



MINISTRY OF INFORMATION AND COMMUNICATIONS
VIET NAM INTERNET NETWORK INFORMATION CENTER

REPORT ON INTERNET, INTERNET RESOURCES IN VIET NAM 2024



SECURE AND SUSTAINABLE INTERNET INFRASTRUCTURE IN THE DEVELOPMENT OF EMERGING TECHNOLOGIES





REPORT ON
INTERNET, INTERNET RESOURCES IN VIET NAM
2024

**SECURE AND SUSTAINABLE INTERNET INFRASTRUCTURE IN THE
DEVELOPMENT OF EMERGING TECHNOLOGIES**



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PREFACE

Viet Nam Internet Network Information Center (VNNIC) would like to send our warmest greetings to our readers!

Report on Internet, Internet Resources in Viet Nam is an annual publication issued by VNNIC to provide information, data, and outstanding development results of Viet Nam's Internet resources and infrastructure.

Heading to the 25th anniversary of the establishment of VNNIC (April 28, 2000 – April 28, 2025), the 2024 report with the title **“Secure and sustainable Internet infrastructure in the development of emerging technologies”** is a special publication introducing a panoramic landscape of the development of Viet Nam's Internet resources, critical national systems and VNNIC in general over the past 25 years, contributing to the strong, safe, and reliable development of Viet Nam's Internet.

We hope that the report will serve as a useful source of information for experts, organizations, and businesses in their professional activities and operations, such as shaping strategies and plans, to join hands in developing a widespread, popular, safe, sustainable, and intelligent Internet.

This publication is a meaningful item celebrating the VNNIC's 25th anniversary, with the hope that Viet Nam's Internet will develop more strongly, towards the goal of creating a “bigger, faster, safer, and flatter” Internet.

Sincerely!

VNNIC

“

**SAFE AND SUSTAINABLE INTERNET
INFRASTRUCTURE IN THE
DEVELOPMENT OF EMERGING
TECHNOLOGIES**

”

LETTER FROM CHAIRMAN OF GOVERNING BOARD OF VNNIC



On behalf of the Governing Board and staff of the Viet Nam Internet Network Information Center (VNNIC), I would like to send my warmest greetings to our readers.

On April 28, 2000, VNNIC was established, an important milestone in the management of Internet resources and national Internet systems. Over the past 25 years, VNNIC has strived tirelessly to successfully complete its tasks to ensure the development of Internet resources and the safe

and stable operation of critical national Internet systems, becoming an indispensable contributor to remarkable development milestones of Viet Nam's Internet, asserting its solid position in the international level.

Recent achievements must be attributed to the attention and direction of the leaders of the General Department of Post and Telecommunications, Ministry of Information and Communications through the periods, the selfless dedication of generations of officers who have laid a solid foundation for VNNIC today, as well as the dedicated help of agencies, ministries, international organizations, registrars, IP address members and the Internet community who have accompanied in building a safe, sustainable and intelligent Viet Nam's Internet.

The Report on Internet, Internet Resources in Viet Nam 2024 is a panoramic landscape of VNNIC's contribution in building and developing Viet Nam's Internet over the past 25 years. Although there will be new challenges and goals in new period ahead, with the tradition of solidarity, creativity, and hard-working of the VNNIC staff and especially the coordination and support of the community, we are confident to continue on the new journey with a new position to reap new successes, contributing to the development of the Internet in Viet Nam.

Sincerely,

LENGOC DUC

LETTER FROM VNNIC DIRECTOR GENERAL



After more than 27 years connecting to the global Internet, Viet Nam's Internet has developed remarkably. With a practical and effective development strategy, Viet Nam remains at the forefront of next-generation IPv6 deployment on the Internet. The country's IPv6 deployment rate has reached 65.5%,

ranking among the top seven globally—two places higher than in 2023. The ROA/RPKI signing rate reached 96.4%, ranked 1st in ASEAN, 3rd in the top 30 countries with the largest number of IPv4 address in the world. 2024 marks the 30th anniversary of the official presence of the Viet Nam's national “.vn” domain name, affirming national sovereignty in cyberspace. The number of national “.vn” domain names reached ~630,000, ranked 2nd in ASEAN, 10th in Asia-Pacific, 40th globally (moved up 6 places compared to 2020).

On May 21, 2024, the Ministry of Information and Communications issued Decision No. 826/QĐ-BTTTT, approving the “Program of promoting and supporting reliable and safe online presences for residents, businesses, and business households with digital services using the national “.vn” domain name for the 2024–2025 period. A key highlight of the program is the fee-free registration of “.id.vn” and “.biz.vn” domain names for websites, hosting, and email services, aimed at increasing the adoption of the national “.vn” domain. The initiative targets 1,000,000 domain registrations, positioning Viet Nam within the top 20–30 countries globally, and driving the growth of the digital economy and digital society.

The intelligent era with the development and large-scale application of emerging technologies (IPv6, 5G/6G, IoT, AI, IDC/Cloud, SDN/NFV, Blockchain, etc.) leads to the explosion of connected devices, high-speed data transmission anytime, anywhere, e.g. production, life, work, and entertainment. The characteristics of these technologies are large scale, flexible connection, high speed, low latency, data optimization and automation,

security and transparency, leading to the next stage of development – Internet of Things (IoT)

Internet resources, infrastructure and critical core systems of the Internet need to develop and change accordingly, creating the basic foundation to meet the rapid development of emerging Internet technologies and services. Over the past 25 years, as a NIC, VNNIC has made continuous efforts to popularize and effectively manage Internet resources; ensure the safety of the national DNS system, Viet Nam National Internet eXchange – VNIX; provide essential services to the community, build a community of Vietnamese Internet experts; orientate to promote the safe and sustainable development of Viet Nam's Internet; improve Viet Nam's ranking in the region and internationally.

To prepare for a secure and sustainable future of the Internet, organizations and businesses need to quickly grasp new technologies and discover new and full of potential service markets. VNNIC hopes that this special publication “Report on Internet, Internet Resources in Viet Nam 2024”, a commemorate document in the 25th anniversary of VNNIC's establishment, will be a valuable information source for experts, organizations and businesses in building strategies and plans to join hands to develop Viet Nam's Internet “bigger, faster, safer and flatter”.

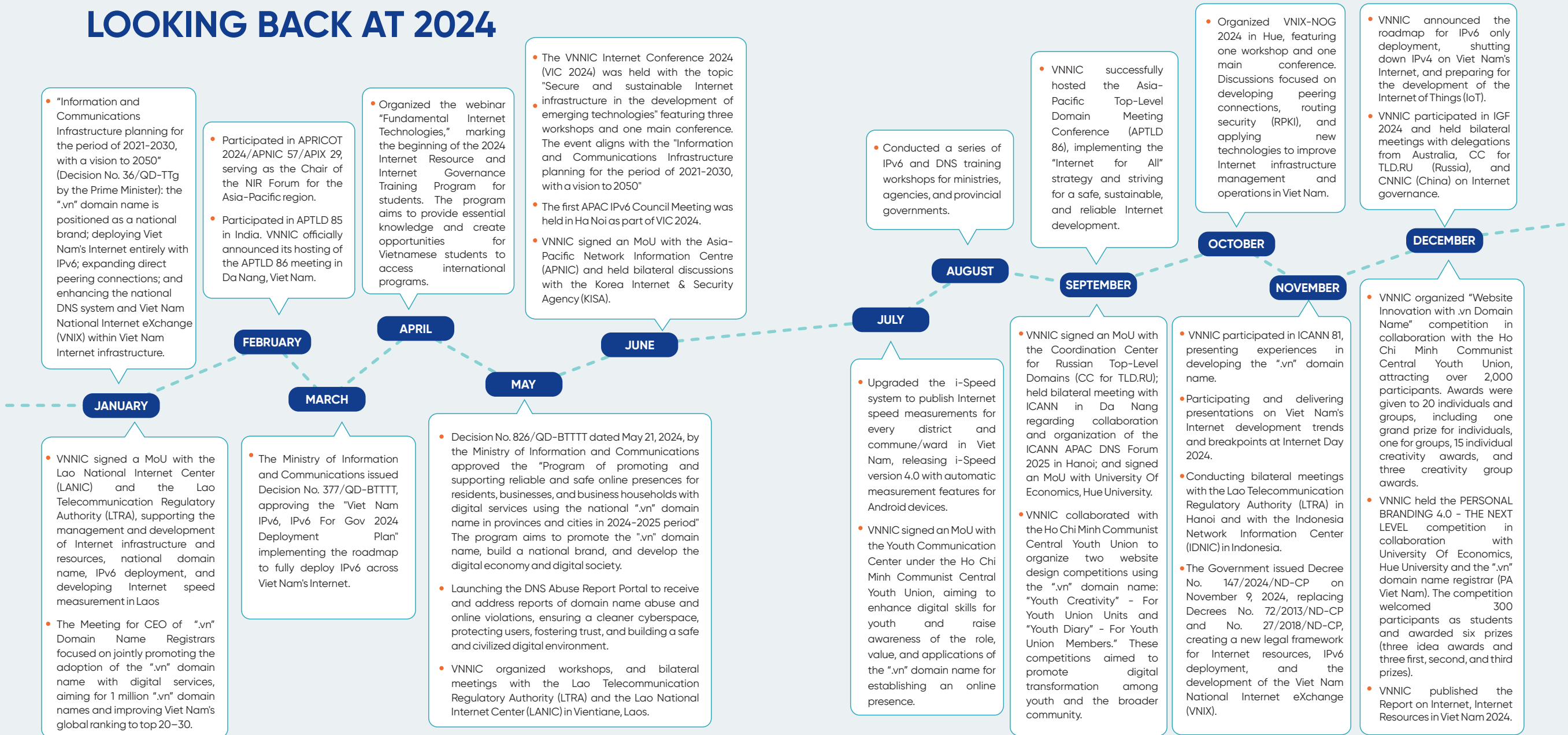
Sincerely,

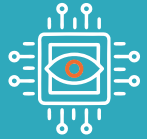
Director General

NGUYEN HONG THANG



LOOKING BACK AT 2024





HIGHLIGHTS

OF THE 2024 NATIONAL ".VN" DOMAIN NAME PROMOTION PROGRAM



NATIONWIDE PROGRAM IMPLEMENTATION

Following the issuance of Decision No. 826/QĐ-BTTTT on May 21, 2024, approving the "Program for online presence with the ".vn" domain name, 63 provincial departments of Information and Communications (DICs) simultaneously launched promotional campaigns across provinces. The People's Committees of 24 provinces and cities issued plans and assigned DICs to lead and coordinate with local departments, sectors, and agencies to promote the ".vn" domain name.

PROGRAM FOR VIETNAMESE YOUTH

In collaboration with the Central Committee of Ho Chi Minh Communist Youth Union, VNNIC launched the "Online Presence with the .vn Domain Name Program For Youth". The program was embodied in the "Website Innovation" competition, with the participation of over 2,000 Ho Chi Minh Communist Youth Union members and branches, with more than 500 high-quality submissions. The online launch ceremony attracted participation from over 1,000 sites with 36,894 attendees. The program honored 20 outstanding individuals and groups, including first prizes for individual and group categories, along with 18 creativity encouragement awards.

ONLINE BUSINESS STARTUP WITH STUDENTS

VNNIC partnered with VECOM in the "Digital Business Contest - DBC 2024" competition to inspire online entrepreneurship among students. The program highlighted the id.vn domain name as a strategic tool, helping students build professional websites to support their online business ventures.

EXPANSION OF PILOT MODEL

VNNIC collaborated with DICs in Dong Thap, Hai Duong, Thai Nguyen, Da Nang, Quang Ngai, Khanh Hoa, and Phu Yen, Ho Chi Minh City, Binh Duong, Can Tho, Tra Vinh, Lam Dong to implement pilot programs. Dong Thap, in particular, achieved significant success with over 3,000 id.vn and biz.vn domain names registered, becoming a model for ".vn" domain name promotion.

PERSONAL BRANDING FOR STUDENTS

The Unitour series, organized in collaboration with the Viet Nam E-commerce Association (VECOM), visited 25 universities and colleges nationwide. With the topic "Building Personal Brands through Websites/Emails associated with the id.vn domain name," the program received enthusiastic participation from students across the nation.

“

“By December 2024, approximately 60,000 domain names under the new domain name spaces, such as id.vn, io.vn, ai.vn, and biz.vn, had been registered and utilized. This figure reflects the community's positive transformation, maximizing the value of the ".vn" national domain name in the digital environment.”

”

".vn" Domain Name

Total domain names

630,509

New domain registrations

185,036

Growth rate

3.6%

Total "id.vn" domain names

35,000

113% increase compared to 2023

Registrars

10 domestic

06 international

Top 2

ASEAN

Top 40 Globally (up 6 ranks from 2020)

IP/ASN

IPv4

Total number

16,392,232

2nd in ASEAN,

8th in Asia

27th Globally

IPv6

Total number

32,642 octillion

3st in ASEAN,

19th in Asia

IP members

1148

Growth rate **20.9%**

ASN (Autonomous System Numbers)

864 growth rate **29.5%**

***surpassed the strategic targets for the period 2021–2025**

VNIX

Connected members

52

Total bandwidth

502 Gbps

5+ connection points

(Hanoi, Ho Chi Minh City, Da Nang)

100% IPv6 deployment

DDOS Mitigation.

ISO 27001:2022

RPKI and Routing Security

ROA/RPKI signing rate

96,4%

1st in ASEAN, **3rd** among the

top 30 countries with the largest IPv4 resource pool globally

ROA/RPKI signed

845 out of **1,148** IP members

IPv6

65.5%

2nd in ASEAN
7th Globally (up 2 ranks compared to 2023)

100% National Critical Internet Infrastructure operates on IPv6 (DNS, VNIX)

14 courses

988 participants in 2024

TRAINING

109 courses

5643 participants in total



DNS

8 clusters with **100** server nodes

03+ DNS Root clusters

100% IPv6 deployment

DNSSEC

ISO 27001:2022

SLA 99,999%

*As of November 30th, 2024

25 VNNIC

28/4/2000 28/4/2025

Internet for all

- April 28, 2000, Director General of General Post Office issued Decision No. 372/QĐ-TCBD to establish the Viet Nam Network Information Center - VNNIC, the predecessor of the Viet Nam Internet Network Information Center.
- VNNIC's first logo, represents the Internet with oval symbols and the letter @ embedded in the national flag symbol (yellow star on the red flag); the background color and letters gradually brighten and become clearer, representing development.

2000

- Rename to Viet Nam Internet Network Information Center (VNNIC), in the management of the Ministry of Posts and Telecommunications (Decision No. 06/2002/QĐ-BCVT dated November 25, 2002).
- Opening the VNNIC's second facility, the predecessor of VNNIC's branch office in Ho Chi Minh City.
- The second ".vn" national DNS system established in Ho Chi Minh City.

