

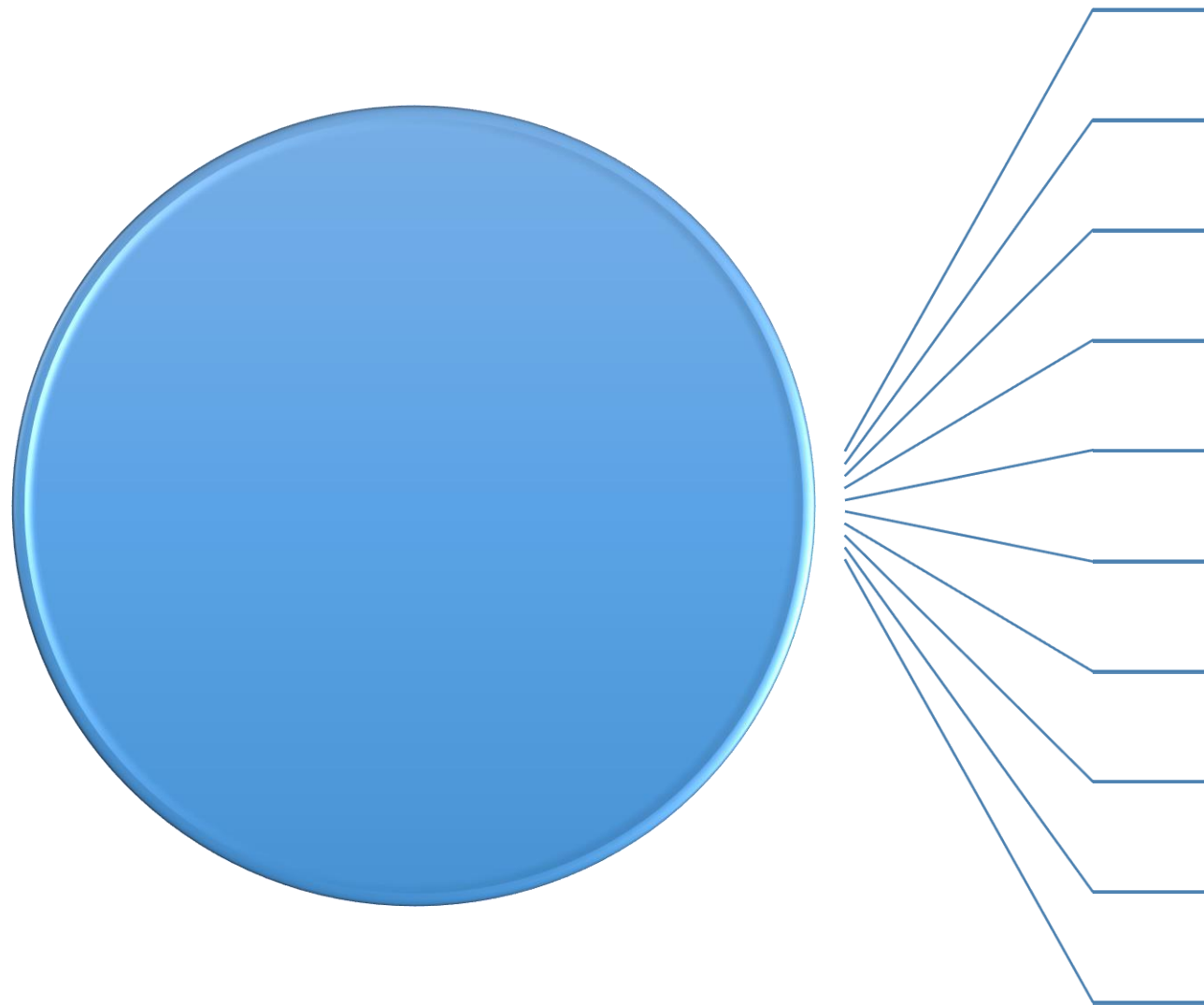


Internet-of-Things

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Agenda



IoT: Hype or Reality?

Various Applications of IoT

What is IoT Anyway?

