TWNIC Update

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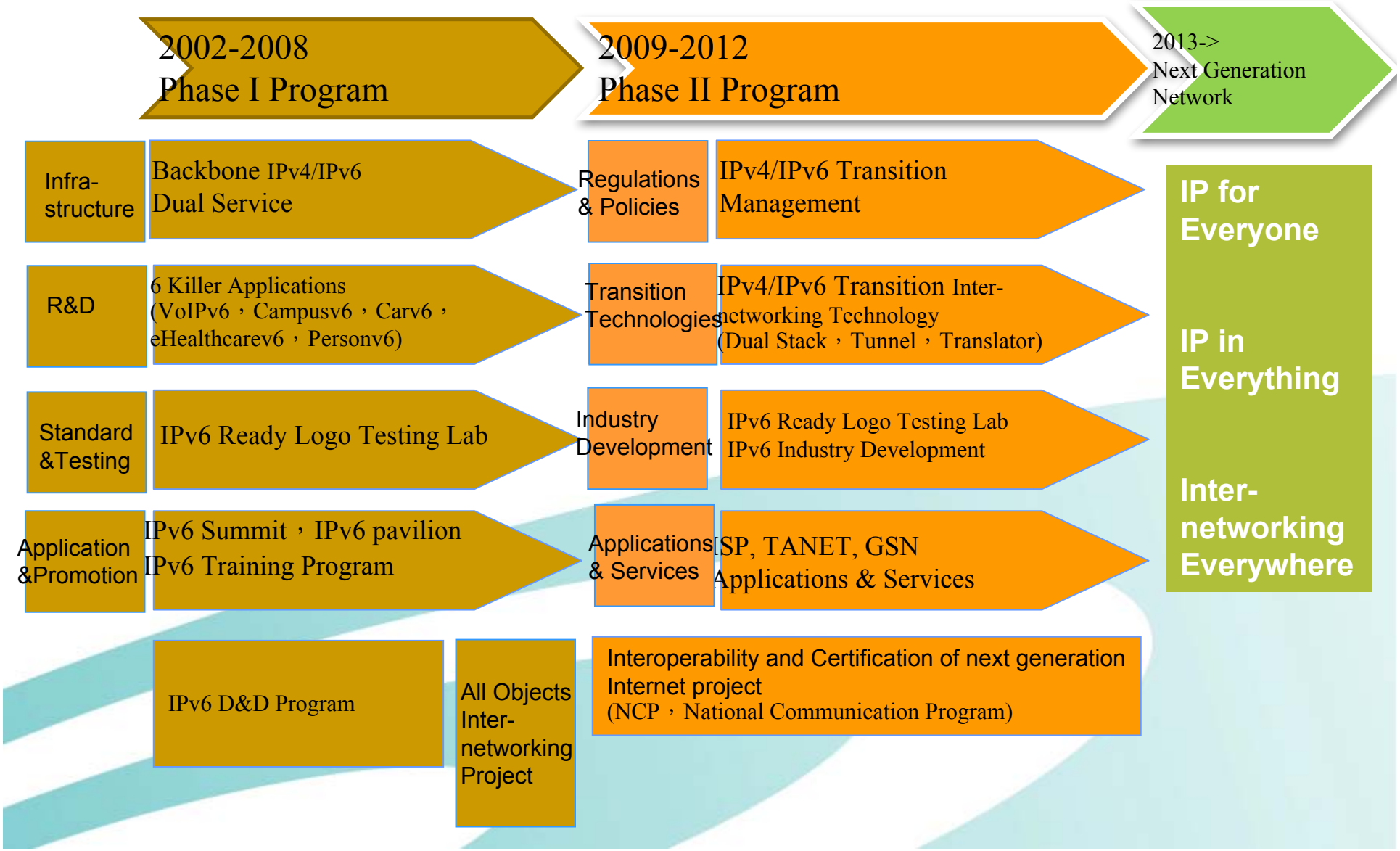
Outline

