IPv4 reallocation among RIRs
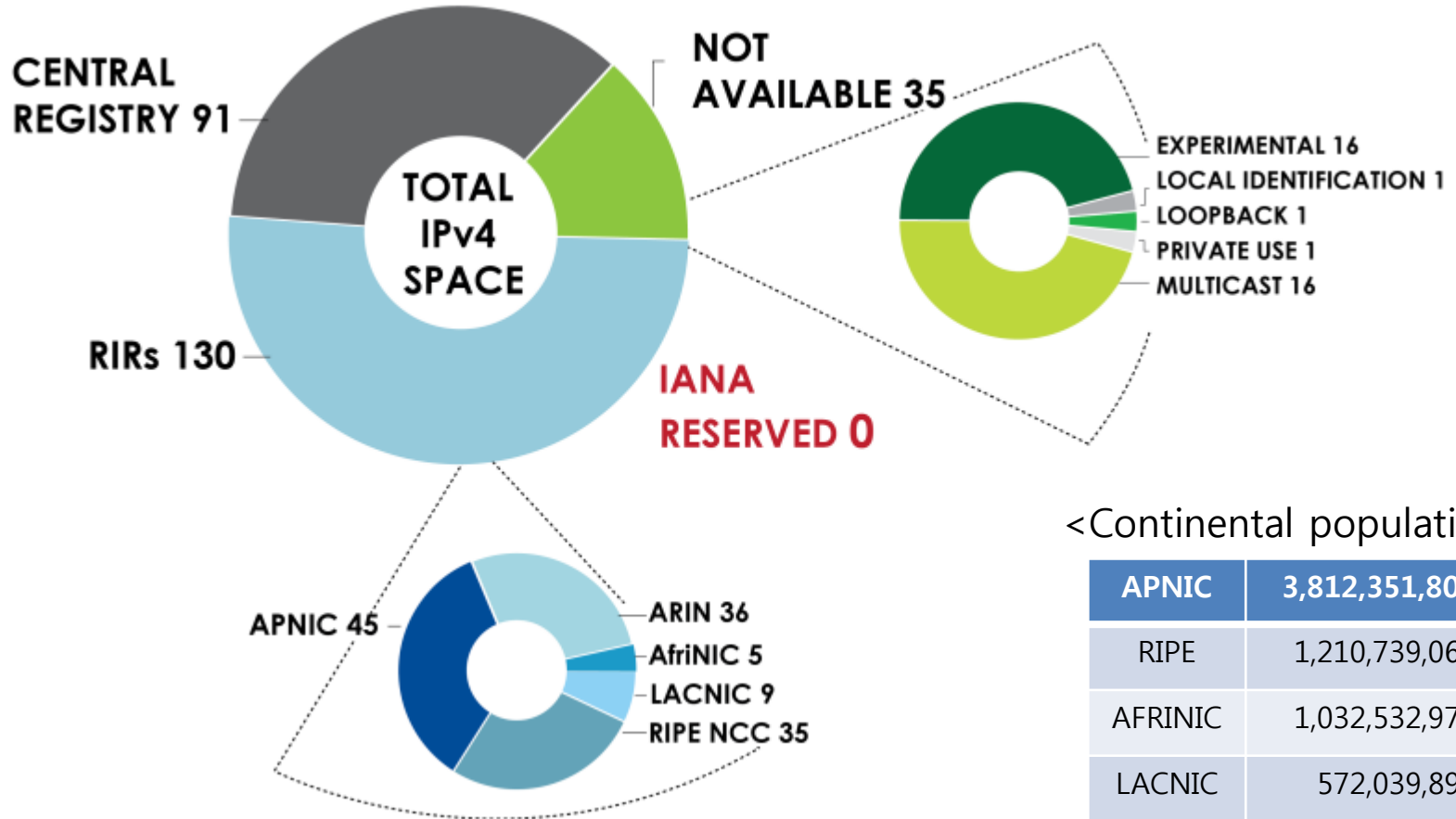
- IPv4 address supply imbalance between RIRs and Countries -

AUG 2012

YOUNGSUN LA (rays@kisa.or.kr)

