

# Symposium on Telecommunications

## 10<sup>th</sup> Anniversary of the Fourth Protocol to the GATS

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# Mobile Computing – Phase I



# Mobile Computing – Phase II



# Mobile Computing – Phase III





# Expansion of Telecommunications Networks & Services

WTO agreement on Basic Telecom Services came to effect on January 1, 1998

This led to an explosion in Telecom services the world over resulting in:

- ❖ Employment generation – Direct & Indirect
- ❖ E-Commerce – Internet based applications
- ❖ IT (Information Technology) Enabled Services
- ❖ Growth in Internet – fast dissemination of information
- ❖ Contributed to the world becoming a Global Village



# Impact of Telecom on overall development

- ❖ Growth of Telecom faster than any other industry vertical
- ❖ Growth in GDP (Gross Domestic Product) of most developing countries directly linked to growth in Telecom
- ❖ Telecom network is the central nervous system of the world economy
- ❖ Speed of the telecom network controls the speed of economic activity



# ICT as a route to development – The Rwandan example

Rwanda's 2020 Vision plan proposes, and schedules, full internet development, integration, and related education to emerge as a middle-income state.

Rwanda has very low reserves of natural resources, high population density, and hence has to depend on a knowledge-based economy.

Networking between schools in rural areas can eliminate a half-day's travel.

Rwanda has already invested heavily in fibre optics, to be laid up and down the country's hills and roads. Yet the most difficult stage of internet connectivity is 'last mile' connection.

In Rwanda, 'last mile' connection is even more difficult because of topography and infrastructure outside of major cities. Wireless signals are a solution, but WiFi, the most common form of signal, can only spread 10 meters from its base.

WiMax, a relatively new technology and already used in parts of Rwanda, has the potential to bring mass access to high-speed internet in rural areas, with the potential to send signals over a 50 Kilometre radius.



# Social Benefits – Global Scenario

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## Distance Education



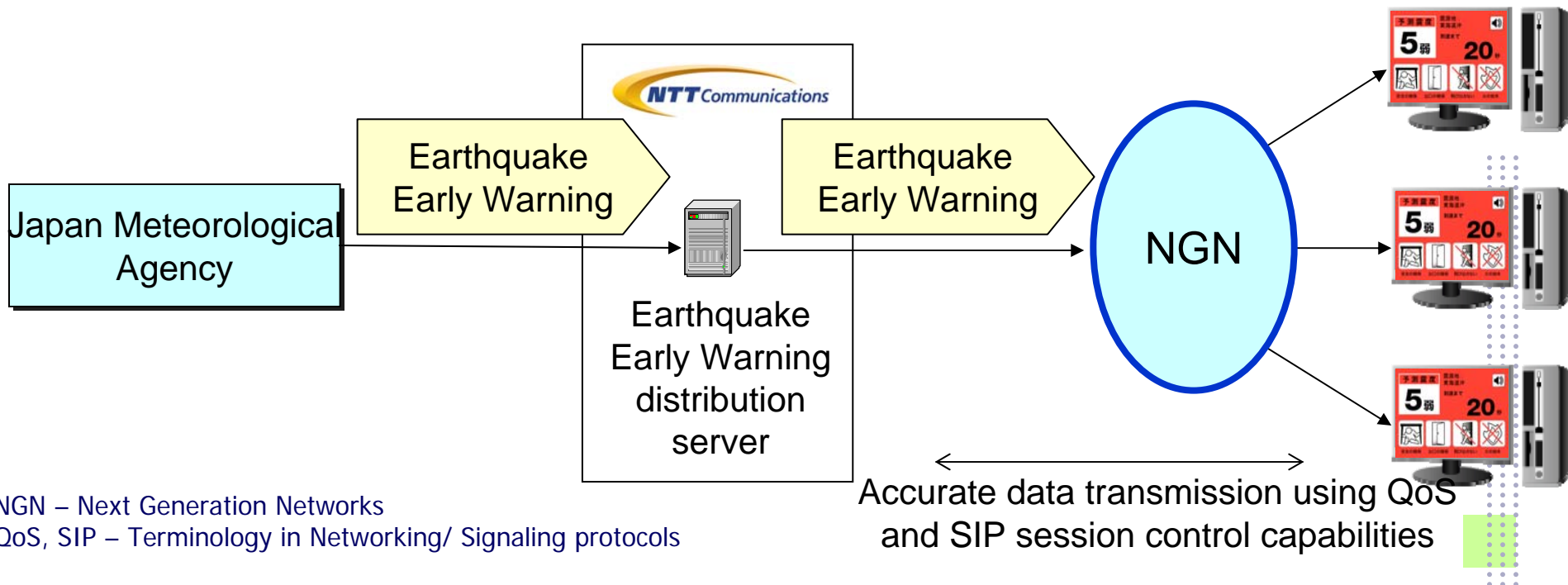
Content from institutions of excellence can be delivered to students at geographically dispersed locations through the medium of internet. This dramatically increases the reach of the elite educational institutions to benefit the community at large



# Trial for Earthquake Early Warning Distribution Service

## Service content

This service transmits Earthquake Early Warning, issued by the Meteorological Agency, to customers' devices via the NGN, forecasts the intensity and arrival time of major shocks, and provides warnings and notices.



