

Digitisation of the grid and automation

Implementing a Future Network Strategy

Flexible
services

Market
enablement

Strategic
Network
Analytics
Platform

Dynamic
Network
Configuration

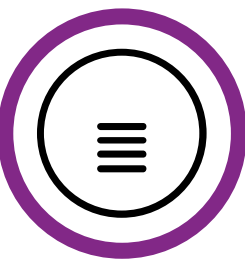
Analysis of
AMI* data

Strengthening the network and technologies while realising long term savings & efficiencies

*Advanced Metering Infrastructure (AMI) data

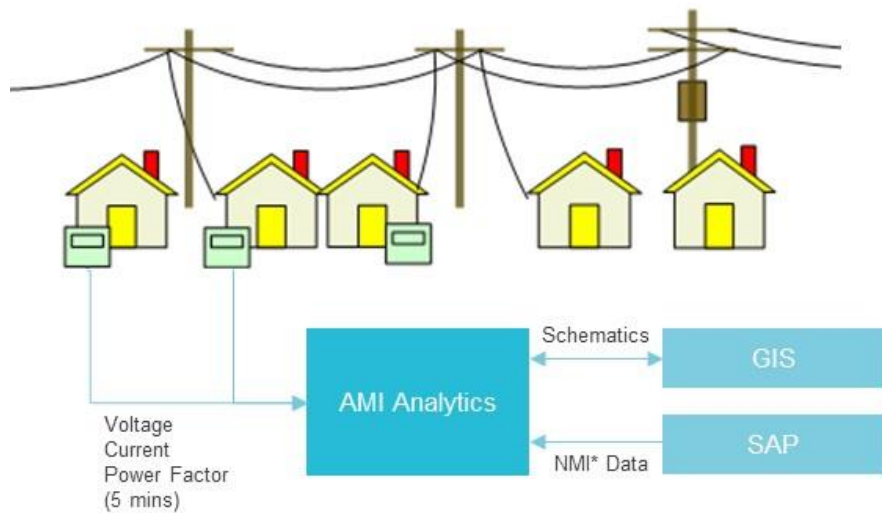


Jemena Network Analytics



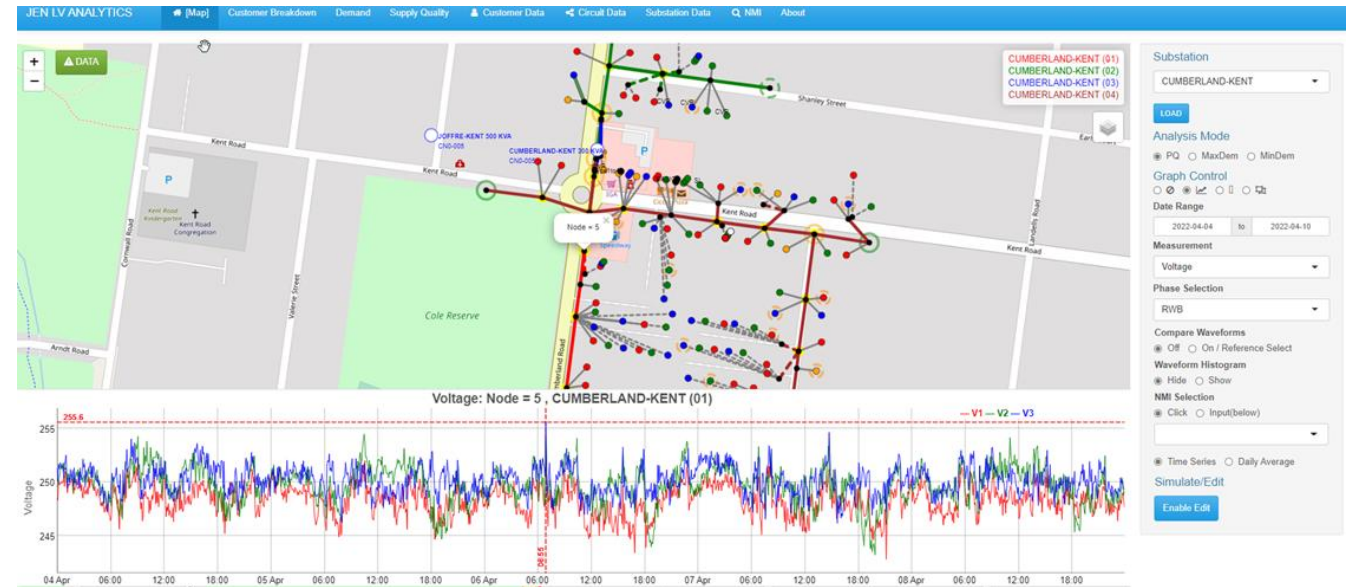
Advanced Metering Infrastructure (AMI) data analytics is being used to:

- Improve network knowledge
- Analyse and understand network behaviour
- Drive network improvements
- Improve productivity

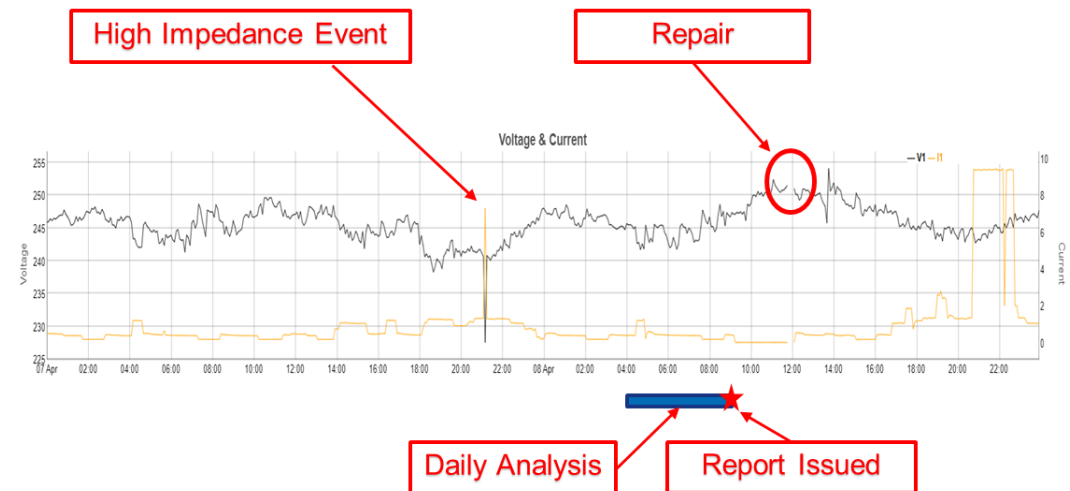


* NMI – National Metering Identified is a unique 10 or 11 digit number used to identify every electricity network connection point in Australia

Remotely investigate power quality issues e.g. voltage spikes



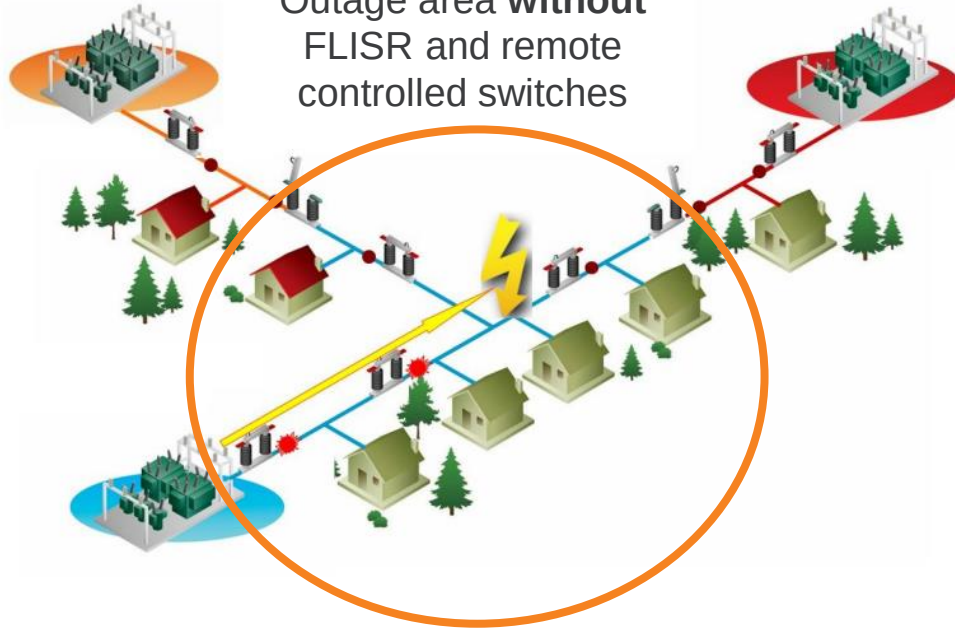
Detect broken supply neutral / high impedance for safety



