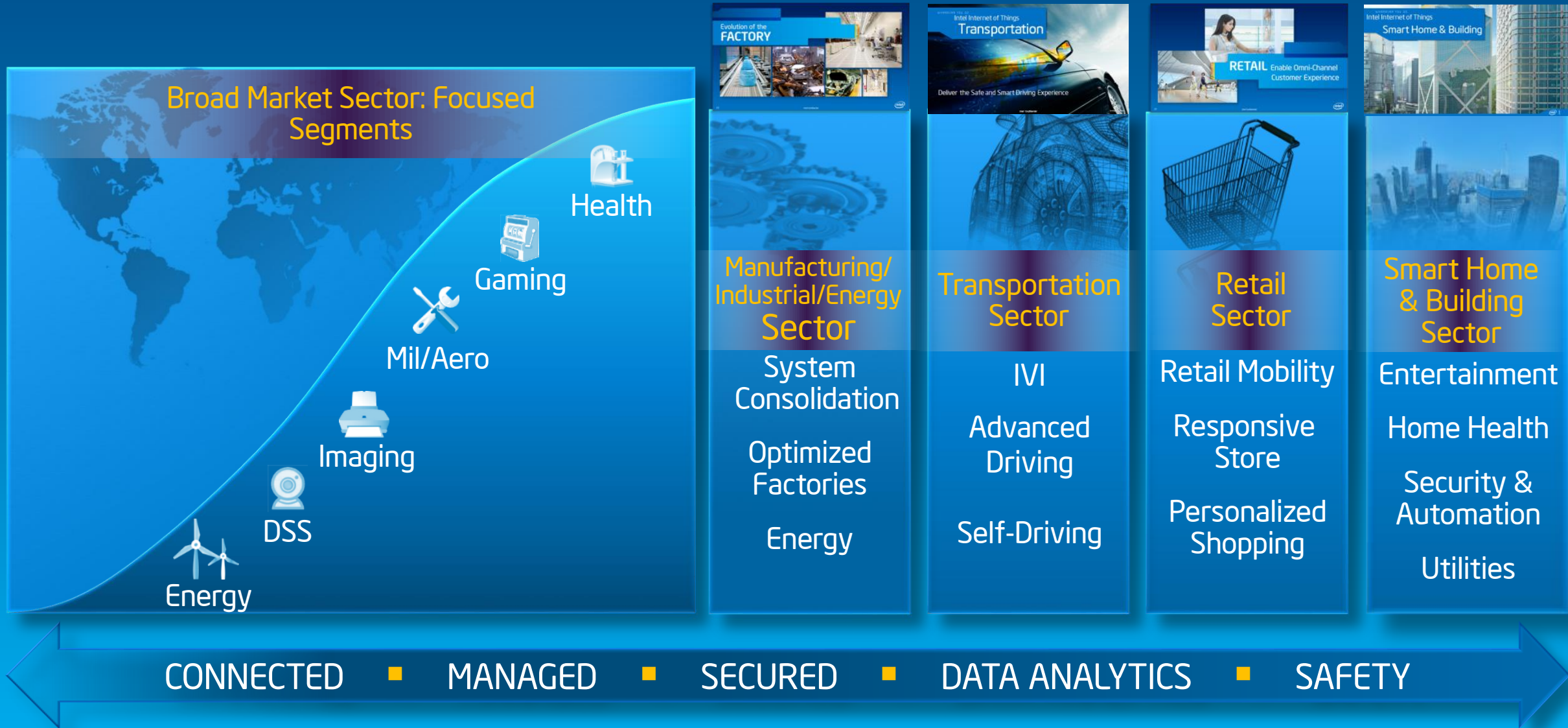


Sources: AMS Research, Gartner, IDC, McKinsey Global Institute, and various other industry analysts and commentators

