

AN OVERVIEW OF TODAY'S' INTERNET



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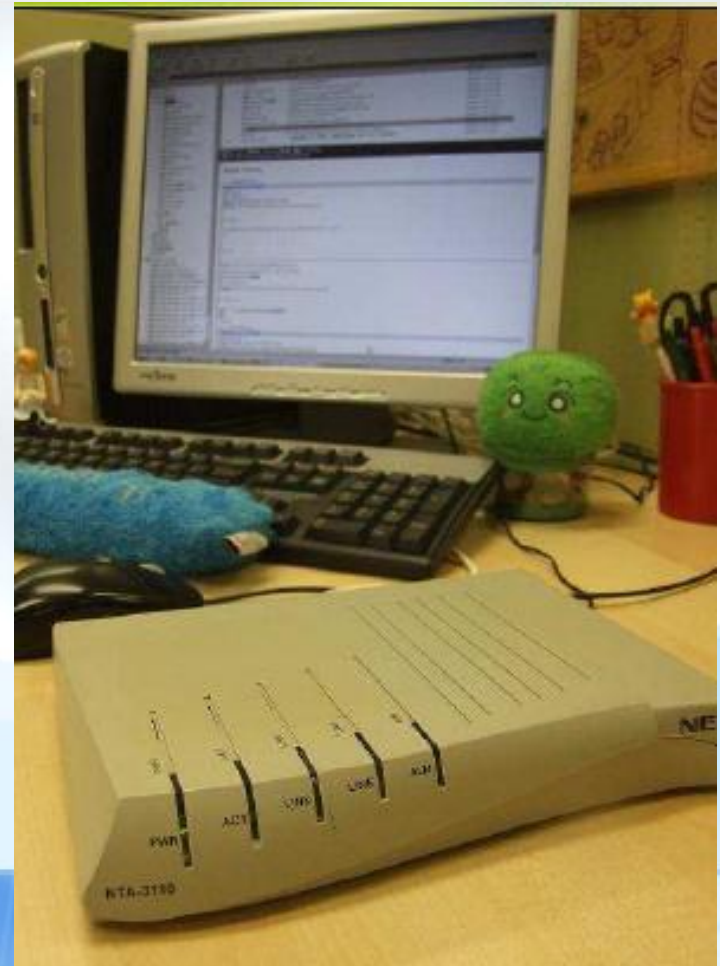
Agenda

- Hardware - From Computer to Internet
- Software - Application runs on Internet... email, www, ftp, apps ... etc
- How internet change the way we do business
- How to select a computer system
- Q & A

Question

**Everyone know internet as
WWW, FACEBOOK, SEARCH
ENG...**

Entire internet mean a lot more..



