

TechCamp Internet of Things



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Agenda

1. Intro: What is IoT? What does Microsoft offer?
2. Things: Windows 10 IoT Overview
3. Connectivity: Azure IoT Overview
4. Data: Sensor data, cognitive services, etc.
5. Analytics: Stream Analytics, Power BI, Azure Machine Learning
6. Command & Control
7. Wrap-up

Agenda

09:00 – 09:30

What is IoT? Microsoft offerings?

09:30 – 10:30

Things: Windows 10 IoT Overview

10:30 – 11:00

Break

11:00 – 12:00

Connectivity: Azure IoT Overview

12:00 – 12:45

Lunch

12:45 – 14:30

Data: sensors, cognitive services, etc.

14:30 – 14:45

Break

14:45 – 16:00

Analytics: Stream Analytics, Power BI, ML

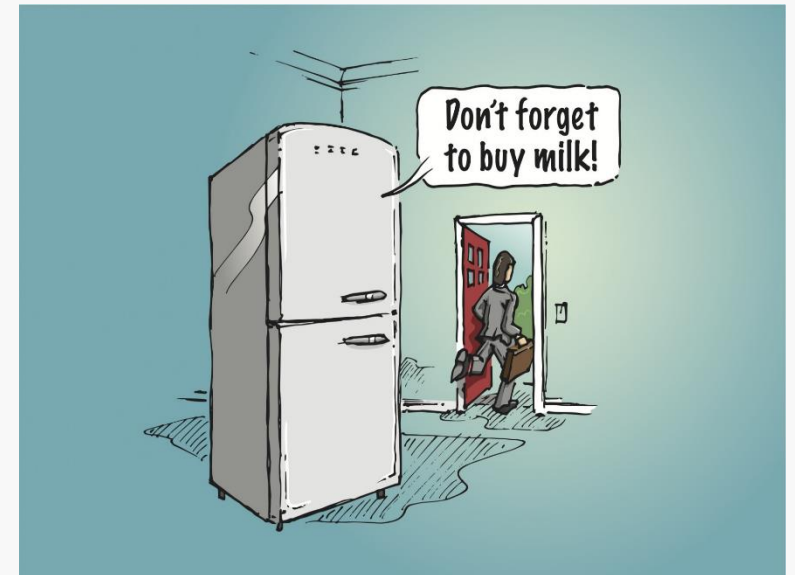
16:00 – 16:30

Command & Control

Was ist IoT?

The “Internet of Things” or IoT is cool.
I know this because everyone tells
everyone else how cool it is.
Ask anyone and they will give you
their own definition of
what IoT means and
why it is cool.