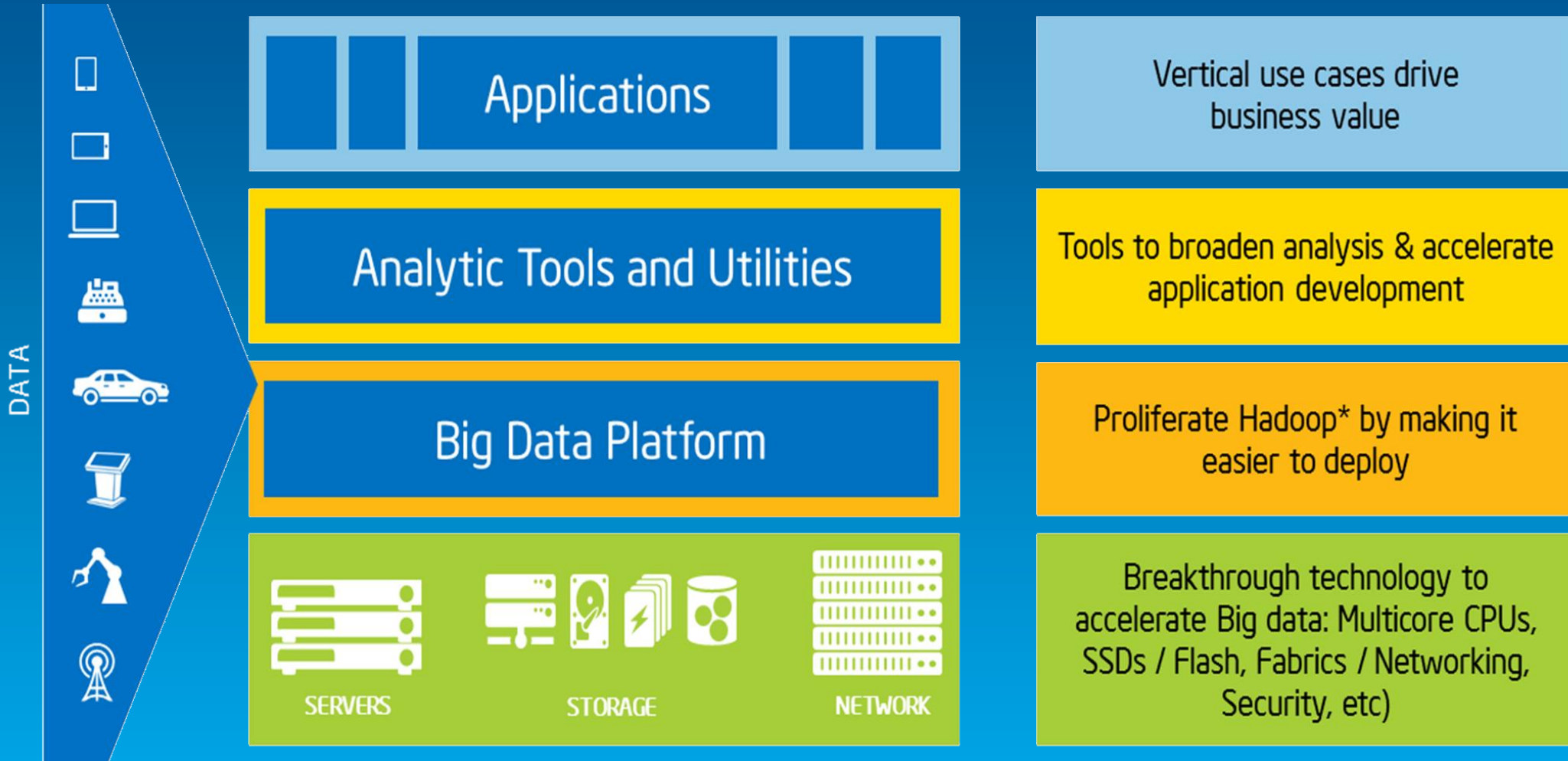
IOT & Big Data Is A Fast Changing Landscape



Enabling the IoT for 30 years

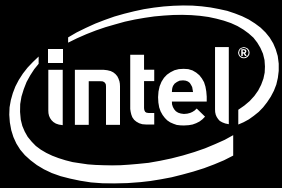


Intel Big Data Analytics Platform Approach





IOT & Big Data Applied



Strength in Numbers: Big Data Science for Parkinson's Disease



Parkinson's is an Increasingly Common Brain Disease

PARKINSON'S DISEASE AFFECTS **ONE IN 100 PEOPLE OVER AGE 60**. IN THE UNITED STATES, 60,000 NEW CASES WILL BE DIAGNOSED THIS YEAR ALONE.

1 / 100
OVER
AGE 60



1M / US  **5M** / WORLD 

TODAY, AN ESTIMATED **ONE MILLION** PEOPLE IN THE UNITED STATES AND MORE THAN **FIVE MILLION** WORLDWIDE ARE LIVING WITH PARKINSON'S DISEASE.



3 OUT OF **5**

AMERICANS WILL SUFFER FROM A NERVOUS-SYSTEM DISEASE SUCH AS PARKINSON'S OR ALZHEIMER'S.

