

New Paradigm Towards Global Village

- An Experience of Sri Lanka

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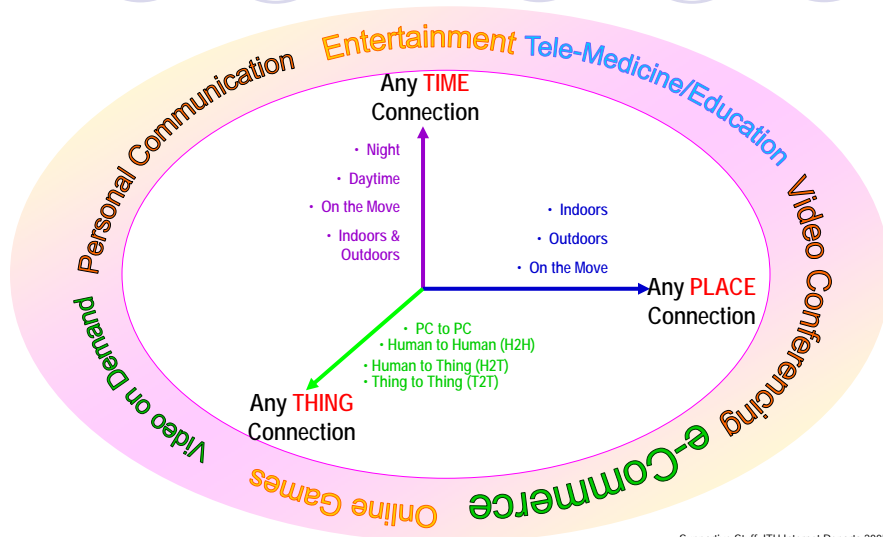
Global Experience

- Saturation of Traditional Markets (e.g. Traditional Voice, TV)
- Explosive Growth of Internet
- Broadband demand – From Dialup to BB Broad Band To The Home (BTTH)
- Growth in Mobile (2G→3G)
- Rapid developments in Asia

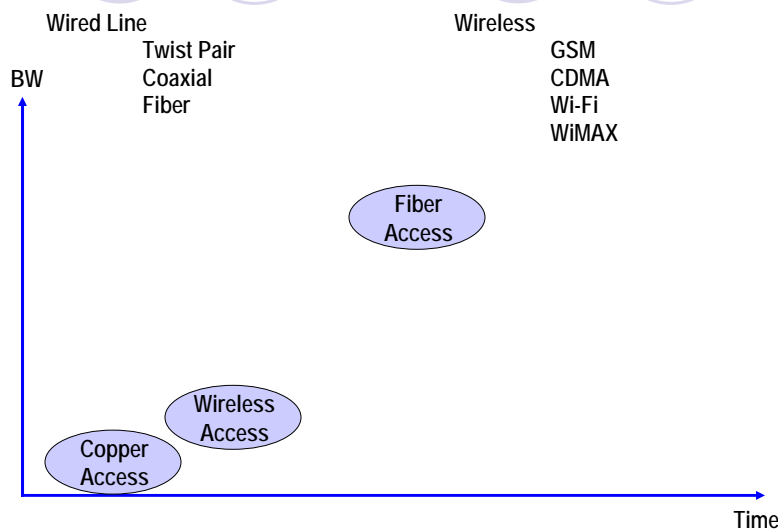
Global Experience...

- Presently Services such as Telephone, Internet, TV is having separate networks and sometimes separate access networks to the Home. This paradigm will be shifted to a unified equipment to provide all the services through one access network to be delivered to home.
- Hence Integration of all services through access network will be a global experience in time to come.
- Technological development of Access Networks
 - Copper → wireless (3G, CDMA, Wi-Fi, W-MAX)
 - Copper→ FTTH→ IPTV – for provisioning of high bandwidth
- Technological development of Transport Networks
 - PDH→SDH,
 - Reliability – Self healing Rings, ASON (Automatically Switched Optical networks), OTN (Optical Transport Network)
- Technological developments in inter-oceanic networks
 - Coaxial → Fiber
 - Repeaters→ Optically Repeated Systems→ Repeater-less Systems
 - Single Channel→ Multi-Channel (DWDM)
 - 2.5Gbps→10Gbps→40Gbps

