

Chintan Pandya – 19.01.2013

ABB Communication Networks

FOX615 overview

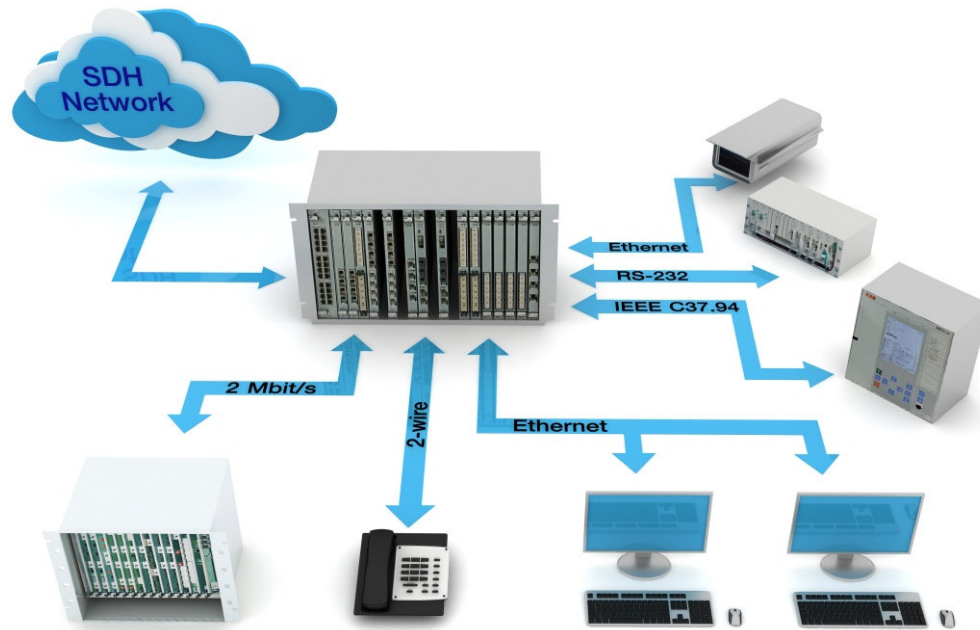
Agenda



- Why ABB for utility communication solutions
- Utility communication – An integrated network
 - Application requirements
 - Operational excellence – the need for multiservice networks
- Technology trends
- ABB FOX615 solution

Operational excellence

The need for multiservice networks



- Requirement for huge variety of different interfaces
- Requirement for utility specific interfaces such as Teleprotection
- Requirement for real time data channels for mission critical applications
- Requirement for channel supervision for mission critical services (e.g. Teleprotection)
- Requirement for support of various protocols and topologies
- Requirement for highest communication channel availability

