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Ministry of Information and Communication, Islamic Republic of Iran

IPV6 TRANSITION IN IRAN

Contact: MR. BEHROUZ ABBASZADEH   Email:
Information Technology Organization
Ministry of Information and
Communication, Islamic Republic of Iran

**Islamic republic of Iran
Ministry of ICT**
Information Technology Organization

ASIA-PACIFIC TELECOMMUNITY

Report of:
IPv6Transition works in Iran
Behrouz Abbaszadeh (ITO)

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OUTLINE

- A short History of Transition to IPv6 in the World: How countries started immigration to IPv6, Studying and investigating Iran IP network , …

- Activities: Implementing IPv6 in laboratory, Live Network (native IPv6).

- Transition to IPv6 Protocol Project: (Project Overview, project outputs ,Designing how ISPs and Infrastructure providers start to implement IPv6)

- ITO experiences (Implementing IPv6 in it's network, International activates, Strategy road map, …)

- Milestones (Implementing IPv6 in about 4 years)

- Training and Lessons learned

Transition to IPv6 (Introduction)

- Increasing Internet users and increasing demand for IP address.

- IPv4 address blocks finished unallocated in IANA (0%)

- Many initiatives at international levels;

- USA:2005 "Memorandum For the Chief Information Officers" in 2008

 ->"Planning Guide/Roadmap Toward IPv6 Adoption within the US Gov."

- Germany: 2009 -> "National IPv6 Action Plan"

- Other countries: Australia, India, Singapore, China, Japan, Korea, etc.

- • EU: 2008 ->"Action Plan for the Deployment of IPv6 in Europe" implementing

 some projects like 6diss,6depploy, go6 and …

- ITU: 2008 -> WTSA, Res. 64,

"IP address allocation and encouraging the deployment of IPv6"

Transition to IPv6 (General Activities)

- 2006: Started performing researches on IPv6 according to latest world

 standards.(Universities, research centers and …)

- 2007- 2008: IPv6 research project in the ITRC

- 2010: Iran IPv6 tack force was established and started technical tests.

- 2011:Transition to IPv6 Protocol Project started.

- 2011: Iran IPv6 Guideline committee was established.

- 2012: Iran joined to IPv6 forum.

- 2012: IPv6 strategic road map was published.

Transition to IPv6 (International Activities)

- Joining and participating in international meetings and conferences(RIPE, ICANN, ITU, …)

- Membership of international institutes.(RIPE, IPv6 Forum)

- # of ISPs with allocated IPv4 prefixes = 160
- total # of LIRs= about 160)
- Total # of allocated IPv6 prefixes for Iran= 38
- Total # of visible prefixes for IPv6= 38

- Distributing allocated IPv6 addresses

Transition to IPv6 (National Activities)

Number of addresses	Assigned to	Prefix
2^{96}	NIR or LIR	/32
2^{80}	Organizations	/48
2^{64}	Subnets	/64
1	End node	/128

Transition to IPv6 (National Activities)

- Sympathy with universities and getting proposal of universities

- Investigating and analyzing the organization's requirements

- Implementing IPv6 in laboratory, Live Network (LAN, WAN, Native IPv6, Services and …)

- Analyzing The ISP's Networks

- Transition to IPv6 Protocol Project

- Providing Strategy road map

Transition to IPv6 (Project overview)

Transition to IPv6 Protocol Project

- As an R&D project funded by ITO (4 phases, Studying, Producing Solutions, running and Implementing)

- Total budget = 200.000 US$

- Period of the project about 2 years (Feb. 2010 to Oct. 2012)

- Supported by ITO

- Carried out under the coordination AUST University
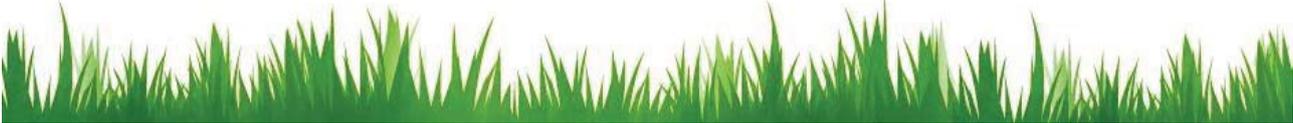
Transition to IPv6 (Project overview)

