



# The Egyptian IPv6 TF Update and Lessons Learned

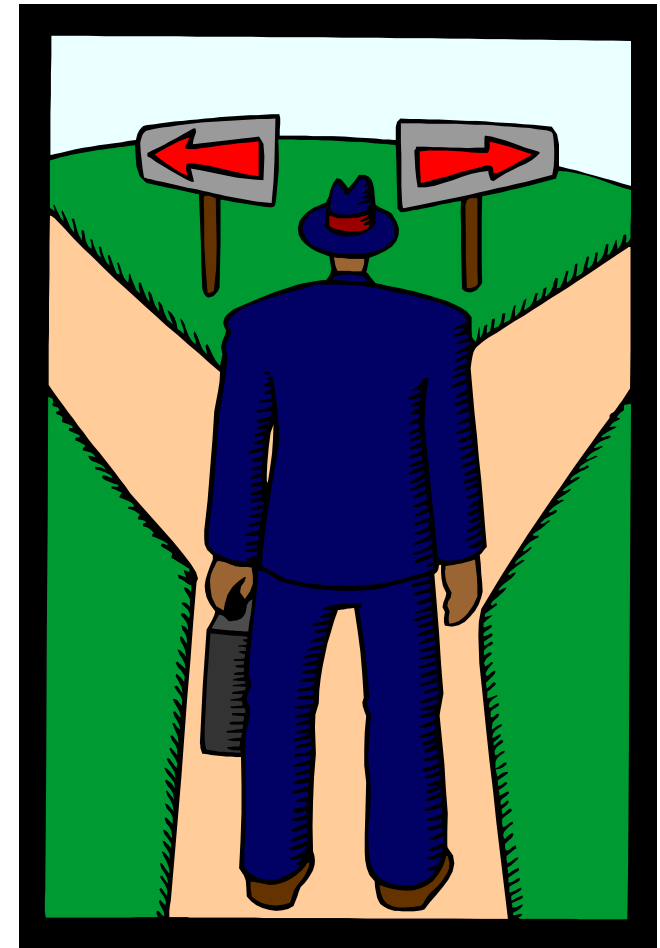
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# Road Map

- Quick Overview
- E-IPv6 Milestones
- E-IPv6 Test Bed
- Lessons Learned





# Quick Overview

- Number of Addresses in IPv4:  
4,294,967,296
- Population of Earth (2001):  
6,170,000,000
- Number of Addresses in IPv6:  
340,282,366,920,938,463,463,374,607,431,768,211,456



# Vision

As the transition to IPv6 is inevitable, and its impacts on the various technical, economical and social facets of life are most likely to be significant, E-IPv6 is an essential step towards **overcoming** this challenge and **generating** interest in IPv6 for the national good

