

# **VIETNAM NATIONAL INTERNET EXCHANGE (VNIX)**

## **- National critical infrastructure of Vietnam**



## VIETNAM NETWORK INFORMATION CENTER

*Vietnam Internet Network Information Center (VNNIC) is an affiliation to the Ministry of Science and Technology (previously Ministry of Information and Communications), founded on 28th April 2000, and carries out the following functions:*

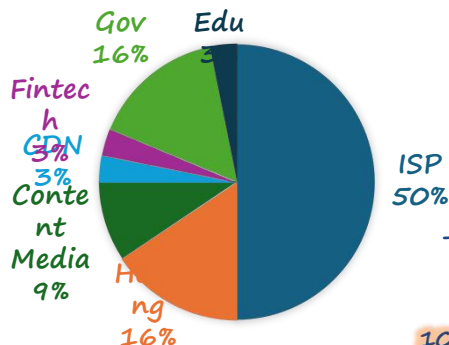


## VIETNAM NATIONAL INTERNET EXCHANGE - VNIX

Vietnam National Internet Exchange (VNIX) is the Internet Exchange recognized by the Vietnamese Government as the one and only national

- As a neutral and non-profit system
- VNIX plays a crucial role for the development of Internet, which helps to develop, enhance and improve the quality and security of Internet in Viet Nam.

+52 members: ISP, CDN, IDC, CLOUD, EDU, GOV, FINTECH



### Locations:

- Ha Noi
- Da Nang
- HCM city

### Services:

- DNS.VN query
- DNS root query
- VNNIC Internet Speed test
- DDos Mitigation
- NTP - Network Time Protocol
- Looking Glass

Total bandwidth: 502 Gbps  
Peak traffic: 64Gbps

100% VNIX members have deployed IPv6



## VNIX – Critical national infrastructure of Viet Nam

*Decision No 749/QĐ-TTg by Prime Minister approving the national digital transformation program by 2025 and vision towards 2030*

