



Asia-Pacific
Economic Cooperation

2006/HRDWG/SYM/014

Agenda Item: 13

National Research-Education Network TEIN2- VN/VINAREN and Applications

Purpose: Information
Submitted by: Vietnam



**APEC Symposium on Open Source
and Open Course for E-Learning
Ha Noi, Viet Nam
4 - 6 December 2006**

Abstract

Prof .Nguyen Ngoc Binh

We briefly introduce an international project for Trans-Eurasia Information Network (TEIN) since 2000 by ASEM3 (TEIN1) and then since 2004 by ASEM5 (TEIN2). We focus on the TEIN2's implementation, activities and benefits for the member countries in ASEM. Then we talk about Vietnam's participation by TEIN2-VN and establishing the Vietnam Research and Education Network (VinaREN) with a number of applications, including e-learning, telemedicine, etc. TEIN2-VN/VinaREN is a good ICT infrastructure for R&E institutions."



APEC IT Symposium on
 “Open Source and Open Course for E-Learning”
 Hanoi, Vietnam
 Dec. 4 - 6, 2006

National Research-Education Network TEIN2-VN/VinaREN and Applications

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- Vietnam’s Activities: Applications in e-Learning, e-Health, e-Medicine, ...
- Conclusions



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About the TEIN Initiative



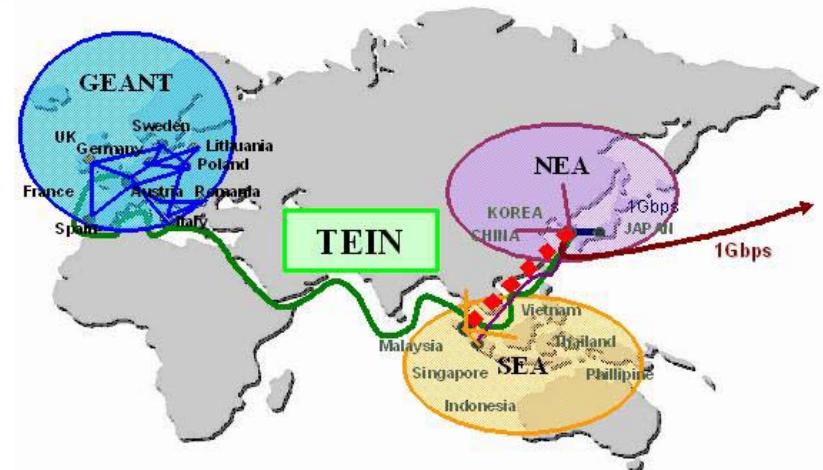
- TEIN: Trans-Eurasia Information Network
- Proposed by the 3rd ASEM Summit in Oct. 2000
- Dec. 2001: Euro-Asia Interconnectivity by **RENATER** (“Le Réseau National de Télécommunications pour la Technologie, l’Enseignement et la Recherche”, <http://www.renater.fr>), sponsored by France, and **KISDI** (Korea Information Strategy Development Institute, <http://www.kisdi.re.kr>), Korea, initially 2Mbps, then 34Mbps
- Nov. 2003: EC offered a support of 10M Euro for the TEIN2 as next step of the TEIN
- Jan. 2004: Meeting by ASEM Representatives for TEIN2 (Governmental Officers, Experts, Researchers, NRENs)
- May 2004: The 1st Meeting of Technical Committee of TEIN2



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TEIN: Where and What?



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Outline about the TEIN2



- Positive Conditions:
 - Successes of the TEIN between France and Korea (Pre-TEIN2)
 - EC support the Developing Countries in ASEM
 - Based on the TEIN Initiative between Asia and Europe



Outline about the TEIN2



- Goals:
 - Improve the Asian-Euro backbone
 - Provide the Asian-Euro backbone
 - Establish the equal conditions in accessing the resources of National Research Educational Networks (NRENs)
 - Create a S&T collaboration on the ICT base
 - Reduce a digital divide among ASEM countries



Outline about the TEIN2



- Some main members
 - DANTE is main body and manager of this project
 - DANTE www.dante.net of European NRENs (National Research and Education Networks): Delivery of Advanced Network Technology to Europe
 - Under a Contract of 12.5 M Euro (EC support 9.75 M Euro)
 - 6 Beneficiaries: China, Indonesia, Malaysia, Philippine, Thailand, and Vietnam (should pay of 20% of the cost)
 - Others (by their full costs): Japan, Korea, Singapore, Australia, Brunei, Taiwan, ...
 - France, UK, Holland, Sweden, France, Germany, ... from EU
 - Observer and Supporter: US



Plan of the TEIN2



- 2 phases
 - F/S Phase (phase 1)
 - Implementation Phase (phase 2)
 - Phase 2A: Preparation, Implementation
 - Phase 2B: Operations



Plan of the TEIN2



- Phase 1: F/S
 - Time: About 6 months
 - Tasks:
 - Surveys
 - Defining and Contacting the Participants
 - Experiences Sharing
 - Establishing partners collaborations
 - Collecting “Letters of Commitment”
 - Establishing a Policy Committee of TEIN2
 - 1st TEIN2 Meeting at Kuala Lumpur, May 2004
 - Starting Phase 2, if Phase 1 is accepted by EC



