

هيئة الاتصالات وتقنية المعلومات  
Communications and Information Technology Commission



# IPv6 initiative and Status in Saudi Arabia

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**MENOG 4**  
**9 April 2009**

# Agenda



Internet in Saudi Arabia

Internet Development Strategy

IPv6 Current State Assessment

IPv6 Countries Benchmark

IPv6 International Bodies and Organizations

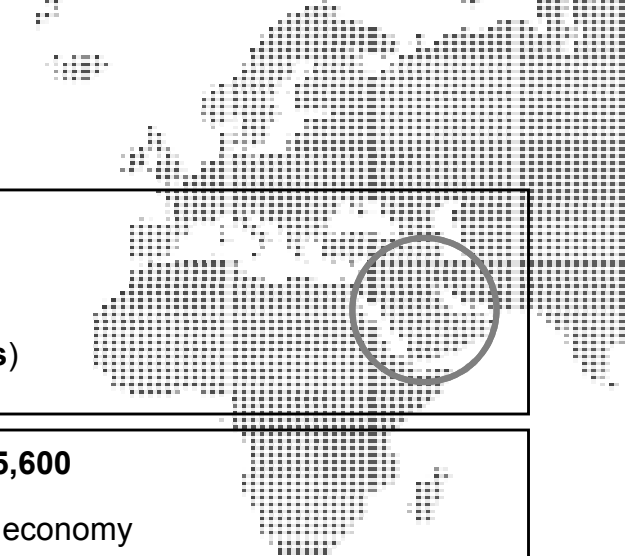
Proposed IPv6 Strategy

Road Map and Next Steps

Summary



# The Saudi ICT Market (End 2008)



## Population

- Population: about **25 million** (75% Saudis)
- Young Population (about **50%** less than 20)
- Large Household Size (Average **5.7 persons**)

## Economy

- GDP > US\$ 380B – GDP per capita > **US\$ 15,600**
- Heavy investments in creating a leading ICT economy
- 30 %** of Middle-East ICT Spending

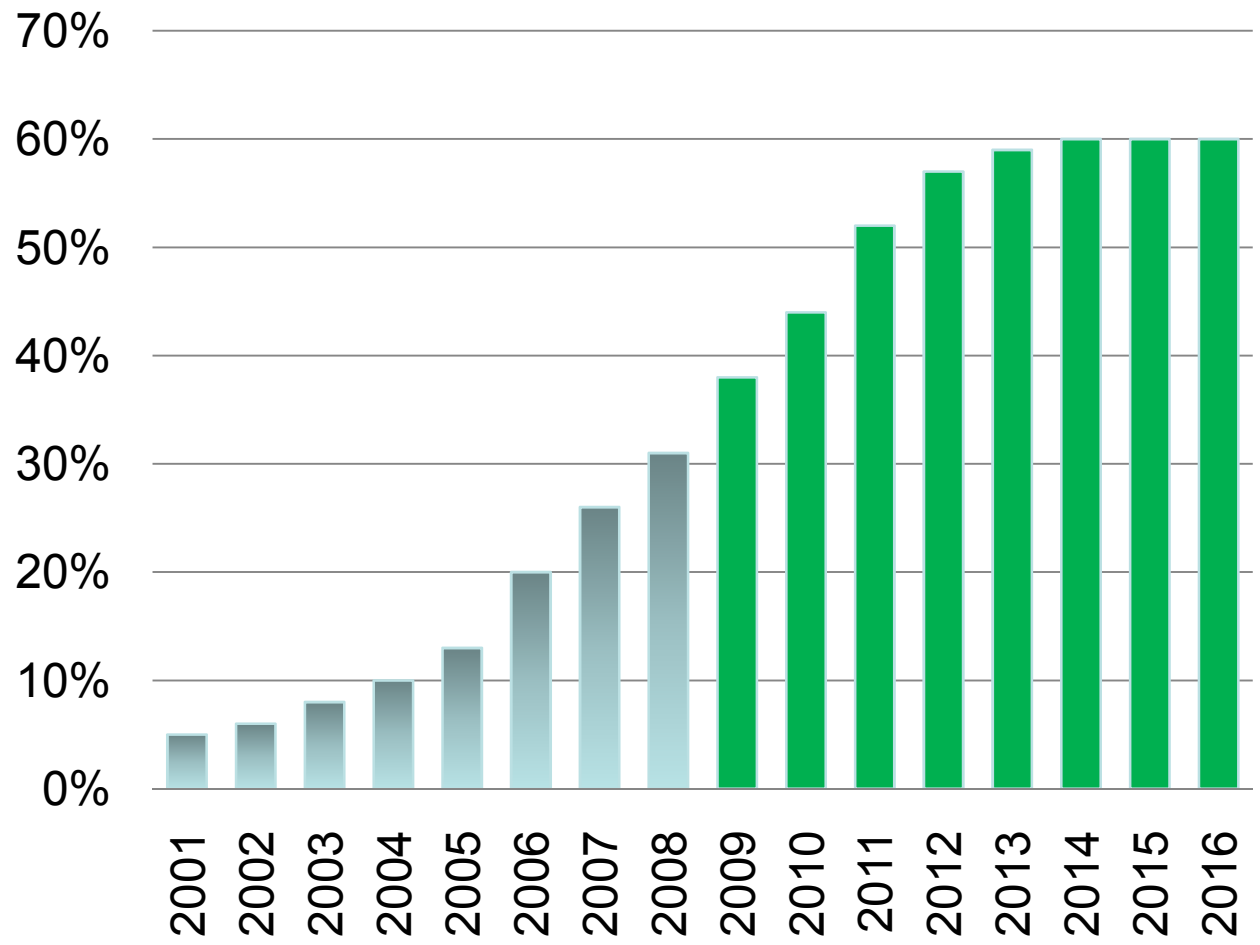
## ICT Indicators

- Fixed Line Penetration/ Capita **16.4%**
- Mobile Penetration more than **100%**
- About 1 million DSL and 400,000 Mobile Broadband (HSPA only)
- Fixed lines Penetration/ Household **66%**
- Internet Penetration **30%**
- PC's **43%**

Source: CITC



# Internet Penetration



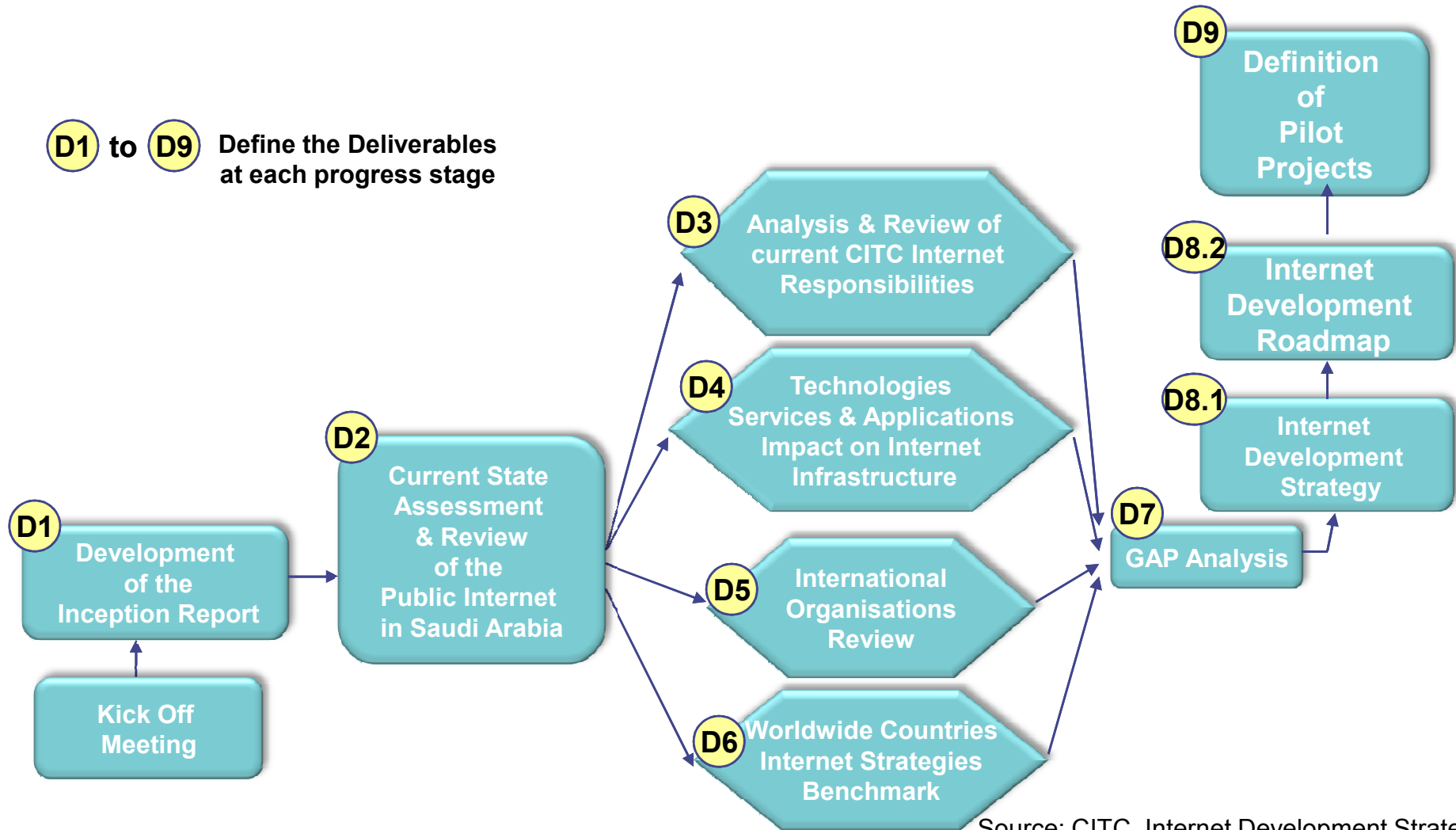
Source: CITC, Internet Development Strategy



