

**electricity
north west**

Bringing energy to your door



Innovation Learning Event

Wednesday 5 July 2017

Stay connected...



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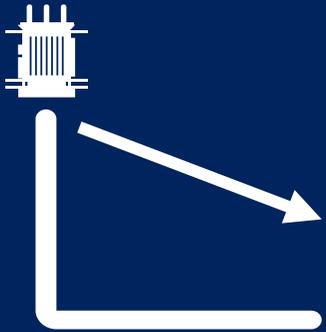
Smart Street Technology

Ben Ingham

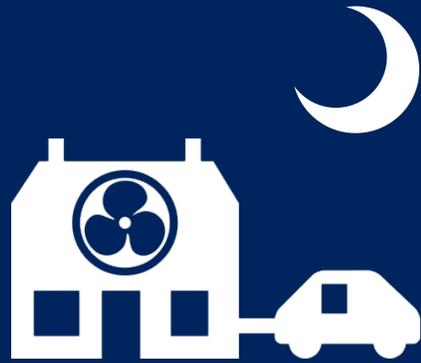
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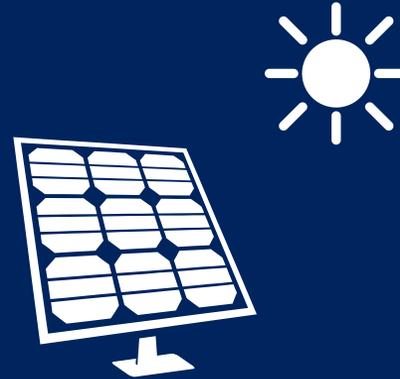


Historic networks
have no active
voltage regulation

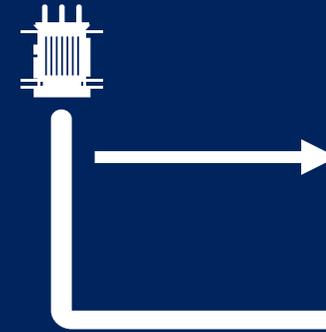


LCTs create
network issues

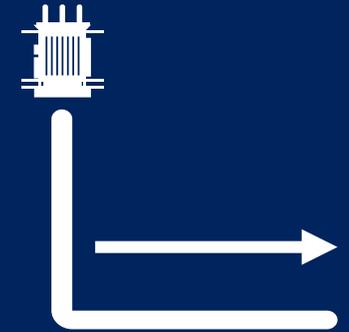
Customer
demand could
cause voltage to
dip below
statutory limits



Customer
generation could
cause voltage to
exceed statutory
voltage limits



Smart Street
stabilises voltage
across the load
range and
optimises power
flows



Conservation
voltage reduction

Stabilised voltage
can be lowered
making our
network and
customers'
appliances more
efficient



