

IoT for Substation Automation

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IoT @ Substation Automation enables customers to create new data-driven services in only two easy steps

Enable Connectivity

1

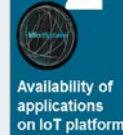


Update SIPROTEC/SICAM devices with IoT connectivity
OPC UA P/S



Connect to MindSphere

2



Cloud for utilities

open application interface for applications and 3rd party apps



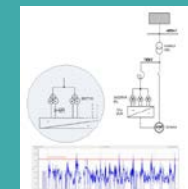
- **Self discovery** of Siemens products

Run the Service

3



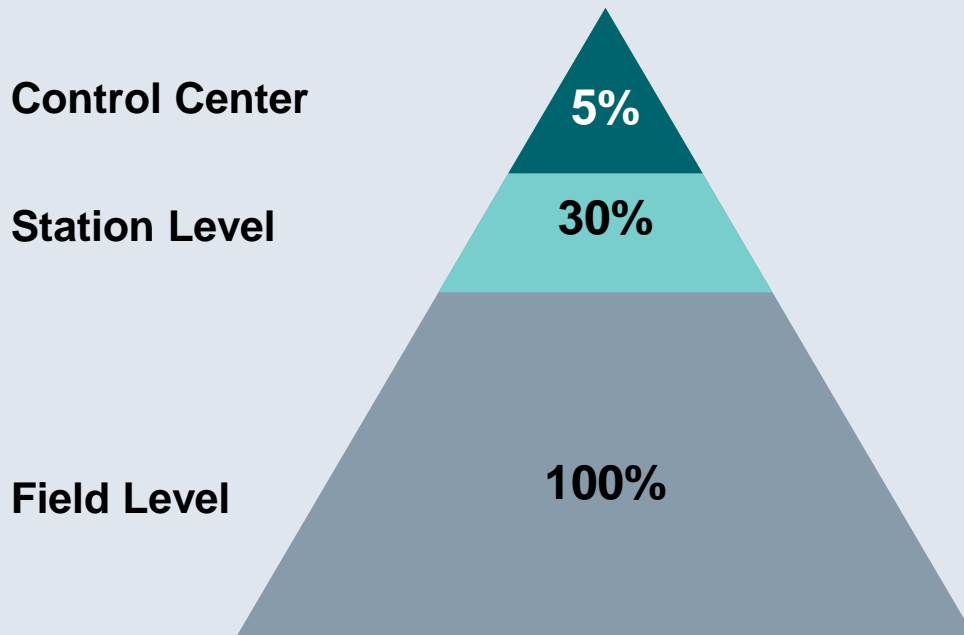
Monitor e.g. health status of your Substation assets with Grid Diagnostic Suite or develop your own Apps



