



## A Phased Migration Approach to Packet

### SC D2

PS3: Q3.5: As packet-switched networks are becoming increasingly adopted as the main technology for power utilities' telecommunications networks, describe some challenges in preventing the adoption of a fully packet switched network for utilities.

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## Pure Packet Network Benefits

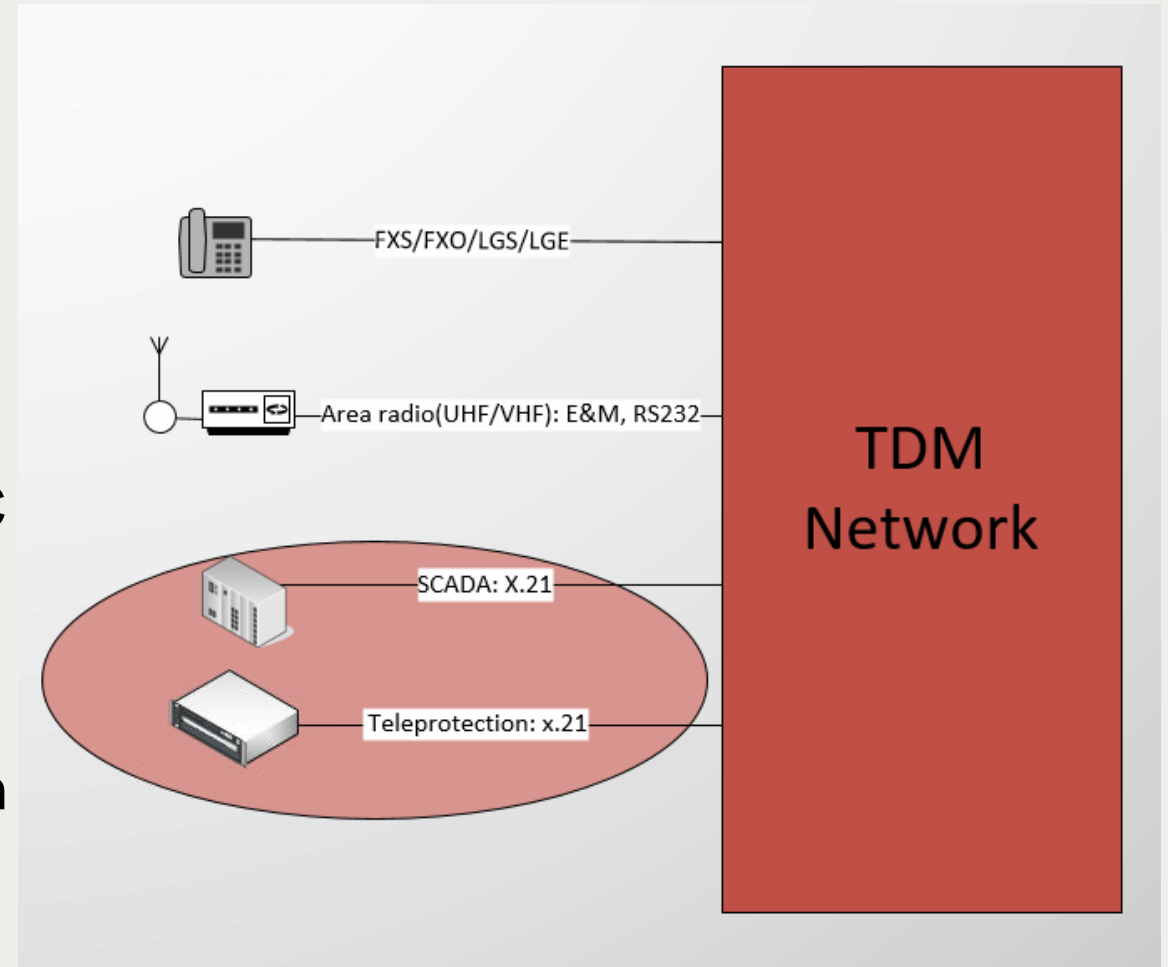
- **A pure packet network presents the following benefits to EPU:**

- Reduced migration costs, TDM emulation is costly
- Reduced power and space requirements (reduction in number of chassis)
- Reduction in number of chassis will result in reduced maintenance costs;
- Reduced latencies, TDM emulation adds on the end-to-end network latencies
- Simplified packet network configurations (no jitter buffer settings)
- Reduced potential for configuration errors
- Centralized remote support from the OEM, no need for scarce TDM skills
- EPU will not be prone to bugs which only affect a small niche of equipment users, with a high potential of not being detected because of less legacy services user base.
- Mitigation of complex faults with small user base and limited database of lessons learnt