£11.5m,
four-year
innovation
project



Started in Jan
2014 and
finishes in Apr
2018



Quicker
connection of
LCTs
Lower energy
bills
Improved
supply reliability



Trials period
Jan 2016 –
Dec 2017



Extensive
customer
engagement
programme
throughout
project



LV vacuum devices

Retrofits onto standard equipment

Replicates standard fuse curves up to 400A

Telemetered back to central monitoring point



LV units are multi-stage

HV units are single stage

Used for voltage control only



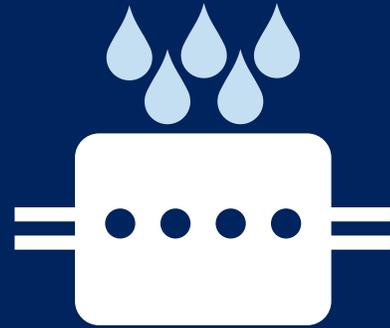
9 tap positions with 2% per step

Nominal tap

Self regulating on loss of comms



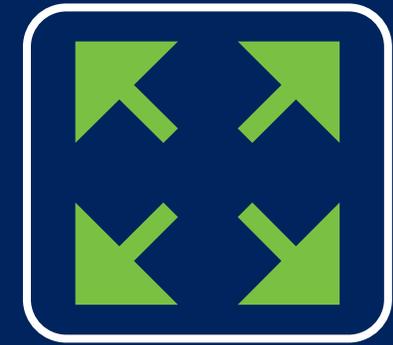
Communications



