

# New Paradigm Towards Global Village

- An Experience of Sri Lanka

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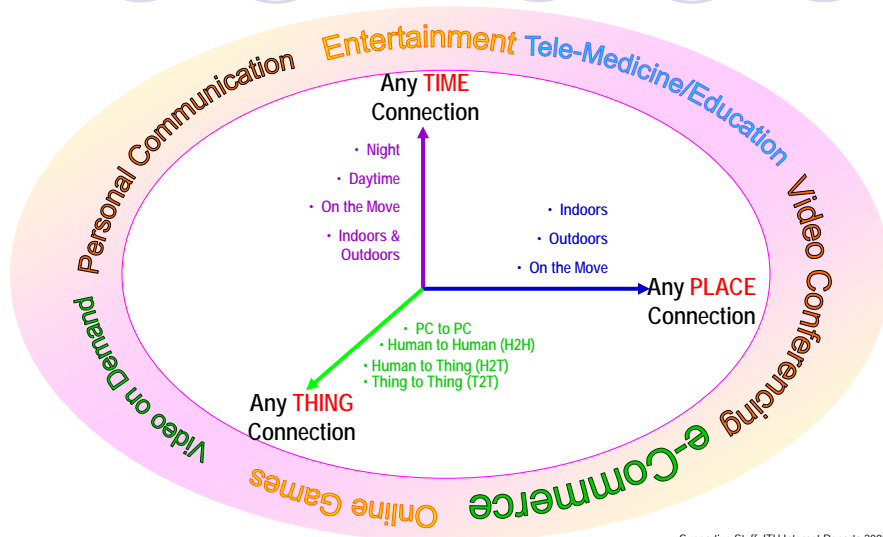
## Global Experience

- 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

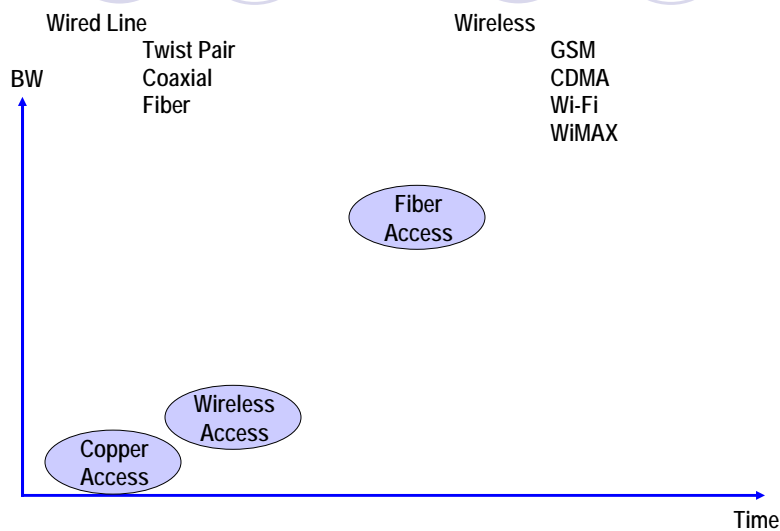
## Global Experience...

