Prevalent Intelligence from Device to Cloud

Link C. Jaw

Fellow
Intel Corporation
Link.c.jaw@intel.com
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Agenda

Introduction

Big data environment

Intelligent systems

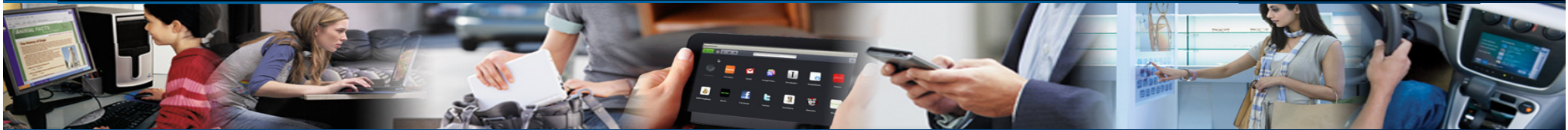Aerospace relevance

A continuum of computing experience

intel inside™ Xeon®

intel inside™ CORE™

intel Atom™ inside™

Desktops Laptops Ultrabooks Tablets Smartphones Intelligent Systems

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New experience creates Big Data phenomenon

Large amount of data, mostly unstructured

Wikipedia:	10x GB
Google:	> 7 B pages /day*
YouTube	> 1000 PB*
Facebook	~ 100x PB*
Twitter:	>100 B / yr*

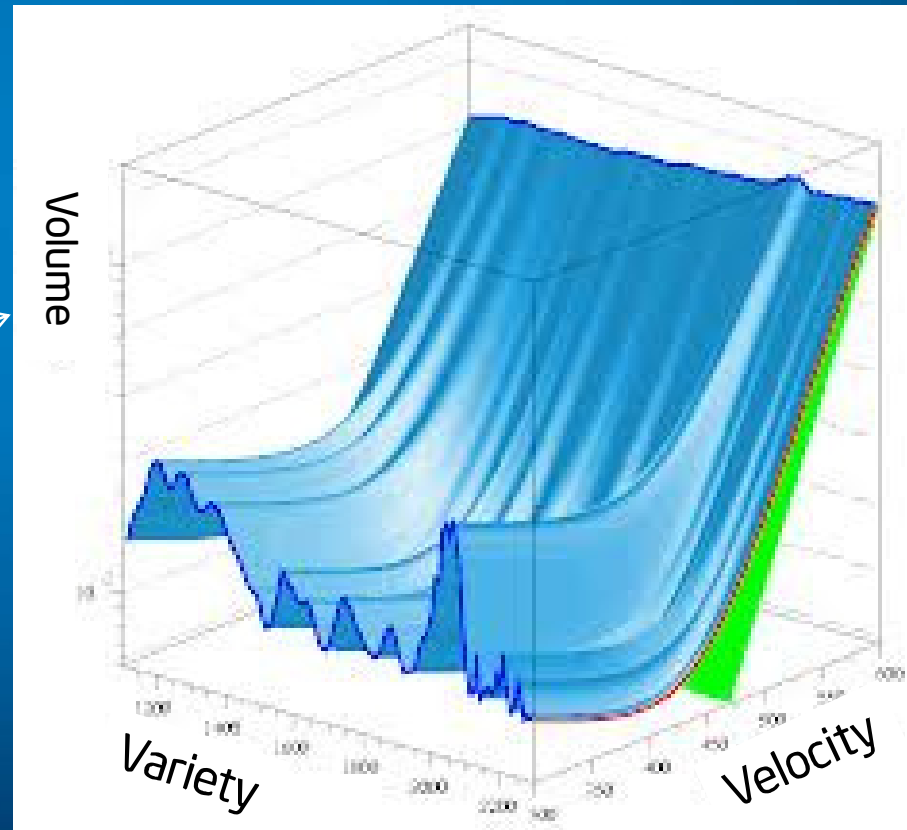*: According to Gus Hunt, CTO of CIA, 2013

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Big Data Environment

Big Data characteristics

3 Vs
- wide Variety (source)
- high Velocity (rate)
- massive Volume (amount)

Something like this

Volume

Variety

Velocity

Courtesy of icecube.berkeley.edu

Sources of Big Data

Intelligent Systems and People

- Machine to Machine (M2M)
- People to Machine or vice versa (P2M and M2P)
- Gateways and communication hubs

