



UNIVERSITÀ
DEGLI STUDI
FIRENZE

DINFO
DIPARTIMENTO DI
INGEGNERIA
DELL'INFORMAZIONE

DISIT
DISTRIBUTED SYSTEMS
AND INTERNET
TECHNOLOGIES LAB



Powered by

Snap4City: IOT Infrastructure with Synoptics

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<https://www.Snap4City.org>

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<https://www.Km4City.org>

<https://www.disit.org>





DASHBOARDS AND APPS - CONTROL ROOMS - DECISION SUPPORT SYSTEMS - WHAT-IF ANALYSIS



**EXPERT SYSTEM
KNOWLEDGE BASE
STORAGE**

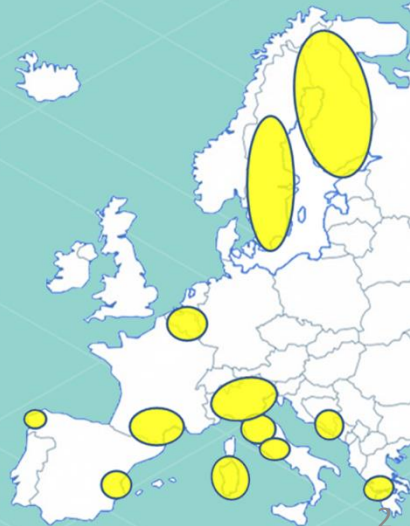
**BIG DATA ANALYTICS
ARTIFICIAL INTELLIGENCE
BUSINESS INTELLIGENCE
MACHINE LEARNING**