Plan of TEIN2



- Phase 2A: Preparation and Implementation
 - Equipment Procurement:
 - The rules of EU
 - No fixed solutions
 - Discussions with Providers
 - Financial Supports from non-beneficiaries Countries (Japan, Korea, Singapore, Brunei, Australia, ...)
 - Design
 - Implementation:
 - Equipment Installation and Testing
 - Connectivity Establishment
 - Skill Training for Network Operations Centre (NOC)



Plan for TEIN2



- Phase 2B: Operations
 - Operation Management
 - Study on Sustainable Development Plan
 - Technical Support
 - Applications
 - Academic resources from TEIN2 countries’ Institutions (more than 3500 institution resources) for e-Learning and R&D Databases
 - E-Learning and OCW among the members’ Institutions
 - Distance Learning, Conferencing by Video-Conferencing
 - Telemedicine
 - E-Culture, e-Health, e-Business, e-Library, e-Government, e-*
 - SGI: Grid Computing, HPC, Bio-Informatics, ...
 - Collaborations with other Network Organizations (APAN, AI3, NRENs, Internet2 of US, ...)

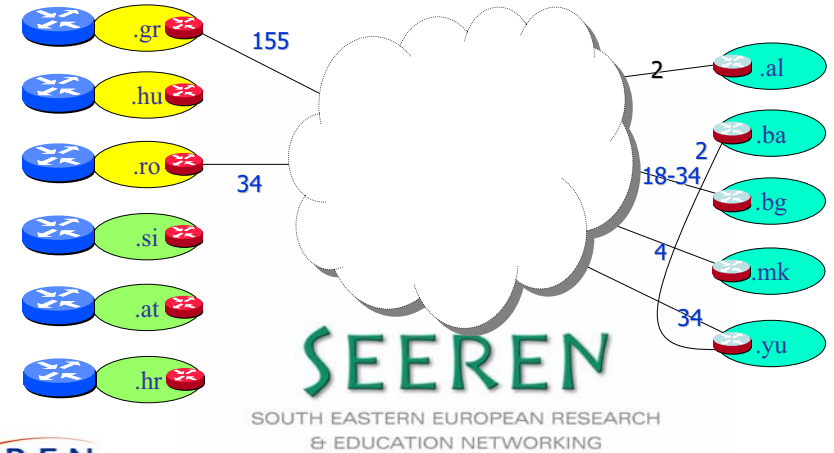


Expected Schedule of TEIN2

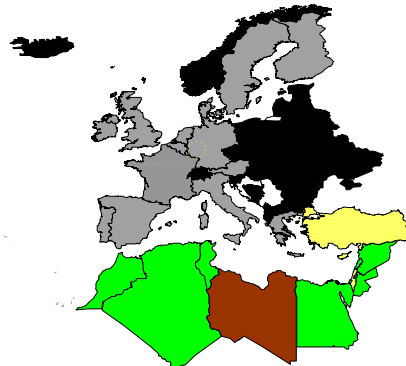


- DANTE www.dante.net is one of the European NRENs (National Research and Education Networks)
- DANTE has implemented a number of internet projects in Europe and Areas:
 - SEEREN (South Eastern European Research & Education Networking)
 - EUMEDCONNECT (Euro-MEDiterranean Information Society)
 - ALICE (America Latina Interconectada Con Europa)
 - Operating the GÉANT (NREN of 26 National R&E Networks from Europe)

- Implemented Internet Projects as SEEREN www.seeren.org



- Implemented Projects: EUMEDCONNECT www.dante.net/eumedconnect
 - **Connected Countries:**
 - CYPRUS
 - ISRAEL
 - MALTA
 - Thổ Nhĩ Kỳ (155M)
 - **Beneficiaries:**
 - ALGERIA (45M)
 - EGYPT
 - JORDAN
 - LEBANON
 - MOROCCO (45M)
 - PALESTINE
 - SYRIA
 - TUNISIA (45M)



- Implemented Project: ALICE www.dante.net/alice
 - 6/2003 – 5/2006
 - Phase 1: Planning and equipment -> 2/ 2004
 - Phase 2: Implementation and Operations -> 5/2006
 - Europe - Latin America Connectivity with 622Mbps (STM-4/OC12)
 - Internal Connectivity
 - 52Mbps (STM-1/OC1) or
 - 45Mbps (DS3/T3)
 - Participants: 18 countries in Latin America





TEIN2 Participation of Vietnam's R&E Communities



- Lawful Fundamentals
 - As a TEIN2 Expected Beneficiary
 - VAST, HUT, VNU... are Key Institutions in S&T for TEIN2 Activities
 - Good Relations with other Organizations in the Region
 - AI3, Japan, and ASEAN
 - APAN of Asia-Pacific Areas
- Technical Abilities
 - MOST: Managing Ministry in S&T, R&D
 - VAST, HUT, VNU ... are Leading Institutions in Vietnam
 - VAST, HUT, VNU ... are with Good Staff and Int'l Relations
 - Many Institutions in VN are Interested in this TEIN2-VN: Hanoi, HCMC, VNU, MOET, HCMC-UT, Danang UT, CanTho U.. and Others



