

Building a “Sense Smart Region”



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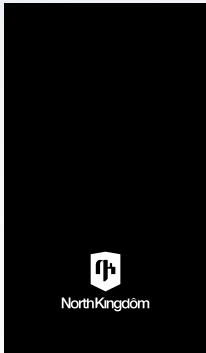
SenseSmartRegion



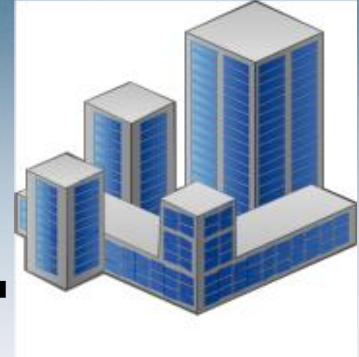
- Sense
 - Digitalization add to our senses
 - Sensors, Internet-of-Things (IoT), Open Data
- Smart
 - Simplifying, more efficient, adaptable, ...
- Region
 - Both urban and rural areas

Partners

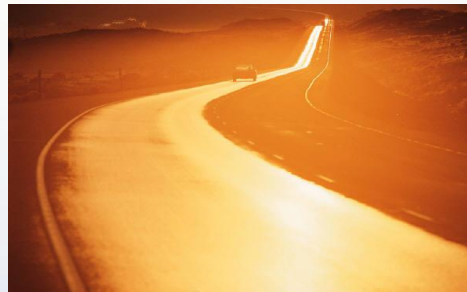
- **Luleå University of Technology**
- **Sokigo**
- **DataDuctus**
- **NorthKingdom**
- **Umeå municipality**
- **Skellefteå Kraft, Skellefteå municipality and Skelleftea Digital Alliance also contribute.**



A Smart City in Europe...



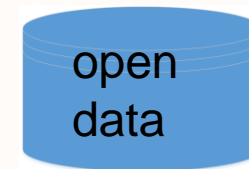
- In a Smart City, information and communication technologies (ICT) contribute to new and improved services, more efficient usage of resources, and environmental awareness
- This is also important for rural areas, that is, the whole region.



Enabling digitalization



- Data from various sources like
 - Public databases
 - IoT
 - Crowd sourcing



Providing a transparent dimension on top of our physical environment

Areas

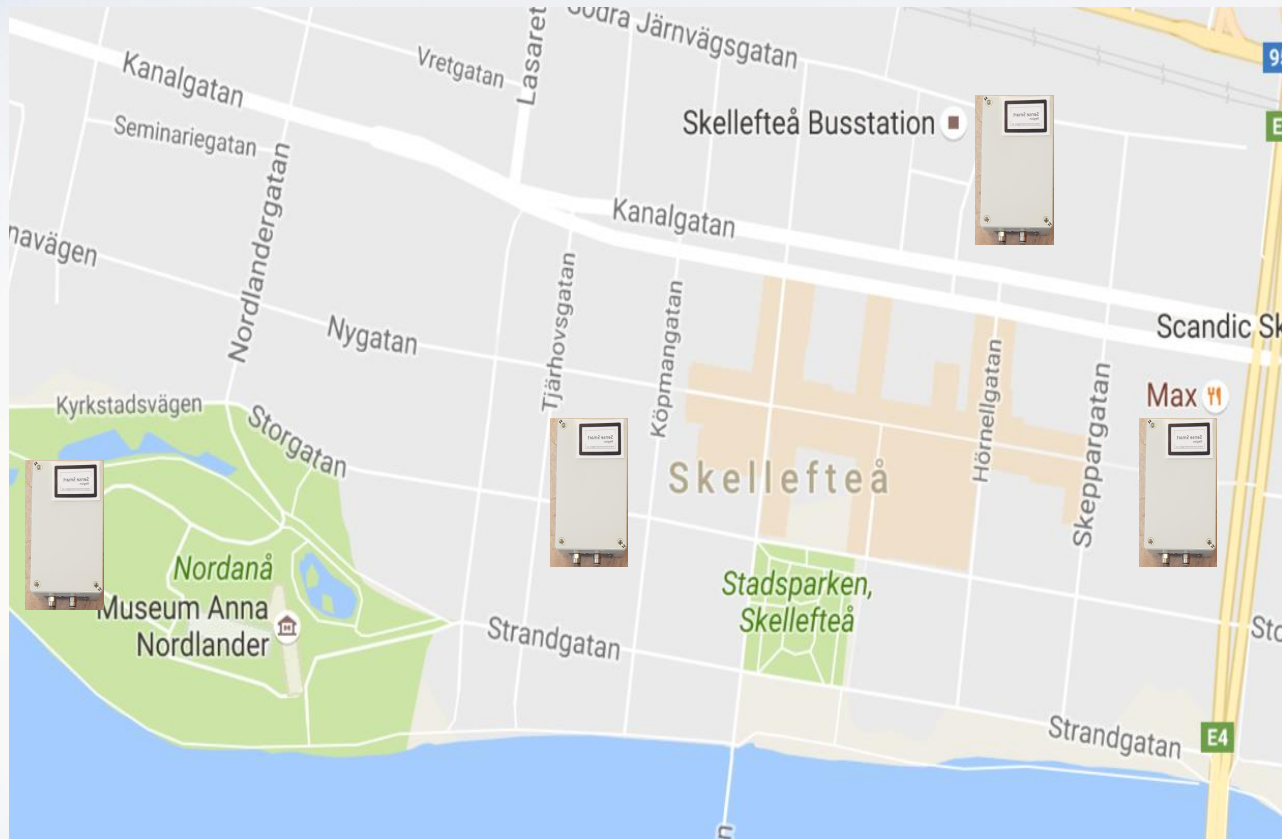
- Smart homes
- Traffic control, transportation
- Smart energy, hybrid grids
- Monitoring and control of societal infrastructures
- *eSolutions* within the public and private sector
- Tourism
- ... *You name IT*...