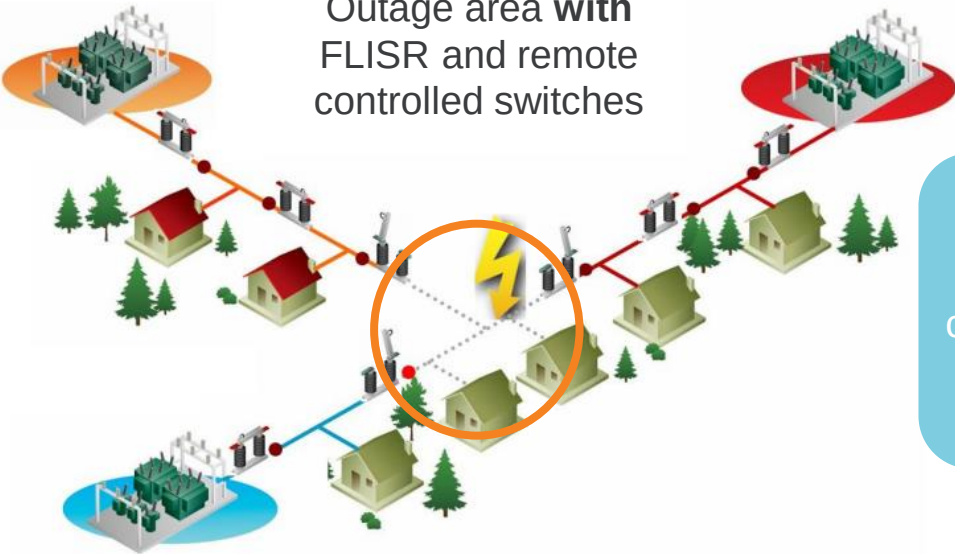
FLISR (Fault Location Isolation & Service Restoration)



Outage area **without**
FLISR and remote
controlled switches



Outage area **with**
FLISR and remote
controlled switches



\$2.1M total savings to date

24 Operations

39,701 customers restored within 3 mins (rather than 45 mins)

0.1 SAIFI and 4.7 min SAIDI reduction

STPIS Saving: \$102k

On 1 August 2022, a car hit a pole interrupting supply to 1,883 customers. FLISR operated and restored supply to 1,863 of these customers in 1 minute 51 seconds, leaving only 20 customers with a sustained outage

STPIS Saving: \$233k

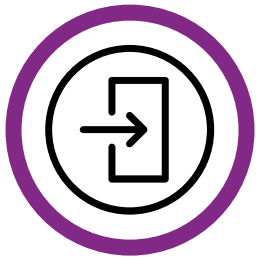
On 9 February 2023, a possum fault interrupted supply to 5,048 customers. FLISR operated and restored supply to 4,376 customers in 1 minute 21 seconds, leaving only 672 customers with a sustained outage

STPIS Saving: \$177k

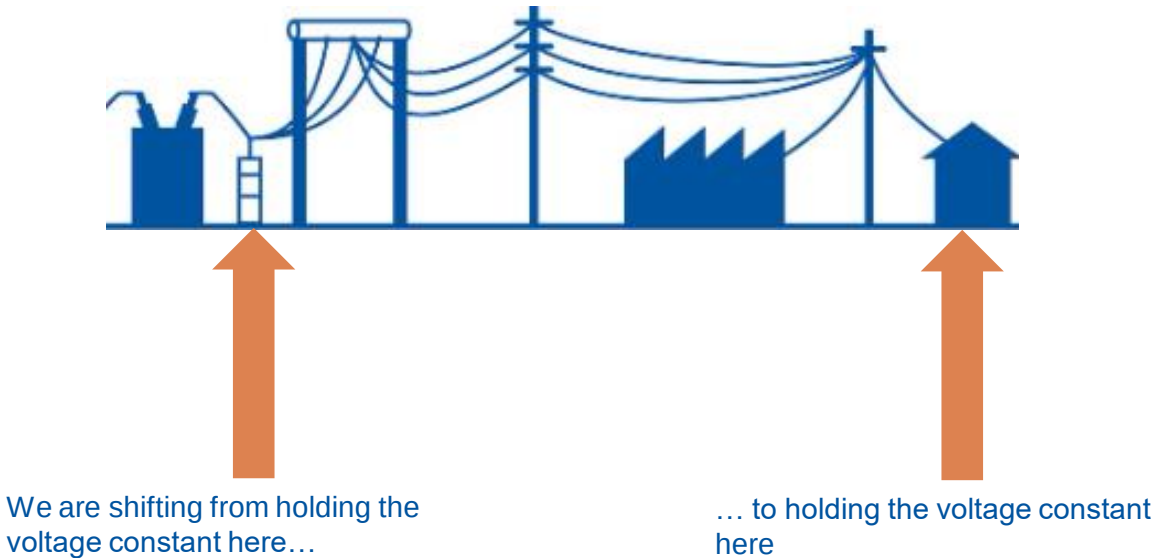
On 19 April 2024, a substation failure interrupted supply to 5,200 customers. FLISR operated and restored supply to 3,352 customers in 2 minute 30 seconds, leaving 1,848 customers with a sustained outage