Computer vs Network

Computer



1940s

50s and 60s

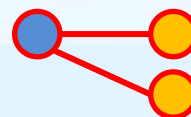
70s and 80s

Now

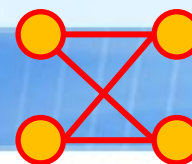
Network



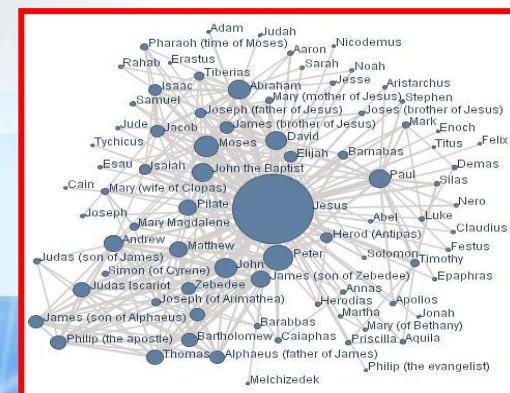
Point to Point



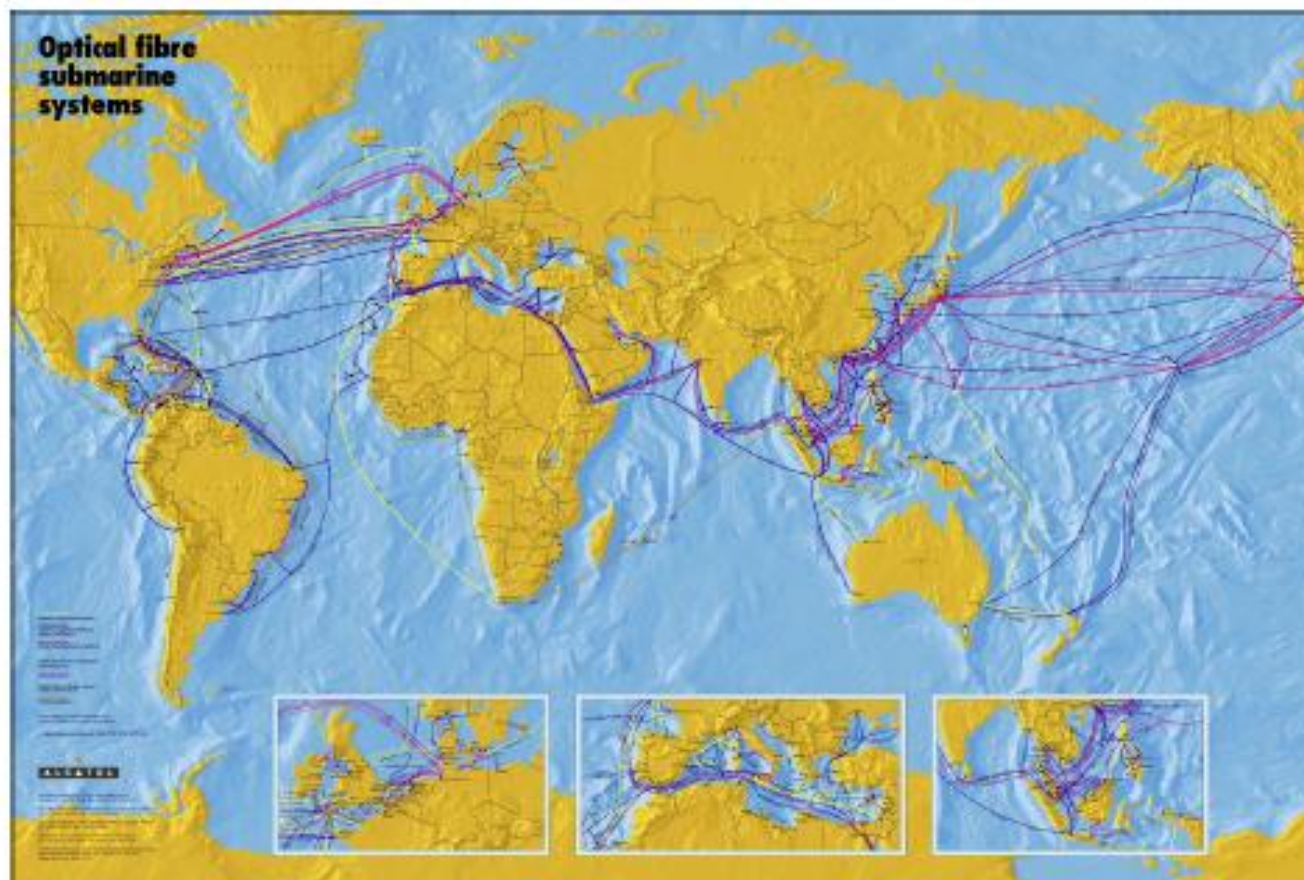
Point to Multipoint



Mesh



The power of links



TAT-8 (12/1988) – The first submarine fibre optic cable

US, The UK, France

1.3 μm ; 280 Mbit/s; 2 fibre pairs; 40,000 telephone circuits; 109 electronic repeaters