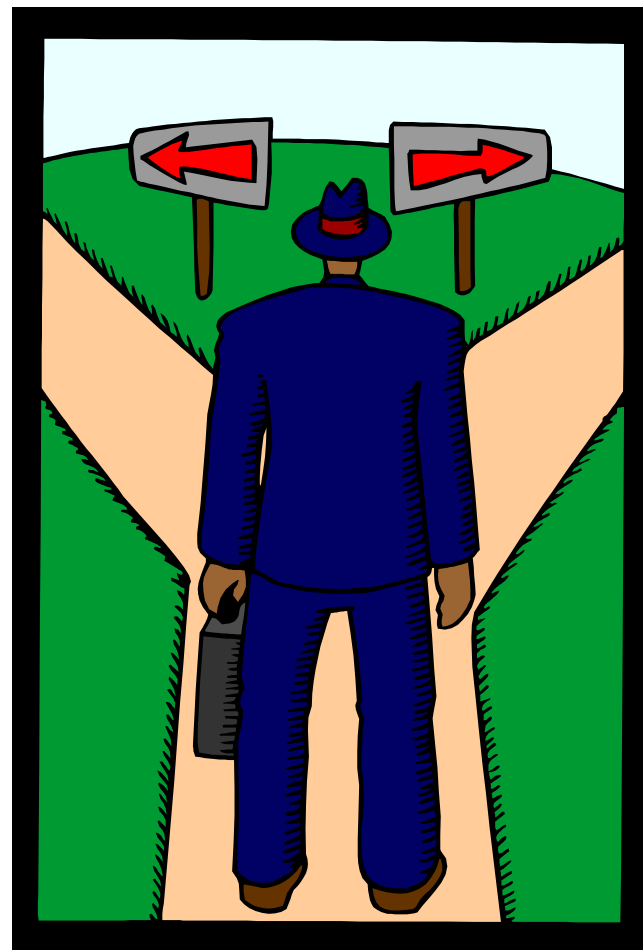


# Mission

- Raise awareness on the impacts of IPv6
- Increase industry co-ordination to begin the initial phases of IPv6 readiness
- Identify suitable transition scenarios
- Promote the launching of IPv6 test beds to come across its technical problems and solutions
- Encourage R&D co-ordination and promote the creation of an IPv6 center of excellence in Egypt
- Serve as reference on IPv6 on a national and regional levels

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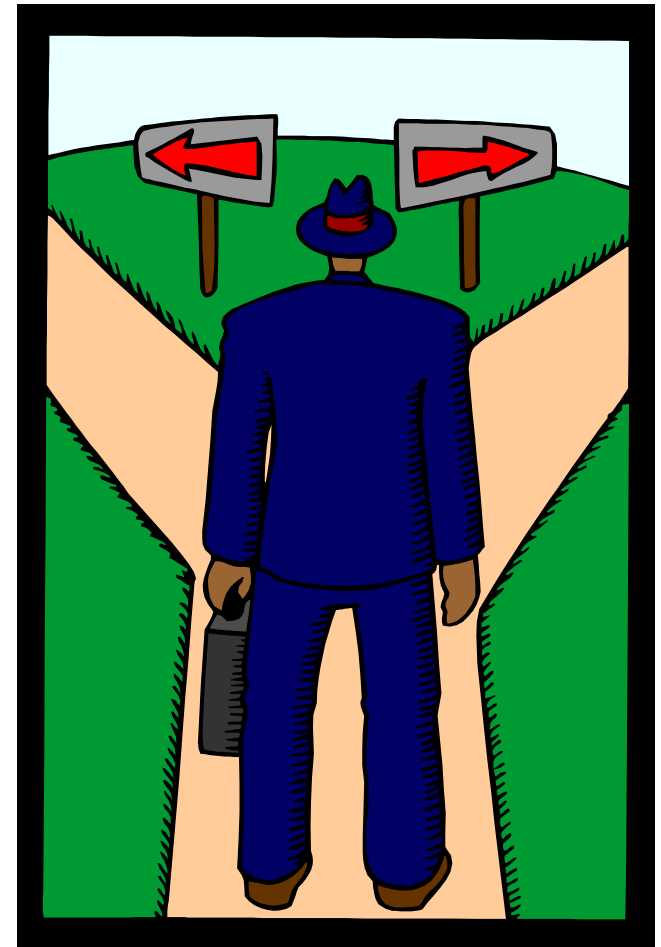


# E-IPv6 Milestones

- Form Egypt IPv6 Task Force
- Obtain Unicast IPv6 Address from AfriNIC
- Build Test Lab infrastructure
- Test Connectivity
- Test Applications
- Build the Egyptian IPv6 Backbone
- International Cooperation

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# E-IPv6 Test Bed

## Phase 1:

- Build many test labs with native IPv6 & connect them together by using IPv6 over IPv4 Tunnels.