Operational excellence

Guaranteed performance for real time applications



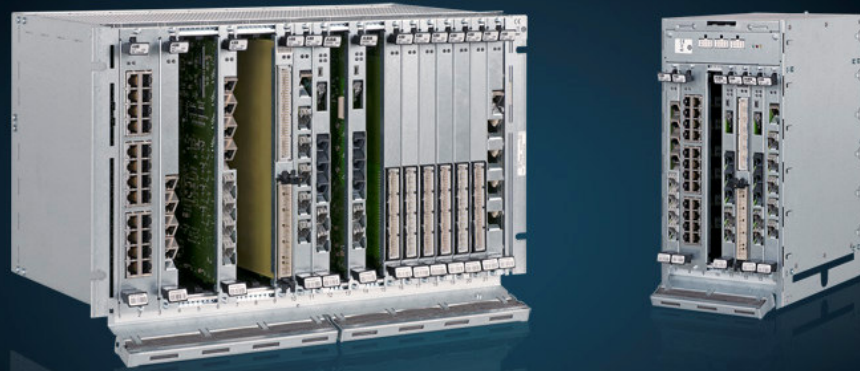


ABB FOX615 solution

The FOX history

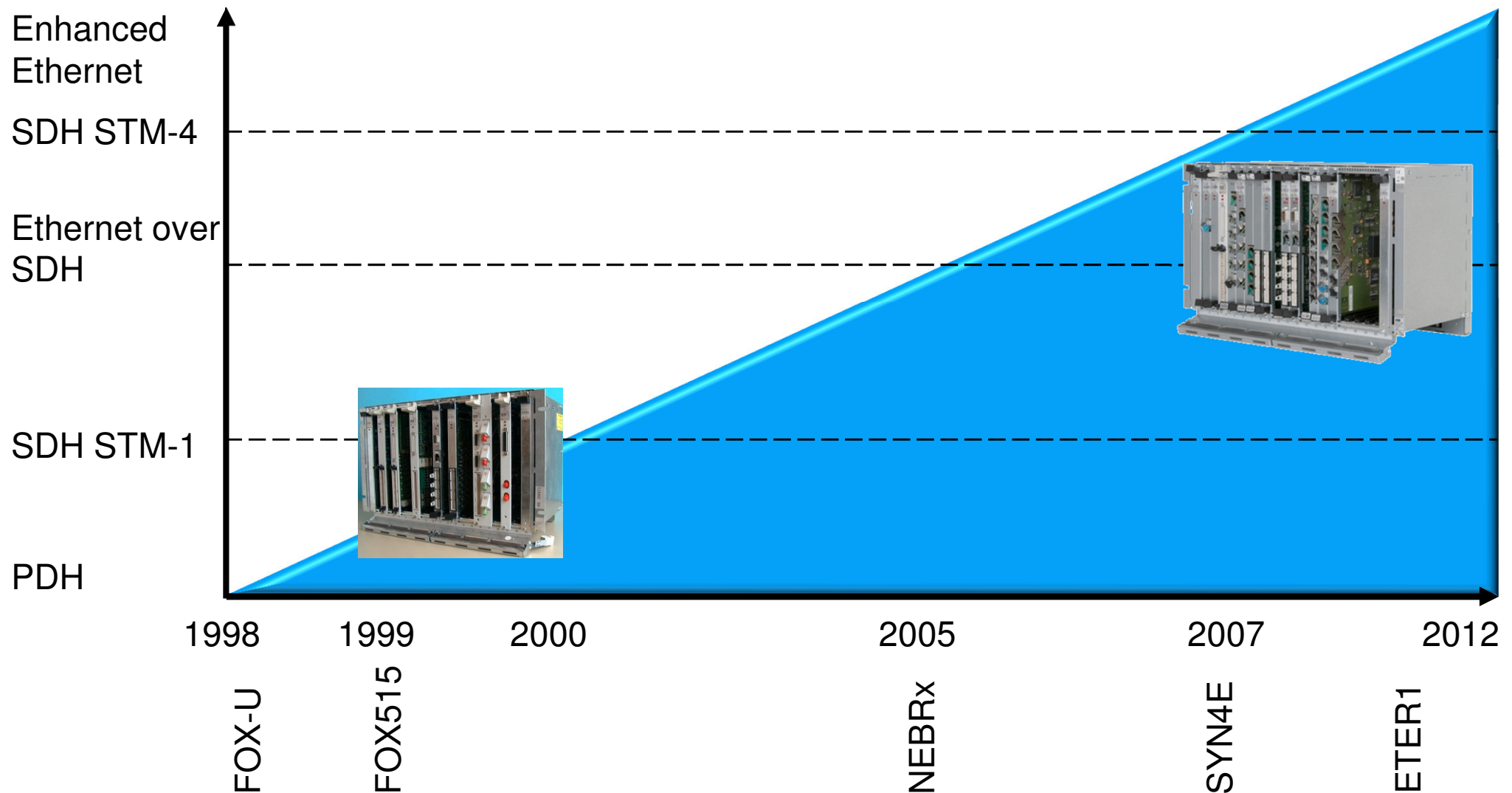
- FOX515 was introduced in March 1999
 - Integrates FOX-U, FOX 20 and FOX 6+
 - Replaced FOX-U by end of Year 2000
 - Telecommunication platform integrating PDH and SDH
 - Integrates voice, data and Teleprotection
 - Integrates legacy services
 - Integrates Ethernet over SDH services
-
- Close to 11'000 FOX515 have been installed in more than 70 countries