- The Status of facing to IPv4 address exhaustion in Taiwan
  - The Taiwan's ISPs survey of facing to IPv4 address exhaustion
  - Measure the IPv6 readiness in Taiwan

Introduce to IPv6 Program in Taiwan



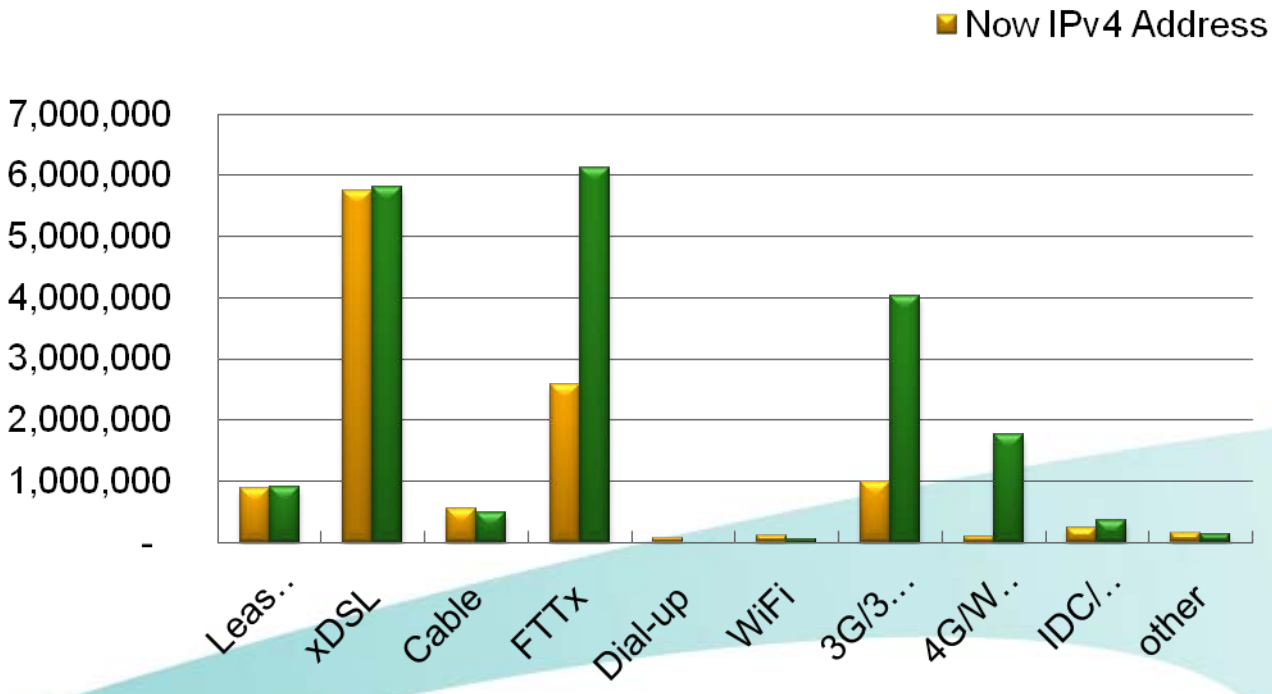
Facing to IPv4 address exhaustion

- In transition phase, it is important to understand the status of Taiwan's ISPs fact IPv4 address exhaustion.
  - Made the survey of " ISPs face to IPv4 address exhaustion" on Aug, 2009.
  - Start to do IPv6 readiness in 2009.