Vietnam's Benefits from TEIN2



- Asia-Europe Connectivity of 45 – 155Mbps by TEIN2 (at beginning, but implemented: 3 x 622Mbps + more)
- Up to 80% of the funding by EC till Dec. 2007. In addition, there will be a sustainable development among ASEM countries
- Good chances for Collaboration among the TEIN2 members:
 - NRENs in Europe, Asia and other Areas
 - Improvement of ICT Infrastructure and R&D and Education
 - ICT-based R&E Projects in any Fields



Some Good Case Studies by TEIN2



- **Chungnam Univ.**, Korea: Project “Water quality models” with Medicine Univ. and Institutions in Denmark
- **Univ. of Bio-Medicine Technology, Enje Univ.**, Korea: Project on Teledermatology with Europe and China
- **Kunkook Univ.**, Korea: Project for Mobile IPv6 with NRENs in France and Belgium
- **Soongsil Univ.**, Korea: Project of AGEDIS (Automated Generation and Execution of Test Suites for Distributed Component-based Software) with Germany



Vietnam's Preparations for TEIN2



- Mar. 6, 2004: Meeting between the Institute of IT (IOIT) and Hanoi Univ. of Technology (HUT) to Consider a possibility to participate into the TEIN2 project.
- Apr. 4, 2004: HUT President Submitted A Request to the Minister of MOET to ask for signing “Letter of Interest” in TEIN2 and send to DANTE
- Apr. 12, 2004: The MOET Minister Signed the Letter and Recommended 2 Representatives from Vietnam to DANTE: Mr. Nguyen Ngoc Binh (HUT) and Mr. Tran Ba Thai (IOIT)
- Procedures for Participating the 1st Meeting of TEIN2 in Kuala Lumpur (KL), May 20-21, 2004



TEIN2-Meeting1



- May 20-21, 2004, KL, Malaysia
- Participants
 - 6 Beneficiaries (CN, ID, MY, PH, TH, VN)
 - The EU Ambassador in KL
 - APAN, NII (JP), KISDI, DANTE, Australia, SG,...
- Contents:
 - TEIN2 Logistics
 - Project with 2 Phases:
 - Pilot phase: for 6 months, till the end of 2004.
 - Implementation phase: 2 steps with Phase 2A for Preparation (till Oct. 2005), and Phase 2B for Operations since 2006
 - Bandwidth 155 - 622Mbps
 - Current status of other Networks in the region
 - Commitment Request to each government



TEIN2-Meeting2



- July 2-3, 2004. Cairns, Australia
- Participants: 21 people
 - CERNET (CN): 4 people
 - MECM, MDC, UPM (MY): 4 people
 - DANTE (EU): 2
 - KISDI (KR): 2
 - NICT (JP): 1
 - ITB (ID): 1
 - NECTEC (TH): 2
 - SingAREN (SG): 1
 - AARnet (AU): 1
 - AIT (APAN): 1
 - ASCC (TW): 1
 - SURFnet (NL): 1
- Contents:
 - Connectivity Request of Each Country
 - Current Status of NREN in each Country
 - Cost Sharing Model
 - Connectivity Registration (Mbps): CH (2.5Gb); KR (622Mb); VN (45Mb); Others (45 – 155Mb)



TEIN2-Meeting3



- Sep 19-20, 2004. Beijing, China
- All Countries as of Meeting 2
- Contents:
 - Overview TEIN2
 - Implementation Plan (Phase 2A) and Procurement
 - Statement to ASEM5 Meeting in Hanoi
 - Meeting2 Minutes
- Each Country Submitted LOI (Letter of Intent) with 12K Euro Contribution



Vietnam's Important Progresses



- Oct. 2004: ASEM-VN Asked Ministries and Organizations about Interests and Participation of VN into TEIN2
- Nov. 2004: All Answers are positive: "Should Participate"
- Dec. 16, 2004: The Government Office Issued Decision # 6880/VPCP-HTQT with the Deputy Prime Minister's Opinions: Vietnam must participate into the TEIN2 and Nominated the Ministry of S&T (MOST) as the Managing and Leading Body of TEIN2-VN with participation of other Ministries and Institutions
- Jan. 7, 2005: the MOST signed the **LOI and 12K Euro Contribution**. VN Representatives: Mr. Le Thanh Binh (MOST) and Mr. Nguyen Ngoc Binh (HUT; ColTech-VNU)



TEIN2-Meeting4



- Jan. 24, 2005. Bangkok, Thailand
- Participants: 26 people (+Laos and France)
- Contents
 - Pre-F/S for TEIN2
 - Technical Support of each Country
 - Sustainable Development after 2008
 - Country Members Suggested Sub-Contractors to DANTE