Water ingress

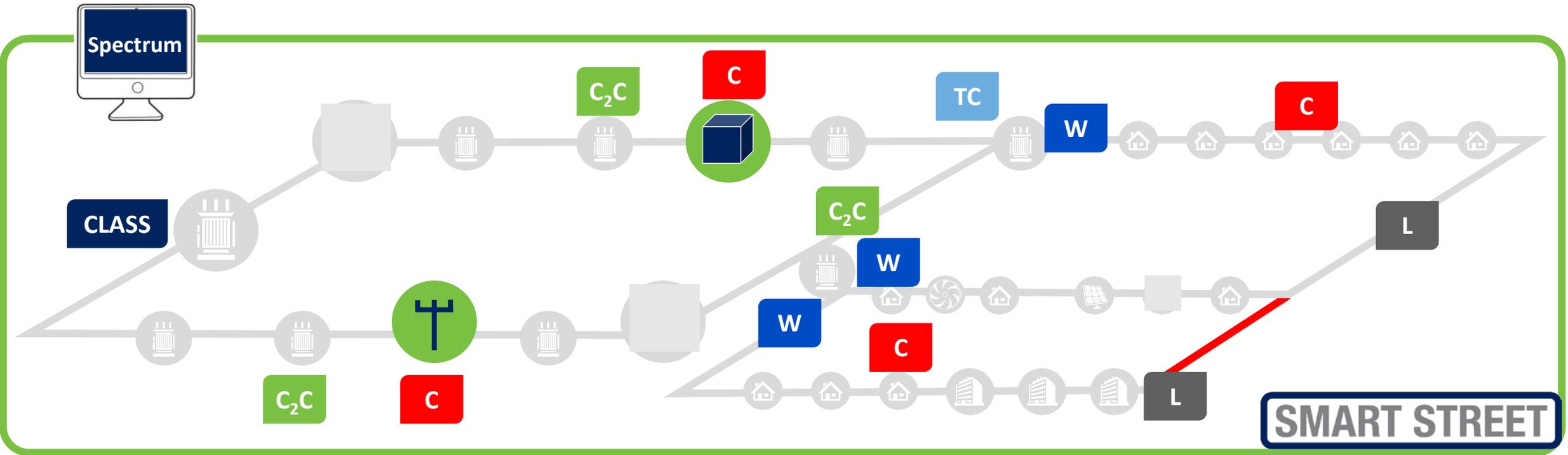


Cabinet design and location



Enclosure size

Network overview



C₂C

Capacity to Customers

C

Capacitor

W

WEEZAP

L

LYNX

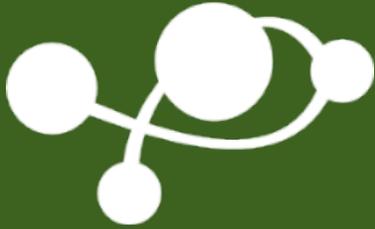
TC

On-load tap changer

Builds on C₂C and CLASS ● Storage compatible ● Transferable solutions



Siemens network management system

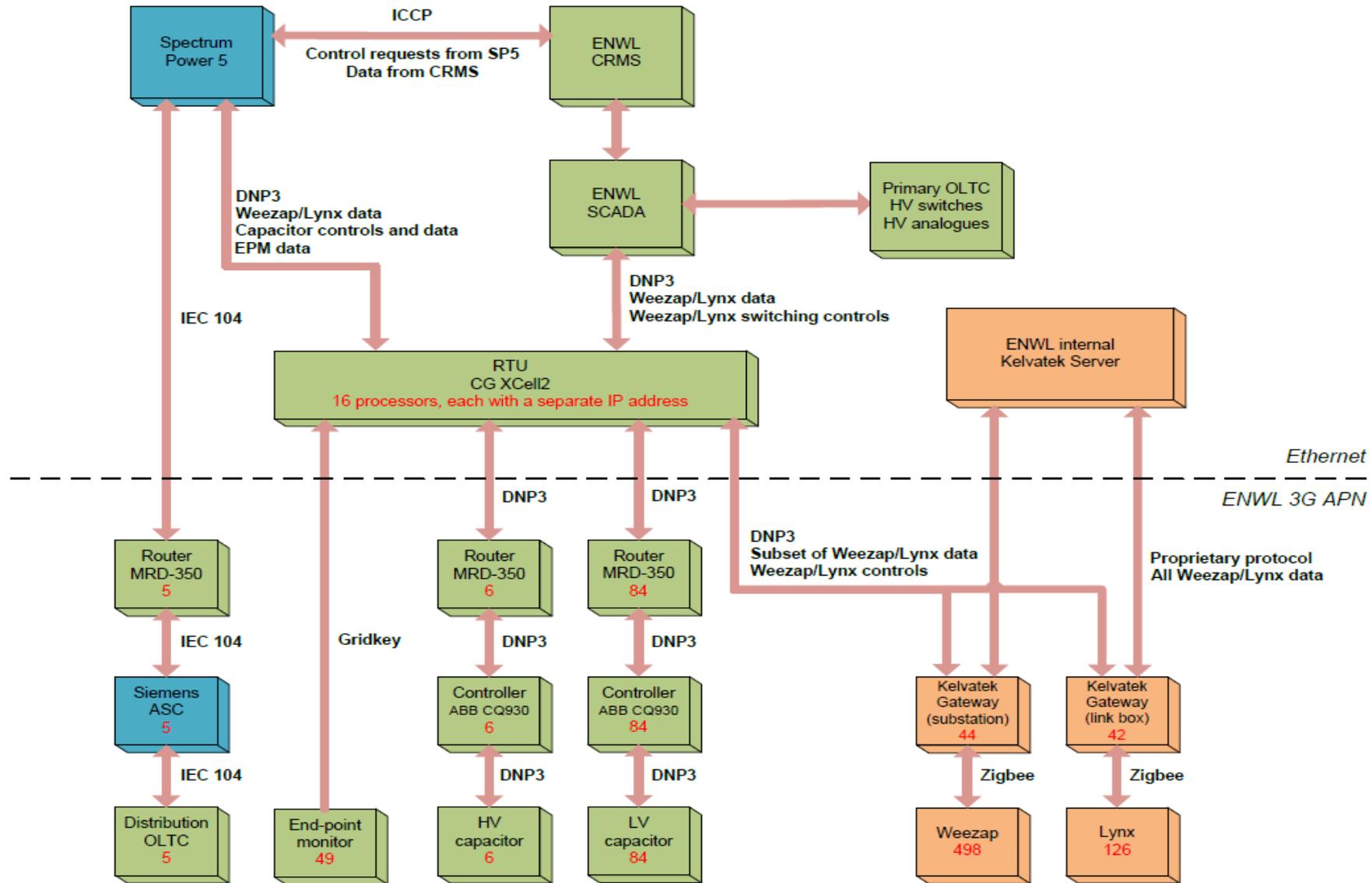


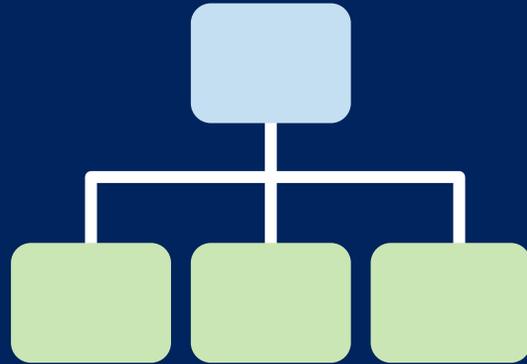
Optimisation module – DSSE/VVC



Linked to CRMS via ICCP link

System architecture





System architecture



Integration with existing
SCADA system



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Thank you for your time and attention