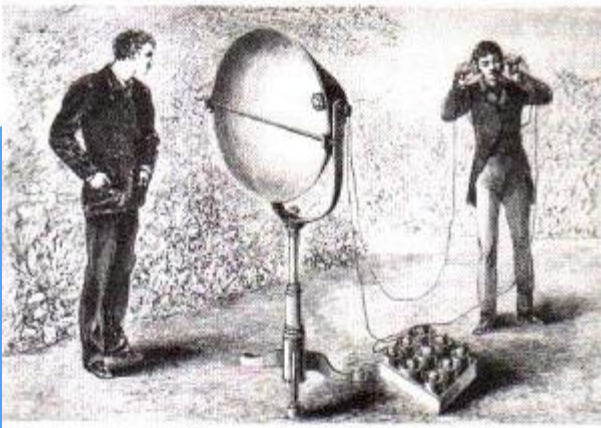
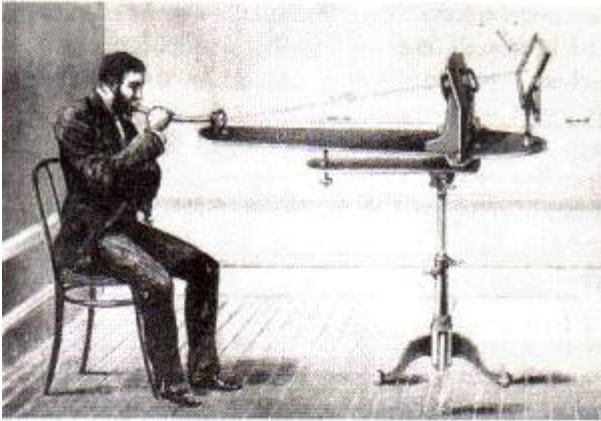
Optical Fiber submarine system

Modern systems (using optical amplifiers)

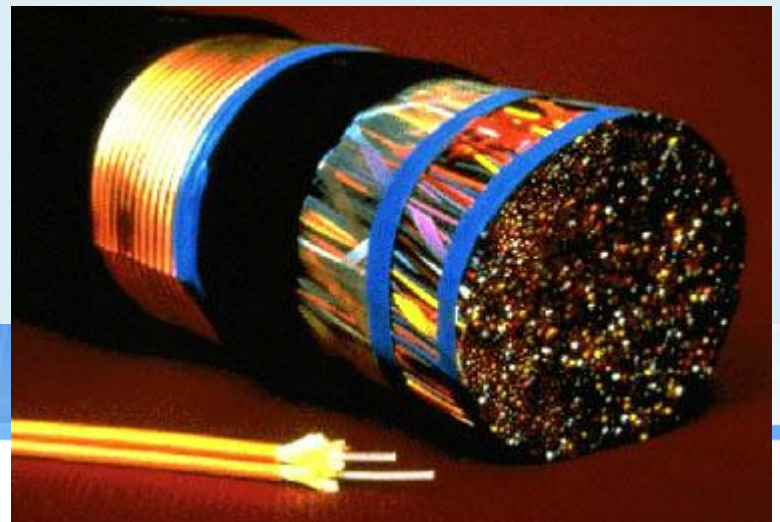
FLAG (1997)	Europe, Middle East, South East Asia, Japan 27,000 km 5G · 2 Fibre pairs
CHINA-US (1999)	The US mainland, Japan, Korea, Mainland China, Taiwan, Guam 27,000 km 2.5G · 8WDM · 2 Fibre pairs
JAPAN-US (2000)	Japan, The US mainland 21,600 km 10G · 10WDM · 4 Fibre pairs
FLAG Atlantic-1 (2001)	US, The UK, France 12,500 km 10G · 32WDM · 4 Fibre pairs
APCN-2 (2002)	Japan, Taiwan, Hong Kong, Singapore, Malaysia 10,000 km 10G · 32WDM · 4 Fibre pairs
FLAG Pacific-1 (2002)	Japan, US, Canada 22,000 km 10G · 64WDM · 8 Fibre pairs

