Trans Eurasia Information Network:
3rd Generation Research and Education Networking
Across Asia - A New Bandwidth Market

TEIN-08-005

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PTC Industry Briefing

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D A N T E

Who are we?
Delivery of **A**dvanced **N**etwork **T**echnology to **E**urope Ltd

- A Not for Profit Limited Company, UK-registered
- Our shareholders are Europe's National Research and Education Networks (NRENs)
- We build and operate pan-Europe GÉANT2 serving >30M users on 34 NREN national networks
- Our annual telecoms spends c 30 - 40M Euro, all tendered
- We also manage R&E regional networks outside Europe:
  - North Africa and Middle East (EUMEDCONNECT)
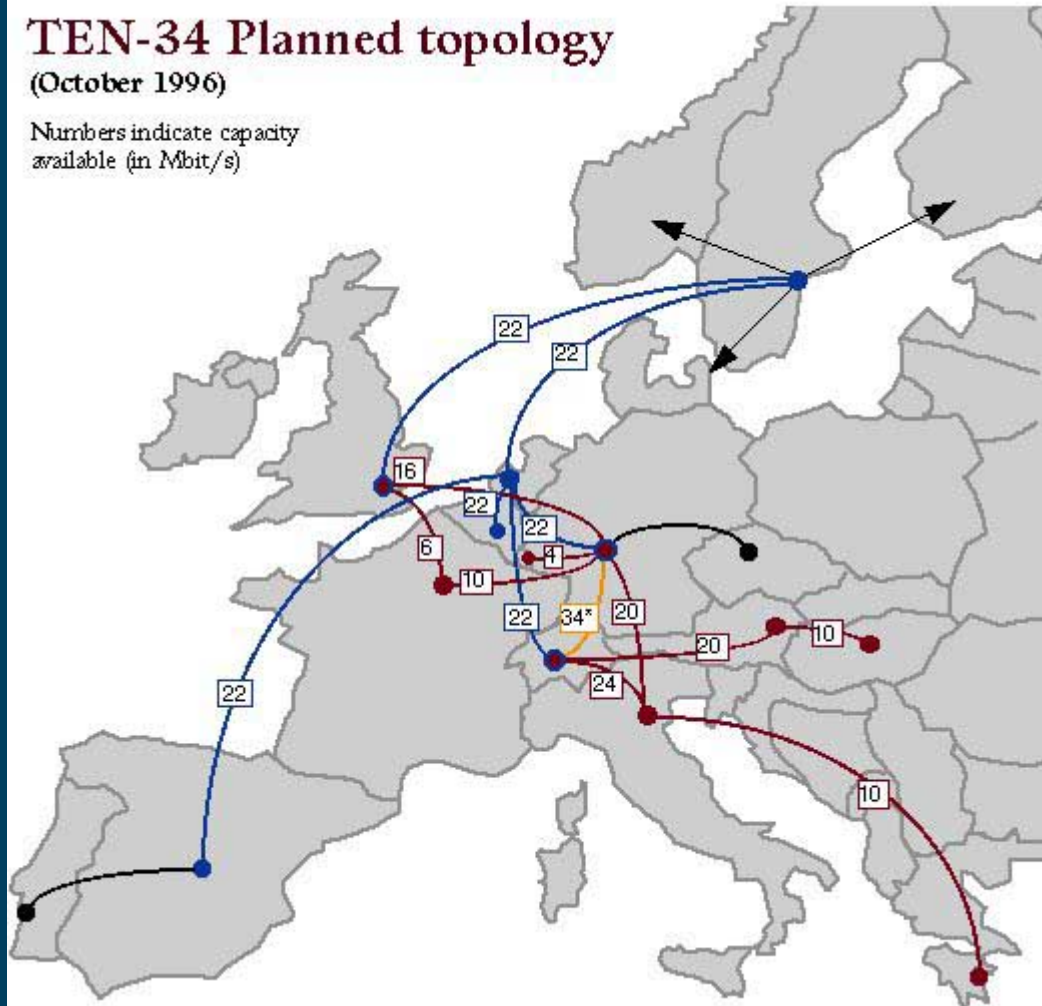 - Latin America (ALICE)
  - Asia (TEIN2)

