



ERICSSON



# IOT ACCELERATOR

October, 2017

# CONNECTED DEVICES IN 2021

## 28 BILLION

7.1 BILLION IN 2015

8,7 BILLION  
MOBILE PHONES

3.7 BILLION IN 2015

4,2 BILLION  
PC/TABLET/LAPTOP/FIXED PHONES

4.6 BILLION IN 2015

15,3 BILLION  
M2M/IOT DEVICES



Source: Ericsson Mobility Report  
November 2015



### Machine to Machine

A *device...*  
that captures an *event...*  
transmits it over a *network...*  
to an *application ...*  
that translate it into  
*meaningful information*

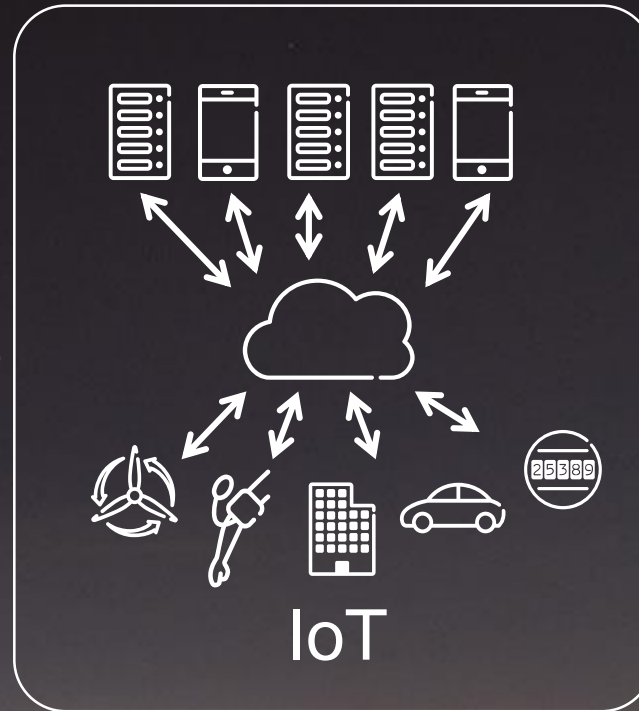
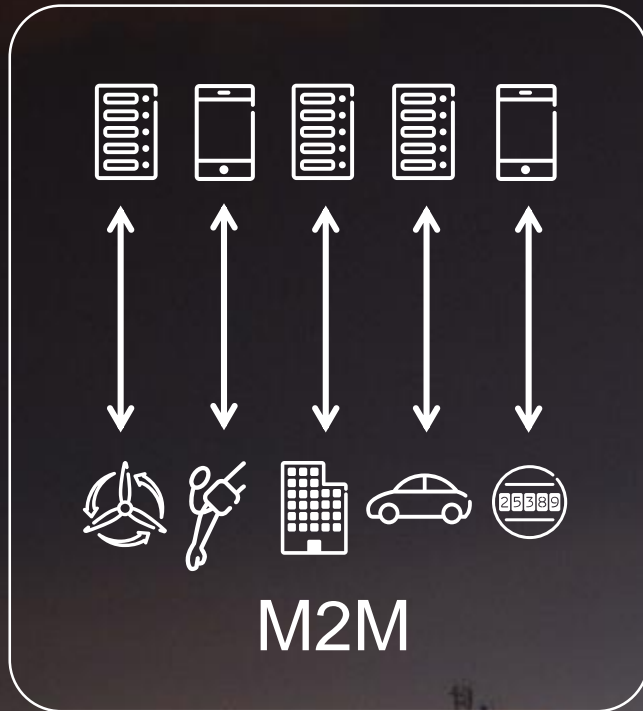


### Internet of Things

Bringing together the  
**people, process, data  
& things** to make networked  
connections more relevant  
turning **information** to **actions**



# TRANSFORMATION WITHIN IOT



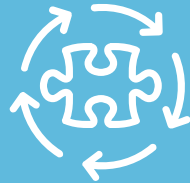
- › Horizontal platform for vertical applications
- › Open environments
- › Data centricity
- › Easy access as a Service
- › Business focused innovation

# IOT ACCELERATOR VALUE PROP



## Low Risk

No upfront investments in software and hardware  
From CAPEX to OPEX.  
Improved free cash flow



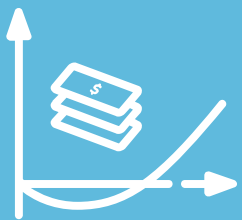
## Always up to date

Lifecycle Management Included.  
Remove costly and painfully long migration projects



## Guaranteed

Functionality and capacity governed by a service level agreement (SLA)



## Only pay for what you consume

IOT Accelerator's price for individual functionality modules growing with your business



## Scalable & Secure

Scalability allows to evolve from proof of concept to industrialization.  
Data protection and privacy



## Technology made easy

Removing the infrastructure hurdles, handled through Ericsson Network Operations Center

# IOT ACCELERATOR USE CASES



Demo Zone / Internet of Things / Smart Home

## SMART HOME

The Smart Home Solution represents one of the main Operators and Enterprises starting point to enable and develop the IoT business in their Subscriber's base. Ericsson Smart Home provides a complete E2E solution not limited to Smart home but also extended towards Healthcare, Security, Energy management...

[Want to know more? Sign in or request a new account here](#)



Demo Zone / Internet of Things / Smart Building - Facility Management

## SMART BUILDING - FACILITY MANAGEMENT

The Smart Building /Facility Management Solution allow the full control of climate/energy consumption/room allocation/cleaning and others, through either new sensors installed or leveraging on existing sensors integrated on the AppIoT Platform.

[Want to know more? Sign in or request a new account here](#)

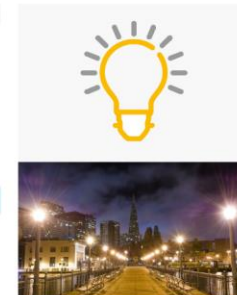


Demo Zone / Internet of Things / Smart Lighting

## SMART LIGHTING

The Smart Lighting Solution allow municipalities to have the full control of city Lighting in terms of power consumption and optimal light distribution over the day/night, enabling at the same time a multipurpose local area network to also connect other devices and enable additional Business Models.

[Want to know more? Sign in or request a new account here](#)



Demo Zone / Internet of Things / Smart Waste Management

## SMART WASTE MANAGEMENT

Smart Waste Management Solution optimizes waste collection and vehicle usage. By means of a set of sensors installed on the Trucks and on the bins, and a specific set of applications and analytics, it allows the municipalities to monitor and optimize the vehicle weight and route, fuel consumption and anomalies.

[Want to know more? Sign in or request a new account here](#)



Demo Zone / Internet of Things / Safety and Security

## SAFETY AND SECURITY

Maintaining a safe and secure society requires our public safety agencies to be efficient, well organized, informed and able to communicate rapidly and effectively to carry out their mission. The changing ICT landscape of CLOUD, IoT, MBB and service oriented business models brings challenges to these customers.