TEIN2-Meeting5



- Mar. 17, 2005. Singapore
- Participants: 31 People
- Contents:
 - International Connectivity Procurement Procedures (24 Tenderers)
 - Technical Surveys on NOC in each Country
 - Sustainable Development of TEIN2
 - Establishment of TEIN2 Engineering Task Force (TETF) of each Country
 - VN: Recommended 4 Sub-Contractors (VDC, VTI, VPT, Viettel). Price is too high in VN for 45 Mbps



Vietnam's Actions



- The MOST Established the TETF-VN by Decision #1374/QĐ-BKHCHN on May 31, 2005:
 - Prof. Nguyễn Ngọc Bình, HUT-MOET (now at VNU), Head of the Task Force
 - Senior Eng. Trần Bá Thái, IOIT-VAST
 - Dr. Nguyễn Kim Khánh, HUT-MOET
 - ME. Ngô Mạnh Dũng, HUT-MOET
 - ME. Nguyễn Hoàng Trung, IOIT-VAST
 - Dr. Trần Quang Anh, HU-MOET (Nov. 2006)
- Plans for NOC-VN and Activities of TEIN2-VN for 2005, 2006, 2007-2008, ...

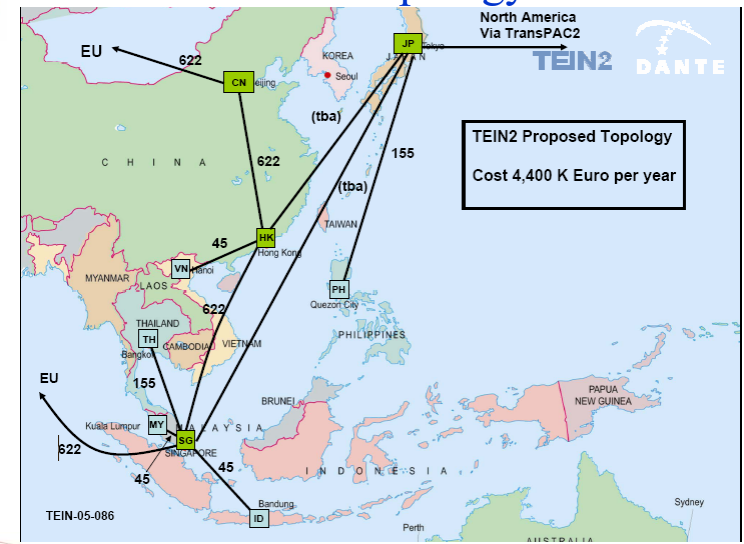


TEIN2-Meeting6



- May 19-20, 2005. Seoul, Korea.
- Participants: 34 people (TC+TETF)
- Contents:
 - Connectivity Topology
 - Progresses in Procurement Procedures and NOC
 - NOC Training Programs
 - Sustainable Development
 - VN: Asked for 155Mbps since 2007 (CN: 2.5Gb, ID: 45Mb; SG; 155Mb)

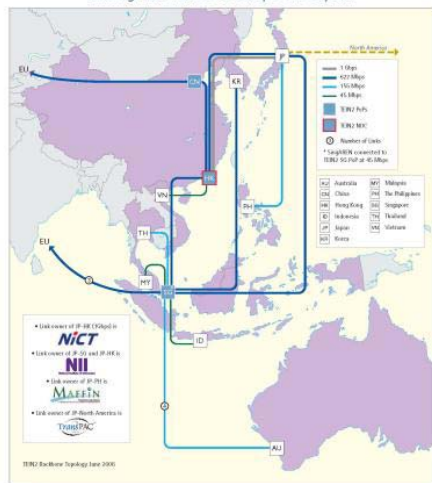
- July 20-22, 2005. Tokyo, Japan
- Participants: 38 people
- Contents:
 - Decision of the TEIN2-topology
 - Connectivity of each Country
 - NOC Training Programs
 - Sustainable Development?
 - LOC/LOI for Phase 2B of TEIN2, Commitment for a Contribution of up to 20% of the Total Cost for VN



- Sep. 26-28, 2005, HongKong
- Participants: 36 people
- Contents:
 - Confirmation of the TEIN2 Topology with other Networks (APAN, KISDI, NII, CERNET, ...)
 - Connectivity Procedures
 - Sustainable Development?
 - NOC Training Reports
- After the Meeting till now: TEIN2-VN Board
 - Departments of MOST (Minister's Office, HiTech, Int'l Relations, Planning & Finance,...)
 - Ministries Representatives (MPT, MOF, ...)
 - VAST, MOET, VNU, ...
 - HUT (MOET), IOIT (VAST), ColTech (VNU)
 - Weekly Meeting with Detailed Action Plans

- Jan. 23-24, 2006, Tokyo, Japan (with APAN meeting)
- Participants: 45 people
- Contents:
 - Fixed the TEIN2 Topology with other Networks (APAN, KISDI, NII, CERNET, ...)
 - Sustainable Development?
 - TEIN2 Launching: Tokyo-HongKong-Singapore-Europe
 - NOC Training Reports
- Vietnam?
 - Will Host the TEIN2-Meeting10 in Halong, Summer 2006.
 - Launching of TEIN2-VN/VinaREN to TEIN2

Final TEIN2 Topology



TEIN2-Meeting10

- Jun. 6-8, 2006, Halong Bay, Vietnam (with ASEM SOM Meeting)
- Participants: 42 people
- Contents:
 - TEIN2 Demonstration to ASEM SOM meeting
 - TEIN2-VN/VinaREN Launching: VinaREN Connected to TEIN2 on June 8, 2006.
 - Successful Demos
- Action Items:
 - ThaiSARN connection?
 - Sustainable Development? → TEIN3?