- 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

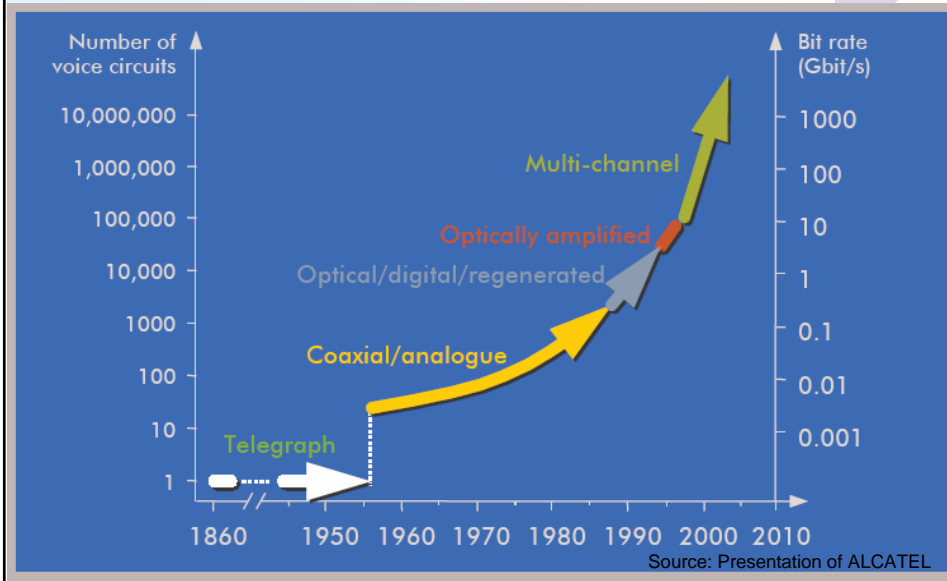
# Developments



# Technological development of Access Networks



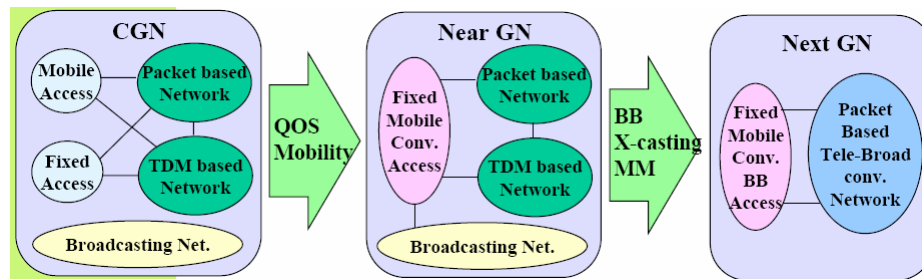
## Technological development of Transport Networks



## 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

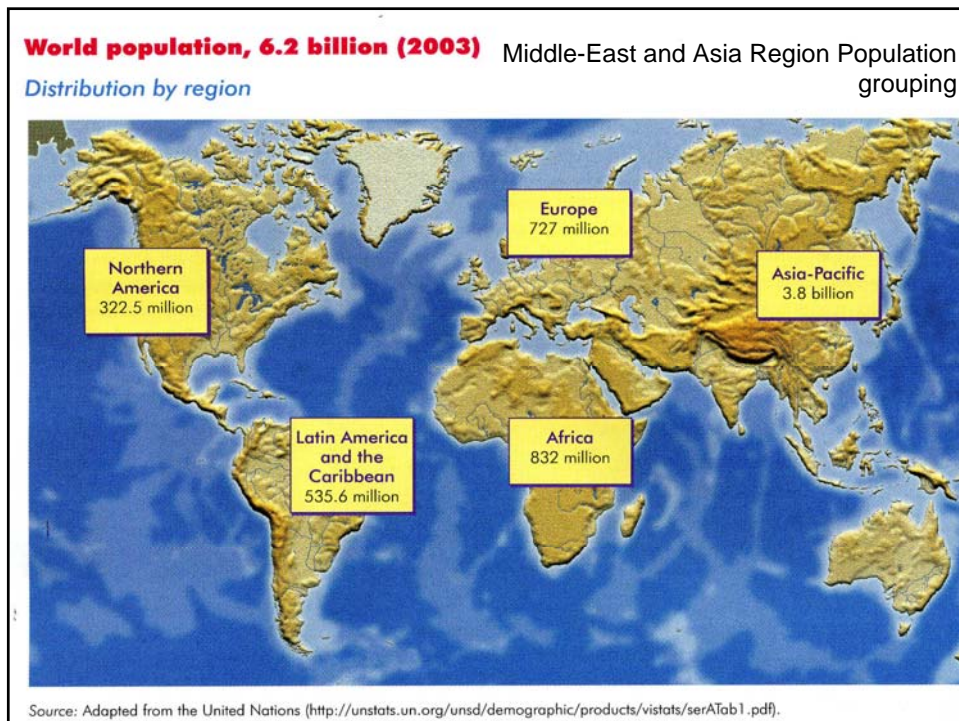
- Telecommunication has become a basic needs such as Water, Sunlight and Air
- Earlier people were deprived about communication due to lack of finances
- Today this scenario evolving to provide a telephone free of charge, but the operators will earn their returns through advertisements on the telephones
- 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
<a href="#">Africa</a>	915,210,928	14.1 %	23,649,000	2.6 %	2.3 %	423.9 %
<a href="#">Asia</a>	3,667,774,066	56.4 %	364,270,713	9.9 %	35.6 %	218.7 %
<a href="#">Europe</a>	807,289,020	12.4 %	291,600,898	36.1 %	28.5 %	177.5 %
<a href="#">Middle East</a>	190,084,161	2.9 %	18,203,500	9.6 %	1.8 %	454.2 %
<a href="#">North America</a>	331,473,276	5.1 %	227,303,680	68.6 %	22.2 %	110.3 %
<a href="#">Latin America/Caribbean</a>	553,908,632	8.5 %	79,962,809	14.4 %	7.8 %	342.5 %
<a href="#">Oceania / Australia</a>	33,956,977	0.5 %	17,872,707	52.6 %	1.7 %	134.6 %
<b>WORLD TOTAL</b>	<b>6,499,697,060</b>	<b>100.0 %</b>	<b>1,022,863,307</b>	<b>15.7 %</b>	<b>100.0 %</b>	<b>183.4 %</b>