Types of IoT

Example Use Cases

The IoT Journey

Cloud of Things and Services

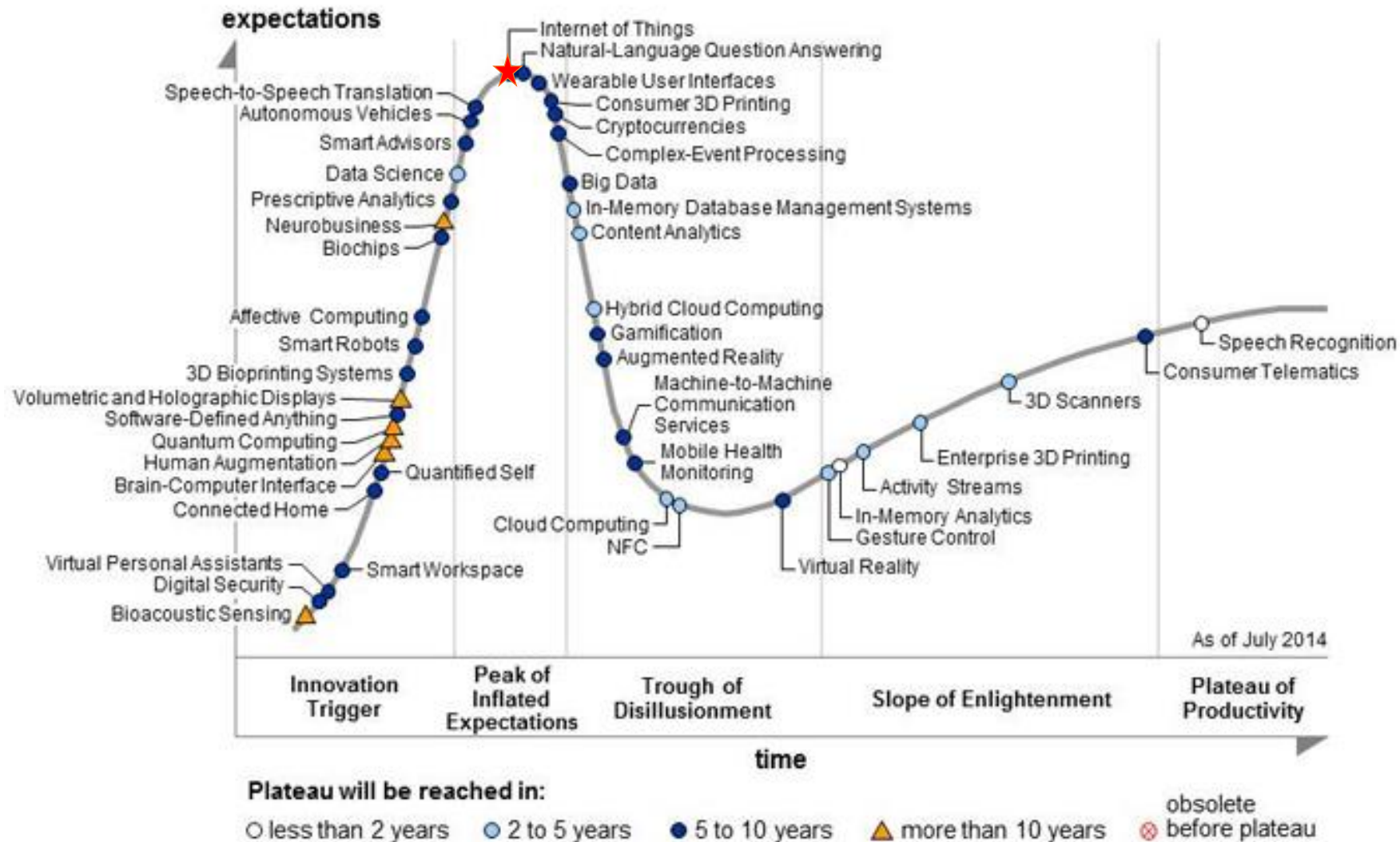
IoT Challenges

Key Takeaway

Q & A

IoT: Hype or Reality

"It's Official: The Internet Of Things Takes Over Big Data As The Most Hyped Technology"
– Forbes Headline, 18-Aug-2014.



Applications of IoT

Air Pollution

Control of CO₂ emissions of factories, pollution emitted by cars and toxic gases generated in farms.

Forest Fire Detection

Monitoring of combustion gases and preemptive fire conditions to define alert zones.

Wine Quality Enhancing

Monitoring soil moisture and trunk diameter in vineyards to control the amount of sugar in grapes and grapevine health.

Offspring Care

Control of growing conditions of the offspring in animal farms to ensure its survival and health.

Sportsmen Care

Vital signs monitoring in high performance centers and fields.

Structural Health

Monitoring of vibrations and material conditions in buildings, bridges and historical monuments.

Quality of Shipment Conditions

Monitoring of vibrations, strokes, container openings or cold chain maintenance for insurance purposes.

Smartphones Detection

Detect iPhone and Android devices and in general any device which works with Wifi or Bluetooth interfaces.

Perimeter Access Control

Access control to restricted areas and detection of people in non-authorized areas.

Radiation Levels

Distributed measurement of radiation levels in nuclear power stations surroundings to generate leakage alerts.

Electromagnetic Levels

Measurement of the energy radiated by cell stations and WiFi routers.

Traffic Congestion

Monitoring of vehicles and pedestrian affluence to optimize driving and walking routes.

Smart Roads

Warning messages and diversions according to climate conditions and unexpected events like accidents or traffic jams.

