

Onshore Pipeline Data Communications

Requirements and Solutions in 2005

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Pipeline Data Communications

- Characteristics
- Service assessment criteria
- Example data services
- Security
- Case study
- Future trends
- Conclusions and recommendations
- Questions

Network Characteristics

- WANs and LANs
- Site Location
- Quantity of telemetered data

Service Assessment Criteria

- Compatibility
- Cost
- Cost management
- Maturity / longevity
- Protocol
- Security
- Common mode failure
- Contention
- Support
- Susceptibility to pipeline events
- Environmental impact
- Availability
- Local power failure
- Deployability
- Network management

Data Services: Connection-oriented

- PSTN
- ISDN
- X25
- GSM
- Satellite

Data Services: Connectionless

Wired:

- Analogue private circuit
- Digital private circuit
- PSTN signalling channel
- ISDN signalling channel
- ADSL/SDSL
- X25
- Pipewall

Data Services: Connectionless

Wireless:

- Private radio
- GSM SMS
- GPRS / G3
- Broadband (wireless and satellite)
- TSAT



Security

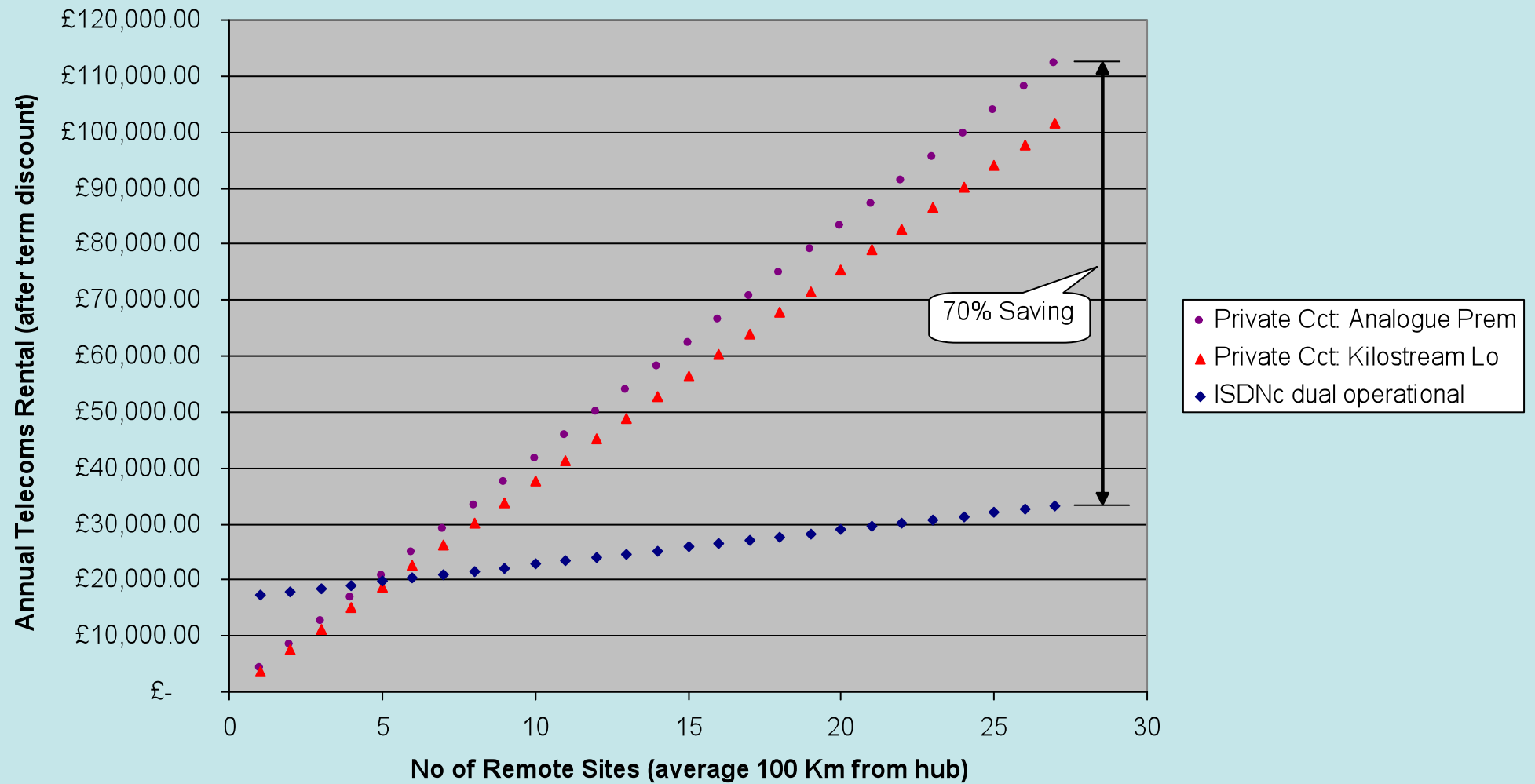


- New requirement?
- Historical approach
- TCP/IP: friend or foe?
- Knowledge is power: challenge unreasonable demands
- VPNs and MPLS
- Assurance of network security

