New World Applications For The First Mile

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NØRTEL
NETWORKS

Envisioning the Subscriber User
Year 2004

Historically, WG supplements to 802.3 take <u>at least</u> 24 mos

Multiple services apps already enabled & driven by diverse economic interests & legislation

Subscriber access already has several vested players with existing infrastructure

Transports are undergoing major B/W upgrades

Let's develop a solution that is Ethernet AND future-proof
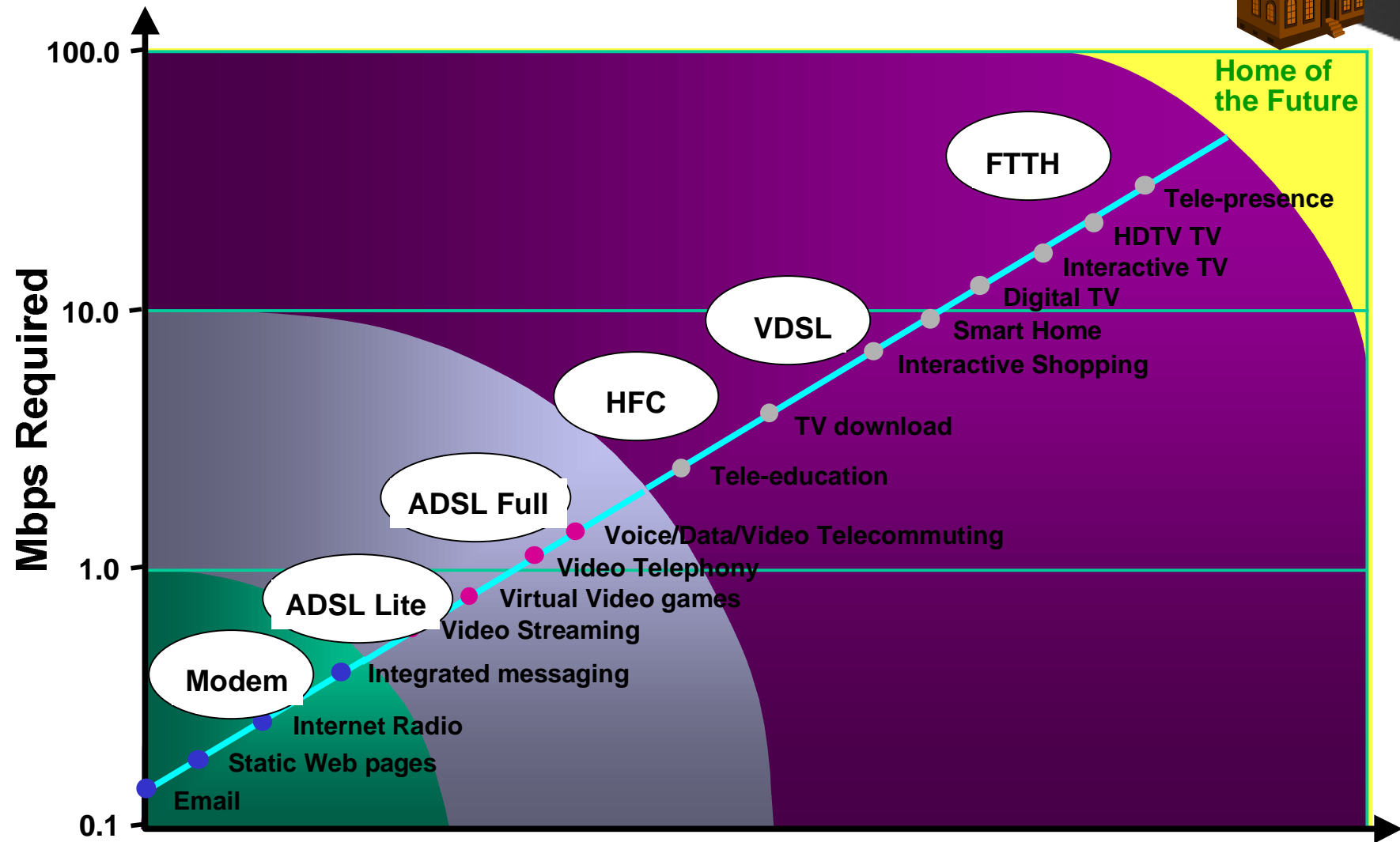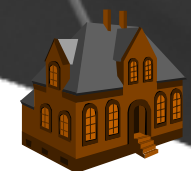
Application Bandwidth Considerations