Introduction of the survey

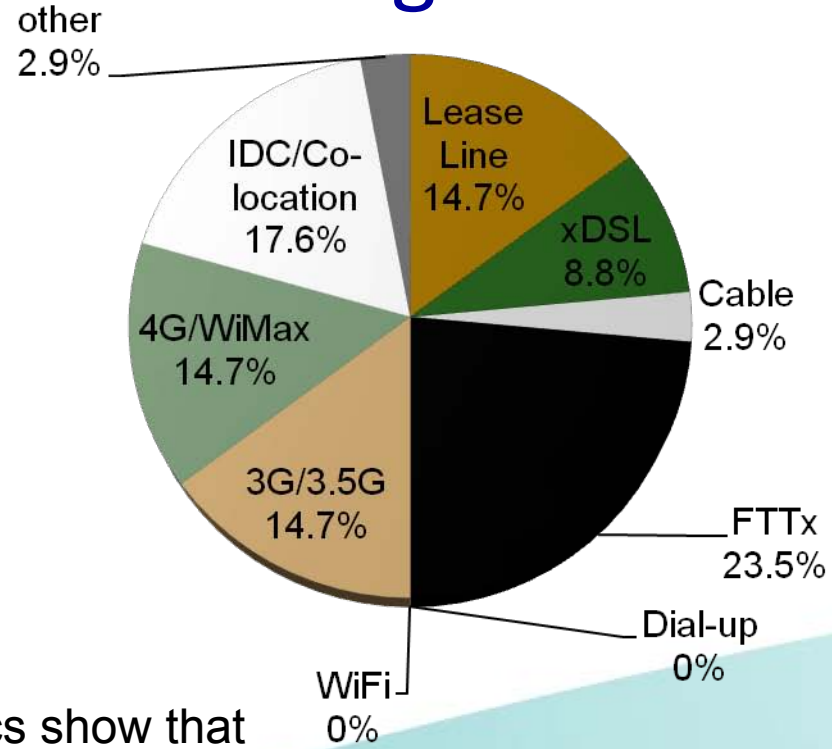
- Survey time : 2009/8/24~2009/9/24
- Survey target : TWNIC members
- Total number of Questionnaire : 59
- Response : 35 (60%)
- Percentage of IPv4 addresses in ISPs who response the Questionnaire and TWNIC IPv4 allocations : 95.33%

The service using IPv4 addresses in 2009 and 2012



It is clear from this table that the services of FTTx and 3G/4G will need more IPv4 address in 2010

The service using IPv6 addresses in 2012



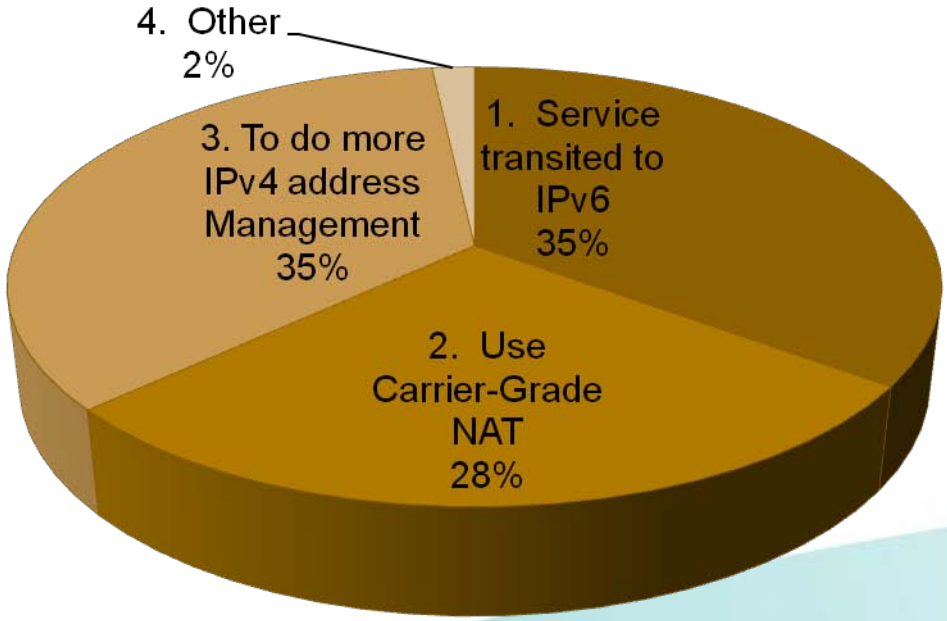
These statistics show that

1.FTTx, 3G and 4G are new services and growth rapidly, so ISPs will transit FTTx/3G/4G to IPv6 in high priority.