ABB long term product support strategy

- Life cycle of utility communication networks are usually significantly longer than in telecom industry
- Most telecom equipment supplier follow the life cycle of the public telecom suppliers
 - Risk for utility that equipment is outphased before new investment is planed
 - Spare part problem
 - Maintenance problem
- ABB follows an approach of a modular platform with continuous enhancement of the same
 - Therefore guarantee a very long equipment lifecycle
 - Ensure future upgradability without equipment exchange

ABB long term product support strategy

Continuous development of ABB equipment



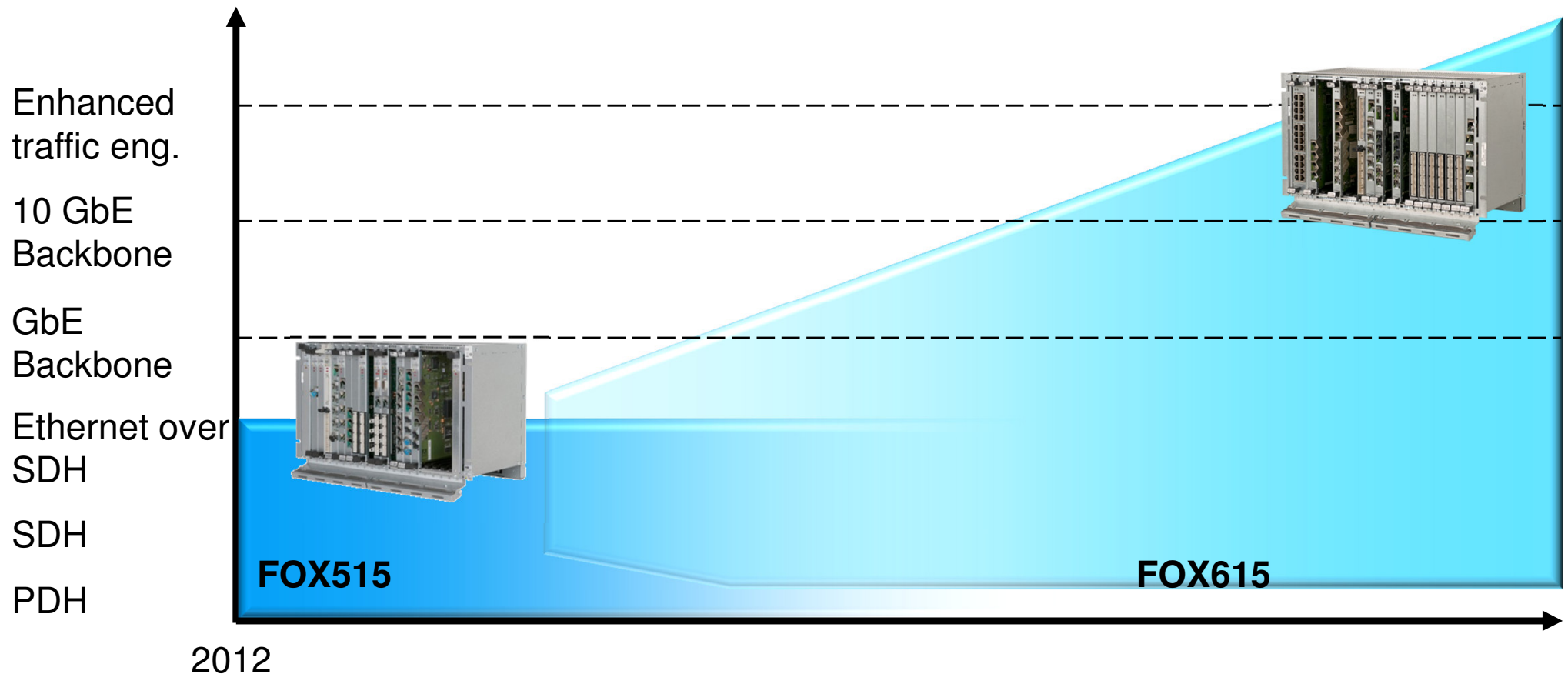
Continuous development of ABB solutions

FOX615, an evolution of FOX515

- FOX615 ...
 - is an evolution of FOX515, ensuring full interoperability
 - provides same level of TDM functionality as FOX515 in terms of access interfaces
 - provides enhanced SDH functionality in comparison to FOX515 to cover higher bandwidth requirements
 - provides enhanced packet switched features to cover future needs
 - enables a future & smooth migration from circuit switched to packet switched → ensure investment protection of our customers
 - provides utility specific interfaces and features as the FOX515 does