Transition to IPv6 Protocol Project

- Project Objectives:

- To draw a road map for the IPv6 transition process in IRAN

- To research security problems that could be faced during & after transition period

- To test applicability of advanced IPv6 services

- To gain & increase IPv6 know-how at national level

- To raise and increase awareness about IPv6

Transition to IPv6 (Project overview)

Transition to IPv6 Protocol Project

- This Project includes:

- Transition in application program level

- Transition in Service Level

- Transition in Backbone and Infrastructure Level

- Transition in Access Level

- Transition in SOHO and Enterprise Network Level

- Training

- Implementing Pilot

Transition to IPv6 (Project overview)

Transition in application program level

- How we can use the application in IPv6

- Kinds of applications
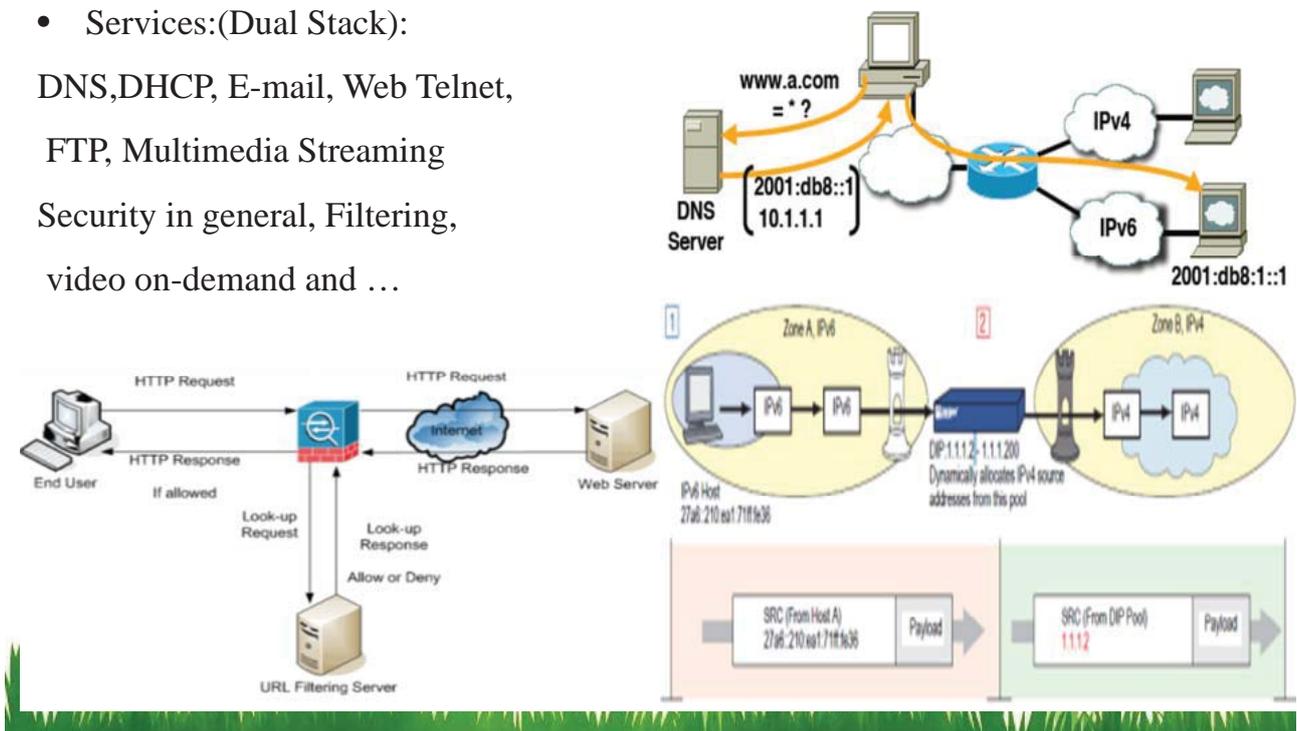
- Compatibility

- Operating systems:

