



The Role of Utility Providers in the spread of NGNs and Broadband

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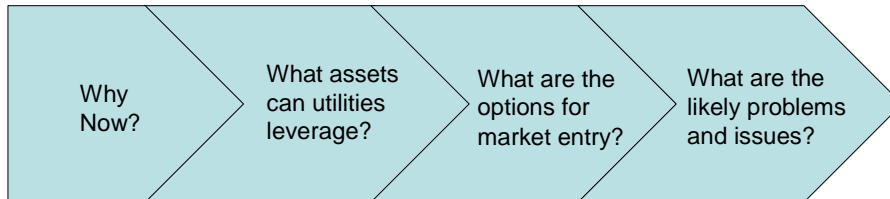
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- Telecom policy
- Competitive strategy for incumbents and market entrants
- Regulatory implementation
- Tariff and pricing strategies
- Privatisation support
- Training and knowledge transfer
- Business planning and technical support
- Technical and financial due diligence



Presentation Agenda



Why now?



- **Political imperatives**
 - Next generation broadband is a matter of national importance*.
- **Telcos redefining their position: services, IT, infrastructure**
 - Decline in 'traditional' telecom services
 - Impact of the Internet and its associated features
 - Segmentation of vertical organisations: BT and Openreach, Telstra

* The OECD report that governments could justify the cost of a National Broadband Network by using it to cut cost in sectors such as healthcare, education, transport and energy. On average a cost saving of around 1% in each of these sectors would, over a ten year period, meet the cost of building the national broadband network.



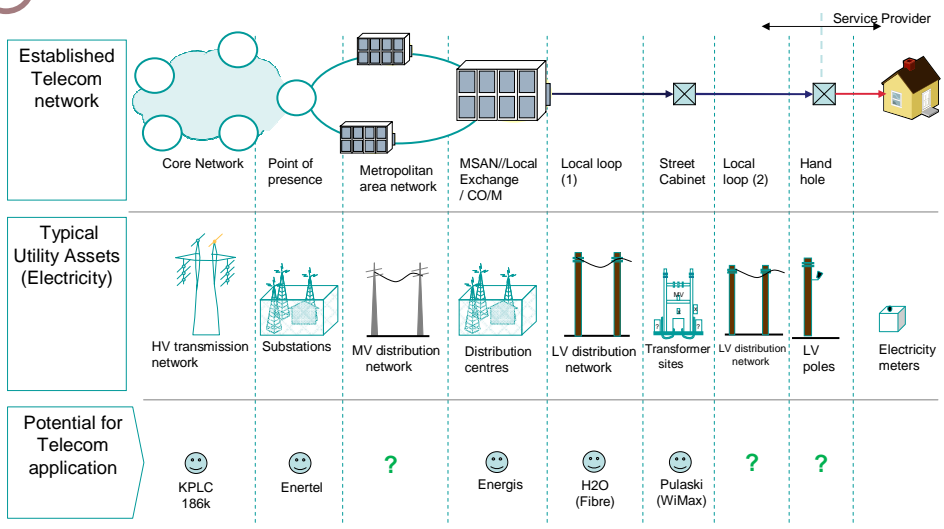
The Trans-sector future



- The 'next generation' telecoms sector
 - Australian national broadband network, Stokab (Stockholm), PPC (Greece), KPLC (Kenya), H2O (UK) and many more
- Mature technology for delivering telecoms services over power and other utility networks
 - Optical ground wire, Powerline, microduct
- Capital needs of existing Telcos



Physical assets that utilities can leverage





Other assets that utilities can leverage

- **Operational Support Systems**
 - Customer relationship management
 - Billing
 - Established processes
- **Retail outlets**
 - Shops and established market presence
 - Call centres
- **Field staff**



Options for market entry

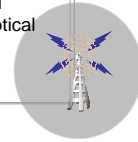
- **Each market is different**
 - Level of competition and consumer demand determine likelihood of positive business case
- **Attitude of the regulator is key**
 - Regulation determines the *scope* of activity through the availability of operating licences
 - It determines *effectiveness* through (e.g. unbundled local loop, number portability etc)
 - It determines the *practicality* through infrastructure (e.g. mast, duct) sharing
- **The 'sliding scale' of market entry**
 - Wayleave provider
 - Dark fibre provider
 - Carriers' carrier
 - Full service operator