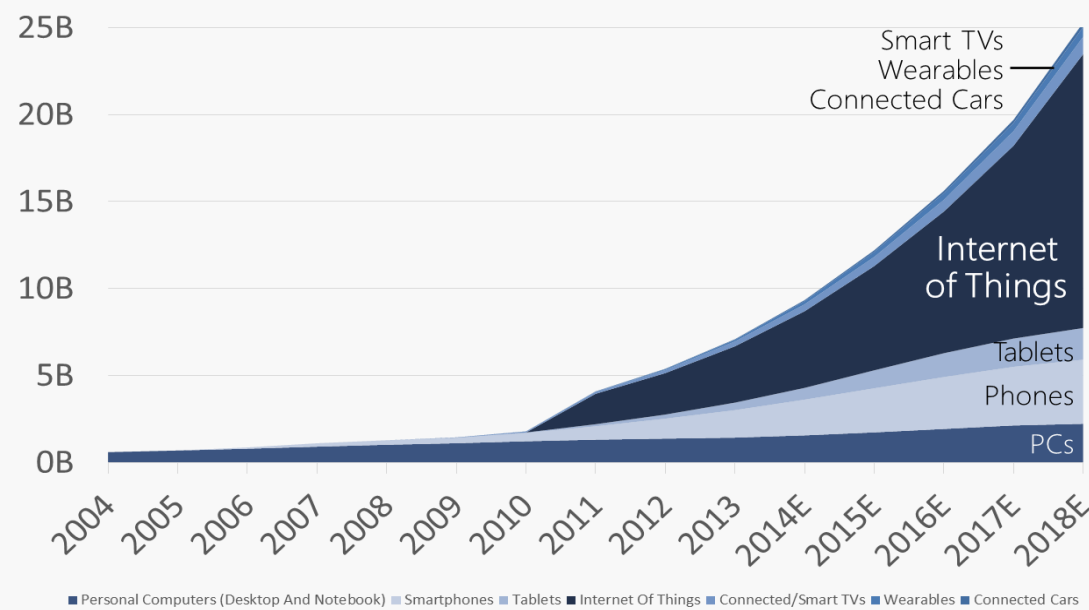
Steven Sinofsky



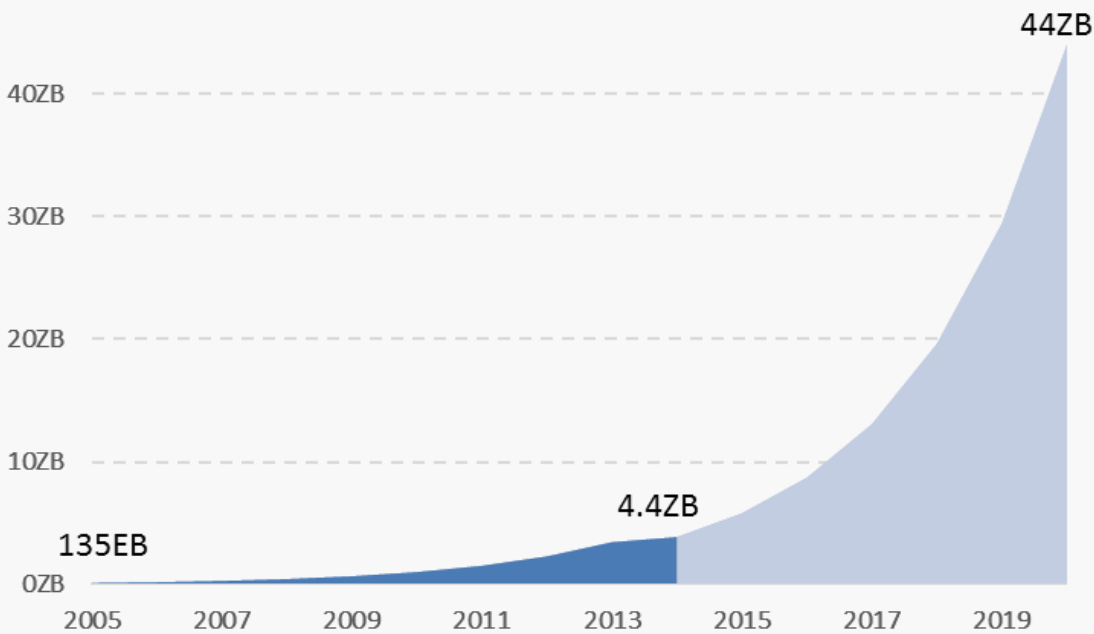
IoT Market Growth

Explosion in Devices and Data

Worldwide Connected Devices



Worldwide Data Created

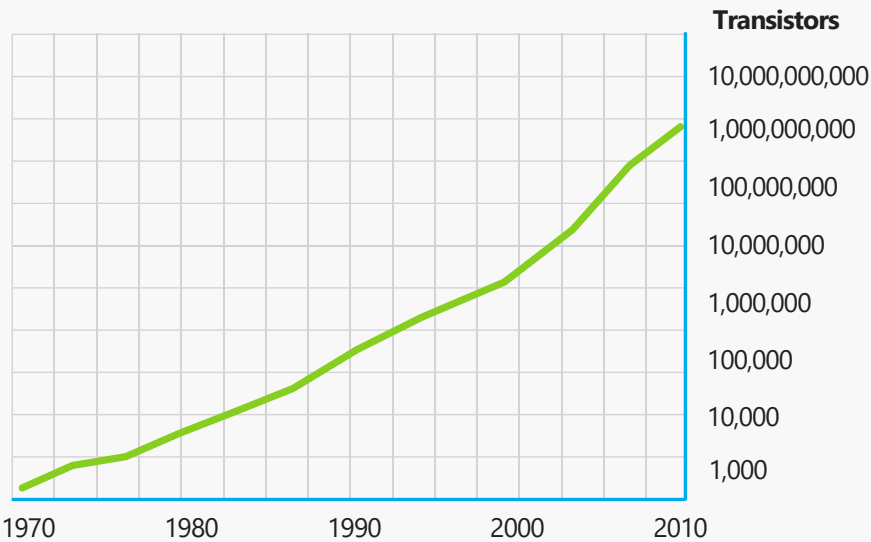


1 ISS Connected Device Market Sizing. Analyst estimates range from 22-75B connected devices by 2020.

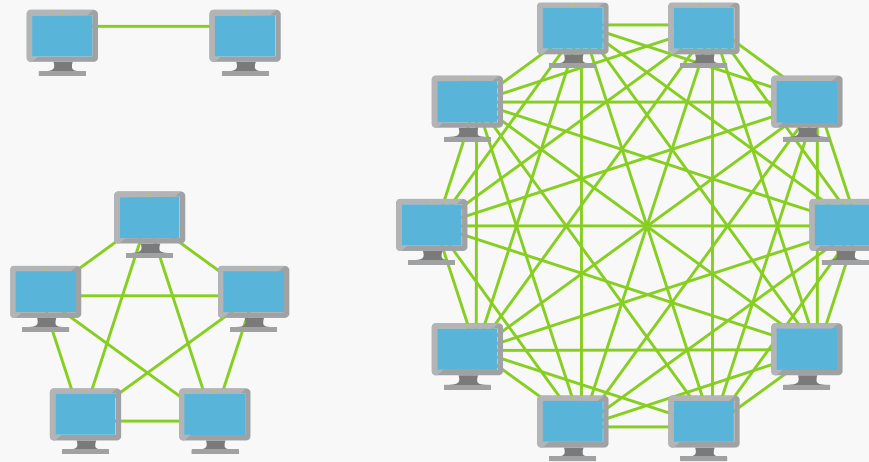
2 Digital Universe Forecast. IDC, April 2014

Disruptive Forces

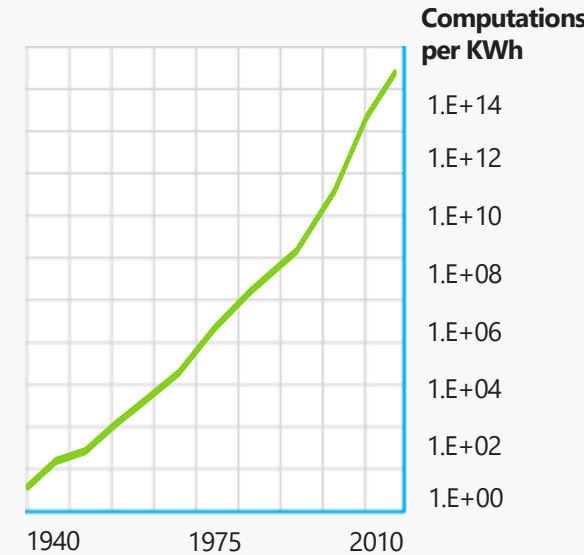
Moore's Law



Metcalf's Law



Koomey's Law

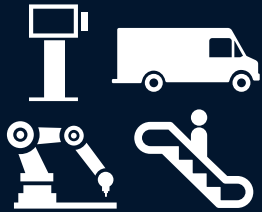


And more importantly:

What can you do by combining and analyzing signals from all of these IoT devices?

Defining Internet of Things

Things



Connectivity



Data

10101
01010
00100

Analytics



Industrie 4.0



Erster
mechanischer
Webstuhl,
1784



Mechanisierung

1.



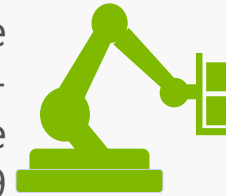
Erstes
Fließband,
1870



Elektrifizierung

2.

Erste
speicherbare-
programmierbare
Steuerung, 1969



Automatisierung

3.