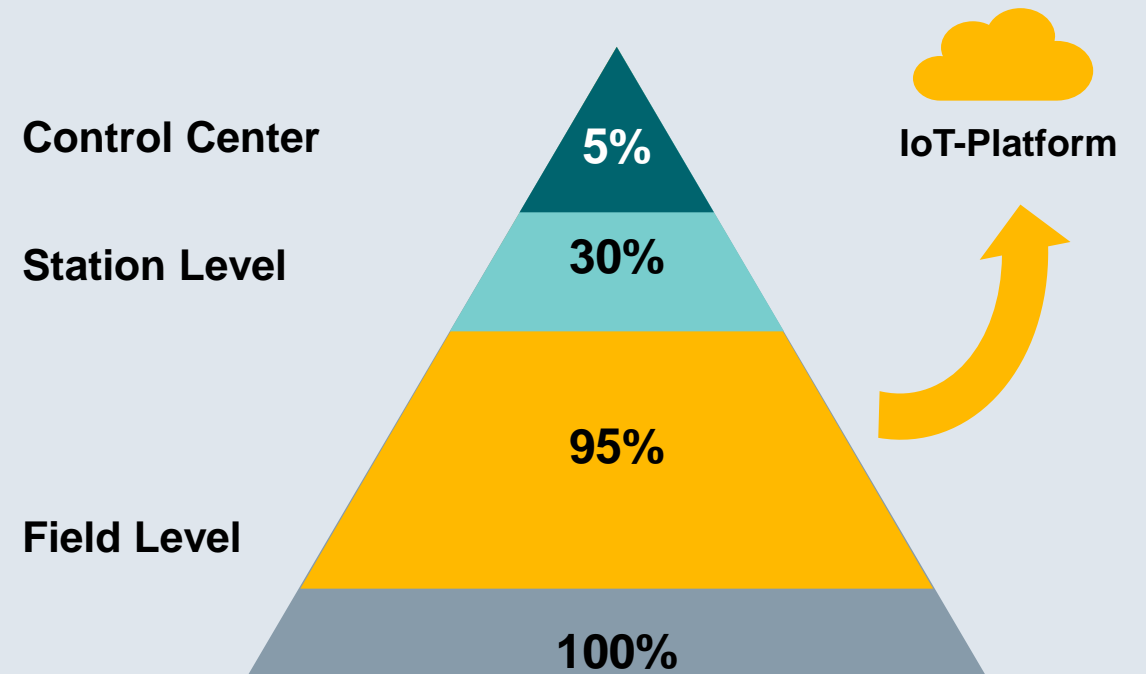
Evolution in Substation Automation

Digitalization – IoT the enabler for data analytics

Today – Focus on operation

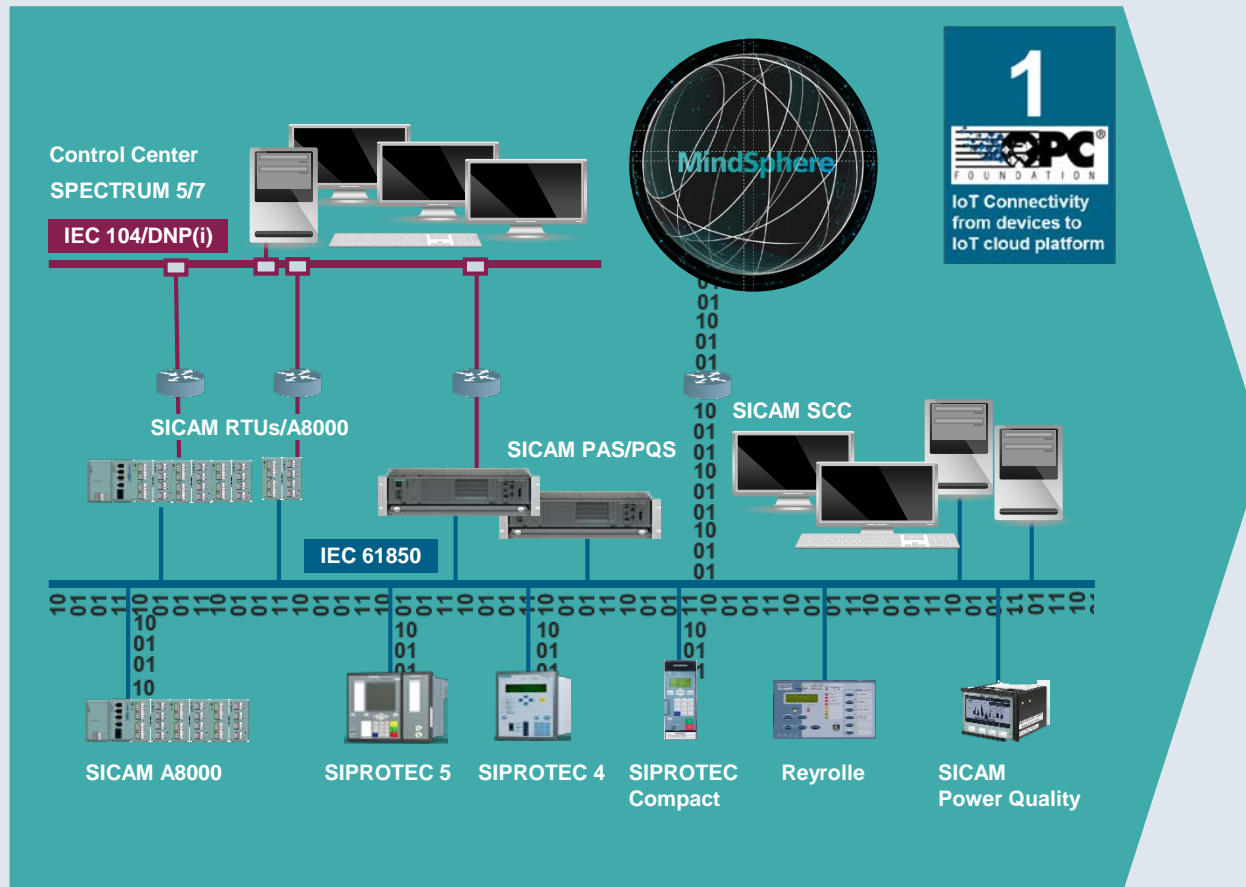


Tomorrow – Use existing data @ field level for analytics & new options



IoT Connectivity – The first step

Make more data available – Trouble-free IoT upgrade



Use existing infrastructure/hardware



Easy upgrade IoT protocol in existing hardware