Ericsson Safety and Security Solution enable real time management of situations such as Accident Trigger, ER Dispatch, Emergency Vehicle Movement and others, so to keep the public safety and under control.

[Want to know more? Sign in or request a new account here](#)



Demo Zone / Internet of Things / Internet of Towers

## INTERNET OF TOWERS

Leveraging on massive presence of Operator's radio sites on the territory, this solution enables both a capillary environmental data collection (such as: Air Temperature, Air Humidity, Wind Speed, Wind Direction, Wind Temperature, Light, Solar Flares, Fog, Dust aerosol, Refractive effects, Electromagnetic emissions, Rain and Snow rate, Vibration (Earthquake), CO2, Atmospheric Pressure, radioactivity, Pollution, Clouds Status Noise ...) and at the same time enable a capillary IoT local radio network to reach on-the-ground sensors (such as Parking, Videosurveillance, elderly devices, waste management, lighting).

[Want to know more? Sign in or request a new account here](#)

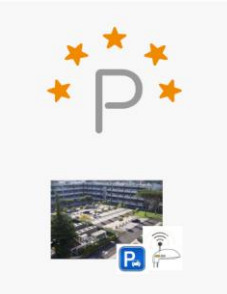


Demo Zone / Internet of Things / Smart Parking

## SMART PARKING

Smart Parking Solution help to optimize and monetize the Parking spaces, at the same time enabling a multipurpose local area network to also connect other devices and enable additional Business Models (Bus Ticketing & Monitoring, Environmental and Security Monitoring, Public Light Control, WasteBin Optimization...)

[Want to know more? Sign in or request a new account here](#)



Demo Zone / Internet of Things / Smart Car

## SMART CAR

Ericsson Smart Car Solution enables complete and structured Vehicle Tracking System for Insurances, Fleet management, Car sharing and others, in order to optimize and monetize, according to the Customer business and sales model, all the information coming from the connected vehicles, thus enabling operational savings, new business models and new revenue streams.

[Want to know more? Sign in or request a new account here](#)



Demo Zone / Internet of Things / Smart Farming - Agriculture

## SMART FARMING - AGRICULTURE

Farming, on the whole, remains a highly imprecise science. Despite widely varying local soil conditions, fluctuating water systems and an unstable climate, our approaches are often uniformly applied, resource-intensive and staggeringly wasteful. Not surprisingly, a number of IoT systems are quickly converging upon new ways to customize performance and eliminate inefficiencies. Ericsson Solution address all these with an E2E Solution.

[Want to know more? Sign in or request a new account here](#)