2002

- Testing the Vietnamese IDN registration.
- Accepting international domain name registration (From May 1st, 2004).
- Supporting Dynamic DNS (DDNS) for ".vn" domain name users. ENUM E164 testing.
- Cooperating with IXP, ISP in testing IPv6 on VNNIC's network infrastructure.
- Delegating the first IPv6 address for VNPT.
- 2nd Internet Resource and Routing Workshop held by VNNIC (in cordinate with APNIC).

2004

- The public registration for second-level ".vn" domain name was opened, nearly 2000 ".vn" domain names registered during the first half of opening day.
- VNNIC was awarded the Government Emulation Flag; Certificate of Merit from the Prime Minister

2006

- Minister of Information and Communication issued Directive No. 03/2008/CT-BTTTT on promoting the use of new generation Internet addresses - IPv6, the first document promoting and orienting IPv6 deployment activities in Viet Nam.
- The Minister of Information and Communications issued Circular No. 09/2008/TT-BTTTT, the first Circular guiding the management and use of Internet resources, replacing Decision No. 27/2005/QĐ-BBCVT dated August 11, 2005 of the Minister of Posts and Telecommunications.
- First DNSSEC testing.
- Establishment of VNNIC's branch office in Ho Chi Minh City (Decision No. 1857/QĐ-BTTTT dated March 5, 2008).
- VNNIC was awarded the Government Emulation Flag.

2008

- Celebrating the 10th anniversary and are granted the Third-class Labor Order, awarded the Ministry of Information Communications' Emulation Flag.
- Officially deploying IPv6 on VNIX, the first network system in Viet Nam to support dual stack IPv4/IPv6.
- MoU with Laos Network Information Center (LANIC).
- ".vn" domain name reached 127,364 domain names (increase by 30% compared to 2009), 1st in ASEAN (surpassed Singapore).
- Number of IPv4 addresses reached 12,6 millions.

2010

- May 6th is chosen as Viet Nam IPv6 Day.
- VNNIC's first international conference "Viet Nam IPv6 day" in Ha Noi with the topic "IPv6 - Technologies and Applications in Viet Nam".
- Participating in "World IPv6 launch", June 6th, 2012.
- Establishing 2 more connection points of VNIX in Hoa Lac, Ha Noi City and Da Nang City, reflecting a strong development in scale and infrastructure, allowing VNNIC to be autonomous in implementing tasks and improving state management capacity of Internet resources.

2012



2001

- Internet Resources Management became a part of Internet Governance (Decree No. 55/2001/ND-CP, August 23, 2001).
- Member of the Asia Pacific Country Code Top Level Domain Association (APTLD).
- The first ".vn" DNS system was established in Ha Noi (officially taking over the national DNS system from VNPT).
- VNNIC's website and email are registered under the vnnic.net.vn domain name.
- Digitalization the management of national ".vn" domain name, IP addresses, AS numbers, documents, and administration.

2003

- The first complete legal document on Internet resource management is issued (Decision No. 92/2003/QĐ-BBCVT regulating the management and use of Internet resources).
- Recognized as the National Internet Registry (NIR) by Asia-Pacific Network Information Center (APNIC). VNNIC is the fifth organization in the region. To date, there are only 7 NIRs in the region as APNIC has permanently discontinued its policy of accepting new NIRs.
- Viet Nam National Internet eXchange established by Ministry of Posts and Communication, providing solutions for traffic exchange among enterprises, bringing great improvement to Viet Nam's Internet, eliminating international dependence.
- Received Viet Nam Science and Technology Innovation Award - VIFOTECH for the Viet Nam IDN project, a part of Internationalized Domain Name - IDN, supporting Internet access using Vietnamese.
- The first Internet Resources and Routing Workshop held by VNNIC.



2005

- Deploying the 3rd DNS System in Da Nang City, the predecessor of VNNIC's branch office in Da Nang City.
- Applying new IP structure, not collecting ASN fees as in NIR model, saving costs for the country and businesses, enabling Internet infrastructure development (Decision No. 28/2005/QĐ-BTC, dated May 13, 2005).
- APNIC Meeting 20 - the first Asia Pacific Internet resource management held in Viet Nam.
- VNNIC's first announcement on IPv4 depletion risks (November 2015).
- VNNIC was awarded the Government Emulation Flag; Certificate of Merit from the Prime Minister.

2007

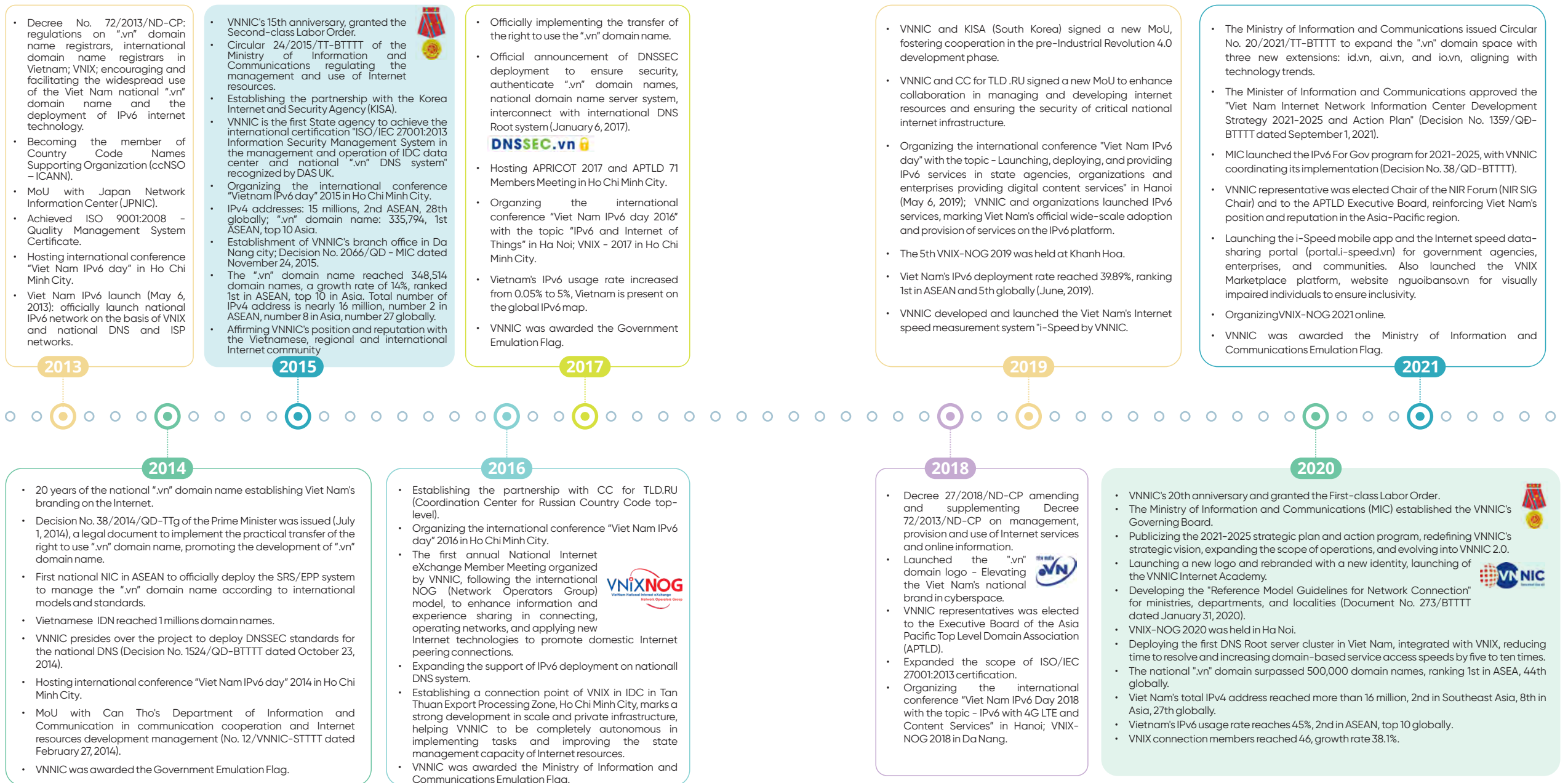
- Applied the "Registry - Registrar" model according to international practice to socialize the promotion of the development of the national ".vn" domain name. VNNIC is in charge of state management and Registrars provide domain name registration and maintenance services.
- 100% IXP (7/7 infrastructure businesses) connect to two VNIX points in Ha Noi and Ho Chi Minh city at speed of above 1Gbps.
- National ".vn" domain name reached 55,827 domain names.
- Number of IPv4 addresses reached 1 million.
- 10 years of connecting Viet Nam to the global Internet.

2009

- The Viet Nam IPv6 Task Force was established under Decision No. 05/BTTTT dated January 6, 2009 of the Minister of Information and Communications to carry out the task of promoting the deployment of IPv6 addresses in Vietnam. VNNIC is the standing member.
- The total number of ".vn" domain names reached 100,000, ranking 2nd in ASEAN. The national ".vn" domain name is increasingly popular, the number of newly granted domain names in 2009 increased by 34.4% compared to the previous year.
- At its annual meeting, the International Corporations for Assigned Names and Numbers - ICANN announced its prediction that the global IPv4 depletion will occur between 2011 and 2012.

2011

- Global IPv4 is officially exhausted. Asia-Pacific region applies IPv4 allocation restriction policy.
- In 2010-2011, negotiating to protect national interests, successfully registering 6.5 million IPv4 addresses, enough reserves to support large enterprises (VNPT, Viettel, FPT ...) to develop Vietnam's Internet in the long term. Vietnam's total IPv4 reached more than 15.5 million, 2nd in ASEAN, 8th in Asia, 27th globally.
- The Ministry of Information and Communications issued the "National IPv6 action plan" (2011-2019) with the goal of transitioning Viet Nam's Internet to operate safely and reliably with IPv6 (Decision 433/QĐ-BTTTT, dated March 29, 2011).
- Participating in "World IPv6 day". June 8, 2011.
- ".vn" domain name remained 1st position in ASEAN.
- Official free registration for Viet Nam IDN, promote and protect the branding and images of businesses, organizations and individuals.
- VNNIC was awarded the Government Emulation Flag; Ministry of Information and Communications Emulation Flag.



- Launching a new branding image for the national ".vn" domain name – a domain name for all, aligned with the vision of "Internet For All."
- Launching the VNNIC Internet Atlas.
- Hosting VNNIC Internet Conference (VIC) with the topic "The Future of Internet", establishing a major in-depth Internet technology forum aimed at guiding and fostering the development of Viet Nam's Internet while building and connecting the domestic Internet expert community.
- Organizing VNIX-NOG 2022 in Binh Dinh in hybrid format (offline and online).
- IPv6 usage rate surpassed 50%, ranking 10th globally.



2022

- Celebrating 30 years of the national domain ".vn," connecting Viet Nam to the digital world.
- The Government issued Decree No. 147/2024/ND-CP on November 9, 2024, replacing Decree No. 72/2013/ND-CP and Decree No. 27/2018/ND-CP, providing a new legal framework for Internet resources, IPv6 deployment, and the development of the Viet Nam National Internet Exchange (VNIX).
- Information and Communication Infrastructure plan for the period 2021–2030, with a vision to 2050 (Decision 36/QĐ-TTg dated January 11, 2024), identifies the task of building Vietnam's Internet infrastructure: the ".vn" domain name is a national brand, transitioning the entire Viet Nam's Internet to IPv6, the Viet Nam national Internet eXchange – VNIX, and the national DNS system are important components of Vietnam's Internet infrastructure.
- "Program of promoting and supporting reliable and safe online presences for residents, businesses, and business households with digital services using the national ".vn" domain name in provinces and cities in 2024–2025 period", under Decision No. 826/QĐ-BTTTT dated May 21, 2024, by the Minister of Information and Communications.
- Launching the DNS Abuse Report Portal, enabling individuals and organizations to report online domain names abuse, including ".vn" domain names and international domain names.
- Releasing periodic Internet speed data by province, district, and commune via the i-Speed platform, enhancing transparency and improving Viet Nam's Internet quality. The i-Speed mobile app supports automatic measurement.
- Strengthened international collaborations, signing MoUs with partners such as the Laos National Internet Center (LANIC), Lao Telecommunications Regulatory Authority (LTRA), the Asia-Pacific Network Information Centre (APNIC), and the Coordination Center for TLD .RU.
- Organizing the VNNIC Internet Conference 2024 (VIC 2024) with the topic "Safe and secure Internet infrastructure in the development of emerging technologies"; VNIX-NOG 2024 was held in Hue City.
- Successfully organized the APTLD 86 Members Meeting in Da Nang City.
- Launching the "International Domain Management System 2.0," enabling online management and monitoring of international domain name services by registrars in Viet Nam.
- Becoming the first government agency to achieve the new ISO 27001:2022 standard.
- IPv6 deployment rate reached 65.5%, ranking 7th globally, moved up two positions from 2023.
- ROA/RPKI signing rate in Viet Nam reached 96.4%, placing Viet Nam as a leader in RPKI implementation for routing security, ranking 1st in ASEAN and 3rd among the top 30 largest IPv4 holders globally.
- ".vn" domain name: 630,509, 2nd in ASEAN, 40th globally; IPv4: 16.4 million, 2nd in ASEAN, 27th globally; IPv6: 82% FTTH subscribers, 83% mobile subscribers; VNIX: 52 connection members.

2024

2023

- The 2023 Telecommunications Law was issued, creating an important, complete, and synchronous legal corridor for Internet resource management in Viet Nam.
- Circular 20/2023/TT-BTC regulates the reduction of registration and annual membership fees for domain names and IP addresses; the id.vn, io.vn, ai.vn domain names are officially open for registration and use, with 2 years of zero maintenance cost.
- Organizing VNNIC Internet Conference 2023 (VIC 2023) with the topic "Internet in Intelligent Era" in Ho Chi Minh City; VNIX-NOG 2023 was organized in Lam Dong.
- VNNIC successfully hosted the ICANN DNS Symposium and DNS-OARC Workshop, marking the first time these events were held in Viet Nam.
- Successfully implemented DNSSEC Key Rollover to ensure the highest level of security for the ".vn" domain.
- Establishing a new VNIX's Point of Presence (PoP) at CMC Data Center Tan Thuan.

2025

- Celebrating 25th VNNIC's anniversary with the slogan "Accelerating to the Finish Line"; achieving Strategic Goals for the period 2021–2025, receiving emulation achievements and rewards from the Government and Prime Minister.
- Announcing the Strategies and Action Plan for the period 2026 – 2030.
- Announcing the roadmap for IPv6 only deployment, shutting down IPv4 to prepare for the Internet of Things (IoT), along with an accelerated IPv6 deployment program for 2026–2030.
- Hosting International events: ICANN APAC DNS Forum 2025; APNIC 60 in Viet Nam.
- Organizing the international conference VNNIC Internet Conference 2025 (VIC 2025), VNIX-NOG 2025.