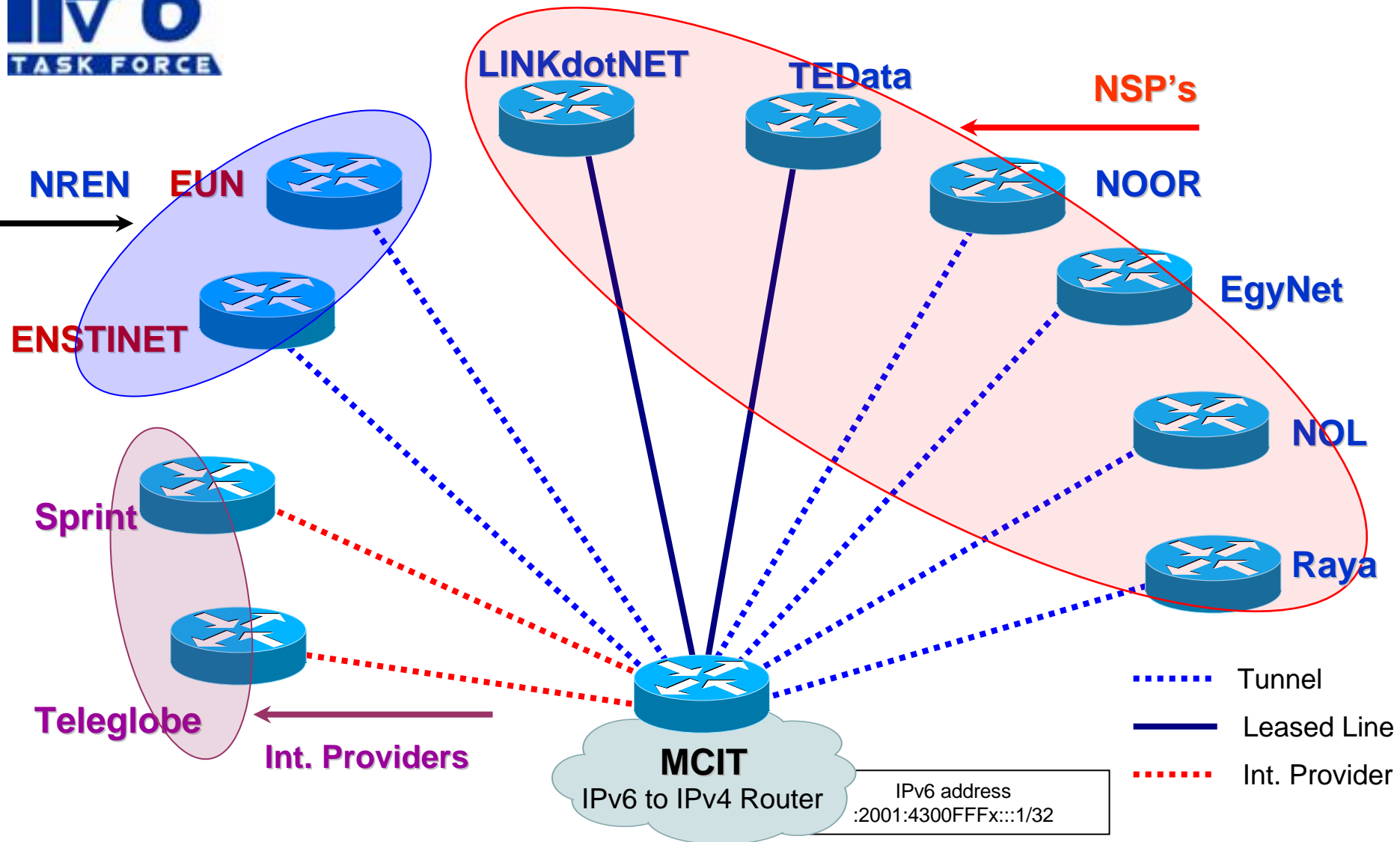
## Phase 2:

- Connecting IPv6 test labs via dedicated leased lines.

## Phase 3:

- Building the Egyptian native IPv6 Backbone network.