Windows, Linux, Solaris ...
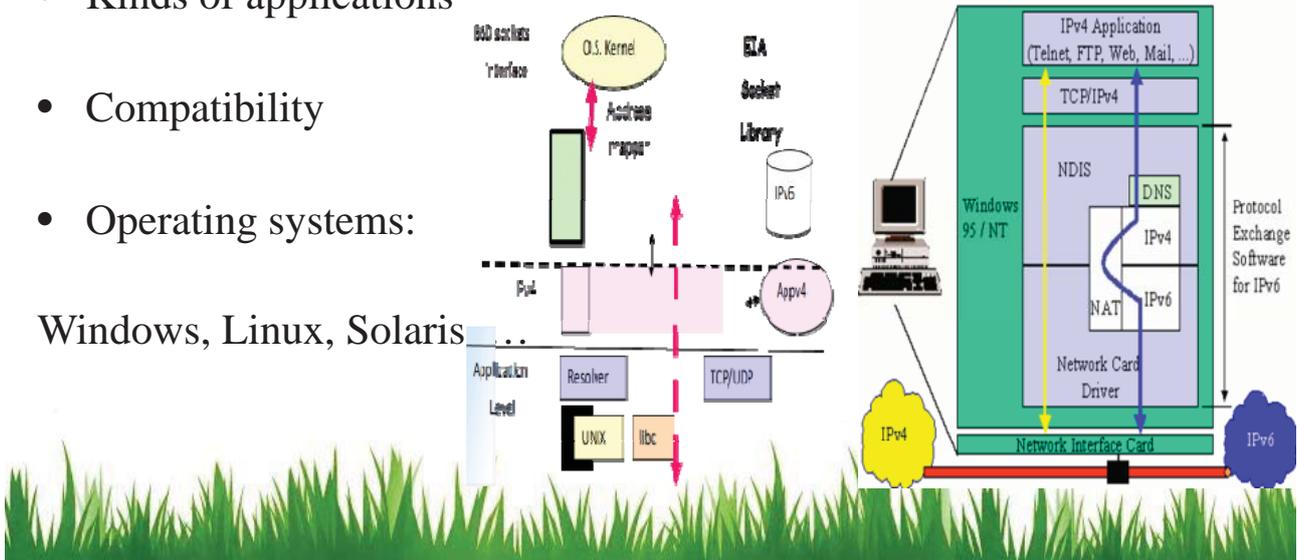
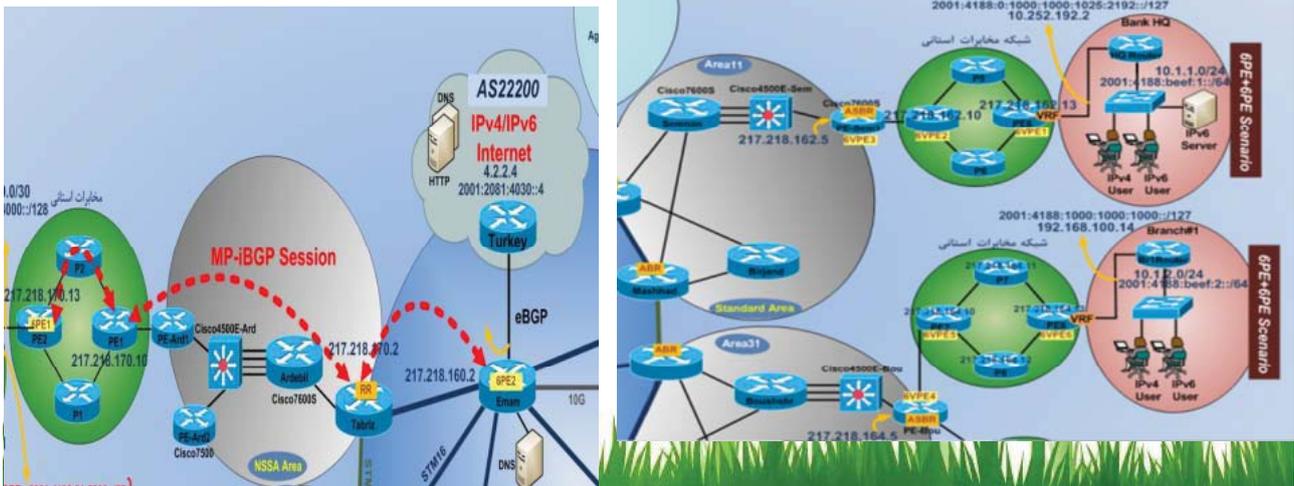# Transition to IPv6 (Project overview)

