

FIBER TO THE HOME

the future digital-living

Alex Lim
General Manager



Leader Communications Sdn Bhd



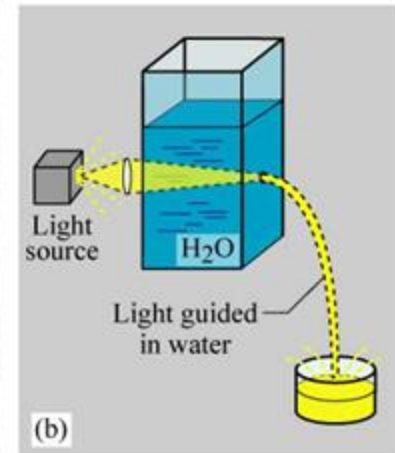
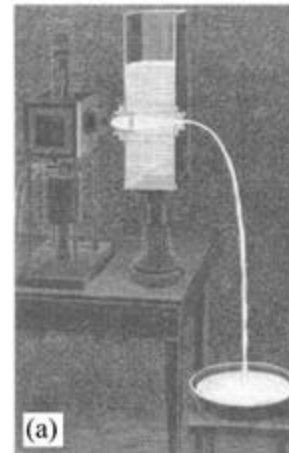
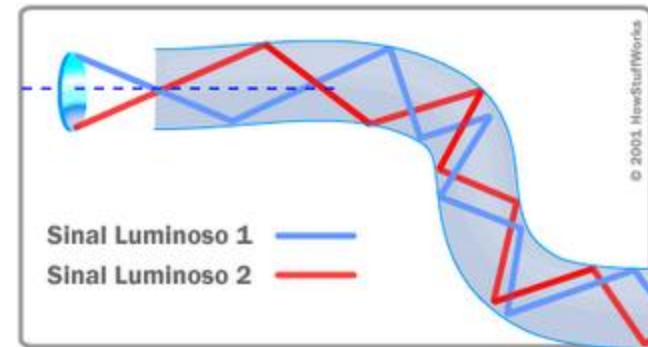
PRESENTATION LAYOUT

Brief History of Fiber Optics


- Introduction
- Background & Market Analysis
- Potential Benefits
- Conclusion

BRIEF HISTORY OF FIBER OPTICS

- 1840s : Swiss physicist Daniel Colladon discovered he could shine light along water pipe.
- 1870s : Irish physicist John Tyndall demonstrated the idea of curving the light round the water path release from a container. This idea of “bending light” is exactly what happens in fiber optics.



PRESENTATION LAYOUT

- Executive Summary
-  Introduction
- Background & Market Analysis
- Potential Benefits
- Conclusion

WHAT IS FTTx?

“Fibre to the X (FTTx)” is a generic term for any broadband network architecture that uses fibre optic to *replace all or part of the usual metal local loop used for last mile.*

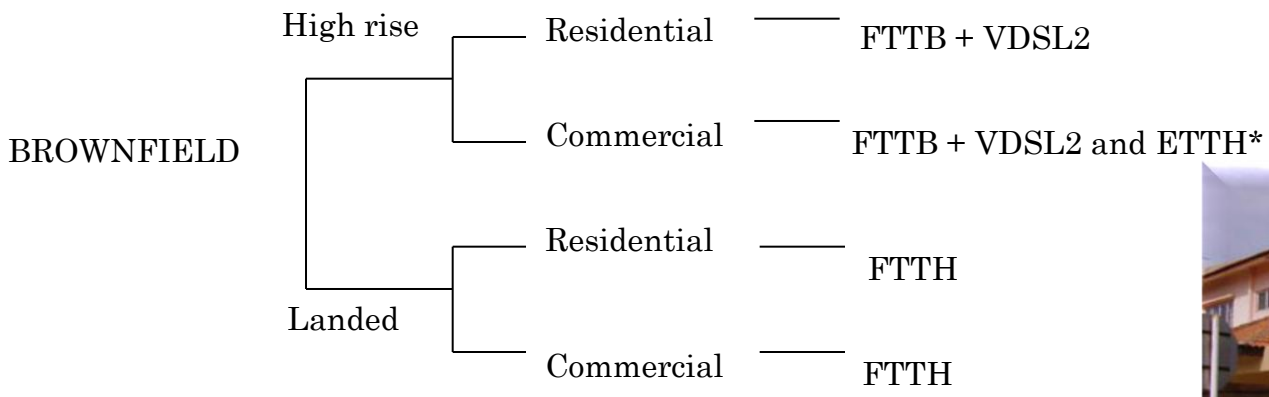
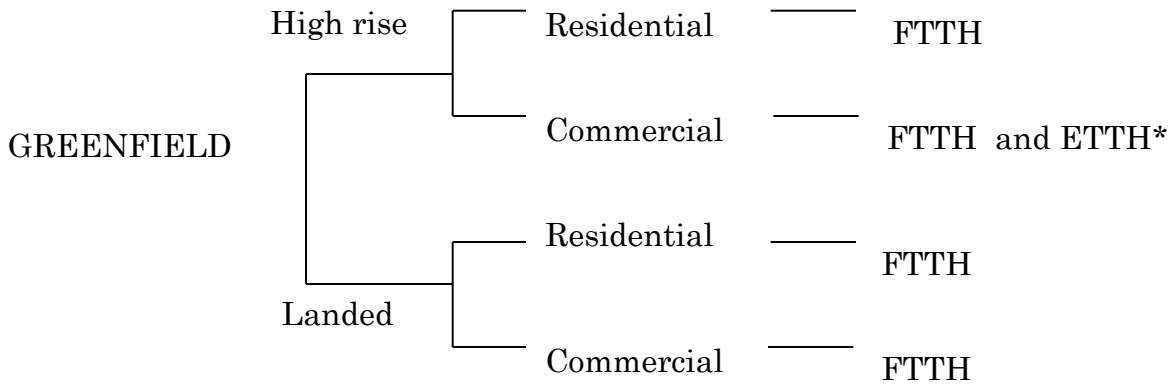
- FTTH: fiber to the home
- FTTP: fiber to the premises
- FTTC: fiber to the curb
- FTTN: Fiber to the node
- FTTx: for those who can't decide what to call it or are referring to all varieties!