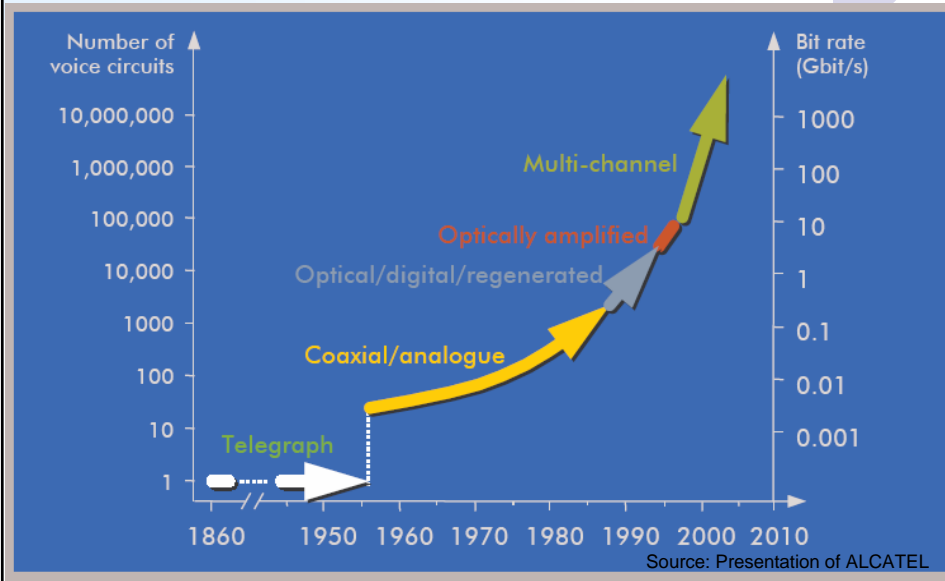
Developments



Technological development of Access Networks



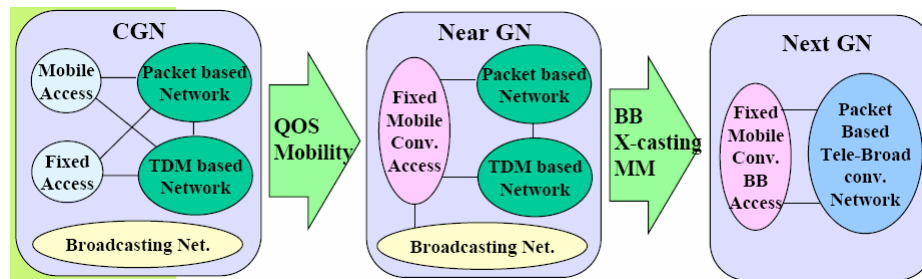
Technological development of Transport Networks



Summarizing the Evolution in Stages

- Presently Various Services will reach Customers with various Access and terminal networks
- In the Near Future Fixed Mobile Convergence with BB convergence can be experienced (Near GN)
- The Real Next GN (NGN) networks will converged all the services and can be received by the Customer through one Access Network with One Unified Terminal at Home

Convergence



CGN – Current Generation Networks

Near GN – Near Generation Networks

NGN – Next Generation Networks

Source: ITU Workshop on Tomorrow's Networks Today 2005

Definition of Next Generation Network (NGN)

A **packet-based** network able to provide telecommunication services and able to make use of multiple broadband, **QoS-enabled** transport technologies and in which **service-related functions** are **independent** from underlying **transport-related technologies**.

It enables unfettered access for users to networks and to competing service providers and/or services of their choice. It supports **generalized mobility** which will allow consistent and ubiquitous provision of services to users.