TEIN3

DANTE
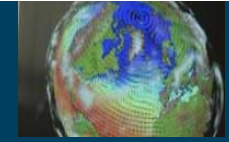
TEN-34 Planned topology
(October 1996)
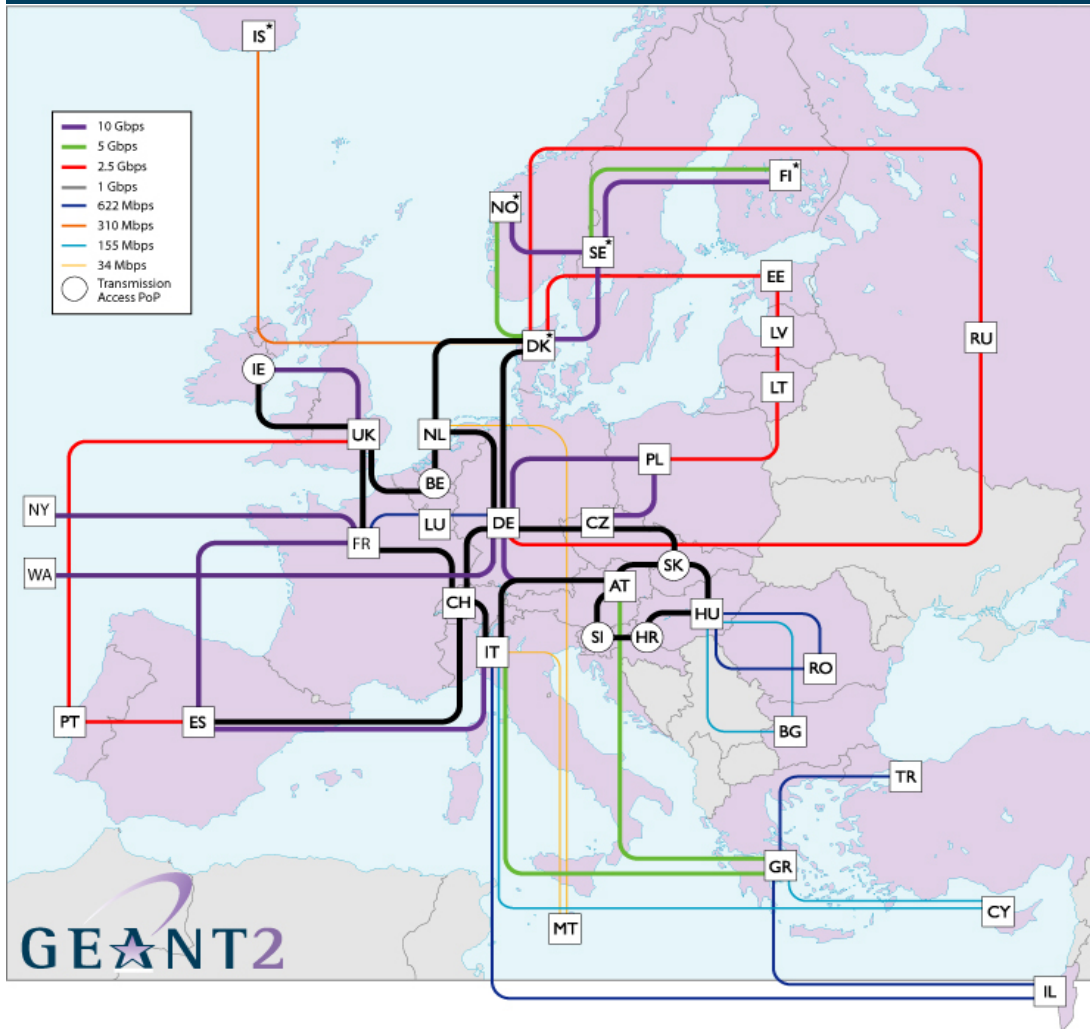
Numbers indicate capacity available (in Mbit/s)

October 1996 Topology

34 MBps backbone

Legend:
- IP subnetwork
- ATM VP subnetwork
- Interconnection point
- Leased line
- Planned connection