EXAMPLES



# ERICSSON APPLICATION PLATFORM FOR IOT



THINGS



DATA



APPLICATIONS



- Registration
- Collect data
- Device management

SDK

Soft  
gateway



MANAGE  
SENSORS,  
DEVICES,  
GATEWAYS



COLLECT,  
STRUCTURE,  
TRANSFORM,  
CALCULATE,  
DATA



MANAGE  
RULES AND  
DATA TO/FROM  
APPLICATIONS  
AND THINGS

SDK

Odata



- Visualization tools
- Mobile & Web apps
- 3<sup>rd</sup> party integration

Deployment  
app

Admin  
portal



CLOUDS



# CONNECTED URBAN TRANSPORT





# CITIES ARE FACING MULTIPLE CHALLENGES



Transportation  
safety



Capacity  
management



Sustainability &  
efficiency

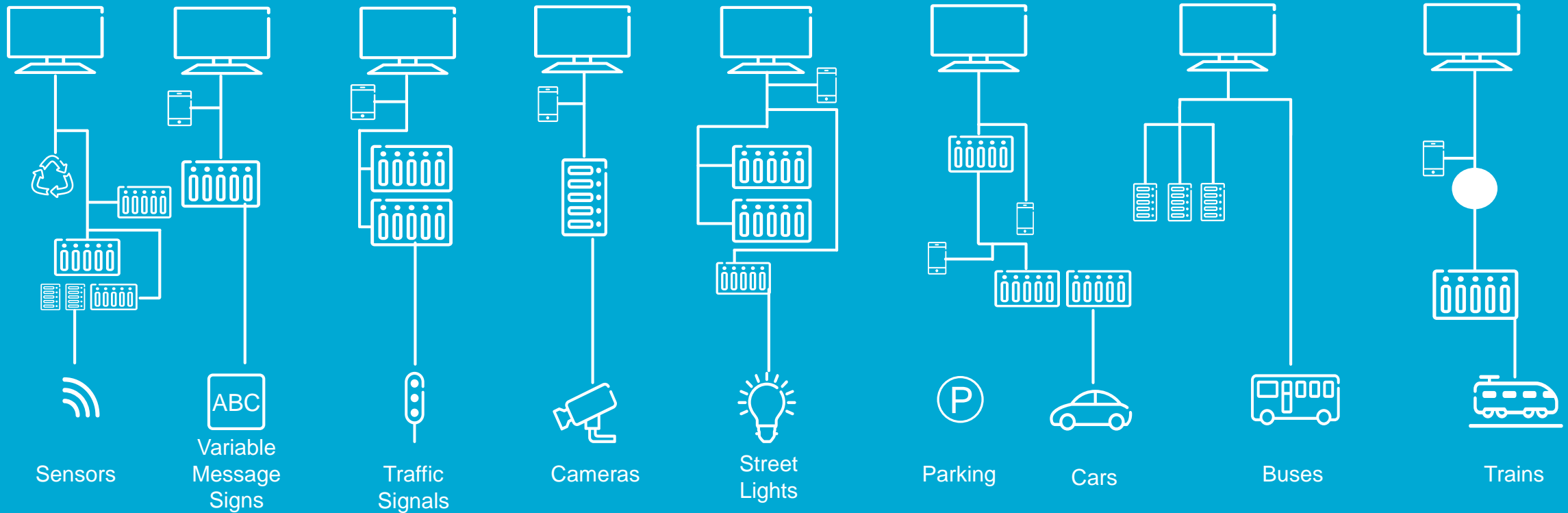


Public transport  
attractiveness

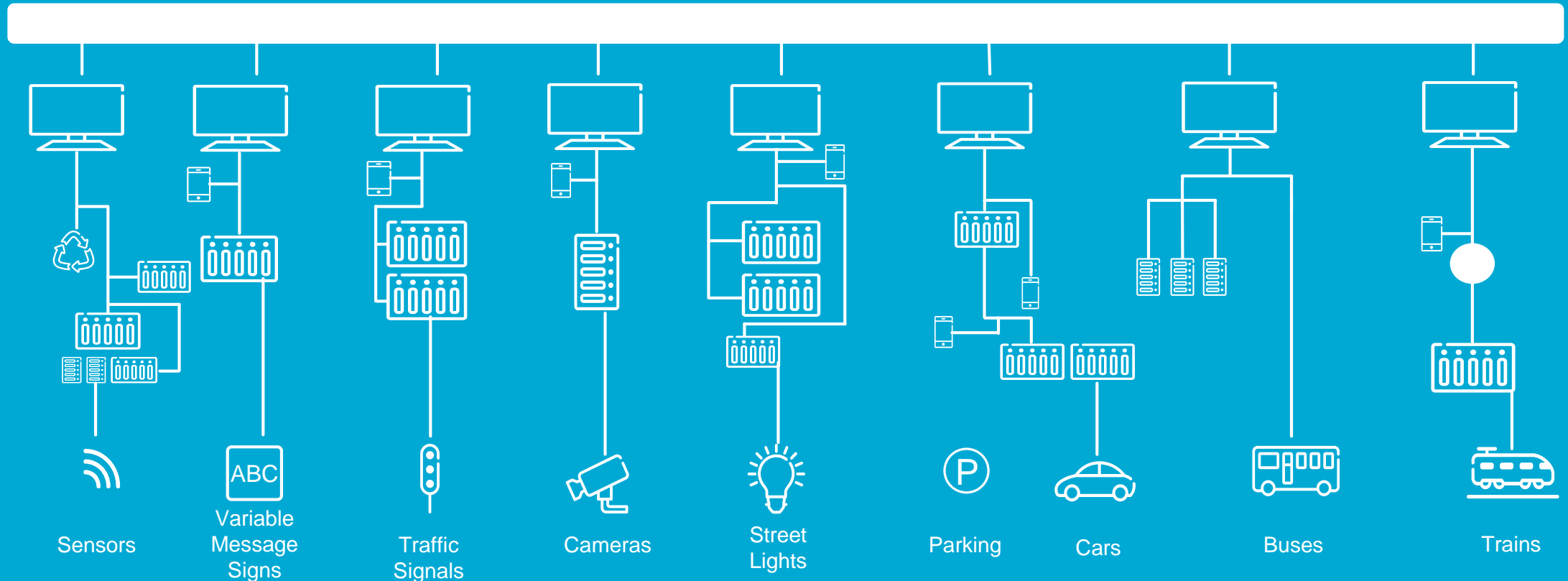


# MANY DIFFERENT SYSTEMS

Make it difficult to get an overview and manage

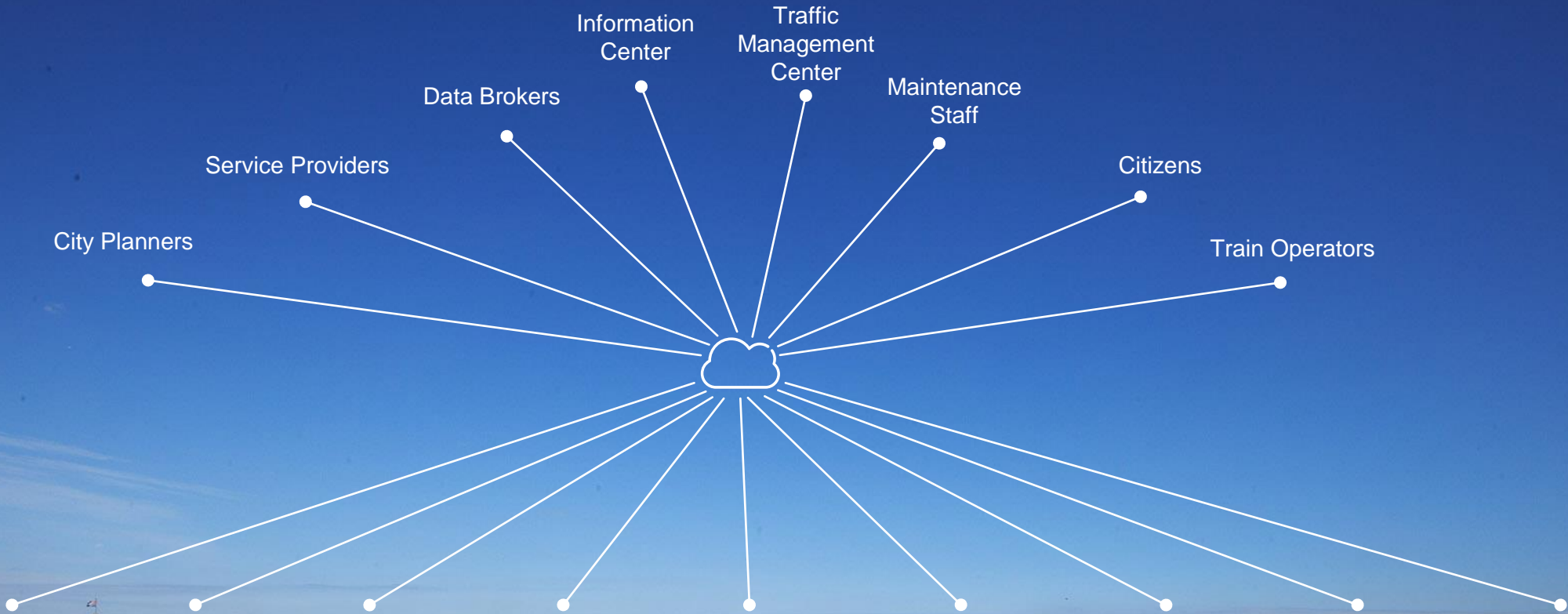


# NEED FOR A SYSTEM OF SYSTEMS MAKE SURE THAT ALL PARTS WORK IN UNISON WITH EACH OTHER





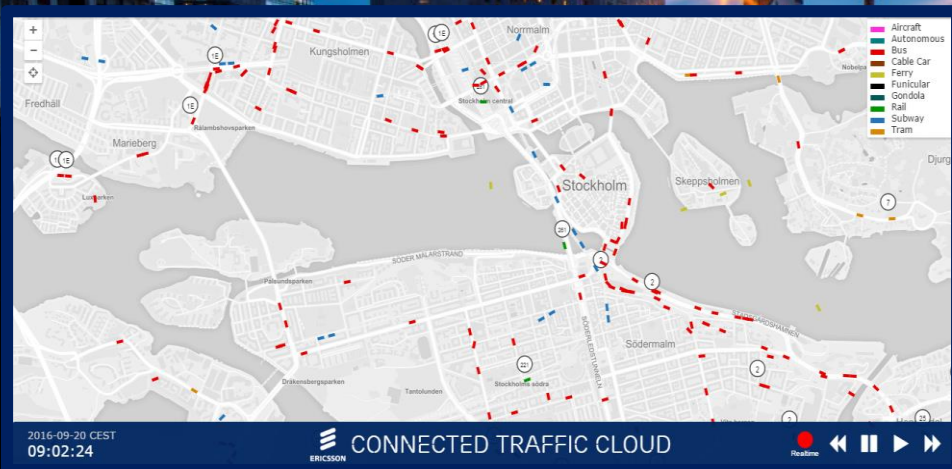