Case Study: Shell NGL

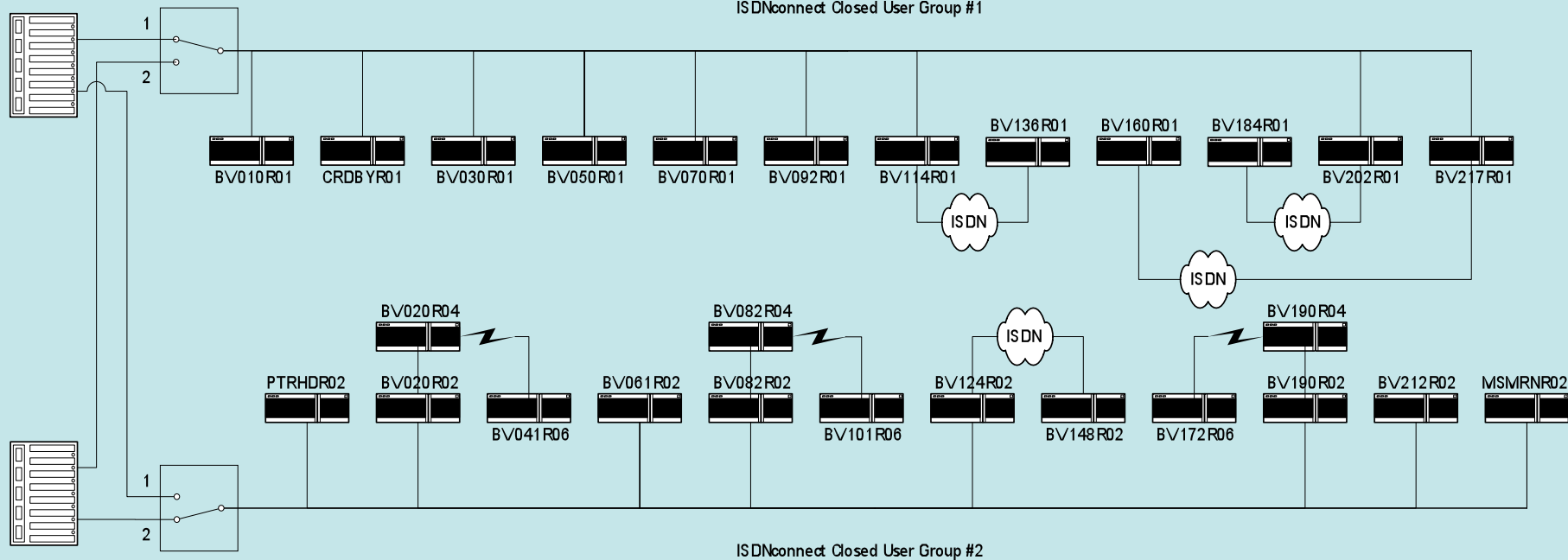
- Background
- Requirements analysis
- Preferred solution: ISDNconnect
- Pilot project
- Full implementation
- Hybrid solution