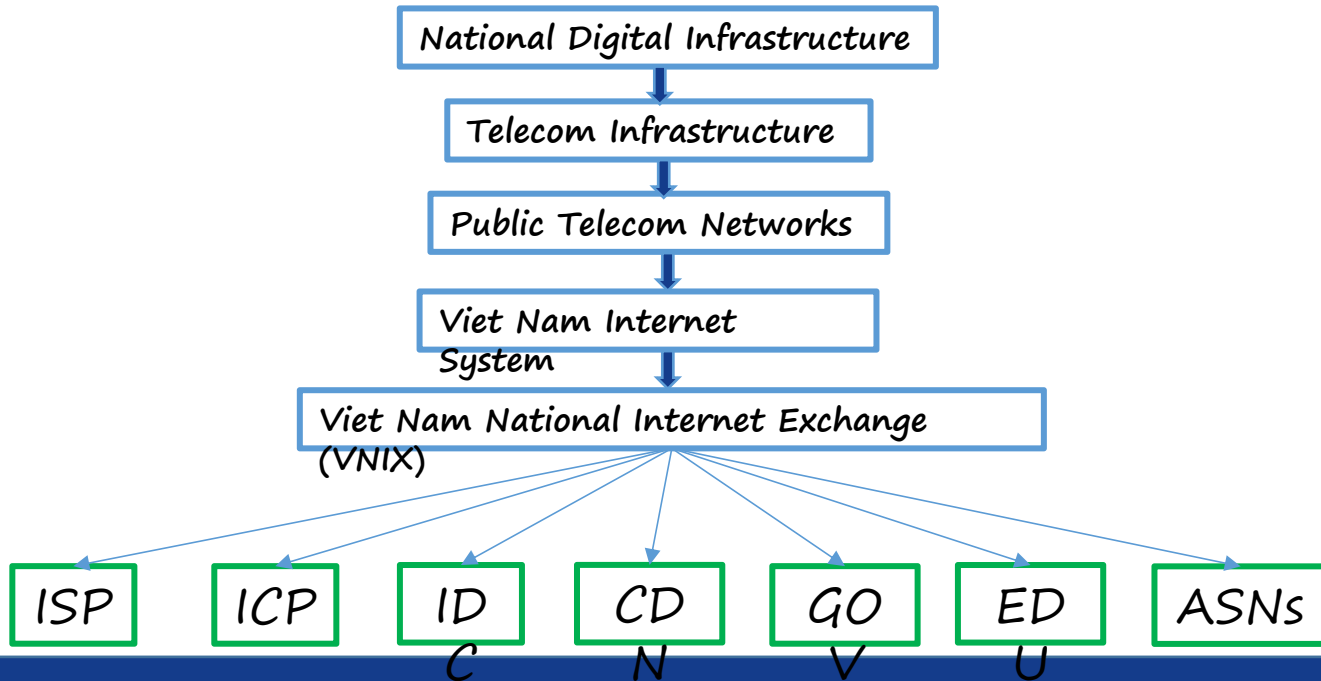


**VNIX acts as the digital infrastructure connecting digital platforms**



## VNIX – Critical national infrastructure of Viet Nam

Decision No 36/QĐ-TTg by Prime Minister announcing the ICT Infrastructure Masterplan period 2021-2030, vision towards 2050



## VNIX – Critical national infrastructure of Viet Nam

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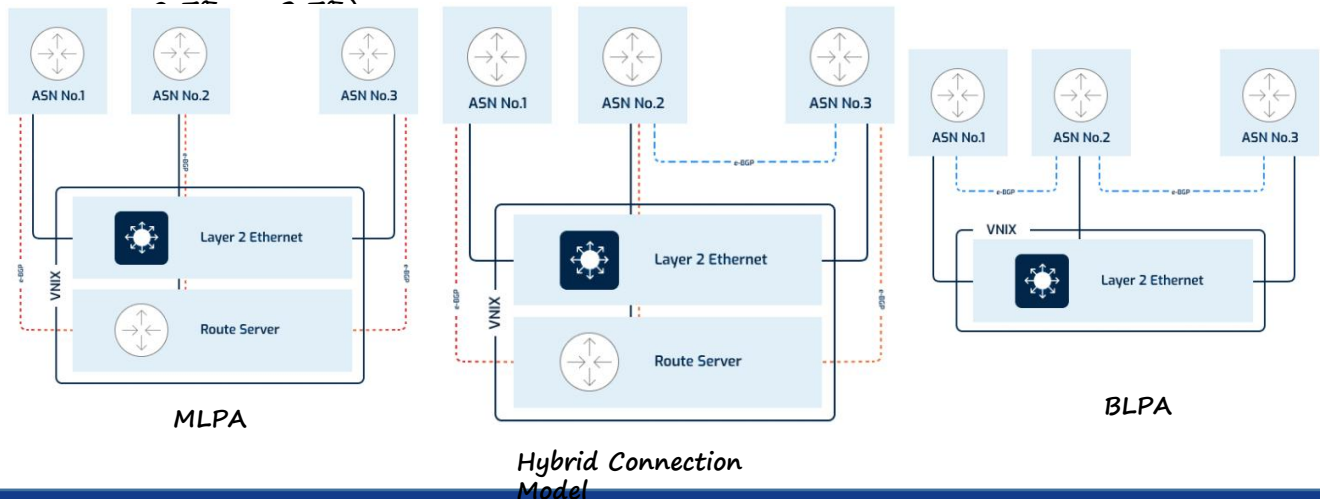
VNIX's role and regulations are stipulated by Government's Decree No. 147/2024/NĐ-CP:

- *Ensure the safety and continuous operation of the Vietnamese Internet network in case of incidents to domestic and international telecommunications networks. In case of loss of international connection, VNIX forwards traffic to ensure continuous operation for the Vietnamese Internet network;*
- *Connect and exchange Internet traffic between networks using valid independent network numbers and Internet addresses in Vietnam and internationally;*
- *Participate in connecting to regional and international Internet exchange points, connecting to the DNS ROOT and other international network systems to develop infrastructure, content and exchange Internet traffic;*

## VIETNAM NATIONAL INTERNET EXCHANGE - VNIX

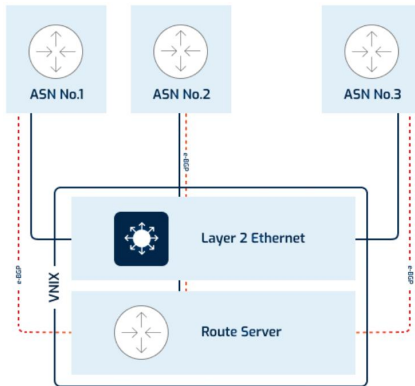
### Policy:

- Any valid ASNs in Viet Nam can connect to VNIX.
- VNIX members must comply with current regulations.
- ISPs must support all connections to VNIX.
- VNIX members must control their traffic in/out VNIX (75% -