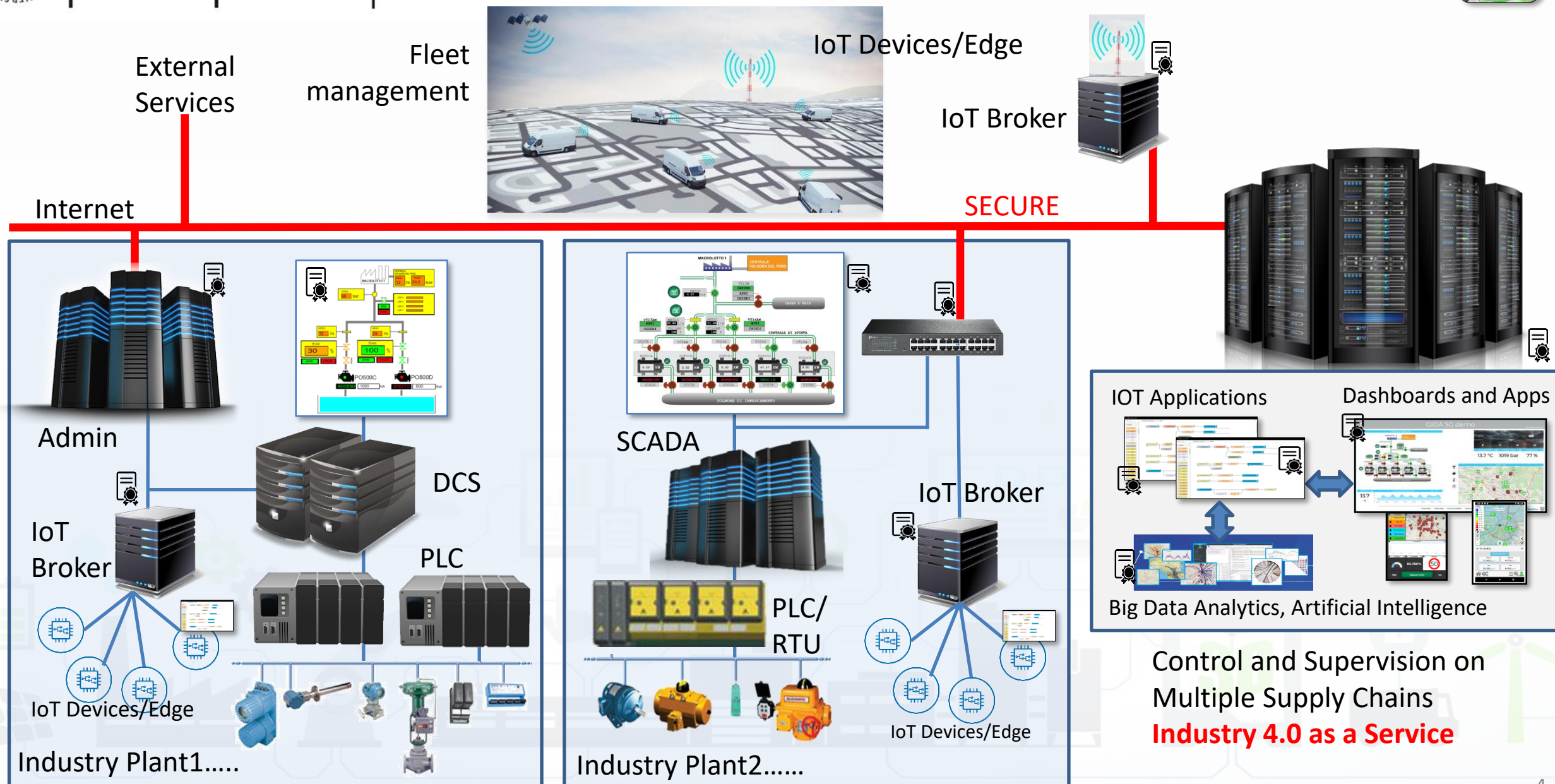
**DATA FLOWS, WORKFLOWS
MICROSERVICES
MANAGEMENT**

**METHODOLOGIES
COURSES AND COMMUNITY
LIVING LABS
DEVELOPMENT TOOLS**



Snap4City (C), September 2020





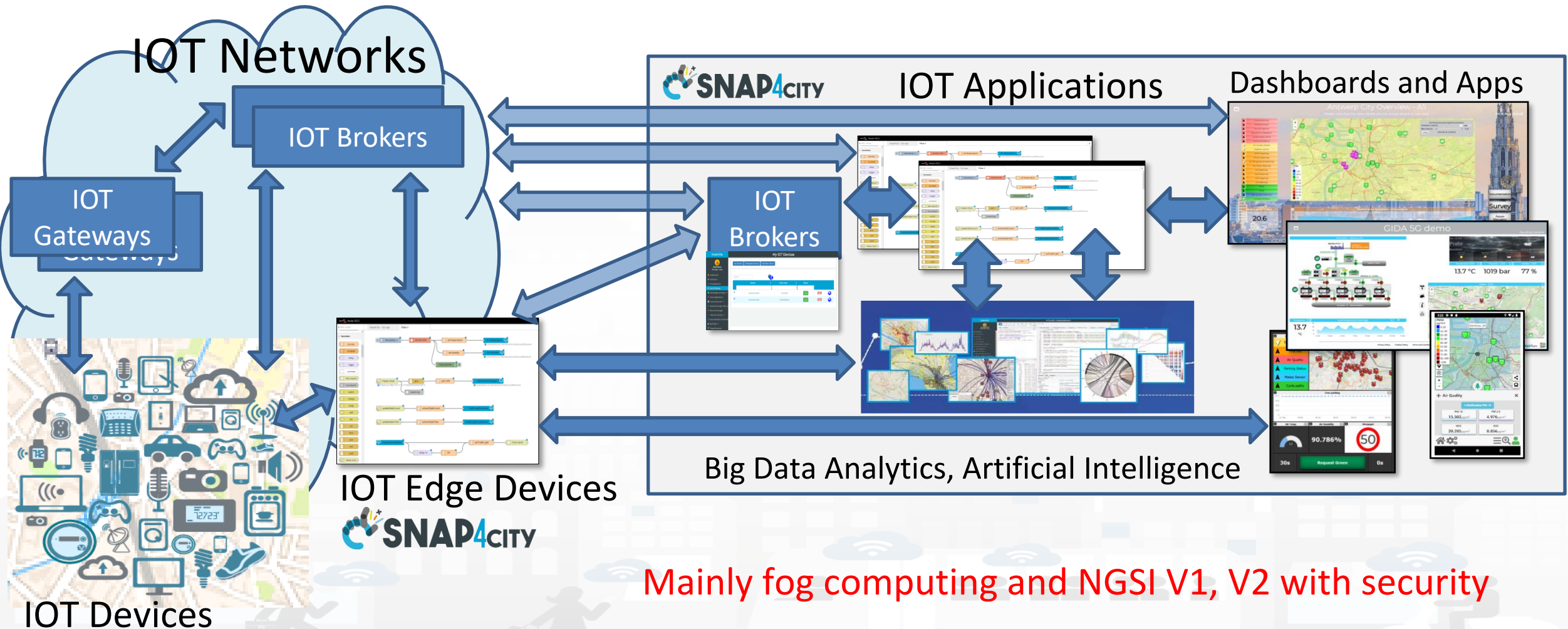


Control Room

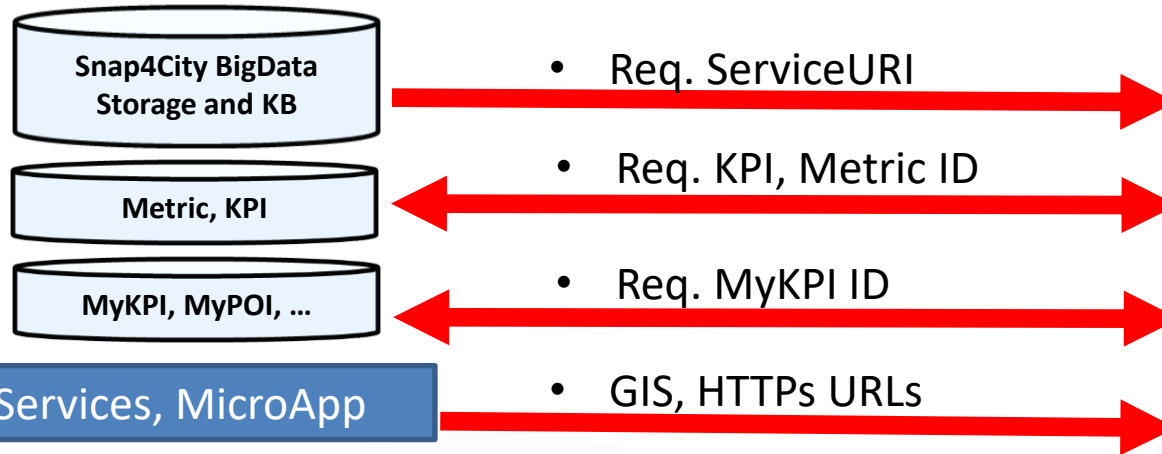


<https://www.snap4city.org/621>

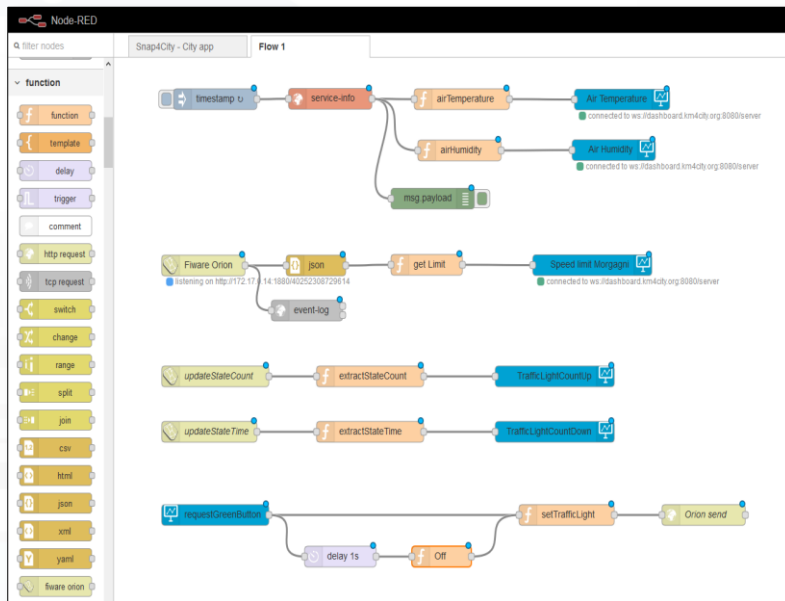
Snap4City Services also on IOT Edge!!!



How the Dashboards exchange data

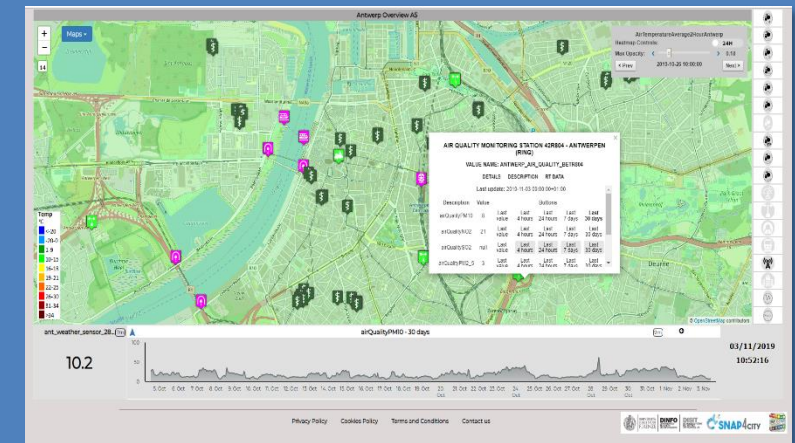


API, External Services, MicroApp

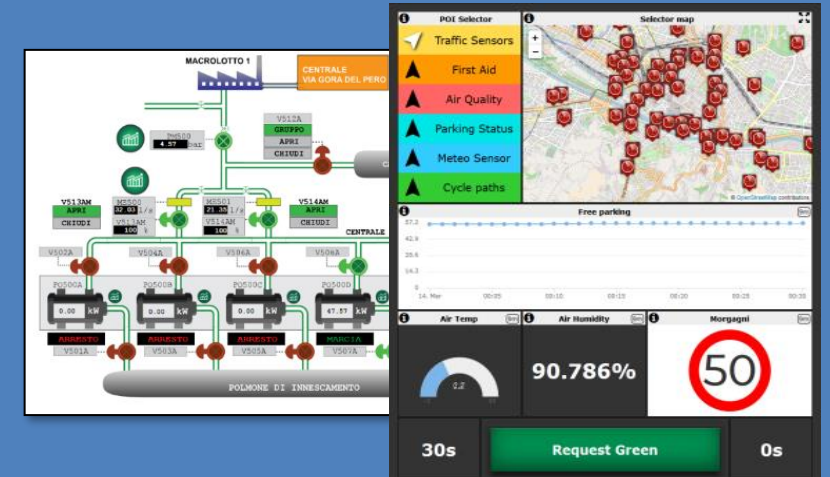
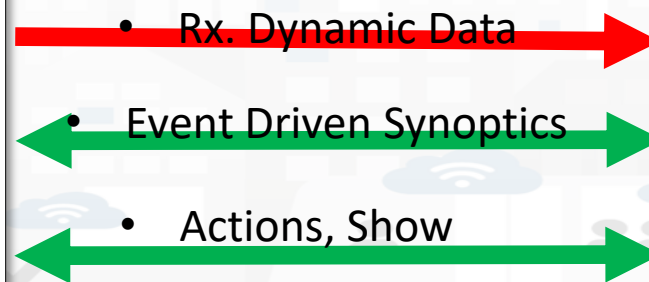


IOT Application

Dashboards



- ServiceURI (ID)
- MyKPI, Metric (ID)
- Dynamic Data, computed into IOT Application