Increasingly intelligent world

20B IP-addressed devices by 2016
50B connected devices by 2020

New generation of Intelligent Systems

Smart sink

INTELLIGENT

Internet of "Planes" – a massively parallel process

| 1,000's of airplanes | 1,000,000's of connected devices |

Courtesy of Zurich School of Applied Sciences http://radar.zhaw.ch/

Smart tags in aviation

RFID applications

- Total aviation use of RFID tags is > 60 M (for baggage handling, food catering, cargo containers, and aircraft parts
- Southwest Airline
  - RFID-enabled temperature tracking for (non-refrig'd) containers
  - For temperature-sensitive goods like drugs, vaccines, or food
- FedEx
  - SenseAware™ container tracking tags
  - Multiple measurements (location, temperature, light, pressure, humidity

Health Monitoring
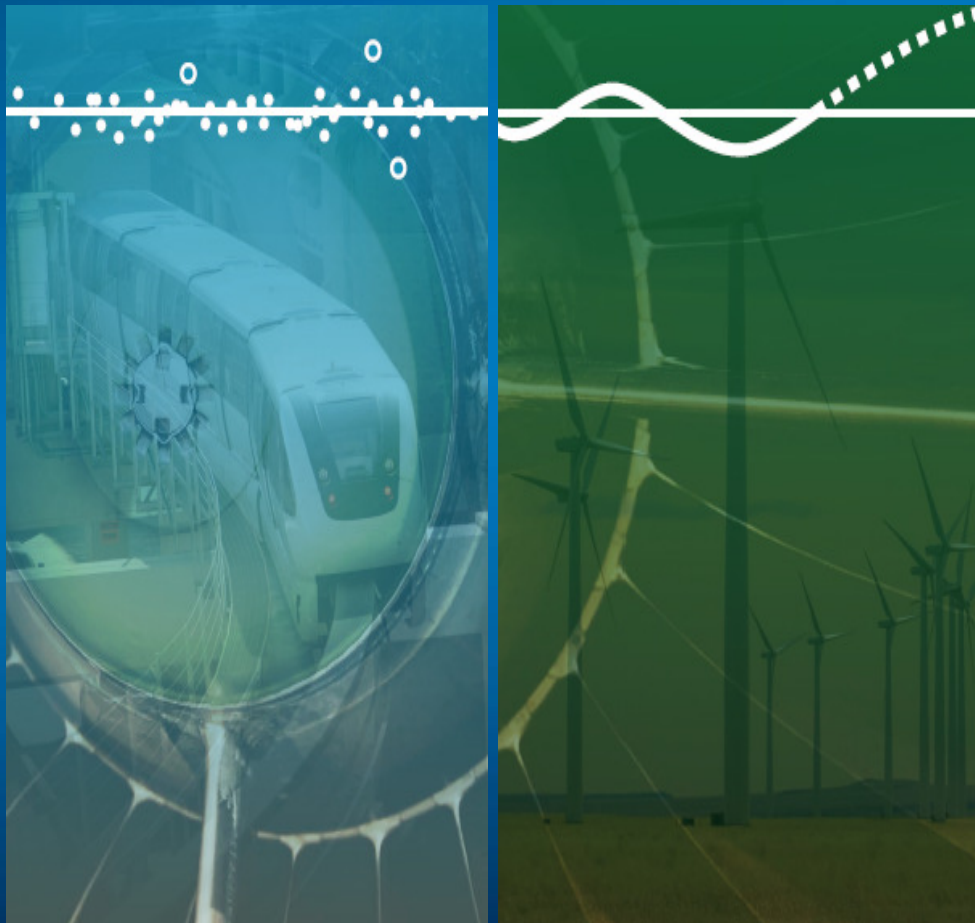
Efficiency

Uptime

Intel Copyrighted.

Comparison between IOT and airplanes and other vehicles

Similarity

- Connected devices
- Hierarchical data aggregation
  - Edge → on-board sensors, actuators, controllers, and monitors
  - Gateway → data servers, maintenance computers
  - Cloud → remote monitoring & big data applications
- Machines, physical devices, data
- User groups → Aircraft fleets

Differences

- Wireless connectivity ←→ Wired, heavily harnessed
- Possibly unknown peers ←→ Known systems and components
- Media data ←→ Machine data
- Online learning ←→ Offline learning
- Fast changing device generations: 2 yr ←→ 25 yr

Intelligent systems

Intelligent Systems
VISION

Leading the evolution of Connected Intelligent Systems and Infrastructure with breakthrough IA platforms. Implementing secure, managed solutions performing state of the art analytics.

Intelligent Devices
Connected devices acquire data

System of Systems
Devices share data securely with one another and with the cloud

Analytics
Convert data into insight for customer value

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Thank You

link.c.jaw@intel.com