→ no impact on running applications



No system changes in configuration (device, substation, network, etc.)



Highest degree of security



IoT standards → OPC UA Pub/Sub

Make use of the new digitalized world Apps and Data Analytics

3
Readiness for Digital Service Offerings







Predictive functionality

Correlation analysis

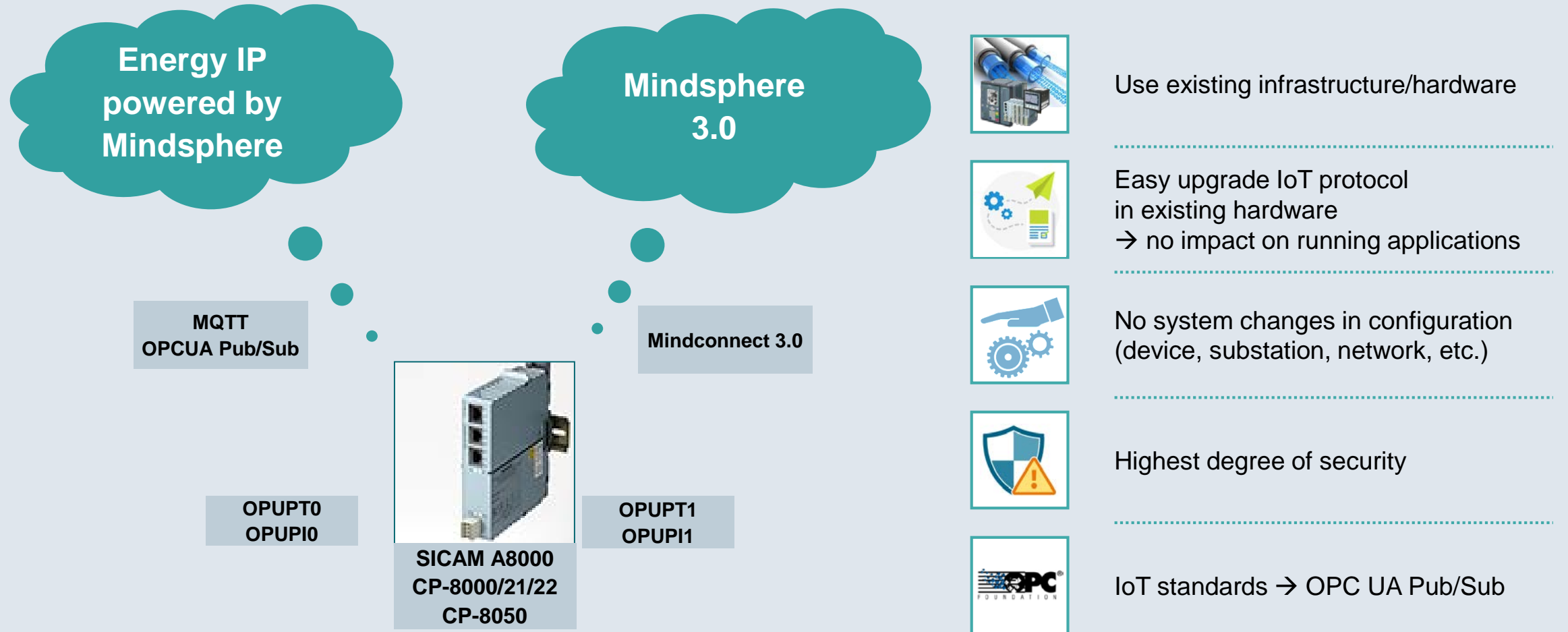
Detecting failures through e.g. Gradient Check