Smart Lighting

Intelligent and weather adaptive lighting in street lights.

Intelligent Shopping

Getting advices in the point of sale according to customer habits, preferences, presence of allergic components for them or expiring dates.

Noise Urban Maps

Sound monitoring in bar areas and centric zones in real time.

Water Leakages

Detection of liquid presence outside tanks and pressure variations along pipes.

Vehicle Auto-diagnosis

Information collection from CanBus to send real time alarms to emergencies or provide advice to drivers.

Item Location

Search of individual items in big surfaces like warehouses or harbours.

Waste Management

Detection of rubbish levels in containers to optimize the trash collection routes.

Smart Parking

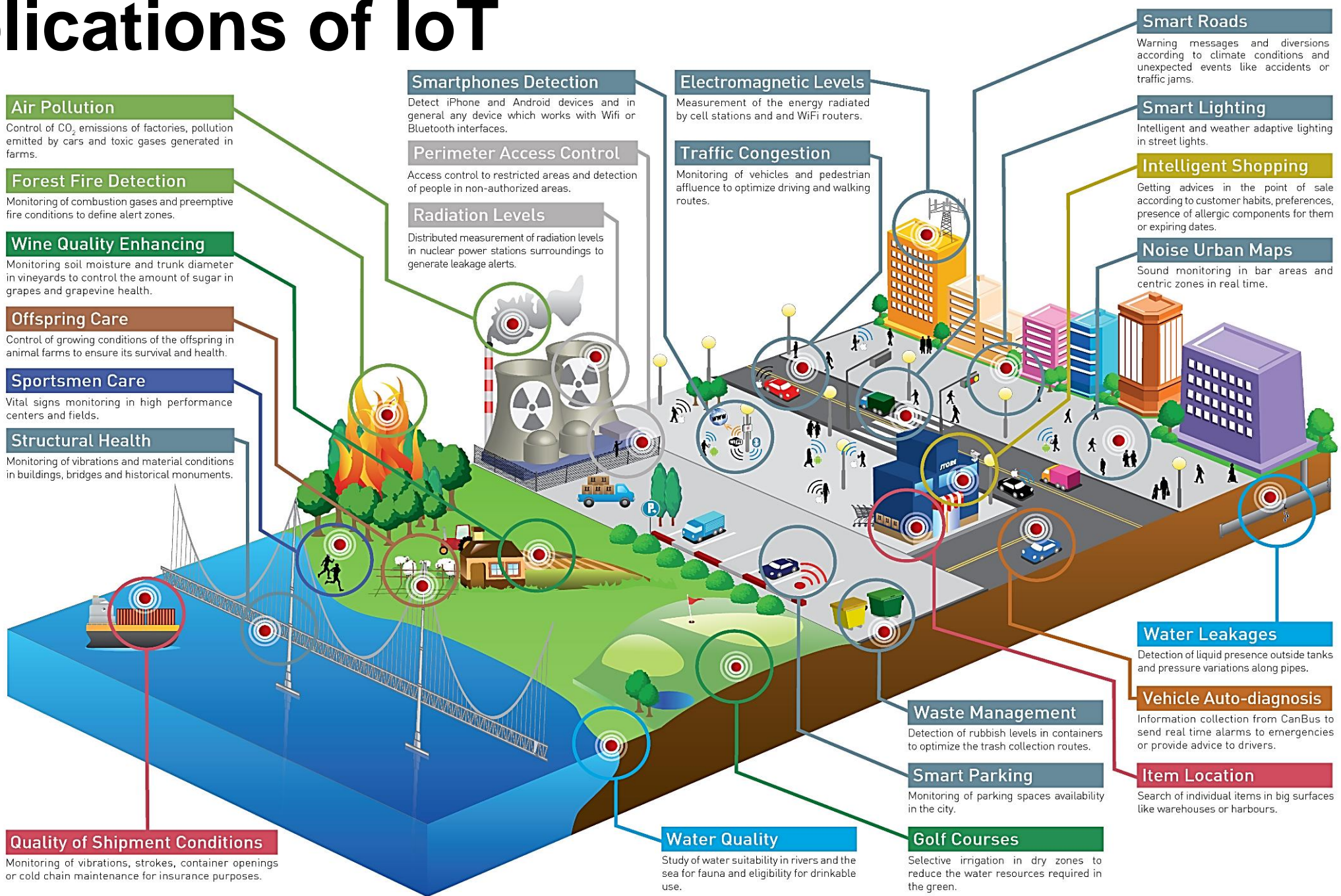
Monitoring of parking spaces availability in the city.

Golf Courses

Selective irrigation in dry zones to reduce the water resources required in the green.

Water Quality

Study of water suitability in rivers and the sea for fauna and eligibility for drinkable use.