# CONNECTED URBAN TRANSPORT POWERED BY IOT ACCELERATOR





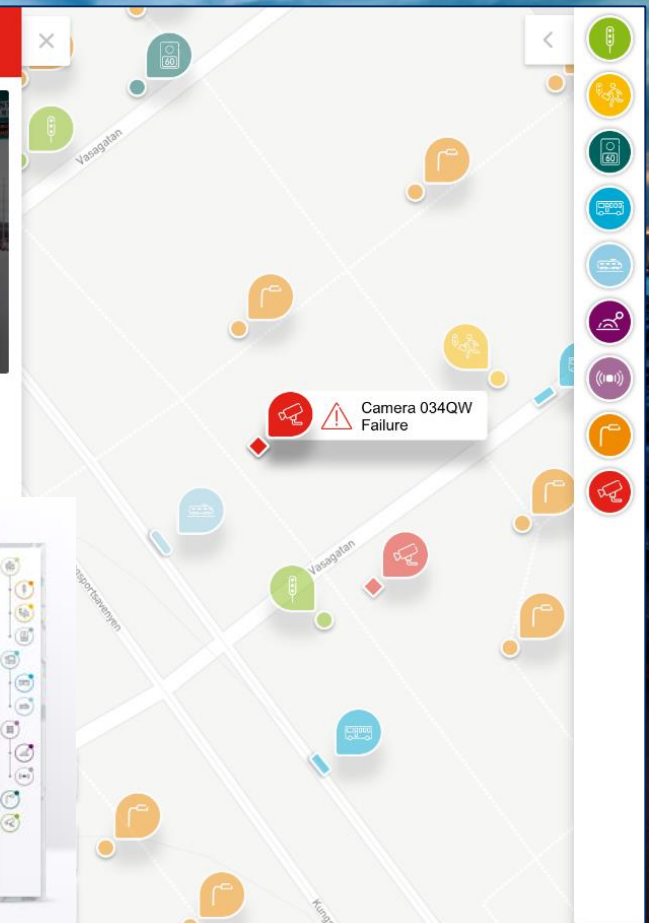
# DASHBOARD OVERVIEW

Connecting road infrastructure and traffic enabling connected, cooperative and automated transport



**Camera 034QW**  
Gothenburg, Vasagatan

Device Model: HTC 023PR  
Device Serial Number: 4646413564WI94  
Installed on: 2015-11-10  
Running hrs: 5487 hrs



Dashboard overview showing various traffic management tools and settings.

- Map Styles:** Select the map style (e.g., Default, Dark, Light).
- Notifications:** Manage notifications (e.g., On, Off, Sound, Vibration).
- Statistics:** View traffic statistics (e.g., Total, Average, Maximum).
- Search:** Search for specific locations or devices.
- Rules:** Define rules for traffic management (e.g., In case of malfunction then send notification).
- Team:** Manage team members and roles.
- Profile:** View and edit user profile.

CONNECTED TRAFFIC CLOUD

John\_Smith

LOGIN

Forgot password?

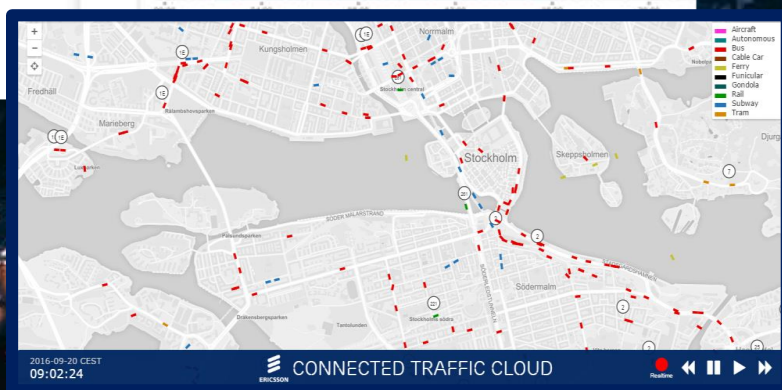
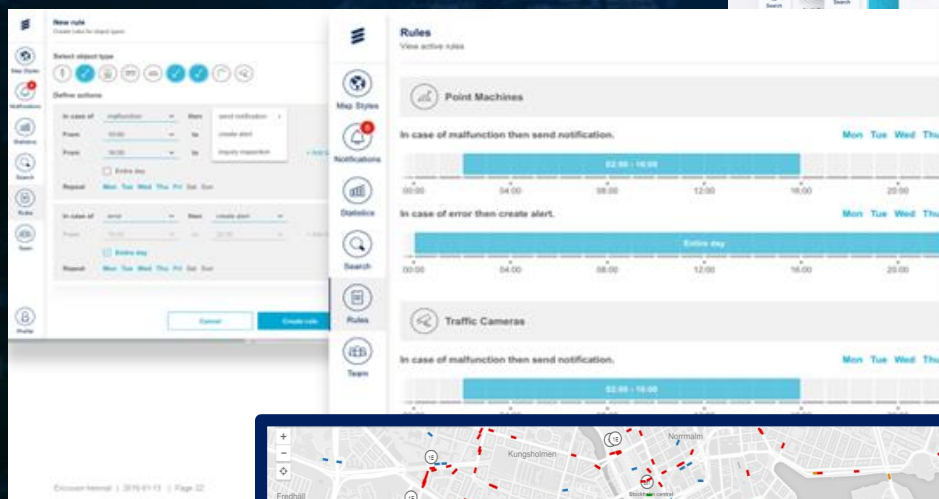