## VIETNAM NATIONAL INTERNET EXCHANGE - VNIX

### VNIX Technical Architecture Overview



- Core Switching Infrastructure:
  - High-performance Layer 2 switches
  - Spine - Leaf Topology
  - Port 1/10/40/100Gb
- Route Server System:
  - Dual route servers (Cisco Router/Bird).
  - Prefix filtering via AS-Path, Domestic Prefix.
- Peering policy:
  - MLPA
  - BLPA
  - Hybrid
- Routing Security
  - RPKI Validator
- Services:
  - IPv4/IPv6 peering.
  - NTP service and DNS (some root/TLD mirrors).
  - DDoS Mitigation (Blackholing)

| Location     | ASN   |
|--------------|-------|
| VNIX Ha Noi  | 23899 |
| VNIX Da Nang | 56156 |
| VNIX HCM     | 23962 |



## Technology Application:

- **DNS Root Deploy:** M-Root, F-Root, K-Root connect to VNIX
- **RPKI/ROV adoption:** VNIX members have the highest rate of RPKI/ROV adoption among Viet Nam's IP members.
- **Routing surveillance and statistics analysis:** traffic through VNIX is put under surveillance and analysis to improve the service quality and Internet management activity in Viet Nam
- **VNNIC Public DNS64:** to support the transition and implementation of IPv6-Only in Vietnam.

# DNS ROOT DEPLOY IN VNIX

- K ROOT deploy in VNIX Ha Noi
- F ROOT deploy in VNIX Ha Noi, Da Nang and HCMC
- M ROOT deploy in VNIX Ha Noi

## BEFORE

```
;<<> DiG 9.11.11 <<> -4 @m.root-servers.net hostname.bind txt CH
; (1 server found)
;; global options: +cmd
;; Got answer:
;; ->HEADER<- opcode: QUERY, status: NOERROR, id: 14043
;; flags: qr aa rd; QUERY: 1, ANSWER: 1, AUTHORITY: 1, ADDITIONAL: 1
;; WARNING: recursion requested but not available

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 4096
;; QUESTION SECTION:
;hostname.bind.                CH      TXT

;; ANSWER SECTION:
hostname.bind.                0      CH      TXT      "M-NRT-JPNAP-3"

;; AUTHORITY SECTION:
hostname.bind.                0      CH      NS       hostname.bind.

;; Query time: 94 msec
;; SERVER: 202.12.27.33#53(202.12.27.33)
;; WHEN: Tue Dec 29 09:52:00 +07 2020
;; MSG SIZE rcvd: 82
```

## AFTER

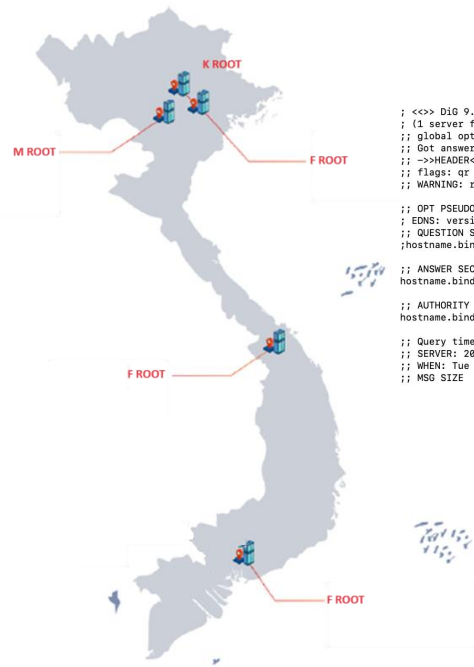
```
;<<> DiG 9.11.33 <<> @m.root-servers.net hostname.bind ch TXT
; (1 server found)
;; global options: +cmd
;; Got answer:
;; ->HEADER<- opcode: QUERY, status: NOERROR, id: 47514
;; flags: qr aa rd; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1
;; WARNING: recursion requested but not available

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
;; QUESTION SECTION:
;hostname.bind.                CH      TXT

;; ANSWER SECTION:
hostname.bind.                0      CH      TXT      "M-HAN-1"

;; Query time: 12 msec
;; SERVER: 202.12.27.33#53(202.12.27.33)
;; WHEN: Tue Jun 04 22:02:17 SE Asia Standard Time 2024
;; MSG SIZE rcvd: 62
```