Transition in Service level

- Services:(Dual Stack):

DNS,DHCP, E-mail, Web Telnet,

FTP, Multimedia Streaming

Security in general, Filtering,

video on-demand and …

Transition to IPv6 (Project overview)

Transition in application Backbone level

- Implementing IPv6 over MPLS Backbone(Different Scenarios)
- Routing protocols(BGP, OSPF, EIGRP, …)
- Transition mechanisms(Dual Stack, Tunneling, Translation,…)

- End to End total Scenario

Transition to IPv6 (Project overview)

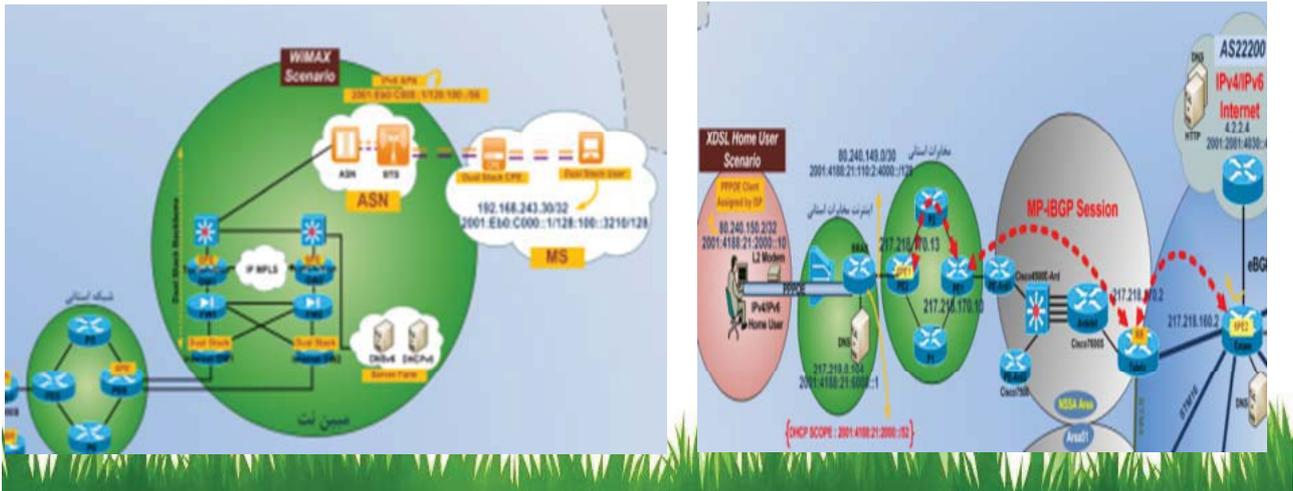### Transition in application Backbone level

