



IPv6 implementation and business development in VNPT

Ho Chi Minh city, May 6th 2013



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The needs of transition from IPv4 to IPv6

- **IPv4 exhaustion**

- ✓ In Feb 2011, IANA allocated the last 5 IPv4 address blocks to RIRs.
- ✓ APNIC announced in Apr 2011 that its IPv4 address pool reached the final /8 IPv4 address block, bringing the Asia-Pacific region to the last stage of IPv4 exhaustion. APNIC created a special policy to distribute IPv4 address of the final /8.
- ✓ In Sep 2012, RIPE NCC announced that IPv4 address in Europe-Middle East region exhausted and switched to the strict IPv4 address distribution policy of the final /8 like APNIC.
- ✓ The distribution of IPv4 address to ISPs and telecoms companies in the last stage of IPv4 address exhaustion is very difficult and just aims at transition to IPv6.

- **The needs of broadband services increase**

- ✓ High Speed Internet (fixed, mobile).
- ✓ Video services: IPTV/VoD, teleconference,.....
- ✓ VPN.
- ✓ New applications and services: smart home, smart city, peer-to-peer applications,.....
- ✓ All devices can be allocated IP address and monitored by IP address: smartphones, household and industrial appliances, transport vehicles with Internet connection,.....

➔ The needs of IP address become higher and IPv4/subscriber ratio decreases.

➔ Developing broadband services and subscribers while the IPv4 addresses become exhausted will influence to the business of existing and new ISPs/telecoms companies, especially small ISPs:

- Difficult to develop network, increase subscribers.
- Difficult to release new services.
- High cost of network investment (CGN,...) and IPv4 address transfer between ISPs if continue using IPv4 network.
- Difficult to receive new IPv4 address blocks from RIRs.

- The transition from IPv4 to IPv6 is necessary and mandatory to ISPs and telecoms companies, not optional as before.
- Transiting from IPv4 to IPv6 maintains the rapid and stable development of Internet and ISPs/telecoms companies.
- The transition is not immediate. The time of transition depends on each country, each enterprise.
- In the transitional time, applications/services/CPEs,... using IPv4 still exist along with those using IPv6. Therefore, ISPs/telecoms companies have to ensure that network infrastructure supports both IPv4 and IPv6.

IPv6 implementation in VNPT's network

IPv6 Plan:

- Ministry of Information and Communication of Viet Nam issued national IPv6 plan.
- VNPT built its own IPv6 plan following national IPv6 plan and corresponding with VNPT's network condition.

IPv6 implementation in VNPT network:

Preparation stage:

- VNPT has native IPv6 connections:
 - international connections.
 - National connections with VNIX.
- Network survey to ensure that VNPT's network supports IPv6 services:
 - Fixed broadband network.
 - 3G mobile network.
 - LTE/4G mobile network.
- VNPT's network fully supports IPv6 and is ready to transport IPv6 traffic together with IPv4 traffic.
- VNPT performed some IPv6 trials.

Now:

- Ready to provide some basic IPv6 services to subscribers, such as: High Speed Internet, hosting, DNS, FTP,...

IPv6 validation for **vnpt.vn**

Checking for AAAA DNS record	✓	<i>2001:ee0::f:0:0:0:1008</i>
Checking for IPv6 web server	✓	<i>Microsoft-IIS/6.0</i>

Congratulations, this website is IPv6 ready !







You can help raise awareness and show your commitment to IPv6 deployment to your users, by adding an IPv6-test validator button to your site :



```
<!-- IPv6-test.com button BEGIN -->
<a href='http://ipv6-test.com
/validate.php?url=referer'><img
src='http://ipv6-test.com/button-
ipv6-big.png' alt='ipv6 ready'
title='ipv6 ready' border='0' /></a>
<!-- IPv6-test.com button END -->
```

paste the code above into your website source code to add the chosen button.

Test your IPv6 connectivity.

-  Your IPv4 address on the public Internet appears to be **222.255.64.106**
-  Your IPv6 address on the public Internet appears to be **2001:ee0:0:fffb:216f:5bd7:146a:256c**
-  Your Internet Service Provider (ISP) appears to be **VNPT-AS-VN Vietnam Posts and Telecommunications (VNPT)**
-  Since you have IPv6, we are including a tab that shows how well you can reach other IPv6 sites. [\[more info\]](#)
-  **Good news!** Your current configuration will continue to work as web sites enable IPv6. [\[more info\]](#)
-  Your DNS server (possibly run by your ISP) appears to have no access to the IPv6 Internet, or is not configured to use it. [\[more info\]](#)

Your readiness score

9/10

for your IPv6 stability and readiness, when publishers are forced to go IPv6 only

Click to see [test data](#)

(Updated server side IPv6 readiness stats)

Business development of IPv6 services in VNPT

- IPv6 can bring new services to subscribers.
- If ISPs/telecoms companies want to be successful with IPv6, they should care about:
 - Cost of IPv6 implementation.
 - Suitable business model.
 - Roadmap to provide IPv6 services to subscribers.
 - Subscribers' demands.
 - Key services have to be changed to IPv6.
 - Diversification of IPv6 applications and services.

- VNPT is providing many services:
 - High Speed Internet (xDSL, FTTx).
 - IPTV/Video on Demand.
 - 2G/3G mobile services.
 - LTE/4G mobile services (trial).
 - VPN.
 - FTP.
 - Hosting.
 - Email.
 - DNS.
 - Teleconference.
 - Monitoring transport vehicle.
 -

- VNPT will release some IPv6 services soon, such as :
 - High Speed Internet (xDSL, FTTx).
 - LTE/4G mobile service.
 - VPN.
 - Hosting.
 - Email.
 - DNS.
 - FTP.

- Some potential IPv6 services can be deployed:
 - IP camera.
 - Monitoring transport vehicle, industrial equipment,...
 - Deploying IPv6 in smart home solutions.
 - Machine-to-machine services.
 - Telemedicine, home healthcare,....
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Thank you!

