

# **WORKSHOP ON IPv6**

**TECHNOLOGY, TRENDS AND TRANSITION**

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## Workshop Modules

### 1. Introduction and objectives of the workshop

- Dr. Adeel Baig, SEECS, NUST

### 2. IPv6 Task Force v6Core Project Details

- Mr. Aftab Siddiqui, Cybernet

### 3. IPv6 Technical Update

- Mr. Majid Siddiq, CISCO

### 4. IPv6 R&D

- Dr. Adnan Khalid Kiani, SEECS, NUST

### 5. IPv6 Demo Implementation, Testing and Demo

- Mr. Imran Chaudhry, SEECS, NUST

## Workshop Objectives

- Capacity building and promoting IPv6 awareness**
- Accelerate adoption and integration of IPv6 in Pakistan**
- Bridging the Industry-Academia Gap**
- Stimulate interest in research and development**

## Why IPv6?

IPv4 has been around since the 1970's

In early 1990's concern was raised over potential IPv4 address shortages

- This led to Classless InterDomain Routing (RFC1519), private IPv4 addressing (RFC1918) and Network Address Translation (RFC1631)

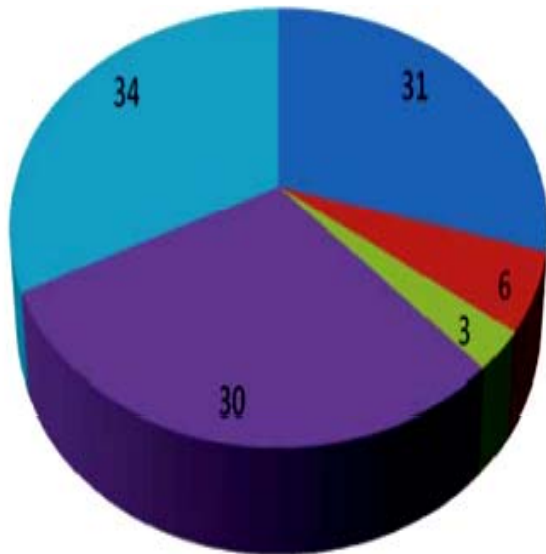
Early work on TUBA ('92), SIPP ('93) and CATNIP ('94)

- History of the original recommendation available in RFC1752

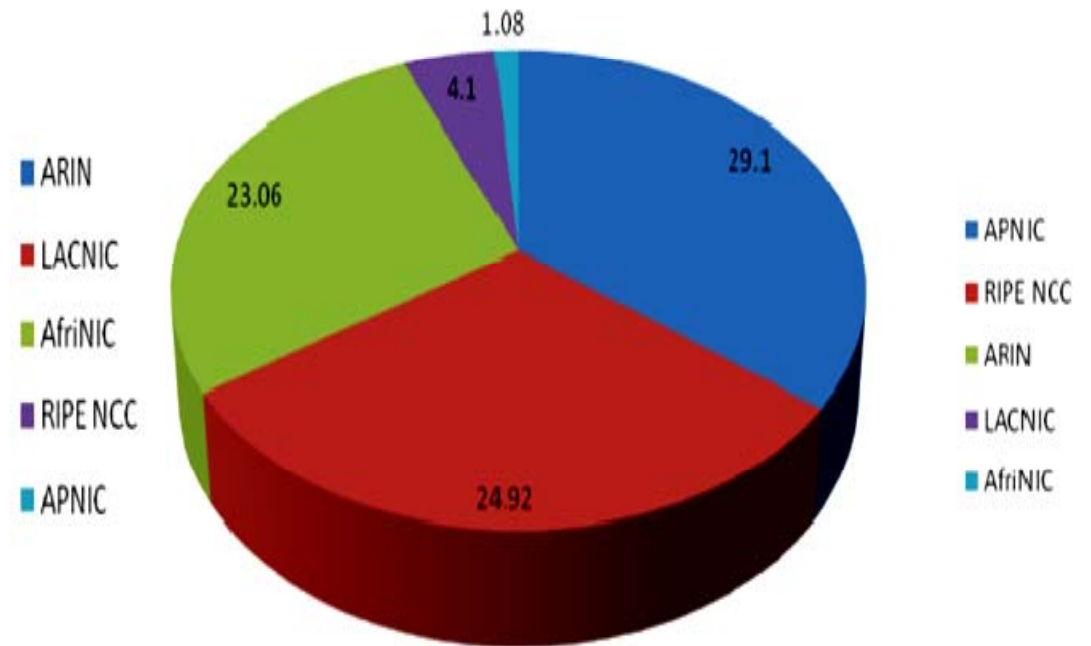
Then the IETF began work on IPv6 in the mid 1990's

- Led to RFC2460, the base IPv6 protocol specification
- Plus other associated RFCs: 2461, 2462, etc
- See: <http://www.ietf.org/html.charters/ipv6-charter.html>

# IPv4 Address Allocation



**Allocations**



**Actual usage**

Source :Number Resource Organization (NRO)

## Projected IPv4 Address Exhaustion

**Projected IANA Pool Exhaustion – September 2011**

**Projected APNIC Pool Exhaustion – November 2012**

**Projected Full Depletion of IPv4 for Pakistan – July 2014**

Source: PTA-Internet Protocol version 6 Monitory Group Report, Jan 2010

December 23, 2010

## Vint Cerf\* about IPv6

Some researchers wanted a 128-bit space for the binary address, But others said, “That’s crazy,” because it's far larger than necessary, and they suggested a much smaller space. Cerf finally settled on a 32-bit space that was incorporated into IPv4 and provided a respectable 4.3 billion separate addresses.

“It’s enough to do an experiment,” he said. **“The problem is the experiment never ended.”**

\*Cerf , recognized as one of the father of internet, at a recent IPv6 workshop arranged by National Telecommunications and Information Agency 2010