FIBRE-TO-THE-HOME (FTTH) DEFINITION


- “Fibre to the Home” is defined as a communications architecture in which *the final connection into the subscriber’s home or place of business is Optical Fibre.*
- The fiber optic communications path is terminated on the premises for the purpose of carrying communications to a *SINGLE subscriber.*
- It is implicit that in order to be classified as FTTH, the access fibre must cross the subscriber’s premise boundary and terminate
 - inside the living or office unit, or
 - on an external wall of the subscriber’s premises, or
 - directly adjacent to (no more than 2m from) an external wall of the subscriber’s premises.

HSBB ACCESS WILL VARY ACCORDING TO TYPE OF PROPERTIES



* ETTH : Ethernet to the Home (Point-to-Point Ethernet)

PRESENTATION LAYOUT

- Executive Summary
- Introduction
-  Background & Market Analysis
- Potential Benefits
- Conclusion

MARKET SUMMARY

- MALAYSIAN PROPERTY MARKET IN MATURATION STAGE-Growing maturity in terms of quality and range of products, modern technology, rapid development & scarcity of prime land led developers to build condominiums and develop large townships.
- Although houses priced below RM200k continued to be the most sought after; there is a continued popularity for houses priced beyond RM500k in prime location
- Current market trend focuses housing development with Lifestyle Concept especially on security. Also there is a growing and increasing interest in “Green Developments”

**Source from REHDA Nov 2009*

REAL ESTATE & HOUSING INDUSTRY IN MALAYSIA

- *Strong underlying demand with continuous population growth 2.1% (as of Year 2009)*
- *Easy access to financing through various home loan packages*
- *Green Building Incentive*
- *Developers adopting creative marketing strategies*
- *Young Population*