**STPIS savings calculated based on ~ 40 mins restoration without FLISR and remote switches*

Dynamic Voltage Management

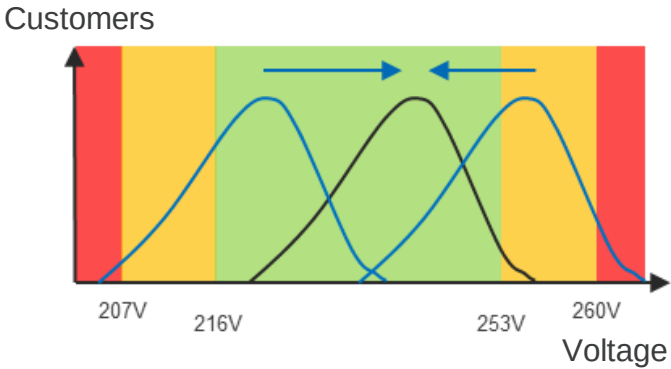
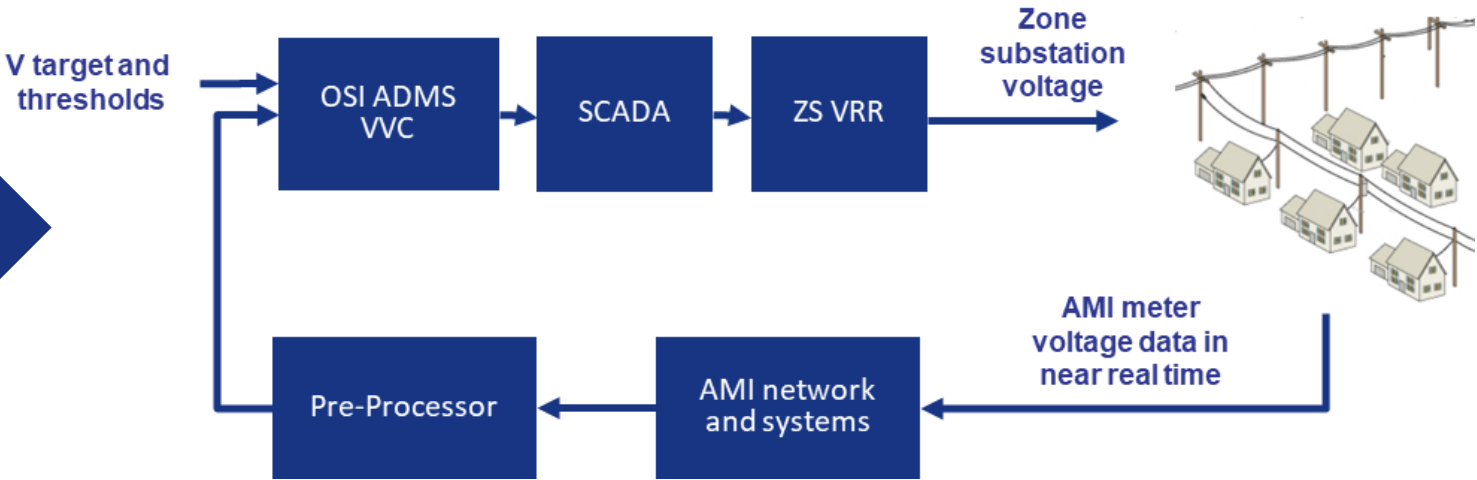