Condition Monitoring

Isolator Monitoring

-  **Zero Config**
-  **Grid Diagnostic**
-  **Prediction**
-  **Risk detection**
-  **Monitoring assets/
Condition Monitoring**
-  **Expert system**

IoT Solution with SICAM A8000 ready for pilot projects - overall



IoT@SICAM A8000 CP-8022

Pilot project, municipal utility, Cottbus



Daniel Hausmann in CoC Digitalisierung - RC-DE EM DIG , Wir im Osten , Digitalization at Energy Management , Mind Sphere , EM MAC - MindSphere Application Center , Municipalities and DSOs , Power Monitoring , Energy Management Sales, Marketing and Communicators Community

Gestern war es soweit, die erste Ortsnetzstation in Deutschland wurde niederspannungsseitig an die MindSphere angebunden!!! Zum Einsatz kommen SEM3-Messmodule und eine A8000 als Gateway zur MindSphere. Im nächsten Schritt sollen weitere vier Stationen folgen!

Die Ergebnisse könnt ihr euch alle live bei der "Nacht der kreativen Köpfe" in Cottbus am 06.10.18 anschauen. Kommt gerne vorbei, alleine oder direkt mit euren Kunden.

Eine tolle Teamleistung aller Beteiligten. :)

Yesterday was the day, the first substationstation in Germany was connected to the MindSphere on the low-voltage side!!! SEM3 measuring modules and A8000 as gateway to MindSphere are used. In the next step four more stations will follow!

You can watch the results live at "Nacht der kreativen Köpfe" in Cottbus on 6th October 2018. Come along, alone or with your customers.

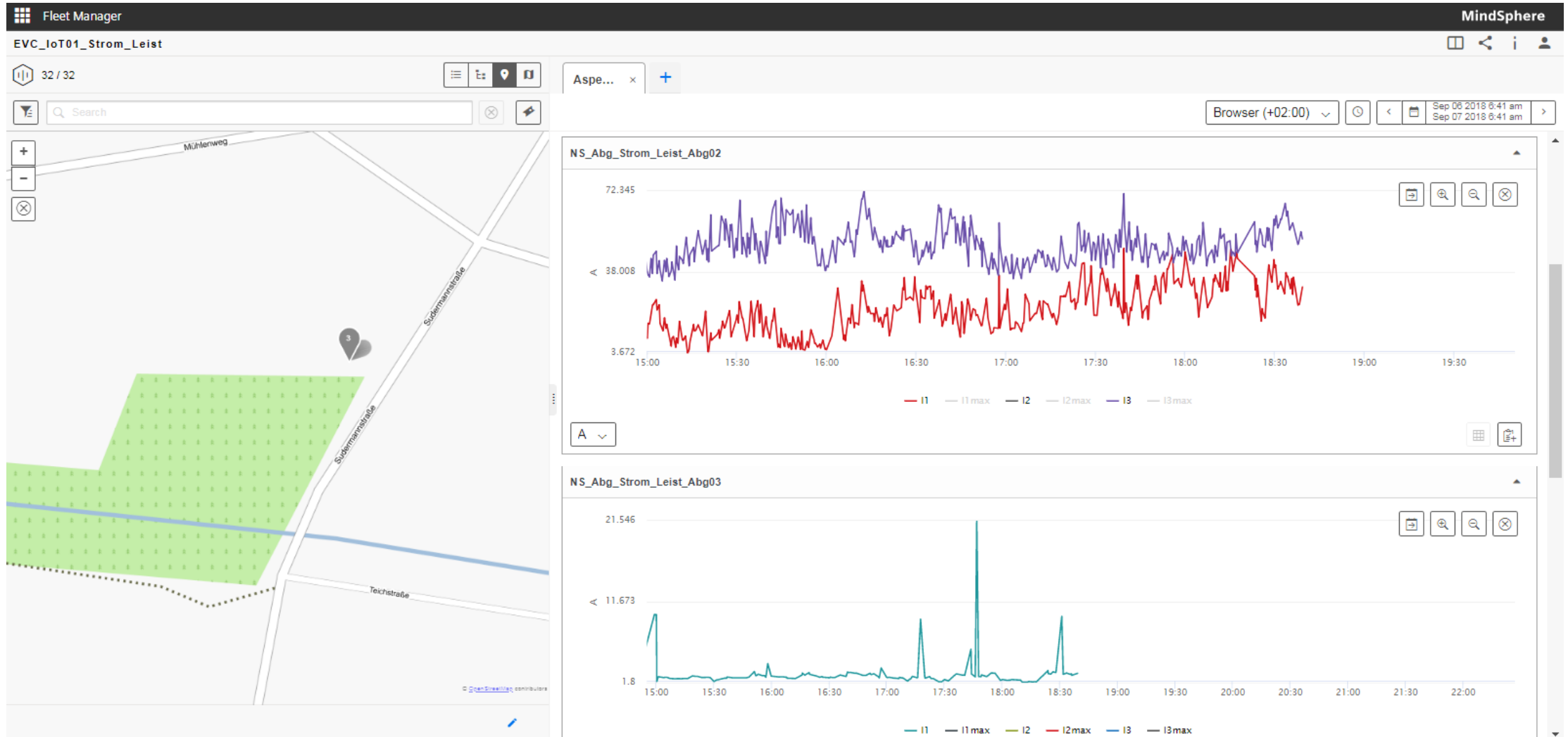
A great team performance of the whole region! :)