INTERNET RESOURCES FOR VIET NAM'S INTERNET DEVELOPMENT



1. INTERNET TRANSFORMATION AND DEVELOPMENT

NEW GENERATION INTERNET ADDRESS – IPV6

In 2011, IPv4 was officially exhausted worldwide (ICANN). Currently, three out of five regions, including North America, Latin America and Europe, have completely run out of IPv4 and halted IPv4 allocation. The figures in Asia-Pacific (APNIC) and Africa (AFRINIC) are also alarmingly low, leading to the limitation of allocation in these regions. As a result, IPv4 is expected to be depleted in the next two years.

According to the Internet Architecture Board (IAB), IPv4 technology standards development were discontinued in 2016. Instead, new standards for IPv6 and IPv6 only networks have been developed and widely adopted. Technologies supporting IPv6 only deployment and communication with IPv4 networks, such as 464XLAT, DNS64/NAT64, and DS Lite, have proven effective in practice.

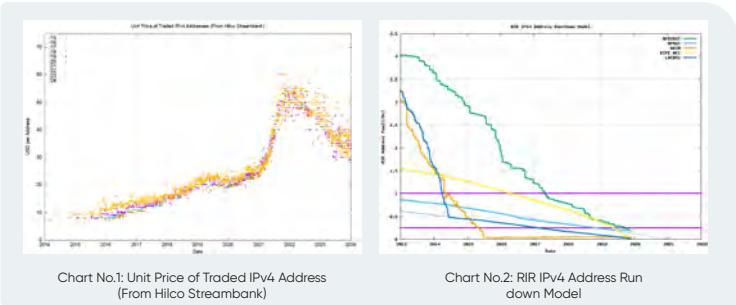
Global Internet is focused on deploying and using IPv6. By the end of 2024, the global IPv6 usage rate reached 40% (Asia: 47%; Americas: 44%; Oceania: 40%; Europe: 34%; Africa: 3%). Over the past 5-7 years, the growth rate has remained stable at about 3-5% per year.

The deployment of IPv6 only is being implemented by leading technology corporations and enterprises, and is a key focus for the 2026-2030 period. Some countries have announced their IPv6 only deployment roadmaps, with plans to gradually phase out IPv4 networks by 2028, 2030, or 2032, including China, the US, the Czech Republic, and Malaysia.

The year 2024 has witnessed the

global IPv4 routing table decreasing for the first time. Although having not yet surpassed IPv4, the IPv6 route continued to grow significantly with an average of 2800 /32 routes per year. The global Internet has begun transitioning from IPv4-with-IPv6 to IPv6-with-IPv4.

IPv6 deployment is a mandatory requirement, with the ultimate goal of achieving IPv6 only networks to support the development of next-generation Internet technologies, including the industrial Internet, IoT, Cloud, 5G, and 6G. According to Google and Vyncke, with the current growth rate, the proportion of Google services accessed via global IPv6 websites is estimated to reach 80% by 2032 and 100% by 2035, and is expected to happen sooner when the global deployment of IPv6 accelerates during the 2026-2030 period.



INTERNET CONNECTIVITY VIA INTERNET EXCHANGE POINTS (IXPS)

The number of Internet Exchange Points (IXPs) has grown significantly. As of November 2024, approximately 801 IXPs are in operation worldwide, facilitating efficient traffic exchange between networks.

- **Europe:** Home to a large number of IXP, with a concentration in Germany and the Netherlands.
- **North America:** The US maintains a stable IXP infrastructure, with major internet exchange points in New York, Los Angeles, and Chicago.
- **Asia-Pacific:** There has been strong growth in the number of IXP, particularly in India, Japan, and Australia.

IXPs are playing an increasingly vital role in strengthening and securing domestic Internet infrastructure, while also expanding globally. They integrate closely with core Internet systems such as national DNS, DNS Root servers, and Cloud/IDC platforms. IXPs help reduce latency, lower costs, and enhance sustainability, improving the efficiency of traffic exchange among network.

INTERNET ROUTING SECURITY – RPKI

The consequences of losing Internet routing security can be severe. RPKI (Resource Public Key Infrastructure) is a digital signature technology used to authenticate routing information and data for Internet resources (IP, ASN). It is an effective solution that has been widely promoted by large organizations and countries worldwide to ensure the security of Internet routing. RPKI helps prevent routing forgery, leaks, and fraud (such as hijacking and leakage), securing the Internet from its foundation. International Tier-1 upstream providers rejected routing without valid RPKI, including Cloudflare, Cogent, Lumen, and Hurricane Electric (HE).

Global:	
RPKI/ROV	21.77%
ROA IPv4	48.1%
ROA IPv6	55.3%

Several countries have achieved high ROA/RPKI deployment rates, surpassing 70%, including Turkey, Ireland, Viet Nam, France, and the Netherlands. Major global technology companies and ISPs have also deployed ROA/RPKI digital signatures, achieving authentication rates above 90%. Notable examples include: Amazon, Viasat, CXA, Google, and Charter (USA); Softbank, NTT, and KDDI (Japan); TTNNet and TELLCOM (Turkey); and NIB and Reliance Jio (India).

DOMAIN NAME SERVER SYSTEM (DNS) – GLOBAL INTERNET

The year 2024 saw significant growth, driven by increasing demands for fast, secure, and reliable Internet connectivity. DNS (Domain Name System) is the heart of the Internet, playing a key role in ensuring safety and security. Hence, DNS will continue to be a crucial focus in the coming years.

- **DNS Security:** Emphasis on developing DNSSEC solutions to protect against threats, including DDoS attacks, while offering security and privacy services based on DNS platforms.
- **DNS Encryption:** The deployment of DoT (DNS over TLS) and DoH (DNS over HTTPS) protocols to safeguard user privacy.
- **DNS for 5G and IoT:** Addressing the explosive growth of connections and the increasing demand for high-quality services, enabling real-time and near-real-time capabilities.

The world is witnessing a profound transformation in the global Internet, marked by a surge in the number of connections and the rapid adoption of new technologies such as AI, 5G, and IoT. Alongside, there is a growing emphasis on the safety and security of cyberspace. Now more than ever, as the Internet is the major motto for economic and social development, the world has focused on building a safe, secure, and sustainable digital ecosystem.

GLOBAL INTERNET



5.5 billion people

Global Internet use reached 68% by November 2024 (Source: ITU)



> 18.8 billion

IoT connected devices (December 2024). Expected to reach 40 billion IoT devices worldwide by 2030 (IoT Analytics)



~2.27 billion

Global 5G subscribers in 2024, expected to reach ~6.3 billion by 2030 (Ericsson)



\$638.23 billion

Global AI market value (2024) - expected to reach \$3.6 trillion (2034) (AI News)



~40%

IPv6 deployment rate, expected to reach 80% (2032) and 100% (2035)

2. A BIGGER, SAFER, FLATTER INTERNET IN VIET NAM

In 1997, Viet Nam officially connected to the global Internet. With just one network in the beginning, Viet Nam's Internet has grown to 1,148 networks with independent IPs and ASNs interconnected. Viet Nam's Internet has seen continuous and strong growth in terms of infrastructure, speed, security, and its ability to meet user demands. It has become an essential part of daily life, deeply integrated into all areas of society. It has been a critical infrastructure for digital transformation, contributing to the successful industrialization and modernization of the country.

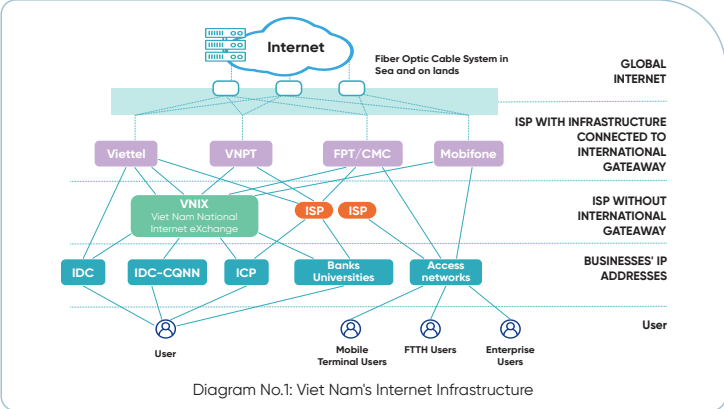


Diagram No.1: Viet Nam's Internet Infrastructure

NATIONAL CRITICAL INTERNET INFRASTRUCTURE

The Information and Communications Infrastructure Plan for the period 2021 - 2030, with a vision to 2050 (Decision No. 36/QĐ-TTg dated January 11, 2024, by the Prime Minister), has outlined the mission to build Viet Nam's Internet infrastructure as follows:

"Expanding domestic Internet connectivity through direct peering connection, connecting to Internet exchange points (IXPs), and to the Viet Nam National Internet eXchange VNIX. Expanding regional and international Internet connectivity, particularly developing submarine optical cable routes, to make Viet Nam become one of the regional hubs. Transition the entire Viet Nam's Internet network to the new generation Internet protocol (IPv6). Promoting to build platform to monitor both domestic and international Internet access performance, and enhance the ability to ensure the quality of Viet Nam's Internet network..."

VIET NAM NATIONAL INTERNET eXCHANGE (VNIX)

"VNIX is the Viet Nam National Internet eXchange that is operated on the principles of neutrality, serves as a key connection point, optimizing Internet traffic exchange and providing backup connection paths for networks of governmental agencies and enterprises. It supports the development of data centers and serves as a platform for enhanced domestic and international Internet access in Viet Nam, improves the quality and security of Viet Nam's Internet network, connecting to regional and global Internet exchange points, make Viet Nam to become a regional hub."



NATIONAL DNS SYSTEM

"The National DNS system ensures the stable and continuous operation of Viet Nam's national ".vn" domain name. It includes the deployment of DNS Root server in Viet Nam, the development of the national DNS infrastructure according to international standards, advanced technology applications such as DNSSEC and IPv6. These enhance the quality, security, and reliability of Internet services in Viet Nam, supporting the development of digital infrastructure, digital government, digital economy, and digital society, all in a secure and trusted manner."



INFORMATION AND COMMUNICATION INFRASTRUCTURE PLANNING FOR THE PERIOD 2021-2030, WITH A VISION TO 2050



1 million

National ".vn" domain name", accounting for 60% of domain names registered in Viet Nam (1st in ASEAN, top 10 in Asia, top 20-30 globally)



Expand direct peering connections, connecting to IXP, and to VNIX



100% IPv6

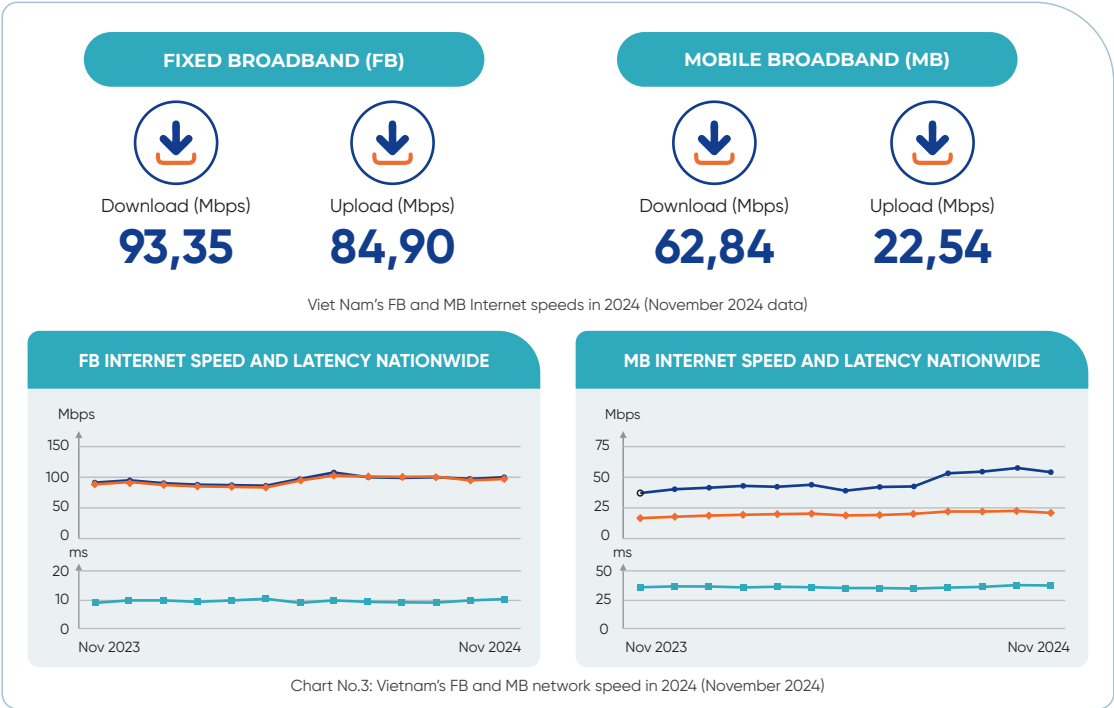
Top 20 in the world in IPv6 deployment



Completing IPv6 deployment on IoT mobile network nationwide. IPv6 in smart home platforms, home IoT sensor terminals, and support IPv6-based access management

INTERNET SPEED IN VIET NAM

According to statistics from the i-Speed by VNNIC system, the speed of Viet Nam's Internet is increasingly improving, meeting users' needs for high-quality Internet.