Normally, the voltage at the zone substation is held relatively constant with the voltage at the customer premise varying depending on the load on the network (with the voltage at the customer premise being highest at times of light load and lowest at times of high load)



We are piloting using the VVC module and near real-time AMI data to control the voltage at the zone substation with the aim of keeping the voltage at the customer premise relatively constant

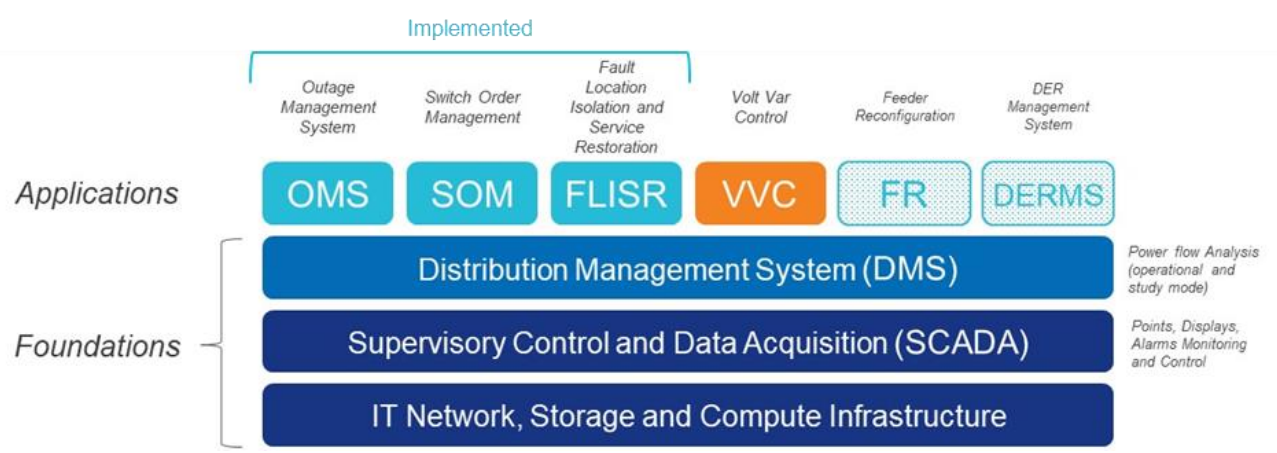
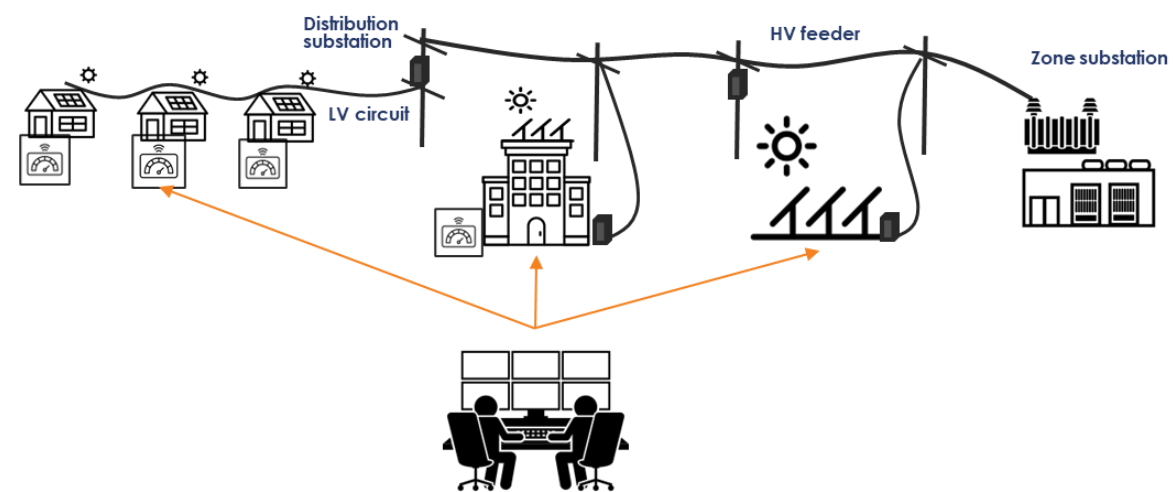
How it works



DERMS (Distributed Energy Resources Management System)



Addressing minimum demand: As solar generation continues to displace centralised generation, there will be times that solar generation will need to be curtailed to manage the supply-load balance to maintain system stability