@WirimOsten @DigitalizationatEnergyManagement @MindSphere @EMMACMindSphereApplicationCenter



IoT@SICAM A8000 CP-8022

Pilot project municipal utility Cottbus



SICAM Navigator overview



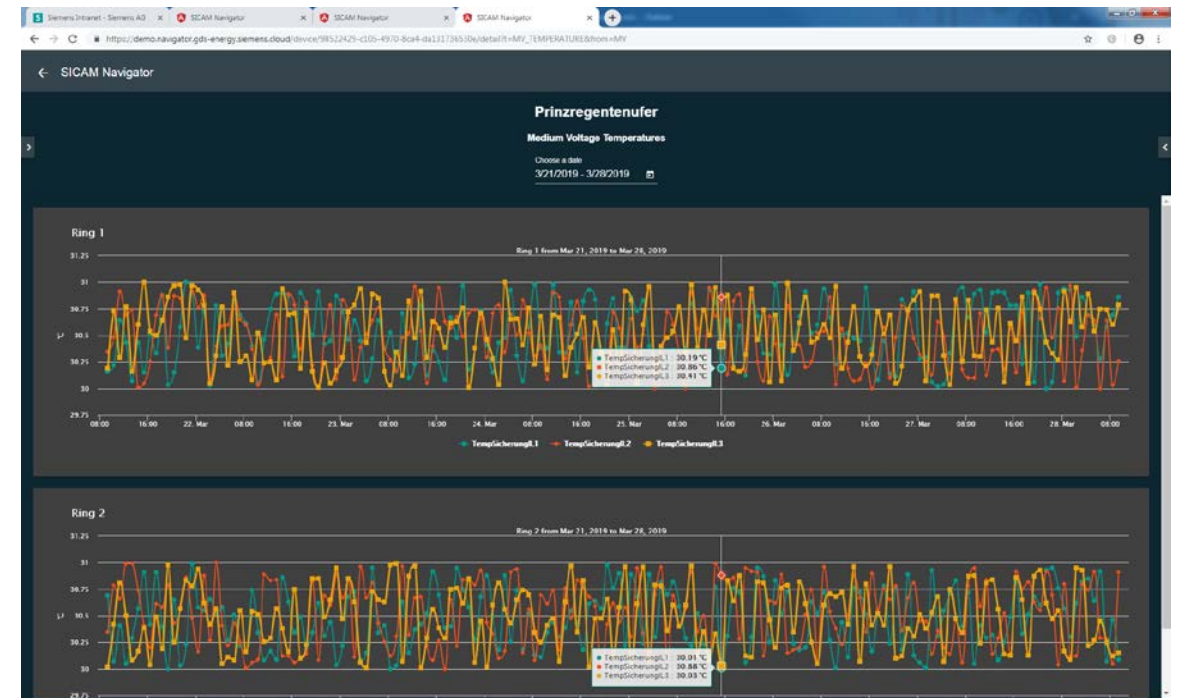
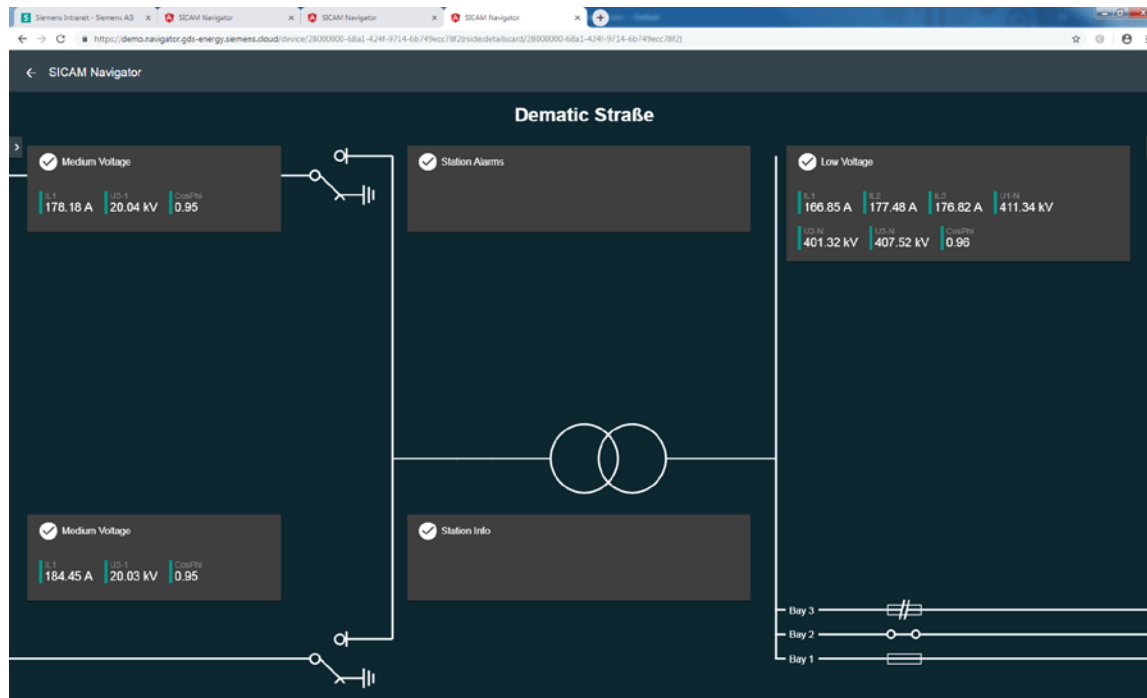
The screenshot displays the SICAM Navigator interface. The main area is a map of a city, likely Nürnberg, with various districts labeled such as ALMOSHOF, THON, MARIENBERG, SCHLEIFWEG, and TULLNAU. A network of green lines connects several stations marked with green circles. A search bar at the top center of the map area is labeled "Search Station".

On the right side, there is a panel titled "7 days" with a dropdown menu and the text "Select the time-range for events". Below this, a list of events is shown, each with an icon, a title, a location, and a timestamp:

- Batterie** (Battery icon) at Dematic Straße, Mar 27, 2019, 6:12:05 PM
- Türkontakt** (Door lock icon) at Tullnaupark, Mar 27, 2019, 1:42:22 AM
- Bewegung** (Motion icon) at Tullnaupark, Mar 27, 2019, 1:42:22 AM
- Eindringling** (Intruder icon) at Tullnaupark, Mar 27, 2019, 1:42:22 AM
- KurzschlussRing1** (Lightning bolt icon) at Tullnaupark, Mar 23, 2019, 1:44:31 PM
- KurzschlussRing1** (Lightning bolt icon) at Tullnaupark, Mar 23, 2019, 1:44:31 PM
- Kurzschluss** (Lightning bolt icon) at Kressengartenstraße, Mar 23, 2019, 1:44:31 PM
- KurzschlussRing1** (Lightning bolt icon) at Kressengartenstraße, Mar 23, 2019, 1:44:31 PM
- Kurzschluss** (Lightning bolt icon) at Tullnaupark, Mar 23, 2019, 1:44:31 PM
- Kurzschluss** (Lightning bolt icon) at Prinzregentenüfer, Mar 23, 2019, 1:44:31 PM

At the bottom of the map, there are navigation controls including a person icon, a plus sign, and a minus sign. The Google logo is visible in the bottom left corner of the map area.