No.	Provinces/Cities	IPv6 Adoption Rate (%)	FIXED BROADBAND SPEED		MOBILE BROADBAND SPEED	
			Download (Mbps)	Upload (Mbps)	Download (Mbps)	Upload (Mbps)
1	Can Tho	41.81	103,29	98,77	82,05	32,89
2	Ha Noi	37,62	97,81	96,98	59,97	19,39
3	Hai Phong	42,86	83,30	83,43	51,91	19,22
4	Ho Chi Minh	40,58	107,33	101,80	66,92	27,28
5	Da Nang	43,72	109,18	99,09	90,23	37,27
6	An Giang	37,87	123,86	104,86	94,24	33,02
7	Ba Ria - Vung Tau	43,03	101,72	94,99	80,81	31,89
8	Binh Duong	44,41	129,24	108,74	74,91	27,01
9	Binh Phuoc	46,61	98,82	95,54	95,86	30,36
10	Binh Thuan	44,59	111,57	100,36	77,68	28,04
11	Binh Dinh	40,55	74,32	68,50	84,20	28,36
12	Bac Lieu	38,83	117,61	105,40	84,63	36,49
13	Bac Giang	35,37	83,86	66,72	57,66	16,36
14	Bac Kan	38,48	51,78	48,85	65,49	16,98
15	Bac Ninh	41,31	86,16	85,53	52,74	19,78
16	Ben Tre	42,66	99,21	92,07	67,48	30,22
17	Cao Bang	36,85	79,64	73,22	69,21	25,84
18	Ca Mau	38,76	98,33	91,72	76,12	37,54
19	Gia Lai	45,84	100,51	91,90	86,05	31,64
20	Hoa Binh	34,48	54,13	47,08	58,97	17,98
21	Ha Giang	39,11	83,44	61,13	80,41	27,97
22	Ha Nam	31,74	90,30	88,47	63,51	30,96
23	Ha Tinh	45,61	56,20	49,87	71,28	22,08
24	Hung Yen	39,26	88,23	86,91	50,78	23,88
25	Hai Duong	41,43	89,67	88,31	50,47	23,82
26	Hau Giang	43,21	99,70	92,00	78,21	28,50
27	Khanh Hoa	43,16	75,74	69,69	78,45	28,18
28	Kien Giang	45,97	97,49	85,02	73,07	25,23
29	Kon Tum	33,12	89,16	63,73	90,86	31,68
30	Lai Chau	42,17	58,73	51,37	67,18	19,97
31	Long An	41,58	96,61	88,37	70,05	29,14
32	Lao Cai	39,88	85,80	76,40	65,69	20,91
33	Lam Dong	35,75	97,49	84,76	83,34	30,45
34	Lang Son	41,13	84,54	82,07	61,88	30,51
35	Nam Dinh	38,25	51,70	50,29	53,79	22,07
36	Nghe An	34,86	86,04	73,88	65,88	27,43
37	Ninh Binh	41,00	86,78	70,44	70,12	29,40
38	Ninh Thuan	50,67	116,22	107,40	80,27	35,47
39	Phu Tho	33,33	87,70	70,59	67,71	24,28
40	Phu Yen	43,24	97,48	91,17	84,16	33,19
41	Quang Binh	54,49	92,18	70,92	90,94	32,67
42	Quang Nam	44,52	94,18	80,91	78,52	29,35
43	Quang Ngai	41,71	144,90	91,24	94,66	27,38
44	Quang Ninh	46,82	80,98	78,91	52,90	26,05
45	Quang Tri	43,88	82,43	69,55	94,18	32,92
46	Soc Trang	29,06	98,98	94,75	81,41	30,69
47	Son La	24,03	55,48	52,26	65,48	22,00
48	Thanh Hoa	41,45	68,56	57,74	65,32	28,64
49	Thai Binh	40,60	90,64	86,11	70,19	28,56
50	Thai Nguyen	37,71	49,81	45,55	54,76	18,62
51	Thua Thien Hue	46,10	96,89	86,76	85,67	32,60
52	Tien Giang	44,20	103,73	95,35	86,08	28,24
53	Tra Vinh	49,89	80,90	65,57	62,61	21,10
54	Tuyen Quang	33,50	85,85	72,69	83,55	28,75
55	Tay Ninh	39,46	104,82	94,52	73,74	32,39
56	Vinh Long	46,11	99,11	95,77	64,54	28,22
57	Vinh Phuc	41,65	97,15	88,10	70,51	25,50
58	Yen Bai	38,48	97,79	91,32	59,22	22,60
59	Dien Bien	45,85	87,76	70,25	106,59	26,42
60	Dak Lak	31,45	81,35	60,13	76,89	26,80
61	Dak Nong	50,00	72,04	61,03	72,50	23,17
62	Dong Nai	47,90	122,79	106,19	74,39	29,16
63	Dong Thap	48,12	100,42	94,10	82,41	32,33

Table No.1: Fixed broadband, mobile broadband median speed and IPv6 usage in provinces and municipality cities in 2024 (updated to November, 2024)

I-SPEED - INTERNET SPEED MEASUREMENT APPLICATION

Viet Nam Internet speed measurement system, i-Speed (VNNIC Internet Speed, <https://speedtest.vn>), developed by VNNIC, under the Ministry of Information and Communications, has become a widely-used tool for measuring Internet speed by individuals, agencies, organizations, and businesses across the country.

In July 2024, VNNIC launched the latest update for i-Speed (version 4.0 for Android), introducing an automatic measurement feature. This feature allows users to automatically measure their Internet speed periodically at different times, locations, and under varying connection conditions.

Additionally, since July 2024, the Ministry of Information and Communications have been publishing Internet speed data from locality, enterprise, district, and commune, on the i-Speed system. This initiative aims to enhance transparency and provide public benefits in the provision of Internet access services, allowing individuals, organizations, and businesses to choose services and ISPs based on their needs and conditions.

The publication of this data has contributed to the improvement of public management efficiency, with actual performance data being shared with relevant authorities under the Ministry and local authorities for proactive monitoring and evaluation. For telecommunications companies, data at such a detailed level will foster greater competition, enabling them to better assess their infrastructure, optimize their plans, and enhance the quality of Internet services.

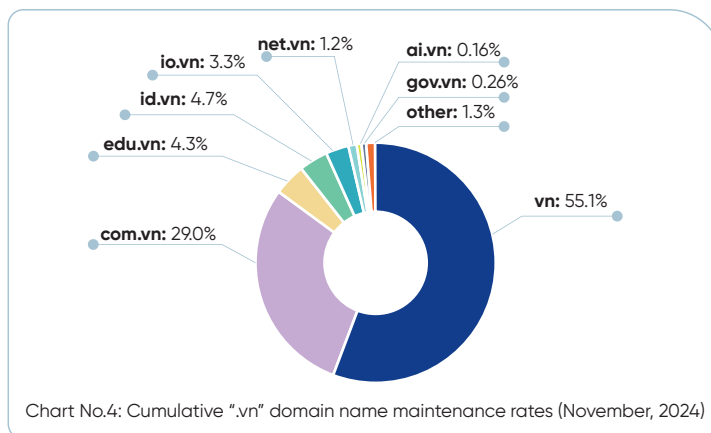


In the context of national Internet development, Internet resources play a critical role in all digital activities, from network connectivity to the operation of online services. The task of promoting and developing Internet resources, namely Viet Nam's national domain name ".vn", IP addresses, and ASN, is carried out consistently and effectively by the VNNIC. This effort aligns with international standards and policies, supporting the national strategic vision for development, significantly contributing to the overall Viet Nam's Internet development outcome. As the National Internet Center (NIC), VNNIC has grown stronger and more integrated into the global Internet resource management structure, further enhancing its standing in the world.

VIET NAM'S NATIONAL ".VN" DOMAIN NAME - VIET NAM'S NATIONAL IDENTITY ON THE INTERNET

After 30 years of development, the national ".vn" domain name has become a symbol of "Identity – Trust – Safety." In 2024, the Ministry of Information and Communications issued Decision No. 826/QĐ-BTTTT to promote the popularization of the national ".vn" domain name, accelerate digital transformation, and develop the country's digital government, digital economy, and digital society. The goal is to reach at least 1 million ".vn" domain names by 2025.

The year 2025 marks the 30th anniversary of the Viet Nam's national ".vn" domain name. By the end of November 2024, the number of registered ".vn" domain names reached 630,509, representing a 3.6% increase compared to the same period in 2023, with an average growth rate of 4.89% over the past five years. The ".vn" domain name has become a crucial factor in promoting and developing the digital economy and digital society.



IP/ASN EXPANDING MULTI-HOME CONNECTIONS, DEVELOPING VIET NAM'S INTERNET INFRASTRUCTURE

In 2024, the number of IP address members and AS networks surpassed the strategic target set for the 2021–2025 period. The total number of ASN networks reached 864, while the number of networks using independent IP addresses grew to 1,148, forming the foundation of Viet Nam's Internet. This reflects the growing participation of various industries, professions, and fields in the digital space. Viet Nam's Internet is becoming bigger and flatter.

IPv6 DEPLOYMENT ON VIET NAM'S INTERNET

By the end of November 2024, Viet Nam's IPv6 usage rate reached 65.5%, ranking 2nd in ASEAN and 7th globally, moved up 2 places compared to 2023, surpassing the 2024's industry target of 65%. The IPv6 usage rate in Viet Nam is expected to reach 70% by 2025, 80% by 2028, 90% by 2030, and around 100% by 2032. In 2024, VNNIC drafted a roadmap for deploying IPv6 only, shutting down IPv4 in preparation for the Internet of Things (IoT) development phase.

2025 will be the final year to implement the last three steps in the "3 Phases – 10 Steps of IPv6 deployment" within governmental bodies, completing the overall objectives of the IPv6 For Gov Program for the 2021–2025 period.

3. PROMOTING ".VN" DOMAIN NAME TO DEVELOP DIGITAL ECONOMY AND SOCIETY

Domain names are the starting point for most activities and services on the Internet. On April 14, 1994, the ccTLD ".vn" officially joined the global system, marking Viet Nam's brand and sovereignty on the world Internet map.

After 30 years of development, with the values of "Identity – Trust – Safety," the ".vn" domain name not only represents the national identity in cyberspace but also acts as a bridge between businesses and customers, as well as the government and citizens. This fosters opportunities and strengthens interactions across all aspects of social life.

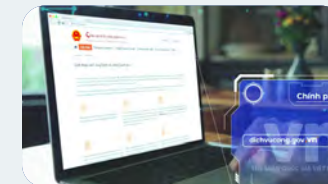


30 YEARS OF CONNECTING VIET NAM TO THE DIGITAL WORLD



DIGITAL GOVERNMENT

Enhancing the efficiency and convenience of online public services.



DIGITAL ECONOMY

Driving the digital economy with modern platforms, supporting businesses, affirming Vietnamese branding in the cyberspace.



DIGITAL SOCIETY

Connecting communities with timely and useful information; building personal branding in digital world.



AFFIRMING NATIONAL BRAND AND BUILDING TRUST

The ".vn" domain name affirms the online presence of Vietnamese organizations and businesses in cyberspace while contributes to build the national brand in the global market.

Moreover, the ".vn" domain name instills trust in users, particularly for e-commerce transactions, as it is managed and protected under Vietnamese laws.



As of November 2024, all of the Top 10 strongest Vietnamese brands, as ranked by Brand Finance, use websites with the ".vn" domain name.

ENSURING LEGAL RIGHTS AND INFORMATION SECURITY

The use of the ".vn" domain name safeguards the brand and legal rights of Vietnamese businesses, minimizes domain disputes and protects legal rights of individuals, organizations and businesses.

Additionally, the ".vn" domain name ensures information security as it is managed by the Viet Nam Internet Network Information Center (VNNIC) under the Ministry of Information and Communications, adhering to security and information protection standards for Vietnamese users.

PROMOTING DIGITAL ECONOMY DEVELOPMENT

Digital economy and digital society growth are inseparable from online presence. According to Internet experts, a website and a domain name are essential for businesses, individuals, or organizations to establish an online presence. In developed countries, most small and medium-sized enterprises (SMEs) and even micro-enterprises have an online presence using their national domain names (e.g., 75% in Europe; 95% in Germany). In Viet Nam, this rate remains low, at approximately 25%.

The ".vn" domain name, associated with websites, serves as a key tool for SMEs to establish an affordable online presence and connect with domestic customers. Businesses and households using the ".vn" domain contribute to the development of local e-commerce platforms, facilitating domestic transactions and trade.

NATIONAL DOMAIN NAME'S CRUCIAL ROLE IN LOCAL ECONOMIES



The ".vn" domain name plays a vital role in promoting e-commerce, digital healthcare, digital education, and online public services. It not only highlights Viet Nam's national brand but also helps improve local Digital Transformation Index(DTI) and E-Commerce Business Index (EBI).

A study on ScienceDirect in the United States shows that domain names and websites are closely linked to local economic development. Regions with a high website density (websites per 100 residents) see an average household income increase of \$370, equivalent to 7% income growth. Furthermore, areas with higher website density recover faster from economic crises. For example, regions with the best post-crisis recovery have an average of 3.6 websites per 100 residents, compared to 1.9 websites per 100 residents in the slowest-recovering regions. This demonstrates that website density doesn't only reflect technological adoption levels but also contributes to economic stability in local areas.

RETAIL STORES NEED TO START WITH ".VN" DOMAIN NAME AND DIGITAL SERVICES



According to the Department of Digital Economy and Digital Society (Ministry of Information and Communications), traditional markets account for 75% of the retail market and meet 85% of consumer demand. However, their market share is declining. To meet the growing demand for rapidness and convenience of consumption, traditional retail needs to shift to the digital environment.

In the omnichannel retail trend, a website is the foundation of all online sales channels. A website serves as the home base, the headquarter for retail stores on the Internet, integrating and linking to other sales platforms without being subject to social media policies or e-commerce marketplace algorithms. Without a website, customers may question the store's legitimacy, reliability, and legal standing.

A trusted, professional website builds customer trust.

The ".vn" domain name, associated with websites and emails, is a reliable solution for retail stores to establish a trustworthy and legitimate digital presence, optimize search system visibility, and build a strong product brand. When tied to ".vn" domain names, online information becomes more secure and reliable, with clear and transparent registrant identities.

7 REASONS RETAIL STORES SHOULD HAVE A WEBSITE WITH THE ".VN" DOMAIN NAME



Increase customer reach



Enhance reputation and branding



Operate online 24/7



Reduce operational costs



Optimize marketing and advertising costs



Provide detailed product information



Manage and analyze customer data

SUPPORTING E-GOVERNMENT AND TECHNOLOGY APPLICATIONS:

Government and public service portals in Viet Nam use the domain name ".gov.vn" to ensure authenticity and accessibility for citizens. The ".vn" domain name contributes to Viet Nam's digital transformation process and serves as a crucial factor in building information technology infrastructure for Viet Nam's economic and social development goals.

CONTRIBUTING TO THE DEVELOPMENT OF NATIONAL INTERNET INFRASTRUCTURE:

Enhancing Viet Nam's Internet Infrastructure: The use of the national ".vn" domain name helps optimize network infrastructure and improve access quality for domestic users.

Promoting the Digital Content Industry: the national ".vn" domain name serves as a foundation for the development of websites, applications, and digital services in Viet Nam, fostering the growth of the digital content industry and creating values for society. With these roles, the ".vn" national domain name is not just a technical element but also a strategic asset, significantly contributing to the sustainable development of Viet Nam's digital economy. It is also an essential tool for advancing e-commerce and domestic digital services.