Today's Topology

- **25 POPs**
- **Hybrid structure**
- **11600km of dark fibre**
- **Multiple 10Gbps paths**
- **Global connections to other R&E networks**
- **15 Connectivity providers**
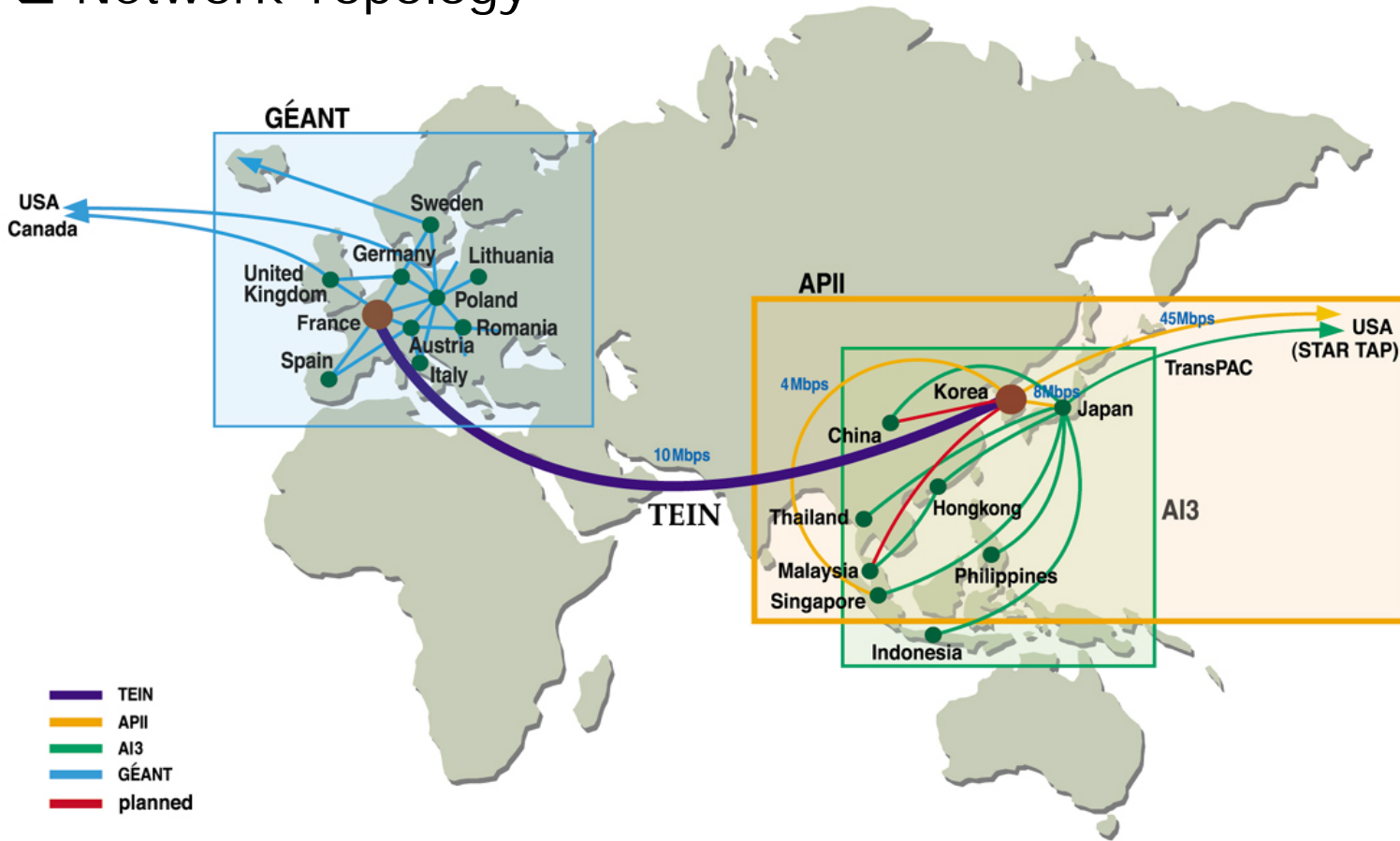
Drivers:
Technology
Cost reduction
User demand