2.IDC/Lease Line services are easy to transit to IPv6, so these are second priority.

3.Cable and xDSL are most subscribers but most cable/xDSL CPE use L3 and only support IPv4. For cost issue, xDSL and cable services are difficult to transit to IPv6.

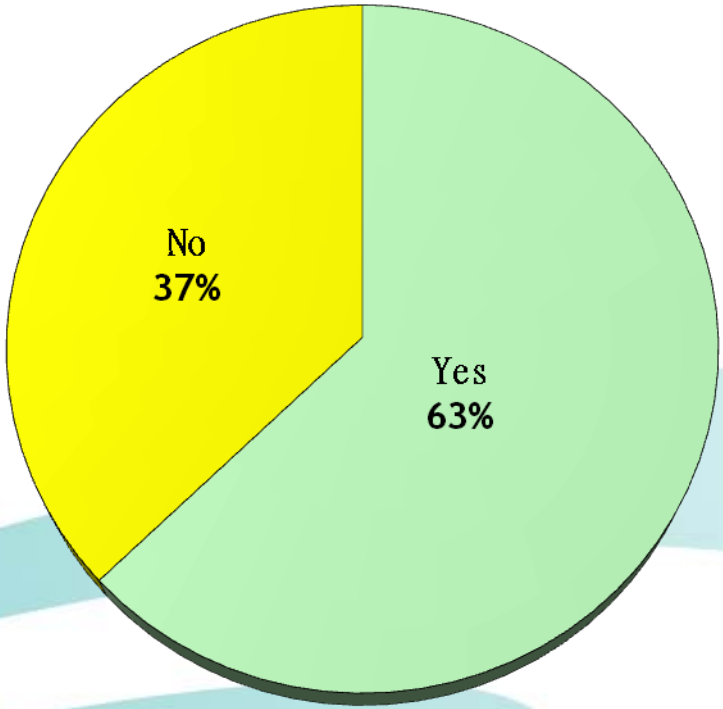
The strategy of facing IPv4 address exhaustion



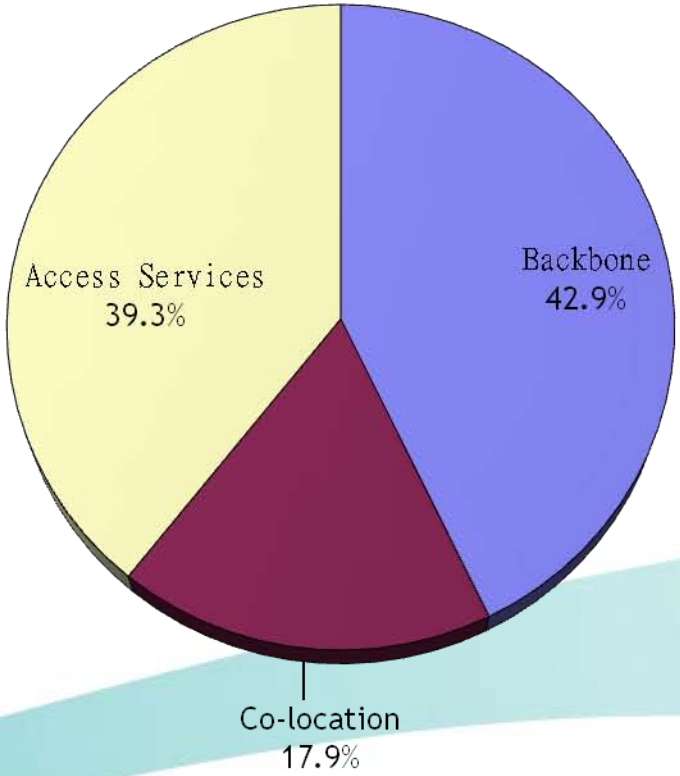
You can see “services transited to IPv6 “ and “To do more IPv4 address management” are major strategy.

* To do more IPv4 address management means do more calculate how many IPv4 address they need in this year then to request it , reduce to assignment size…etc

Does your company have any strategy plan in IPv6?