Example: monitoring of infrastructures



Example: environmental monitoring

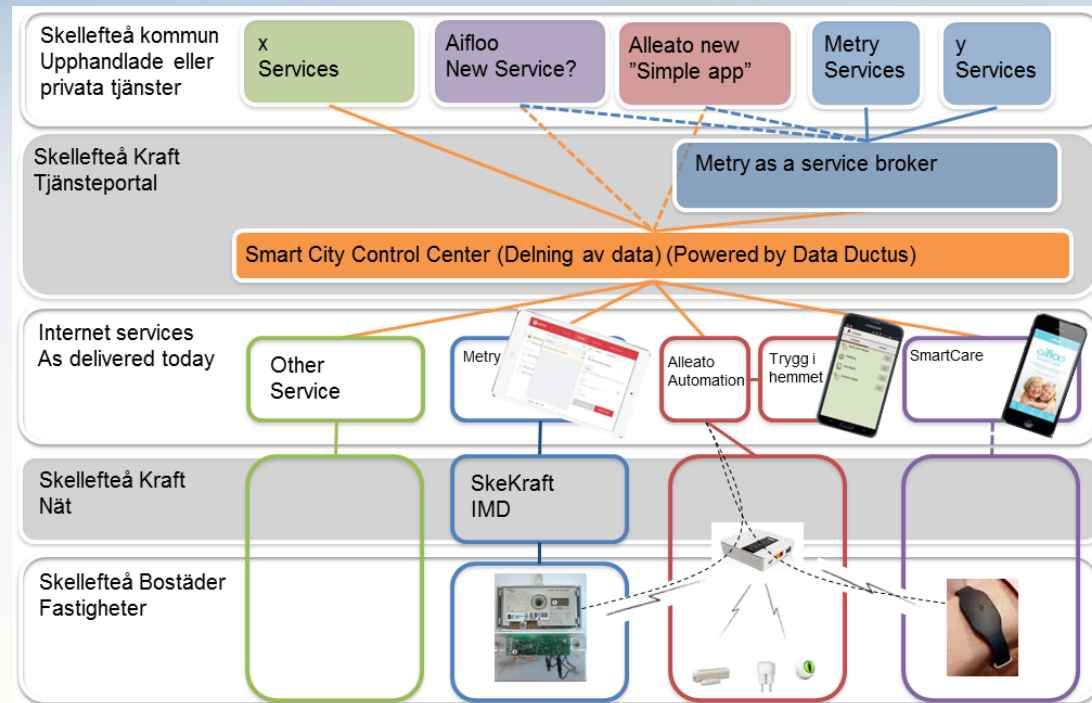


Example: guidance

- Visitors receive information about attractions, locations, and directions of a tour based on interest
- Disabled individuals are provided with guidance informing about how to move between locations (avoiding obstacles, slippery surfaces etc.)