GROWTH IN REGISTRATION AND USE OF THE ".VN" NATIONAL DOMAIN NAME



630.509

".vn" domain names

185.036

registered domain names in 2024



2nd

place in ASEAN



10th

place in Asia-Pacific region



Top 40

worldwide, 6-rank improvement compared to 2020

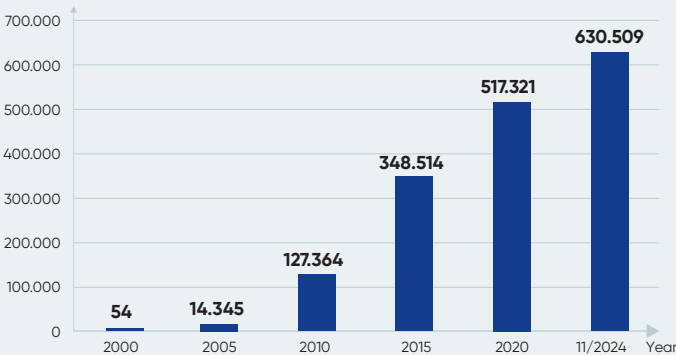


Chart No.5: Cumulative number of maintained ".vn" domain names over five-year periods

46%

Organization

54%

Individual

By November 2024, 14 provinces and cities across Viet Nam witnessed more than 5,000 ".vn" domain name registrations. Hanoi, Da Nang, Ho Chi Minh City, Binh Duong, and Dong Nai continued to be leading contributors to the total number of ".vn" domain names nationwide in 2024.

China, the United Kingdom, Germany, South Korea, and Australia are the top five countries with the highest number of ".vn" domain names maintained outside of Viet Nam.

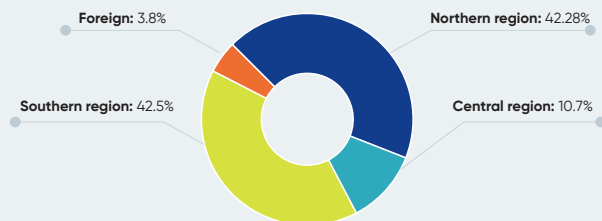


Chart No.6: ".vn" domain name registrations by geographical distribution

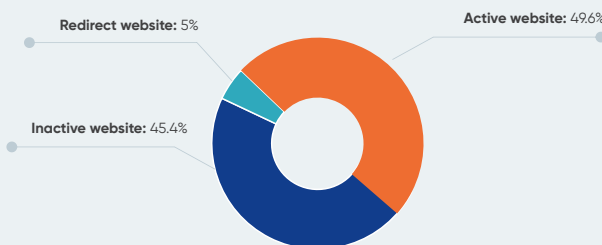


Chart No.7: ".vn" domain services usage rate

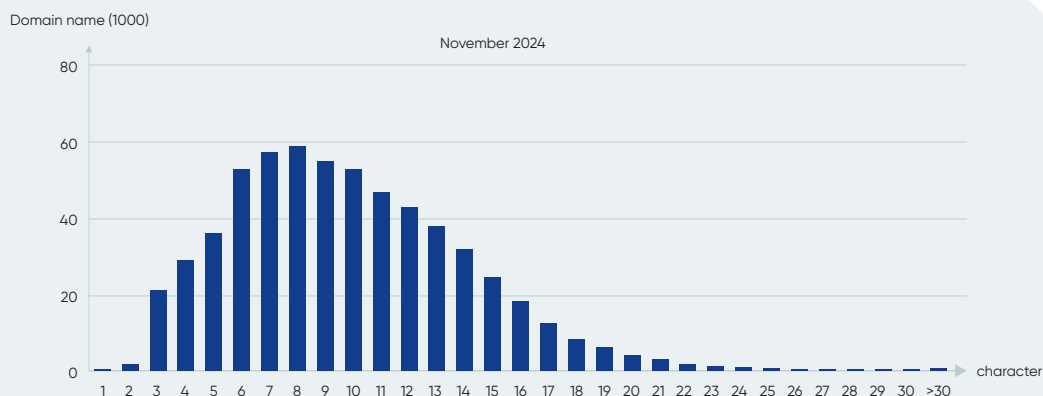


Chart No.8: Cumulative number of ".vn" domain names maintained by domain name label length

ONLINE PRESENCE WITH VIET NAM'S ".VN" NATIONAL DOMAIN NAME PROGRAM

On May 21, 2024, the Ministry of Information and Communications (MIC) issued Decision No. 826/QĐ-BTTTT, approving the " Program of promoting and supporting reliable and safe online presences for residents, businesses, and business households with digital services using the national ".vn" domain name in provinces and cities in 2024-2025 period". This program aims to popularize the national ".vn" domain name, significantly driving the digital transformation process and advancing the development of digital government, digital economy, and digital society in Viet Nam, aiming to achieve the goal of at least 1 million ".vn" domain names by 2025, with the introduction of two special and breakthrough policies and solutions for newly established businesses within 1 year, business households and students from 18 – 23 years old.



BUILDING PERSONAL BRANDING WITH ID.VN DOMAIN NAME



Vietnamese citizens aged 18–23 are eligible for free ID.VN domain name registration, along with digital services (Website/Hosting, Email, Online CV) for two years. This initiative aims to encourage young individuals to engage in activities such as building their online personal branding, learning, entrepreneurship, and contributing to the development of the digital economy and digital society.



GET YOUR ONLINE STORE WEBSITE WITH BIZ.VN DOMAIN NAME



Enterprises established within 1 year to the time of domain name registration and businesses households with a certificate of establishment registration are eligible for zero-cost registration and renewal fees for the BIZ.VN domain name. Registrars also offer preferential packages for accompanying services such as website/hosting, email, and more.



PROGRAM OBJECTIVES



1

Support individuals, businesses and business households to establish a safe and reliable online presence through the use of the national ".vn" domain name.

2

Promote the digital economy and digital society, utilize digital technical solutions and online services in activities such as e-commerce, healthcare, culture, and education.

3

Safe and reliable online information with online services (website, email,...) using national ".vn" domain names

PROGRAM BENEFITS

FOR INDIVIDUALS, BUSINESSES, AND BUSINESS HOUSEHOLDS

BUILDING BRAND CREDIBILITY

A website with a ".vn" domain name helps businesses and business households enhance legitimacy and trustworthiness.

1

PROFESSIONALIZATION

Easily manage information, protect data, and analyze customer needs.

2

SUPPORT ADVERTISING ACTIVITIES

An effective marketing channel that enhances brand recognition.

3

COST REDUCTION

Save on costs for physical space and staff with e-commerce.

4

MARKET EXPANSION

The website operates 24/7, reaching customers nationwide and internationally.

5

FOR STUDENTS

Access to learning, practice, and experiential tools.

Develop and strengthen digital skills in the 4.0 era.

1

Foster knowledge and safely use the Internet. Unique website profile for job hunting.

2

FOR SCHOOLS

Offer practical courses for students with hands-on technological tools.

3

Inherit the national program, build digital competence for students, schools and society.

4

Ensure the quality of students in the digital economy and digital society.

Offer students networking opportunities with employers.

5

BENEFITS FOR PROVINCES AND CITIES

Increase the Digital Transformation Index (DTI) and the E-Commerce Business Index (EBI) of provinces and cities.

1

Sustainably develop the digital economy and digital society.

2

BENEFITS FOR THE NATION

Enhance country position and protect Viet Nam's digital sovereignty in cyberspace.

1

Promote digital transformation to make Viet Nam's Internet environment safer and more reliable.

2

The program has been implemented on a national scale. The Ministry of Information and Communications (MIC), with the Viet Nam Internet Network Information Center (VNNIC) as the focal agency, has been collaborating with provincial People's Committees, represented by local Departments of Information and Communications (DICs), to initiate the program in localities. The focus is on promoting the national ".vn" domain name and digital services to individuals, businesses, and business households. Pilot implementations have been conducted in provinces such as Dong Thap, Hai Duong, Thai Nguyen, Thua Thien Hue, Quang Ngai, and Da Nang. The program is now being expanded to other provinces and cities across the country.



The Ministry of Information and Communications (MIC), in collaboration with the Central Committee of the Ho Chi Minh Communist Central Youth Union, has launched the program "Online Presence with the National ".vn" Domain Name for Vietnamese youth and youth organizations nationwide. The program is concretized through two website design competitions: "Creative Youth" and "Youth Diary."



WEBSITE DESIGN COMPETITIONS FOR YOUTH ORGANIZATIONS




VNNIC, in collaboration with the Viet Nam E-commerce Association (VECOM), organized promotional activities, training sessions, and guidance on registering id.vn domain names for students through the Unitor program. The initiative also includes hosting competitions such as Personal Branding with a ".vn" domain name website, encouraging creativity in building personal brands.




NOTABLE WEBSITES:

Website ID.VN (<https://danhba.id.vn>)

Build personal branding and increase job competitive advantage.




Startups and Online Business




Website BIZ.VN

Vũ Thị Hương Business Household specializing in Thai Nguyen - Tea with the website: <https://huongtratea.biz.vn>




Nguyen Thi Thanh Nhan business household specializing in cordyceps products with the website: <https://dongtrungqt.biz.vn>




Website ID.VN (<https://danhba.id.vn>)

Build foundations for personal or community projects




Create personal blogs



Website BIZ.VN

Trang tra cứu website



Directory websites are launched at: <https://danhba.id.vn>; <https://danhba.biz.vn> to provide information, typical websites, and intuitive sample pages, thereby effectively supporting the construction and maintenance of websites with “.vn” domain names. Directory pages help users easily search and access websites by fields, and enhance community connections and build reputation for published websites.

4. IP/ASN EXPANSION DRIVES MULTI-HOME CONNECTIVITY AND STRENGTHENS VIET NAM'S INTERNET INFRASTRUCTURE

An IP address is the network identifier for a device or server, encompassing two primary versions: IPv4 (Internet Protocol Version 4) and IPv6 (Internet Protocol Version 6). Autonomous System Number (ASN) identifies networks participating in global Internet routing.

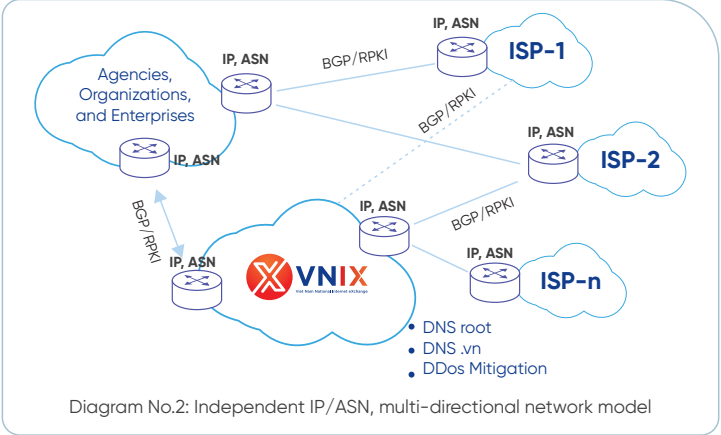
As the NIR of Viet Nam, VNNIC has taken the lead in supporting the Internet community, contributing to the growth of Internet resources and critical national Internet infrastructure.

- In 2010-2011, during the global exhaustion of IPv4 addresses, VNNIC successfully secured a substantial supply of IPv4 addresses to support the long-term growth of major enterprises like VNPT, Viettel, and FPT, facilitating advancements in network infrastructure, fiber-optic broadband (FTTH), mobile networks (3G/4G/5G), and IDC/Cloud services.
- IoT Readiness: Viet Nam is in the top 10 leading countries in the deployment of IPv6. As of 2024, Viet Nam's IPv6 deployment reached 65.5%, a 6.56% increase from 2023, ranked 7th globally (up two positions from 2023). The deployment rate is 1.6 times higher than that of both the world and ASEAN.

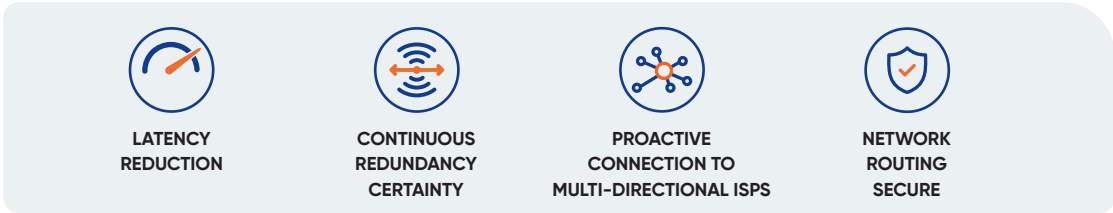


Registering independent IP addresses and ASNs empowers Vietnamese organizations and enterprises to create multi-home, independent networks that proactively connect with multiple ISPs and the Viet Nam National Internet eXchange (VNIX). This approach plays a pivotal role in advancing Viet Nam's Internet, making it bigger, faster, safer, and flatter.

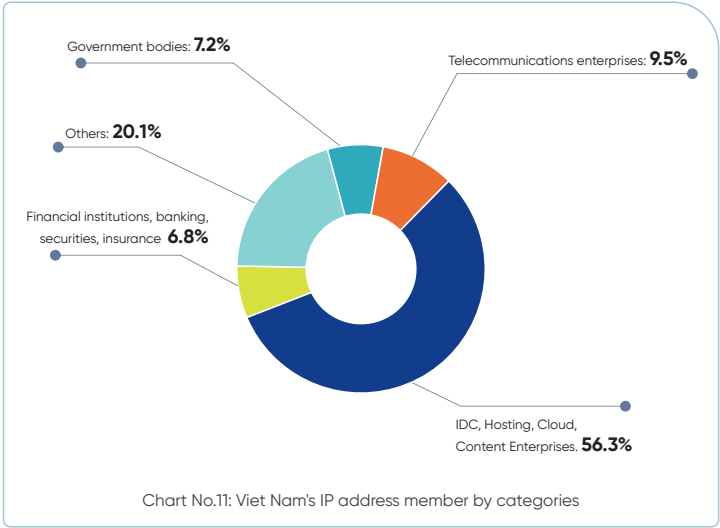
By the end of 2024, there were 1,148 independent IP/ASN network, forming a strong and dynamic Internet network in Viet Nam. The operation of these resources and Viet Nam's Internet network was safeguarded through advanced authentication technologies such as RPKI and DNSSEC. Viet Nam continued to lead globally in IPv6 and ROA/RPKI deployment, reinforcing the security of network operations and Internet services at their core.