Launching of TEIN2-VN/VinaREN

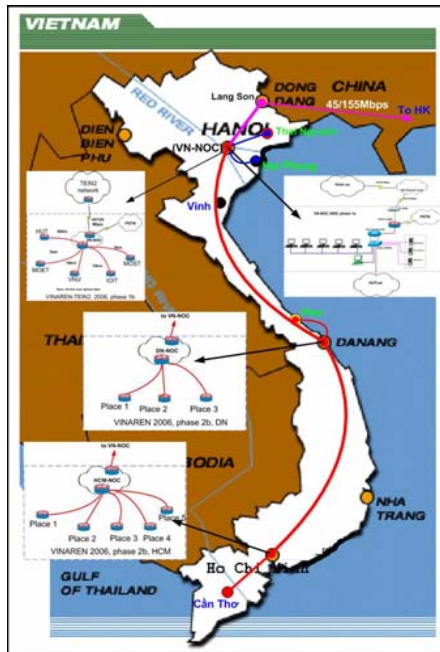
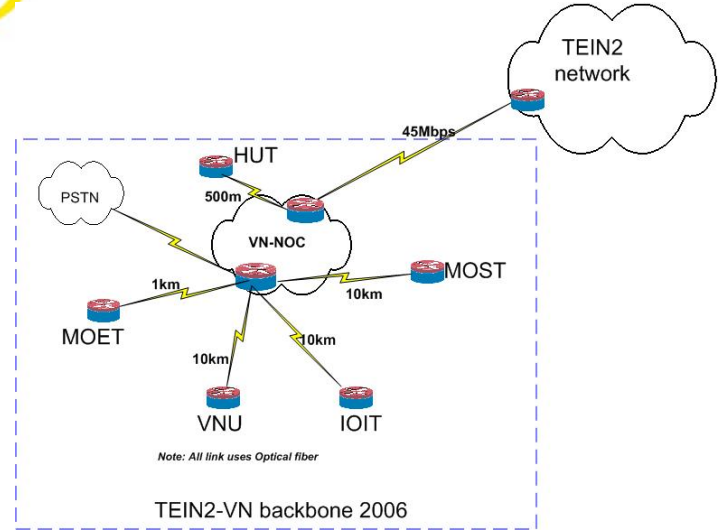
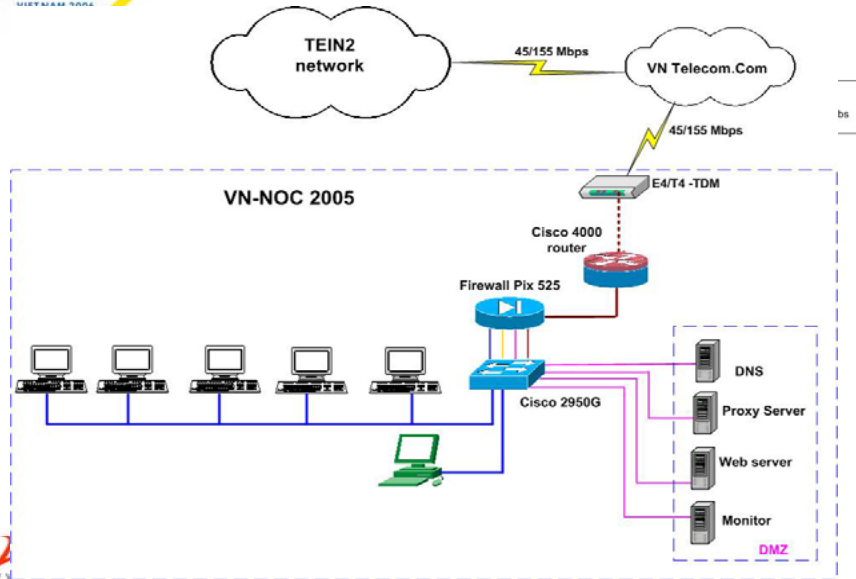


TEIN2-Meeting11

- Nov. 29 - Dec. 2, 2006, HongKong
- Participants: 38 people
- Contents:
 - TEIN2 NOC updates (HK)
 - NRENs NOC updates
 - Technical Issues
 - TEIN2 measurement and trouble ticket procedure
 - TEIN2 Routing discussion
 - TEIN2 IPv6 and multicast solution discussion
 - TEIN2 high performance application support discussion
 - Possible demo for ASEM ICT Ministers meeting in Hanoi (Dec. 1, 2006)
 - ThaiSARN connected to TEIN2 on June 20, 2006 at 155 Mbps
 - Laos was Accepted as a Beneficiary Country
 - TEIN3 proposal (Since Apr. 2008 – Dec. 2011)
 - TEIN3 Commitment from each Country