Disparity Between Haves and Have Not

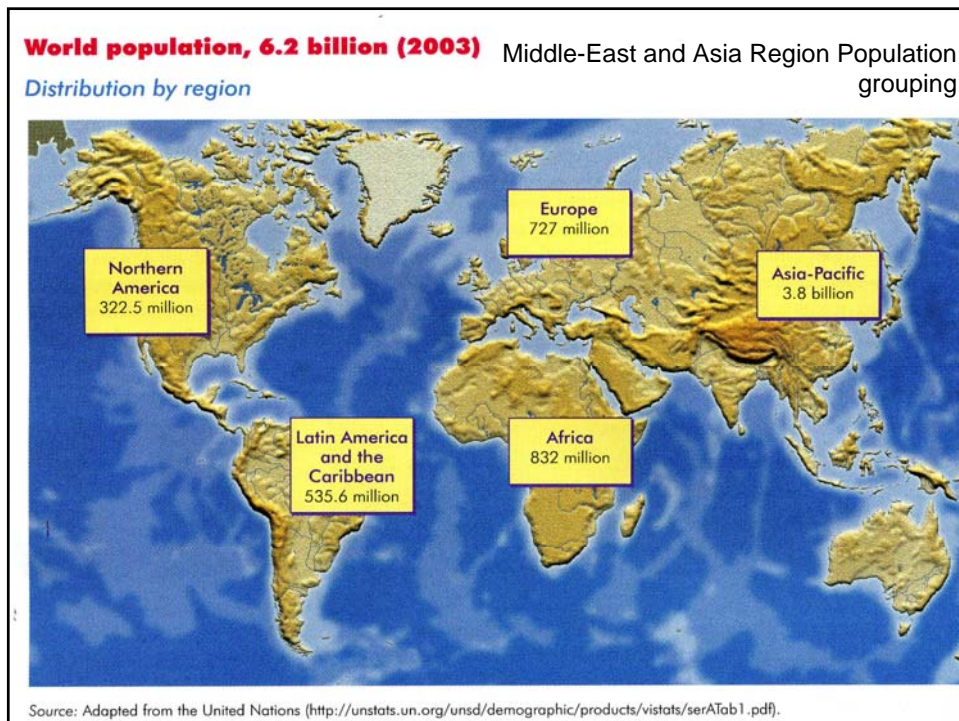
- Telecommunication has become a basic needs such as Water, Sunlight and Air
- Earlier people were deprived about communication due to lack of finances
- Today this scenario evolving to provide a telephone free of charge, but the operators will earn their returns through advertisements on the telephones
- Today paradigm is shifting from Voice to Data. Operators have to invest money and monitor their returns to accommodate this.

WORLD INTERNET USAGE AND POPULATION STATISTICS						
World Regions	Population (2006 Est.)	Population % of World	Internet Usage, Latest Data	% Population (Penetration)	Usage % of World	Usage Growth 2000-2005
Africa	915,210,928	14.1 %	23,649,000	2.6 %	2.3 %	423.9 %
Asia	3,667,774,066	56.4 %	364,270,713	9.9 %	35.6 %	218.7 %
Europe	807,289,020	12.4 %	291,600,898	36.1 %	28.5 %	177.5 %
Middle East	190,084,161	2.9 %	18,203,500	9.6 %	1.8 %	454.2 %
North America	331,473,276	5.1 %	227,303,680	68.6 %	22.2 %	110.3 %
Latin America/Caribbean	553,908,632	8.5 %	79,962,809	14.4 %	7.8 %	342.5 %
Oceania / Australia	33,956,977	0.5 %	17,872,707	52.6 %	1.7 %	134.6 %
WORLD TOTAL	6,499,697,060	100.0 %	1,022,863,307	15.7 %	100.0 %	183.4 %

NOTES: (1) Internet Usage and World Population Statistics were updated for March 31, 2006. (2) CLICK on each world region for detailed regional information. (3) Demographic (Population) numbers are based on data contained in the [world-gazetteer](#) website. (4) Internet usage information comes from data published by Nielsen//NetRatings, by the International Telecommunications Union, by local NICs, and other other reliable sources. (5) For definitions, disclaimer, and navigation help, see the [Site Surfing Guide](#). (6) Information from this site may be cited, giving due credit and establishing an active link back to [www.internetworldstats.com](#). ©Copyright 2006, [Miniwatts Marketing Group](#). All rights reserved.

Major Observations of Shift towards Data

- The Trend in Africa, Middle-East and Asia is very much higher than Europe and North America
- Though the trend is more the penetration of Data Usage of these continents are very much lower than Europe and America
- $\frac{3}{4}$ of the population in the world lives in these continents where $\frac{1}{4}$ lives in Europe & America



Importance of Asia, Africa and Middle-East

- Population is more
- Penetration is low
- Trend is more
- Technological Advancement can be easily implemented with low cost
- More Traffic will be generated in uplifting the social standards of the people with comparable returns

Sri Lanka Experience

- Change in Customer needs
- Change of Government Regulations – Open markets
- Change of Domestic Networks
- International Connectivity
- Global Involvements

Accommodating Global Experiences in Sri Lanka by SLT

Global Connectivity

- Invest in SEA-ME-WE 4 Cable System
- Invest in BL Cable System
- Invest in DL Cable System