# Internet Development Strategy



**D1 to D9** Define the Deliverables at each progress stage



Source: CITC, Internet Development Strategy

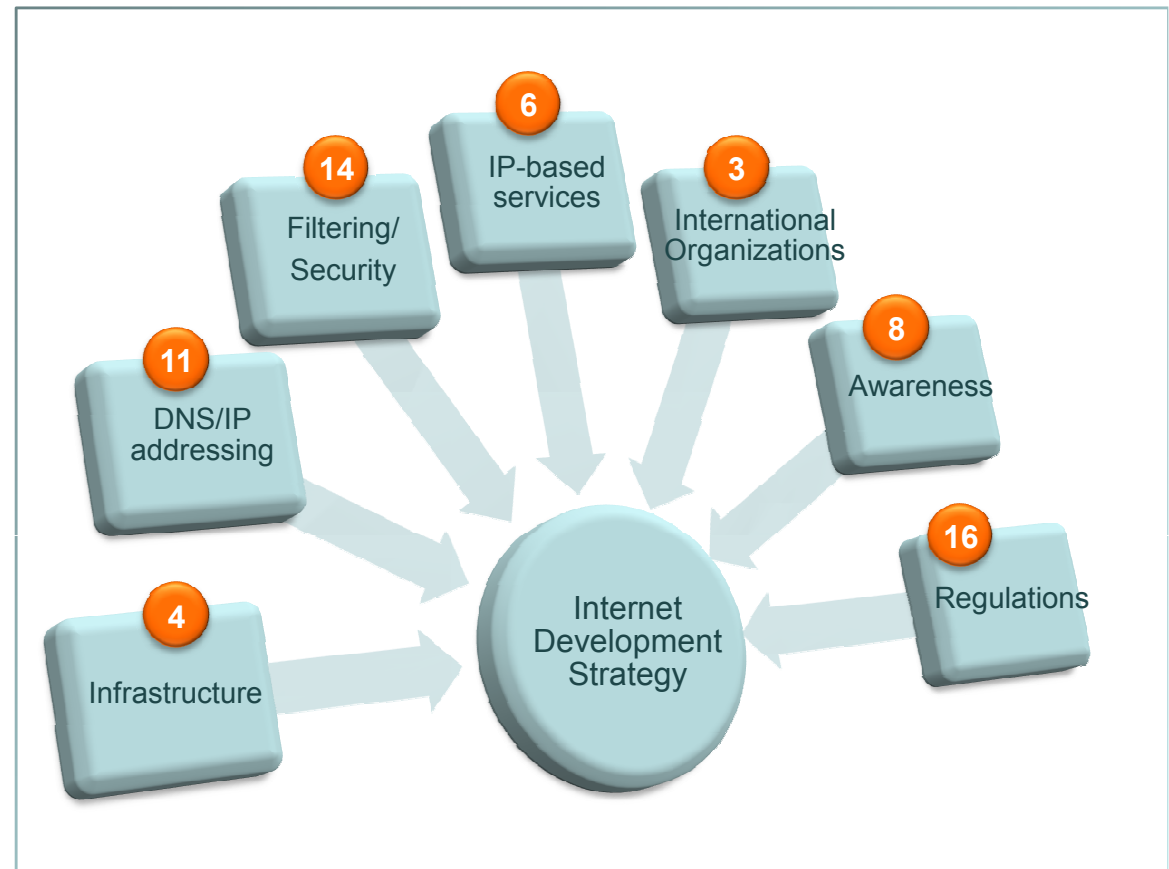


# Internet Development Strategy Map



## 7 Streams

- ✚ Infrastructure: **4 projects**
- ✚ DNS/IP addressing: **11 projects**
- ✚ Filtering/Security: **14 projects**
- ✚ IP-based services: **6 projects**
- ✚ International Organizations: **3 projects**
- ✚ Awareness: **8 projects**
- ✚ Regulation: **16 projects**



**Project:** Well defined actionable scope of work in direct relation with the gaps

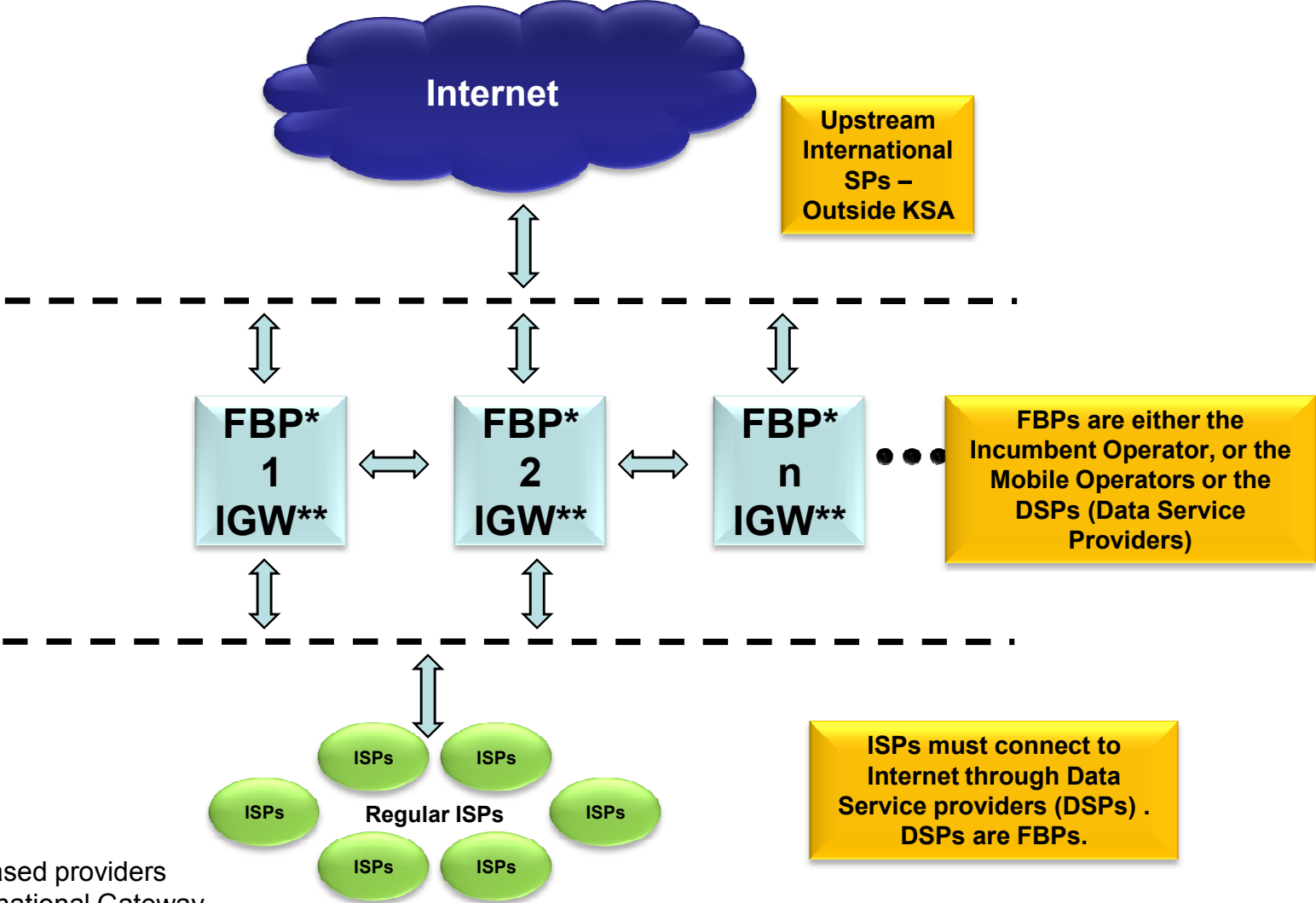
**Stream:** Similar projects are listed together (depending mainly on CITC organization)

**Project Group:** After approval, projects are clustered into groups for easier management and procurement

Source: CITC, Internet Development Strategy



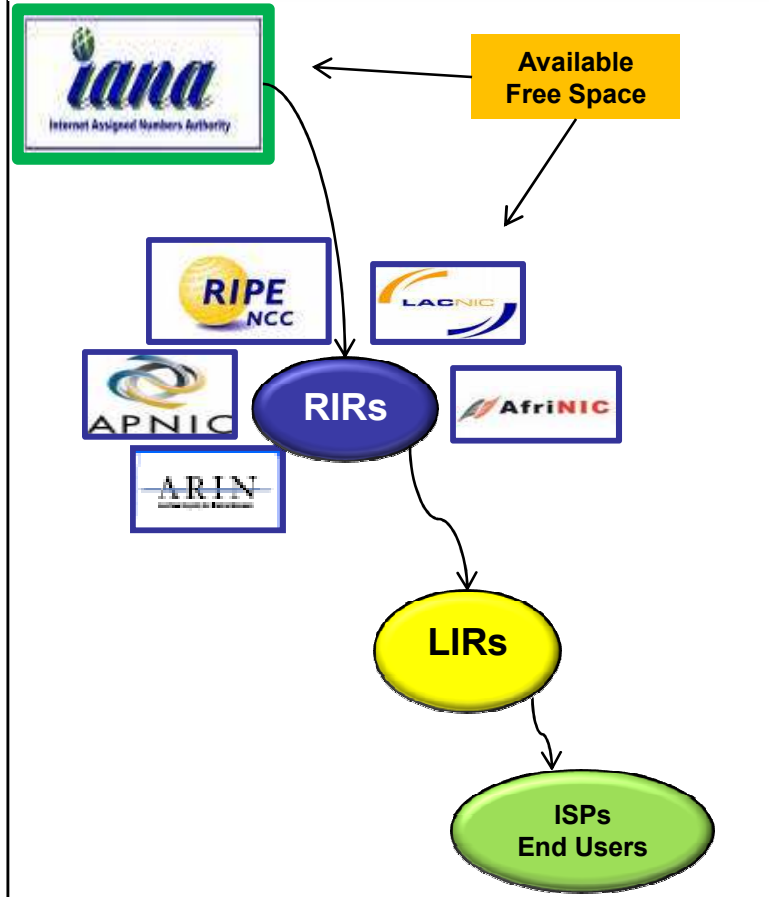
# Internet Stakeholders in Saudi Arabia



# IPv6 Current State Assessment



## IPv4 Address Delegation Hierarchy



## RIRs Geographical Scope

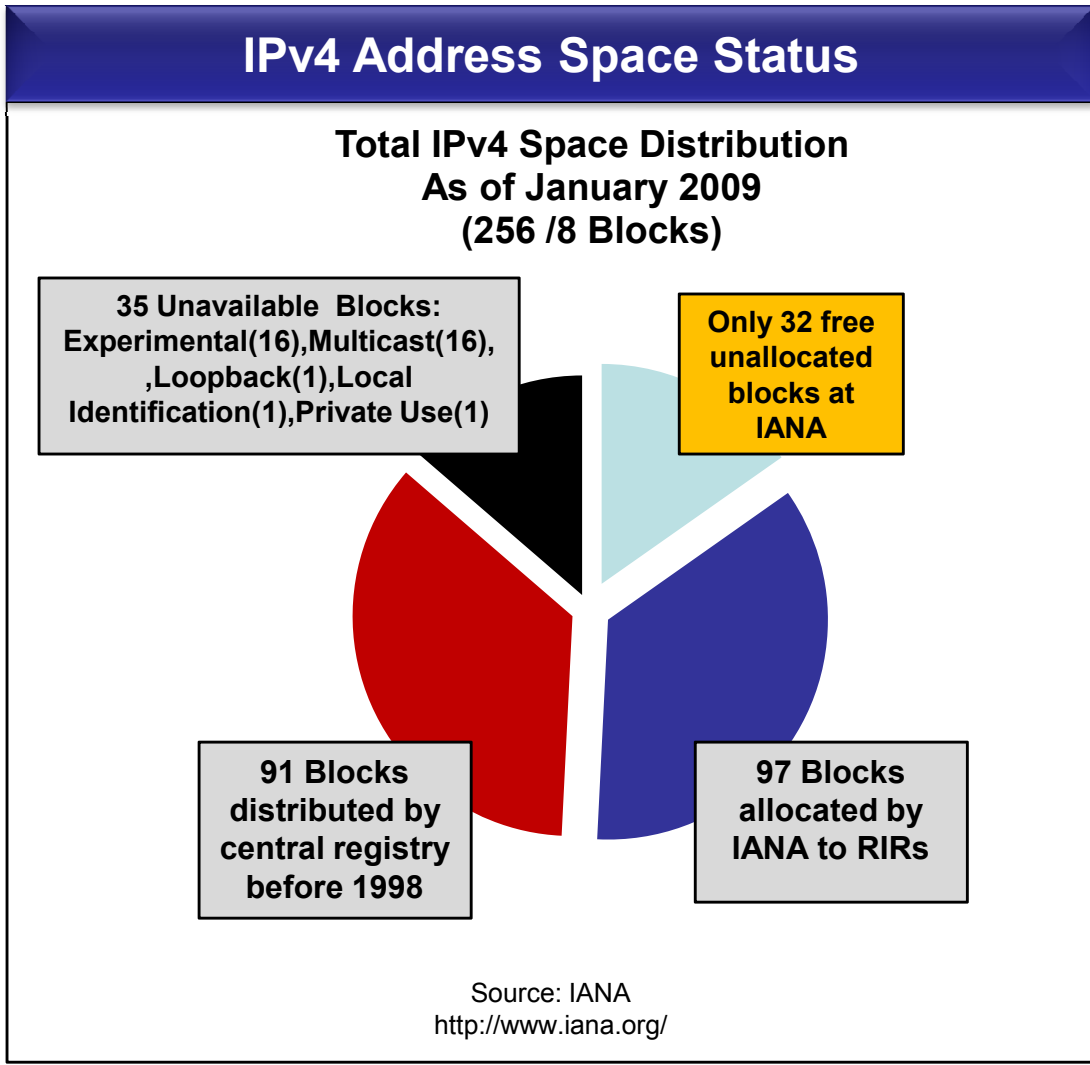
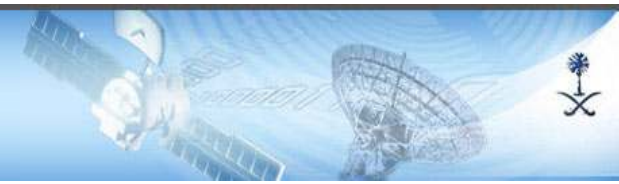