Applications of IoT

Air Pollution

Control of CO₂ emissions of factories, pollution emitted by cars and toxic gases generated in

Smart Home:

- Perimeter Access Control
- Fire and Air Quality Detectors
- Waste Management
- Smart Lighting

Structural Health

Monitoring of vibrations and material conditions in buildings, bridges and historical monuments.

Logistics:

- Vehicle Auto-location
- Item Location
- Shipment Monitoring
- Intelligent Shopping

Quality of Shipment Conditions

Monitoring of vibrations, strokes, container openings or cold chain maintenance for insurance purposes.

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Health and Wellbeing:

- Smart Lighting
- Radiation Levels
- Electromagnetic Levels
- Offspring Care
- Sportsmen Care
- Patient Monitoring
- Monitoring in Community Care

Smart City:

- Smart Lighting
- Pollution Control
- Traffic Management
- Smart Parking
- Water Quality
- Urban Noise Maps
- Smart Roads
- Water Leakages
- Structural Health of Buildings

Water Leakages

Detection of liquid presence outside tanks and pressure variations along pipes.

Vehicle Auto-diagnosis

Information collection from CanBus to send real time alarms to emergencies or provide advice to drivers.

Item Location

Search of individual items in big surfaces like warehouses or harbours.

Management

Wish levels in containers
Wish collection routes.

Parking

Parking spaces availability

Courses

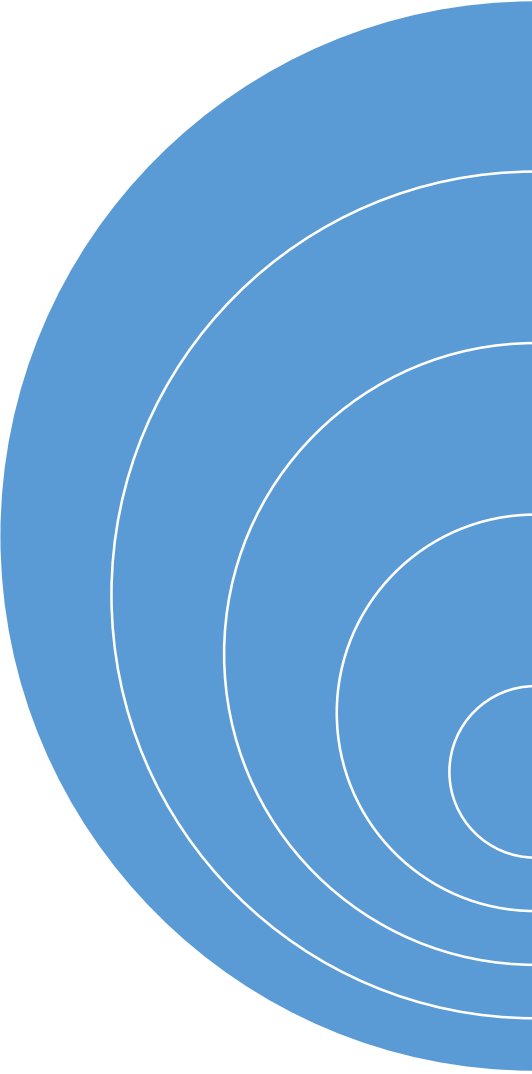
Study of water suitability in rivers and the sea for fauna and eligibility for drinkable use.

Selective irrigation in dry zones to reduce the water resources required in the green.

What is IoT?