USING IP/ASN FOR MODERN NETWORKS



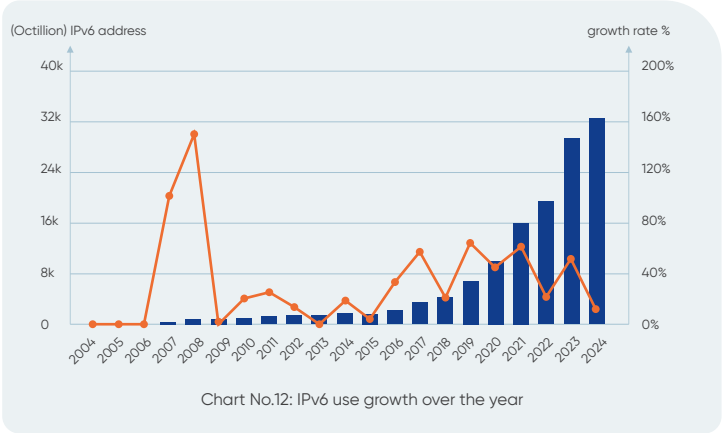
SECURE AND MULTI-DIRECTIONAL CONNECTION



5. TRANSITIONING VIET NAM'S INTERNET TO NEW-GENERATION IP ADDRESS (IPv6)

IPv4 technology standards's development has been discontinued since November, 2016 (according to Internet Architecture Board IAB). New standards for IPv6, IPv6 only have been completed and widely applied to develop the new generation Internet: Industrial Internet, IoT, Cloud, 5G, 6G... IPv6 is a basic and essential element of Internet infrastructure, digital infrastructure, digital services, with high potential for innovation and new values based on it's technologies application.

“ IPv6 deployment is an inevitable trend to develop the Internet of Things, Industrial Internet with new services such as IoT, Cloud Computing, 5G/6G. ”



65.5%

IPv6 use rate in Viet Nam
As of November, 2024

2nd
in ASEAN

7th
globally

Moved up 2 places compared to 2023 (1.6 times the global average) (above the US, China, Japan, South Korea, UK, France)

100%

National critical Internet
infrastructures transited to IPv6
(DNS, VNIX)

IPv6 services:

FTTH IPv6 subscribers

79% (17/22 million)

(increase by 3% compared to 2023)

IPv6 mobile subscriber

80% (70/88 million)

(increase by 10% compared to 2023)

Websites performing on IPv6

36.582

(increase by 12% compared to 2023)

IPv6 deployment in Ministries,
branches, and localities
(for reference)

100%

localities support IPv6 for their
portals and online public services

73%

Ministries, branches support IPv6
for their portals and online public
services

IPv6 training

14 workshops

with the participation of

988 students in 2024

100 workshops

with the participation of

4900+ students in total

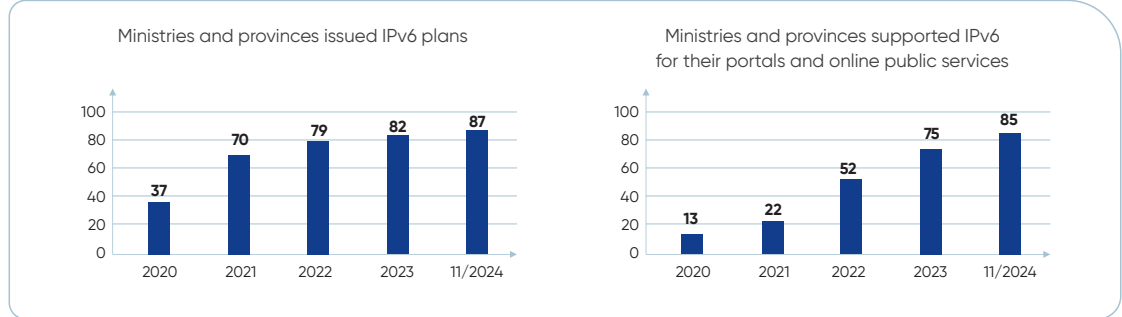


Chart No.13: IPv6 deployment in governmental agencies

STT	ASN	NetName	%IPv6
1	AS131429	MOBIFONE-VN	81.40%
2	AS7552	VIETTEL-VN	68.80%
3	AS18403	FPT-VN	66.33%
4	AS24086	VIETTEL-VN	65.75%
5	AS45899	VNPT-VN	55.39%
6	AS135905	VNPT-VN	13%
7	AS140815	HTTVSERVER-VN	10.42%
8	AS150862	MAYTINHVPSTTT-VN	9.72%
9	AS45543	SCTV-VN	9.17%
10	AS135967	BKNS-VN	8.96%

Table No.4: IPv6 deployment rates in corporations in Viet Nam (APNIC Labs – November, 2024)

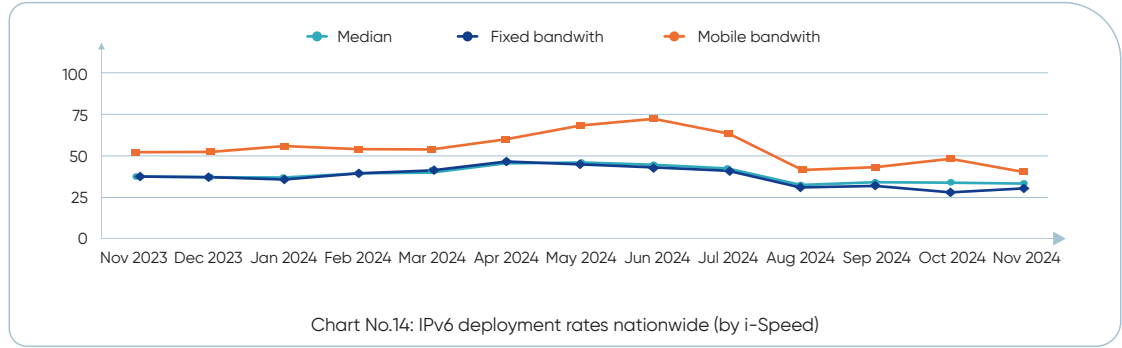


Chart No.14: IPv6 deployment rates nationwide (by i-Speed)

IPv6 FOR GOV IN THE PERIOD 2021 – 2025

To promote, and support state agencies in IPv6 deployment on their networks and services, in parallel with upgrading and modernizing their IT systems, Internet connections, e-portals in a unified, synchronous, and modern manner to ensure information security and digital infrastructure development, the Ministry of Information and Communications has issued the IPv6 For Gov Program for the period 2021 – 2025 (Decision No. 38/QĐ-BTTTT dated January 14, 2021 of the Minister of Information and Communications).

2025 is the final year to implement the last three steps in the “three-phase, ten-step IPv6 deployment” plan in state agencies. For these agencies, IPv6 deployment on digital infrastructure combined with restructuring of network infrastructure towards modernity, safety, serves the long-term development of network operations and services.

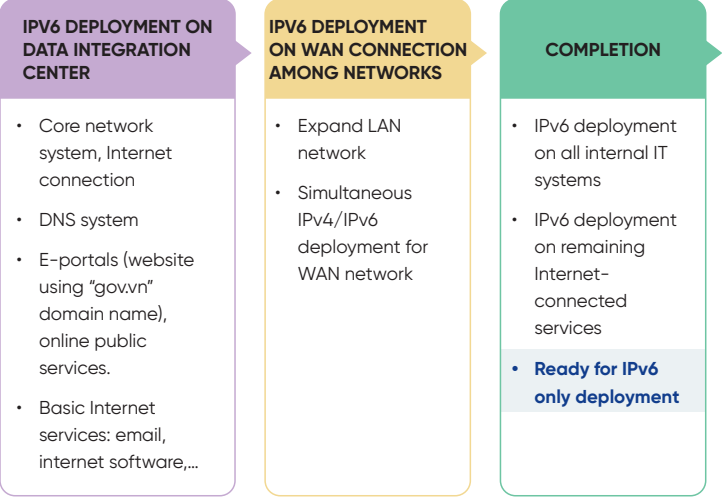


Diagram No.3: 03 last steps in IPv6 For Gov deployment plan

IPv6 FOR GOV'S GOALS IN 2025

100% provinces and cities, ministries, ministerial-level agencies, and government agencies issue and successfully implement the IPv6 Deployment plan.

100% portals and online public services operate well with IPv6 and are ready for IPv6 only deployment.

IPv6 deployment on all infrastructures, networks, Internet connection services and dedicated data transmission network of state agencies; ready for IPv6 only operation.

IPv6 usage rate in government agencies is equivalent to the general IPv6 usage rate on the Viet Nam's Internet (reaching 70% – 80%, ready for IPv6 only by 2025).

IPv6 ONLY DEPLOYMENT PLAN

- In the coming period, Viet Nam will implement the IPv6 only deployment phase, moving towards stopping the use of IPv4 addresses, following the Information and Communications Infrastructure Planning for the 2021-2030 period, with an aim to 2050.
- 1

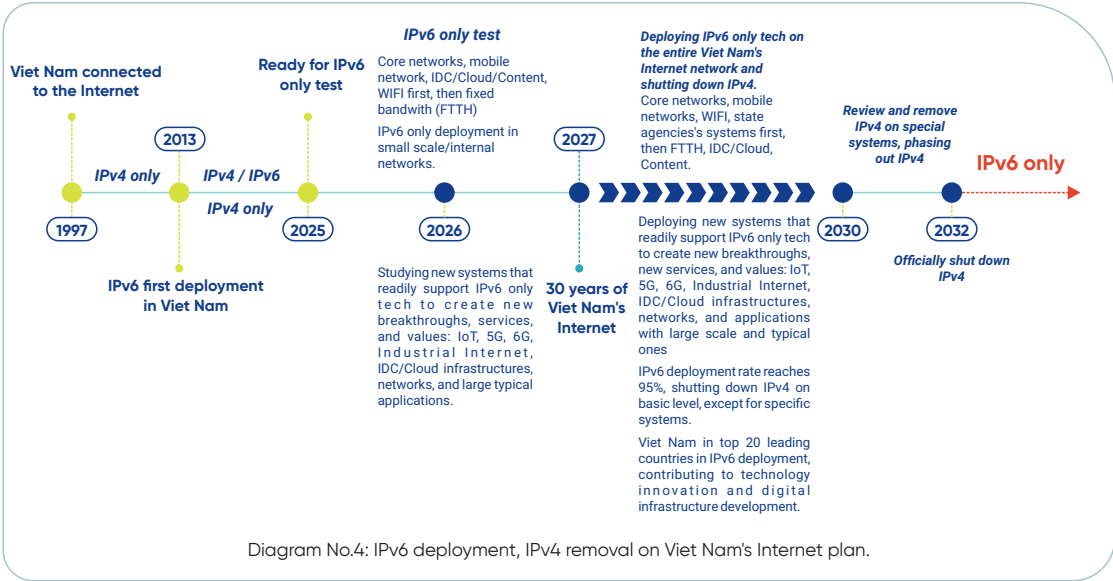
New-generation IPv6 address deployment on the entire Viet Nam's Internet network
- 2

IPv6 deployment basic completion for mobile IoT and enabling IPv6 address allocation for mobile IoT users. For smarthomes, promoting the completion of IPv6 deployment in smart home platforms, home IoT sensor terminals, and support IPv6-based access management.



IPv6 only deployment in Viet Nam follows closely the spirit of Resolution No. 57-NQ/TW dated December 22, 2024 of the Politburo of Viet Nam on breakthroughs in science, technology, innovation and national digital transformation, including: infrastructure development, especially digital infrastructure and technologies on the principle of "modernity, synchronization, security, safety, efficiency, and avoiding waste". IPv6 is an advanced technology that needs to be prioritized for development (Article 18, Decree No. 147/2024/ND-CP). IPv6 is a critical element of the Internet infrastructure, digital infrastructure, digital services, and offers great value in the application of IPv6 technology.

IPv6 only deployment is associated with technological innovation, creating new and breakthrough values. Turning off IPv4 will take place gradually and partially, in sync with the world, towards using IPv6 only.



DEVELOPING NATIONAL CRITICAL INTERNET INFRASTRUCTURES (VIET NAM NATIONAL INTERNET EXCHANGE – VNIX, NATIONAL DOMAIN NAME SYSTEM), IMPROVING INTERNET SPEED AND QUALITY, SECURING INTERNET CONNECTIVITY



VIET NAM NATIONAL INTERNET EXCHANGE – VNIX

In 2003, Viet Nam National Internet eXchange (VNIX) was established by the Ministry of Information and Communications and operated by the Vietnam Internet Network Information Center (VNNIC), with the principles of NEUTRALITY, NON-PROFIT, AND FOR THE BENEFIT OF THE COMMUNITY, expanding domestic internet connectivity, avoiding transit, reducing latency, and enhancing overall Internet performance.

Decree 147/2024/ND-CP dated November 9, 2024 (takes effect from

December 25, 2024) regulates VNIX's role of ensuring the safety and continuous operation of Viet Nam's Internet network, promoting domestic Internet connectivity and contents, connecting to regional and global Internet Exchange Points, DNS-ROOT and other international networks to develop content infrastructures, distribute network traffics, connect to network using IPv6 address, and promote IPv6 technology deployment in Viet Nam's Internet.

5+
Connection Points (IDC POP, Ha Noi, Ho Chi Minh City, Da Nang)

50+
Network members (diverse, multi-disciplinary)

502+
Gbps connection bandwidth

100% IPv6
ISO: 27001:2022

NATIONAL DOMAIN NAME SYSTEM – DNS

The “.vn” DNS system is a national-level system, the “heart” of Viet Nam's Internet, interconnecting to global DNS-ROOT system, providing a safe access and use of “.vn” domain name and online services associated with “.vn” domain names on the global Internet. The system adheres to the ISO/IEC 27001:2022 and other international security standards, implemented with the latest technologies such as Anycast, DNSSEC, IPv6, etc. The system is deployed on multiple platforms and distributed globally, providing services to the users, increasing access speed and securing domain names and services associated with the “.vn” domain name on the global Internet.



NATIONAL DNS ACCESS TRAFFIC

In 2024, the national DNS traffic analysis system recorded nearly 348 billion queries, reflecting the substantial growth of the Internet and the increasing importance of the national DNS system in ensuring stable, continuous and securing operations for online activities. Prominent trends reflected by the results are as follow:

- Transition to IPv6: While the number of IPv4 “A” records still dominates, there is a noticeable shift to “AAAA” ones. This illustrates that IPv6 is being deployed in a positive direction as the Internet infrastructures continue to upgrade and “evolve” to address the limitations of IPv4 and meet the requirements of new services.
- Focus on security: 2024 saw a high percentage of queries for “NS” and “DNSSEC” records (“NS” – 21%; “DS” – 14%), which can be explained by a number of factors such as Qname Minimization by RFC9156; reduced Time to Live (TTL); increased number of DNSSEC validations.

VNIX PEERING

- **Connect and exchange traffic with other ISP networks**
Multiple types of connections: Public Peering, Private Peering and Hybrid Peering
- **Optimize costs**
Connect to multiple networks with a single connection
- **Improve network performance and network redundancy**
Direct connection, no transit, reducing latency
Multi-directional connection, redundant load sharing between networks.
- **Supported DDoS Mitigation**
- **Free services:**

Member Portal

DNS .VN

DNS Root

i-Speed by VNNIC

DDoS Mitigation

Network Time Protocol

Looking Glass

CONVENIENT AND DIVERSE CONNECTION

- Multiple types of peering arrangements: Multilateral peering (MLPA), bilateral peering (BLPA), or hybrid (HLPA).
- Port: 1/10/40/100 Gbps.
- Multiple connection points nationwide.