NGN – Next Generation Networks  
 QoS, SIP – Terminology in Networking/ Signaling protocols



## Social Benefits in India

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- ❖ Direct employment for 2.8 Million and In-direct employment for 7.5 Million
- ❖ Opportunities in IT Enabled services – Starting from voice based call centers to BPOs to KPOs (Knowledge Process Outsourcing)
- ❖ Massive growth in Software Development services – developments in telecom facilitate digital data transmission
- ❖ E-Governance – Use of software applications in government – Better reach and increased transparency

# Tele-Medicine



What is Tele-Medicine:

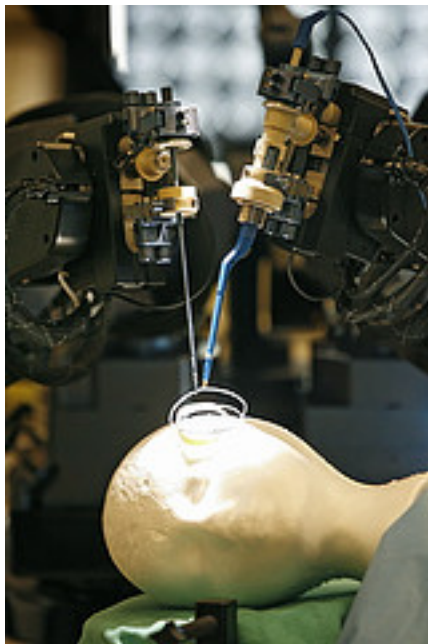
The facility to provide interactive healthcare using Telecommunications as the medium and modern medical technology as the tool. It could be either in real-time or asynchronous

# Tele-Medicine- Current Applications



- ❖ Radiology
- ❖ Pathology
- ❖ Cardiology
- ❖ Real-time consultation during invasive procedures
- ❖ Medical Education

# Advanced Tele-Medicine



Experts can view invasive procedures, medical reports etc. in real-time remotely, give advise to the local medical professional. Day is not far off when a surgeon sitting in the United States performs a surgery on a patient in India or the vice versa, accessing the equipment through remote control facilitated through the internet.

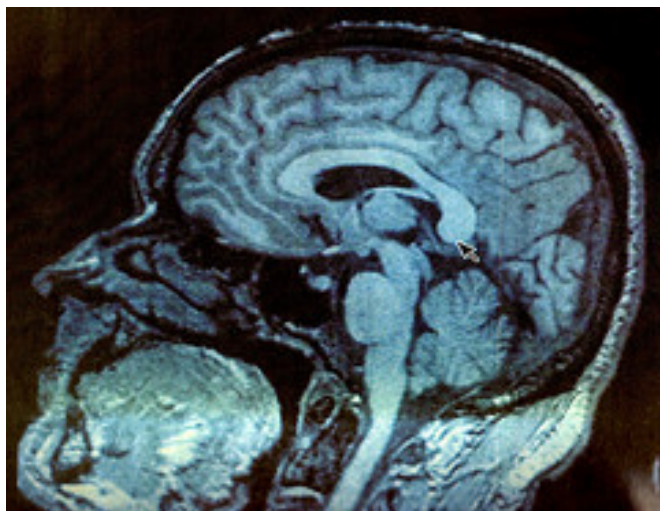
# Advantages of Tele-Medicine



- ❖ Expansion of Patient outreach
- ❖ Cost savings by avoiding Travel
- ❖ Confidentiality
- ❖ Immediate and Urgent medical care
- ❖ Increased exposure and awareness for the local medical professional from the interactions with the specialist doctor

# Tele-radiology – Outsourcing

Readings/Images are uploaded on to the web and stored securely. The outsourcing partner downloads the files and assigns to a qualified radiologist for study and opinion. The report of the radiologist is then uploaded for the use by the patient's doctor.



Applications in:

- ❖ Digital X-Rays
- ❖ Musculoskeletal, Doppler, Abdominal and Echocardiography Ultrasounds
- ❖ CT screenings of the whole body
- ❖ MRIs of Musculoskeletal, Spine, Brain
- ❖ Thoracic Imaging
- ❖ Cardiology and Coronary CTA



# Future Trends in Telecom

## ❖ Convergence of:

- Voice & Data (VoIP)
- Personal Computer & Cell Phone
- Television & Internet (IPTV)

## ❖ Unified Communications:

A cohesive communications strategy, where all your applications and devices are integrated. For example, your email client (Outlook), Office EPABX, Mobile devices (BlackBerries, Cell Phones), CRM tools on PDAs – all share a common datastore of client information

## ❖ WiMax:

Long Range Wireless Broadband Technology





## Future Trends - Applications

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- ❖ Applications with high Video content
  - ❖ IP (Internet Protocol) TV – Television content transmitted through internet on telecom network – ‘Content pull’ instead of the current ‘content push’ (Subscribers accessing programs of their choice and at a convenient time)
  - ❖ Distance Learning – Facilitates delivery of high quality education programs to multiple geographic locations
  - ❖ Applications in Healthcare – Remote Medicine
  - ❖ Payment authentication through Mobile applications
  - ❖ Mobile Applications for enterprises
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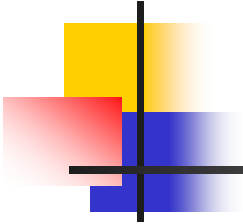


# Future Challenges

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- ❖ Inclusive growth – Improving the affordability for Urban and Rural poor in developing countries
- ❖ E-Waste disposal and management
- ❖ Introduction of more energy efficient hardware
- ❖ Control of Cybercrime – Concerns for Global security, Financial frauds and Personal privacy





# Thank you all

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