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

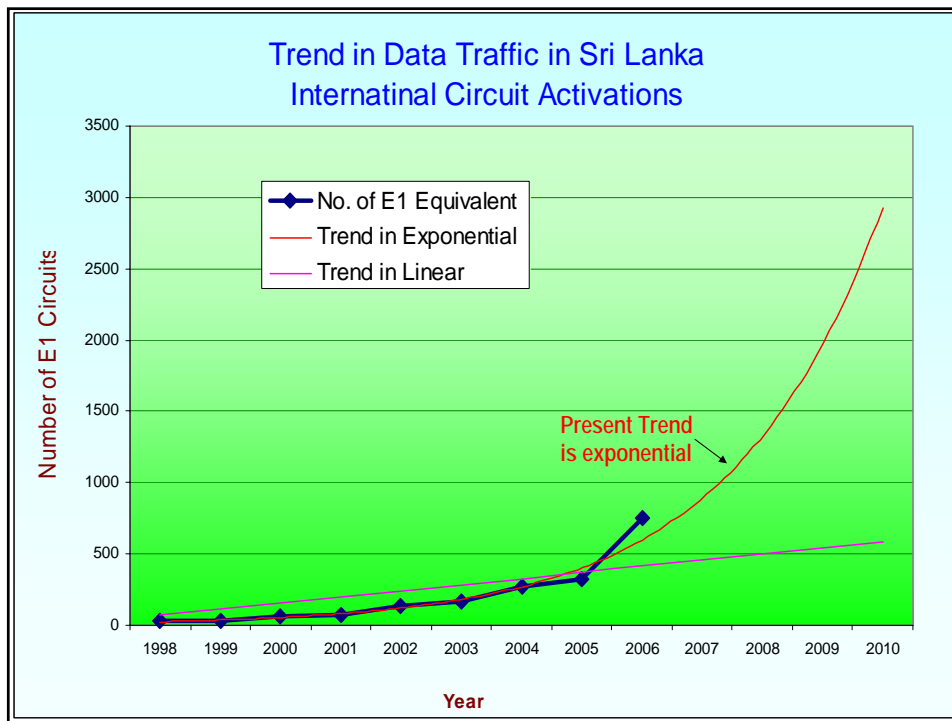
- Optical Rings island wide

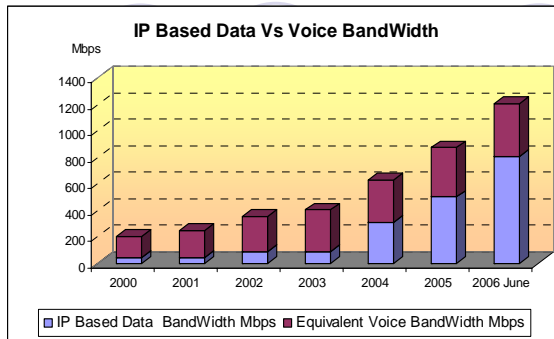
## Access Networks

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

## Data Services

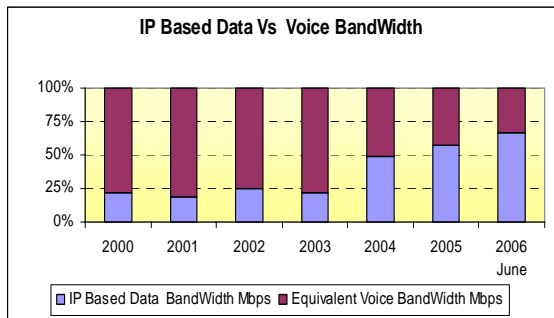
- IP Backbone Network
- Establishment of data warehouses – SLT iDC
- All rural schools to be interconnected via IP network
- All Government Departments, Banks are interconnected with IP Services