*January 2009: 94 LIRs in KSA  
(Source: RIPE NCC)*





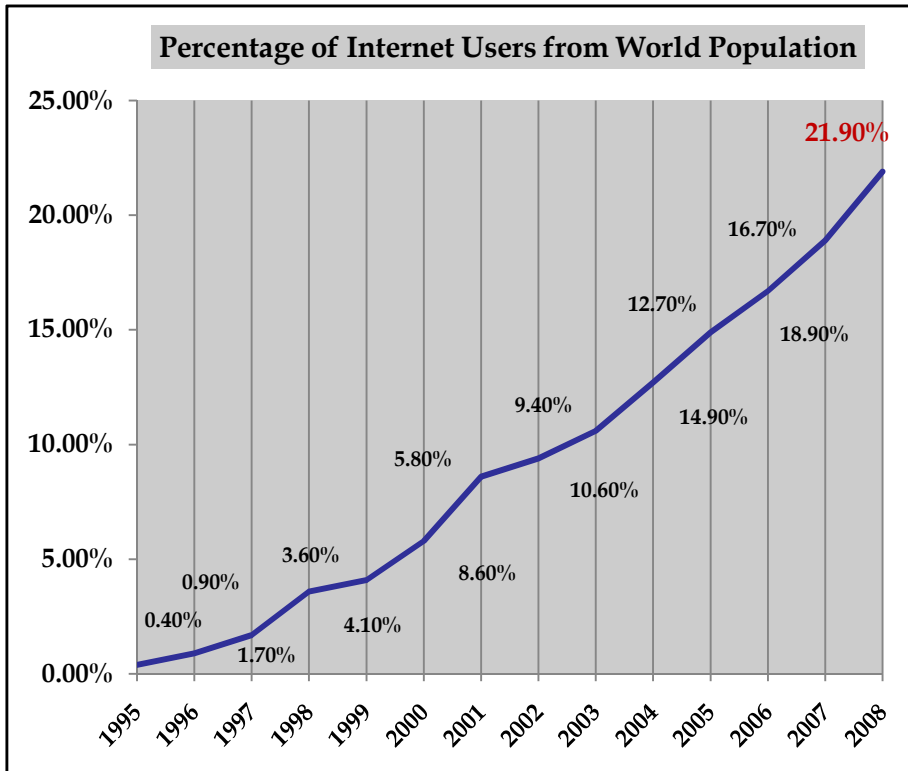
# IPv6 Current State Assessment



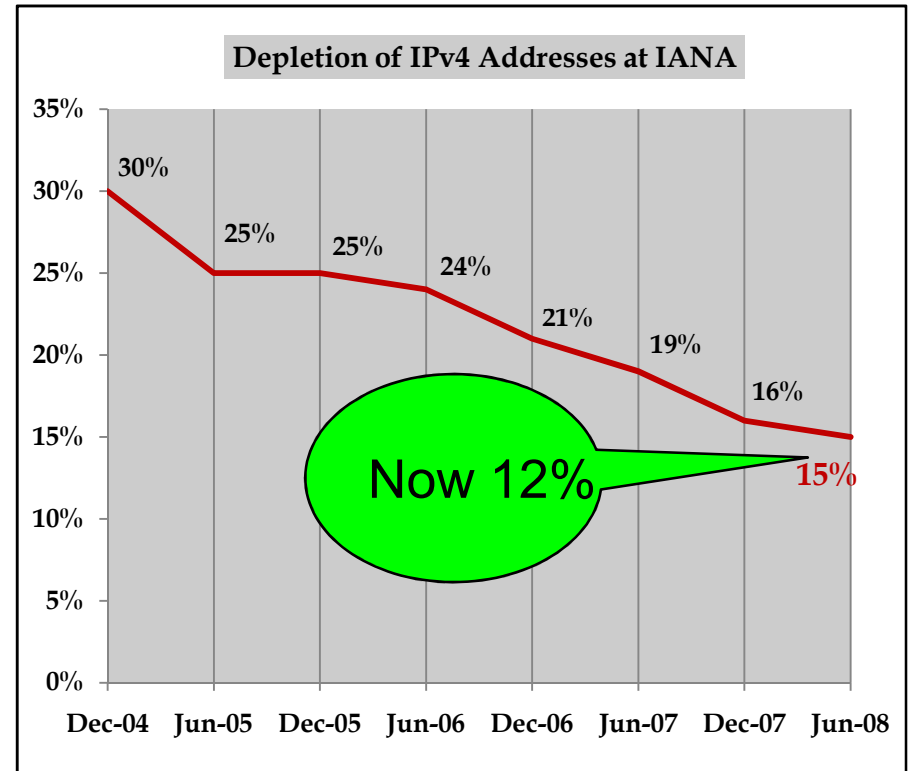
# Why is IPV6 needed?



The **main driver for IPv6 Adoption** is that **IPv4 is a finite resource** that is being quickly depleted due to the growth of the internet and more devices coming online and hence requiring IP addresses. IPv6 nearly infinite pool of addresses is the **solution that will sustain the growth of the internet for a very long period** by ensuring the availability of IP Addressing.



Source: Internet World Stats  
<http://www.internetworldstats.com/>



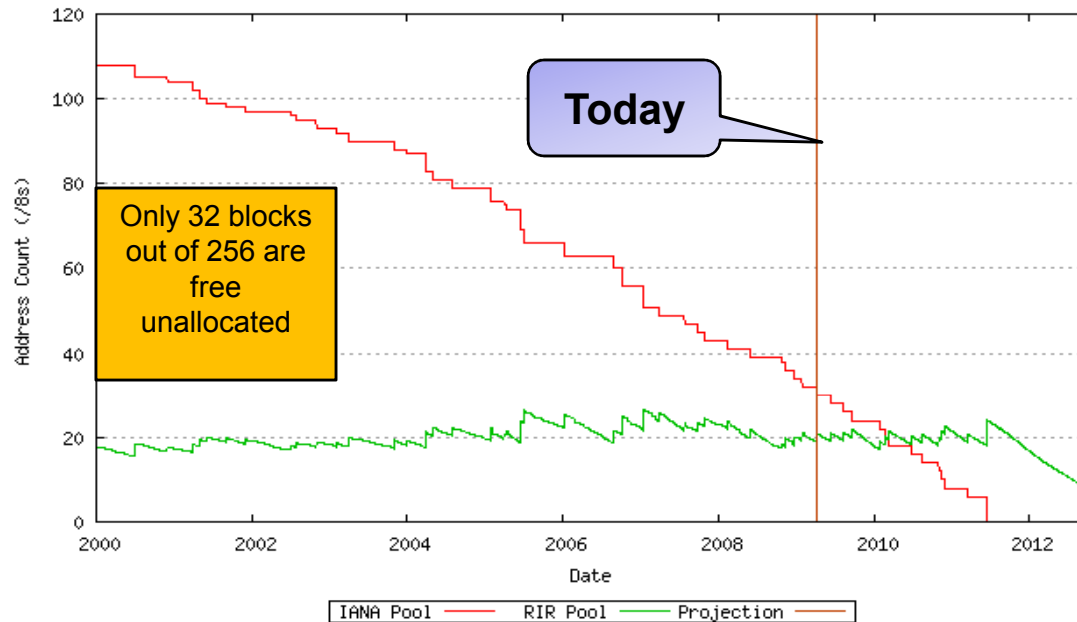
Source: Number Resource Organization  
<http://www.nro.org/>



# IPv6 Current State Assessment



## IPv4 Depletion Predictions at IANA and RIRs



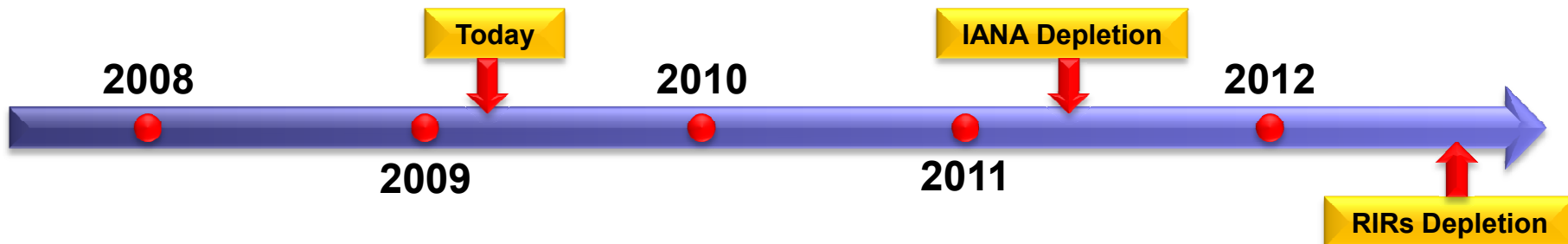
As of January 2009:

Projected Depletion date at IANA:  
March 2011

Projected Depletion date at RIRs:  
August 2012

Source  
"The IPv4 Address Report"  
By Geoff Huston

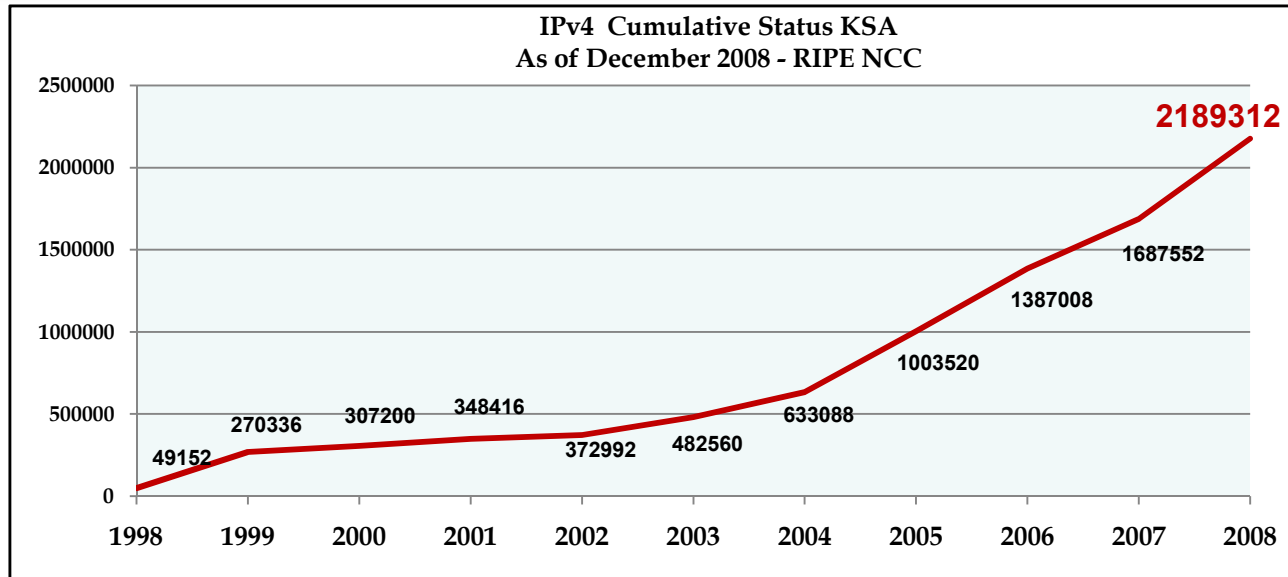
<http://www.potaroo.net/tools/ipv4/>



# IPv4/IPv6 Current State



## IPv4 Status Locally



**2.18 Million IPv4 Addresses – Dec. 2008**

**73.36% Advertised**

**0.08 IPv4 Address Per Capita**

(Source:  
<http://resources.potaroo.net/iso3166/v4cc.html>)

### IPv6 Status:

**KACST (2001:1490::/32)**  
**STC (2001:16a0::/32)**  
**Atheeb (2a02:0888::/32)**  
**CITC (2001:1490:100::/48)**  
**Mobily**  
**Bayanat**

## Largest IPv4 Allocations

Date	Size	LIR	Date	Size	LIR
20080625	/14	STC	20050428	/16	Bayanat
20050209	/15	Arabic Com. Sys	20050905	/16	STC
20060523	/15	Nesma	20061208	/16	STC
20080131	/15	STC	20070719	/16	AL Faisaliah
19990128	/16	KACST	20071228	/16	Ettihad Etisalat
20030820	/16	Orbitnet	20080218	/16	Ogertel

**/14 block equates to 262,144 IPs**

**/15 block equates to 131,072 IPs**

**/16 block equates to 65,536 IPs**



## What Saudi Arabia has done



- CITC initiated a project to promote the use of IPv6 in Saudi Arabia in 2008. It included:
  - Current State Assessment
  - International Benchmark
  - IPv6 Strategy Design to:
    - Prepare the IPv4 address exhaustion
    - Ensure a smooth IPv6 adoption by stakeholders
    - Raise overall IPv6 awareness
- A National IPv6 Taskforce was created with representatives from key Service Providers in July 2008
- A website was set up: [www.ipv6.org.sa](http://www.ipv6.org.sa)



# IPv6 Task Force Homepage



## Saudi Arabia IPv6 Task Force

Search this site:  Search

Home About Strategy Documents Contact Us

### Secondary links

- Home
- Mission and Objectives
- IPv6 Strategy
- Workshop
- Members
- Documents
- Meetings and Events
- Related Links

### IPv6 Workshop

**Register online for IPv6 workshop.**

### About IPv6 Task Force

The IPv6 Task Force Forum came as the outcome of the IPv6 Project that was introduced by the Communications and Information Technology Commission as part of the Internet Services Development Projects undertaken by the CITC. The Commission sponsored the establishment of the Task Force that convened its first meeting on July 30, 2008.

Currently, the Task Force members, in addition to the CITC, include ICT Service Providers and the consulting arm of the Task Force Devoteam.

### IPv6 workshop registration open

Submitted by webmaster on Sat, 01/17/2009 - 12:42

CITC is organizing "Workshop on the IPv6 development in Saudi Arabia", the workshop will be held on Sunday 8th of February 2009.

You can check the agenda of the workshop [Workshop Agenda](#).

To attend please register on the [online registration form](#).

### 4 th task force meeting

Submitted by webmaster on Sun, 01/11/2009 - 10:25

### Poll

**Does your organization have an IPv6 adoption strategy?:**

Yes

Under development

No

Internet | Protected Mode: On

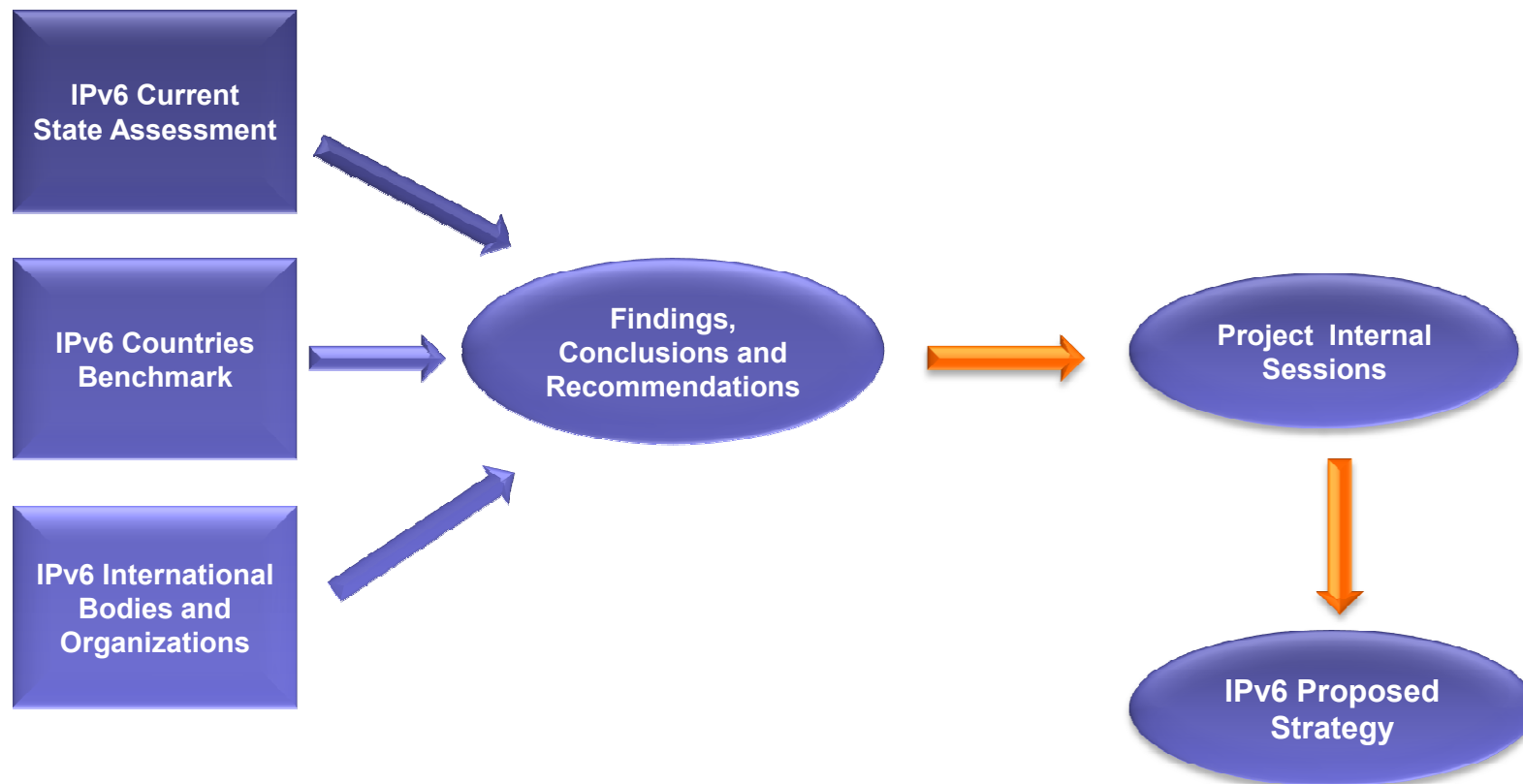
[www.ipv6.org.sa](http://www.ipv6.org.sa)



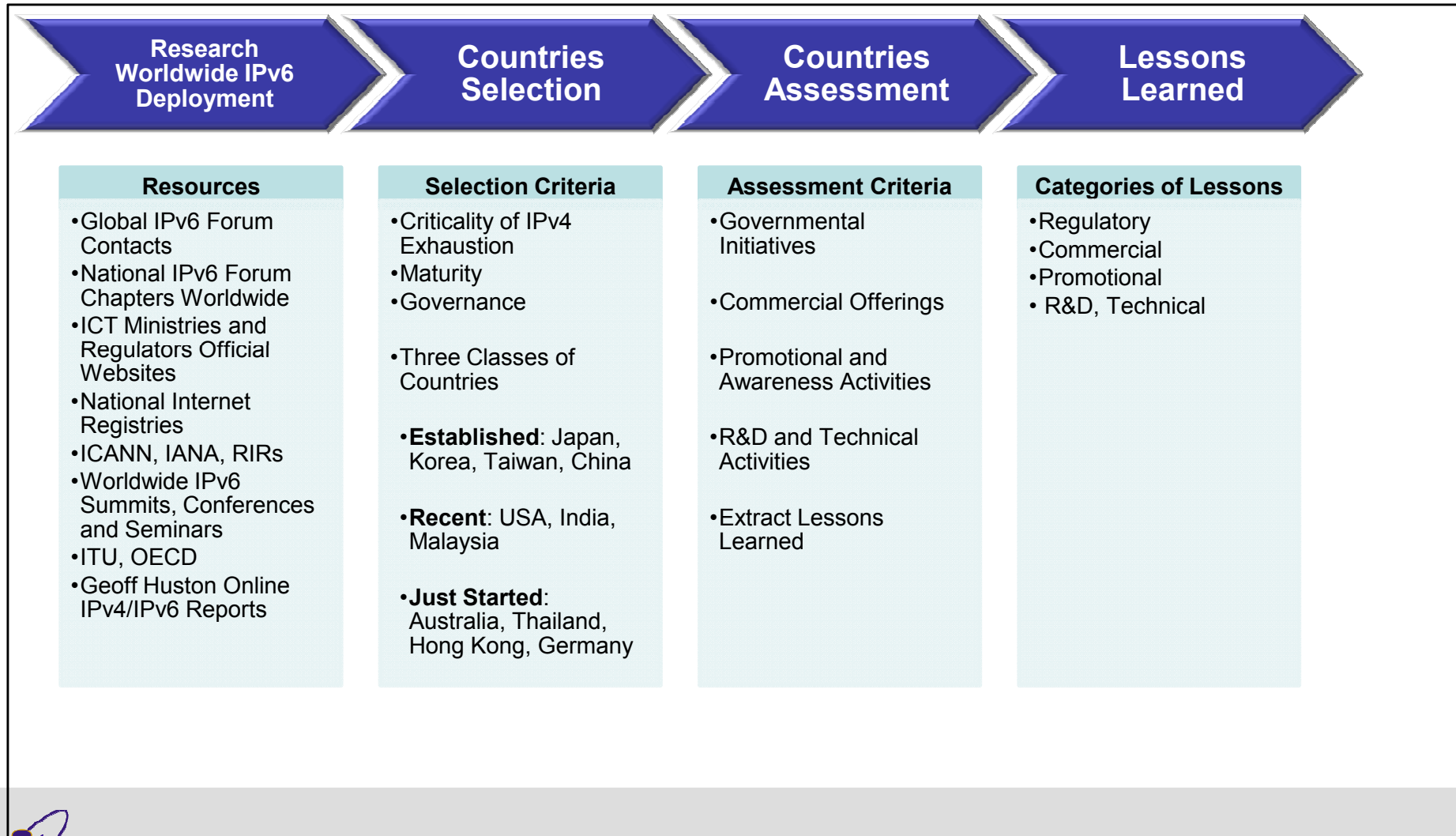
# IPv6 Strategy Development Methodology



IPv6 Proposed Strategy was developed using inputs from the IPv6 current state assessment, the benchmark study and the international organizations and bodies study