Trans Eurasia Information Network
1st link: Korea- France 2001 (2 Mbps)

❑ Network Topology

TEIN3

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Step-change to TEIN2

- Intra-Asia regional network

- Asia-Europe inter-regional links

- 10M Euro European Commission funding + funding by Asian partner countries

- TEIN2 programme:

  – build and operate regional network,

  – promote network usage,

  – train technical staff in developing countries

  – Reduce digital divide

TEIN3

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TEIN2 Partner Countries/representatives

Asia Pacific:

Australia (AARNet)
China (CERNET)
Indonesia (ITB)
Japan (MAFFIN, NICT, NII)
Korea (NIA)
Lao (LERNET)
Malaysia (MDC)
Philippines (ASTI)
Singapore (SingAREN)
Thailand (ThaiREN)
Vietnam (MOST)

Europe:

France (RENATER)
Netherlands (SURFnet)
UK (UKERNA)
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Also supported by:

TRANSPAC2
Juniper Networks

High Performance Applications
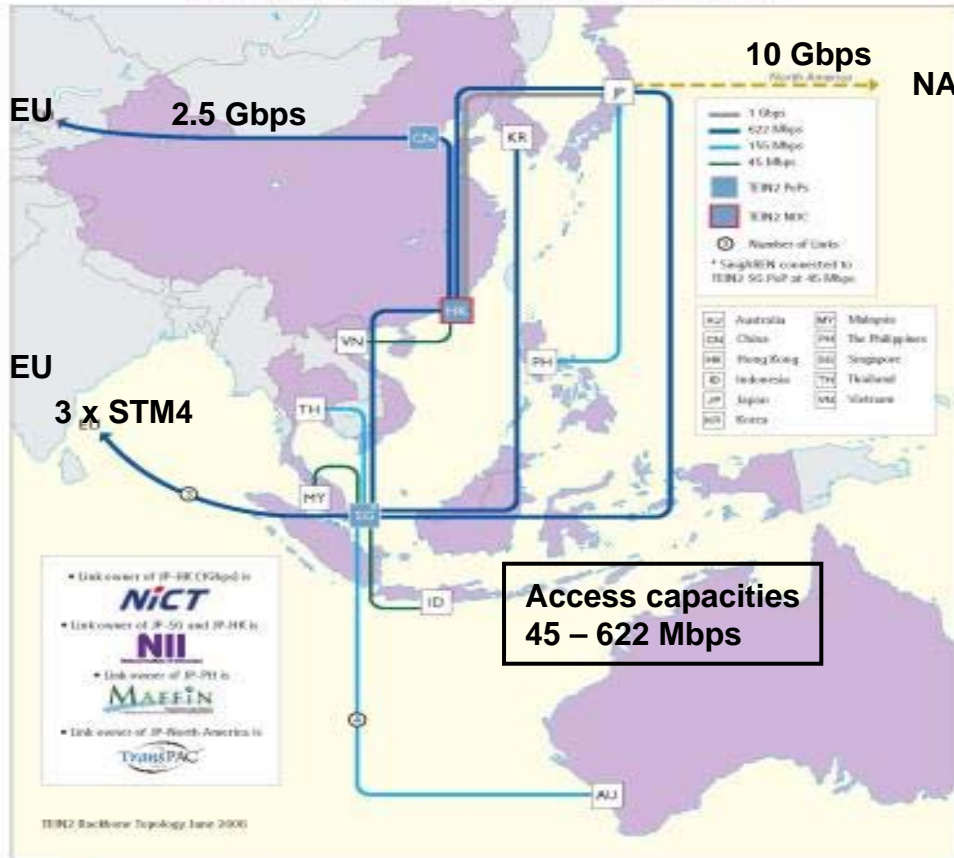
eVLBI 28 Aug 2007
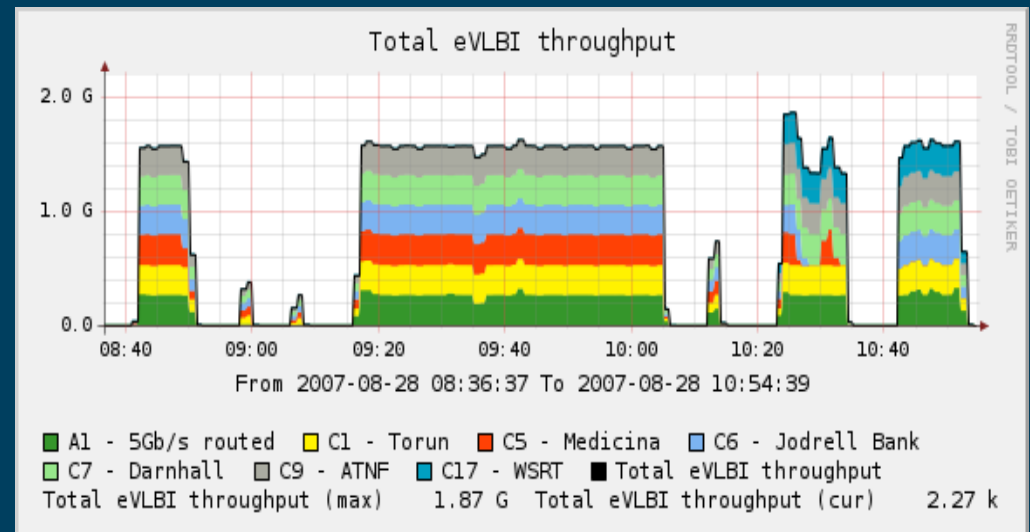
Excellent inter-domain networking performance across