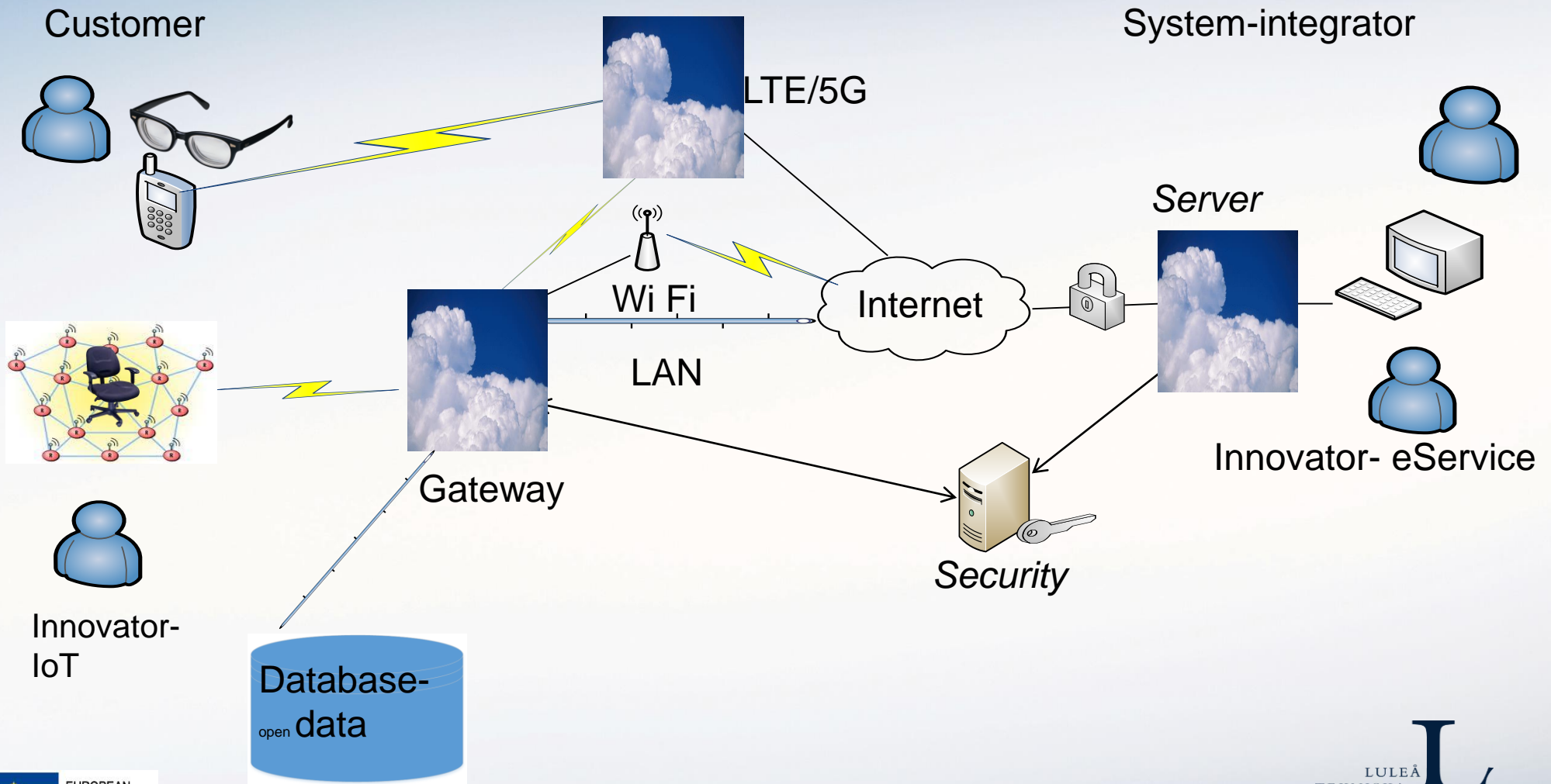


Example eHealth

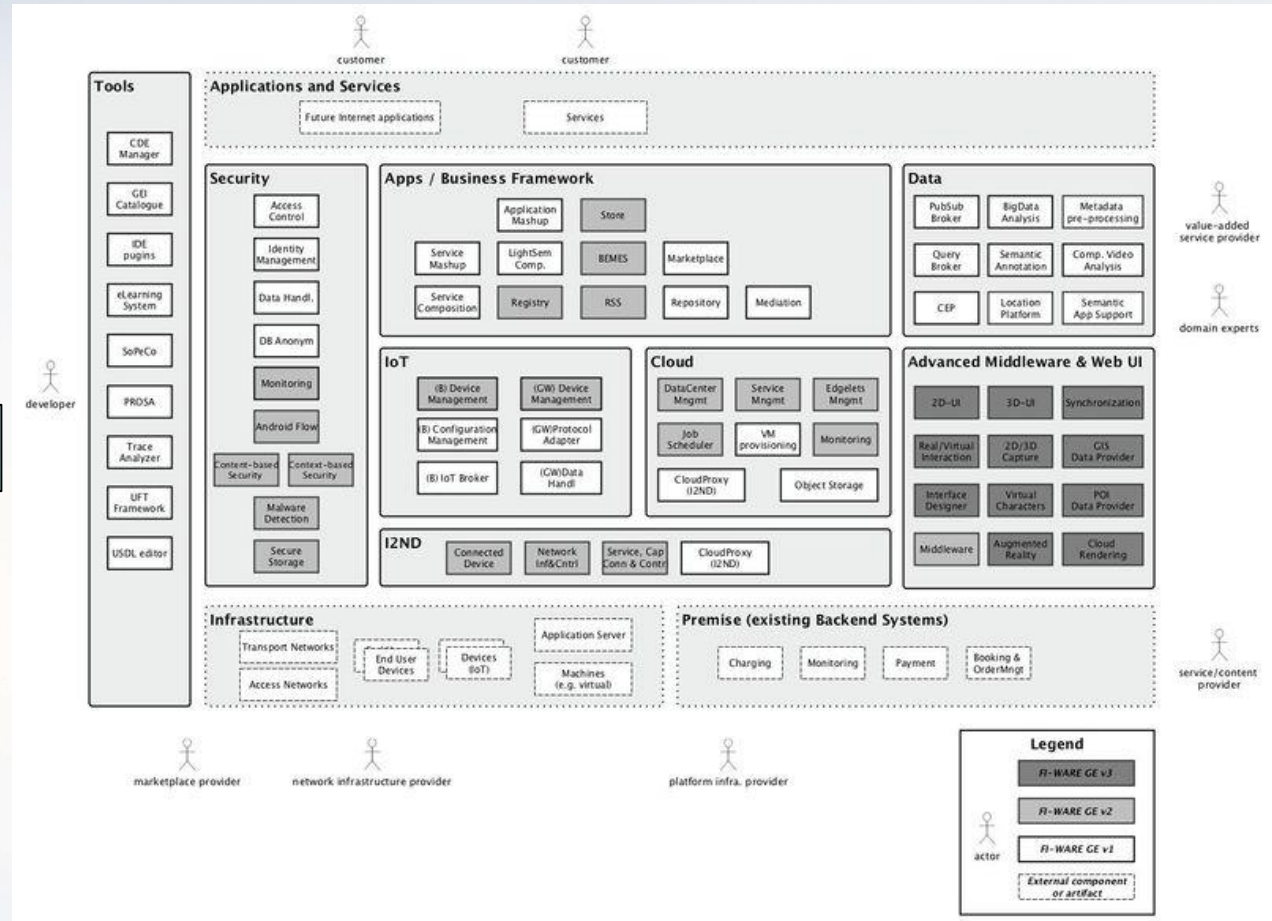


- “IoT for health-care in Skellefteå
- One of eight hubs within IoT Sverige (Vinnova)

The SenseSmartRegion architecture



What's in the cloud





Ways of visualization

- Augmented reality
 - Real and digital information are combined in our daily life
 - [Hololens!](#)
 - If we do not want glasses.....
 - [.....what about these?](#)



Ways of interaction

- To provide input to integrated ICT devices
 - Smart watches
 - Wristbands

Hidden City



Microsoft Hololens









Projektets mål



Lösningen

”Visa ett hål i marken som inte finns”



”Visa ett hål i marken som inte finns - på en specifik plats”

HoloLens GPS - Unik GPS/kompass (prototyp)

- GPS GNSS/RTK (GPS/GLONASS/Galileo/BeiDou) UDR, Digital kompass

Positioneringsenhet med unika prestanda:

- Precision position utan referens < 2 m
- Frekvens pos/20 hz
- Precision kompass < 2°
- Död räkning stabil avdrift 3D sensorer < 5m/5 min
- Blåtand / USB
- Batteri 8 tim
- Casing prot. mm 80*30*80 (CAD prod. Mm 40*17*40)



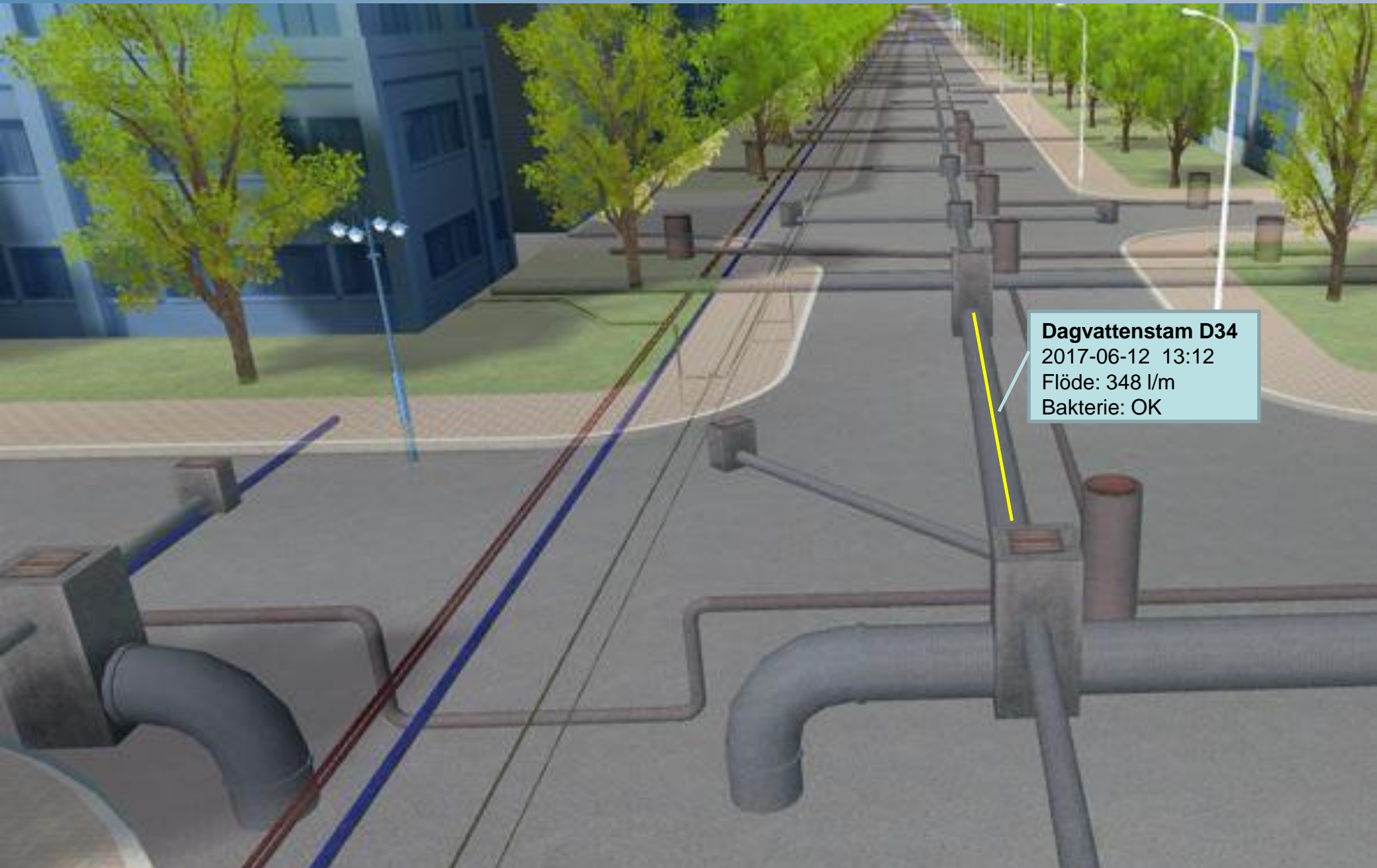
SOKIGO
ADDNODE GROUP

LULEÅ
TEKNISKA
UNIVERSITET



Kiruna





Dagvattenstam D34
2017-06-12 13:12
Flöde: 348 l/m
Bakterie: OK

Questions

