



NGN and xDSL systems deployment



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I. Current situation of Telecommunications and Internet networks

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a. International connection networks:

- ❖ International submarine cable system TVH with the capacity of 565 Mbps, CSC system with the capacity of 2,5 Gbps, the submarine cable system SEA-ME-WE3 with the capacity of 10Gbps



- ❖ Satellite communications systems: Intelsat
- ❖ Establishing channels to US, Japan, Hongkong, Australia, Singapore, Korea, China with total capacity of nearly 2,16 Gbps

b. National transmission networks :

- ❖ North-South backbone transmission network uses DWDM ring with the capacity of 20 Gbps.
- ❖ Inter-provincial networks use optical fiber ring with the capacity of 622Mbps and 2,5 Gbps.
- ❖ Provincial networks use optical fiber and digital microwave with the capacity from 2 Mbps to 155 Mbps.
- ❖ The backbone with the capacity of 10Gbps was deployed in Hủ nẻi and Tp.HCM, and 5Gbps in Hủ nẻng.





Current



C. Achievements (by Feb, 2006)

- Total fixed telephone subscribers: 6,806,000 subscribers.
- Total GSM mobile subscribers: 7,084,000 subscribers, of which Mobiphone Network has 3,302,000 subscribers and Vinaphone Network has 3,782,000 subscribers.
- Internet Users of VNPT: more than 700,000 dial-up subscribers.
- ADSL Users of VNPT: more than 99,000.