The first optical system in Telecommunication

Bell's Photophone



- In 1880, Alexander Graham Bell invented photophone.
- He demonstrated transmission of voices with light over a distance of ~200 meters



Fiber vs Copper

Total Reflection (全反射) = Zero Lost
Speed up to Tb/s (1Tb = 1024Gb)

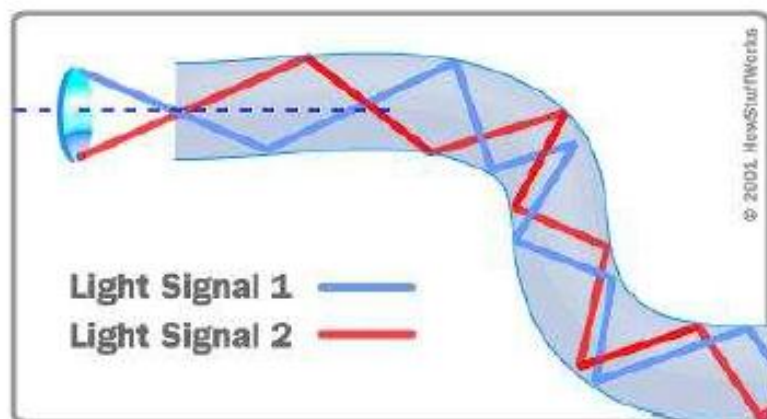


Diagram of total internal reflection in an optical fiber



Copper = Metal
Metal affected by :
Magnetic, Electric and many
forces...
SLOW & UNSTABLE



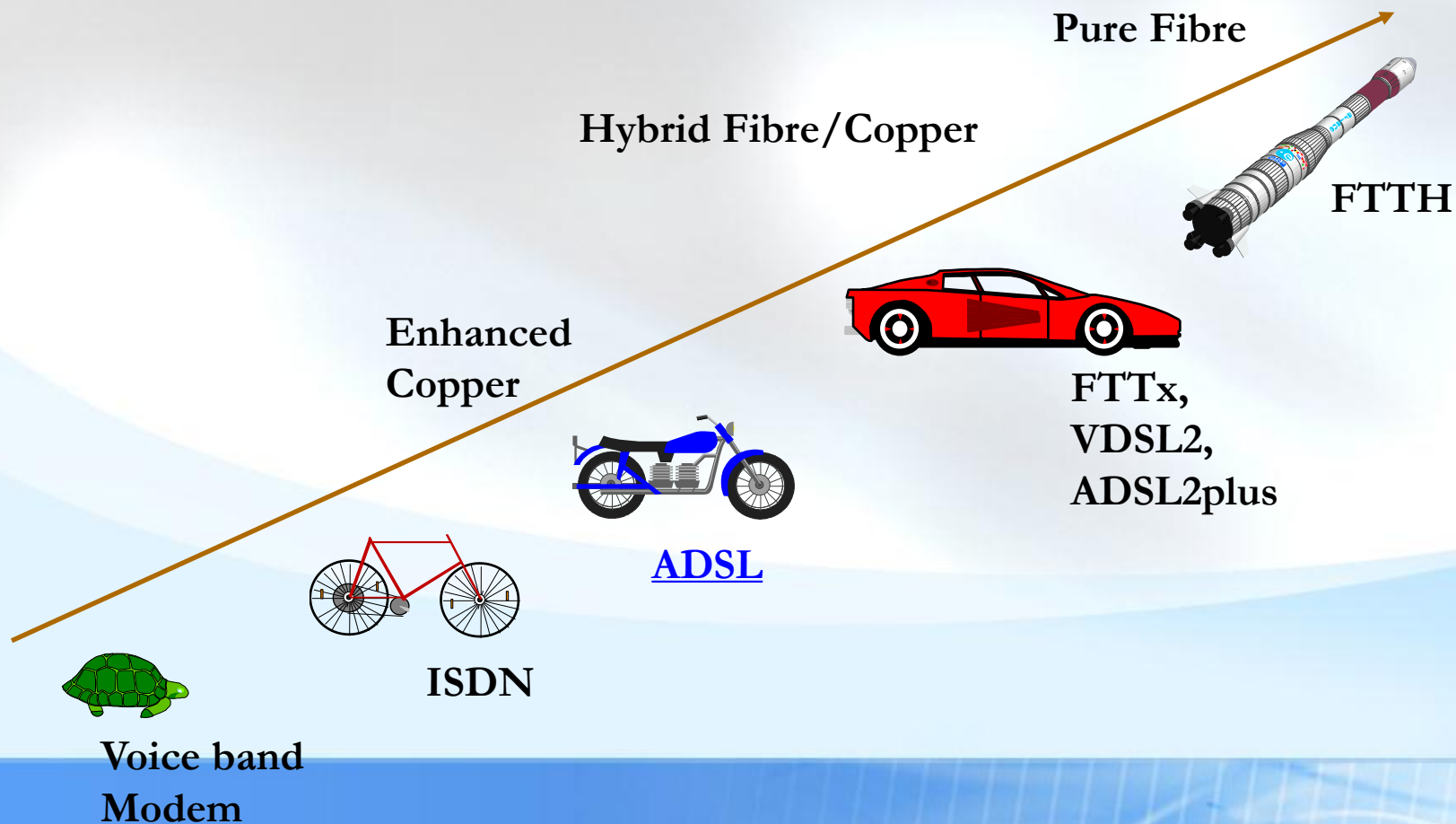
What Kao Kuen did?



