



An integrated, coherent, big data network performance management solution

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Electricity Supply to Africa and Developing Economies: Challenges and Opportunities

Market drivers impacting on Network Performance Management

- More complex and unpredictable loads
- Increase in distributed electricity generation
- IT enabled networks
- Need for data-driven management decisions
- Asset Health Management (AHM)
- Key customer support



Technical challenges

- Availability of data
 - Type of data
 - Centrally available data
 - Decentralised access to data / individualised access
- Quality of data
 - Individually time synchronised data
 - Phase accuracy
 - Sampling tempo
- Changing nature of networks
 - Distributed generation
 - Presence of switch loads – network stability
- Capabilities of roleplayers
- Need for insitutional knowledge around
 - data,
 - information, and
 - practical experience



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Strategy for network Performance Management

- System management strategy
- Technology strategy
- Communication strategy
- Measurement device placement strategy
- Implementation strategy



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Architecture of solution

- Central big data store with mobile-friendly web interface access to data and devices
- Fleet of remotely installed devices permanently connected via encrypted link to the central big data store
- Few stand-alone or roaming devices for diagnostic purposes where data need to be manually downloaded and imported in the big data store



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Implications for:

- Network operator
- Network engineer
- Network manager



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Conclusion

- In the context of network performance management, the development of an integrated, coherent, big data network performance management system will enable a paradigm shift in the engineering of power grid monitoring and control from a human-centric to a data-centric decision making process.