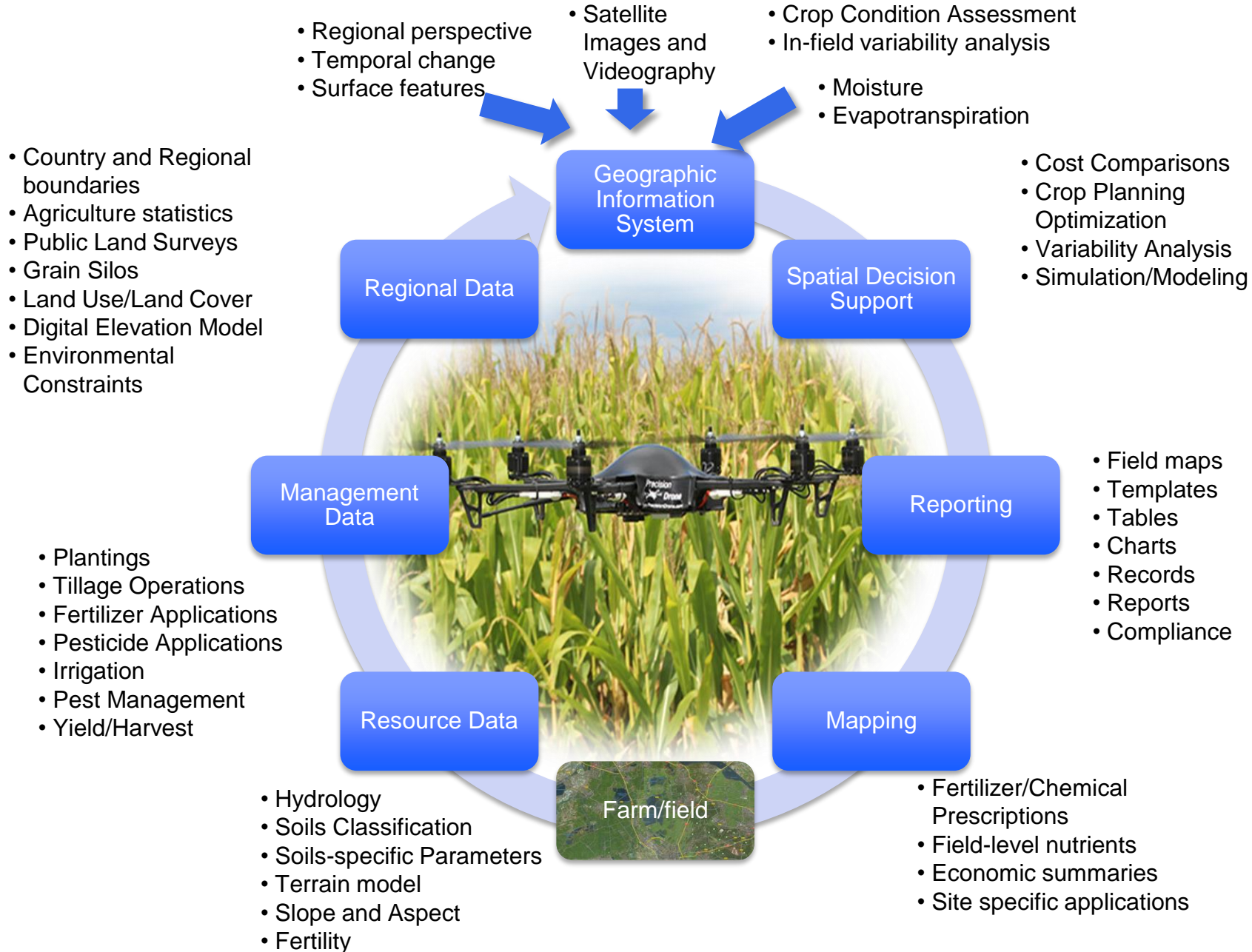
Network of 'physical objects' (things) that have internet connectivity, which facilitates communication between those objects and other internet-enabled devices and systems.

Types of IoT



Personal	<ul style="list-style-type: none">•Wearable
Mobile and Logistics	<ul style="list-style-type: none">•Geo-Spatial
Home/Office	<ul style="list-style-type: none">•Geo-Stationary
Civic Premises	<ul style="list-style-type: none">•Geo-Stationary•Geo-Spatial
Health and Well-being	<ul style="list-style-type: none">•Wearable•Geo-Spatial•Geo-Stationary

Example Use Case 1: Agriculture



Example Use Case 1: Agriculture

Wall-Ye Robot Features:

- Tracking technology,
- Mapping to move from vine to vine,
- Recognise plant features,
- Capture and record data,
- Memorise each vine,
- Synchronise six cameras and
- Guide its arms to wield tools.