SICAM Navigator for Ring Main Units (RMU)



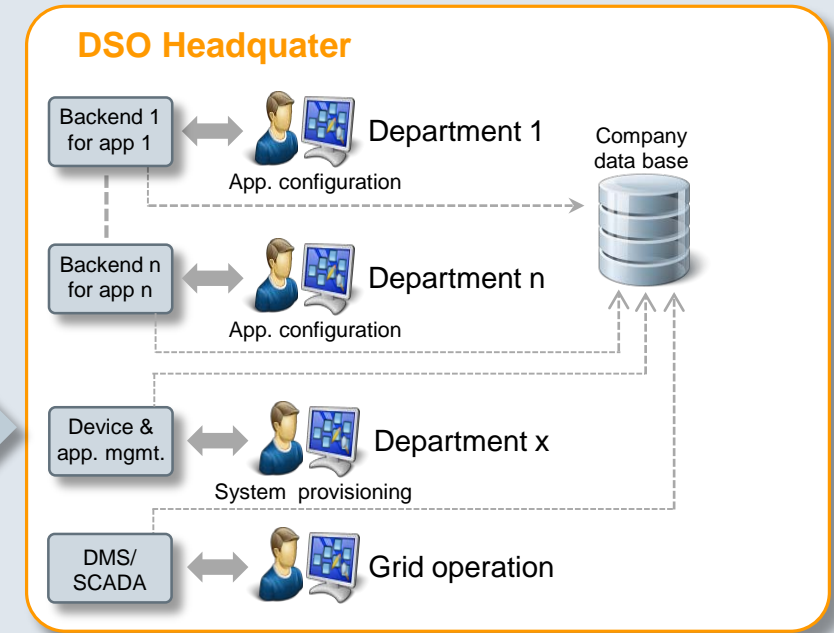
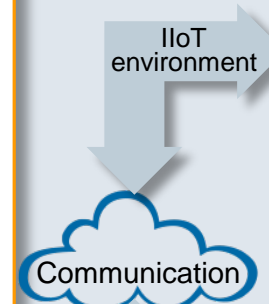
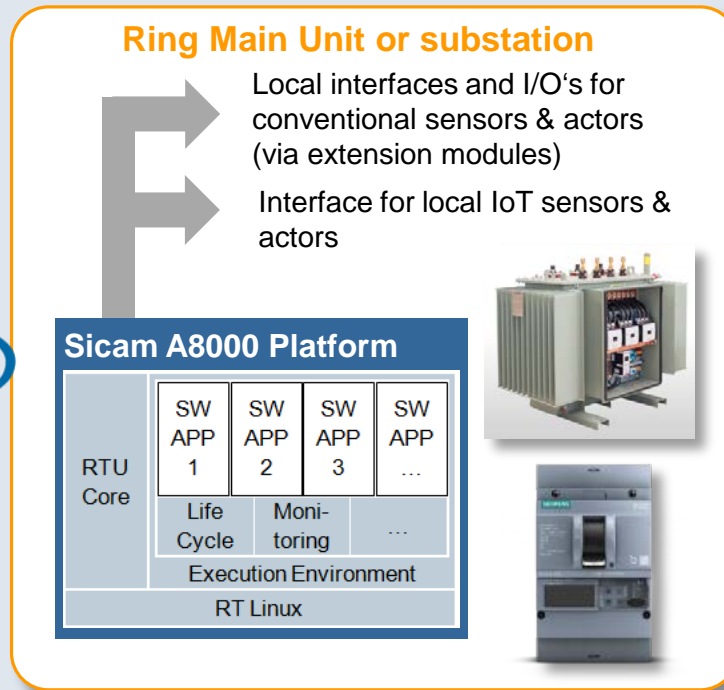
Industrial IoT R&D application example: Framework for industrial Apps

Use A8000

- As IoT gateway
- As an IoT edge device to run independent software on RTU



Interface Legacy devices and Sensors with Standard protocols





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