- In some phases
 - Phase 1A: Int'l Connectivity to NOC-VN at HUT: 45Mb then 155Mb
 - Phase 1B: Domestic Connectivity from NOC-VN at HUT to VAST, MOET, MOST, VNU, etc. in Hanoi (6/2006)
 - Establish the **V**ietnam **R**esearch and **E**ducation **N**etwork (VinaREN). The name was proposed by Minister Hoang Van Phong on Aug. 3, 2005.
 - Phase 2A: NOCs in HCMC, Danang, Hue, and CanTho (NOC-HCM, NOC-DN, NOC-Hue, NOC-CT) (03/2007)
 - Phase 2B: Extensions to other Institutions 15 + 10 + 5 Points (6/2007)
 - Phase 3A: Extension to 50 Institutions. Expansion of the Connectivity if allowed by TEIN2 (12/2007)
 - Phase 3B: Sustainable Development, Expansion to others
- Detailed Plan for 2005-2007 with 3.7M USD
- MOST, HUT, IOIT, VNU, ... actively prepared all conditions for TEIN2-VN/VinaREN

- The 1st National Symposium on TEIN2-VN and VinaREN in Dec. 3, 2005
- 70 participants from 40 Institutions/Centers
- All participants Asked to Implement and Develop TEIN2-VN/VinaREN Project
- Main Issues:
 - Management?
 - Contents?
 - Costs?
- MOST Agreed to Implement the TEIN2-VN/VinaREN



- **Open Source Based Platform and Environment** (OS, Network Tools, StarOffice, Open Office, e-learning platforms with OSS-LMS/LCSM/OCW, ...)
- **Operation and Maintenance by the Leading Institutions** (IOIT, HUT, VNU, ...)
- **Experience Sharing with other NOCs, NRENs for the most advanced Solutions and Technology**
- **Focus on the Effectiveness and Efficiency of the Project**
 - Connectivity from NOC-VN at HUT to most Important Institutions: VNU, MOET, MOST, VAST, NHP, Hanoi Medicine Univ., BachMai Hospital, and Other Research Institutes for H5N1, BirdFlu&SARS, Disasters Management, Environment Studies, Grid Computing, HPC, ...
 - Video Conferencing for Intl R&E Activities
 - Cost Sharing Model for Sustainable Development of the VinaREN after TEIN2. TEIN3-VN by TEIN3 of ASEM



TEIN2-VN/VinaREN Applications



Video Conferencing

1. Halong meeting TEIN2 10th, June 2006
2. Vietnam-Thailand Science Technology celebration day
3. AI3 & SOI Asia e-Global workshop
4. SARS and Bird Flu Teleconference (HMU and Melbourne Royal Children Hospital)
5. HUT-KEIO Video Conferencing
6. Telemedicine using VC between National Hospital for Pediatrics (NHP) and Melbourne Royal Children hospital (RCH)
7. TEIN2 NRENs on 22nd Nov
8. Other VC and tele-ichnography



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1. Halong meeting TEIN2 10th

(6th-8th June 2006)



- Overview: Halong meeting TEIN2 10th
- Purpose:
 - TEIN2 official launching with e-Culture demo, Telemedicine demo
 - TEIN2-VN/VINAREN launching
- Members:
 - TEIN2-VN: Halong meeting venue, NOC-VN, IOIT, NACESTI, NHP
 - NRENs: KoREN, MyREN
 - Oversea Institutions: Melbourne Royal hospital (Au), Kyushu University Hospital (JP)
- Solution: Point to multipoints
- Equipment:
 - Halong: Sony IP camera (PCS - G70, MCU):
 - Melbourne Royal hospital: Polycom IP camera (MCU)
- Bandwidth usage: 2Mbps
- Environment: TEIN2



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Halong meeting TEIN2 10th DEMO schedule

(8th June 2006)



- 16:15 - 16:45: Launching of TEIN2 network in Vietnam and VinaREN
- 16:50 - 17.15: Telemedicine Australia/Vietnam
- 17:20 - 17:45: Telemedicine (HDTV) from Japan (Kyushu University Hospital)
- 17:50 - 18:15: E-culture Show from Malaysia