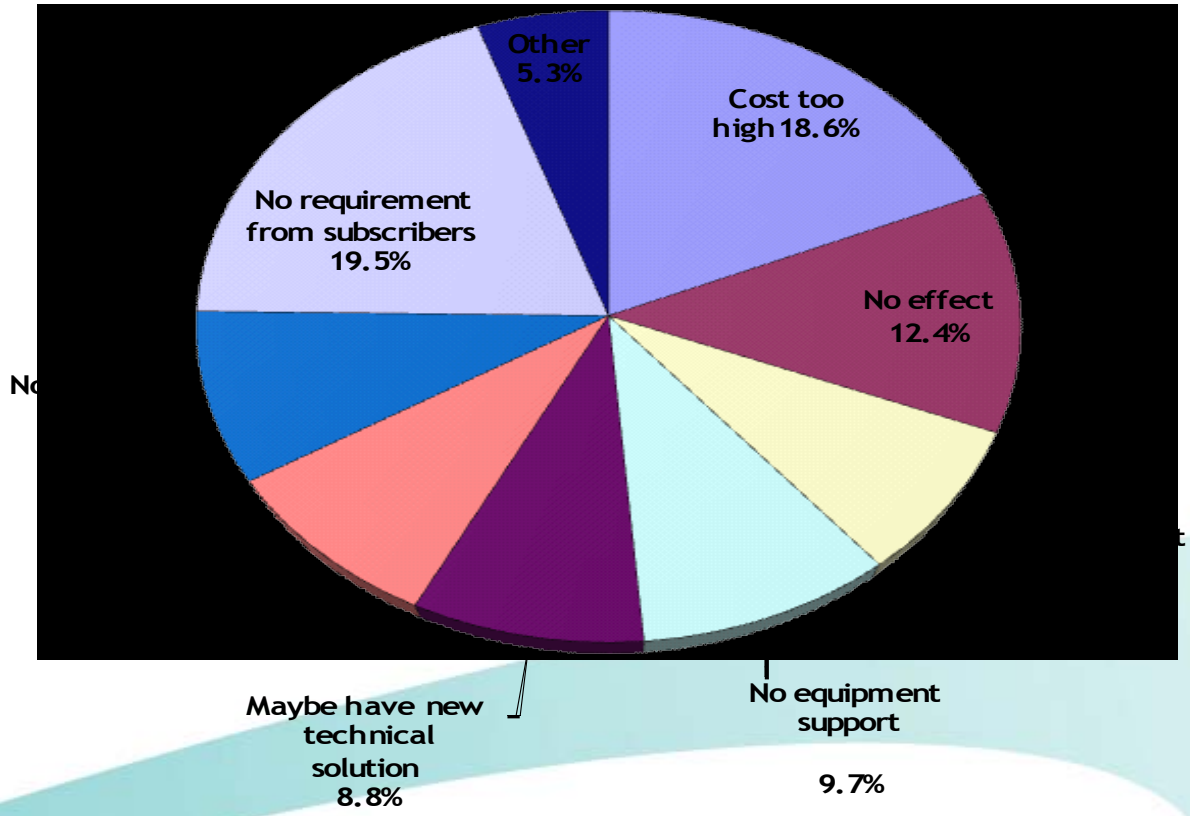


Which item has been implemented in IPv6?



In access services, there are including in tunnel broker, Lease Line, FTTx.

Why your company does not deploy IPv6?



This graph shows us where the main issues is in deployment IPv6

1. “Cost too high”, “no requirement from subscribers” and “no effect” are major problems.
2. It also responses that ISPs invest more money to implement IPv6 but they can’t earn more money from IPv6 services.