Industrie 4.0



Vernetzung



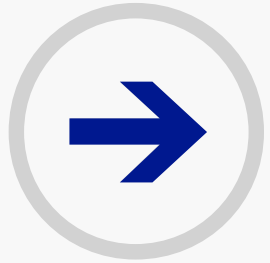
4.



IoT Szenarien

Every company is
a data company...





Estrus lasts only for 12-18 hours every 21 days



Occurs mostly between 10 pm and 8 am



Steps

Start of Estrus Detected

Optimum For Artificial Insemination

16 Hours Later

**Probable
Female**

**Probable
Male**

12th 9:00

12th 9:00

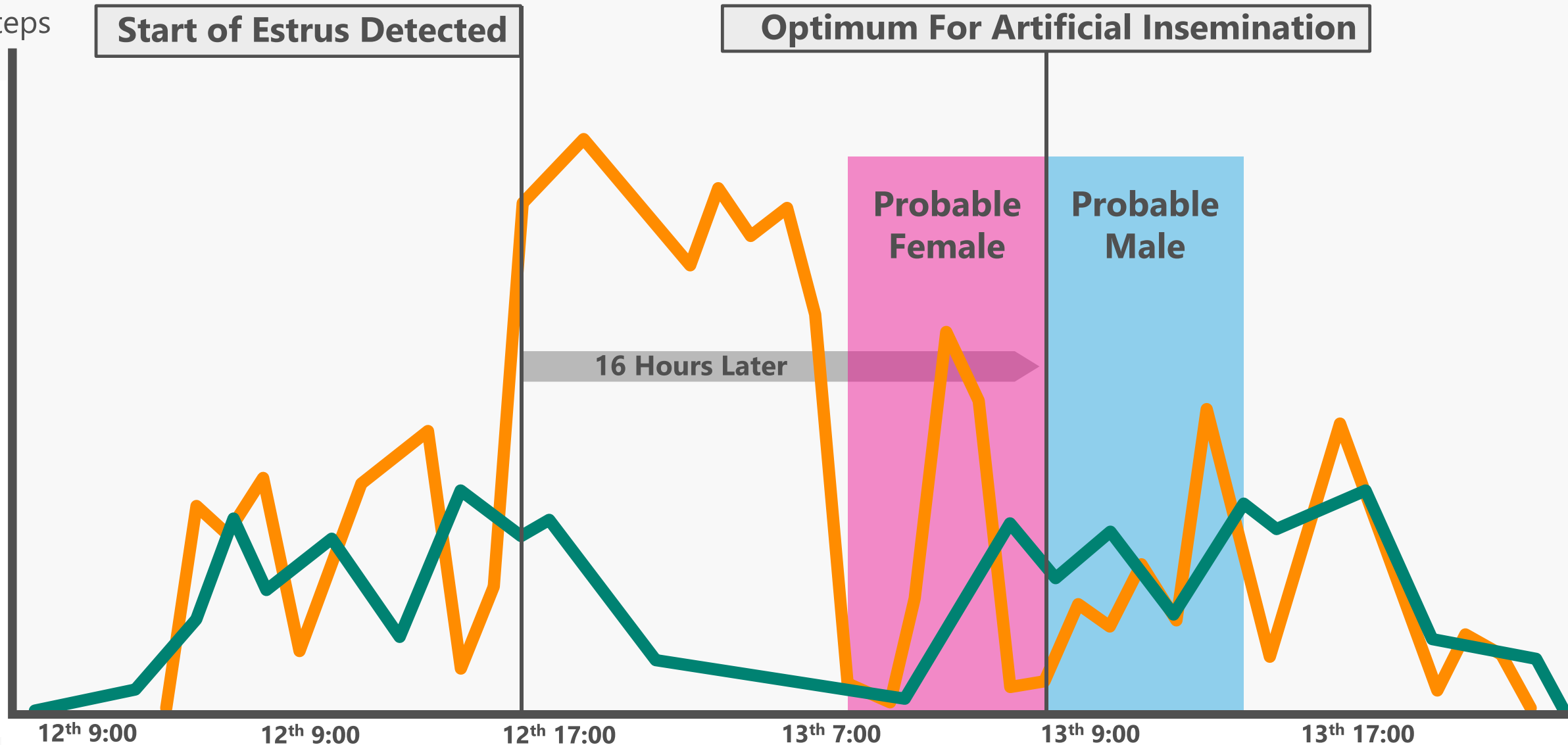
12th 17:00

13th 7:00

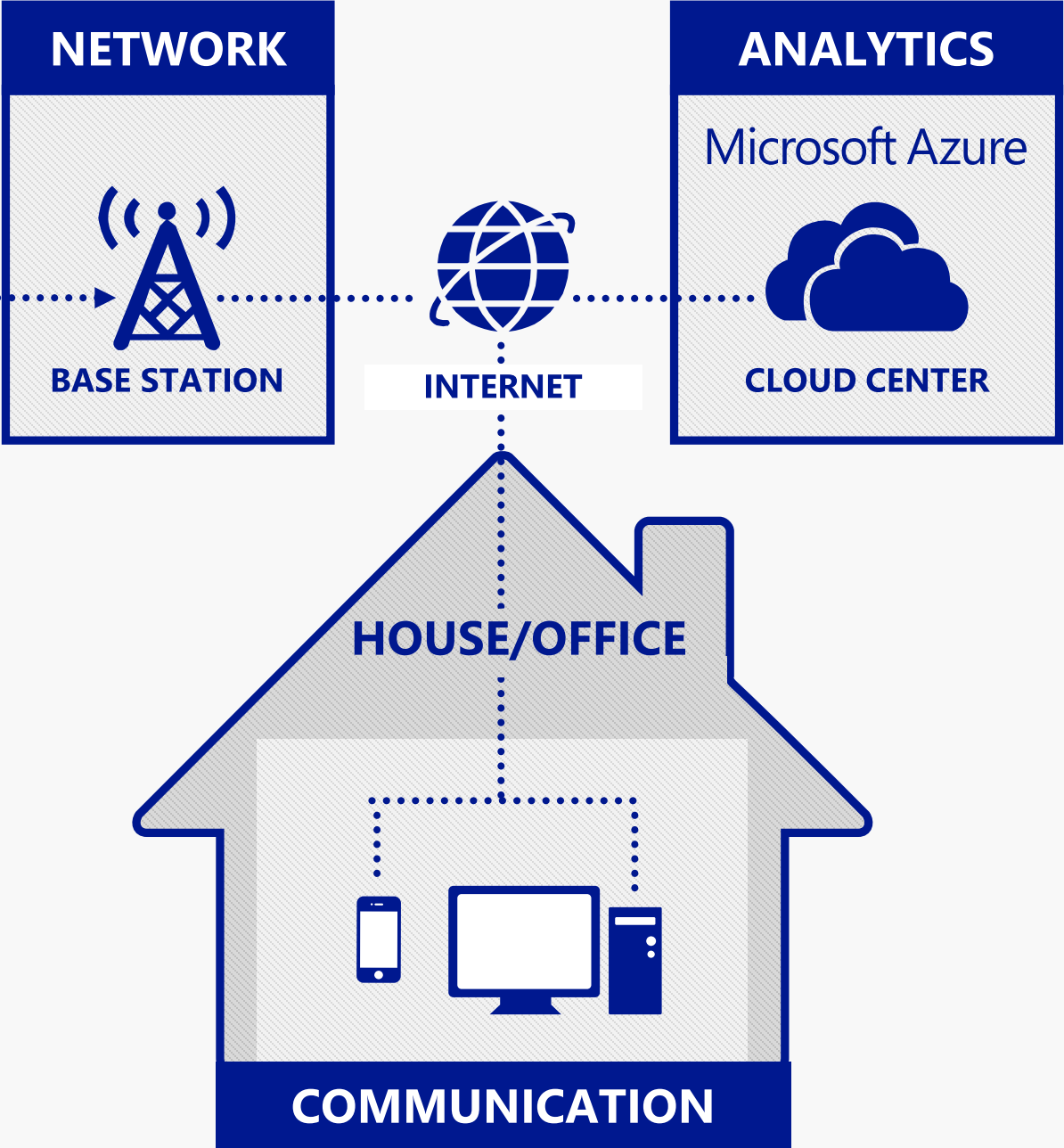
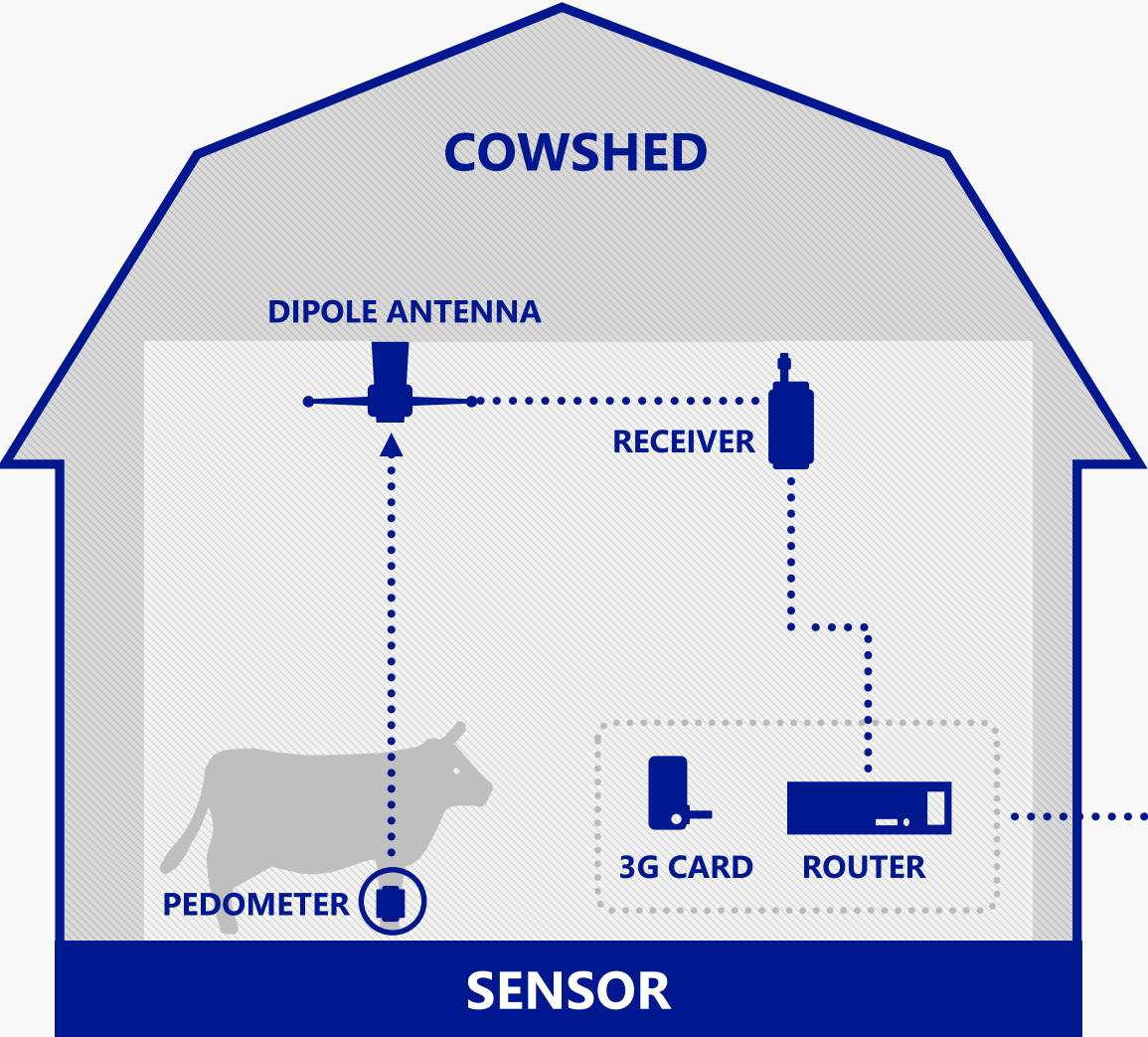
13th 9:00