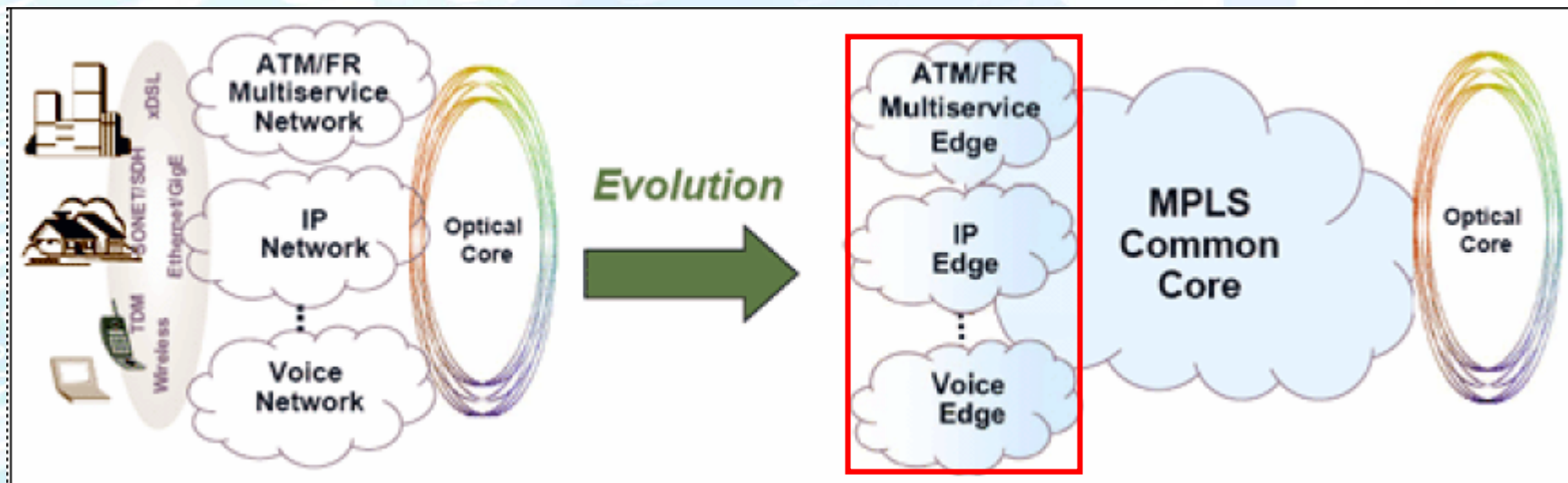


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PE/MSE



1. Requirements:

- ✓ Supplying voice and data services on a unified telecommunications infrastructure
- ✓ Simplifying network structure, minimizing switching layers, open structure with high scalability.
- ✓ Fast deployment of new services.
- ✓ Network structure with high flexibility, high performance has ability to provide services with QoS guaranty.
- ✓ Network structure doesn't depend on geographical administrative organize.
- ✓ Highly centralized management system of network and service.
- ✓ Increasing the competitiveness of VNPT, meeting the demands of customers.

2. NGN Network overview:

❖ Provided xDSL access service, voice, data, multimedia service on unified broadband network.

❖ Use IP/MPLS technology, support QoS and Security.





NGN Architecture



➤ Application and Service Layer

- ✓ Establish unique layer for complete network to provides unified and synchronized services.

➤ Control Layer

- ✓ Establish unique layer for complete network
- ✓ Control signaling connections

➤ Transport Layer

- ✓ Include 2 level: Backbone level and Regional level.
- ✓ **Backbone level:** include core routers/switches and backbone transmission routes.
- ✓ **Regional level:** include regional routers/switches and transmissions routes to guaranty for regional traffic.

➤ Access Layer

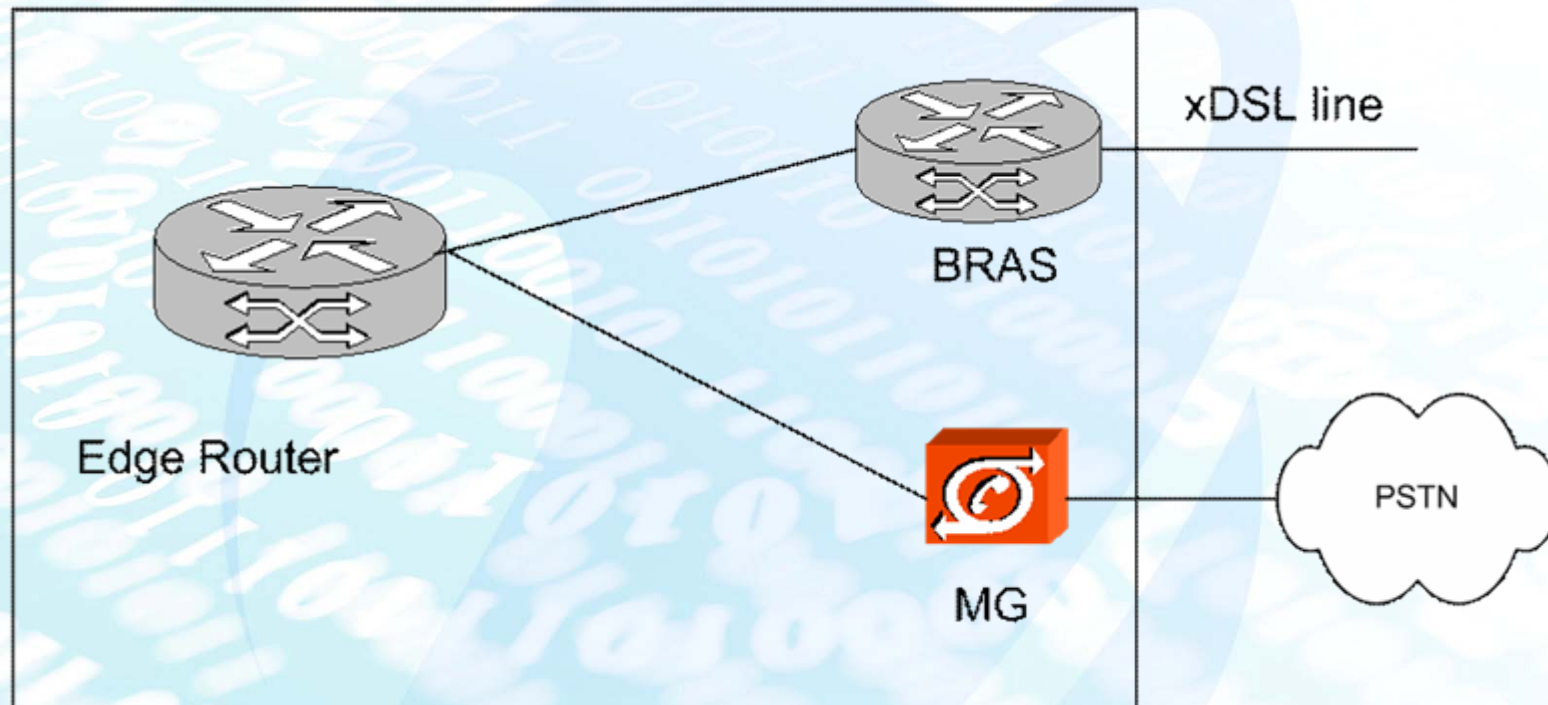
- ✓ All the next generation access equipments must be able to provide: POTS, VoIP, IP, ATM FR, X.25, IP-VPN, xDSL.



