Track 4

Additional Topics

By Request...

- you asked for a few notes on these topics....

How to connect to Everyone Else

- Purchase a link to another ISP in your region
- BUY "transit" from them
- wholesale / retail relationship
- BUT
  - no control over price
  - no control over quality

How to connect to Everyone Else

- LEASE your own circuit to another country
- Become a customer of a remote ISP
- Which country
  - US Provider?
  - EU Provider?
  - Regional Provider?
    - Price
    - Quality

How to connect to Everyone Else

- What kind of circuit?
  - Satellite
    - slower
    - cheaper?
    - Available?
  - Cable circuit
    - faster
    - higher lease cost
    - may not be available

How to connect to Everyone Else

- MultiProvider issues
  - domestic exchange
  - domestic settlement

Content Policy

- A network is a collection of packet switches

- Packet switches use packet headers not data payloads

- Packet switches cannot enforce content policy

Content Policy

- Site Filtering
  - Block access to certain sites from the boundary of the network
  - list maintenance
  - list enforcement
- YOU CAN MAKE IT LESS OBVIOUS BUT YOU **CANNOT** STOP IT

Content Policy

- Use the right tool to enforce public policy
- Human policy problems typically require human solution, NOT network solutions
- A packet switch cannot enforce policy if you want to have a productive and scaleable network

To Sell a Network

- Why do you want to sell?
  - For capital gain?
  - Mismatch with core business
  - Mismatch with public positioning
  - Capital crisis

To Sell a Network

- What are you selling?
  - Line Leases ?
  - Routers and servers?
  - Locations ?
  - Staff expertise ?
  - Business expertise ?
  - Customers ?
  - Futures ?

To Buy a Network

- Why do you want to buy a network?
  - Profit opportunity
  - To enter the market quickly
  - To lever off existing related skills and services
  - To purchase skills and market share

Communications Industry Trends

- Voice is highly profitable
- Allows high grade engineering for peak demand
- Voice is highly predictable
- Voice is easy to build and evidently profitable to operate

Communications Industry Trends

- Data used the margins of voice engineering
- Data was very very small scale
- Data was used by corporates for private networks
- Data was priced at voice pricing levels
- Data was was highly profitable

Communications Industry Trends

- Internet entry
  - Public network
  - High value add
  - low entry cost to the market
  - over subscription of the IP transmission system
  - high growth in data demands

Communications Industry Trends

- Deregulation of the communications industry
  - new entrants competing
  - Initial competition in high profit voice
    - mobile telephony
    - international voice
  - competition for data transmission market
  - reduced voice market share for traditional telco

Communications Industry Trends

- The Internet crisis
  - data is now about 70% of the transmission network
    - exponential growth
  - data is now about 2% of the revenue to the traditional telco
  - lower margins
  - less money to expand the network
  - limited available network for more IP-based activities

Communications Industry Trends

- So where is the Internet money?

Communications Industry Trends

- reduce cost of transmission switching by combining all traffic into a single switch and transmission fabric
  - ATM
- BUT data does not use ATM efficiently
  - ATM is expensive to use for data

Communications Industry Trends

- The Internet will drive a market for low margin dedicated communications plant

- Voice bypass over the Internet will increase for a while - until voice prices come down

- Telco copper plant operating margins will decrease - mobile will remain good business

- WDM will further drive down transmission costs

- unit data switching costs will come down

Communications Industry Trends

- Are we willing to forego the telephone completely?
  - No - 'traditional' voice has a viable future
    - circuit switching WORKS for telephony
    - mobile telephony WORKS
  - But 'viable' is not the same as 'highly profitable'
- SO WHAT WILL HAPPEN?
  - Very uncertain!