GIDA 5G demo

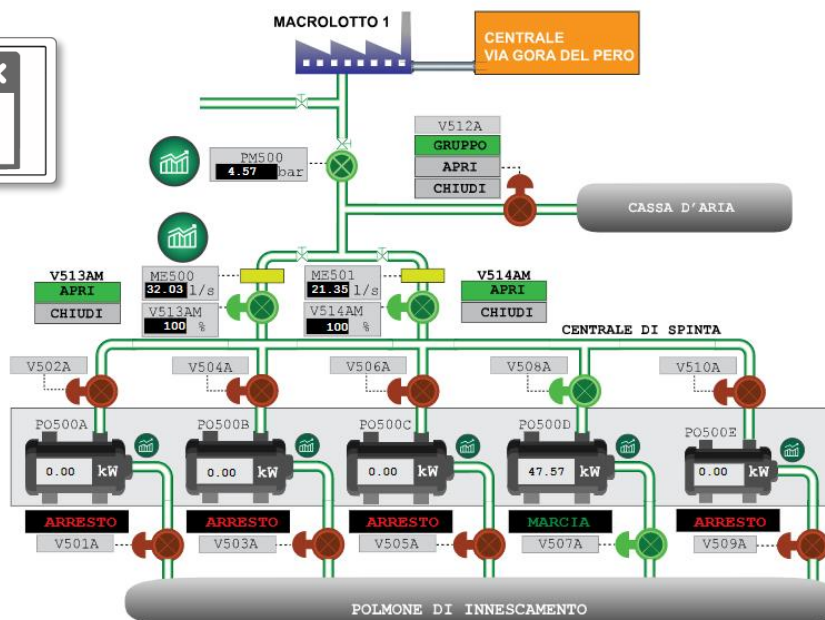
Wed 16 Oct 23:01:00

Details Absorption

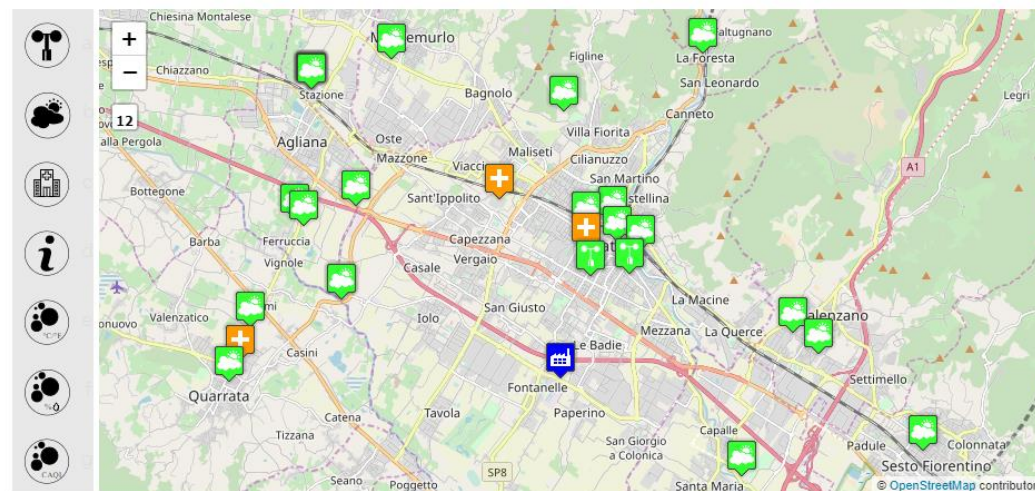
Full Screen



13.4°C 1020 bar 87 %



Temperatura... (8m) Trend Temperatura Prato (7gg) (8m)



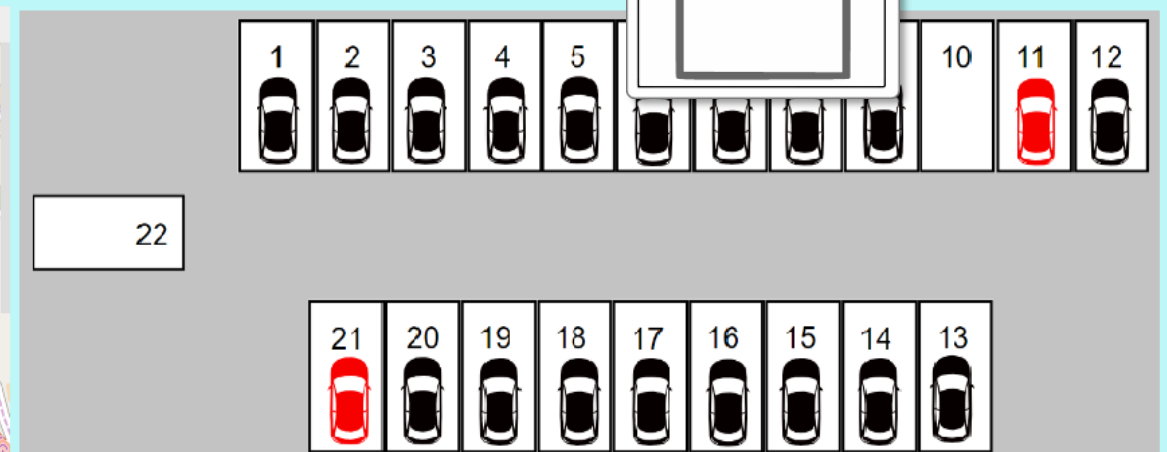
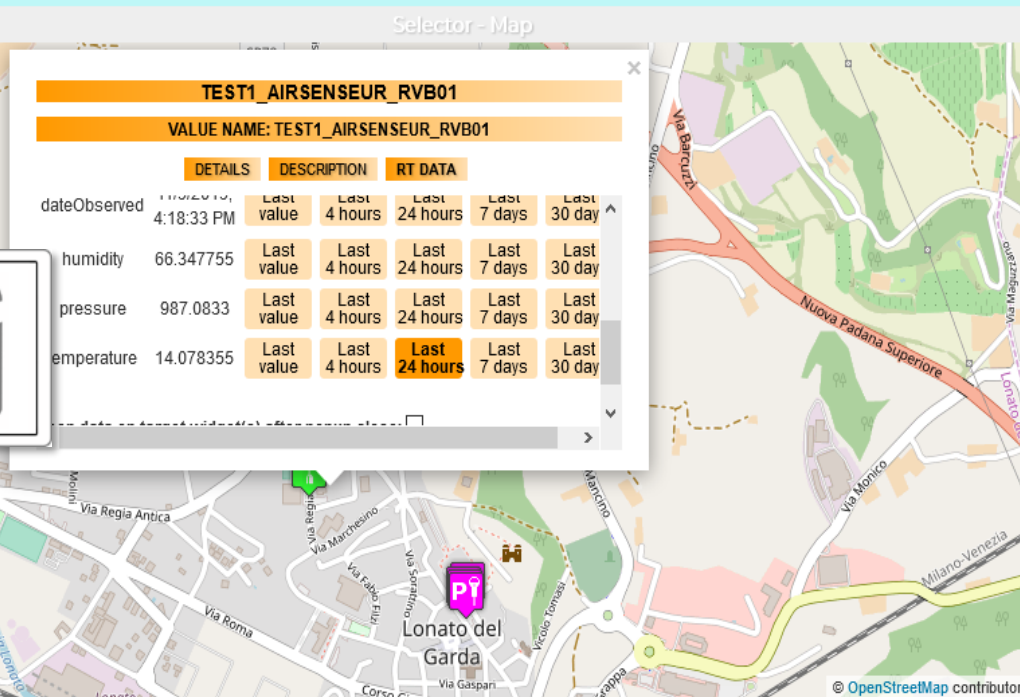
5G