13th 17:00

Elapsed time



FUJITSU KYUSHU SYSTEMS
GYUHO "Cow Step" Service



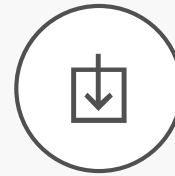
Connected Cars

75%

of the cars shipped globally by **2020** will be built with the necessary hardware to connect to the Internet



Vehicle diagnostic



Usage-based insurance



Fleet management



Roadside assistance



Eco-driving

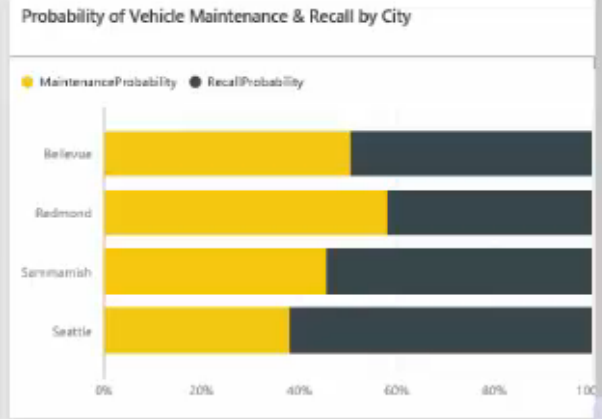
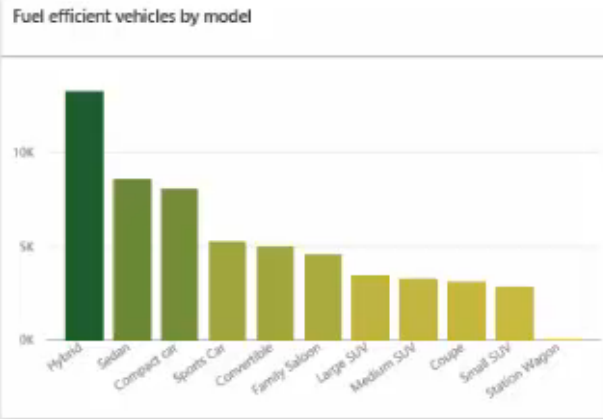
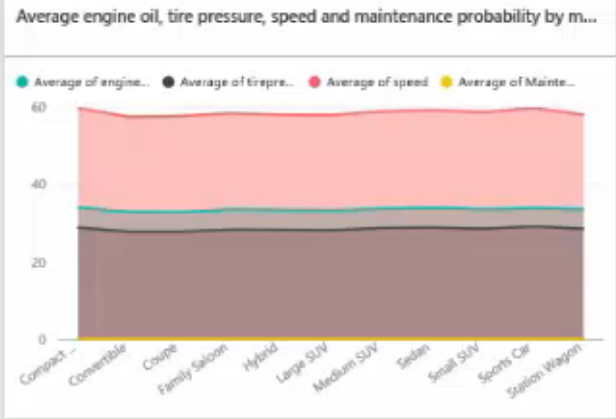
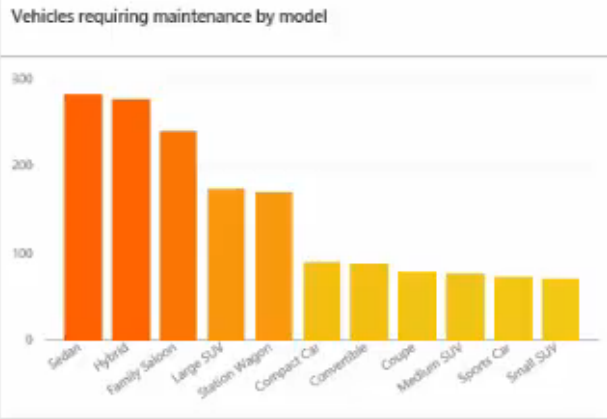
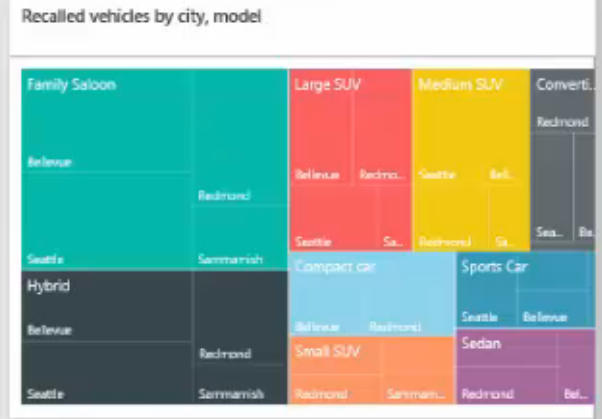
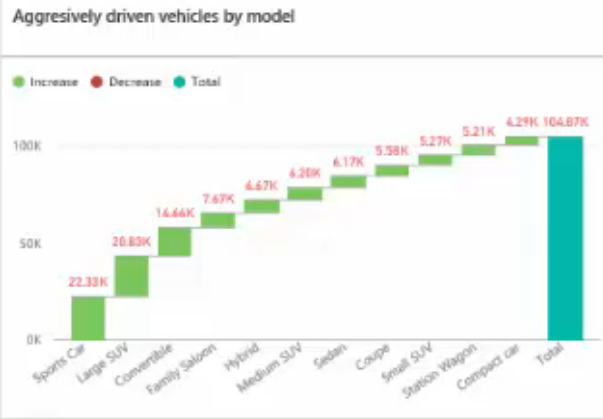
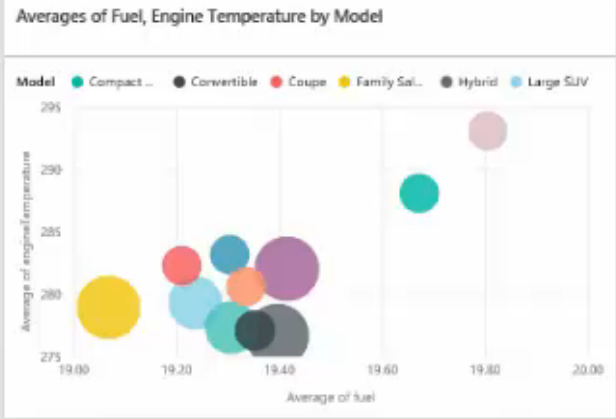
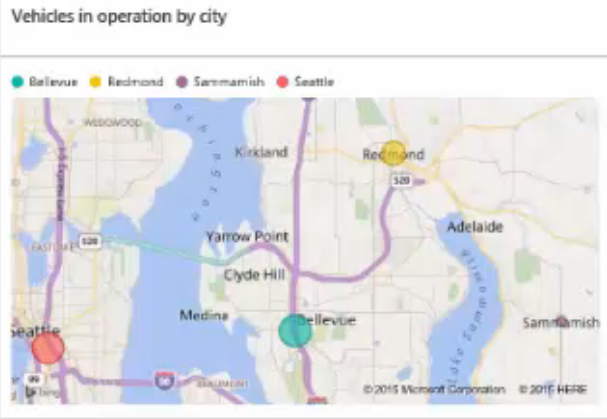
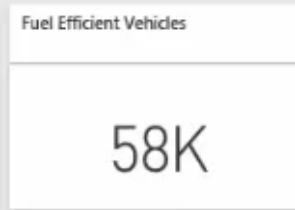
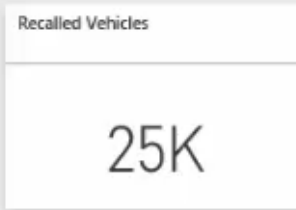