Continuous development of ABB solutions

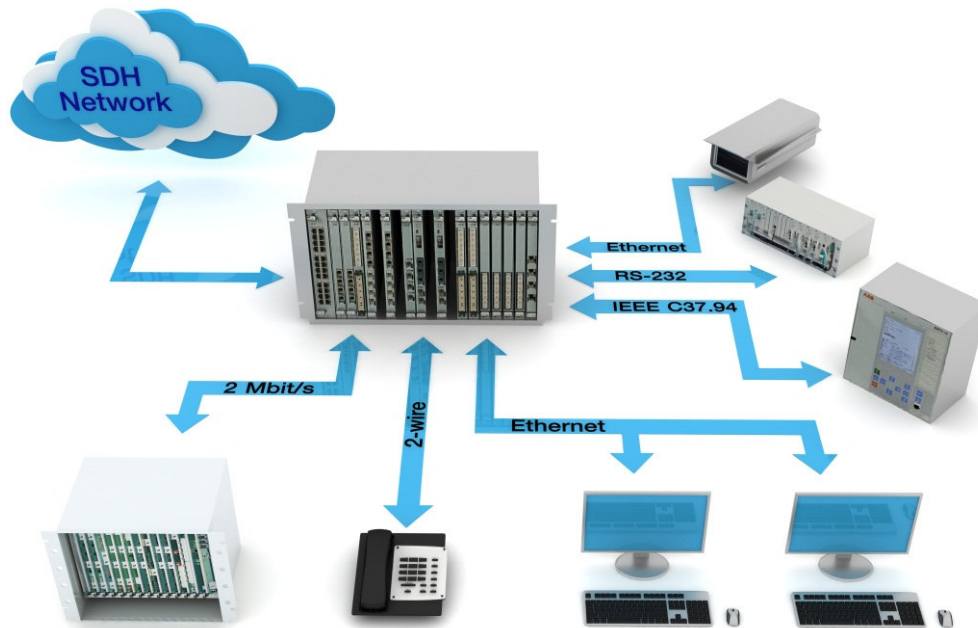
FOX615 continuing the FOX515 approach



Following the same approach as FOX515 and providing full interoperability with FOX515 protects the investment of our customers!