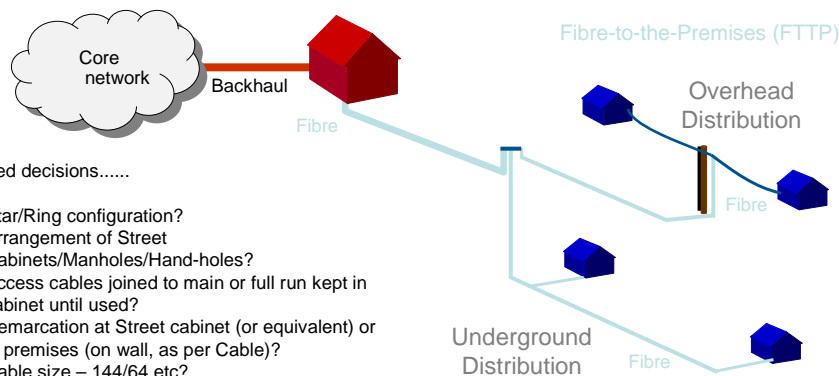
Technical options for broadband market entry



Broadband option	Indicative cost	and other costs...
FTTN/ VDSL2	System line cost: \$100 VDSL (compared to ADSL's \$50)	Testing, preparing copper plant, street cabinet (active, so needs power supply), and the fibre to the node.
FTTH: Ethernet point-to-point	2 x \$25 transceivers	Passive or active architecture. Fibre from MSAN, Local Exchange (or central office, CO) for each end user.
FTTH: Passive optical network (GPON)	\$50 triplexer + 1/32 x (\$250 OLT transceiver + splitters)	Passive architecture: N+1 transceivers with N users. Fibre runs from end user to splitter. Optical Network Termination is powered and may be indoors or outdoors



Example architecture for broadband market entry

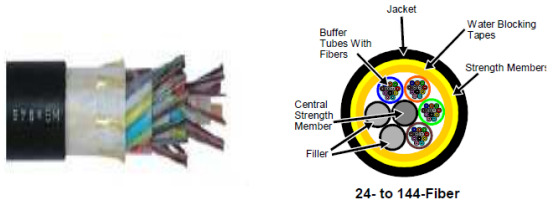


Detailed decisions.....

1. Star/Ring configuration?
2. Arrangement of Street Cabinets/Manholes/Hand-holes?
3. Access cables joined to main or full run kept in cabinet until used?
4. Demarcation at Street cabinet (or equivalent) or in premises (on wall, as per Cable)?
5. Cable size – 144/64 etc?
6. Overhead delivery, standard duct or micro-duct into premises (blown/buried/pulled)?
7. Plastic or Glass fibre?



Passive elements for broadband market entry



Fibre optic cable
 24-144 fibres per cable
 Buried or Ariel (ADSS/OPGW)
 High capacity & flexibility



Passive network elements
 - Splitters (100Mbps/user, 10km route)
 - Distribution enclosures (24 fibre)
 - Ducts & poles



Balance of costs for broadband market entry



Typical Cost breakdown:

- **>80% : Civil works** trenching, ducts, connectors, enclosures
- **<8% : Fibre** (inc. installation)
- **<12%: Active elements:** equipment costs



Location	Japan	North America (Verizon)	Europe
Fibre	85% aerial fibre, short drops, Multi-dwelling units	70% aerial fibre, single family units (SFUs)	Fibre in ground
Total cost/home	\$1200	Estimates from \$800 to \$1200	\$1500