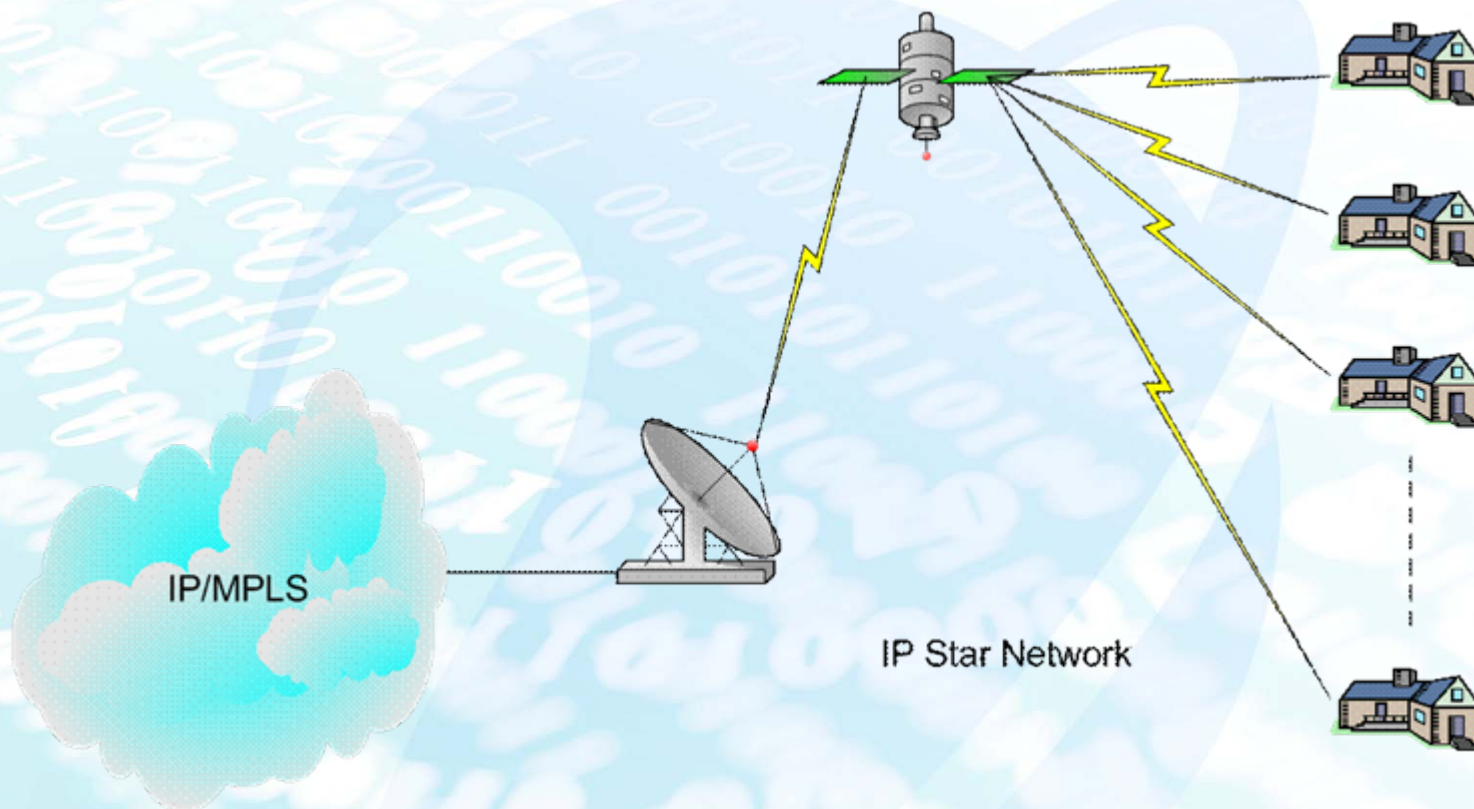
3. xDSL access network:

- ✓ Launched xDSL access service in Sep, 1, 2003.
- ✓ Up to now, all of provinces has deployed xDSL access network.
- ✓ The connections from DSLAM to DSLAM-HUB use nxE1 and STM1; the connections from DSLAM-HUB to BRAS use STM-1; the connections from BRAS to backbone network use nxSTM-1, nxSTM-4 or GE.
- ✓ ADSL/ADSL2+ will be the main access method to carry out the project of internet access to schools.
- ✓ The total subscribers on network is about 96392 as Feb, 20, 2006.

PoP in provinces



Broadband Satellite Access for the villages





NGN – Next Generation Network



Services to be supplied:

- Voice (prepaid, postpaid)
- Call Waiting Internet
- Free Call Button
- Web Dial Page
- Freephone service (1800)
- Premium service (1900)...
- Fast internet access
- WAN connections services



Trial projects



The services are provided:

- VoD
 - IP/TV
 - Video Conference
- => Triple Play Service



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Deployment plan to year 2010



1. NGN network expansion:

- NGN phase 3 Implementation: to expand NGN capacity; The bandwidth will be increased to GE, STM4 and STM16;
- Deployment of IMS.
- Project deployment of softswitch class 5, and step by step replace TDM switch by class 5 softswitch.
- Deployment of MAN in provinces.
- Provision of IP Centrex, Web Conference... services.



Deployment ... (cond')



2. Access network expansion:

2.1 xDSL:

- Expand xDSL access network all country.
- Bandwidth capacity increase depends on the customer demand and number of subscribers.
- Deploy new IP DSLAM at the locations that doesn't have MSAN.
- Provision of ADSL2+, SHDSL and VDSL2 access.