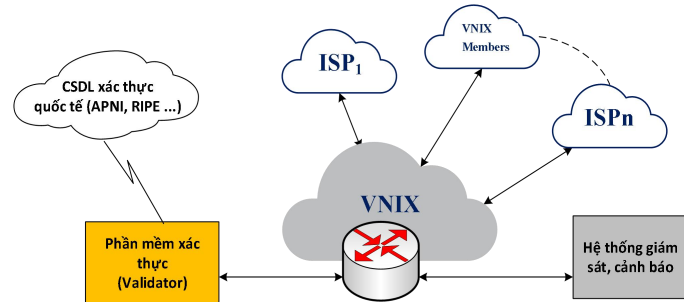
| DNS ROOT | Before   | After   |
|----------|----------|---------|
| M ROOT   | 85 msec  | 12 msec |
| F ROOT   | 106 msec | 1 msec  |
| K ROOT   | 211 msec | 12 msec |



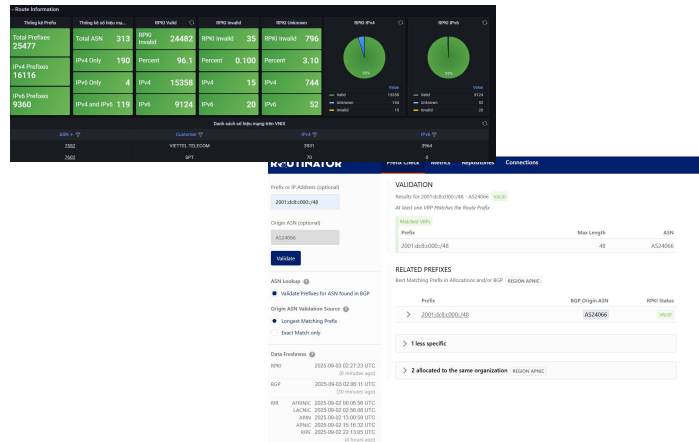
# RPKI/ROV deploy in VNIX

## Objectives:

- Deploy RPKI routing security validation on VNIX infrastructure; provide monitoring and alerting information to connected members, and promptly handle routing security incidents at VNIX.
- Expand the provision of RPKI validation systems to domestic ISPs and network organizations, promoting deployment and ensuring the security of Vietnam's Internet

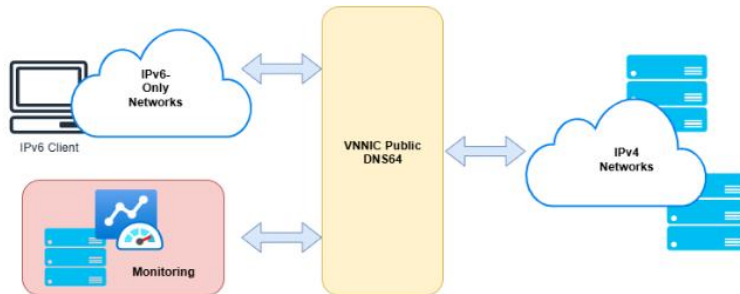


## Monitoring and Alerting System



## VNNIC Public DNS64

A public DNS infrastructure platform deployed by VNNIC to support the transition and implementation of IPv6-Only in Vietnam. The platform is designed based on the modern DNS64 model, operating stably, provided free of charge, and aimed at serving the Vietnamese Internet community in the IPv6 era.



### Benefits of DNS64

- **Free & Secure** – Provides a free, reliable, and secure DNS64 platform for users.
- **IPv6-Only Support** – Enables IPv6-only devices to easily access IPv4 services.
- **Promotes IPv6 Adoption** – Contributes to nationwide IPv6-only deployment.

## INTERNET EXCHANGE IN VIET NAM

- Legally, Internet Exchanges in Viet Nam include VNIX and other Internet Exchanges established by private enterprises to provide Internet connections.
- There is no barrier for market entry, however one main issue is that major ISPs (VNPT, CMC, Viettel..) are also NSP, CDN, network services with vast customer ranges so they are providing services directly to organizations and households.

## FUTURE PROJECTS



VNIX fees



Open for All ASN



Multi-location



IPv6 only

1. Research and Deployment of Viet Nam Internet Routing System Monitoring
2. Annual upgrade of network infrastructure
3. Advanced DDoS Mitigation
4. VNIX connection via various solutions: MPLS, Remote peering, Shared-port, etc...

UPCOMING EVENT

# VNNIC NOG 2025



16/10/2025 – 17/10/2025

NHA TRANG, KHANH HOA, VIETNAM

**PEERING 2.0: IPV6-ONLY, AUTOMATION,  
DRIVING THE NEXT LEAP**

*<https://vnix-nog.vn/en>*



THANK YOU FOR YOUR  
ATTENTION!