JOIN THE FREE COMMERCIAL ENVIRONMENT

- Allows members to proactively promote, negotiate, purchase/sell connection services via Peering VNIX port.

VNIX MARKETPLACE

VNIX CLOUD EXCHANGE

DETAILED STATISTICS

348 billion
National DNS total queries

11%
Query rate for AAAA records (IPv6)

33%
Query using IPv6 rates

71%
NOERR query response rate

24%
NXDOMAIN query response rate

The National DNS Traffic Analysis System records queries on the UDP/53 and TCP/53 protocols, on both IPv4 and IPv6. This suggests the capabilities and use levels on the DNS systems by ISPs and end users. In 2024, IPv4 accounted for 67% of queries, while IPv6 took up 33%. The majority of DNS queries were made via the UDP protocol, at 96%, while the TCP protocol accounted for only 4%.

33% 67%

■ IPv4 ■ IPv6

Chart No.15: Query Rates by IP Address (IPv4/IPv6)

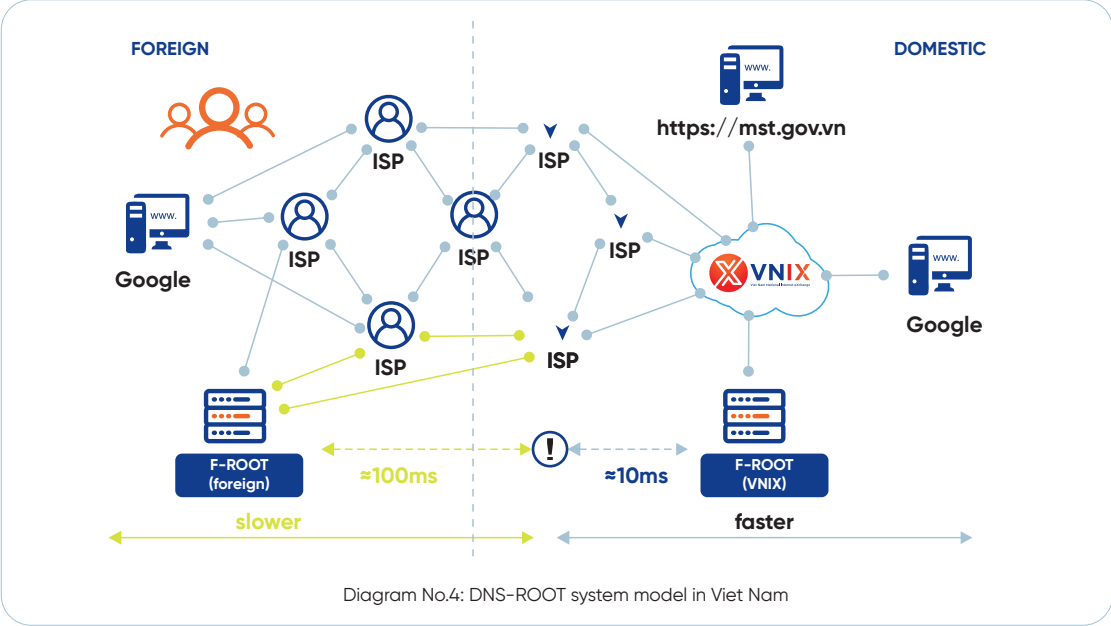
4% 96%

■ UDP ■ TCP

Chart No.16: Query Rates by protocols (UDP/TCP)

DEPLOYING DNS ROOT IN VIET NAM, IMPROVING DOMAIN NAME RESPONSE TIME

Since 2020, VNNIC has deployed DNS Root server clusters in Viet Nam, connecting to the Viet Nam National Internet eXchange (VNIX), reducing dependence on international connections, increasing the access speed to services using local domain names in Viet Nam.



IPv4/ IPv6 average response time



SECURE VIET NAM'S INTERNET RESOURCES, ENSURING SAFETY AND SECURITY

1. ENSURING NETWORK REDUNDANCY AND ROUTING SECURITY

Beginning with only one network, Viet Nam Internet has now developed up to 1148 networks with independent IP and AS numbers connected to each other. This helps to establish direct peer-to-peer connections, distribute load, and ensure network redundancy through multiple paths, enable connections to IXPs and VNIIX. VNIIX offers free DDoS Mitigation service to reduce and redirect DDoS attack traffic through VNIIX network members. Using Remote Triggered Black Hole Filtering (RTBH) based on attacked IP addresses.



Network infrastructure attacks can have substantial impacts on services. Aside from network redundancy, routing security is also one of the fundamental aspects of Internet security. **RPKI (Resources Public Key Infrastructure)**, developed by IETF, is implemented to authenticate routing information and mitigate various routing security issues, including prefix hijacking or rout leaks

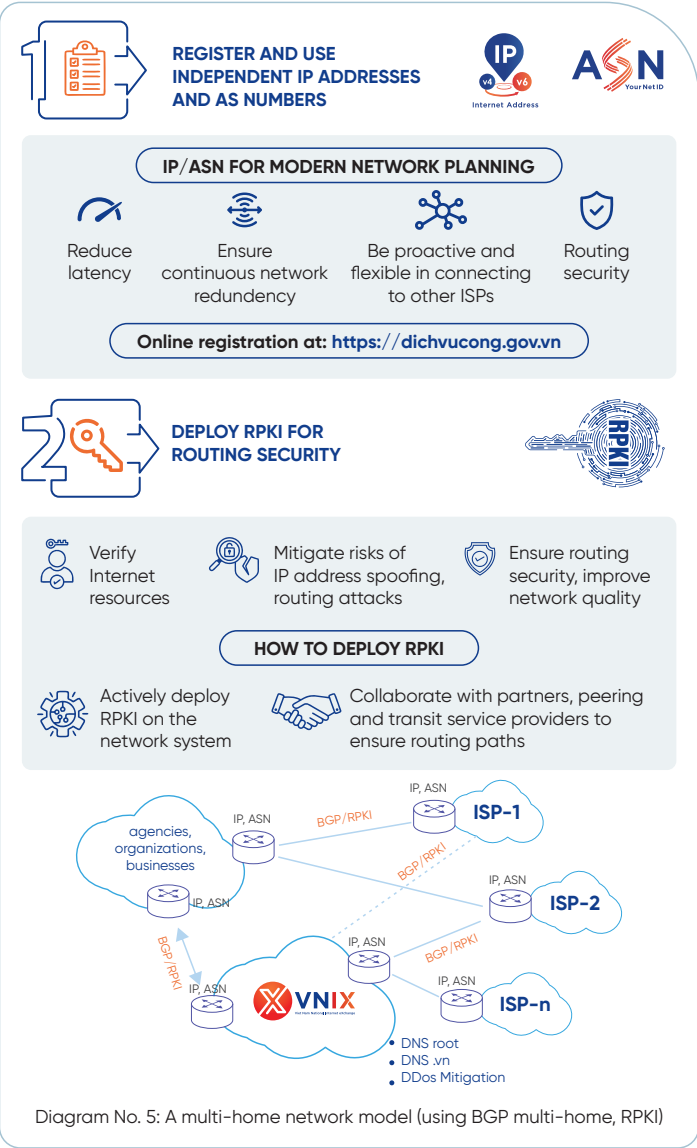


Diagram No. 5: A multi-home network model (using BGP multi-home, RPKI)

RPKI CONSISTS OF TWO PROCESSES ROA/RPKI AND ROV/RPKI

ROA – Route Origin Authorization: Organizations and enterprises with independent IP addresses and AS numbers create a cryptographic object to verify the authenticity of the authorization, embedding information as to which ASN is authorized to announce particular IP prefixes. Regional Internet Registries (RIRs) and National Internet Registries (NIRs) manage and issue digital certificates for resources, validating routing rights for the IP address ranges they manage.

As of December, 2024, the ROA/RPKI ratios are as follows: Global (48%), Europe

(57%), Asia (53%), America (42%), and Africa (18%).

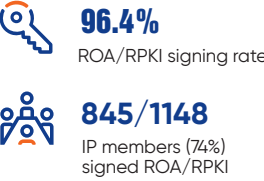
Route Origin Validation (ROV): Organizations and enterprises deploy RPKI Route Origin Validation (ROV) to verify the authenticity and accuracy of BGP announcements, thereby ensuring routing security, and preventing IP address spoofing and other routing related attacks.

As of December, 2024, ROV deployment outcomes are as follows: global (20% ROV), Europe (41%), Asia (5%), America (42%), and Africa (15%).

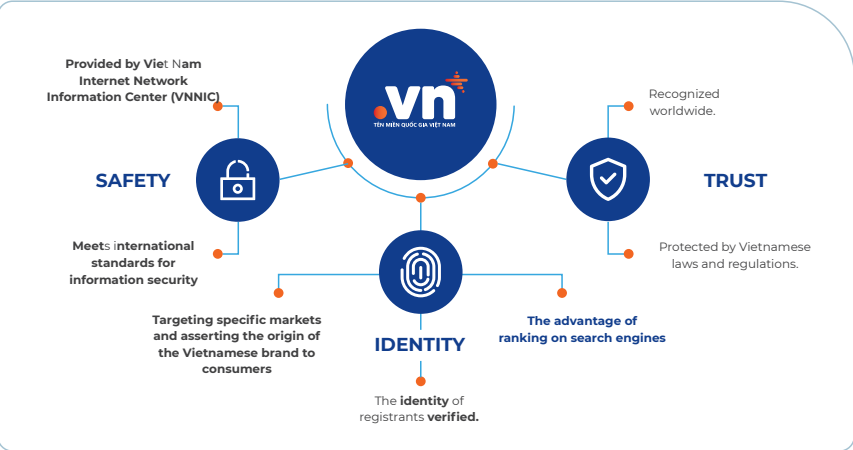
Acknowledging the importance of RPKI, VNNIC has proactively promoted RPKI deployment since 2018. Viet Nam is among pioneering countries to deploy RPKI for routing security. As of December, 2024:

- In April 2024, Viet Nam rose to 1st place in ASEAN, 3rd in the top 30 countries with the largest number of IPv4 addresses in the world, surpassing the US, China, France, Germany, India, Korea, Japan...
- In 2024, thanks to RPKI deployment, Viet Nam reduced 73% of routing security incidents (only 19 deviations in Internet routing, compared to 70 in 2023). Internet routing and infrastructure stayed secure and protected (MANRS).
- Major ISPs such as VNPT, Viettel, FPT, SCTV, CMC ... have deployed resources public key infrastructure ROA/RPKI at 95 – 100% rates; the corresponding data in state agencies reached 56%. 845/1,148 Vietnamese organizations and enterprises have deployed ROA/RPKI.

RPKI DEPLOYMENT RESULTS IN VIET NAM



2. ENSURING SAFETY AND SECURITY FOR “.VN” DOMAIN NAME SERVICES



2.1. “.VN” DOMAIN NAME SERVICES

REGISTRY LOCK

- The Registry Lock service helps protect “.vn” domain name from potential attacks, unauthorized changes of contact information, or any major change in DNS servers.

DOMAIN NAME SYSTEM SECURITY EXTENSION – DNSSEC

- DNSSEC is a set of specifications that extend the DNS protocol to strengthen the authentication and integrity in DNS, thereby enhancing accuracy and reliability in “.vn” domain name. DNSSEC was first deployed in the national DNS system in 2017, connecting with the international DNS Root system.

2.2. CONVENIENT AND SECURE REGISTRATION WITH eKYC

The “.vn” domain registration process was authenticated through eKYC solution which facilitates online registration and use of “.vn” domain name, making the whole process safer and more convenient.

2.3. “.VN” DOMAIN INFORMATION LOOKUP

Aiming at assisting citizens, organizations, and businesses in proactively identifying and authenticating the information of registrants associated with domains and websites in Viet Nam, VNNIC provides domain information lookup tools, through the hotline 156 or WHOIS.VN, or the website <https://tracuutenmien.gov.vn>

Access at:
<https://whois.vn>
or <https://tracuutenmien.gov.vn>



2.4. DNS ABUSE MITIGATION PROGRAM

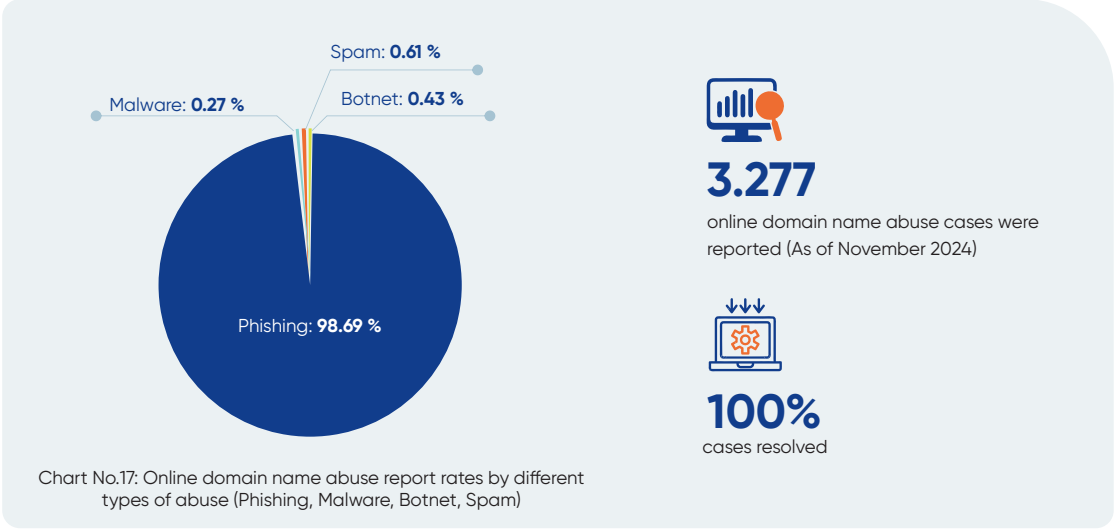
VNNIC launched the Domain Name Abuse Mitigation Program in Viet Nam (DNS Abuse Mitigation), with the community joining hands in cleaning up cyberspace and safeguarding Internet users from risks of information insecurity through DNS.

- Monitoring, tracking, and early warning of abused domains.
- Implementing policies, coordinating with all parties to manage and handle cases of DNS abuse promptly.
- Boosting the implementation of security standards for the DNS system (such as Anycast, DNSSEC, etc.) to strengthen the DNS capabilities, defending against attacks.

- Promoting the application of secure email service solutions based on DNS systems (Email Authentication based on DNS) such as SPF, DKIM, DMARC.
- Expanding communication to raise awareness about DNS abuse while providing training to improve skills in detecting and addressing issues.

Since May 2024, VNNIC has launched the DNS Abuse Report Portal for individuals and organizations to report domain name abuse cases, including national “.vn” domain names and international domain names, contributing to a cleaner cyberspace, creating trust for users, and promoting social digitalization.