# E-IPv6 TF Test Bed Architecture

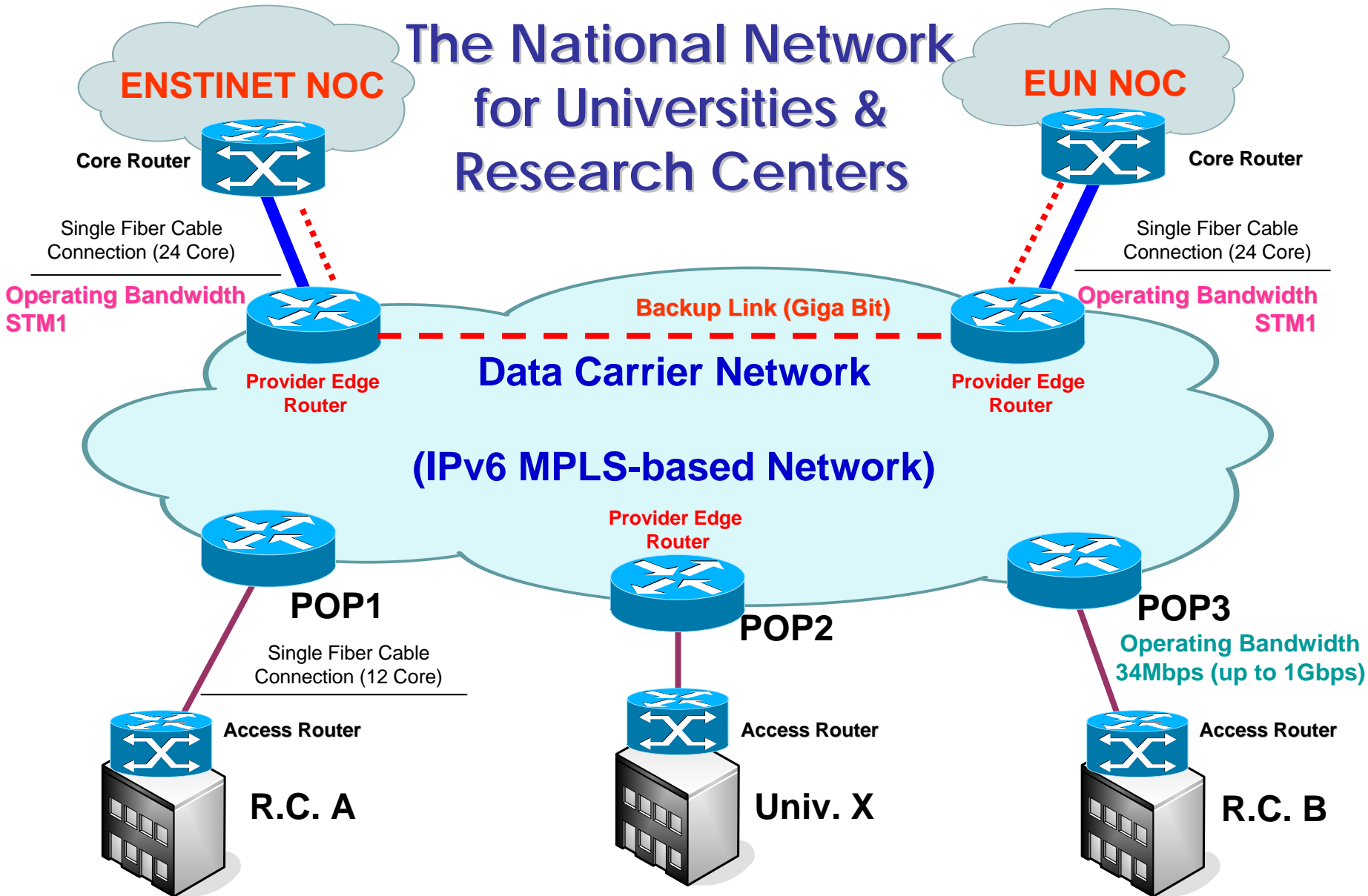




# Phase Three

## Building Egyptian IPv6 Backbone

# The National Network for Universities & Research Centers





# Lab Implementation

- Host Implementation:

Operating Systems: UNIX (Solaris 10), Linux RedHat 9, Windows2003.

- Applications Servers:

DNS, Mail Server, Web Server, VoIPv6, Video Conference, Firewall.

- Routing:

For phase one, Using Dual Stack Routers to support both IPv4 & IPv6 stacks.