# SCREENSHOTS (USER PERSPECTIVE)

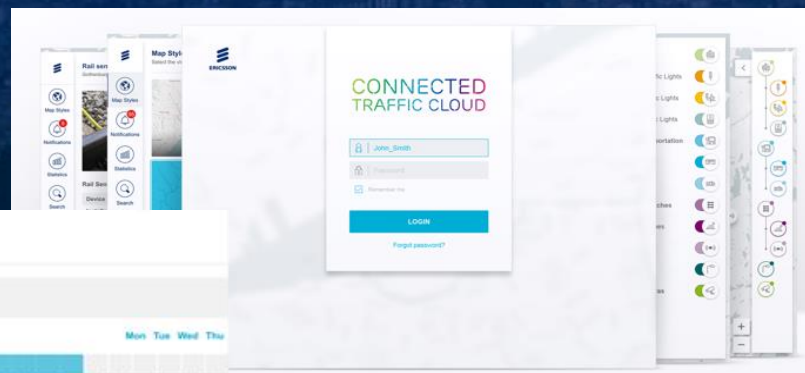


Single-sign on

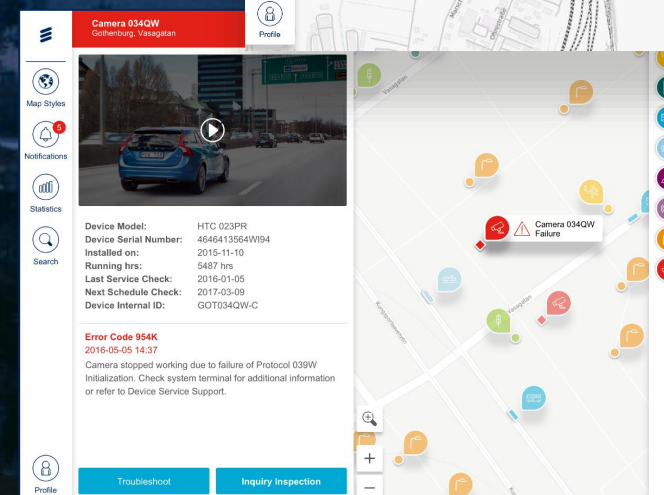
Rules to link systems



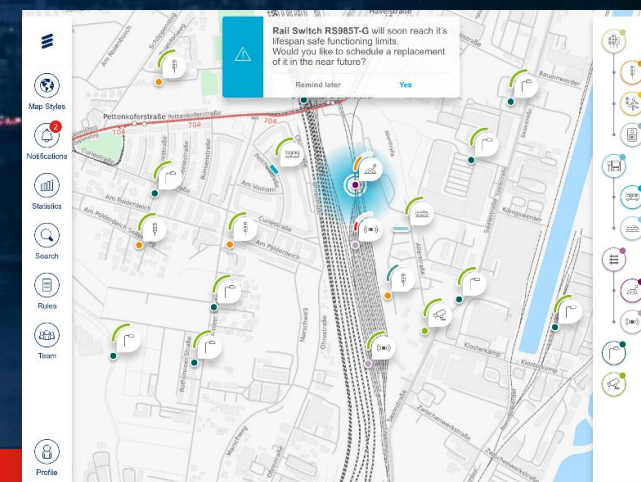
Link to 3<sup>rd</sup> party systems



Notify and suggestions

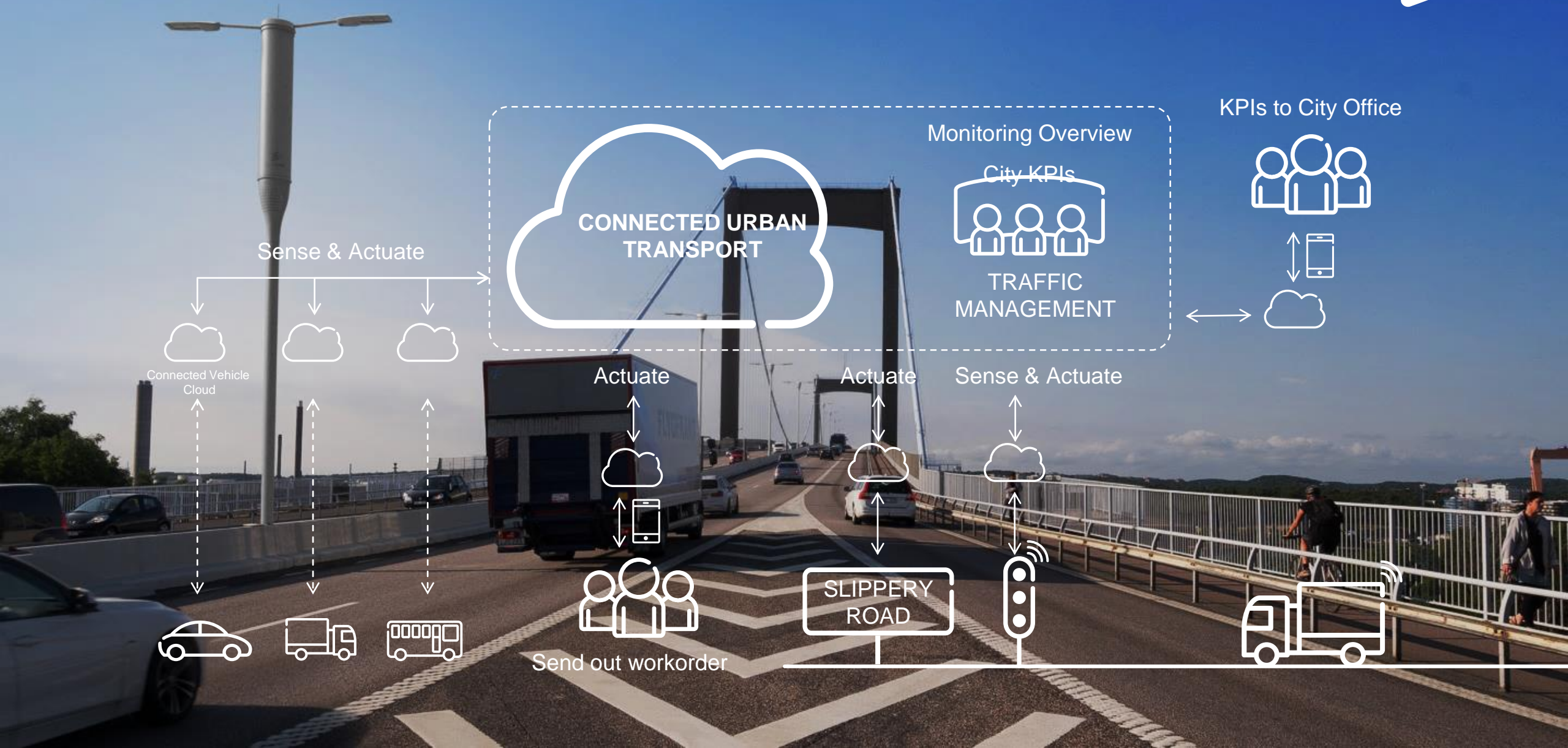


Dashboard overview





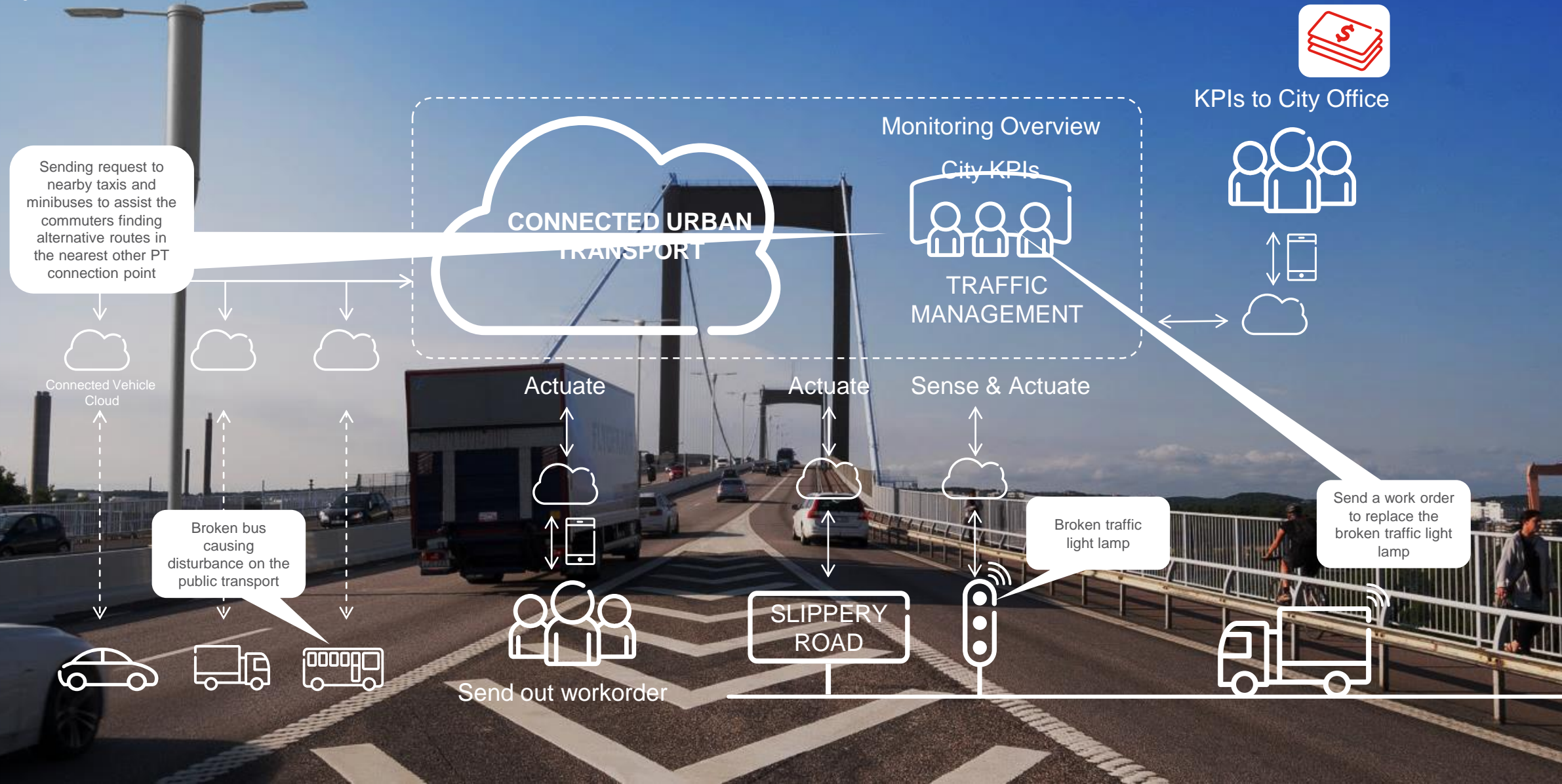
# USE CASES





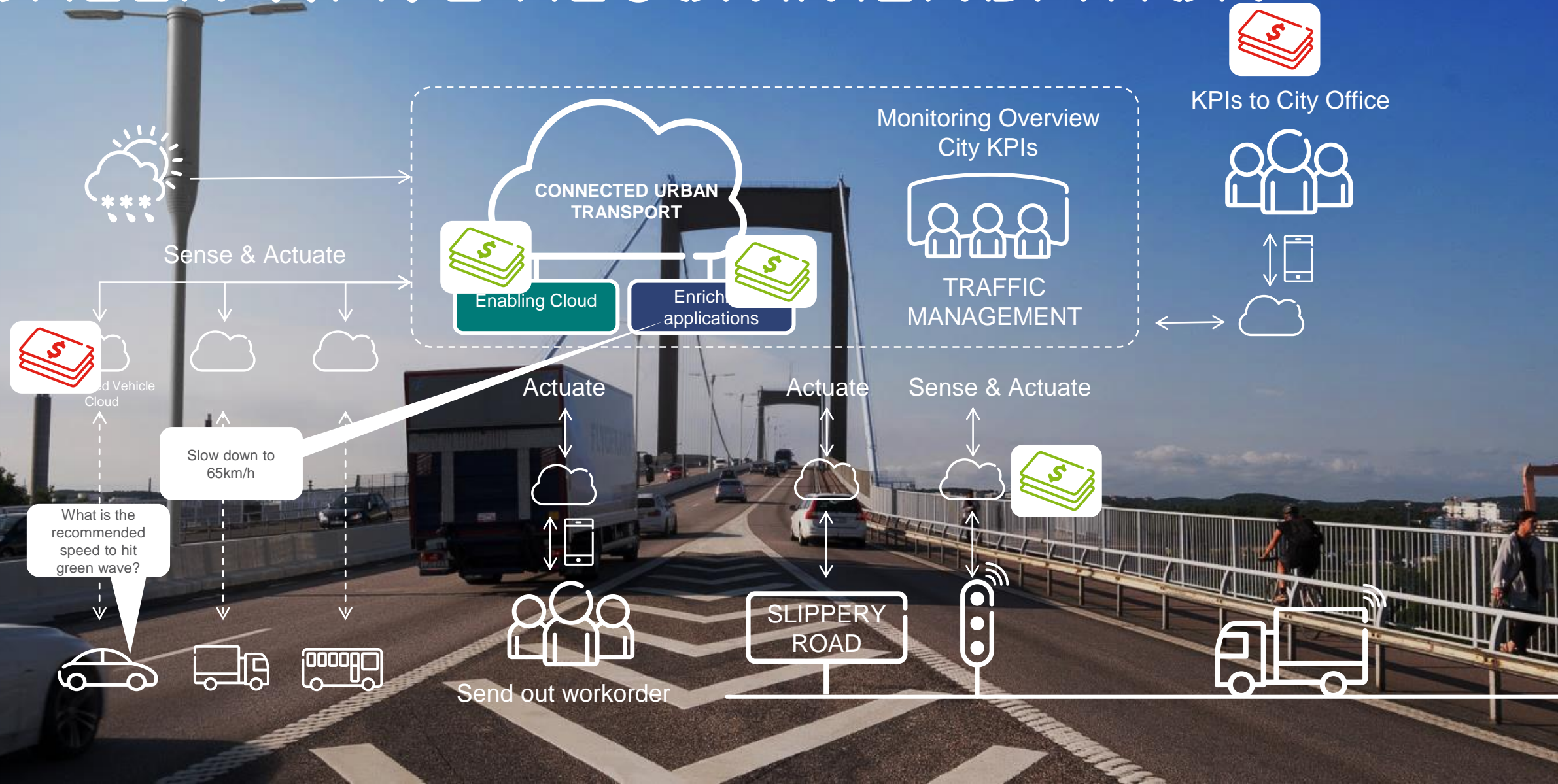
# USE CASE EXAMPLE 1

## WORK ORDER



# USE CASE EXAMPLE 2

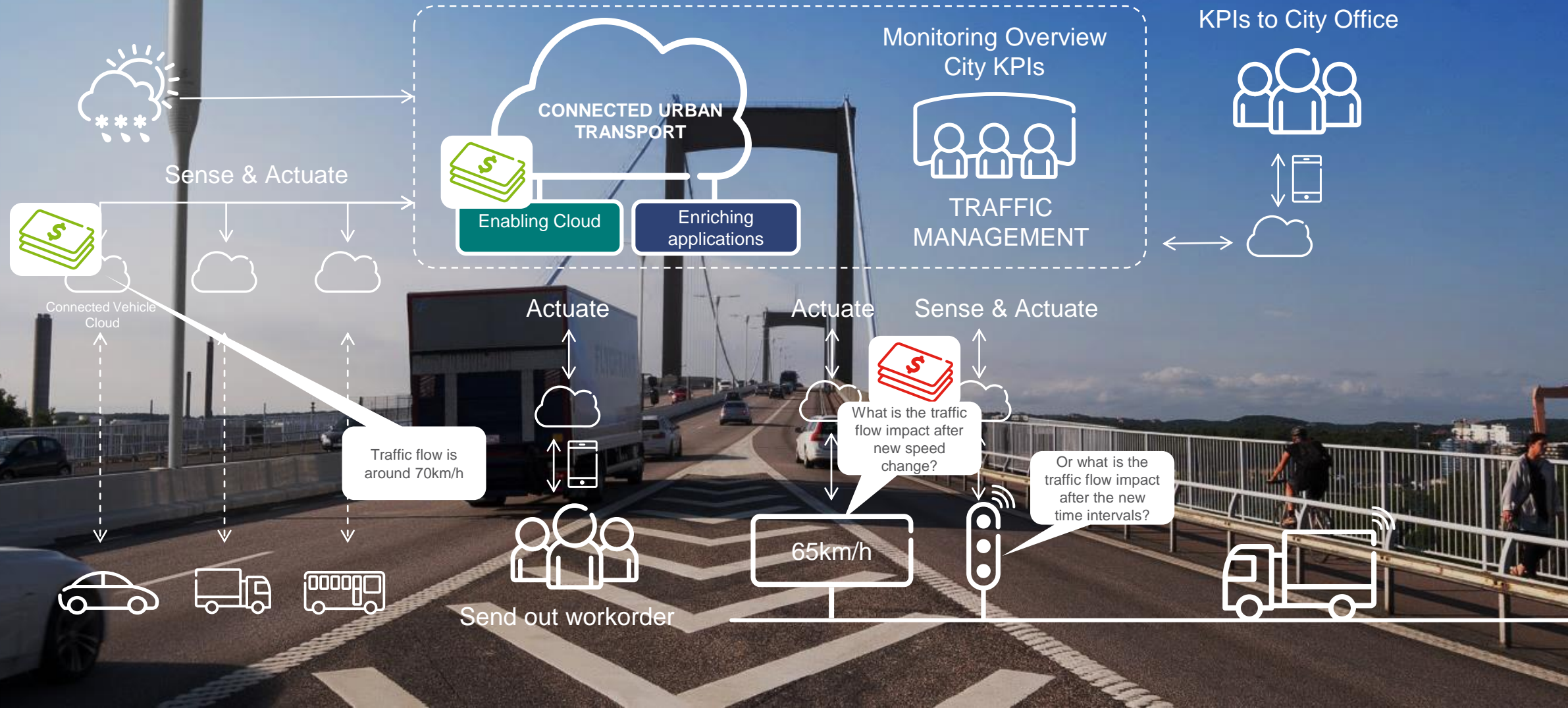
## GREEN WAVE RECOMMENDATION





# USE CASE EXAMPLE 3

## TRAFFIC FLOW





# EXAMPLE CUSTOMER CASES

## Marketing material available

### Dutch Ministry of Infrastructure

- › Expose data from roadside systems to service providers (apps, in-vehicle)