Telecoms Rental Costs for Data & Voice Facilities at Multiple Remote Sites



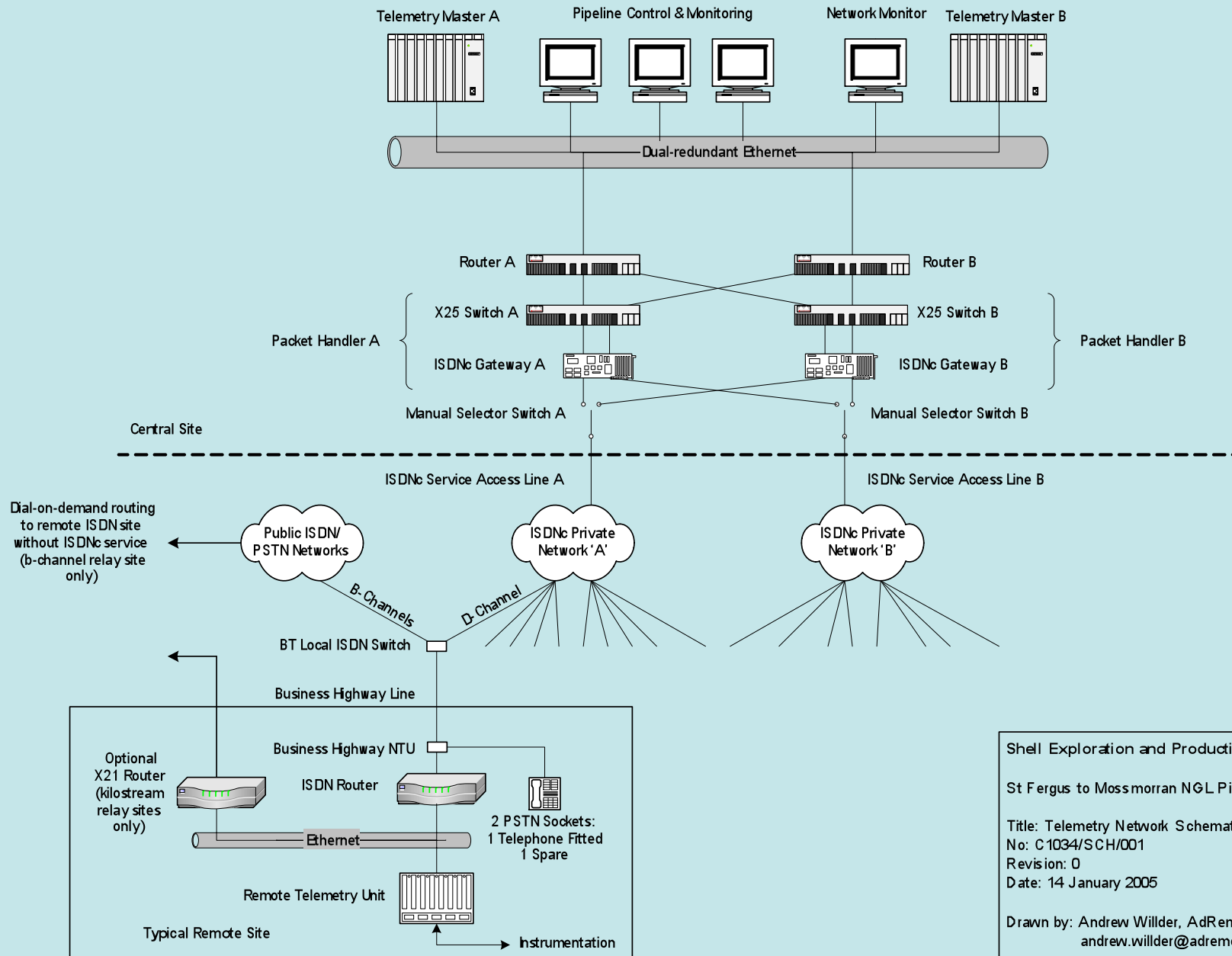
St Fergus
Packet
Handler #1

St Fergus
Packet Handler
Selector Switch #1



St Fergus
Packet
Handler #2

St Fergus
Packet Handler
Selector Switch #2



Shell Exploration and Production

St Fergus to Mossmorran NGL Pipeline

Title: Telemetry Network Schematic

No: C1034/SCH/001

Revision: 0

Date: 14 January 2005

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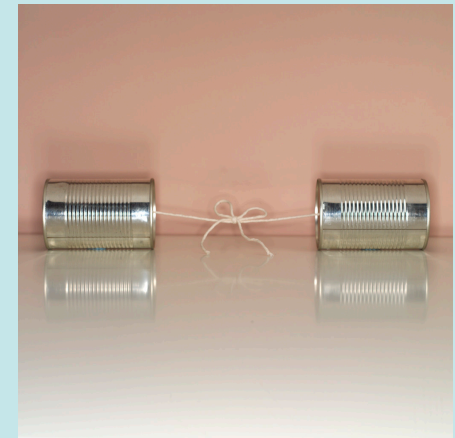
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Shell's Upgrade Benefits

- Reduced cost of ownership
- Increased service availability
- Reduced use of resources for intervention
- Improved network management
- Reduced size of equipment
- Clear future migration path

Future Industry Trends

- Wired
- Wireless/satellite
- Internet access
- Private point-to-point
- Private point-to-multipoint
- OPC



Conclusions & Recommendations

Solution must have:

- Longevity, functional, security, cost
- Selecting the right solution

Strategic:

- Periodic review
- Training and competence
- Process for trial and adoption of novel solutions

Summary

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