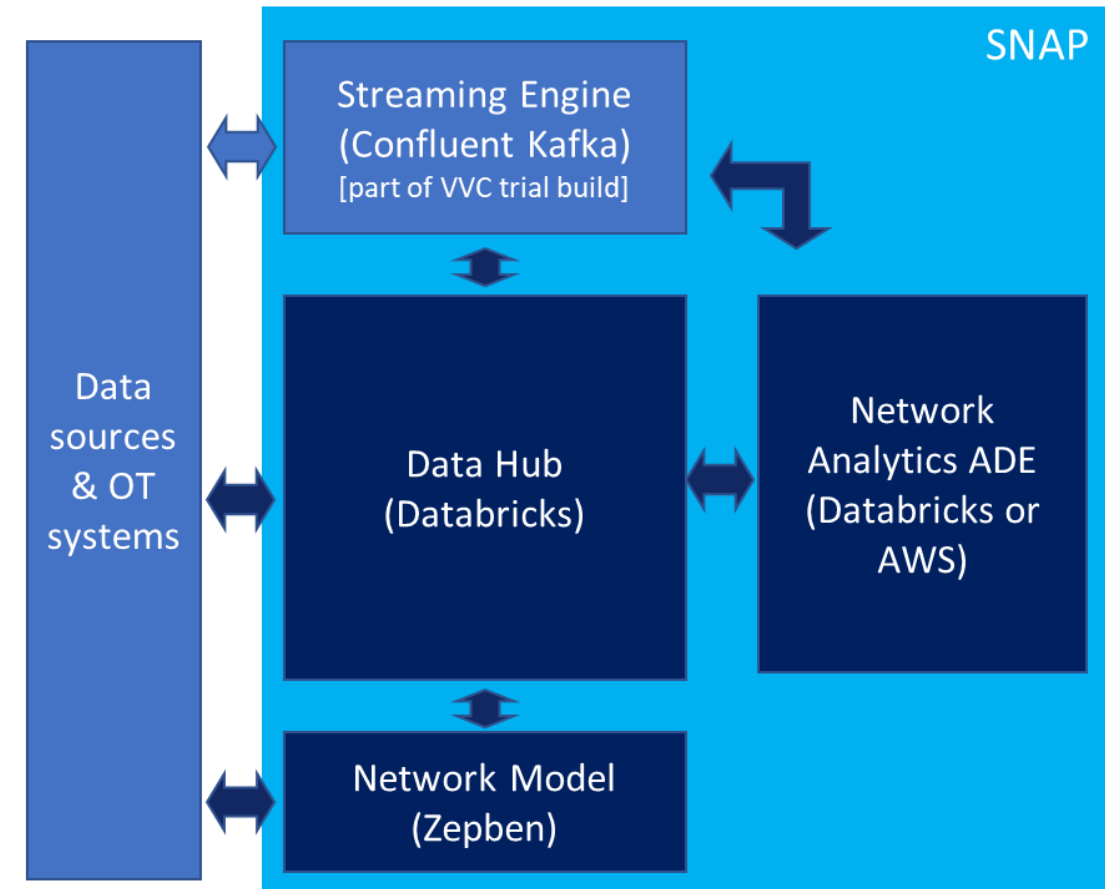
We will continue leveraging the foundations we are laying with our ADMS, analytics platforms and smart meter data to deploy Distributed Energy Resources Management Systems (**DERMS**)

SNAP (Strategic Network Analytics Platform)

A foundation platform for building and delivering analytics applications, that is reusable for multiple applications including network analytics, VVC, DERMS, ..

SNAP comprises:

1. **Streaming engine:** Supports near real-time & high-volume data processing required for near real time analytics, monitoring & control. This component is part of the VVC build.
2. **Data Hub:** Access, store & deliver the data required for network analytics, including data integration, management, governance and security.
3. **Network Model:** Provides a standardised “GIS” network model that also supports dynamic network states required for emerging analytics applications.
4. **Network Analytics Application Development Environment:** An environment for developing and delivering network analytics applications.



■ = new
■ = existing

ADE = Application Development/Deployment Environment

Digitisation and automation of the grid

What about our approach to digitisation and automation of the grid do you think will set us up for the future?

What other considerations or advice do you have for Jemena on digitisation of the grid?



**to hear,
listen
and think**