# IPv6 Countries Benchmark (Methodology)





# IPv6 Countries Benchmark (Lessons Learned)



Lesson Learned	Impact	Lesson Learned	Impact
<b>Role of IPv6 Plans Owner</b>	Promoter and Facilitator: All Countries, raise awareness and encourage deployment Enforcer: USA, only to Federal Agencies	<b>e-Gov adoption of IPv6</b>	Creates demand for IPv6 and drives stakeholders dealing with e-Gov to adapt IPv6
<b>Inclusion of IPv6 into major ICT initiatives</b>	Including IPv6 into major ICT initiatives is the fastest and most efficient way of promoting IPv6	<b>IPv6 Test Beds IPv6 R&amp;D, R&amp;E Networks</b>	Chance for stakeholders to connect, build IPv6 technical experience, train staff and try equipment without endangering their production networks
<b>IPv6 Specific Initiatives and Promotion Plans</b>	Specifically targets IPv6 deployment instead of being a part of a greater plan as mentioned above	<b>IPv6 into Procurement Policies</b>	Creates demand for IPv6 capable SW/HW
<b>Inclusion of IPv6 Compliance into the normal IT Cycle of Stakeholders</b>	Minimizes risks and costs of a sudden migration and thus insuring a “smooth” adoption of IPv6	<b>Training and HR</b>	IPv6 training is essential to nurture the needed IPv6 technical personnel and expertise.  IPv6 expertise is rare
<b>National IPv6 Task Force</b>	Gathers different stakeholders, solidifies efforts, serves as an IPv6 knowledge platform, establishes contacts with international IPv6 organizations such as the IPv6 Forum	<b>IPv6 R&amp;D Funding</b>	R&D funding would foster know-how expertise and help establish the needed IPv6 expertise (in addition to training)

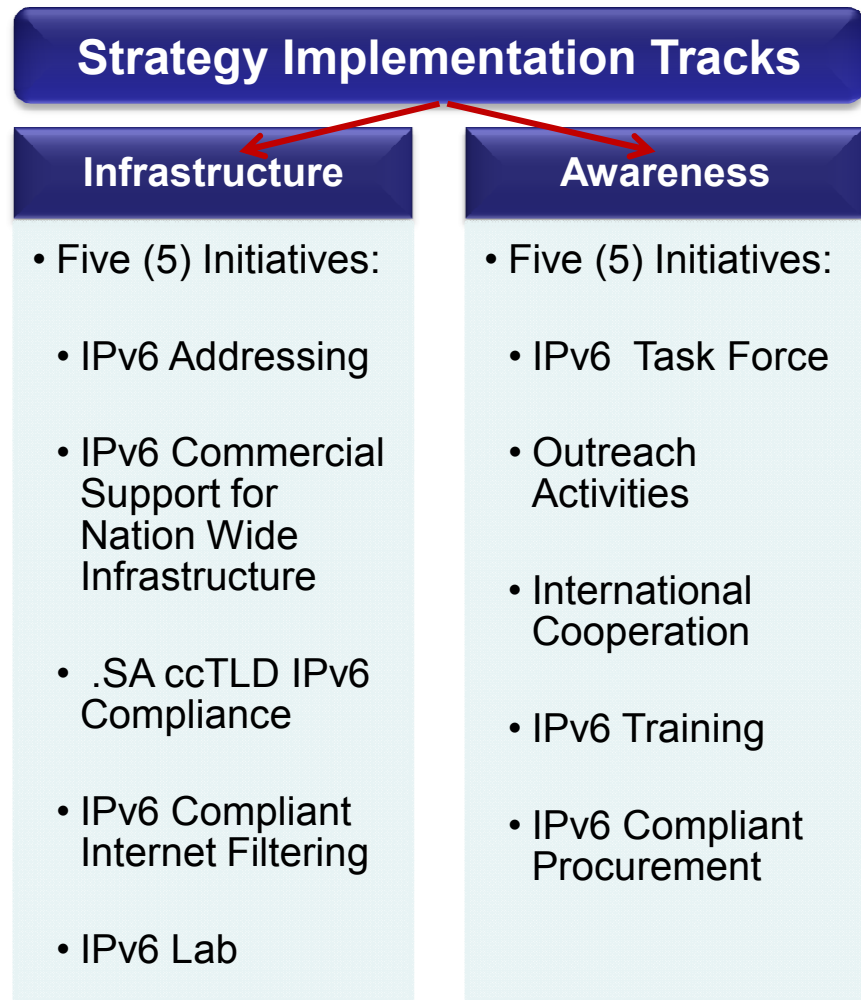


# Proposed Objectives & Strategy Tracks



### Strategic Objectives

- Prepare for the IPv4 exhaustion by supporting IPv6 and ensure stability, business continuity and room for continued growth of the internet in Saudi Arabia
- Ensure a smooth adaption of IPv6 by stakeholders so as to minimize risks
- Raise overall IPv6 awareness nationwide by approaching stakeholders of both the public and private sectors highlighting the necessecity to adopt IPv6