FOX615 Concept

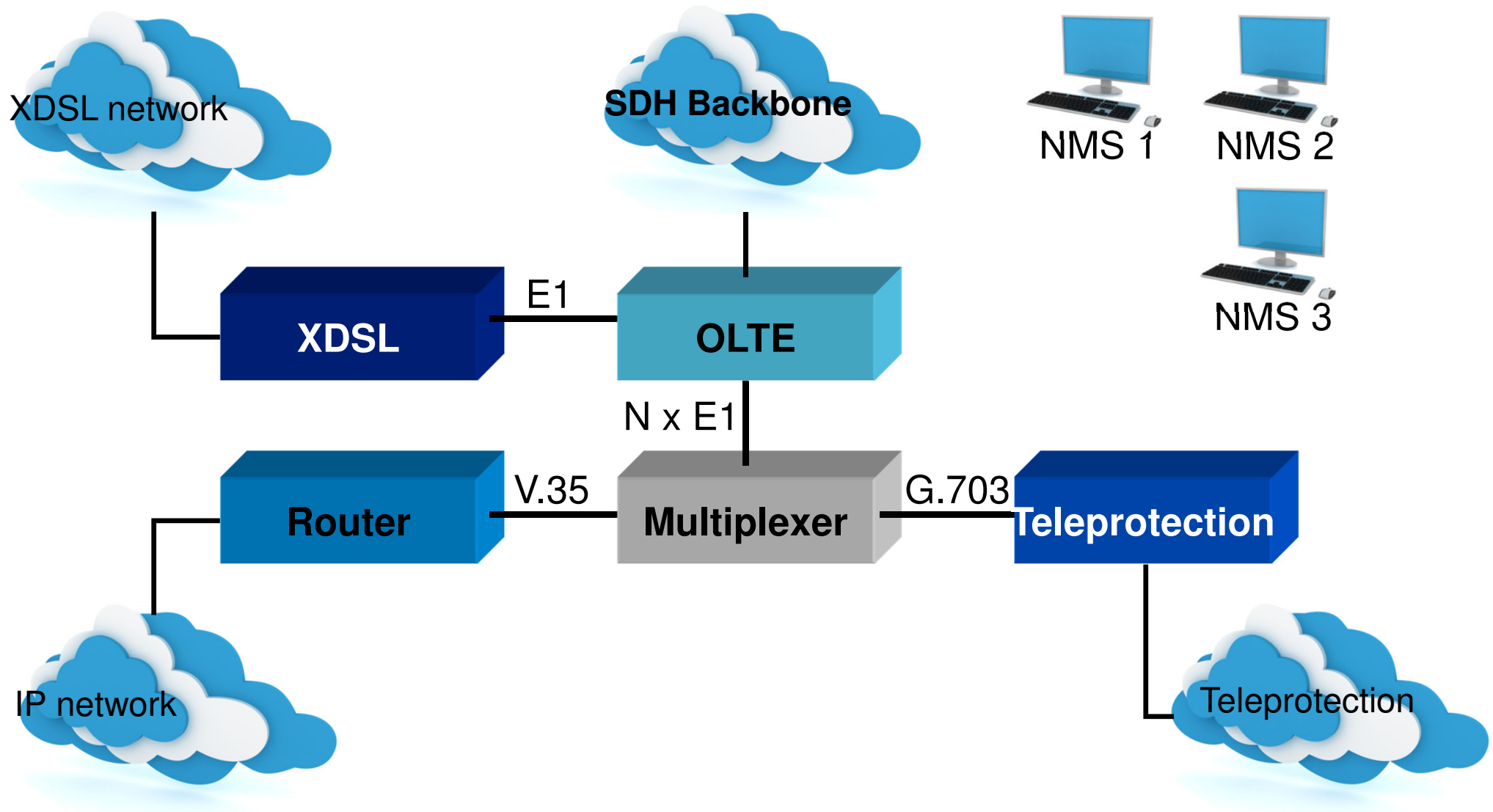
Outstanding Multiservice Platform for power utilities



- Provides integrated access and transport functionality
 - From low speed access interface up to ...
 - SDH STM-16 (2.5Gbit/s) and 10GbE
 - Includes utility specific interfaces for Teleprotection functionality
 - Includes specific features for utilities applications (e.g. sym. switching)
- Guarantees performance for individual applications
- Bridges the gap between TDM and packet-switched technologies
- Utility grade design