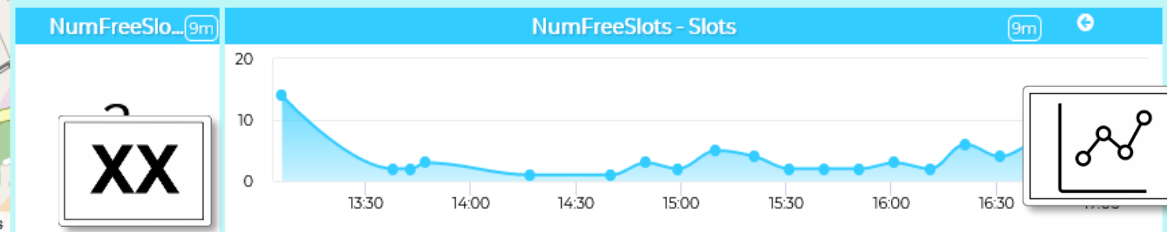
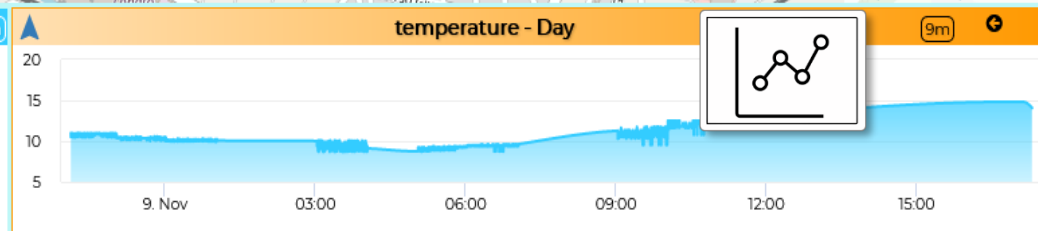
Smart Lonato del Garda

Sat 9 Nov 17:20:59

- Slot 1
- Slot 2
- Slot 3
- Slot 4
- Slot 5
- Slot 6
- Slot 7
- Slot 8
- Slot 9
- Slot 10
- Slot 11
- Slot 12
- Slot 13
- Slot 14
- Slot 15
- Slot 16
- Slot 17
- Slot 18
- Slot 19
- Slot 20
- Slot 21
- Slot 22
- Environment
- other



XX 0 status



pressure (9m) 987.1 mm

humidity % (9m) 66.3 %

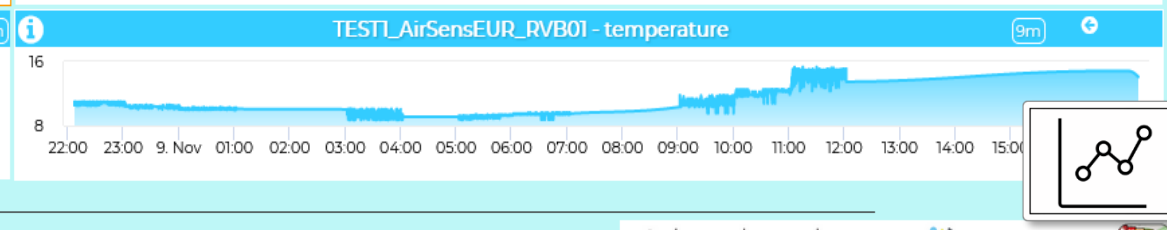
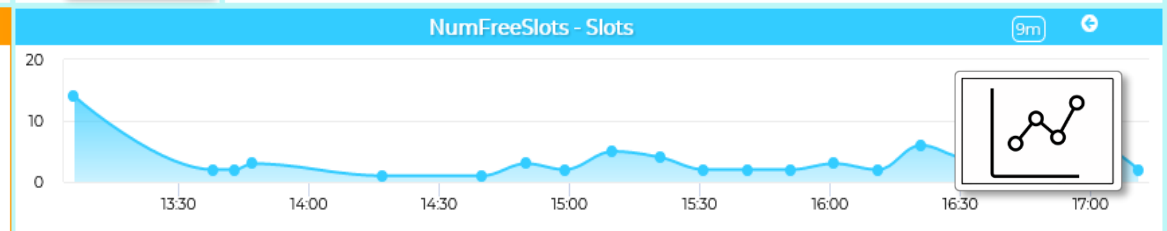
temperature (9m) 14.1

XX XX

Slot ID (9m) 14 slot ID

Max Present Duration (9m) 19 ore e 11 minuti

XX



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SNAP4CITY

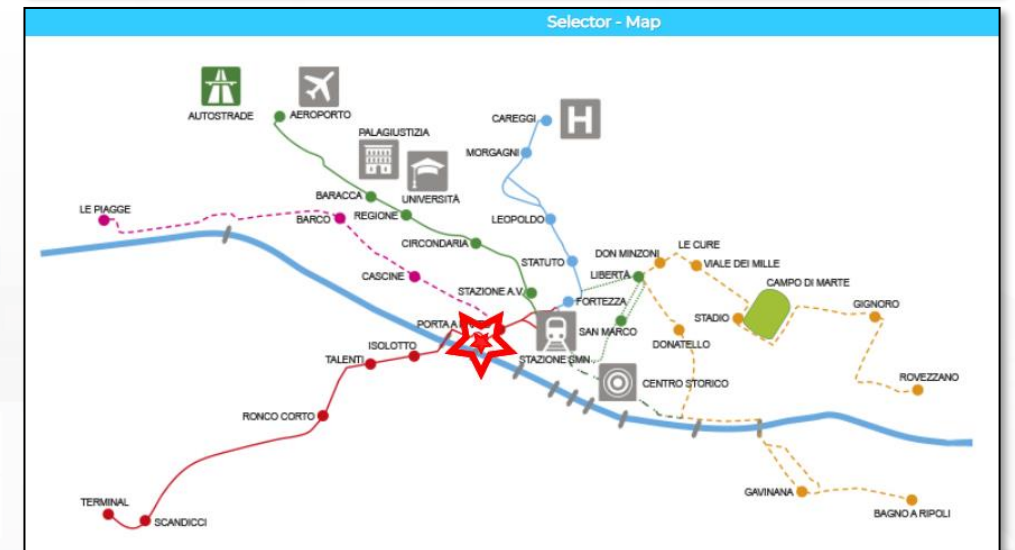
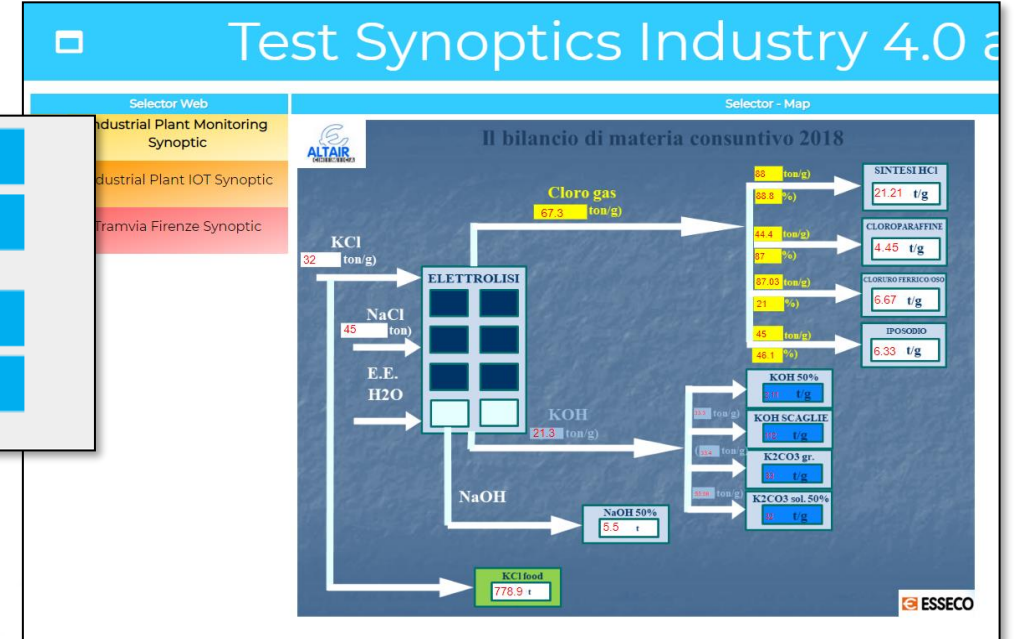
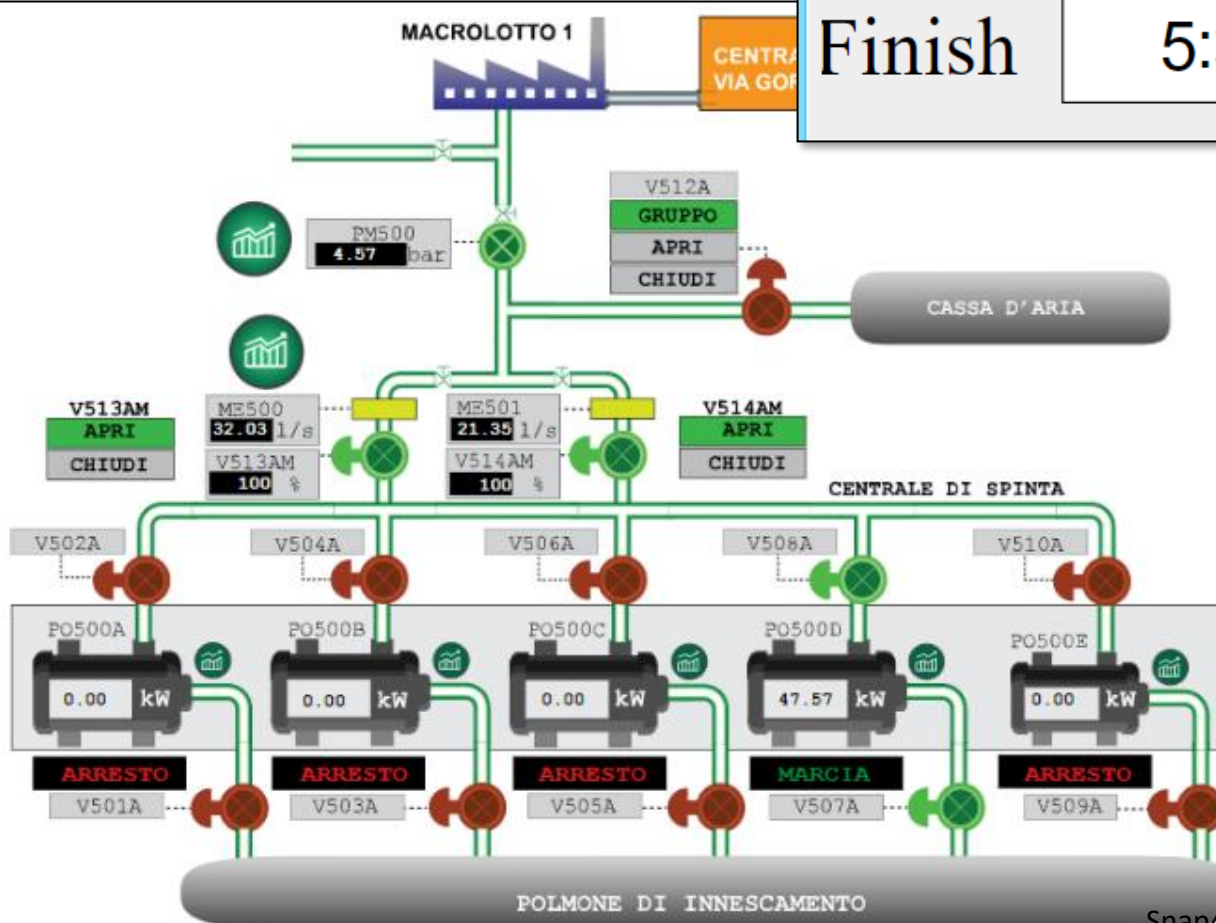
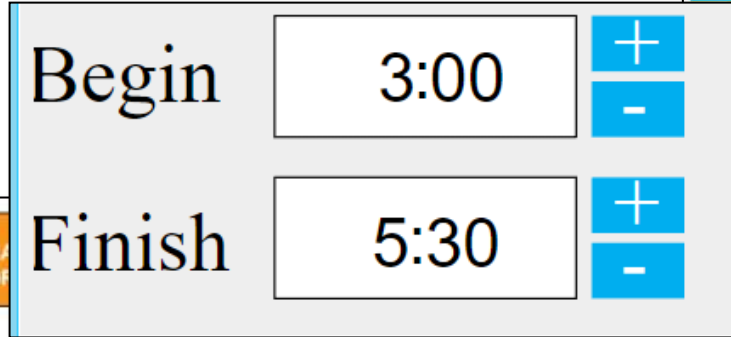
SNAP4CITY

