



CommsConnect

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NOKIA



TRANSMISSION



UK Power Networks Overview



76,515 GWh
Electricity distributed
28% Great Britain's total

19 million people served

9.49 GW
Distributed generation
on our network

13,316 MW
Peak demand

What happens to mobile communications when the power goes out?

Setting the Scene



Electrical operators utilise cellular networks to communicate

Storms in recent years have exposed this interdependency

Storm Arwen affect on one mobile network operator:

- 1,500 mobile sites down
- 130 down for 72 hours
- Millions in compensation payments



Useful information for DNO operations

API to query:

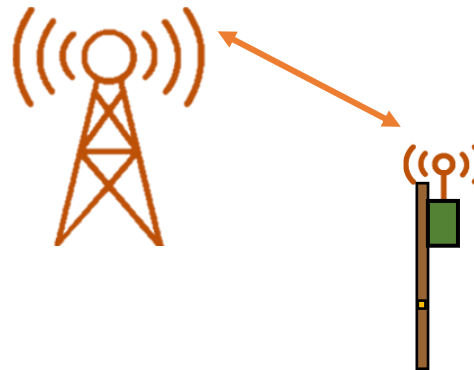
ID, location, all relevant attributes of MNO sites

e.g. battery backup on site and % remaining



API to query:

For our device IMSI numbers which mobile base sites are they currently connected to



Geospacial Tool:

Where can resilience be best prioritised to best mutual benefit?