Inland Transport Networks

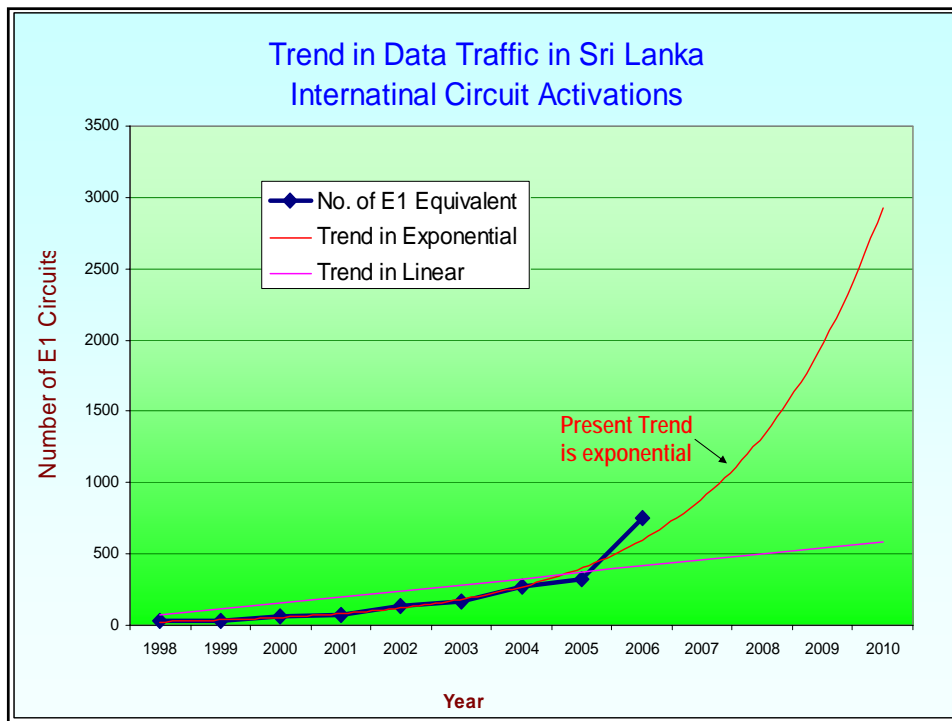
- Optical Rings island wide

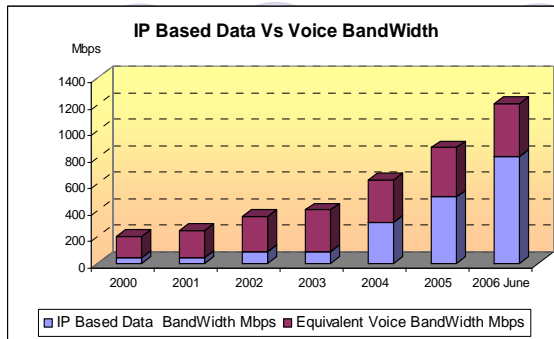
Access Networks

- CDMA rollout
 - Introduction of EvDO
- Launching WiMAX
- VoIP

Data Services

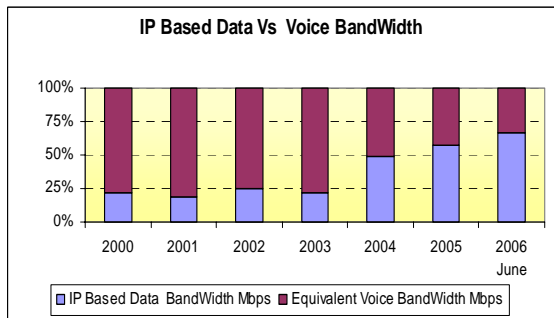
- IP Backbone Network
- Establishment of data warehouses – SLT iDC
- All rural schools to be interconnected via IP network
- All Government Departments, Banks are interconnected with IP Services





The Comparison of Traffic Volumes from Data to Voice for Sri Lanka

This diagrams indicate the growth of Data Traffic (exponential) while the Voice Traffic appears to be constant



