

The Development of IPv6 Technology in Malaysia, Issues and Solutions

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Outline

- ▶ Introduction
- ▶ IPv6 in Malaysia
- ▶ Issues
- ▶ Strategies
- ▶ Conclusion

Introduction

- ▶ Main reason for IPv6 is to solve address space
- ▶ IPv6 Projects world wide
 - Japan's Wide
 - US's 6REN / 6TAP
 - Europe's 6INIT

Malaysia ?

IPv6 in Malaysia

- ▶ Was introduced in Malaysia 6 years back by NTT MSC
- ▶ Early testing was done within NTT and also between NTT and NRG, USM.

- ▶ NTT MSC – Arcnet6
 - Initiator of IPv6 in Malaysia
 - New IPv6 solution in Malaysia
 - ▶ Native IPv6 connectivity
 - ▶ IPv6 over IPv4 tunneling
 - ▶ IPv6 Web-hosting
 - ▶ IPv6 Co-Location Services
 - Research in other areas of IPv6

► Malaysian Advanced Network Integrated System (MANIS)

- 6 Universities are peering with MANIS to access to IPv6
- Have tunnel broker to 6Bone network

USA, JAPAN, Netherlands,
Singapore, Hungary, France,
Canada, Argentina



Tunnel
IPv6/IPv4
BGP4+



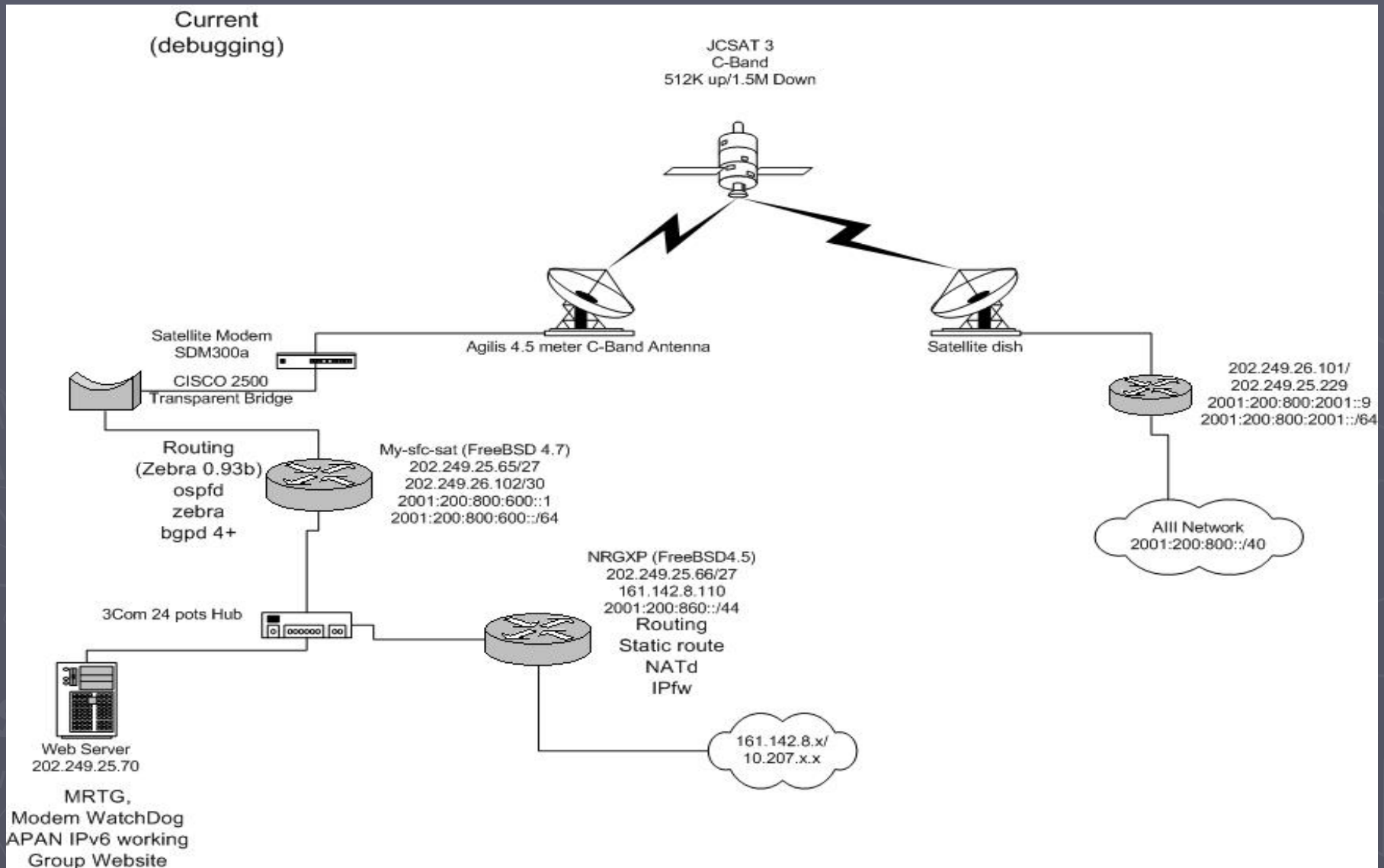
Tunnel IPv4/IPv6
BGP4+

UM, UKM, TimeNet



- ▶ Network Research Group (NRG), USM
 - Organized and conducted IPv6 workshops
 - Developing Video conferencing system in IPv6
 - Network Monitoring and management tool for IPv6
 - Will become the network hub for research institutions

AI3 Satellite link connectivity



IPv6 address block

MY-APAN

Managed by NTT

2001:0200:0700::/40

MANIS

Managed by MANIS

3ffe:80d0:ff00::/48 to
3ffe:80d0:ff50/48 (*for research
institutions*)

3ffe:80d0:fe00::/48 to
3ffe:80d0:fe50::/48 (*for other
organizations*)