SNAP4CITY

SNAP4CITY

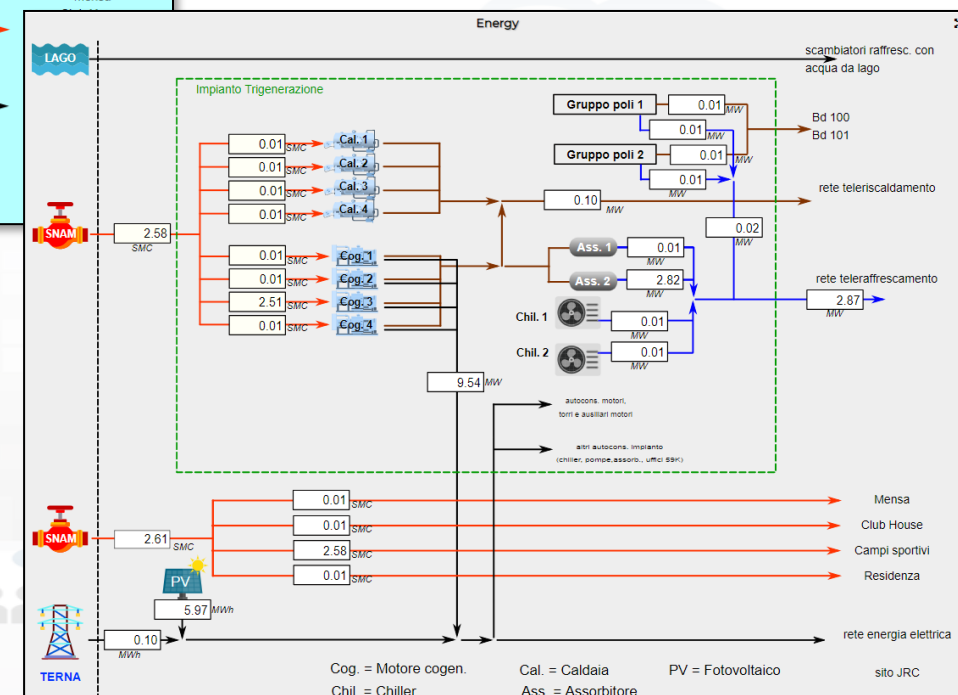
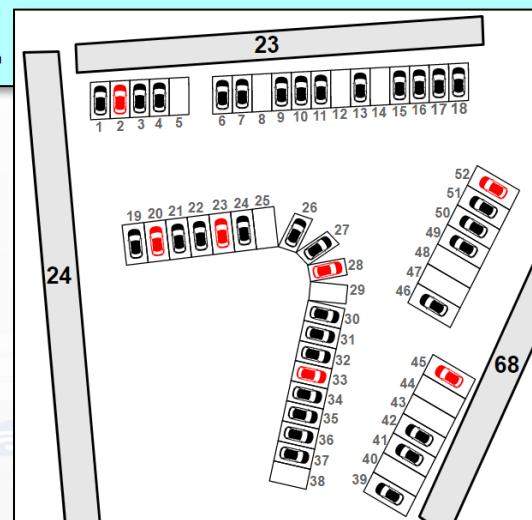
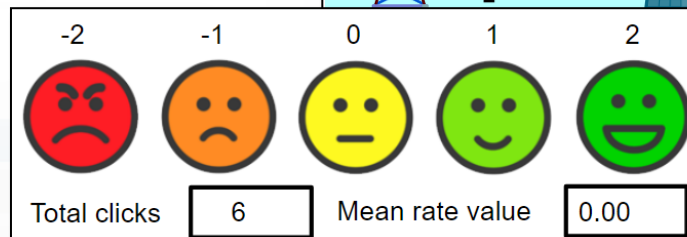
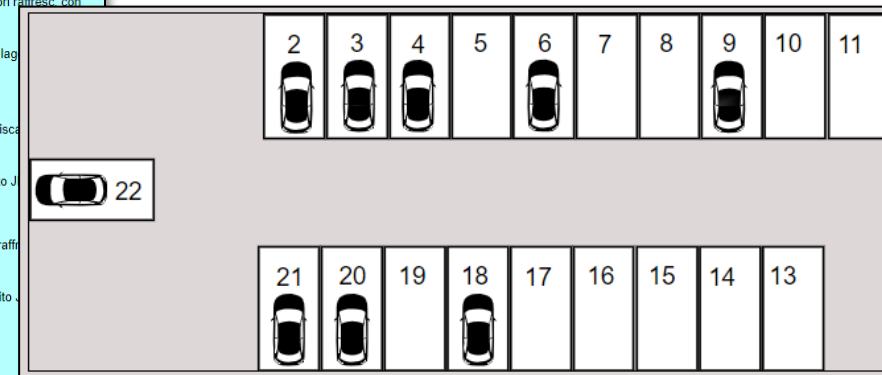
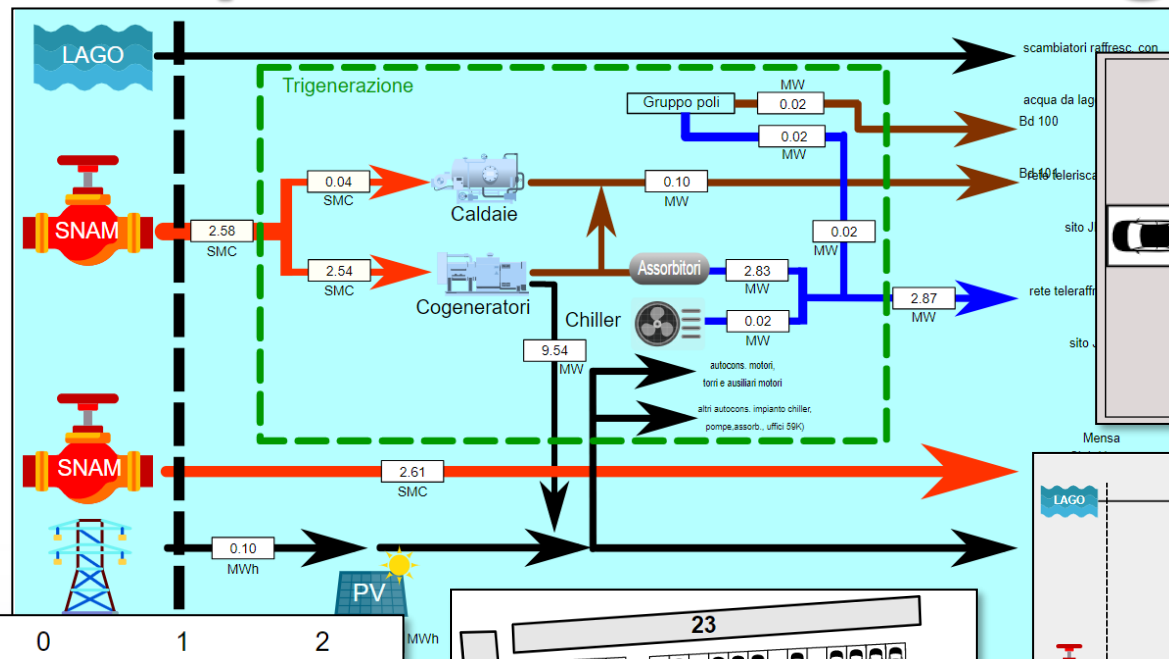
Custom Dashboards and Widgets (interactive, Animations, etc.)