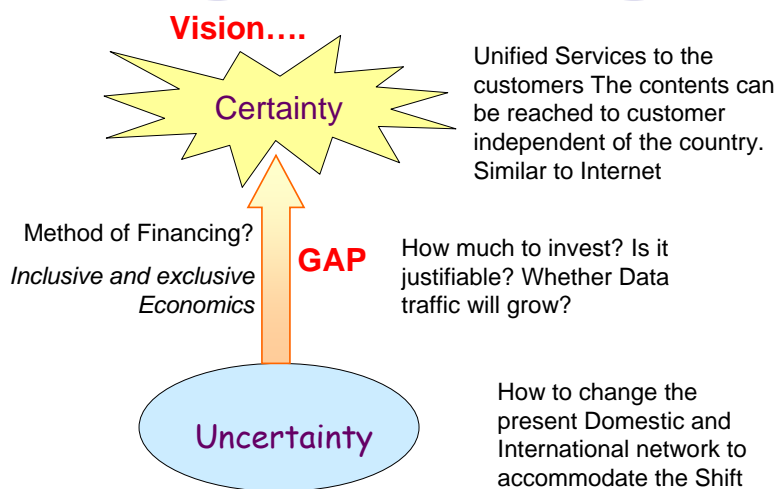
Cost shift towards in achieving Paradigm change

- Upto now Main Revenues expected from Voice but not from Data
- Now this has changed to Data
- Earlier Major Cost attributed to Copper Access. This has changed to low cost wireless access
- Earlier Transport Network utilizing Circuit Switching and Radio Networks. This has now shifted to low cost Near Generation switch with optical fiber networks

The Importance of Global Connectivity

- Though the Transformation within the country can be achieved, if the same transformation not happen in the international connectivity the benefits of transformation cannot be fully achieved
- The connectivity from one country to another country plays a vital role for a successful transformation
 - E.g. In Sri Lanka the Indian Films are very popular. Downloading Indian films need a good connectivity between India and Sri Lanka
 - E.g. In Maldives the connectivity between Sri Lanka for tourism, Trade, education is important. Under the modern transformation Maldives should have a good connectivity with Sri Lanka
- Similar Connectives can be experienced globally.
 - E.g. Hong Kong with relation to China
- Hence the global connectivity for a given country through Optical Fiber Network is a paramount important in present era

Gap Analysis for Paradigm Shift



What is Inclusive and Exclusive

- Inclusive Economics
 - More concern about NPV Value
- Exclusive Economics
 - More concern about IRR Value

Both IRR & NPV based on cash flows whereas NPV will show the absolute cash value.

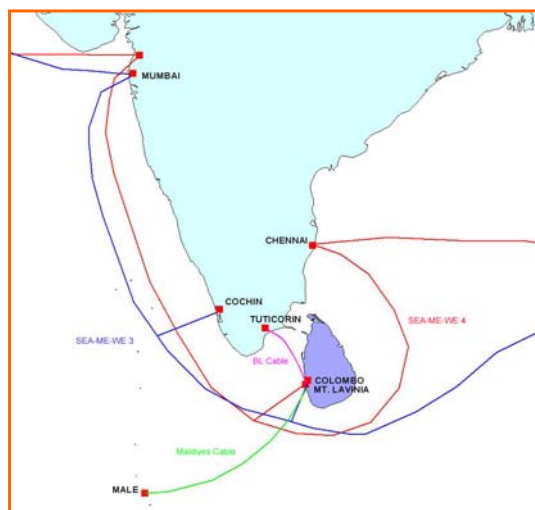
To Achieve Local Trend

- Transfer to Fiber Back-Bone Networks island wide
 - Metro Transmission Rings
 - Central Ring
 - Northern Ring
 - Southern Ring
- Metro Ethernet Networks
- Broadband Networks

To achieve Global Trend

- SEA-ME-WE 4 Project
 - 16 Parties, 20,000km, 2 fiber pairs, 1.28Tbps, Sri Lanka is Branch Station, www.seamewe4.com
- BL
 - Two Parties, 230 km, 6 fiber pairs, 20 Gbps (2 Fiber pairs), Repeater less DWDM System
- DS
 - Two Parties, 700 km, 8 fiber pairs, Repeated (7 Repeaters) DWDM System
- India – Sri Lanka Microwave Link
 - STM-1 Link
- Satellite Links

Global Connectivity of Optical Fiber in Sri Lanka



Four Optical Fiber Cable Systems

- SEA-ME-WE 4
- SEA-ME-WE 3
- BL Cable
- DL Cable

Detailed Summary of Submarine Cable Systems in Sri Lanka



Source: www.underseacable.net

Conclusion

- Sri Lanka can be a facilitator for the neighboring giant countries
- Sri Lanka too experience the global trend of transition from voice to data
- The domestic network of Sri Lanka are evolving to provide high bandwidth to the customers
- Today's technological and facility evolutions may lead Sri Lankans to experience the Global Village in near future



Thank you for your Attention!

For more Information visit www.christiealwis.com