# Lab Implementation (cont.)

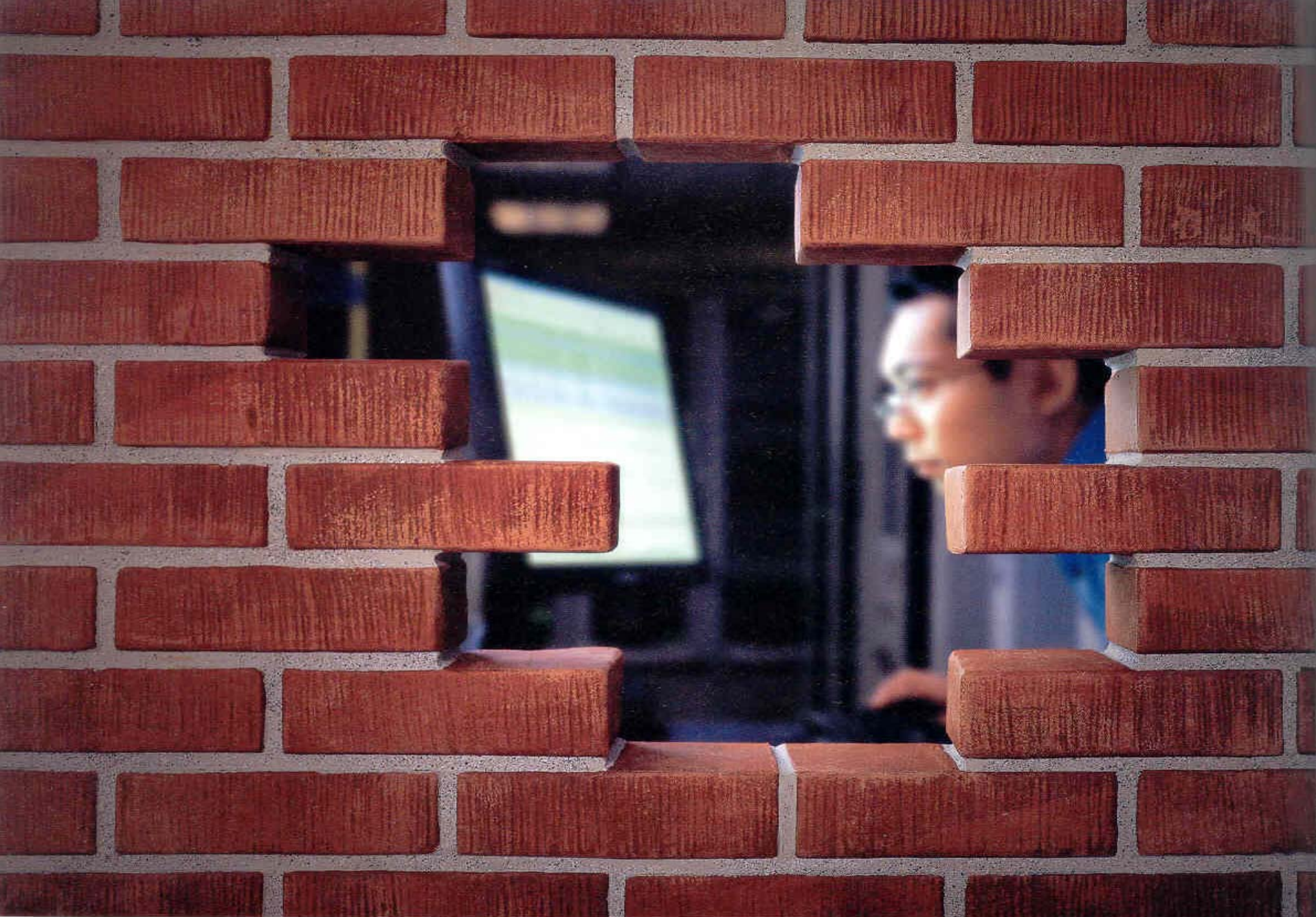
- Applications:
  - DNS: BIND 9.3, on Solaris 10 and Win2003
  - Web: IIS on Win2003
  - Mail: Sendmail
  - VoIPv6: Vocal, \*