- SVG for graphic design
- MyKPI for collecting data



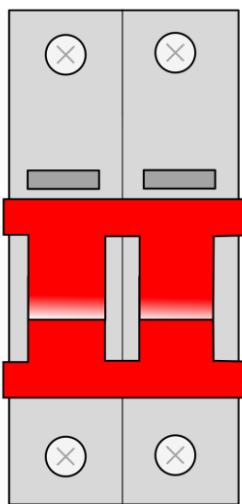
Special Custom Widgets

- Smart parking
- Smart Energy
- Smart Light
- Smart
- Energy View
- Custom Controls



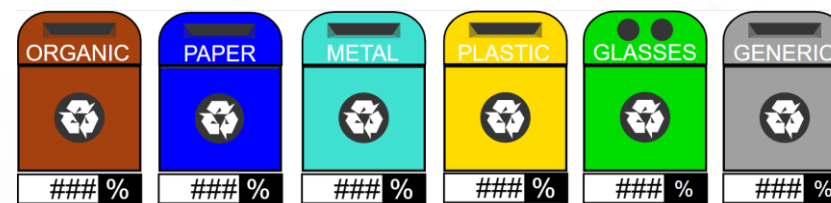
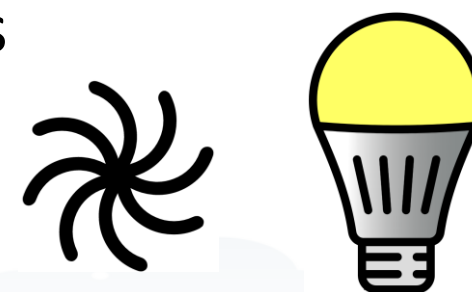
• Virtual Actuators (sensor-actuator)

- From: Dashboard
- To: IOT App, MyKPI, other Synoptics

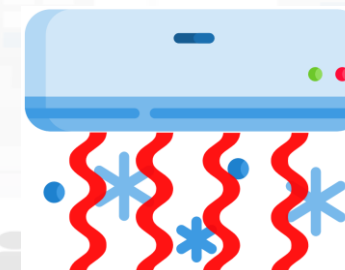
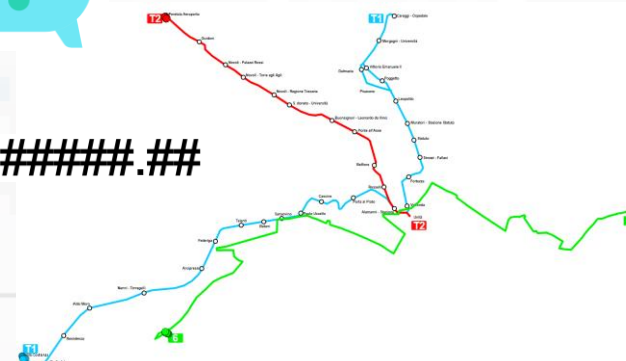