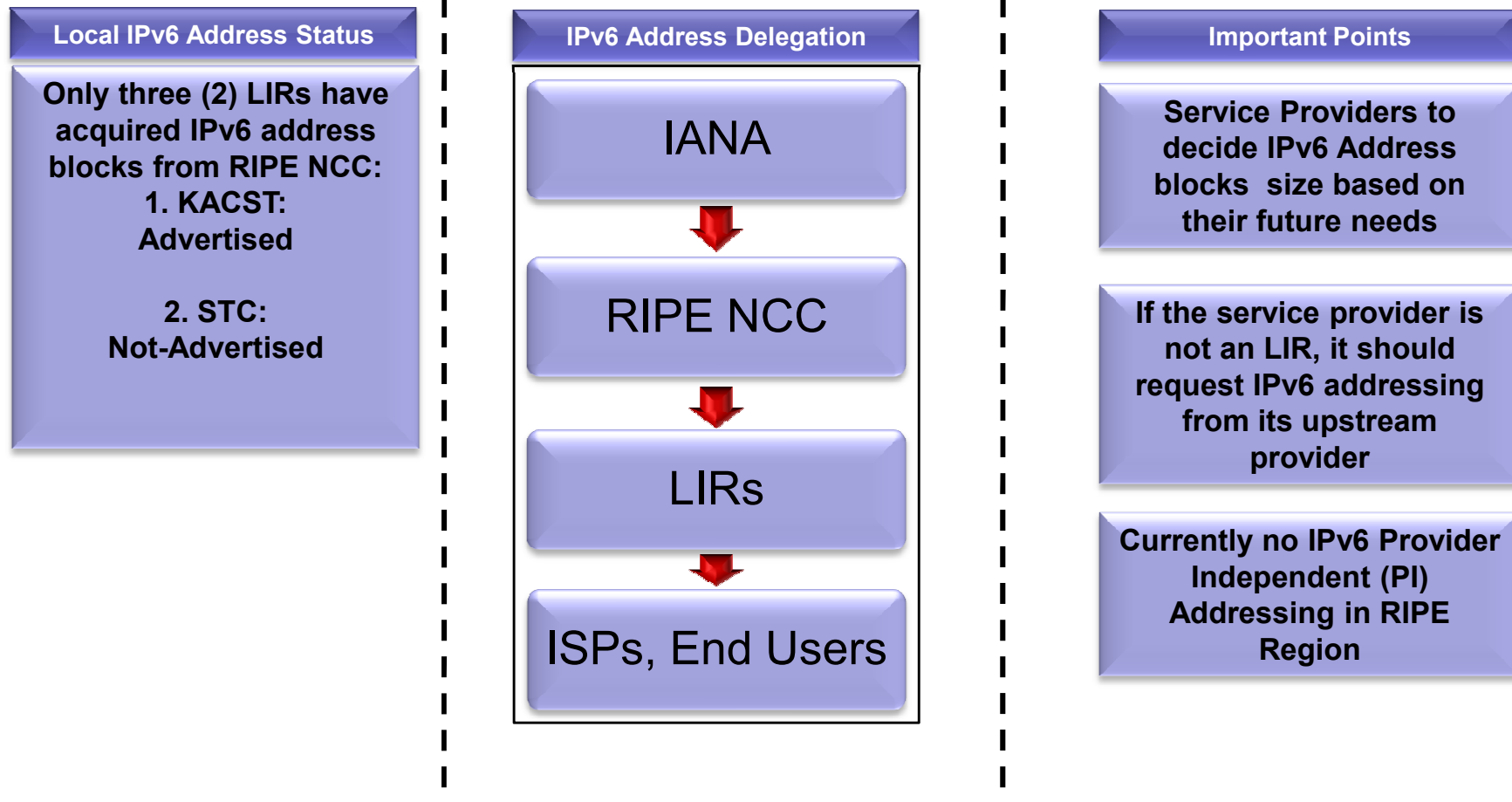


# Infrastructure Track

## 1. IPv6 Addressing



**The objective of this initiative is for Service Providers to acquire IPv6 Address Blocks**



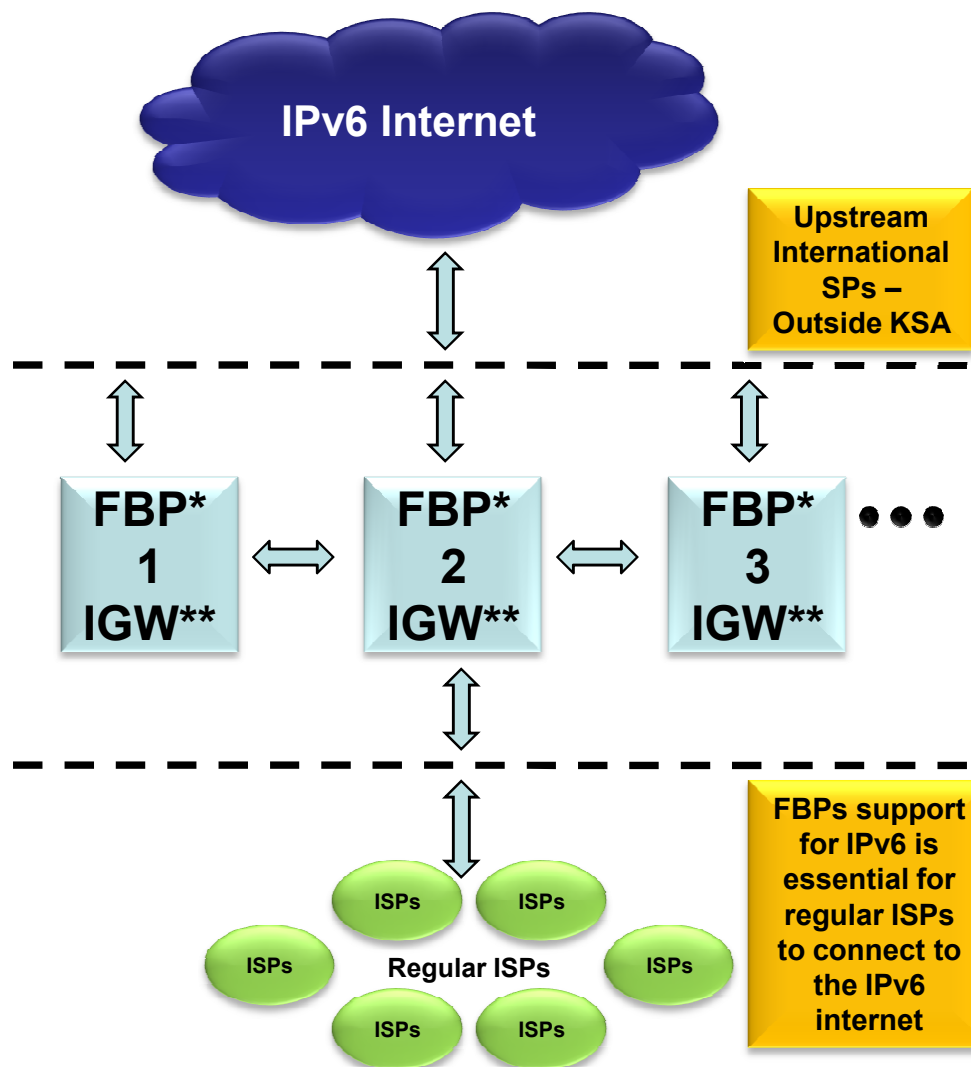
# Infrastructure Track

## 2. IPv6 Commercial Support for Nationwide Infrastructure

**Initiative Objective:**  
Service Providers to provide commercial IPv6 services through:

- FBPs\* to implement IPv6 in their Networks
- FBPs\* to acquire IPv6 Upstream Service
- FBPs\* to Implement IPv6 in Future Peering
- FBPs\* to implement IPv6 in their applications/services