Engine performance remapping

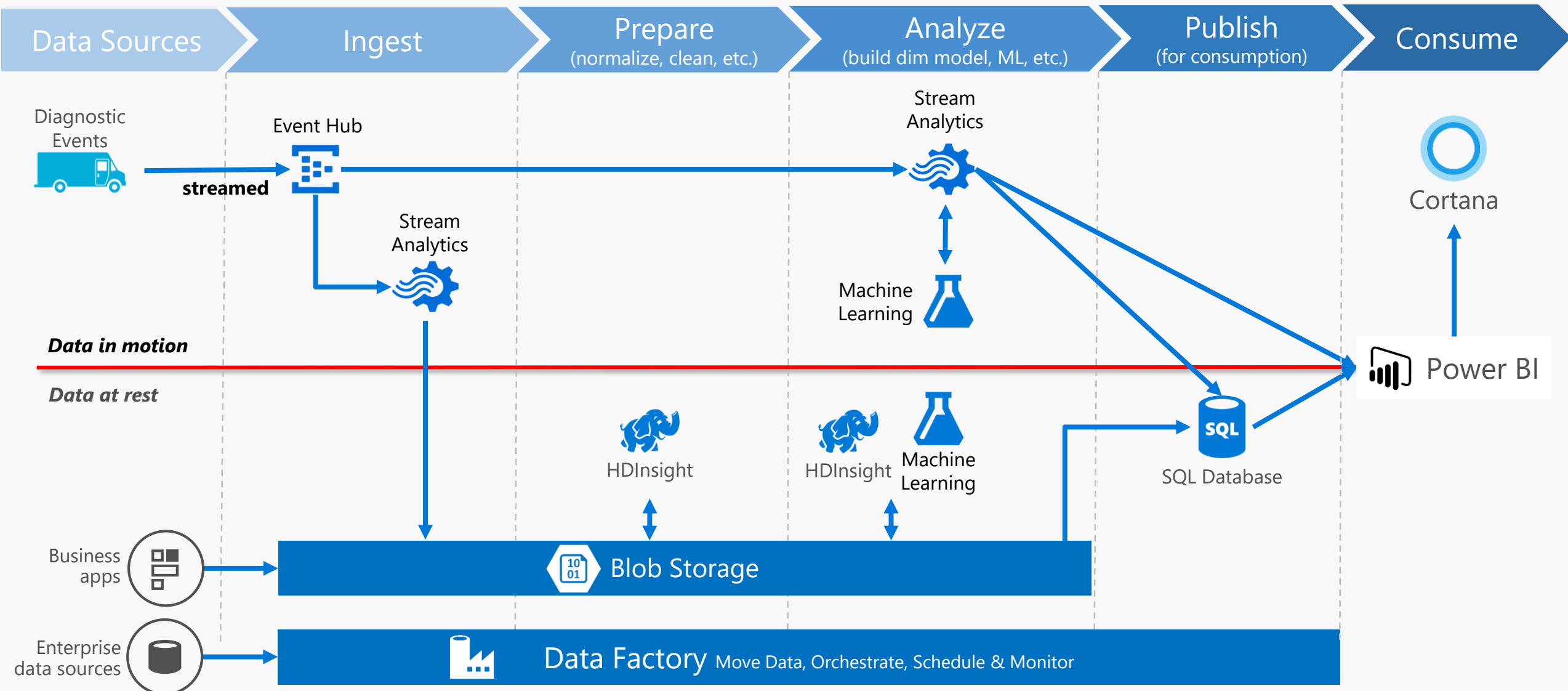


Engine emission control





Solution Architecture



Microsoft Azure

oliviak@microsoft.com

ALL ITEMS

WEB APPS5

VIRTUAL MACHINES9

MOBILE SERVICES1

CLOUD SERVICES9

BATCH SERVICES0

SQL DATABASES5

STORAGE17

HDINSIGHT0

MEDIA SERVICES0

all items

NAME	TYPE	STATUS	SUBSCRIPTION	LOCATION
AdventureWorksDW2014	SQL Database	Online	Internal Consum...	North Europe
AdventureWorksDW2014	SQL Database	Online	Internal Consum...	North Europe
Aggregates	Stream Analytics Job	Stopped	Internal Consum...	West Europe
Alerts	Stream Analytics Job	Created	Internal Consum...	West Europe
connectedcar	ML Workspace	Online	Internal Consum...	West Europe
connectedcaroliviak	Storage Account	Online	Internal Consum...	West Europe
connectedcaroliviak01	Storage Account	Online	Internal Consum...	West US
connectedcaroliviak01	Stream Analytics Job	Running	Internal Consum...	Central US
connectedcaroliviak01887	Service Bus Namespace	Active	Internal Consum...	West US
Group advworks oliviak-sql	Virtual Network	Created	Internal Consum...	North Europe
Group hadoop oliviak-sandbox	Virtual Network	Created	Internal Consum...	North Europe
Group oliviakspark oliviakSpark	Virtual Network	Created	Internal Consum...	North Europe
Group spark oliviak-cassandra	Virtual Network	Created	Internal Consum...	North Europe