KISA

● **IPv4 address allocation status**

CENTRAL REGISTRY 91

NOT AVAILABLE 35

TOTAL IPv4 SPACE

EXPERIMENTAL 16
LOCAL IDENTIFICATION 1
LOOPBACK 1
PRIVATE USE 1
MULTICAST 16

RIRs 130

IANA RESERVED 0

APNIC 45
ARIN 36
AfriNIC 5
LACNIC 9
RIPE NCC 35

<Continental population>

APNIC	3,812,351,804
RIPE	1,210,739,065
AFRINIC	1,032,532,974
LACNIC	572,039,894
ARIN	346,074,696

[Source : NRO Internet Number Resource Report(June 2012)]

[Source : World Bank, 2011]

1

v6webmaster@kisa.or.kr

● **Available IPv4 /8s IN EACH RIR**
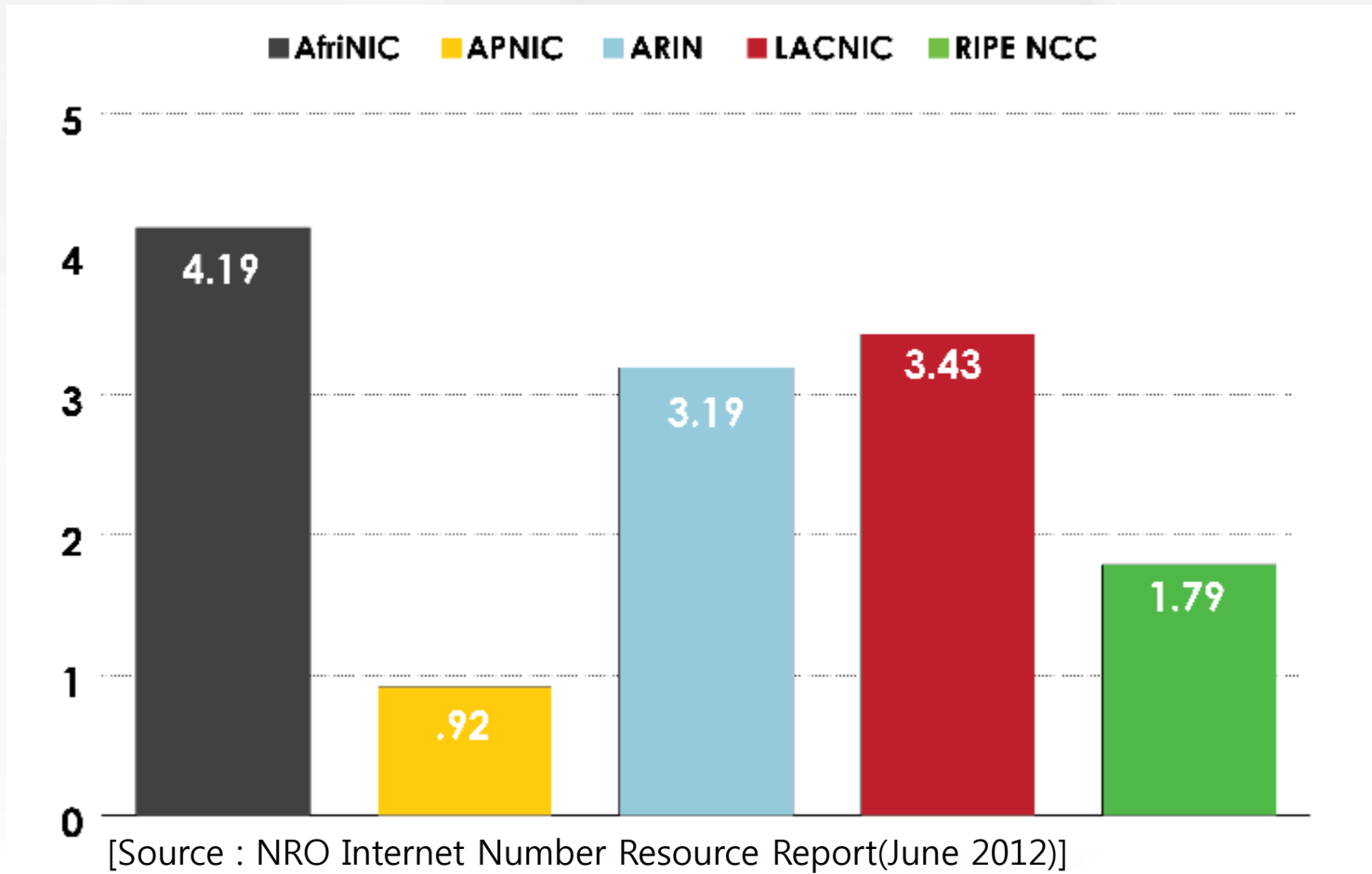
[Source : NRO Internet Number Resource Report(June 2012)]