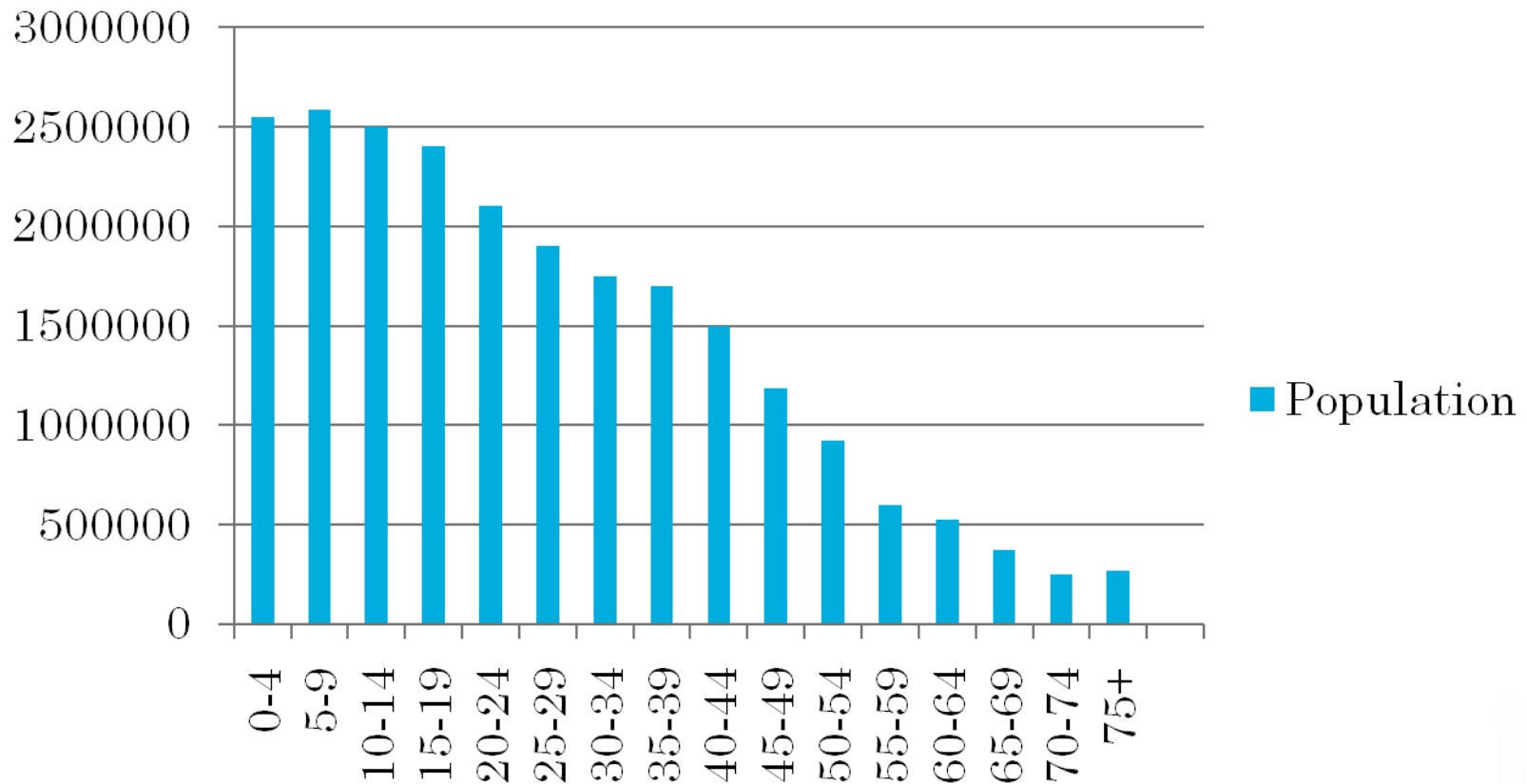


**Source from FTTHCAP*

YOUNG POPULATION

SOURCE : POPULATION AND HOUSING CENSUS OF MALAYSIA, 2000

Age Group



REAL ESTATE DEVELOPER'S SITE IN TAIWAN



High density
Luxury Condo



Termination Racks at
MDF (~1000 units)



Termination
point at Closet



Termination
Racks at MDF

PRESENTATION LAYOUT

- Executive Summary
- Introduction
- Background & Market Analysis
- Potential Benefits
- ✔ Conclusion

DIRECT POTENTIAL BENEFITS/VALUE ADDS

- Online/eBuilding Management System:
 - Online Management fee payment
 - Online facility booking (e.g. Squash/tennis court)
 - Online grocery ordering plus delivery
 - Online laundry services + pickup/delivery
 - Online announcements & advertising
- High Definition CCTV system with over fibre
 - HD CCTV system for tenants to identify visitors and also for building security
- **Wireless internet access** @ public locations
 - e-living with connectivity throughout the site
- **High Speed Broadband via FTTH within the home with ISP/Telco**
- **HD Digital Home capability**
- Interior Design + Smart Home



INDIRECT POTENTIAL BENEFITS/VALUE ADDS



IGBC PENANG
INTERNATIONAL GREEN BUILDING CONFERENCE

2010

THE NATURE OF LIVING

DATE
13 & 14 MAY 2010

VENUE
HOTEL EQUATORIAL PENANG
1 Jalan Bukit Jambul, Bayan Lepas
11900 Penang, Malaysia

FEES
RM350 Members of Supporting Organisations
RM450 Others

INVITED SPEAKERS

- Welcome Address By**
YAB Lim Guan Eng
Chief Minister, Penang
- Ar. Boon Cho Wee**
President, Perubuhan Akhik Malaysia (PAM)
Green Transformation
- Jane Hanley**
World Green Building Council
Green Effects on Investments, Property Values and Returns
- Noel Ingham**
The Prince's Foundation
Low Carbon Building and Communities
- Cheong Yee Koo**
Chairman, Singapore Institute of Architects (SIA)
Green Practice Committee
12 Attributes of a Sustainable Built Environment
- Carlos Alberto Montano Hoyos**
Professor, National University of Singapore
Biomechanics and Biophilia: Learning From and Living with Nature
- Ar. Hijias Kasturi**
Founding Principal of Hijias Kasturi Associates
Sustainability and Heritage
- Ar. Serina Hijias**
Principal of Hijias Kasturi Associates
Sustainability and Heritage