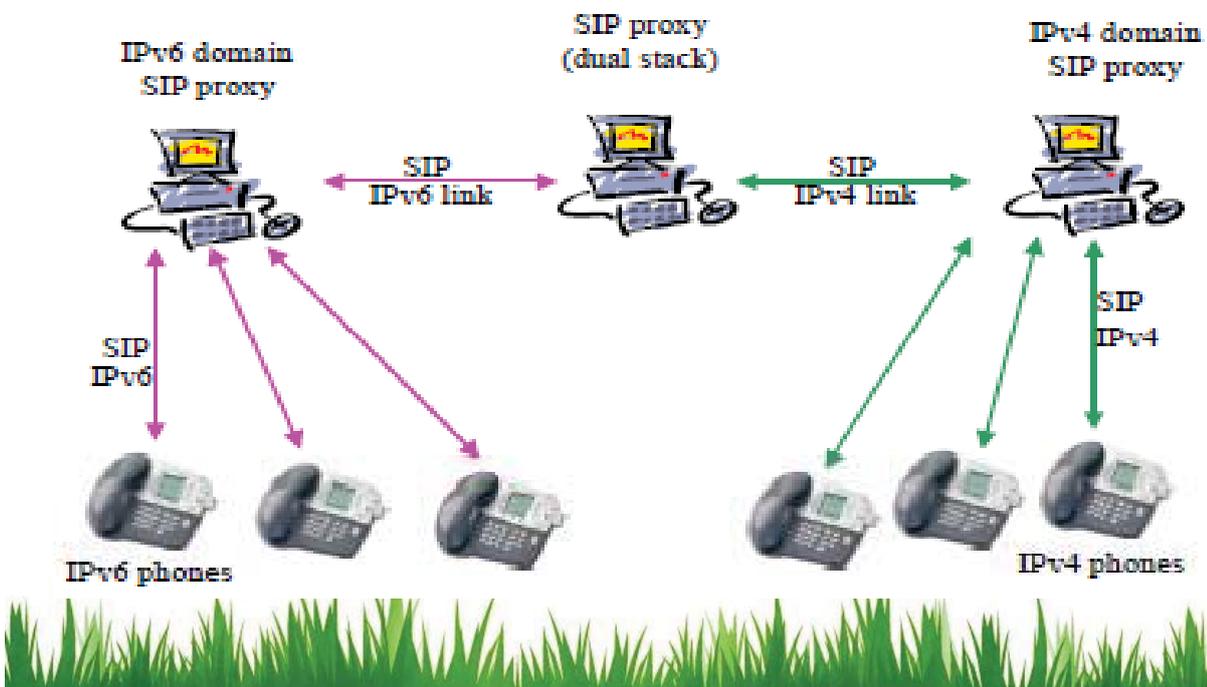- An End to End total Scenario
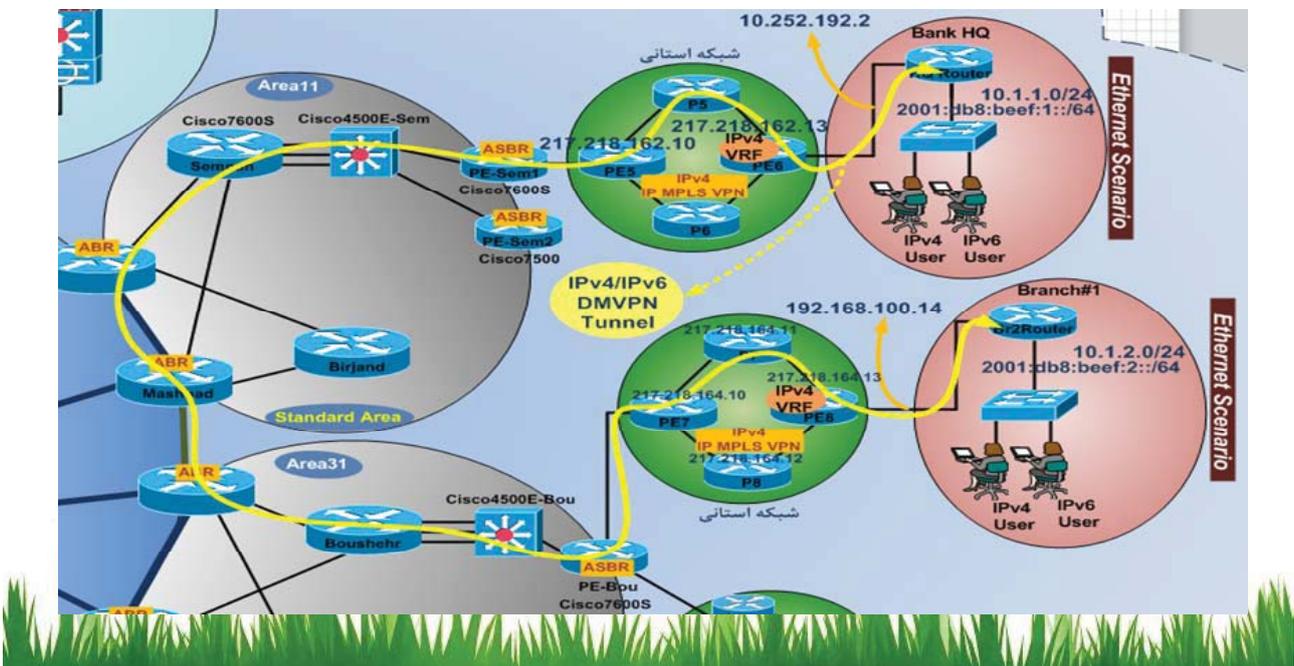
Transition to IPv6 (Project overview)