## EXPOSING TRAFFIC DATA IN REALTIME

Nationwide Cloud Solution for Ministerial Program "Talking Traffic", Netherlands



The Netherlands has rolled-out a national program called "Talking Traffic". The goal is to significantly reduce congestion on the roads by optimizing their usage.

This is done by sharing data between roadside equipment and vehicles and by connecting 25% of all traffic lights.

A nation-wide Cloud platform handles the data collection and sharing and the private sector is challenged by the Ministry to introduce new business models with local governments and travel service providers.



*More asphalt is not always the solution for our traffic problems. Our infrastructure can be optimized by providing personalized information to individual travelers.*

Melanie Schultz van Haagen  
Dutch Minister of Infrastructure and the Environment



[www.beterbenutten.nl](http://www.beterbenutten.nl)

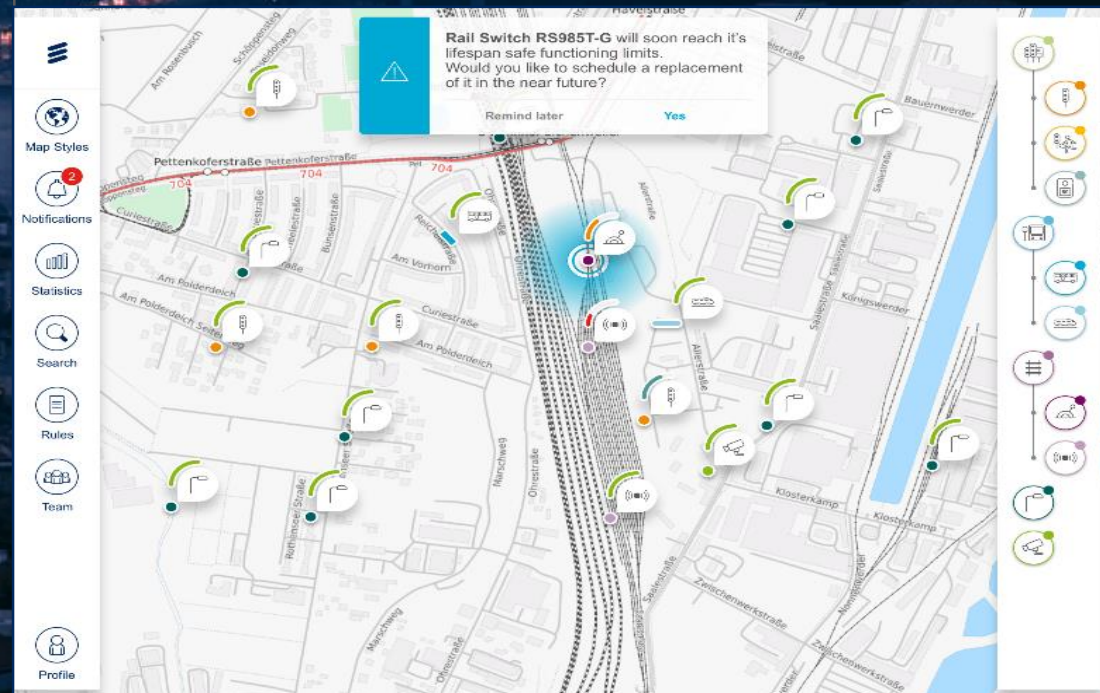
Networks IT Media Industries

Customer Reference Case Template | 2015-11-27 | Page 1

## Not yet disclosed (contract negotiations)

### US Cities

- › Convergence of existing traffic systems in 1 central overview





# ERICSSON LINDHOLMEN FACILITY

CONNECTED TO APPIOT



# BACKGROUND

- › Ericsson Lindholmen is the first Ericsson facility that is being connected to the AppIoT platform.
- › The goal is to connect all existing sensors as well as to retro fit with new sensors and visualize how the facility is being used when it comes to
  - Utilization of resources
  - How to optimize processes
  - Predictive maintenance
  - etc



APPIOT

Filter Locations...