SPONSORED BY

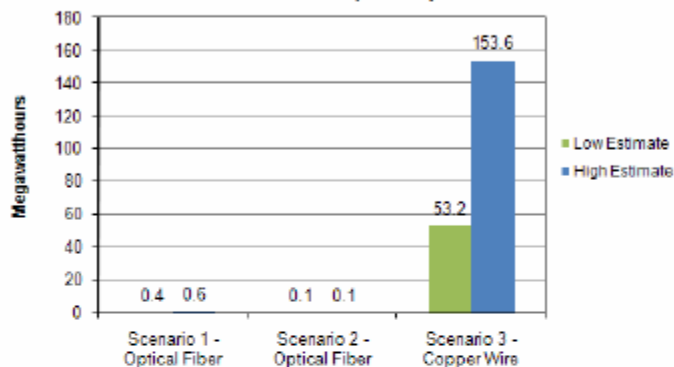
HELPED ORGANIZED BY

IA SM, IGB, AEC, IPDM, MSD, BAZEDA, LEADER

- Green Building due to:
 - Usage of fibre optic cables significantly reduces the carbon footprint as compared to the usage of copper cables
 - The amount of energy to produce 1km of copper UTP cable (26 AWG) is between 130 ~ 250 times higher than the amount of energy to produce 1km of fiber.
 - The amount of power needed to deliver the same amount of bandwidth over the same distance is also significantly less with the fiber optical cables because of the reduction of intermediate active equipments and also the cooling system (air conditioning) needed

Copper Wire & Optical Fiber Production – Energy Use Per Scenario

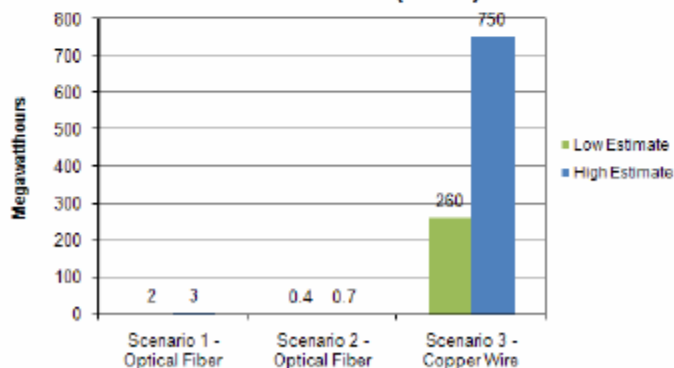
Energy Use For Production - CO Serving Area (MWh)



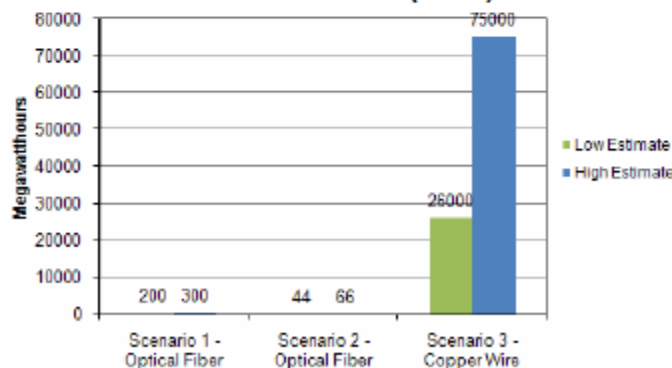
Available information suggests that it takes less energy to produce a metric ton of copper wire than it does to create a ton of optical fiber from beginning (natural resource mining) to end. Our best estimate is that between 2,816+ kWh and 8,153+ kWh worth of energy are required to produce a ton of 26 AWG UTP copper wire, while between 5,957+ kWh and 11,935+ kWh of energy are required to produce a ton of optical fiber.

But the weight of copper (9.2 kg) included in 1 km of 26 AWG UTP cable with 4 copper pairs is about 339 times greater than the weight of optical fiber (27.1 grams) included in 1 km of single mode fiber cable. We estimate is that it takes 130 to 256 times more energy to produce the required amount of 26 AWG UTP copper wire for greenfield deployments in Scenario 3 than it does to produce the necessary amount of fiber for Scenario 1. The difference is even greater compared to Scenario 2, which requires fewer kilometers of fiber because an MDU ONT can be fed with a single fiber drop.

Energy Use For Production - 10,000 Subscribers (MWh)



Energy Use For Production - 1 Million Subscribers (MWh)



Sources: Copper: Heavy Reading estimates based on BNL, patent filing, AWG, and other information. Fiber: Heavy Reading estimates; Corning; Fiber Optic Association; patent information; specific heat data; and other sources. *Excludes estimates for insulation and jacket.

CONCLUSION

- Enhance your property value
- Integrate your telecommunication network
- Value for money – Bandwidth vs Cost
- Future Proof

***Welcome to the Future
Digital Lifestyle***