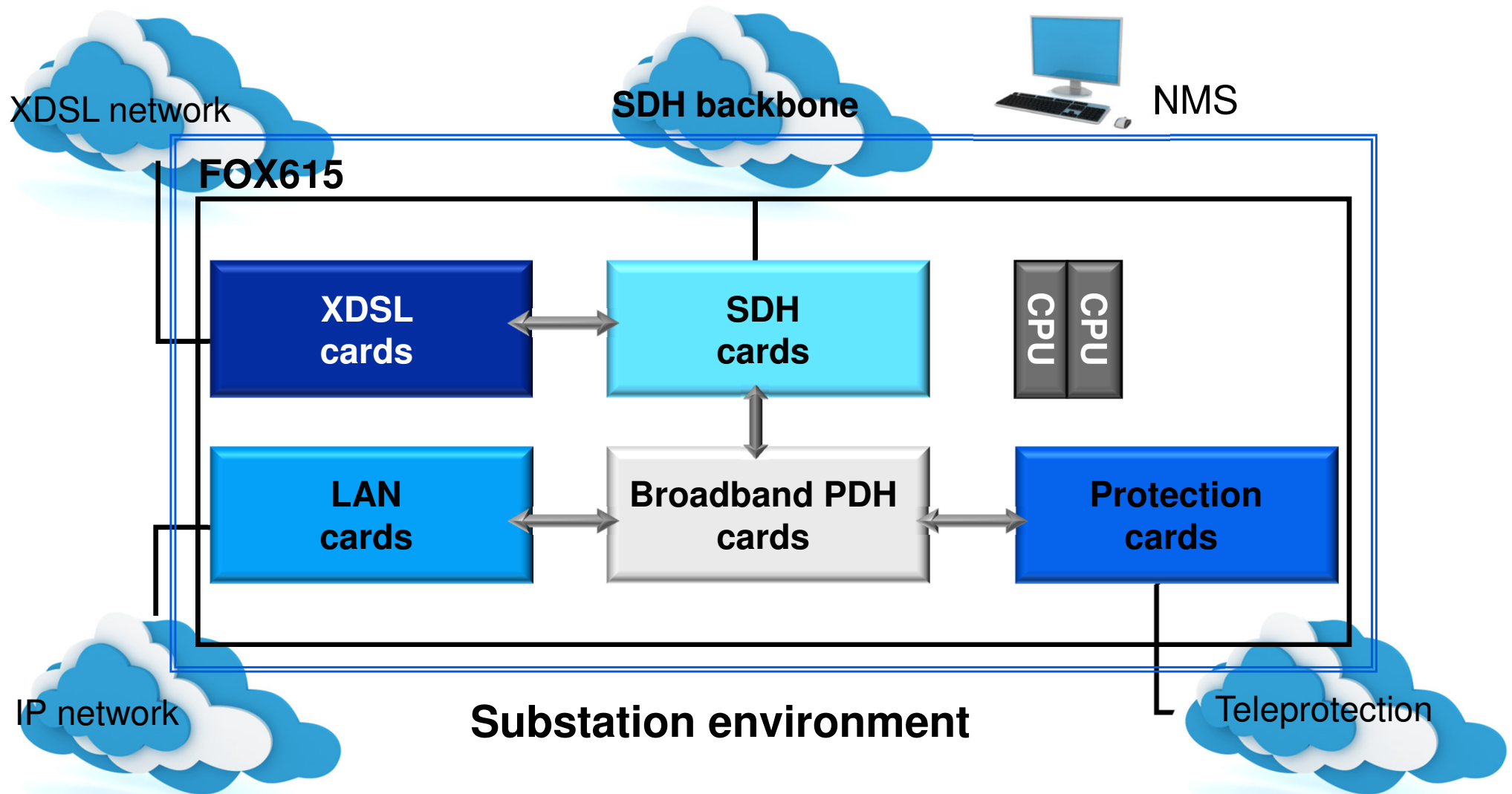
FOX615 - made for utilities requirements

Box concept



FOX615 - made for utilities requirements

FOX615 concept



Overview

Advantages of FOX615 Concept

Box Solutions

- Various configuration tools for different services
- Various Management Systems or complicated overall NMS integration
- Many external interfaces
- Low flexibility due to hardwiring of interconnections between individual boxes
- Different power supplies (might with different voltage levels), no redundancy
- Space consuming
- Maintenance intensive
- Various suppliers, different life cycles of each product

FOX615 Solutions

- One configuration tool for all services including Teleprotection
- One Management Systems including Teleprotection application
- All interfaces are part of the FOX615
- High flexibility due to software cross connection functionality between interfaces
- One power supply with the possibility for redundant configuration
- Space saving, one 19' rack
- Easy to maintain and configure
- One single supplier with one life cycle concept for the whole equipment