Dashboard

Denmark

Sweden

Lindholmen 01

Floor 02

Floor 03

Floor 04

4104 printer area

4108 Genuan

4108A  
Minimeeting

4108B  
Minimeeting

4108C  
Minimeeting

4108K  
Minimeeting

4204 printer area

4204 Storseklet

4214A  
Minimeeting

4214B  
Minimeeting

4214D  
Minimeeting

4214E  
Minimeeting



# WHAT HAS BEEN DONE?



- › Appr. 1000 sensors has been connected to the platform via different technologies and protocols such as Lora, Bluetooth, WIFI, Cellular.
- › Front end user interfaces and analytics reports has been connected to the AppIoT platform to visualize the data.

## Current building statistics

13

Gateways

Current number of gateways used

331

Devices

Current number of devices used

958

Sensors

Current number of sensors used

2

Total Instances

Battery Status

12

Total Instances

Hand towel dispenser status

36

Total Instances

Printer status

64

Total Instances

Temperature (Set)

87

Total Instances

Booking

20

Total Instances

INTERNET associated

35

Total Instances

Printer supply level

12

Total Instances

Toilet paper dispenser refill

# USE CASES



## UTILIZE AVAILABLE SPACE OPTIMALLY

- Are there enough meeting rooms, desks, telephone booths etc?
- What is the true utilization of the space?

Current bookable conference rooms

80  
Total  
Total number of rooms

29  
Bookable  
Currently bookable rooms (36.3%)

Rooms

Location	Type	Booked?
10304 Jumbon	Conference	Yes
10305 Zeppelin	Conference	Yes
10310 Draken	Conference	No
10311 Gledtygwen	Conference	Yes
3106 Gondola	Video	No
3118 U-boat	Conference	No
3324 Clipper	Conference	No
3409 Gig	Conference	No
3410 Jollyboat	Conference	No
3417 Cruiser	Conference	No
3420 Sailor	Conference	No
3422 Fligate	Conference	Yes

## SIMPLIFY FINDING AN AVAILABLE ROOM

- Smart Phone app showing the presence and booking status of rooms





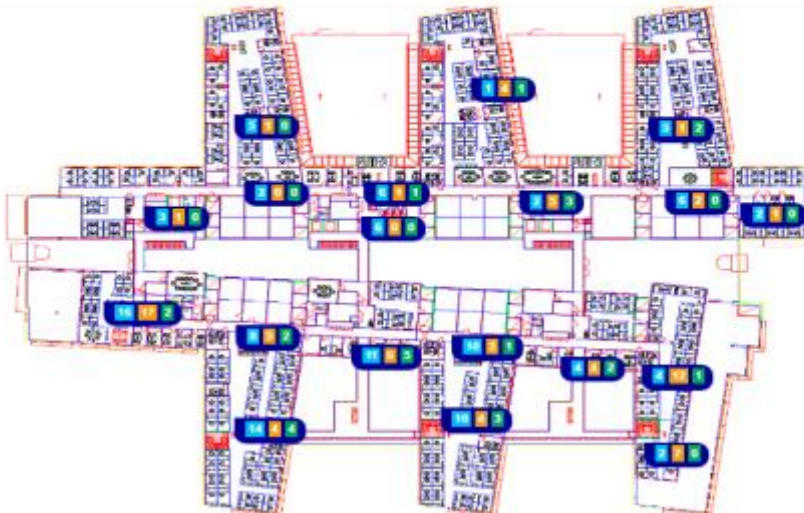
# USE CASES



## HEATMAPS

- What does the people flow look like over time in the building

### Associated devices - Lindholmen Floor 4



Generate Heatmaps of connected WIFI devices

## CLEANING ROUTE OPTIMIZATION

- Can cleaning be based on statistics in stead of fixed routes?



Toilet Utilization

# USE CASES



## TEMPERATURE SETTINGS & ACTUALS

- How is the temperature in the building?
- To warm, to cold?

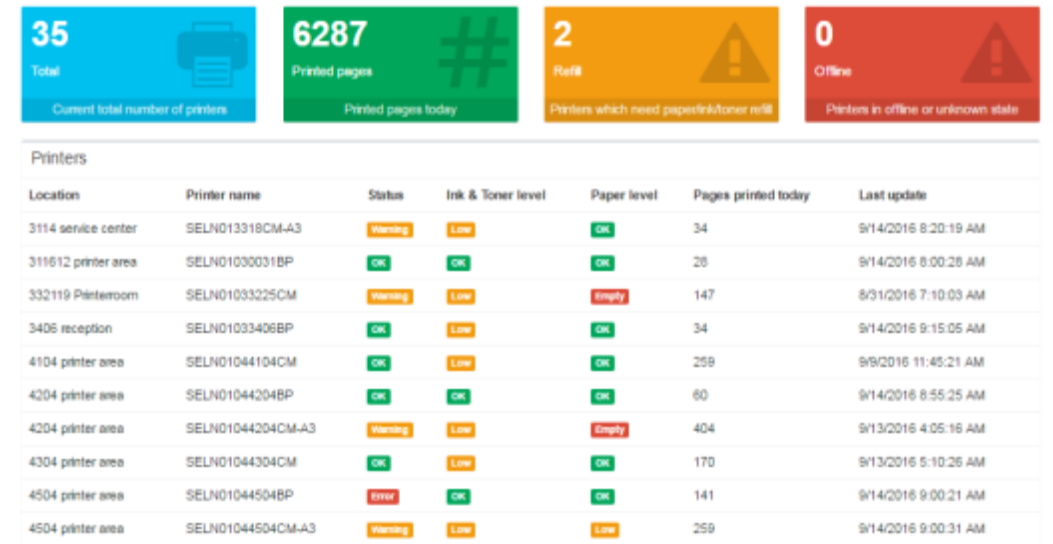


Temperature measurements

## PREDECTIVE MAINTNEANCE

- Find and reports problems before someone is affected

### Current printer status



Connected Printers



# USE CASES



## ALERTS AND ALARMS

2016-07-01  
09:55

### Big Difference between Set and Actual Temperature

Rule activated: Big Diff Detected

↶ Reset

Triggers activated: 3406 Diff in Set and Actual Temperature sensor in device Calculated Values

2016-07-01  
09:20

### Not used, booked room

Rule activated: Booked\_But\_Not\_Used

↶ Reset

Triggers activated: 8109 booked not used sensor in device Calculated Values

Act on the findings

# CONCLUSION AND RECOMMENDATIONS



Understand the  
complexity of IoT  
(processes, people,  
partners).



Trustworthy partnership  
with IoT E2E systems

IoT is a journey, not a  
one-off project.  
(start small and scale,  
expand)



Secure world class mobile  
connectivity management

Industries are already  
being transformed  
(doing nothing is no longer  
possible).



Bringing rapid IoT  
deployment & monetization





**ERICSSON**