NEW

EXPORT

DELETE

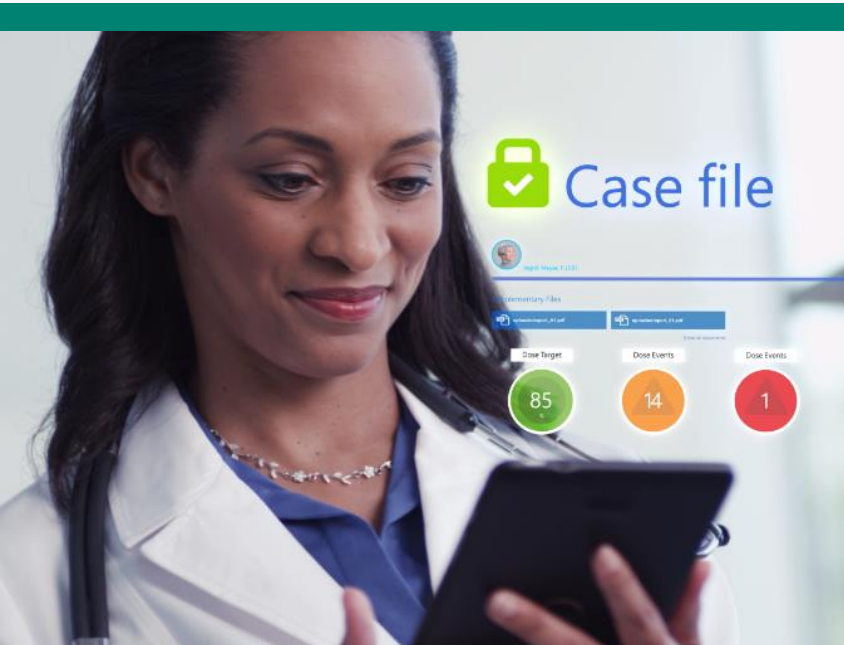
OPEN IN VISUAL STUDIO

COPY



Siemens Healthcare – **teamplay™ Dose**

teamplay: a cloud-based network that brings together healthcare professionals in order to advance medicine and human health as a team effort. teamwork creates an international environment, in which physicians, clinicians and healthcare executives come together to form one big virtual imaging team.