THERE IS **NO TEST** TO DIAGNOSE PARKINSON'S DISEASE. PEOPLE WITH PARKINSON'S VISIT MULTIPLE DOCTORS AND **CAN WAIT YEARS** BEFORE A CORRECT DIAGNOSIS.



PARKINSON'S DISEASE IS CAUSED BY THE DEATH OF DOPAMINE CELLS.

60 TO 80% OF THESE CELLS ARE ALREADY LOST BY THE TIME MOTOR SYMPTOMS APPEAR.



Subjective Diagnosis and Measurement



Harnessing the Power of Big Data



Wearable Devices

Cloud Platform

Analytics Platform

How Might we Help?

Devices to Measure Symptoms

Tremors

Sleep patterns

Gait

Balance

Infrastructure to Manage Data

~1GB

Per patient
Per day



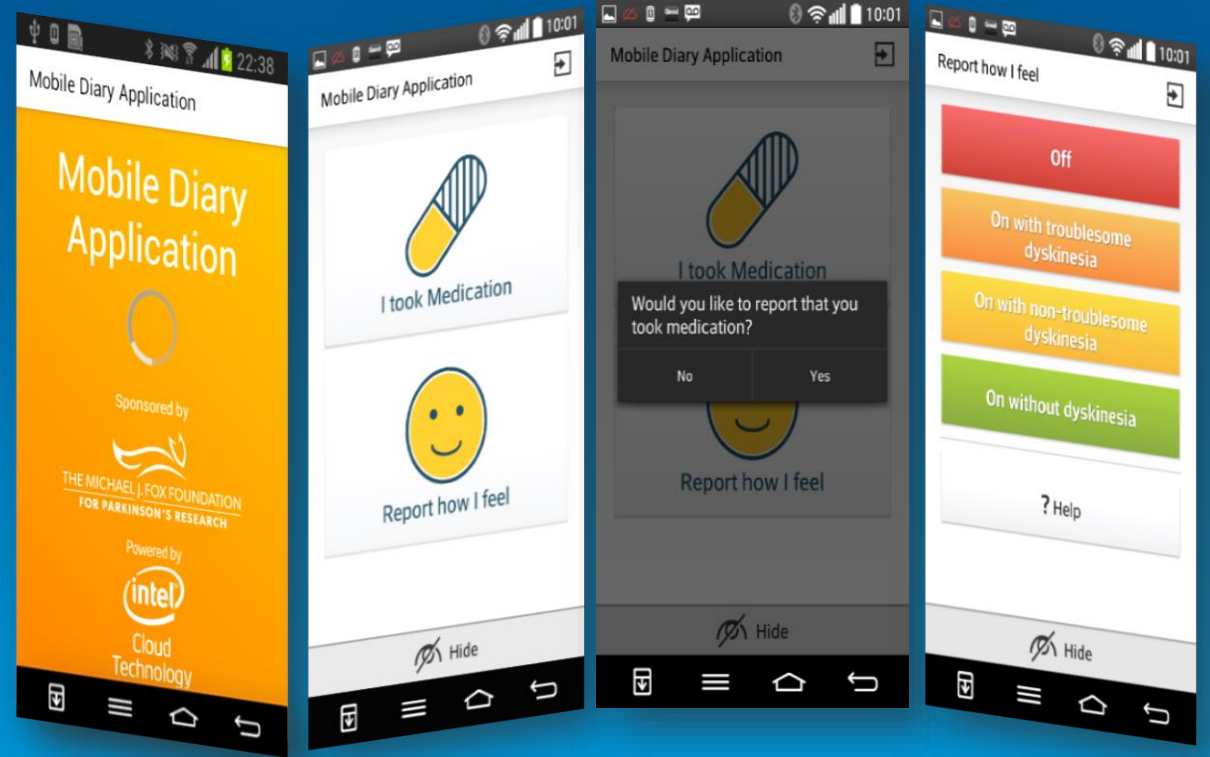
Analytics for Insight



More Accurate Patient Monitoring



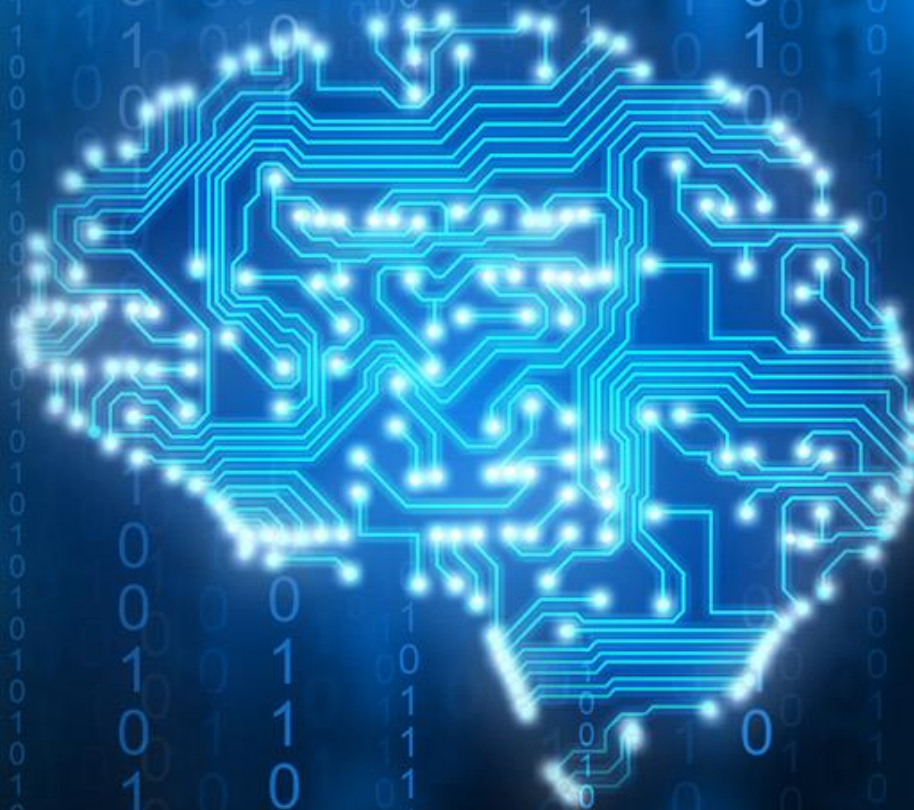
Wearable Sensors



Smartphone App

Video

Together We Are on the Path to Achieving Breakthroughs