Wall-Ye Robot Benefits

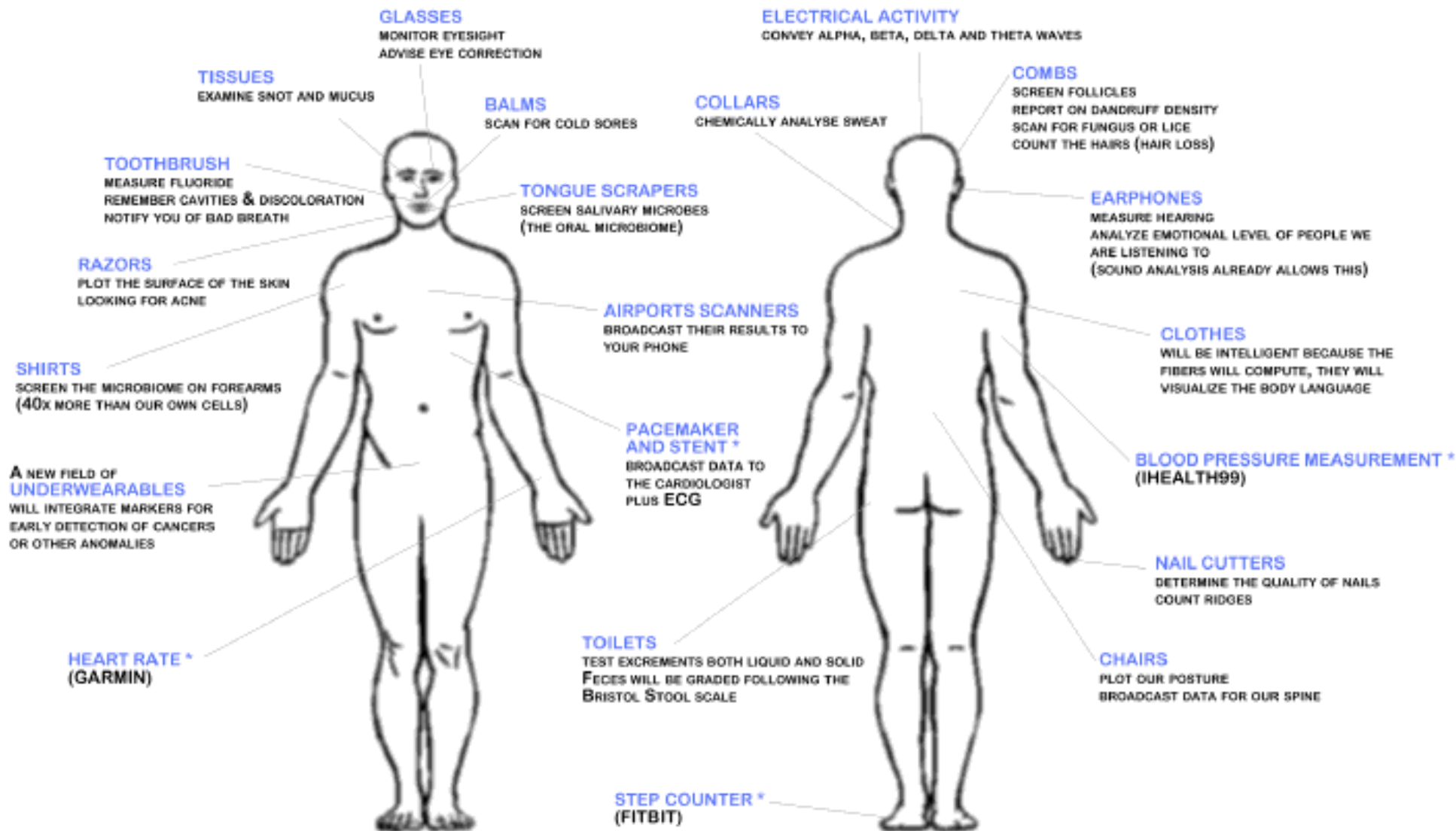
- Reduce fertilizer costs
- Reduce chemical application costs
- Reduce pollution by precise use of chemicals.
- Improve crop yields
- Provide better information for farming decisions
- Provide better farm records essential for sale and succession.

A vineyard robot, Wall-Ye



Example Use Case 2:

HIT – HEALTH INTERNET OF THINGS

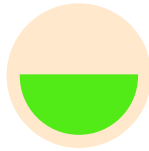


The IoT Journey

Evolution to Machine-to-Machine Systems



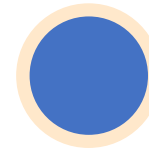
Man



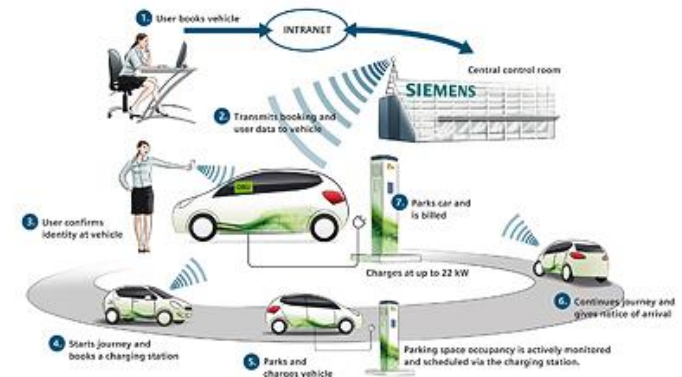
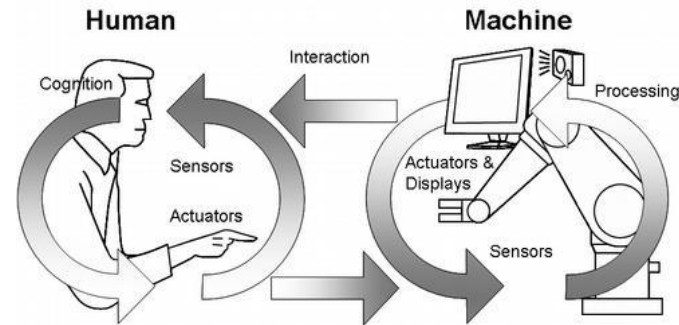
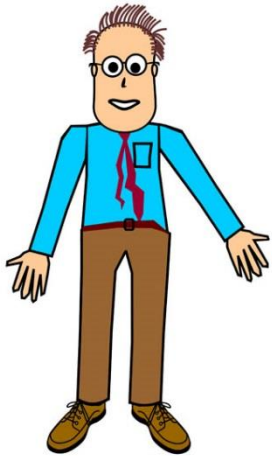
Machines