Measure the IPv6 readiness in Taiwan

- Measure the status of IPv6 deployment
  - Measure the IPv6 specific since the beginning of IPv6 deployment

- Contents of process
  - Define the IPv6 metrics set as the measure the IPv6 readiness
  - Establish the method of analyzing data using continuous measurement
  - Compile and publish the result of the measurement

Measure the IPv6 readiness in Taiwan

- Classification
  - Address Allocation
    - Check IPv4/IPv6 address advertisement in BGP routing table
  - DNS Query Analysis
    - Comparisons of IPv4 transport and IPv6 transport
    - Distribution of DNS query by resource record type
  - DNS Deployment
    - Deployment rate of DNS server on the base of whole .tw domain name
    - Deployment rate of Mail server on the base of whole .tw domain name
    - Deployment rate of Web server on the base of whole .tw domain name

Measure the IPv6 readiness in Taiwan

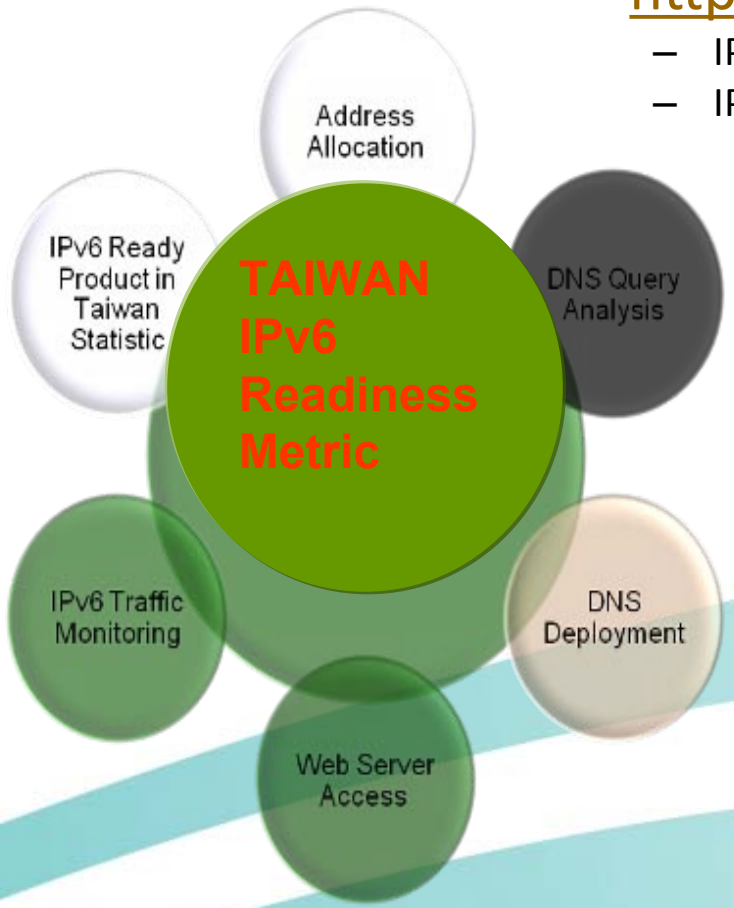
- Web Server Access
  - Total amount of IPv4/IPv6 traffic from/to Web server
- IPv6 Traffic
  - Total amount of IPv6 traffic from/to ASIX
  - Total amount of IPv6 tunnel broker traffic(5 major ISPs in Taiwan)
- IPv6 Ready Products
  - Number of products certified by IPv6 Ready Logo Program Phase1 and Phase2 a certification program operated by IPv6 Forum

Measurement items of IPv6 readiness in Taiwan

Users	• Web query from IPv6 • DNS query from IPv6	Vendors •IPv6 Ready Logo Phase I & Phase II
Applications	• IPv6 servers in Web, and DNS	
Access Network	•Traffic in IPv6 Tunnel Broker	
Core Network	• Number of ISPs within IPv6 allocations that are advertised in BGP • IPv6 traffic that in/out of Taiwan	

The result of IPv6 readiness in Taiwan

- http://v6readiness.ipv6.org.tw/
- http://v6metric.ndhu.edu.tw/
  - IPv4: 134.208.9.115
  - IPv6: 2001:e10:c00:2:20c:29ff:fee2:2ba1



Source: Taiwan Network Information Center (TWNIC)

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Thank You