A futuristic cityscape with tall skyscrapers, a central circular building, and elevated roads under a blue sky with clouds. The scene is viewed from an elevated perspective, showing a mix of modern architecture and green spaces. The central building is a large, circular structure with a blue roof. The roads are elevated and feature futuristic designs. The sky is bright blue with scattered white clouds. The overall atmosphere is one of a advanced, sustainable urban environment.

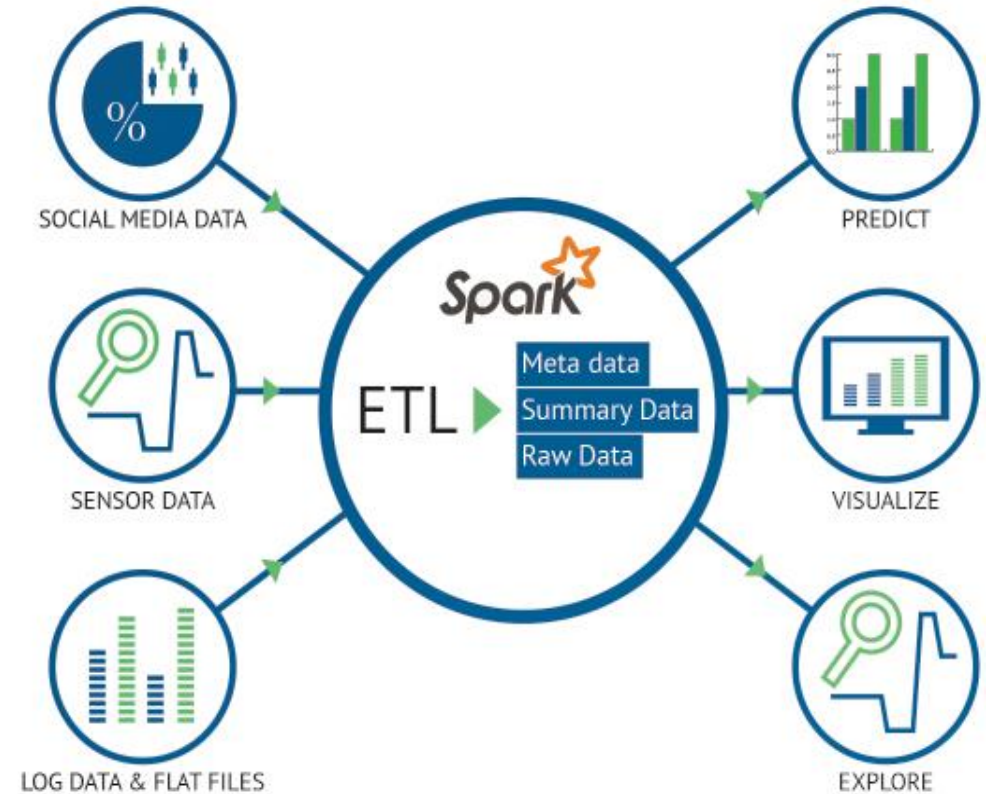
A Few Thoughts On The Future

Next-Gen, Real-Time, In-Memory Big Data Analysis

Hadoop is a great foundation

New data architectures
are emerging

The industry is starting to
leverage new real-time, in-
memory analysis paradigm to
compliment Hadoop