\*FBPs: Facility-based providers  
\*\*IGW: Internet International Gateway

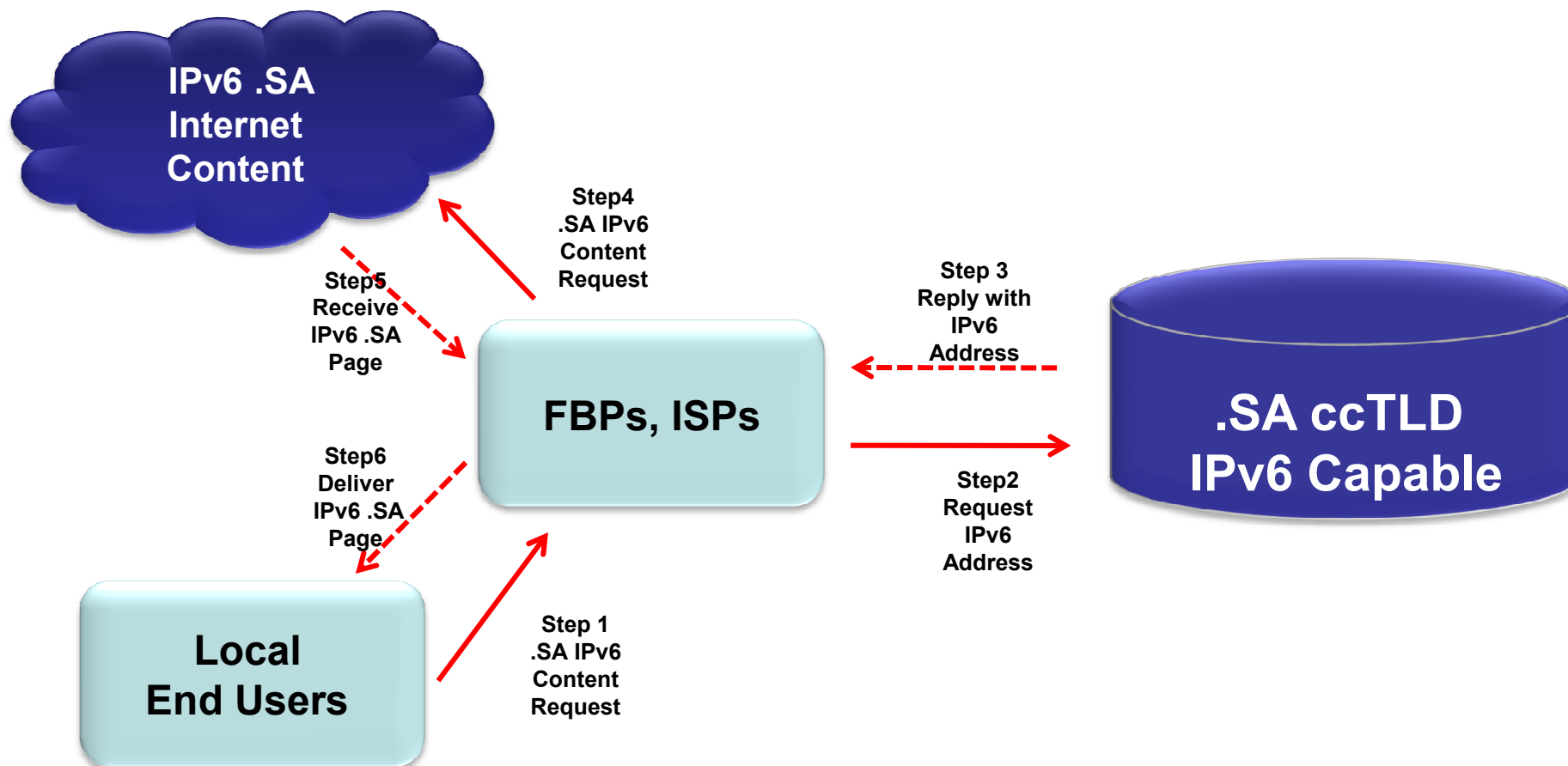


# Infrastructure Track

## 3. .sa ccTLD IPv6 Compliance



**Initiative Objective: SaudiNIC to prepare the .sa cc TLD infrastructure to be IPv6 ready**



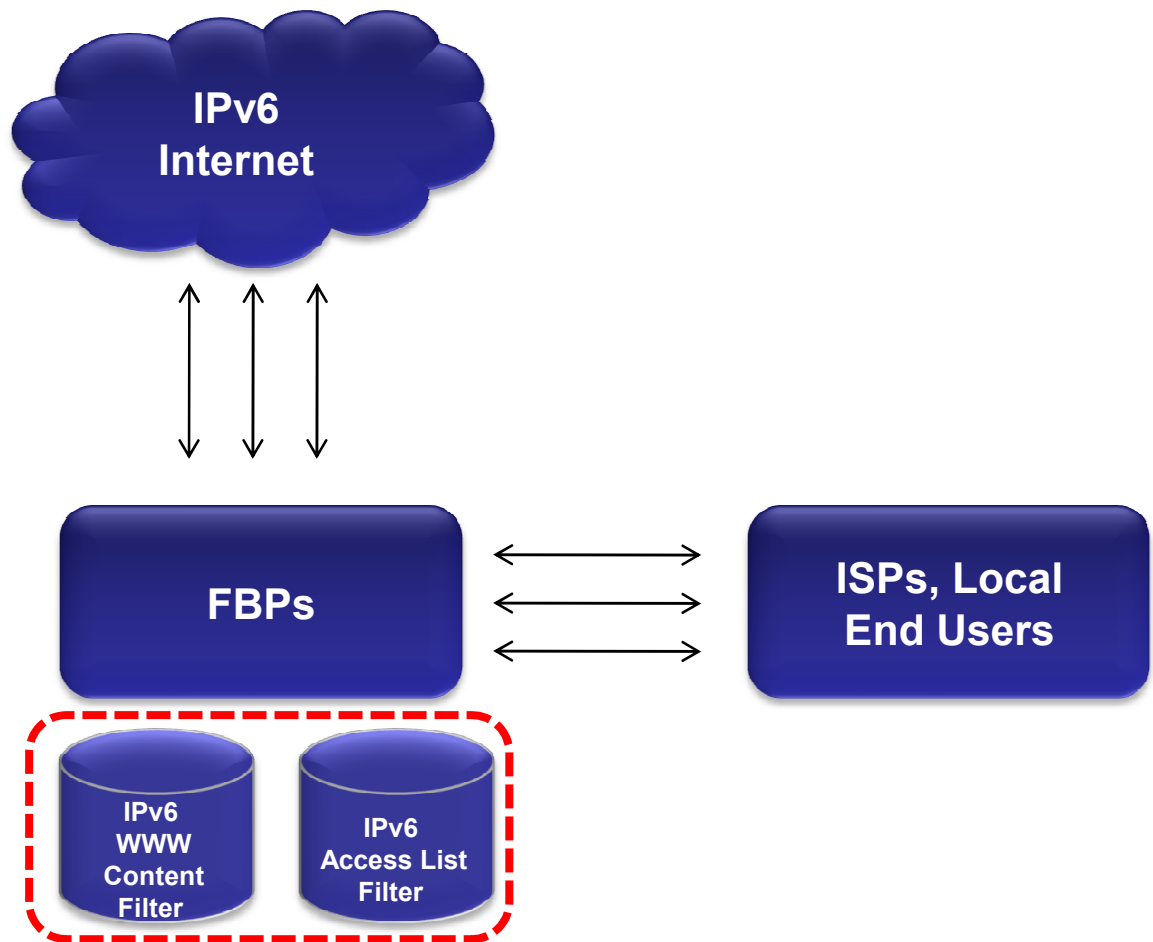
# Infrastructure Track

## 4. IPv6 Compliant Internet Content Filtering



**Initiative Objective:**  
Service Providers to implement IPv6 Internet Content Filtering by implementing:

- IPv6 Ready WWW Content Filter
- IPv6 Ready Access Lists Filter

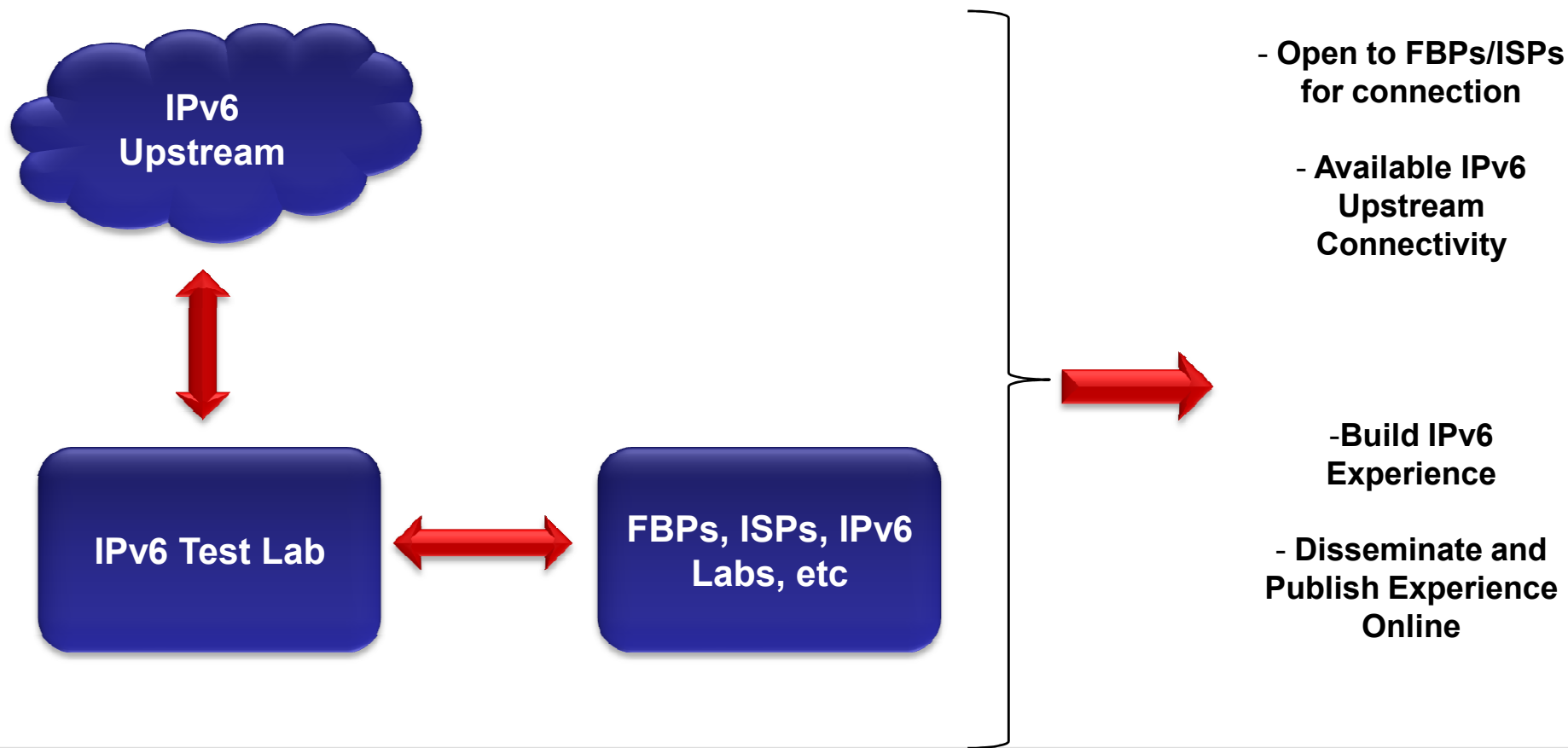


# Infrastructure Track

## 5. IPv6 Lab



**Initiative Objective: Service Providers to connect to IPv6 Lab and build IPv6 Experience**



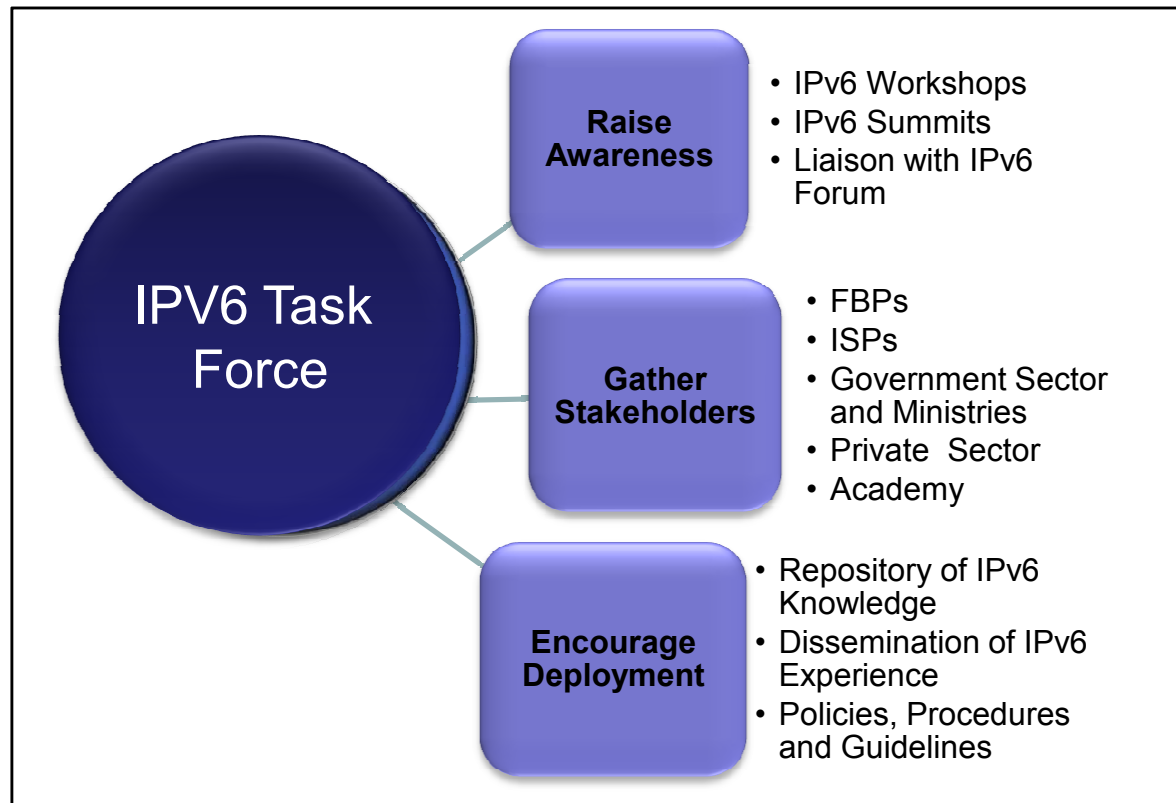
# Awareness Track

## 1. IPv6 Task Force Establishment



**Initiative Objective: to establish an IPv6 Task Force owning and driving the National IPv6 Strategy.**

### IPv6 Task Force Scope of Activities



### IPv6 Task Force Members

- CITC
- STC
- Mobily
- Bayanat
- ITC
- Atheeb
- KACST
- ZAIN
- Devoteam





# Awareness Track

## 2. Outreach Activities



**Initiative Objective: to raise stakeholders' awareness to foster nationwide IPv6 deployment**

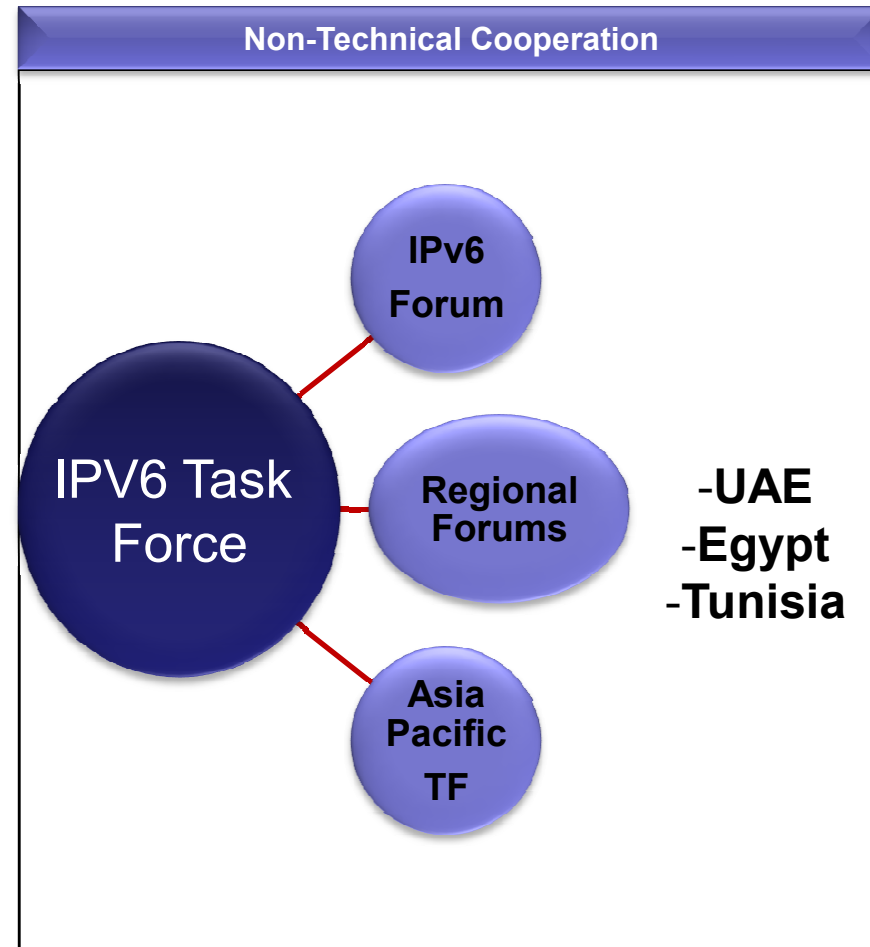
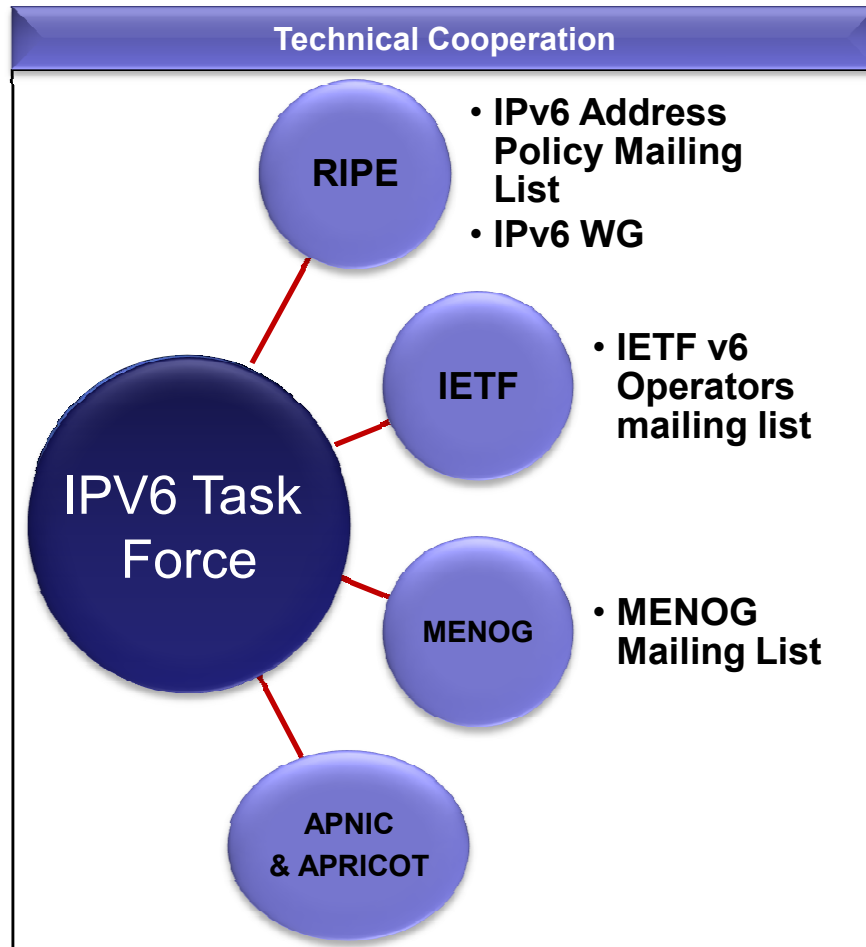