Transition in application Access level
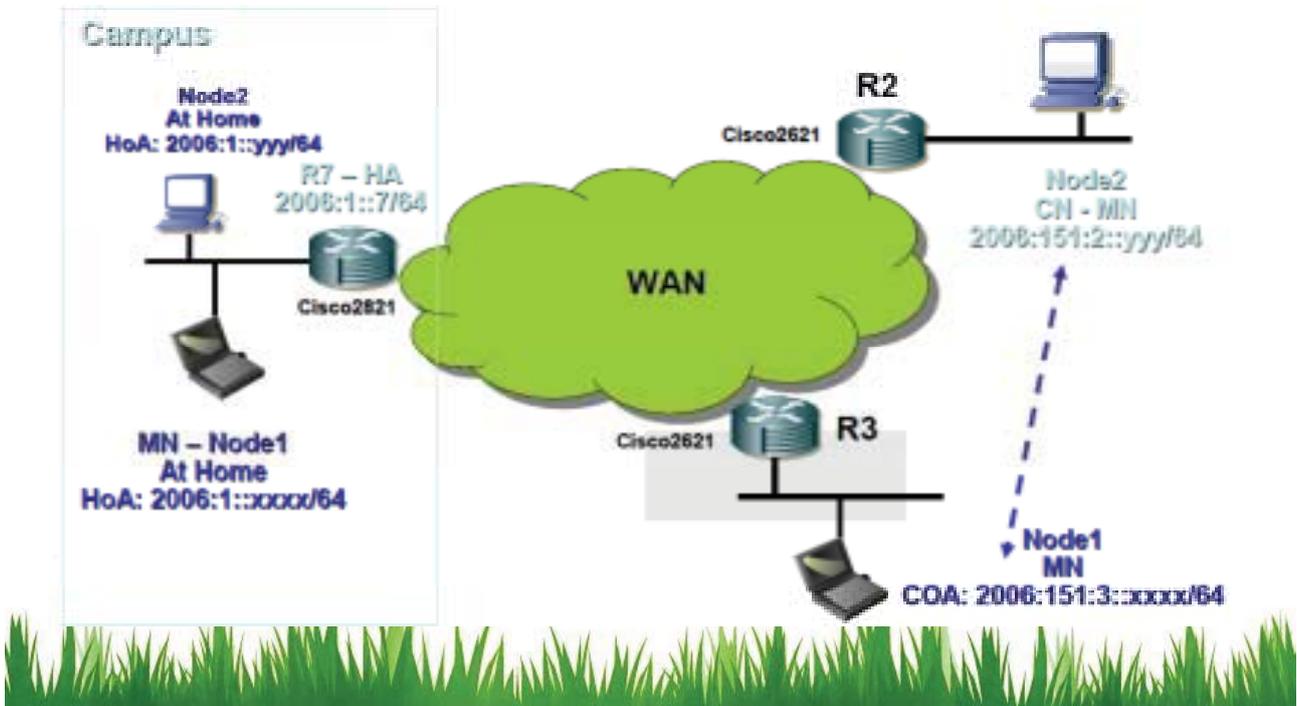
- DSL Technology
- FTTX
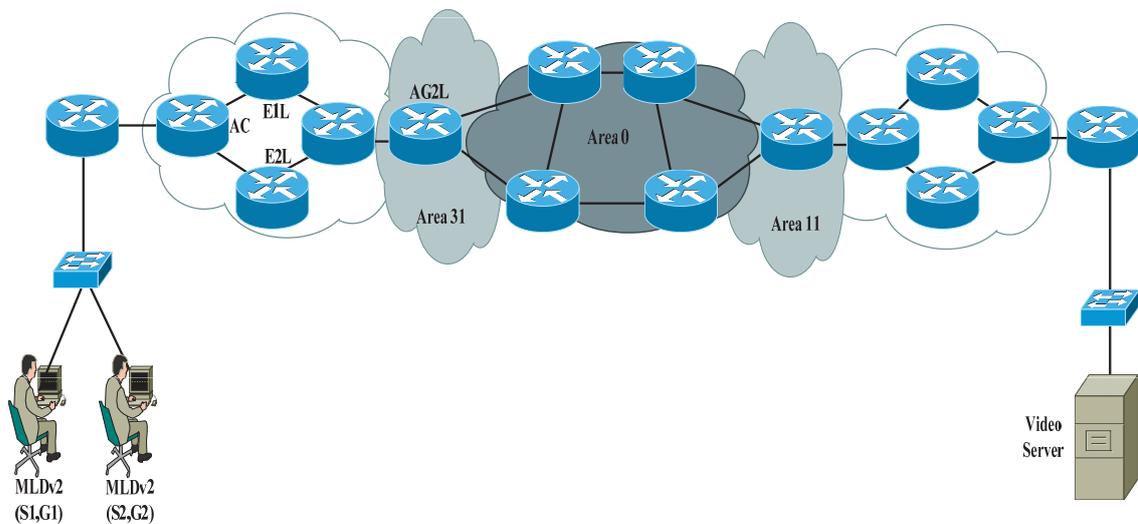- Wimax
- …