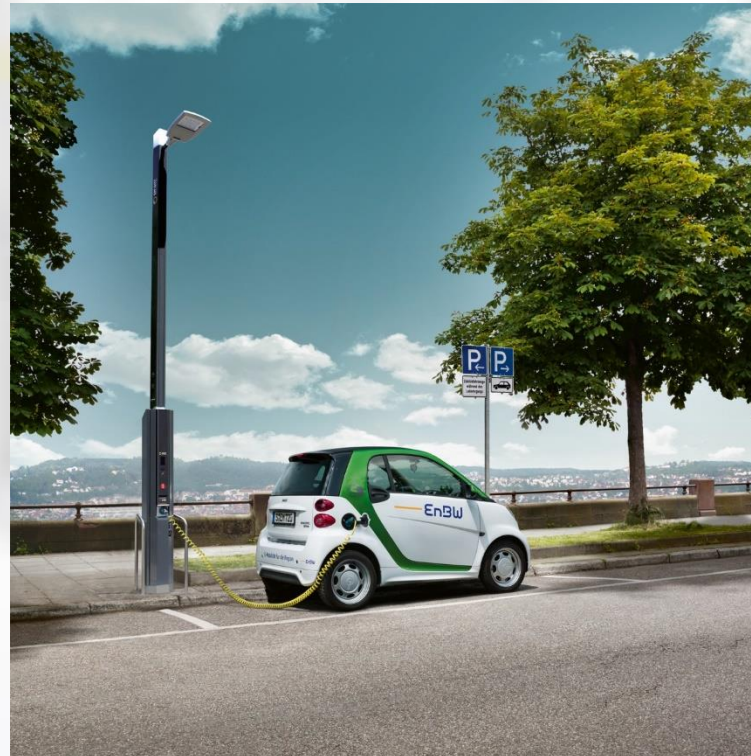


SM!GHT – smart.city.light

Intelligent vernetzte Infrastruktur in Städten und Gemeinden

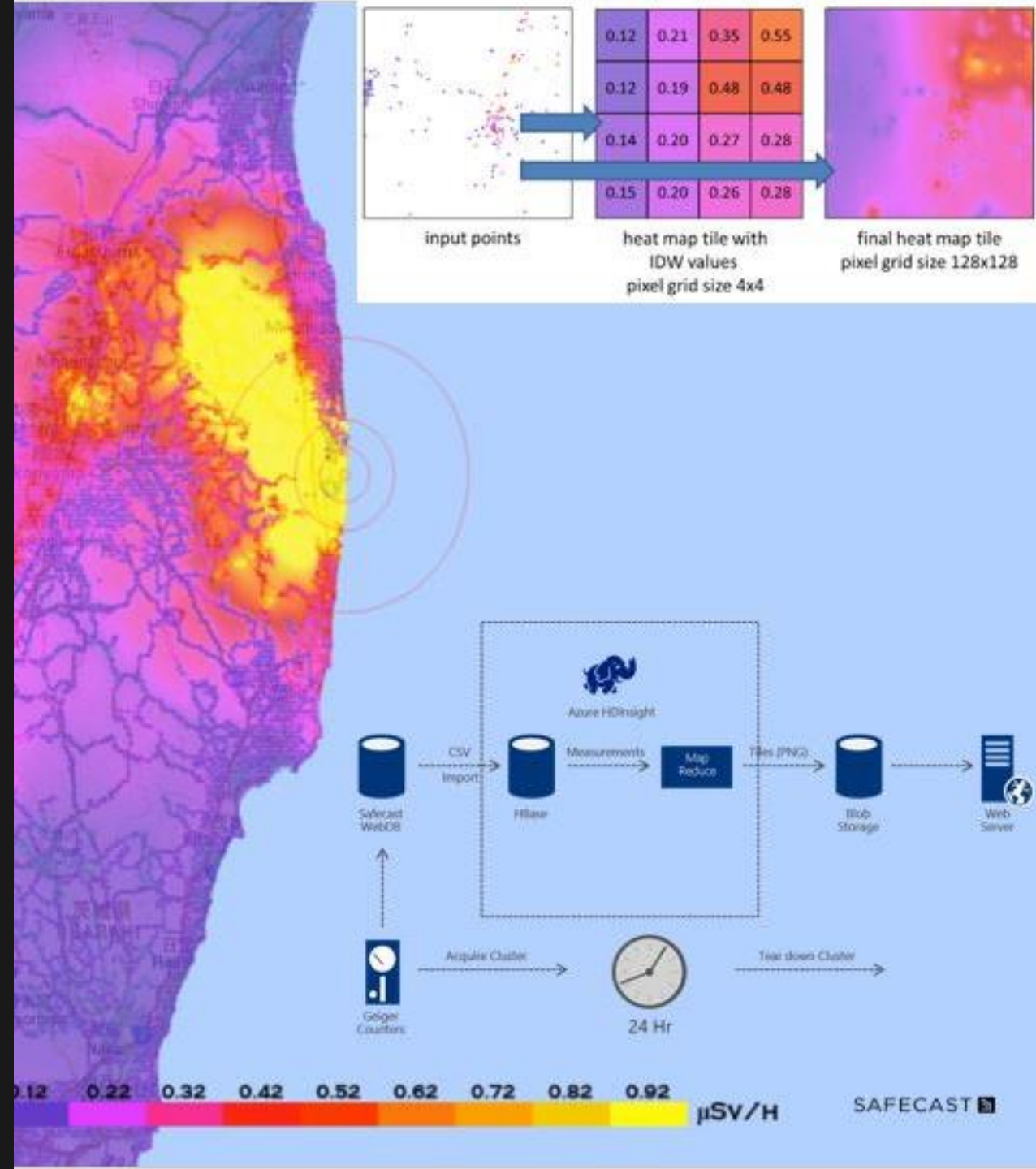
Idee:

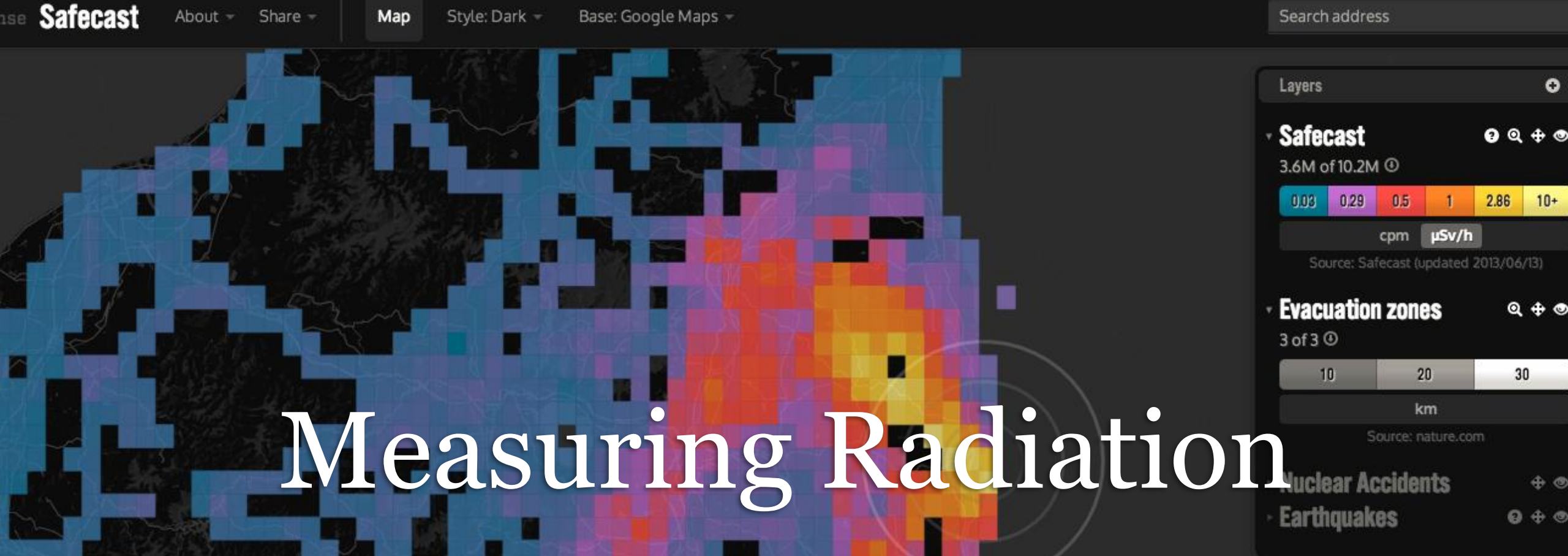
Straßenlaterne mit
Funktionalität und
Sensorik erweitern



“With the analytical capabilities of Azure HDInsight and the Safecast open data set, Japanese citizens have an accurate tool they can use to discover how the Fukushima disaster impacts them.”

Robert Neumann
Ultra Tendency
CEO





Measuring Radiation

Following the Fukushima Daiichi nuclear plant meltdown, Japanese citizens had no idea how much radiation they were exposed to or how it was contaminating their communities. But software startup Ultra Tendency, working with Japanese nonprofit **Safecast**, changed that. Using cloud-based analytics, Ultra Tendency created a solution that collects radiation data from more than 500 sensors and presents up-to-date maps of contamination levels around Japan. With accurate heat map data, mobile users can find out the radiation intake between two locations, so if they were traveling from city to city, they could calculate radiation levels on the route and decide to change their route based on those levels.



Technologies
Azure, Visual Studio



Resources
[Case study](#)



Country
Japan



Contact:
[Jackie Logan](#)



Connected Highly Automated Driving