CSTNET + CERNET+ TEIN2 + ORIENT + GEANT2 + SURFNet + AARNet

TEIN2
Regional Connectivity for Asia-Pacific Research and Education
Linking Asia-Pacific to Europe and beyond

TEIN2 network started Jan 2006, connects:

- 30M researchers and students
- 4000 institutions
- 10 countries

PoPs in Singapore, HK Beijing + Tokyo; NOC in HK

Funded to Sept 2008, then……

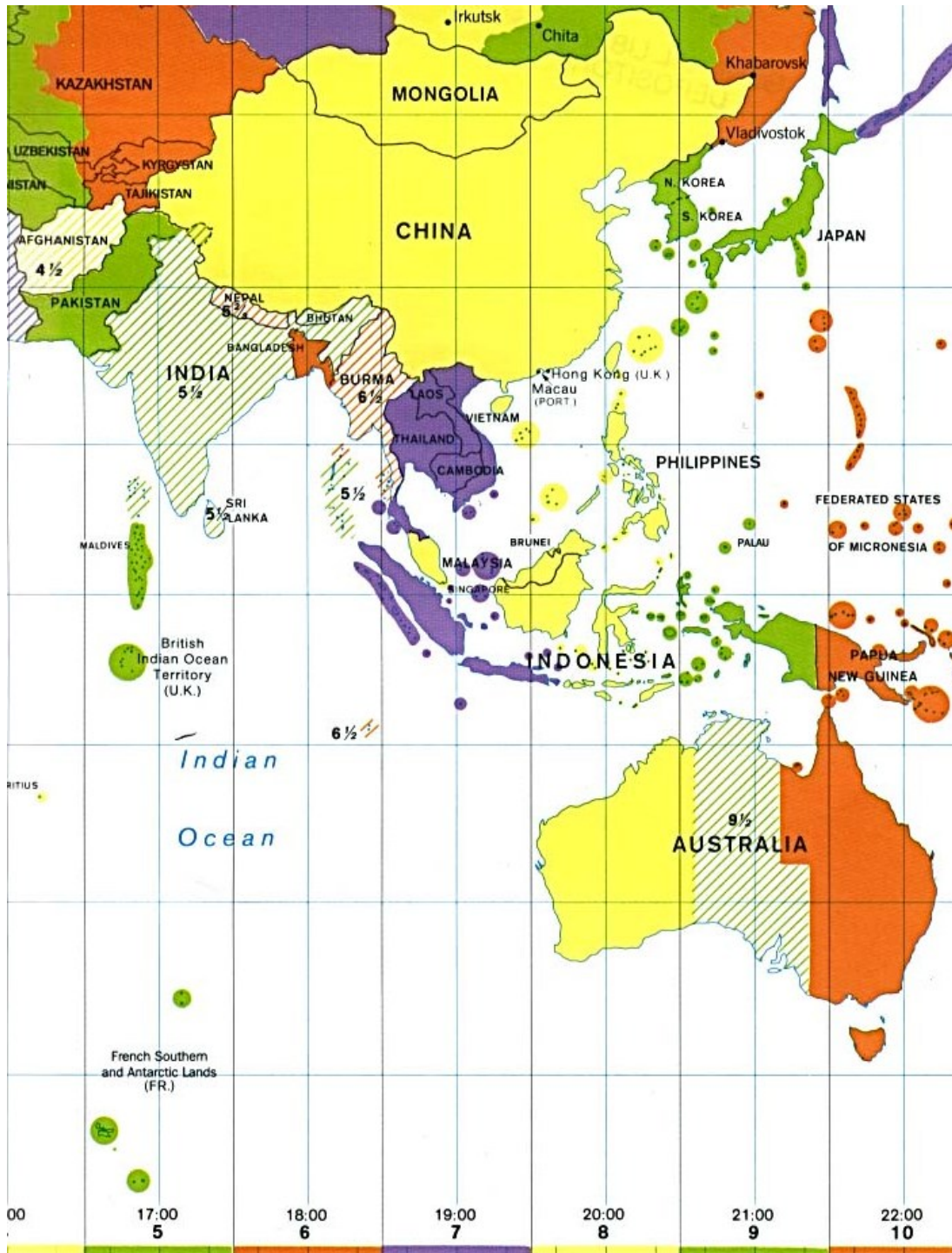# …TEIN3 Network project!