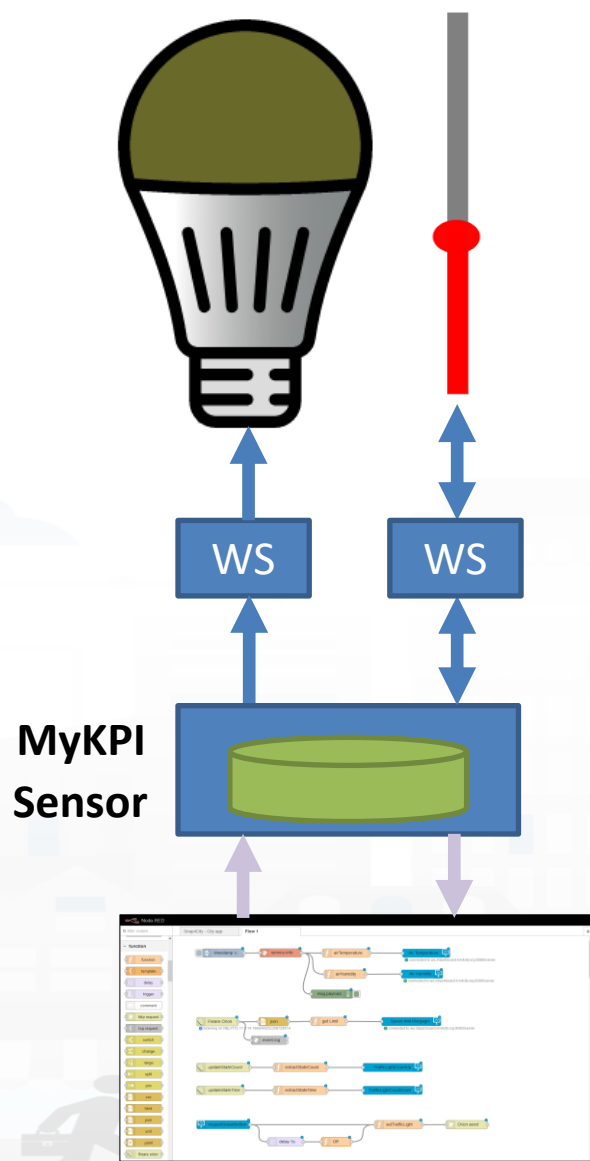
• Virtual Sensors

- From: MyKPI, Sensors, IOT App, other Synoptics
- To: Dashboards

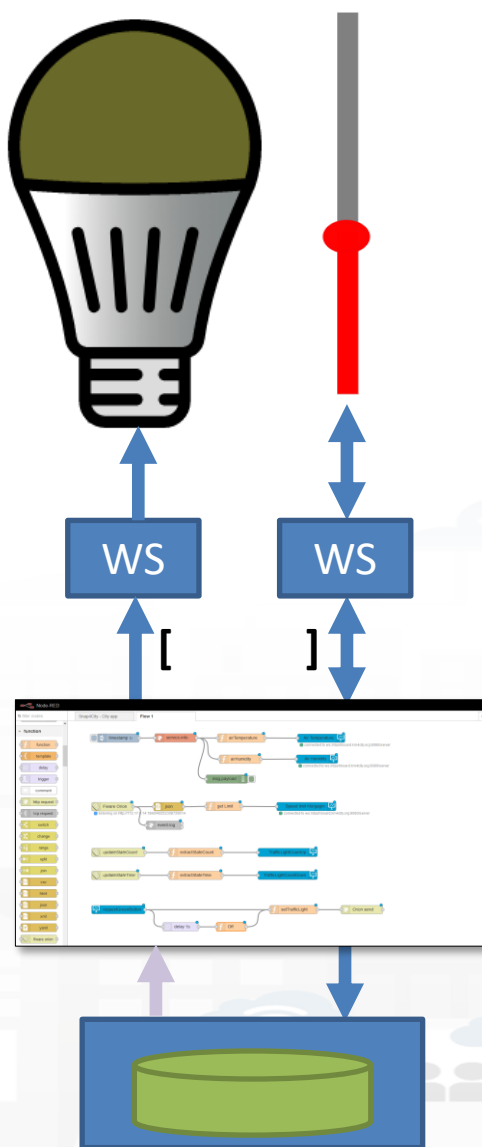


#####.##

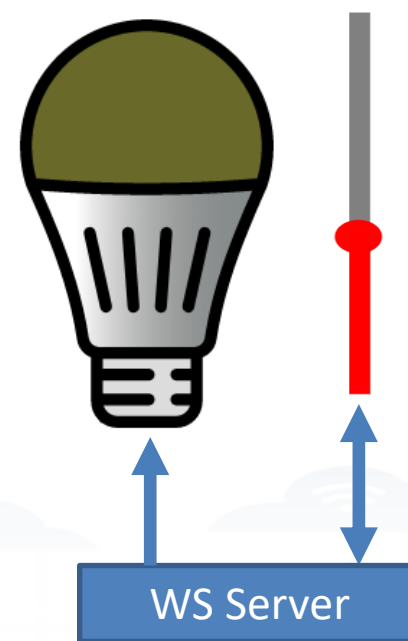




Case 1



Case 2



Case 3

Case 1

Case 1 SVG ws3

<https://www.snap4city.org/dashboardSmartCity/view/index.php?iddashboard=Mjc4NA==>