**ccTLD is now running over IPv6**



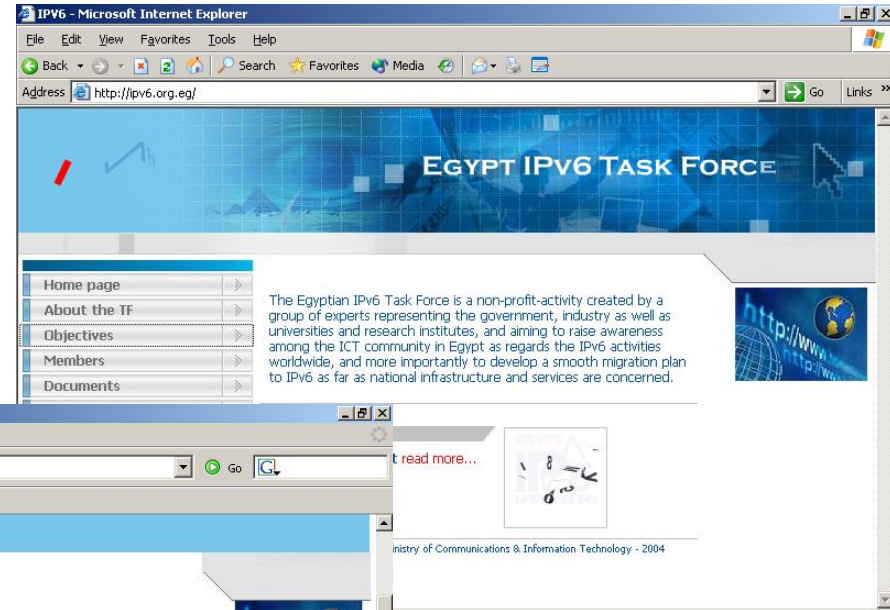
# Lab Implementation (cont.)

- Video Conference:
  - Video Conference: e-Conf (France Tel)
  - V.C. Network Appliance
    - Tandberg 6000 MXP
    - Tandberg 900 MXP
- Video Streaming:
  - Windows Media Server
  - Network Appliance
    - VBrick 6000 (road map)





# IPv6 Test Lab

IPV6 - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites Media

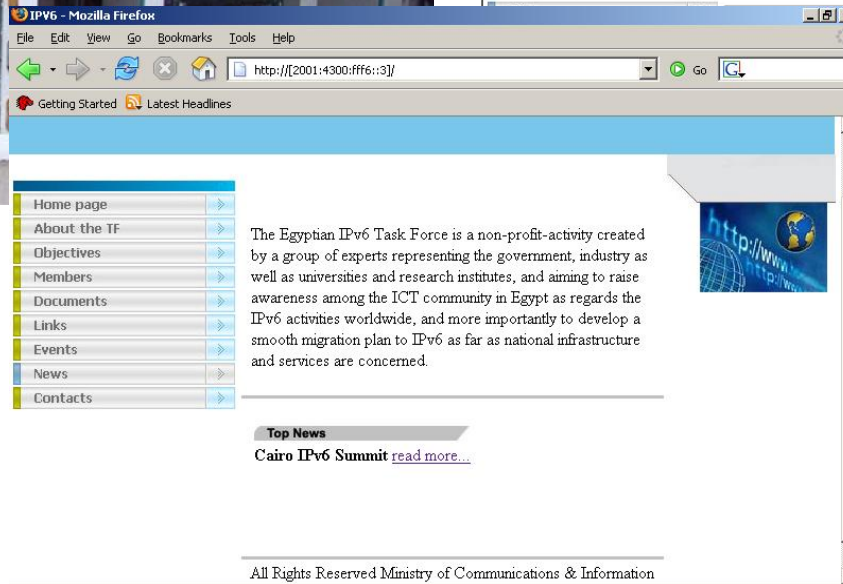
Address <http://ipv6.org/eg/> Go Links

**EGYPT IPv6 TASK FORCE**

- Home page
- About the TF
- Objectives
- Members
- Documents

The Egyptian IPv6 Task Force is a non-profit-activity created by a group of experts representing the government, industry as well as universities and research institutes, and aiming to raise awareness among the ICT community in Egypt as regards the IPv6 activities worldwide, and more importantly to develop a smooth migration plan to IPv6 as far as national infrastructure and services are concerned.

[http://www.ipv6.org/eg/](#)



IPV6 - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

Back Forward Stop Refresh Home [http://\[2001:4300:ffff::3\]/](http://[2001:4300:ffff::3]/) Go

Getting Started Latest Headlines

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**Top News**  
Cairo IPv6 Summit [read more...](#)

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# International Cooperation

- International connectivity via:
  - 155 Mbps link to Internet2 through MAN/LAN exchange
  - Mirror 34 Mbps link to GEANT at EUN via EUMEDCONNECT project
- Entities currently connected:  
MCIT – ENSTINET – EUN – AUC – Bibliotheca Alexandrina