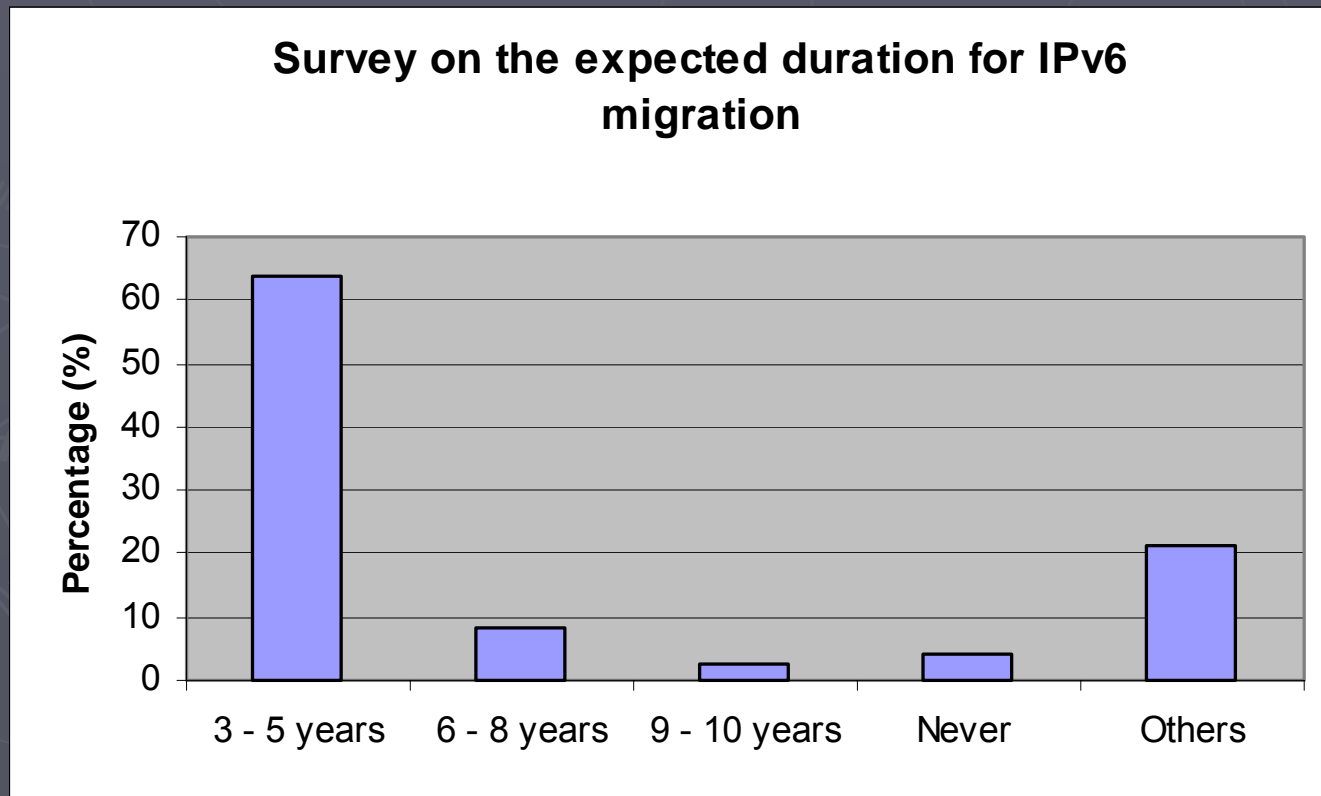
AI3

Managed by NRG

2001:0200:0860::/44

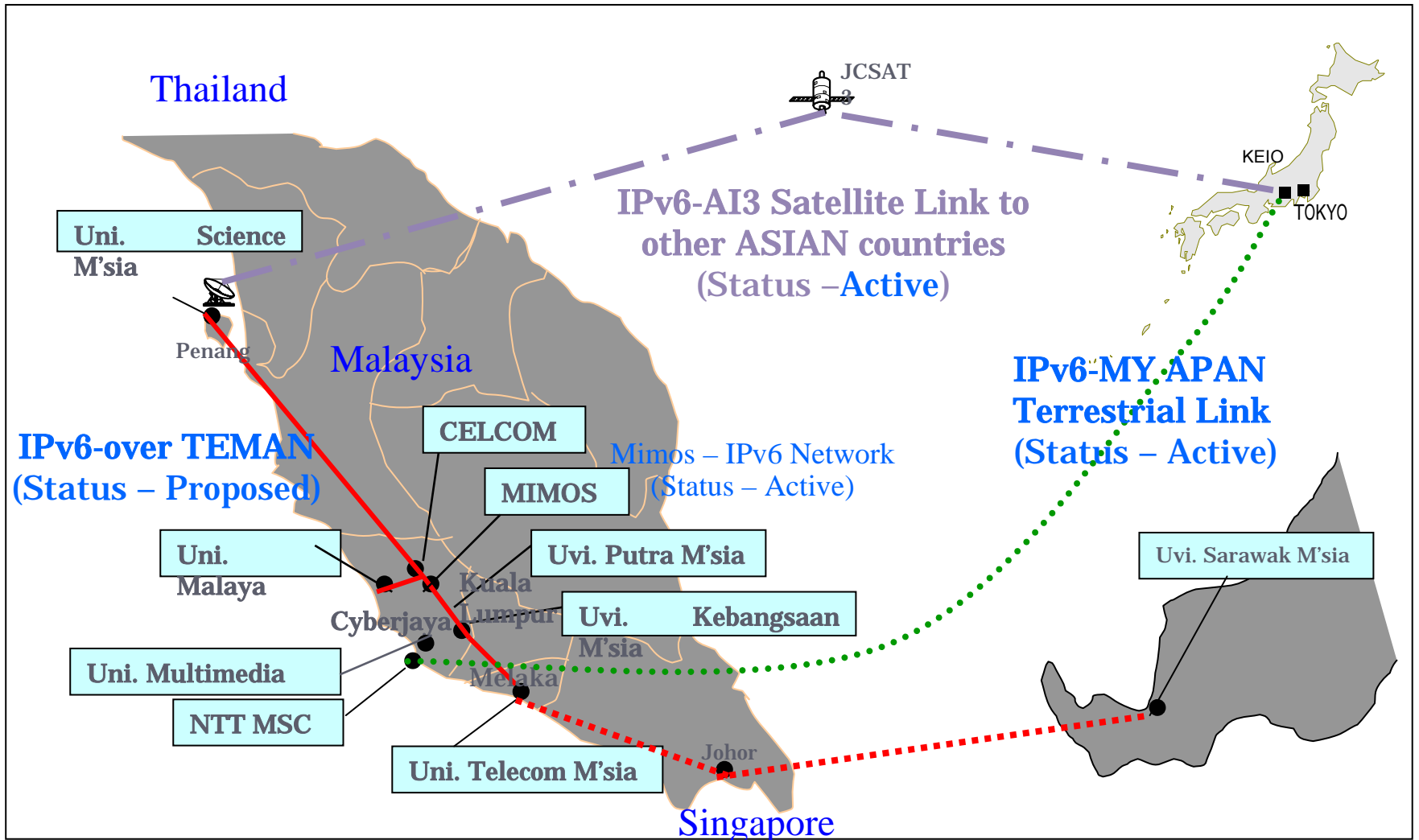
Survey by MANIS

- 317 people joined the online survey
- 64% of them felt that IPv6 will be implemented within 5 years
- Over 50% gave positive response towards moving to IPv6



- ▶ Malaysian Government just awarded 3G licenses to 2 telecommunication companies
- ▶ This wireless implementation is still new and currently it is being studied for implementation
 - Maxis
 - Telekom