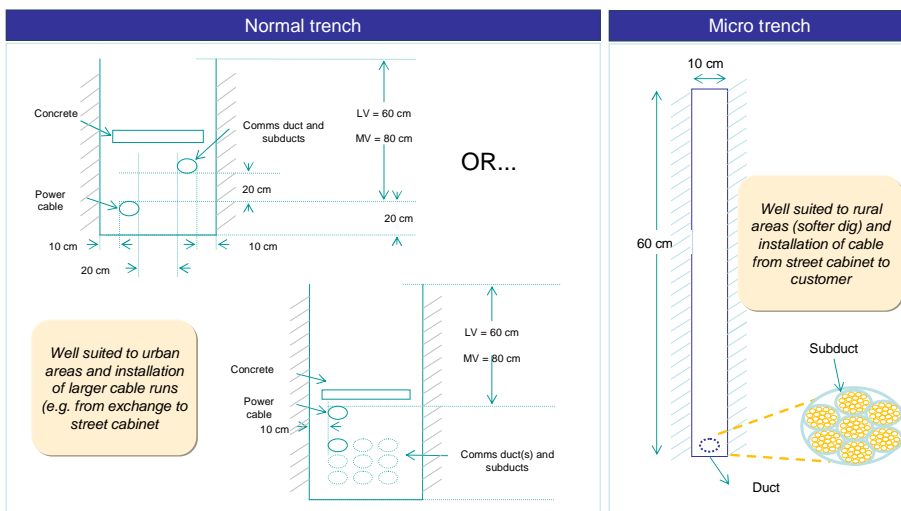
Practicalities of metropolitan and access network deployment



Options	Sample	Main constraints
<p>Aerial deployment</p> <p>Fibre attached to existing M/L voltage poles</p> <p>If clearance inadequate, replacement of existing M/L voltage poles with new poles</p>		<ul style="list-style-type: none"> • Height of the existing poles, in order to keep the reasonable distance from the ground at lowest point • Strength of the poles to sustain adding weight of the optical cables <hr/> <ul style="list-style-type: none"> • Interruption of electricity supply • Engineers needed for installation
<p>Underground deployment</p> <p>Lay fibre in planned ducts</p> <p>Building of new ducts</p> <p>Duct sharing (if allowed)</p>		<ul style="list-style-type: none"> • Absence of schedule for new ducts • Coverage/range of new ducts <hr/> <ul style="list-style-type: none"> • Difficulty of completing works in time • Cost <hr/> <ul style="list-style-type: none"> • Regulatory position • Cost/terms of co-location

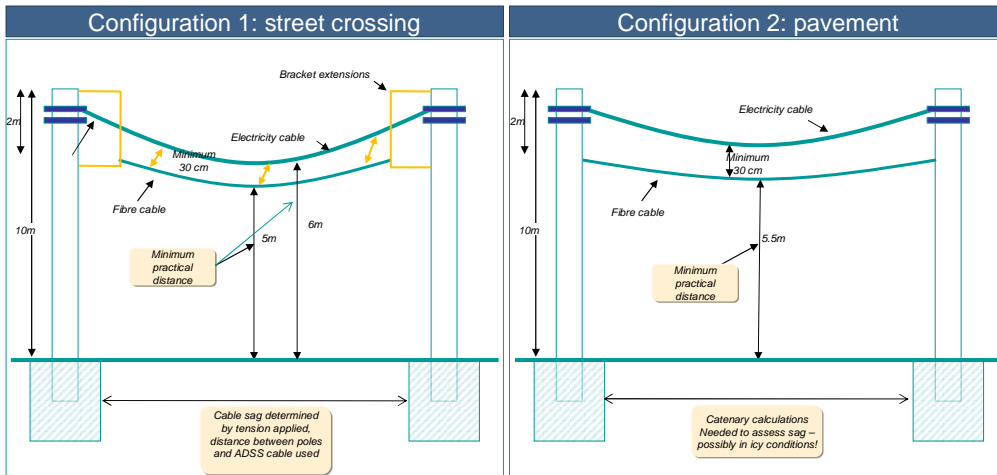


Alternative ducting arrangements





Practical considerations for overhead delivery



Summary



- 1) Next generation broadband will have a disruptive impact on the established telecoms market
- 2) Government intervention is prevalent and there is support for a trans-sector approach (as with the ANBN)
- 3) Utilities have relevant assets
- 4) There is a range of market entry options but the regulatory environment has to be supportive
- 5) Utilities need to consider competition to assess where they should enter the market
- 6) There are practical issues that need to be addressed for network design and deployment
- 7) Civil works is a key issue that needs to be considered at the outset.



Thank You!

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