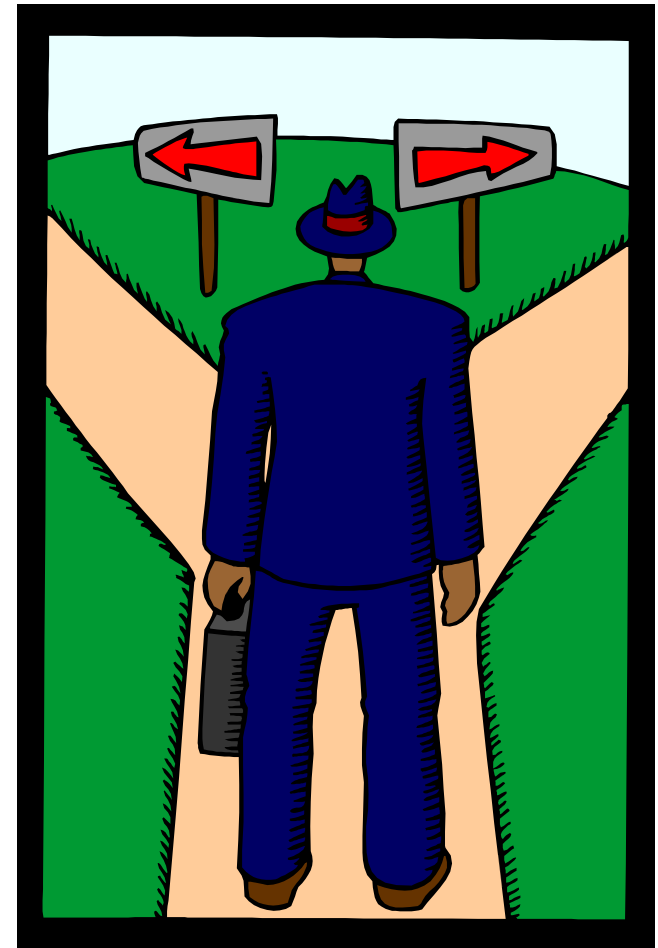


**Applications !!!!**



# Road Map

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- Phases of Test Bed
- Lessons Learned





# E-IPv6 TF Summary

Activities	Date	Status
Establish E-IPv6	Sep 04	Done
Obtain IPv6 address cluster from AfriNIC	Dec 04	Done
Implement IPv6 Test Lab	Mar 05	Done
Test IPv6 over IPv4 Tunnels with international & local providers	Apr 05	Done
Test basic services (DNS, E-mail, Web, etc...)	Apr 05	Done
Connect to GEANT & Internet 2	Jul 05	Done
Test Dual Stack operation with local providers (2 NSP's)	Jul 05	Done
Test advanced services (VoIPv6, video conferencing, video streaming, etc...)	Aug 05	In Progress
Test security solution (Firewall, IPS, etc...)	Nov 05	In Progress