Malaysian IPv6 Network

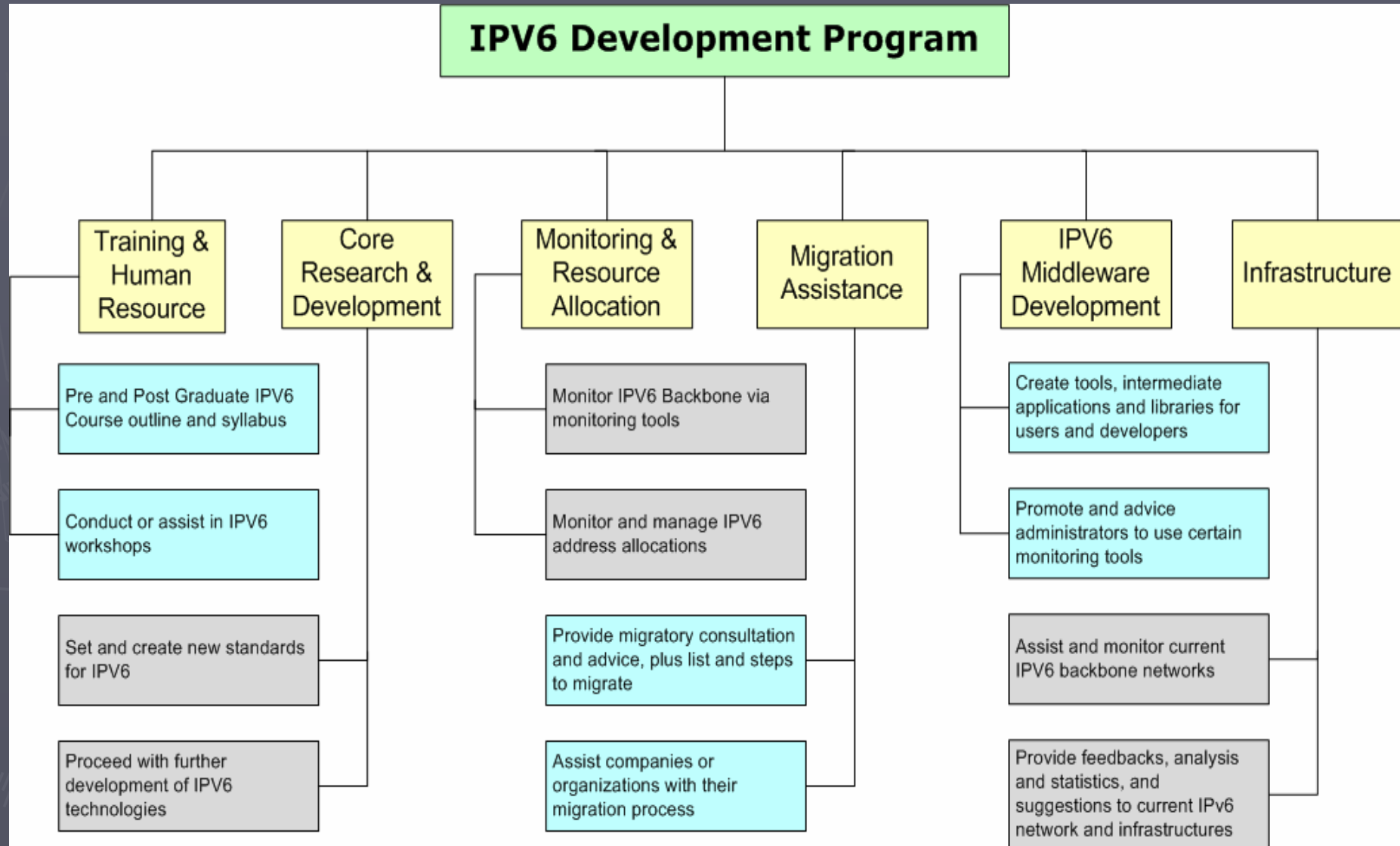


— TEMAN Network (155M ATM)
..... Planned TEMAN Network

Issues

- ▶ *Coordination and information sharing*
- ▶ *Lack of awareness and exposure (internationally)*
- ▶ *Funding \$\$\$\$*
- ▶ Only few institutions / organizations requested the IPv6 block

Strategies



▶ *Training and Human Resource*

- IPv6 course guidelines for academicians from undergraduates to post graduate studies
- this program will also assist and conduct workshops, trainings and talks on IPv6 issues

▶ *Core Research and Development*

- Home Appliances
- Security
- 3G/xG
- Medical and Biotechnology
- Multimedia
- Satellite
- Automobile and Transportation Manufacturers

▶ *Monitoring and Resource Allocation*

- Monitor address allocation

▶ *Policies and Migration*

- outline the policies concerning to IPv6 deployment and provide consultation

▶ *IPv6 Middleware Development*

- intermediate application and libraries for users and developers will be created

▶ *Infrastructure (research network)*

- *current*

- ▶ *TEMAN network*

- ▶ *AI3 network*

- *Future*

- ▶ *SEA-Net*

- ▶ An IPv6 council will be created comprising the following group
 - Service providers
 - Research and Development
 - Regulatory
 - Legal
 - Vendors
 - Governmental
- ▶ First meeting will be in **May / June 2003**

Asian Institute of Medicine, Science and Technology (AIMST)

- ▶ A new campus is being constructed
- ▶ An IPv6 network will be setup in the campus
- ▶ Research on Home appliances, Medical and Biotechnology using IPv6 – have not defined yet
- ▶ Any suggestions on the IPv6 network setup ???????



Semeling Campus (Under Construction)

Conclusion

- ▶ The MY IPv6 committee will need help from other established countries in this area.
- ▶ Any suggestions ?