Internet, Videophones, and Phones: 10 Mb/s (total)

At least 4 concurrent telephone conversations at 0.064 Mb/s each

Internet, e.g., for Web surfing, home pages, email, games, and etc. 6Mb/s

At least 4 concurrent videophone conversations at up to 768 kb/s each

Applications Enabled by Bandwidth

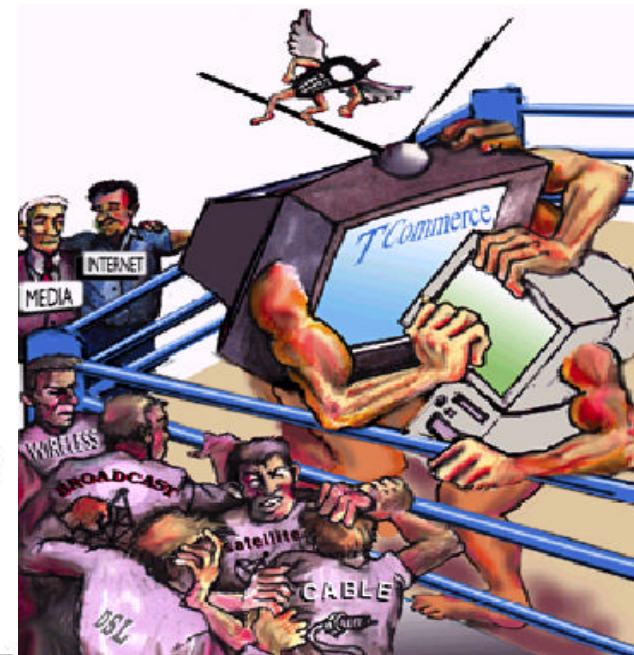Mbps Required (y-axis): 100.0, 10.0, 1.0, 0.1

x-axis: 2005

Home of the Future

FTTH
Tele-presence
HDTV TV
Interactive TV
Digital TV

VDSL
Smart Home
Interactive Shopping

HFC
TV download

Tele-education

ADSL Full
Voice/Data/Video Telecommuting
Video Telephony
Virtual Video games

ADSL Lite
Video Streaming

Modem
Integrated messaging
Internet Radio
Static Web pages
Email

EFM Study Group

Subscriber Access Market Forces

Enhanced TV represents the next major bandwidth
wave of Internet applications

	TV	PC
Penetration	99%-plus	45%
Usage	7.4 hours/day/household	Less than 1 hour/day
Crashes	No (not yet)	Yes
Brain State of User	Open, ready for suggestion	Purposeful, searching, less open to impulse
Emotional Content	Laugh, cry	Yawn (except streaming)
Primary Use	Entertainment, Information	Productivity, Information
Units sold per year	25 million	10 million

Source: Deutsche Banc Alex. Brown, Neilsen Media Research

Application Bandwidth Considerations

Video streams: 8-200 Mb/s (total)

Standard Definition TV (SDTV) video: 2-6 Mb/s per channel (quality comparable to that of CATV)

High Definition TV (HDTV) video: 20-50Mb/s per channel

19.28 Mb/s HDTV (ASTC) for terrestrial mode (RF broadcast) and 38.57 Mb/s for high data rate mode (Cable TV)

At least 4 concurrent channels per access link (any combination of SDTV and HDTV channels)

Note: Indicated video rates are for MPEG transport only. Ethernet/IP encapsulation will add overhead.

PAR for the Future Subscriber Application

- ✓ Broad Market and Applications Potential

- ✓ Compatibility. Part of our Responsibility

- ✓ Technical Feasibility. The Experts are Here

- ✓ Economic Feasibility. Strike a Balance-again

- ✓ Distinct Identity – Begs for a Future-proof Solution

**Project Authorization To Vision The Future For
The Subscriber Environment**

Ethernet Reliability Built In