Some other related works

VoIP(H323v6 SIPv6)

Some other related works
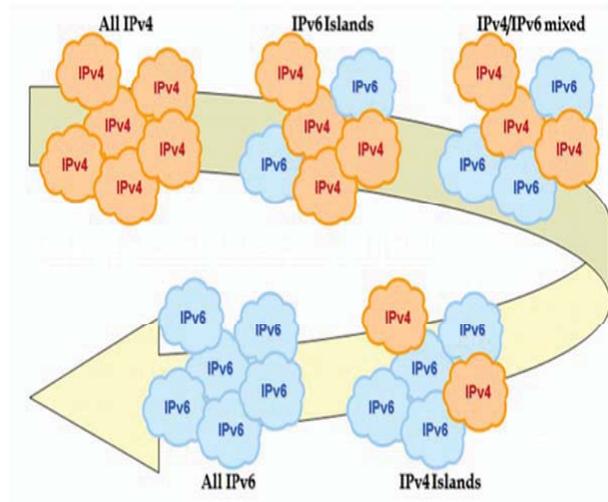
Mobility

Some other related works

Multicast

Transition to IPv6 (Strategy road map)

We have broken Transition in 4 phases:

- Preparation(max 6 month)

- Initial Deployment(1 year)

- Co-existence (2 years)

-Dominance (4 years or more)

Transition to IPv6 (What is Next?)

- Implementing IPv6 in ISP's Network(As soon as possible).

- Tests will be completed and more services will be implemented.

- All services available for public access are to be IPv6-enabled.

- Training will be continued.(Seminars and classes, TV programs, publishing books , etc)

- More cooperating with international institutes.

Thank you

Any question

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