- In 1960s, Kao and his co-workers did their research on **fiber optics** as a telecommunications medium
- The light travel within waveguide (fiber) to overcome high attenuation in free space
- The consequence of Kao's research is the low loss optical fiber



Speed

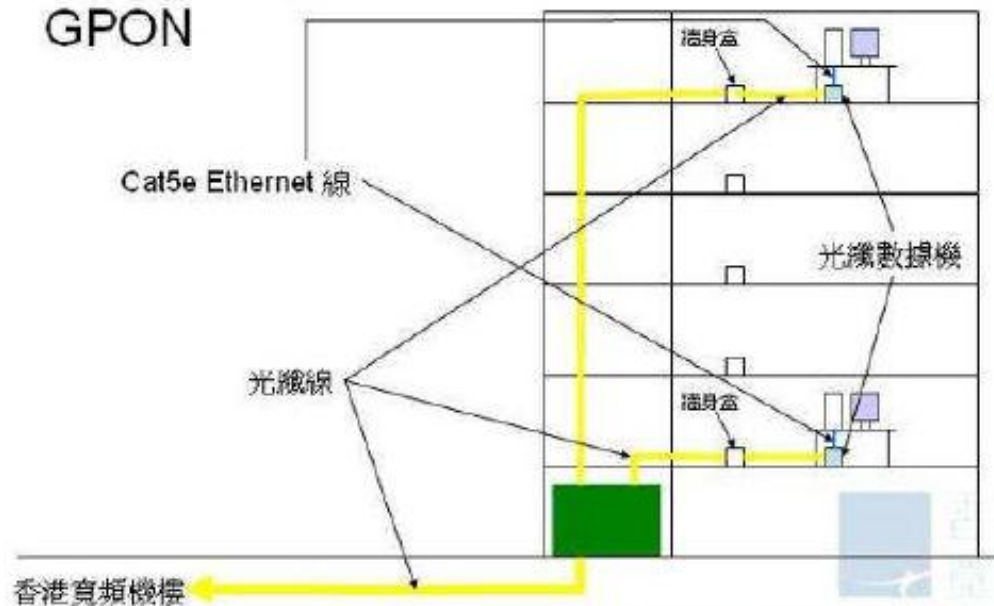


Network

- So what is network?
- The objective is to transmit information from one end to another.
- Voice Network - Audio (two way real time)
- Video Network - Video (one way broadcast)
- Data Network – Data (anycast non real time)