Man-machine
Systems

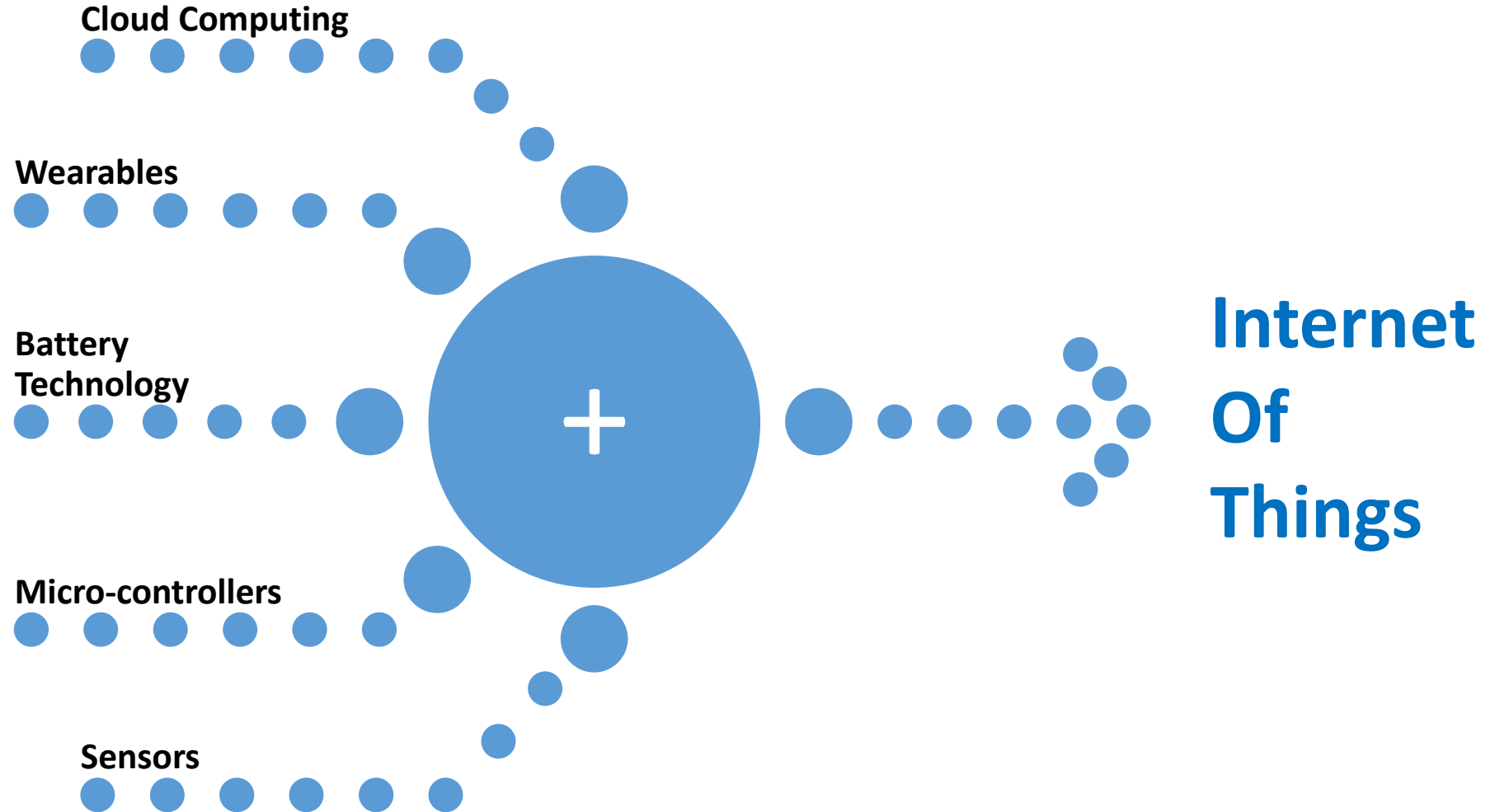


Machine-Machine
Systems

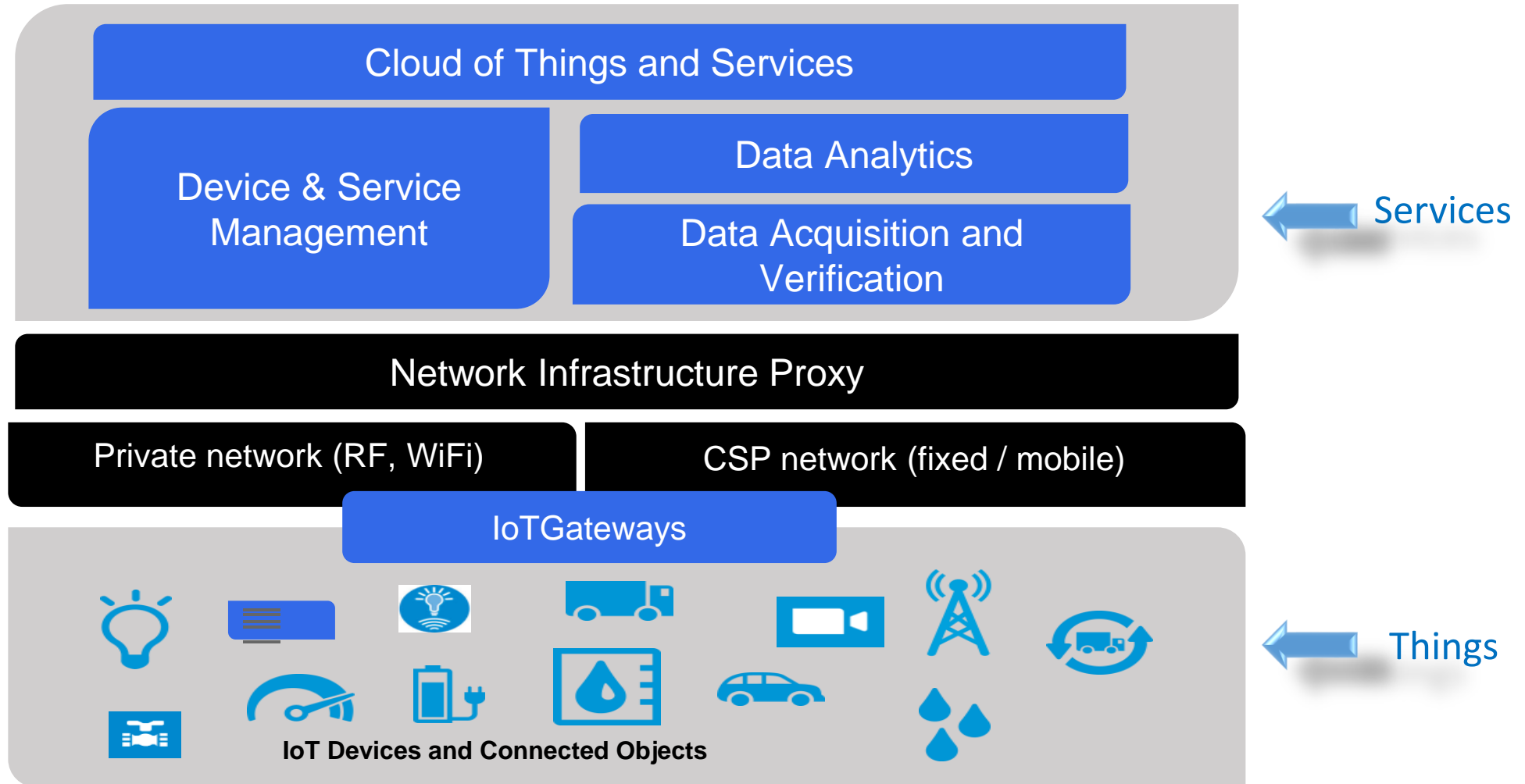


The IoT Journey

Convergence of Key Technologies



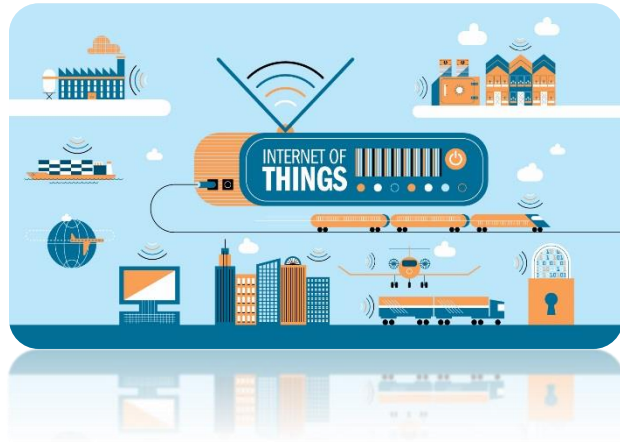
The Things-Service Paradigm



Cloud of Things and Services

THINGS

Cloud-centric IoT



Cloud related functions in IoT



SERVICES

IoT-centric Cloud



IoT related functions in Cloud

IoT Challenges and Opportunities

Challenges

The IoT Hub

- Wearable
- Mobile
- Home

Security

Data Protection

Opportunities

Hub Candidates

- iWatch
- Smart phone
- Xbox One or TV

Security Containers

Data Philanthropy

Key Takeaway



The Time For IoT Has Arrived!

Q&A





Thank You