IN MEMORY
100X FASTER

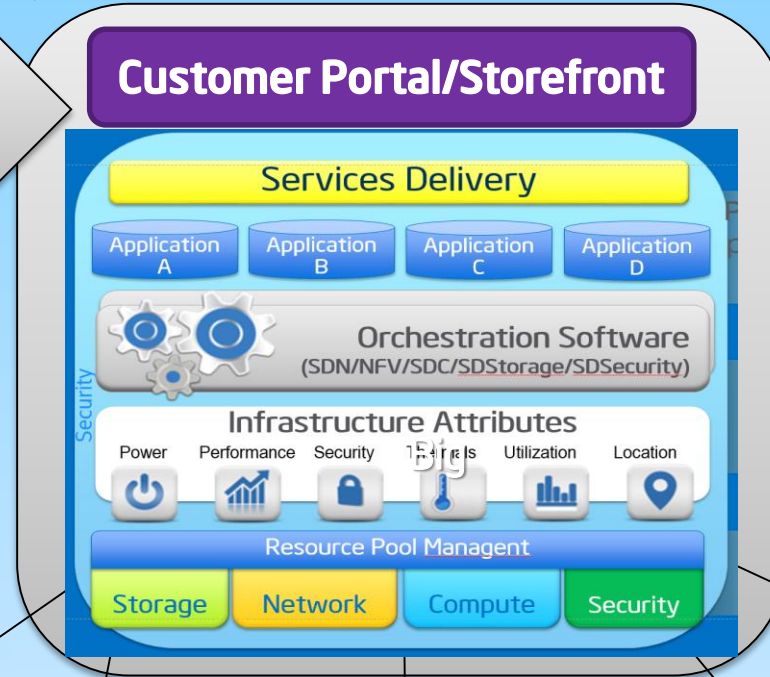
ON DISK
5-10X FASTER

Big Data Will Not be a Compute Island on its Own



An Amazing Relevant Experience

Dedicated Or Shared



New Workloads for the Digital Dynamic IOT / Big Data World



General Compute

Big Data

High Performance Computing

Unique Compute Xeon + FPGA

Custom

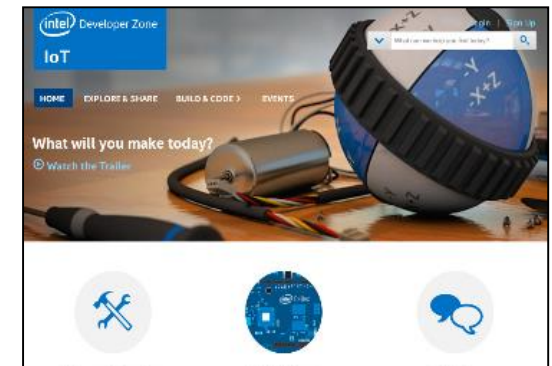
Resource Pools

Automation To Manage New Workloads Are Key To Unlock The Full Value of IOT

Intel IoT Developer Program

A comprehensive program for hobbyists, students and entrepreneurial developers that delivers everything a software developer needs to quickly and easily turn ideas into solutions for the Internet of Things (IoT)

- **University Program** to enable IoT courseware and support student led hackathons
- **Intel® IoT Developer Kit** with Intel Galileo & Edison boards together with easy to use hardware, software, tools, cloud services
- **IoT Roadshows & Hackathons** providing hands-on, F2F training and distributing Dev Kits
- **On-line community** for learning, building, sharing Intel Developer Zone for IoT



Join the community today at <http://software.intel.com/iot>

Do Not Forget Cyber Security

- All good could be used for evil
- End To End Full Life Cycle Secure Software & Systems Development
- Confidentiality, Integrity, Availability, Privacy, & Regulations



<https://www.blackhat.com/us-14/briefings.html#smart-nest-thermostat-a-smart-spy-in-your-home>

Start Secure, Stay Secure

Thank-You!