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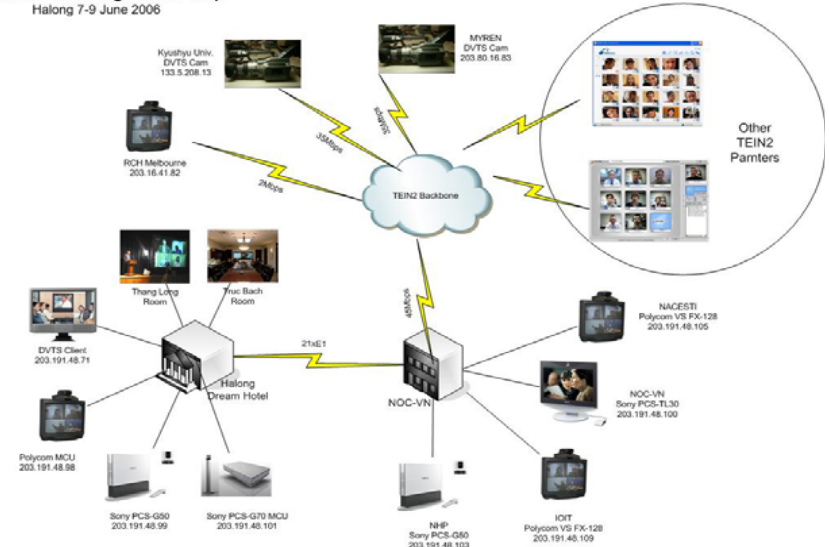


VC and DVTS at Halong Model and Configuration

(6th-8th June 2006)



TEIN2 10th meeting demos map
Halong 7-9 June 2006



1. Video Conferencing evaluation:

a. Advantage:

- Flexible, easy to use (just need IP), software is unnecessary
- Point to multipoints
- High availability (24/24)
- Low bandwidth needed (2Mbps)
- Quality: Acceptable for normal meeting, Teleconference

b. Disadvantage

- Video and Audio quality is not very good

c. Trouble shooting

- Difference IP camera vendors => have to discuss and adjust, synchronize Video/Audio coding standard (Ex. Polycome and Sony IP cameras)

2. DVTS (Digital Video Transport System) evaluation:

a. Advantage:

- Flexible, easy to use, free software (just need Client IP)
- Point to point (Client/Server)
- High availability (24/24)
- Quality: Smooth, very good for special applications (Telemedicine)

b. Disadvantage

- High bandwidth needed: 30Mbps/1 flow

c. Trouble shooting

- Server side has to choose PAL/NTSC DVTS software for suitable PAL/NTSC Digital Video Camera

- Overview: Vietnam-Thailand Science Technology celebration day
- Purpose: discussion and cooperation proposal, sharing experience between NRENs
- Solution: Point to point
- Members: NACESTI (MOST) and ThaiSARN
- Equipment:
 - NACESTI (MOST): Sony IP camera (PCS-G50)
 - ThaiSARN: ...
- Bandwidth usage: 2Mbps
- Environment: TEIN2
- Video/Audio quality: acceptable, no interruption



2006.6.20

Kyushu U Hosp

Bangkok venue

VIDEO CONFERENCING: Halong, AARNET, NOC-VN, HNP, ...



3. AI3 & SOI Asia e-Global workshop

(October 9th - 12th, 2006)

- October 9th, 2006 (MON): 10:30 - 16:00 (West Indonesian Time GMT+7)
[AI3 / SOI Asia joint Operator Meeting](#)
- October 10th, 2006(TUE): 9:00 - 18:30 (West Indonesian Time GMT+7)
[AI3 / SOI Asia site updates and AI3 research presentations / WGs](#)
(No Broadcasting for SOI Asia Steering Committee)
- October 11th, 2006 (WED): 9:00 - 17:00 (West Indonesian Time GMT+7)
[AI3 10th Anniversary & SOI Asia 5th Anniversary Joint Celebration](#)
- October 12th, 2006 (THU): 9:00 - 16:30 (West Indonesian Time GMT+7)
[AI3 and SOI Asia Joint Directors Meeting](#)

3. AI3 & SOI Asia e-Global workshop

(October 9th - 12th, 2006)

- Overview: AI3 & SOI Asia workshop and e-learning
- Objectives
 - To achieve sustainable operation of SOI-Asia project
 - To train SOI-Asia operators to be able to operate SOI-Asia network , server and classroom environment (IPv6, SOI-AI3 network topo, Router configuration, SOI server management by hand-on experience)
- Action/Solution: Point to multipoint (broadcast the AI3 & SOI Asia Joint meeting 2006 Autumn using VIC/RAT and IRC)
- Members:
 - Vietnam: HUT, IOIT, VNU
 - Oversea: Keio university and SOI members (UCSY, ASTI, BUET, CHULA, ITB, ITC, TU, UNHAS, UNIBRAW, UNSRAT...)
- Equipment: Video Camera
- Bandwidth usage: 140Kbps/flow (Video+Audio)
- Environment: TEIN2
- Video/Audio: Using VIC/RAT (OSS) acceptable quality, suitable for low bandwidth environment

4. SARS and Bird Flu Teleconference (HMU, NHP, Kyushu Hospital, Nagasaki Hospital and Melbourne Royal Children Hospital)

(28th Oct 2006)

- Overview: SARS and Bird Flu Workshop
- Purpose: discussion and cooperation proposal
- Solution: Point to point
- Members: HMU, Melbourne Royal hospital, NOC-VN
- Equipment:
 - HMU: Sony IP camera (PCS-G50)
 - Melbourne Royal Children Hospital (RCH): Polycom IP camera
 - HUT: Sony IP camera (PCS-G50)
- Bandwidth usage: 2Mbps
- Environment: TEIN2
- Video/Audio quality: HMU-HUT is acceptable