10 WS messages per second

Emergency_services

slider value 9m

34.66563913330602

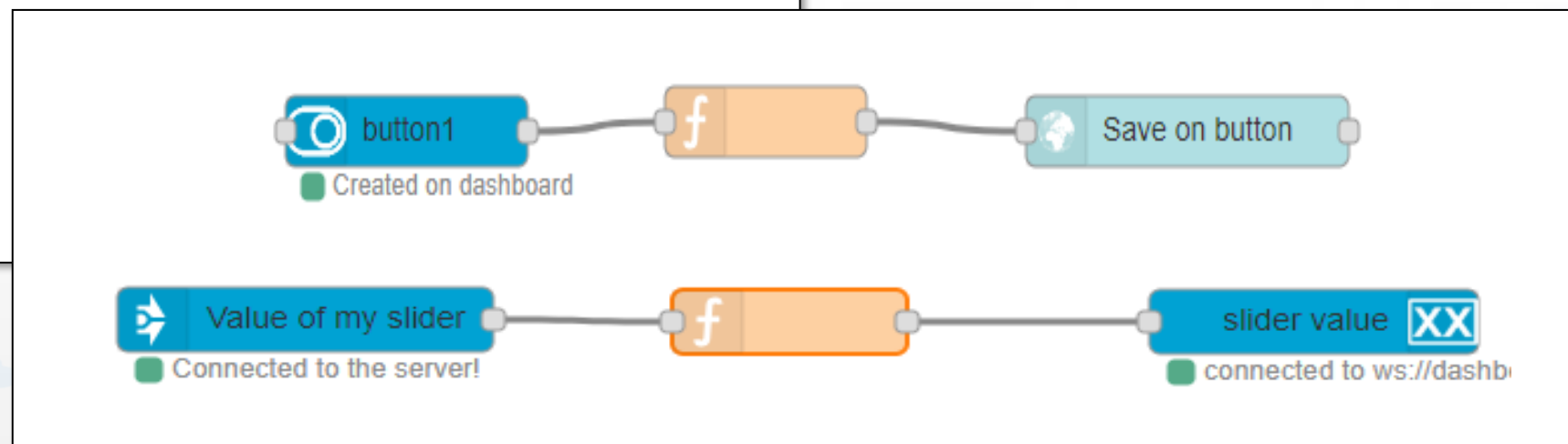
Emergency_services

Energy_supply

button1

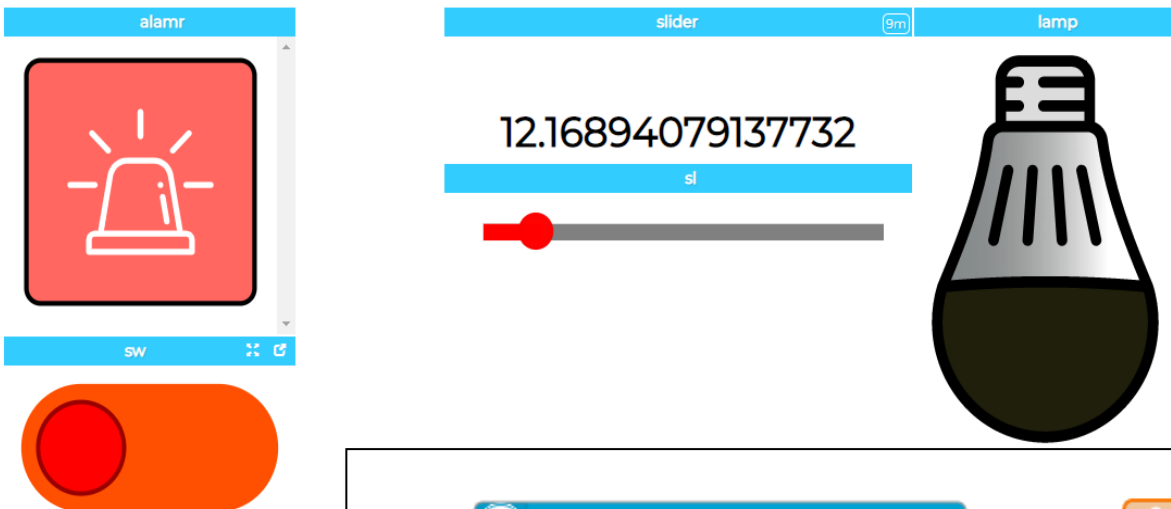
ON

button1



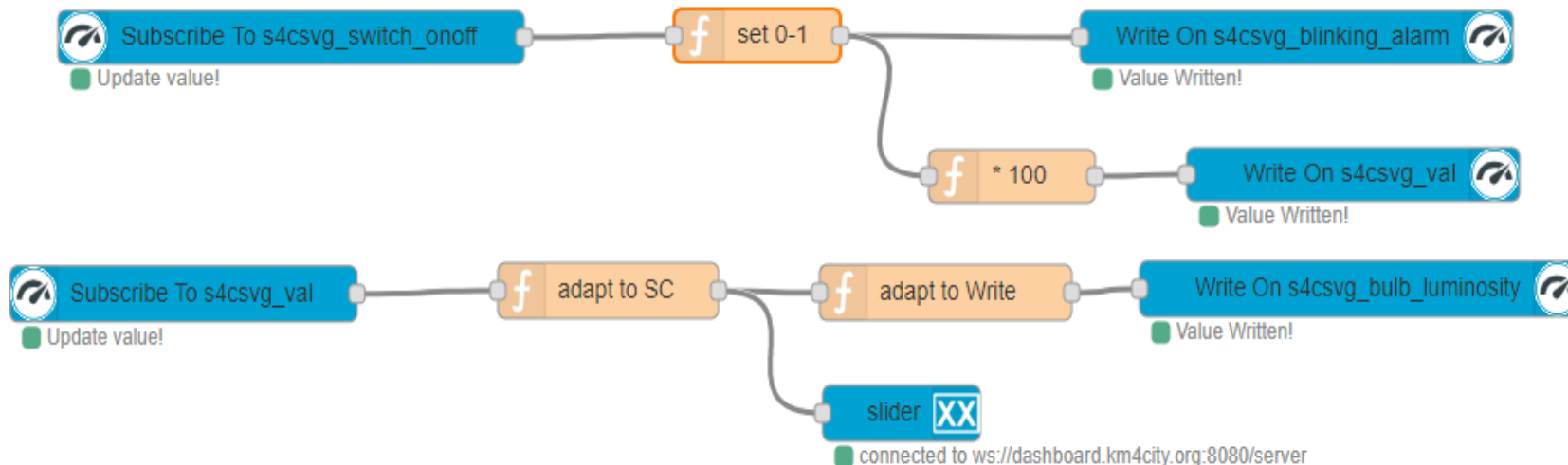
Case 2: Event Driven 100%

case 2 SVG WS3



<https://www.snap4city.org/dashboardSmartCity/view/index.php?iddashboard=Mjc4NQ==>

40 messages per second

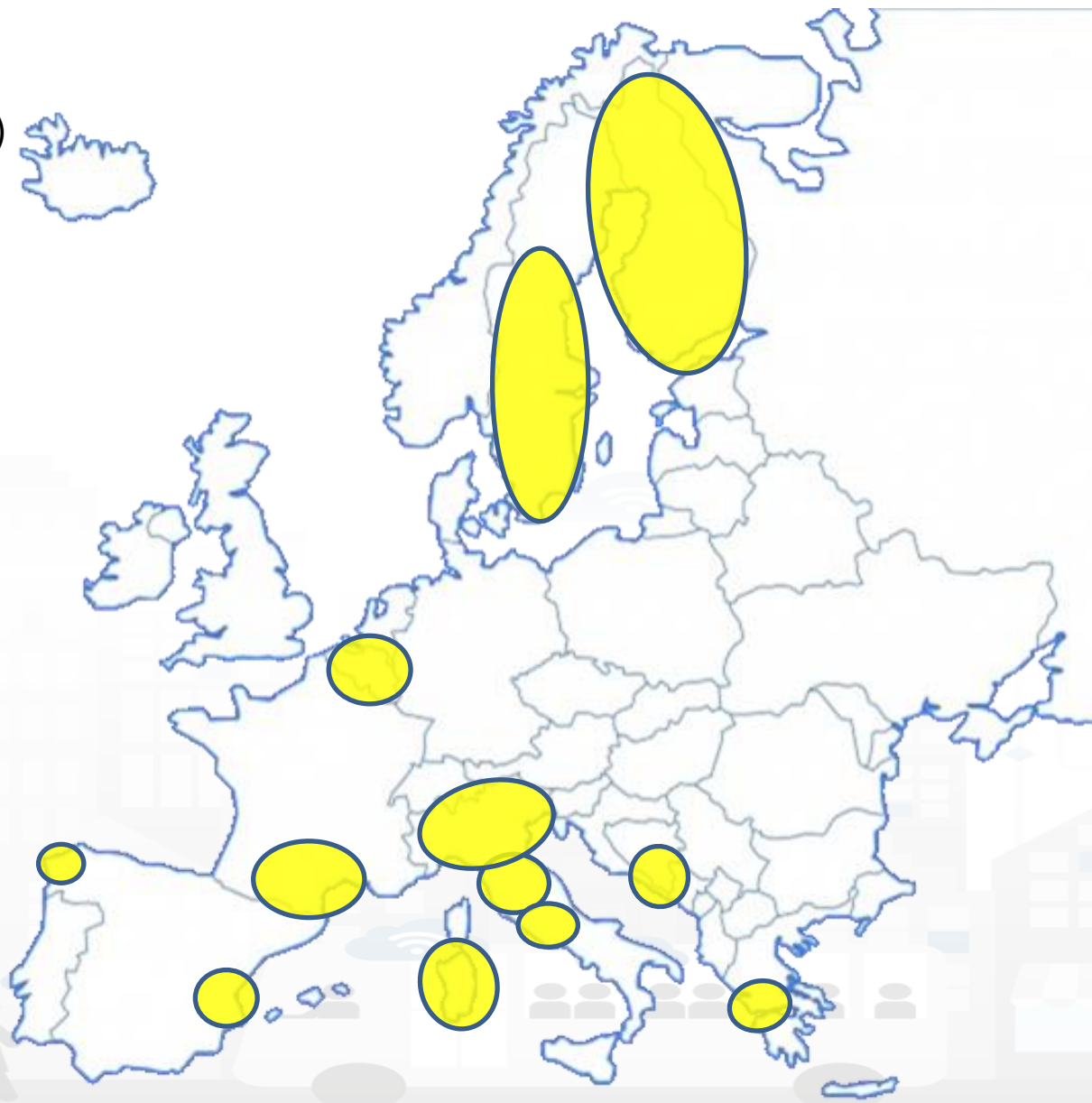


Conclusions

















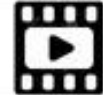





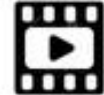









































- Snap4City is now ready for Industry and Home scenarios
 - Full support for WS secure
 - High performance connection from Snap4City and Synoptics
 - IOT Applications provide flexibility to develop business logic behind the control room dashboards and synoptics
 - Some industrial applications and solutions are in place and near to be finalized
- The community is growing, as well as the installations
 - Full training is ready and used
 - Appliances in VMs and Dockers are ready and in use

Main Organizations/areas

- [Antwerp area \(Be\)](#)
- Capelon (Sweden: Västerås, Eskilstuna, Karlstad)
- [DISIT demo \(multiple\)](#)
- [Dubrovnik, Croatia](#)
- [Firenze area \(I\)](#)
- [Garda Lake area \(I\)](#)
- [Helsinki area \(Fin\)](#)
- [Livorno area \(I\)](#)
- [Lonato del Garda \(I\)](#)
- [Modena \(I\)](#)
- [Mostar, Bosnia-Herzegovina](#)
- [Pisa area \(I\)](#)
- [Pont du Gard, Occitanie \(Fr\)](#)
- [Roma \(I\)](#)
- [Santiago de Compostela \(S\)](#)
- [Sardegna Region \(I\)](#)
- SmartBed (multiple)
- [Toscana Region \(I\)](#), [SM](#)
- [Valencia \(S\)](#)
- [Venezia area \(I\)](#)
- [WestGreece area \(Gr\)](#)



On Line Training Material (free of charge)

	1st part (*)	2nd part (*)	3rd part (*)	4th part (*)	5th part (*)	6th part (*)	7th part (*)
what	General	Dashboards	IOT App, IOT Network	Data Analytics	Data Ingestion processes	System and Deploy Install	Smart City API: Web & Mob. App
PDF							
Inter active							
Video1	 	 	 	 	 	 	 
Video2	 	 	 	 	 	 	 
Video3	 	 	 	 	 	 	 
Video4	 	 	 	none	 	none	none
duration	2:55	3:16	3:41	2:00	2:48	2:35	1:47