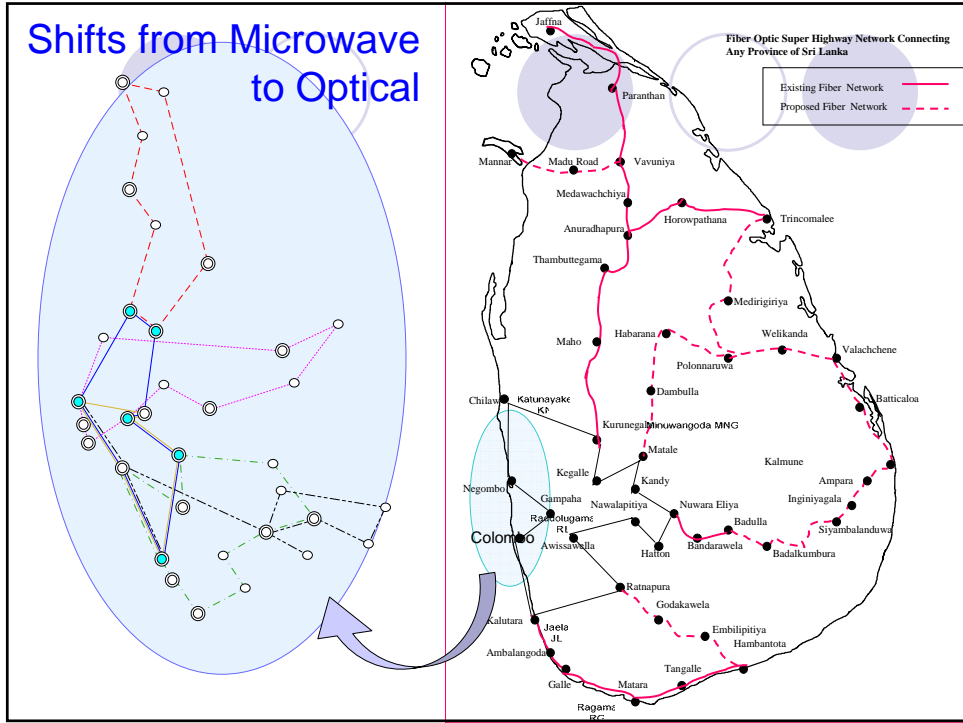
## The Comparison of Traffic Volumes from Data to Voice for Sri Lanka

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



Annex 2

## Immediate Achievement

- The Shift has resulted low cost Near Unified services to the customers even within a country or globally
- Face of achieving the shift is gradual with a careful transformation of old equipment to the latest new equipment
- Next three years will be experienced to reach the network with Near GN switches, Optical fiber transmission for transport networks while ADSL, EvDO or FTTH will carry the unified services to the customers.

Mawana MLW

STA  
Homagama HC  
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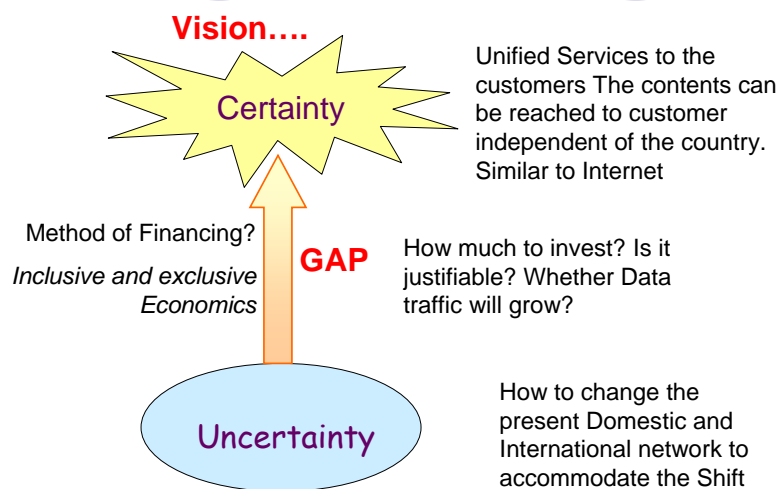
Padukka PDK  
Padukka E/S

ode

## 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.*

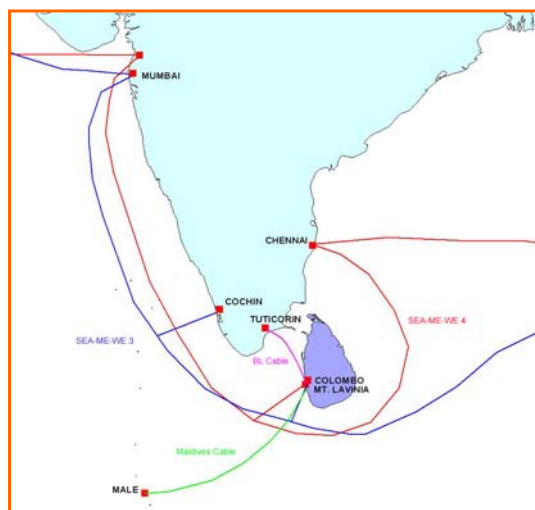
## To Achieve Local Trend

- 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](http://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!

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