Status

● Number of IPv4 address and population of each country

Country	No, of IP Addresses (as at April 2012)	No, of Internet Users(as at Dec 2011)	Population (Wikipedia)	No, of IP Address / individual
United States	1,544,059,509	245,203,319	313,502,000	More than4(4.9)
Norway	15,643,944	4,560,572	5,009,100	More than3(3.1)
Sweden	26,992,704	5,441,718	9,490,683	More than2(2.8)
Netherlands	45,947,050	15,071,191	16,733,727	More than2(2.7)
Switzerland	21,622,047	6,430,363	7,952,600	More than2(2.7)
Finland	13,688,785	4,661,265	5,407,960	More than2(2.5)
Canada	83,509,876	27,757,540	34,791,000	More than2(2.4)
Denmark	12,756,813	4,923,824	5,580,516	More than2(2.2)
Australia	48,171,973	19,554,832	22,899,002	More than2(2.1)
United Kingdom	124,042,791	52,731,209	62,262,000	2
NewZealand	7,153,897	3,625,553	4,434,440	More than1(1.6)
Austria	11,910,057	6,143,600	8,452,835	More than1(1.4)
Cermany	119,144,857	67,364,898	81,858,000	More than1(1.4)
France	78,950,316	50,290,226	65,350,000	More than1(1.2)

(source : To get your infrastructure ready to gear up with IPv6 trend(Theodoric Chan, NTT Singapore, 31th May 2012)

Status

KISA

● **Number of IPv4 address and population of each country**

Country	No, of IP Addresses (as at April 2012)	No, of Internet Users (as at Dec 2011)	Population (Wikipedia, 8th May 2012)	No, of IP Address / individual
China	330,727,691	513,100,000	1,347,350,000	Less than1(0.24)
Malaysia	6,370,142	17,723,000	28,334,135	Less than1(0.22)
Vietnam	15,564,561	30,516,587	87,840,000	Less than1(0.17)
Thailand	8,562,096	18,310,000	65,479,483	Less than1(0.13)
Indonesia	18,861,081	55,000,000	237,641,326	Less than0.1(0.079)
Philippines	5,421,534	29,700,000	92,337,852	Less than0.1(0.058)
India	35,164,844	121,000,000	1,210,193,422	Less than0.1(0.029)
Cambodia	234,418	491,480	13,395,682	Less than0.1(0.017)
Laos	55,048	527,400	6,465,800	Less than0.01(0.0085)
Myanmar	25,428	110,000	48,337,000	Less than0.01(0.0005)
North Korea	1,024	-	25,000,000	Less than0.01(0.00004)

(source : To get your infrastructure ready to gear up with IPv6 trend(Theodoric Chan, NTT Singapore, 31th May 2012)

4

Problem

- IPv4 address are not distributed in proportion to the population.

- Some countries will face problem with shortage of IPv4 address.
  - Number of internet users and mobile devices is going up steadily with their economic growth
  - It will take many years before IPv6 is fully deployed. IPv4 shortage problem will last for pretty long time.

- It's about time to open up a discussion on relocating unallocated IPv4 addresses between RIRs for the countries that have little IPv4 address per population.

Policy Proposal Draft

● **Subject**

- IPv4 Address Reallocation among RIRs

● **Objects**

- Providing solution for Asian countries that have very few IPv4 address compared

  with their population

● **Current Situation**

- Wide variations between number of IPv4 addresses per person of each country

● **Summary**

- A discussion about relocating unallocated IPv4 addresses between RIRs for the

  countries that have few IPv4 address per population is needed.