# Lessons Learned !!



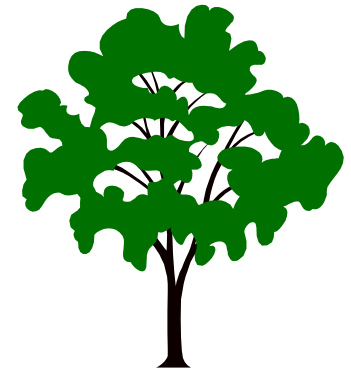
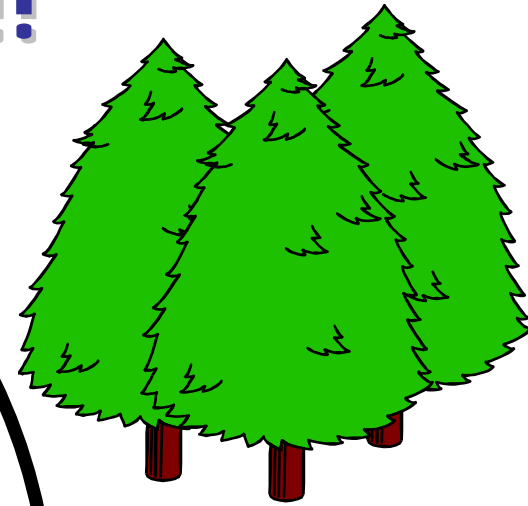
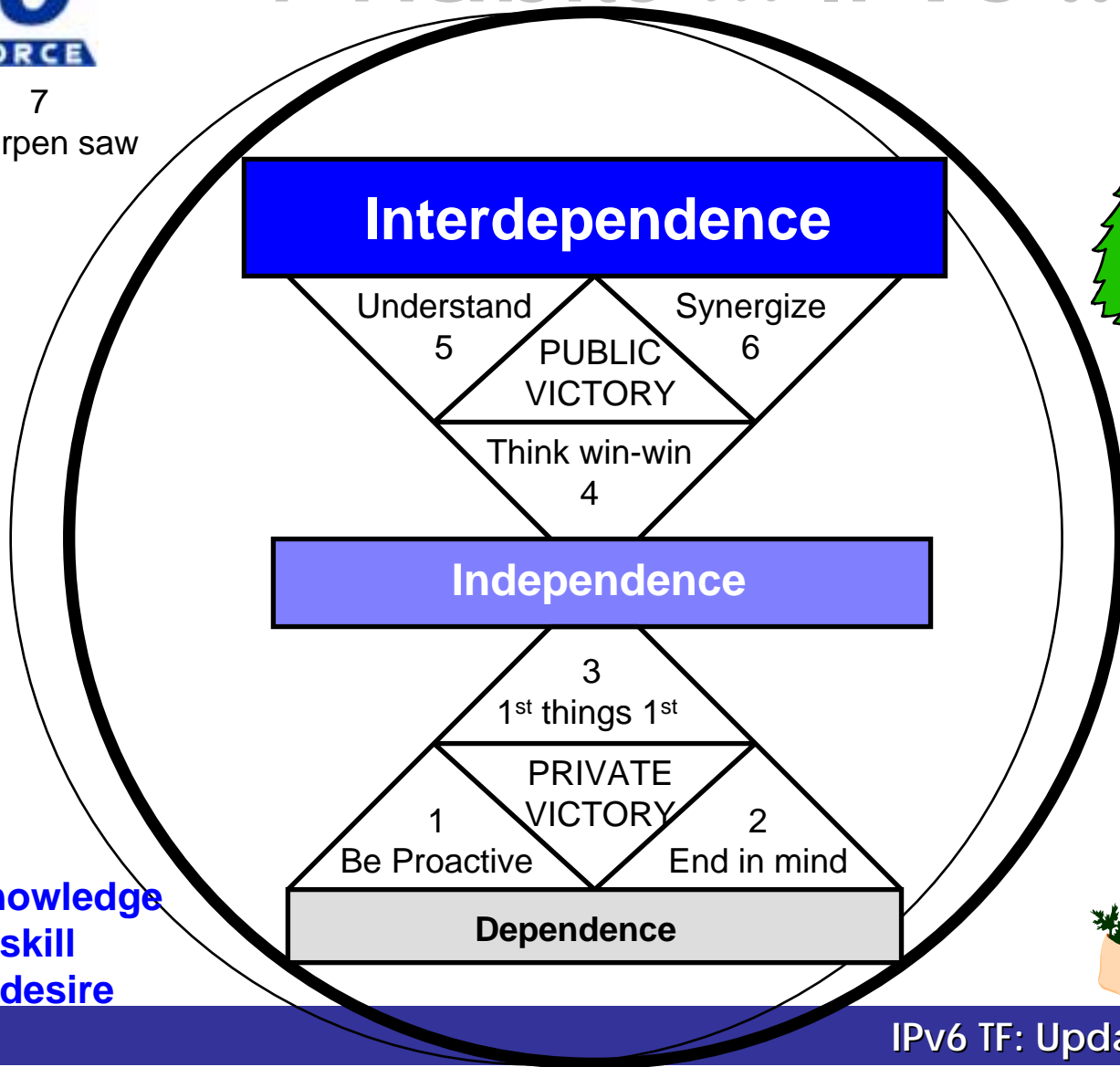
# Lessons Learned !!

- Digital divide?
- IPv6 will take years to fully deploy, start slowly !!
- Can setup training labs easily
- Start purchasing only IPv6 compatible devices
- Open Source vs. Ready Packages
- Capacity Building !!!
- Source of Fund (T.C.O)



# 7 Habits ... IPv6 !!

7  
 Sharpen saw



habit = knowledge  
 + skill  
 + desire



.. and still we have more

**Thank You ..**