- Overview: Meeting HUT's Rector and HUT professors, other points are observers
- Purpose: Technical Demo and TEIN2's utility
- Solution: Video Conferencing (using Open Source Software - VIC/RAT): Point to multi-points
- Members: Keio Univ, HUT, AIT, IOIT
- Equipment:
 - HUT: Sony DVcam
 - Keio Univ, AIT, IOIT: Polycom DVcam
 - Bandwidth usage: 141Kbps
- Environment: TEIN2/VINAREN + SOI/AI3

- **Advantage:**
 - Point to multipoint
 - Free OS Software
 - Low bandwidth needed
 - IPv6 application
 - Suitable for low bandwidth environment
- **Disadvantage**
 - Acceptable (not high) Video/Audio quality
 - Good Video Camera needed
- **Trouble shooting**
 - One point increase Video/Audio quality => Affect Audio/Video quality of other points.
 - Delayed and lost Video, only Audio works

- Overview: In general program of International Pediatric Science Conference at HNP, 21st Nov 2006
- Purpose: disease diagnosis
- Solution: Point to point
- Equipment:
 - NHP: Sony IP camera:
 - Melbourne Royal hospital: Polycom IP camera (MCU)
- Bandwidth usage: 2Mbps
- Environment: TEIN2



7. NRENs Video Conference Testing (10AM, 22nd Nov)



- 08:45am KOREN(Korea)
- 09:00am SINET(Japan)
- 09:15am SingAREN(Singapore)
- 09:30am AARNet(Australia)
- 09:45am ASTI(Philippines)
- 10:00am ThaiREN(Thailand)
- 10:15am ITB(Indonesia)
- 10:30am VINAREN(Vietnam)
- 10:45am MYREN(Malaysia)



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8. Other VC and tele-ichnography



- Video Conferencing: Telemedicine between NHP-RCH (8th Sept. 2006)
- Tele-ichnography: NHP-France (Oct. 2006)
- Etc.



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TEIN2-VN/VinaREN for You



- Membership/Connectivity: by Your Institution to
 - NACESTI, MOST (24 Ly Thuong Kiet, Hanoi, Vietnam)
 - Dr. Ta Ba Hung (bhung@vista.gov.vn)
- Technical Support:
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TEIN2 Brochure



Project Partners

The TEIN2 project is co-ordinated by DANTE, a not-for-profit organization which currently operates regional networking projects in Europe, Latin America and the southern Mediterranean rim. For TEIN2, DANTE is partnered by RENATER, SURFnet and UKERNA, the National Research and Education Network (NREN) of France, the Netherlands and the United Kingdom, respectively.

The Asian partners are China (CERNET), Indonesia (ITB), Japan (NICT, NII and MARRI), Korea (KISTI), Malaysia (MIRAS), the Philippines (ASTI), Singapore (SingAREN), Thailand (ThaREN) and Vietnam (VINAREN).

The Australian NRENs ANIRnet and NIP-funded TransPAC2 are also actively participating.

The TEIN2 Topology

The diagram below shows the network topology as of June 2005. It comprises three TEIN2 network hubs in Beijing, Hong Kong and Singapore, connected to GEANT2 in Europe via high speed links on northern overland and southern sea cable routes. A fourth TEIN2 hub in Tokyo is managed by NII. In addition, TransPAC2 provides

transit for TEIN2 partners to North America. All other links are being provided directly through the TEIN2 project. Additional research resilience is provided through cooperation with TEIN2 partners, including Korea and China.

Juniper Networks is sponsoring the Internet routing equipment at the TEIN2 hubs. The TEIN2 network is managed by Tonghua University from a purpose-built Network Operations Centre (NOC) in Hong Kong.

ORIENT: A Complementary Initiative

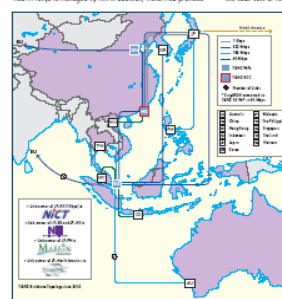
TEIN2 is complemented by the ORIENT project which interconnects China's academic networks and Europe's GEANT2 partners, underpinning research programs such as EuroGrid (grid computing) and EXPAC2 (radio-astronomy). The anticipated potential for synergy will bring significant bandwidth and reliability benefits to the users of both ORIENT and TEIN2.

The Future

The European Commission is contributing €10m (BNW) towards the total cost of TEIN2 (€12.5m) up to the end of 2007.

For the coming years, the overall objective is to maintain and further develop the communications structure, extending the geographical reach and bandwidth capacities of the network, as well as to develop funding models and organizational structures that provide long term stability and sustainability for research networking in the region.

The evolution of the Trans-Eurasia Information Network will therefore aim to ensure seamless continuation of connectivity, to further enhance existing ESI-Asian research and education collaboration, and equip the region to compete effectively in the global research race.



TEIN2



www.tein2.net www.geant2.net www.dante.net www.europa.eu

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