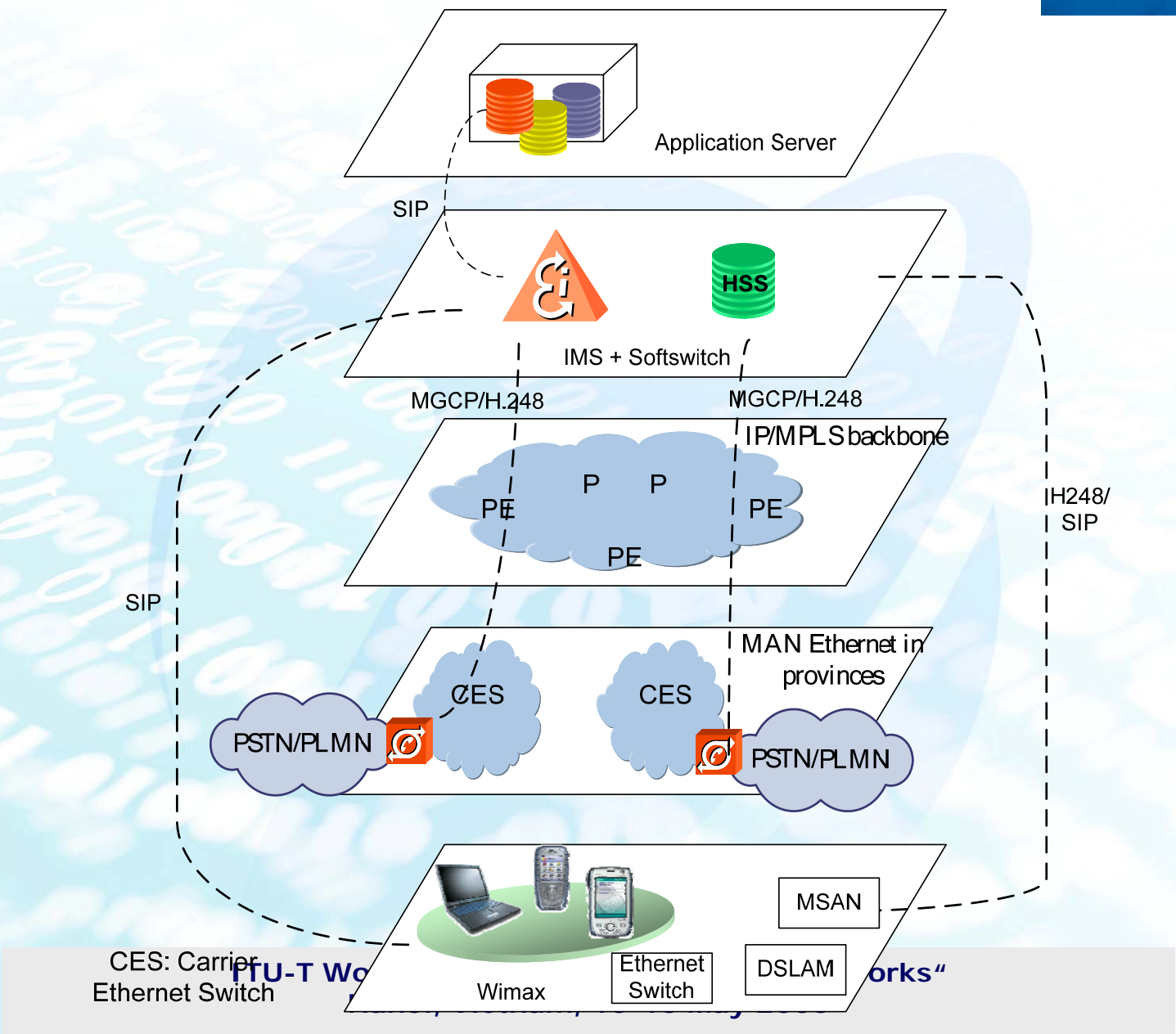
2.2 MSAN:

- POTS
- xDSL (ADSL2+, SHDSL, VDSL2)

2.3 MAN access:

- Ethernet connections.

The NGN logical architecture



CES: Carrier Ethernet Switch



.... Get to Fix and Mobile Convergence



Some difficulties



Some difficulties we met when make the plan for expanding NGN network:

- Inter-working with other vendor products and inter-AS that required guarantee:

- Security
- QoS
- Scalability
- Unified Network Management System and OAM tools



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Conclusion

- ✓ By Jul 01, 2003, VNPT officially launched xDSL access services;
- ✓ By the end of 2003, NGN services was launched.
- ✓ From 2006 and afterward, NGN will be further deployed in order to migrate existing PSTN network into unified IP infrastructure, that is able to meets a quickly growing demand of the market.



Thank you !

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