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Driving Network Uptake for emerging RENs:

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Questions

- What does your NREN offer that the commodity internet in your country doesn't offer? (refer eg EARNEST Foresight Study & Case for NRENs)
- Which of your user communities are likely to benefit most from using your NREN? – how did you judge this?
- How do you engage with your user communities/ researchers?
- Have you identified any user based champions that know how to exploit your NREN?
- Have you convinced your funding agencies/policy makers that your are adding value to the research/education endeavours of your country? – what arguments did you use?
- What inhibitors to uptake are you aware of? How can they be addressed?

Good Networks aren't enough

– *"necessary but not sufficient"*

- Good performing and well supported networks **without compelling applications** that provide new/enhanced opportunities for research, innovation, education and societal benefit are of doubtful value
- Need an **enthusiastic user base** and **champions** that have the **tools and capabilities** to **exploit** the opportunities presented
- Need a **framework** that ensures that applications benefit researchers, educators and society in a powerful, reliable and easy-to-use way
- The underlying complexities of the routing/switching infrastructure and collaboration tools should be **transparent** to the end users

What has worked & what we think should work

– *at least in some places*

- Well established examples:
  - Telehealth/telemedicine
  - e-learning
  - eVLBI/radioastronomy
- In train (examples):
  - Applications focused on National Economic Value & Impact (see later)
  - Natural disaster prediction, warning & mitigation (regional and global coordinated action)
  - Joint effort on digital libraries
- These will vary by country and by circumstances

Teleconsultation/Telementoring - examples

- Collaboration between the National Hospital for Paediatrics (NHP) in Hanoi and the Royal Childrens Hospital (RCH) in Melbourne, Australia
- This was demonstrated at the Halong Bay launch of TEIN2
- NHP and RCH now have regular videointeraction, telementoring and teleconsultation to enhance joint activities

NB: the network was left in place after the demo – stress importance of this

Telehealth - Orthodontics

- Dr Mike Snow, an orthodontist from Melbourne, travels to Vietnam three times each year to treat Vietnamese children with cleft lip and cleft palette deformities.
- He has developed a broadband-enabled dental assessment chair that will allow him to examine Vietnamese children while he is still in Melbourne
- Two broadband-enabled orthodontal examination chairs are now in Vietnam

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Telesurgical training in developed countries

- Play HD video clip

Earth Observation/Monitoring

- Huge explosion in volume of data being collected from satellite, terrestrial and oceanographic sensors
- New satellites collect terabytes/day
- Data has to be stored in repositories, curated, accessed by different communities, analysed, visualised and used for predictions and modeling
- Increasing emphasis on (eg) climate change, disaster and natural hazard warning/monitoring systems, emerging infections and biosecurity require innovative exploitation of high capacity networks to maximise the benefit of massive amount of data coming on-stream
- Global coordination essential

Applications focused on National Economic Value & Impact

(1) Crops Yield Forecasting; Rice, Sugar cane, Rubber, Palm, Cassava

(2) Natural Resources Monitoring & Management; Forest and National Parks

(3) Agricultural Land Reform, Land-use, Land-cover, Public Land

(4) Flood Preparedness, Monitoring, Mitigation, Assessment

(5) Water Reservoir & Dams and Irrigation

(6) Draught Prediction and Water Management

(7) Illicit crop monitoring

(8) GIS development

(9) Geo-spatial Data Sets

(10) Image Intelligence and National Security

International Research for Prevention and Mitigation of Meteorological Disasters in Southeast Asia

Risk of high-impact weather is increasing due to:

- economic development and urbanization
- global warming and climate change

- Probability information obtained by ensemble Numerical Weather Predictions is critical to the development of decision support tools

Research environment is rapidly changing due to:

- growth of computer power
- improvement of internet infrastructure

Collaborating countries:

Japan
Indonesia
Philippines
Thailand
Cambodia
Laos
Vietnam
India
Bangladesh
Korea
Singapore
China
Malaysia

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Other possible application areas not previously mentioned

- Climate change, meteorology, environmental monitoring
- Link with Grid initiatives, computing and data repository sharing
- Emerging infections (bird flu, SARS)
- Bio-informatics
- Agro-informatics
- Astrophysics
- Preservation of Digital Heritage (ADHX)

Critical steps for engagement

- Awareness raising – what can infrastructure and advanced communications services do to enhance research and societal benefit
- Which discipline areas can most immediately benefit (exemplars)
- Identifying discipline-based champions (characteristics & skill-sets)
- Engaging facilitators (understanding of research requirements and opportunities for exploitation)
- Convincing funding agencies of the wisdom of investing in both infrastructure, applications and collaboration environments
- Getting the balance right between research, education and societal benefit
- Managing time zone differences for international real-time collaboration

Engaging User communities (South Asia)

Mode of engagement	
Undertake surveys	3
Conduct forums/meetings	5
Newsletters	0
Set up sub committees	1
Work through HEC or equivalent	3
Discussion meetings with high level committees representing user organisations	3

Surveys to gain feedback