# Awareness Track

## 3. International Cooperation



The objective of this initiative is share IPv6 experience with international IPv6 bodies and establish Saudi Arabia's presence in relevant IPv6 international organizations

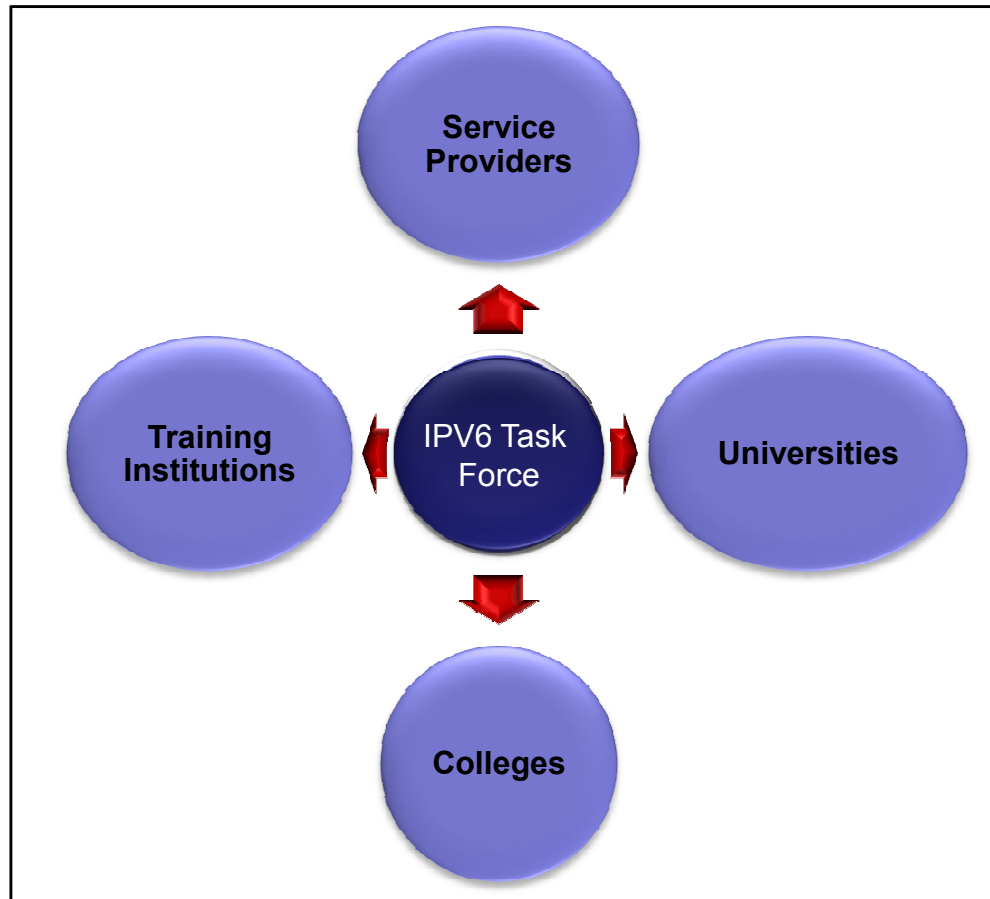


# Awareness Track

## 4. IPv6 Training



**Initiative objective: to enhance training curricula and programs with IPv6-related matters**



- Work with universities, colleges and commercial training institutions to include IPv6 into their curriculum

- Develop IPv6 Training Plan contents

- Increase the number of IPv6-trained engineers by 2011 when IPv4 addressing runs out and IPv6 is the only solution

- End users (government, enterprises, consumers) will be trained by the Service Providers, the Training Institutions, the Universities, the Colleges

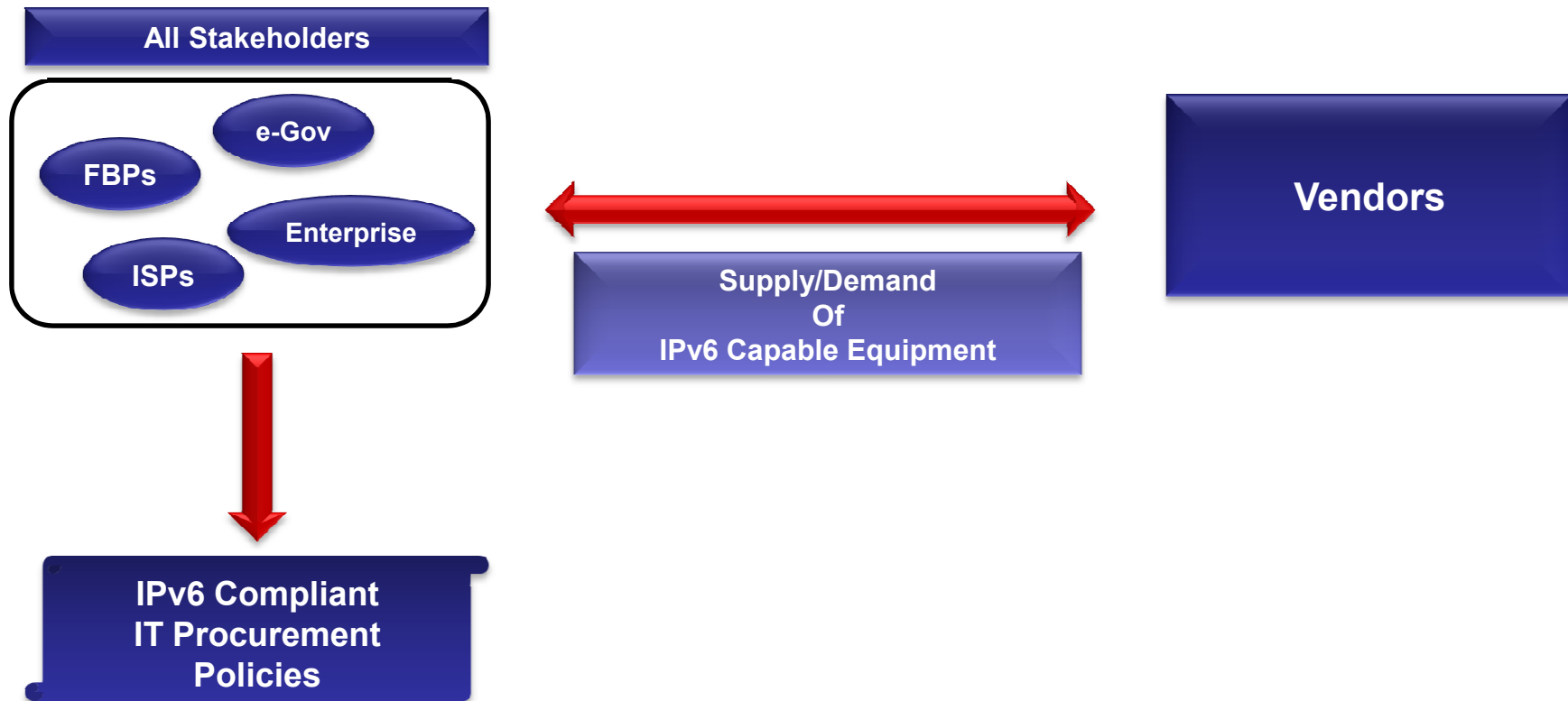


# Awareness Track

## 5. IPv6 Compliant Procurement



**Initiative Objective: to highlight the importance that stakeholders include IPv6 compliance in SW/HW procurement**





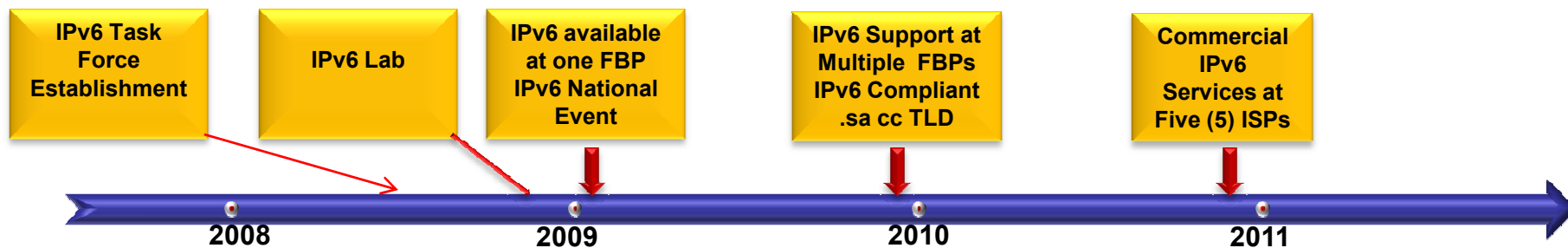
# Road Map and Next steps



# Milestones & Timeline



Milestones	Why?	Date	Status
Basic IPv6 Connectivity available at <u>ONE</u> FBPs	Essential and Enough to start offering IPv6 to ISPs and End Users	Early 2009	Bayanat & Mobily connected No commercial service yet
IPv6 Task Force Saudi Arabia	Essential to raise awareness and encourage deployment	July 2008	Already Established
Establish an IPv6 Lab	Establish and Disseminate practical IPv6 Experience	15 January 2009	Ready
IPv6 workshop	Raise awareness and encourage the IPv6 deployment	8 February 2009	300 Attendee
IPv6 at <u>Multiple</u> FBPs	Important for ISPs and End Users to have more than one Choice	End 2009	TBC
IPv6 Compliant.SA ccTLD Registry	Essential to run IPv6-only hosts or an IPv6-only infrastructure	End 2009	TBC
Commercial IPv6 Services available from Five (5) ISPs	More choices to end users	End 2010	TBC



# Summary

- **CITC** launched a IPv6 project in 2008
- **Project** included an IPv6 current state assessment, an IPv6 countries benchmark, an IPv6 international bodies and organizations and an IPv6 Strategy
- **IPv6 Strategy** consists of
  - **5 initiatives related to IPv6 infrastructure:**
    - IPv6 addressing
    - IPv6 commercial support for commercial infrastructure
    - .sa ccTLD IPv6 compliance
    - IPv6 compliant Internet Content Filtering
    - IPv6 lab
  - **5 initiatives related to IPv6 awareness:**
    - IPv6 Task Force
    - Outreach Activities
    - International Cooperation
    - IPv6 training
    - IPv6 compliant procurement
- **IPv6 Strategy Implementation has already started with CITC acting as a coordinator and facilitator**
- **Facilities-Based Providers (FBPs) have a leading role in preparing KSA to IPv6**



# Progress



- STC major corporate wide IPv6 initiative
- Mobily connected
- Bayanat connected
- KACST/ISU internal office deployment
- Taskforce getting more members







# Thank You



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