- EC funding committed to end 2011
- Extend to S Asia
- Further support for application development
- Transfer TEIN3 programme to Asian ownership
- Plan for 'TEIN4'

Timezones and Populations

TEIN2:

Member countries represent 1/3 of the world's population in a timezone range spanning only 4 hours

TEIN3

Potential member countries represent almost 60% of the world's population in a timezone range spanning only 6 hours

DANTE

Challenges for TEIN3 tender

- Access to Infrastructure

- Price (not cost) of Infrastructure

- Deregulation and market competitiveness

Affordable connectivity needed for Thailand, Indonesia, Vietnam, Lao (and later for S Asian countries)

TEIN3 Connectivity Requirements

- Asia-Asia and Asia-Europe connectivity

- Whole point to point circuits

- End to End connectivity between specified Asian NREN routers, TEIN3 hubs and GEANT2 hubs

- Replace and upgrade current TEIN2 network

- Gather RFI information for South Asia network expansion

TEIN3 Technology Requirements

Preferred:

- Point to point wavelengths, SDH or PDH circuits
- Terrestrial circuits

Will be considered:

- Layer 2 permanent virtual circuits FR or ATM
- Layer 2 or 3 VPN services
- Satellite (last resort)

Not Wanted:

- Managed IP and Internet Access services

TEIN3 Network Topology

- To be determined from the tender results (not pre-defined)

- Current TEIN2 hub locations to be reviewed

- Europe-Asia links only West from Asia, likely to be 622Mbps, 2.5 or 10 Gbps

- Intra-Asia links likely to be in range 155Mbps to 10Gbps depending on partner needs, affordability by project and partner, and topology requirements

Tender Timescales

March/April 2008:
- Contract Notice published in EU Official Journal and on DANTE website
- Organisations interested in participating in the tender will need to submit Expression of Interest

April/May 2008:
- Initial tender documentation sent to interested organisations

May – Sept 2008
- Tender discussions and negotiations (timetable subject to tender procedure adopted)

September/October 2008
- First Contracts awarded

January 2009
- TEIN3 network starts service

Evaluation Criteria

- Cost of ownership/affordability

- Fitness for Purpose of Solution

- Supplier financial health

- Supplier track record

Contracting

- Tender procedures to be defined

- Number of contracts awarded is negotiable

- All contracts with DANTE initially

- Contract commitments expected to be minimum 12 months, possibly longer

Thanks for your interest/participation in our tender!

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www.tein2.net/