FOX615: Intergrated solution

Teleprotection interfaces

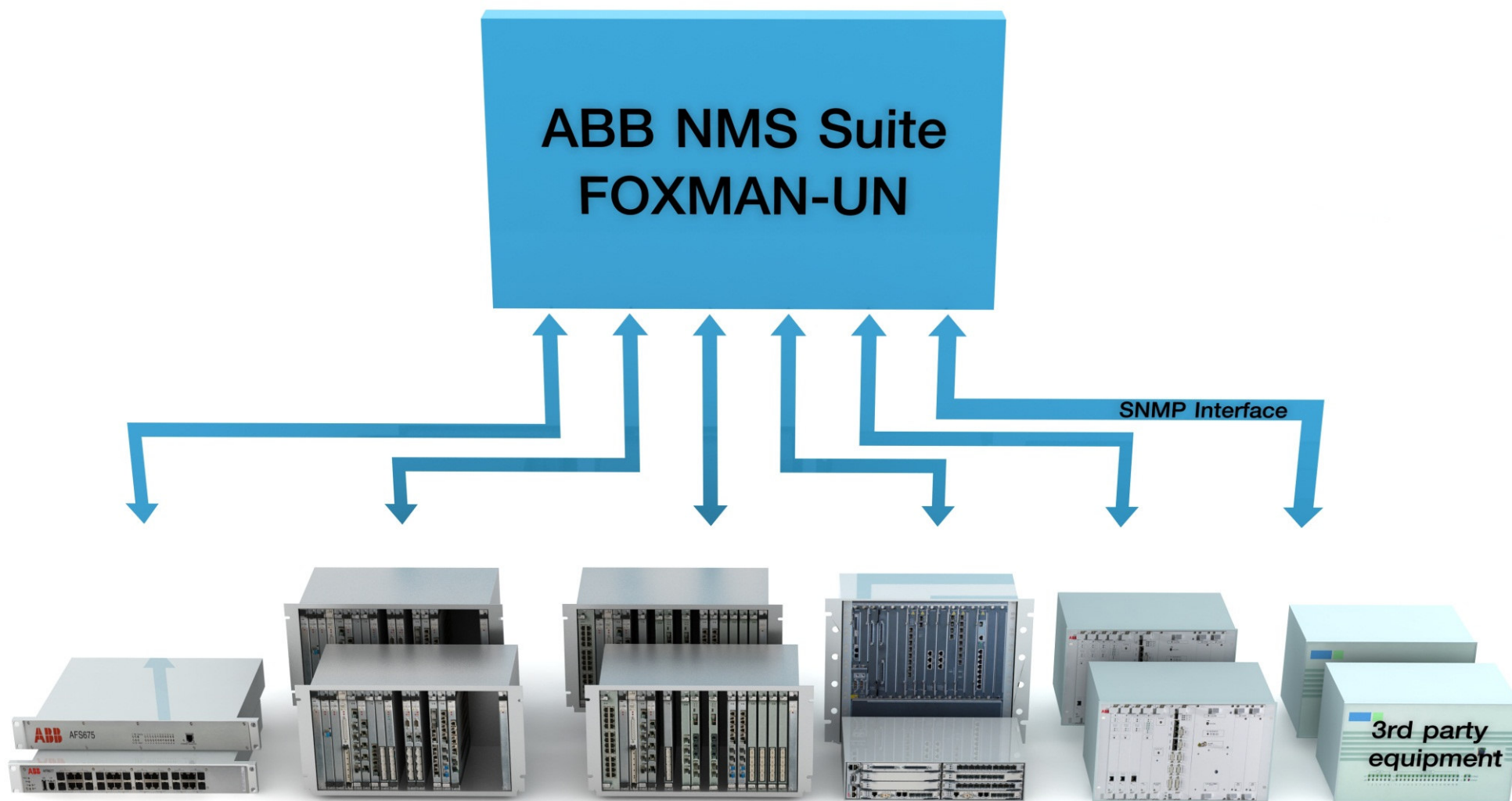


- Integrated Teleprotection Interfaces for Distance Protection
 - 4 x Teleprotection Command Input/ Output
 - 16 x Binary contact Input
 - 8 x Binary contact Output
 - 6 x Auxiliary Relay
 - Integrated Event Recorder



- Integrated Teleprotection Interface for Differential Protection
 - 4 x SFP cage for:
 - IEEE C37.94 port for interconnection to Differential Protection relays
 - ABB optical ports for interconnection with REL316, REL551, REL561, NSD570 or FOX6+

FOXMAN-UN ONE Management System



Power and productivity
for a better world™