FTTH/GPON

GPON



光纖數據機 / 光纖網路終端
Optical Network Terminal (ONT)

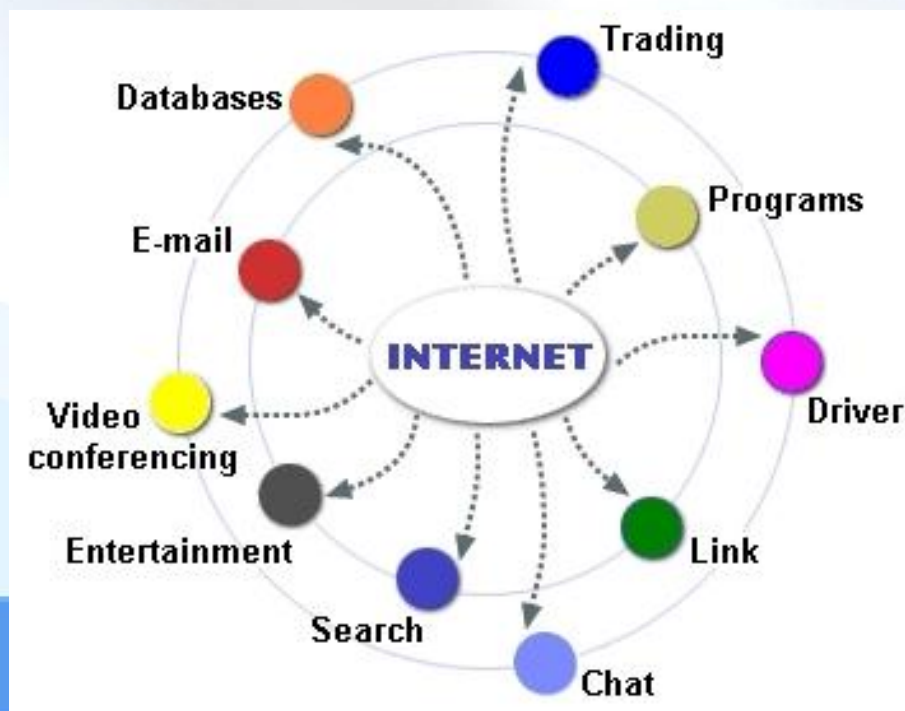


Date rate: Up to 1 Gbps

Application over internet

What is internet anyway?

- Whole bunch of application put together
- Email, WWW, File share ... etc



Powerful Applications WWW

- News, music and everything else is moved to digital
- Web sites become super applications
- Ease of use, scale, and a huge level of functionality.
- information and transactions of goods became instant
- Global markets now at the command of individual consumers and businesses
- Social Networking - Anyone can participate in the content creation
- User-generated content, collaboration, & community
- Content isn't fixed publication—it changes daily
- More companies enter the emerging SaaS (*Software as a service*)
- YouTube, Flickr, Blogspot, MySpace, FaceBook

Web 1.0

Web 2.0

In Web 1.0 more of the content is still in customer individual device, as the network become so powerful, with Web 2.0 people start to put every thing back to the internet...they call it CLOUD

With today handheld device, mobility is the next battle field

How internet change the way we do business

More Efficient and Effective

- Example
 - How You guys hand in your assignment
 - Medical care in Australia make good use of video conference
 - How TV and Movie industry change the way they do the business
 - MSOffice application - spreadsheet, document, presentation, schedule...it helps a lot on time management

Internet and all these kind of application provide us huge amount of information, and almost everyone can have the same information set.

“Information” + “thinking”, become the most important element during the value add game

How to select a computer system

4 Critical Element

- Scalability
- Security
- Data Integrity
- Availability

Money is not!

Good Luck

Thank you!