## Challenges in Adopting a Pure Packet Network

### •For Eskom, pure packet adoption challenges include:

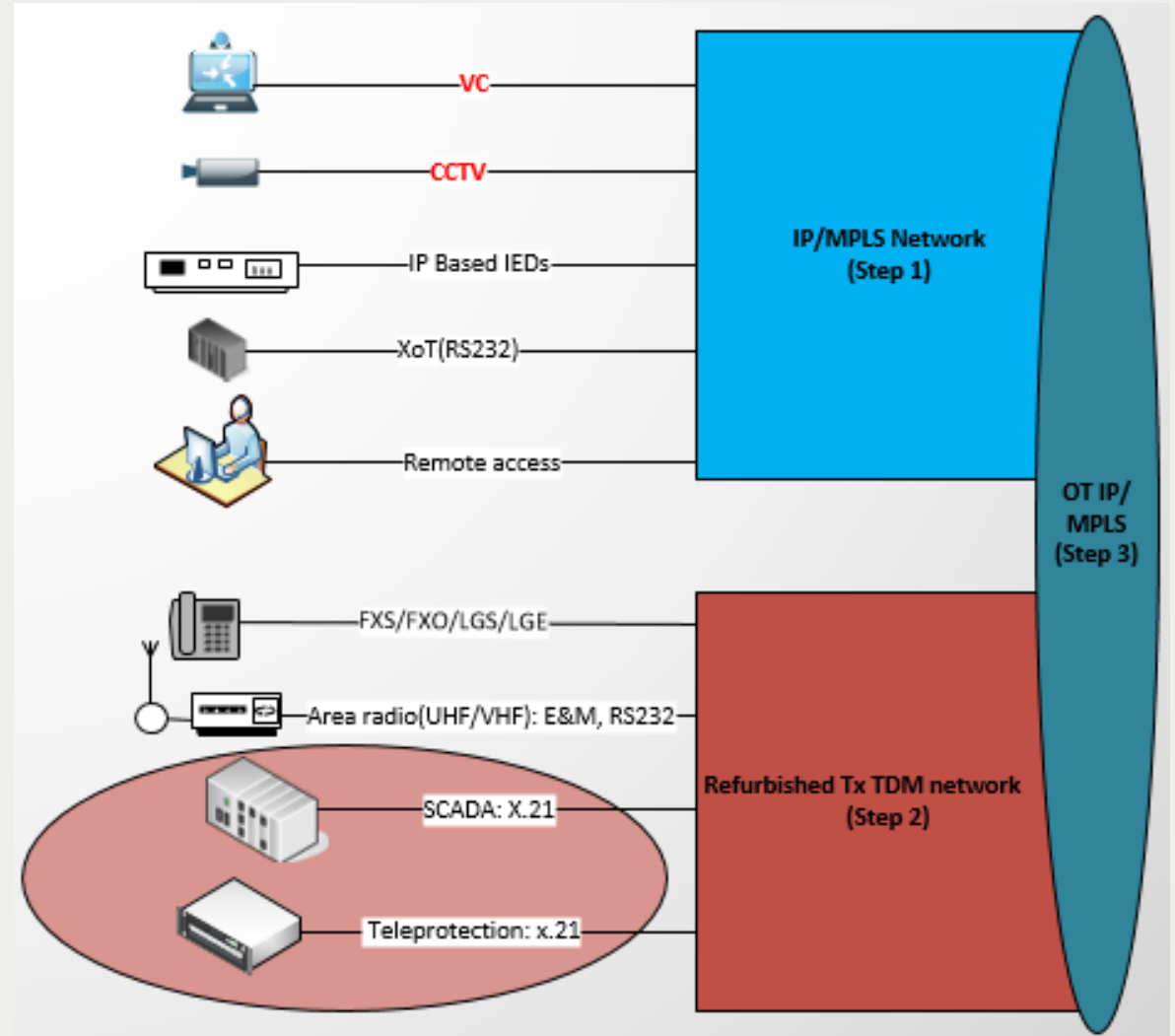
- High number of legacy requirements (brown filed installations)
- Requirement for pilots to inform a decision on suitable IP based SCADA and teleprotection protocols
- Questions on a more secure IP based SCADA protocol (DNPoIP, IEC 104, IEC 61850)
- Inclusion of all key stakeholders
- Skilling of network and OT applications supporting resources on IP and Cyber Security



# A Phased Migration Approach

•The adopted approach can be summarised as follows:

- IP/MPLS network for OT services excluding SCADA and Teleprotection
- Piloting of critical services on this network
- Refurbishment of the Tx TDM network
- A planned migration to a network which converges all services (rigorous tests and pilots required)
- Cutover decisions:
  - Cutover IP services only (Pure packet)
  - Emulate TDM services
  - A Hybrid
- Functional specifications include the worse case TDM emulation scenario



Group Discussion Meeting

Thank you for your attention !