CommsConnect Technical Work Packages

Enable Increased Visibility

Stakeholder Engagement and Requirement Refinement



Direct Integration

Integration of cellular network status with electrical systems

Information exchange to electrical system

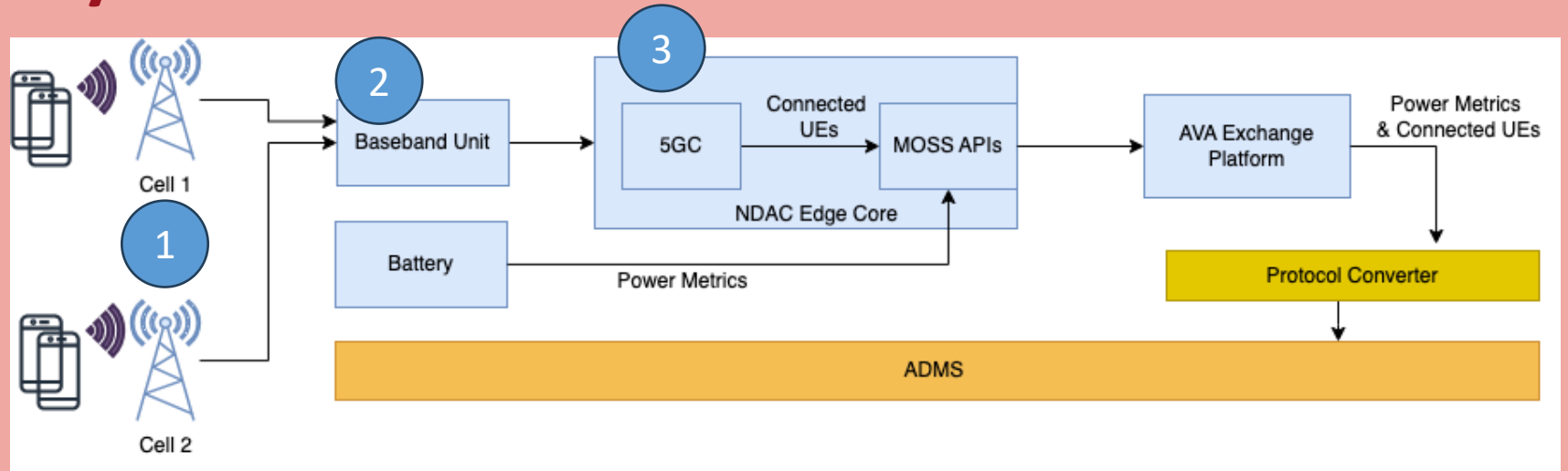


Active Monitoring

Sensing device to monitor cellular network

Information exchange to electrical system

Direct Integration - Physical installation at PNDC



Active Monitoring – Network Sensing Device

Completed

1 Prototype sensing device operational

2 Geospacial representation of information in development

3 Deployment to representative module

In progress

1 Testing of electrical outage

2 Plan for firmware changes to BAU routers for Beta Phase rollout

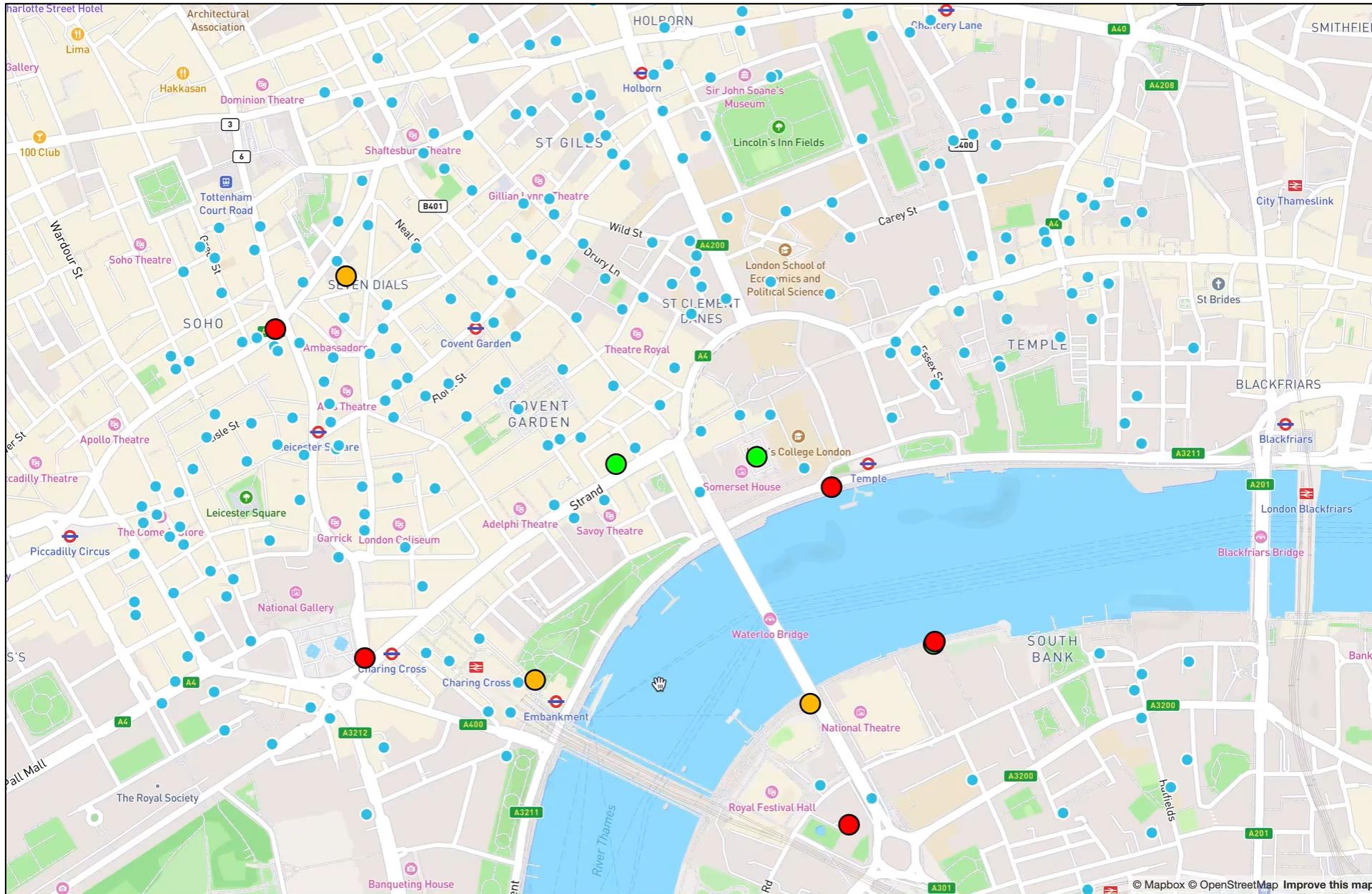


1 Development Prototype

2 Representative Module

3 Mobile Routers

Active Monitoring - Real-world network scanning



Network Status Scanning:

● - secondary substations

Mobile Masts:




● - detected <15sec

● - detected 15-60sec




● - not detected >60sec

CommsConnect Potential Beta Benefits


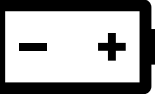

Short Term (Seconds, Minutes)

- Faster automatic restoration of power 
- Support communications with vulnerable customers 
- Integrated power status reporting for masts 

Middle Term (Hours, Days, Weeks)

- Coordinated timeframes for restoration 
- Resilience for DSO flex dispatch 
- Control Room view on mobile reception available to field staff 

Long Term (Months, Years)

- Historic analysis of mobile network reliability 
- Identify network weak spots 
- Increase confidence in ecosystem integration 



Stakeholder & Industry Engagement

Completed



Planned



Events

Completed

- CreDo+ resilience working group (Online 15/02)
- In person UKPN event (IET London 21/02)
- In person demonstration (PNDC 06/03)

Planned

- Risk & Resilience event (Newcastle 12/03)
- Show and Tell Alpha Round 2 (Online 22/04)

THANK YOU

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