Access at:
<https://baocaolamdungdns.vnnic.vn>
or <https://dnsabuse.vnnic.vn>



3.277

online domain name abuse cases were reported (As of November 2024)



100%

cases resolved



IV

BUILDING THE INTERNET
COMMUNITY, SHARING
INTERNET KNOWLEDGE
BETWEEN VIET NAM AND
THE WORLD

1. DEVELOPMENT ORIENTATION OF VIET NAM'S INTERNET COMMUNITY

INTERNATIONAL CONFERENCES AND WORKSHOPS SPECIALIZING IN INTERNET TECHNOLOGIES AND ENGINEERING

VNNIC INTERNET CONFERENCE 2024

An annual technological series focusing on Internet technology and resources, infrastructure, and new technical standards with a view to guide and promote Internet development in Viet Nam, while build and foster the community of Internet experts in Viet Nam.

Topic: "Safe and Sustainable Internet infrastructure in the development of emerging technologies"

Date: June 4–7, 2024, Hanoi

Number of attendees: 400 (domestic and international)

Events:

- 3 workshops: Internet Safety and Trust; DNS Security; IPv6 Security
- Main conference led by the Ministry of Information and Communications, featuring renowned international Internet experts.



VNIX-NOG 2024

Annual Viet Nam National Internet eXchange Member Meeting, expanding to Vietnamese network operation experts and engineers, offering deep insights into Internet operating, peering, routing, and critical infrastructure development, including the Viet Nam National Internet eXchange (VNIX).

Date: October 17–18, 2024, Hue City (supported by the Hue Department of Information and Communications)

Number of attendees: 150 (domestic and international)

Events:

- Workshop on Peering and Internet Connectivity Security
- VNIX-NOG 2024 main conference



APTLD 86 CONFERENCE

In addition to annual events, VNNIC hosted international events on technology and Internet techniques in Viet Nam, creating opportunities for participation and cooperation between the domestic and international communities.

In 2024, VNNIC became the local host of the Asia Pacific Top Level Domain Association Meeting (APTLD). APTLD 86 focuses on the strategic message "Internet For All", affirming the paramount role of country code domain names (ccTLDs) and domain name server systems (DNS) in development, ensuring safety, sustainable Internet.

Date: September 17–20, 2024, Da Nang City.

Number of participants: 150 (domestic and international).



INTERNET TRAINING AND HUMAN RESOURCE DEVELOPMENT PROGRAMS

VNNIC Internet Academy (<https://academyvnnic.vn>) is an open educational platform offering free training programs such as workshops, webinars, and specialized articles on topics including Internet infrastructure, cybersecurity, domain names, DNS systems, and IPv6 deployment. This platform aims to enhance digital skills and promote the safe and effective use of Internet resources for all Internet users in Viet Nam, ranging from children to seniors, from beginners to experts, and managers in the Internet sector. The courses are scientifically designed, practical, and accessible, catering to diverse needs in building digital capacities and contributing significantly to the success of the "National Digital Transformation Program."

9+

Topics

5244

attendants from 2020 – 2024,
growth rate **69%**

61+

Courses

14+

Domestic and international
experts participating in course
development and teaching

31

articles

17/4/2024

Webinar on "Fundamental Internet Technologies" for 130 IT and telecommunications students from Hanoi, Da Nang, and Ho Chi Minh City.



04/6/2024

Workshop on "Youth's role in building trust and security of Internet" for 22 students in Hanoi, featuring lecturers from APNIC, JPNIC, and ICANN.



INTERNET RESOURCES TO BUILD A SECURE, SUSTAINABLE INTERNET AND PROMOTE THE DEVELOPMENT OF THE DIGITAL ECONOMY AND DIGITAL SOCIETY

03/4/2024

Conference on implementing Viet Nam's IPv6 Deployment Plan, IPv6 For Gov 2024, for ministries, central government agencies, Departments of Information and Communications, and telecommunications and Internet enterprises.



05 – 06/6/2024

Workshop on DNS Security for technical staff responsible for managing, administering, and operating DNS systems in provincial Departments of Information and Communications, as part of the VNNIC Internet Conference 2024.



8/2024

A series of workshops on IPv6 and DNS for ministries, departments, and local authorities nationwide, focusing on guiding the implementation of the final three steps in the "Three-Phase, Ten-Step IPv6 Deployment" plan for government agencies.



9/2024

Signing MoU between the Viet Nam Internet Network Information Center (VNNIC) and the University of Economics, Hue University.



11/2024

Signing Memorandum of Understanding (MoU) with the Viet Nam-Korea University of Information and Communication Technology to enhance digital capacities, digital skills, and human resource development in the Internet sector.



2. EXPANDING EFFECTIVE INTERNATIONAL COOPERATION, AFFIRMING NATION'S IMAGE

To thrive in the era of emerging technologies, nations must embrace global trends, from the adoption of policies and governance models to new technologies, while ensuring alignment with national policies, sovereignty, and interests.

As Viet Nam's NIC, VNNIC is committed to leading in international participation, demonstrating its dedication and responsibility in safeguarding national interests and promoting global standards. This includes contributing to global discussions and initiatives and fostering cooperation with countries and international organizations.

- 1 Conducting research on international policies, contributing to the development of Viet Nam legal frameworks for managing and promoting national Internet resource development.
- 2 Staying updated with new technologies, technical advancements, and international best practices to support the development of platforms for managing critical national Internet resources and infrastructure.
- 3 Engaging in dialogue and advocating for the rights of Viet Nam's agencies and businesses in the registration and use of Internet resources.
- 4 Sharing Viet Nam's experiences and strengthening international cooperation to foster a secure and sustainable global Internet.

MEMBER ACTIVITIES

- APNIC:**
- VNNIC serves as the National Internet Registry (NIR) for Viet Nam.
 - VNNIC representative chaired the NIR SIG for two terms.
 - VNNIC contributed Viet Nam's opinion to new regional policy proposals, voted on APNIC executive positions (APNIC EC).

- APTLD**
- Official member.
 - VNNIC representative is a member of APTLD Board Member for three terms.
 - Chair of the strategic development planning group for APTLD's new phase.

- ICANN**
- Official member of the Country Code Names Supporting Organization (ccNSO).
 - Alternative Representative in the Governmental Advisory Committee (GAC).
 - ".vn" ccTLD registry in IANA's original database.

- APIX**
- Official member.
 - Voting and contributing Viet Nam's perspectives on new policy proposals.
 - Voting for APNIC Executive Council (APNIC EC) and APIX Steering Committee positions.

BILATERAL COOPERATION

- APNIC
- LANIC
- APAC IPv6 Council
- cc for TLD.RU
- LTRA
- SOI Asia Project/WIDE Project
- KISA
- ICANN
- JPNIC
- IPv6 Forum
- ...

Expanding cooperative scale, sharing strategies, information, and experiences in developing Internet resources and national critical Internet infrastructure in the new era.

- Promoting cooperation in training and building communities of Internet professionals.
- Developing Internet resource management systems that meet global standards.
- Supervising and measuring the use of Internet resources.
- Facilitating the transition to the next generation of Internet address - IPv6.

OTHER FORUMS

- IGF
- IETF
- DNS-OARC
- WSIS
- Global Peering Forum
- APAC DNS Forum
- ITU
- APriGF
- Peering ASIA

Promoting the Internet governance model based on neutrality, openness, and community benefits, including implementation of training programs and policy and technology exchanges to integrate new technologies into practical applications.

OUTSTANDING RESULTS IN 2024

MEMBER ACTIVITIES IN INTERNATIONAL ORGANIZATIONS

VNNIC Representative chaired the NIR SIG for the second term (2023–2025), strengthening Viet Nam’s knowledge-sharing efforts with the NIR member community and the region.



Ms. Nguyen Thi Oanh: NIR SIG Chair

The VNNIC Representative was elected as an APTLD Board Member (three terms in total) and appointed as the Chair of Working Group on the “Internet For All” strategy during APTLD’s new phase.



Ms. Nguyen Thi Thu Thuy: APTLD Board Member



VNNIC successfully hosted the APTLD 86 international conference in September 2024 in Da Nang, Viet Nam.



VNNIC shared expertise in developing country-code domains and promoting IPv6 deployment at regional and global forums such as ICANN 81 and the APAC IPv6 Council.



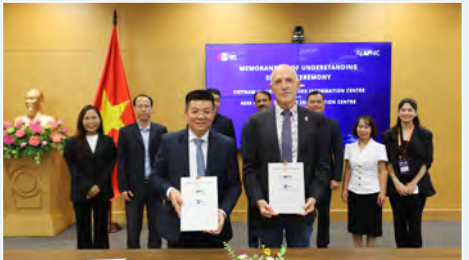
BILATERAL PARTNERSHIP



10/1, signed MoU with the Laos Network Internet Center (LANIC) and the Laos Telecommunications Regulatory Authority (LTRA).



19–20/2, Participated in bilateral discussions with country-code top level domain registries at APTLD 85.



05/6, signed an MoU and held bilateral meetings with the Asia-Pacific Network Information Center (APNIC).



15 – 17/5, conducted bilateral discussions with LANIC and LTRA, providing strategic, technical, and technological advisory for the development of national Internet infrastructure and resources.



06/6, held bilateral meeting with the Korea Internet & Security Agency (KISA).



08/2024, engaged in bilateral activities with organizations such as JPRS, SOI Asia Project, and JPNIC.



17/9, conducted bilateral meeting with Internet Corporation for Assigned Names and Numbers (ICANN).



19/9, signed a new MoU with the Coordination Center for TLD RU – cc For .RU.



11/2024, conducted bilateral meeting with IDNIC at the Peering Asia 6.0 Conference.



12/2024, attended the Internet Governance Forum (IGF) and held bilateral discussions with Australia, ccTLD for .RU, and CNNIC on Internet governance.

V. VNNIC INTERNET ATLAS

OPEN DATA OF VIET NAM'S INTERNET

VNNIC Internet Atlas is a system providing a collection of data, statistics, maps, and charts that are scientifically and consistently organized to Internet users to have a better insight of the architecture and operation of the Internet network, Internet resources, and Internet access speed in Viet Nam. Access VNNIC Internet Atlas at <https://internetatlas.vnnic.vn> to regularly update information and data about the Internet in general, Internet resources and Internet infrastructure in Viet Nam.

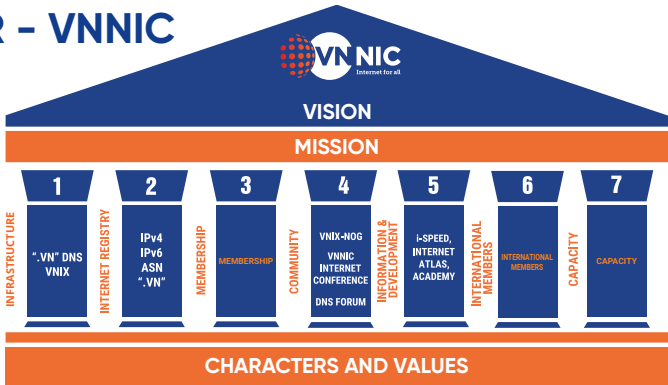


VI. VIET NAM INTERNET NETWORK
INFORMATION CENTER - VNNIC

Viet Nam Internet Network Information Center (VNNIC), under the management of Ministry of Information and Communications, carries out the functions of managing, allocating, operating and managing critical Internet infrastructures in Viet Nam (national DNS, Viet Nam national Internet eXchange – VNIX).

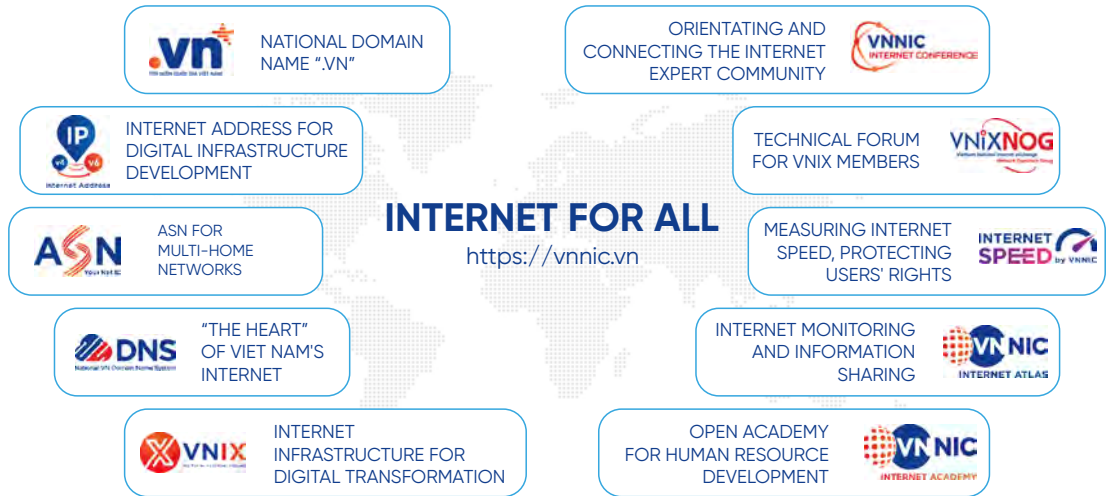
VISION OF
“INTERNET FOR ALL”

- The Internet connects globally. It is inclusive, secure, sustainable, being the infrastructure of the digital transformation.
- Viet Nam is a country with developed Internet infrastructure; benefits from the development of the Internet, ensures national interests and sovereignty in cyberspace and makes positive contributions to the overall development of the Internet.
- VNNIC as pioneer, leads and promotes the development of Viet Nam's Internet, connecting the region.



MISSION

- Carrying out the role of NIC, providing essential services based on critical Internet infrastructures and Internet resources (ccTLD, NIR, DNS, Internet Exchange, WHOIS, etc.) in line with the development trend of the next generation Internet.
- Orientating community to provide reliable information and new services using Internet resources, promoting safe and sustainable Internet development.



VNNIC'S KEY GOALS AND
MAIN EVENTS IN 2025



MAIN EVENTS	KEY GOALS IN 2025
 May, 2025 ICANN APAC DNS Forum	✓ VNNIC's 25 years anniversary – Accelerate to the Finish Line, Complete strategic goals and tasks for the 2021-2025 period and improve international rankings.
 July, 2025 VNNIC Internet Conference 2025.	✓ Popularizing the “vn” national domain name and digital services.
 September, 2025 APNIC 60 & APIX Meeting 32	✓ Announcing strategies and action plans for the 2026 – 2030 period.
 October, 2025 VNI-X-NOG 2025	✓ Announcing the roadmap for IPv6 only deployment, gradually shutting down IPv4, getting ready for Internet of Things (IoT), accelerating IPv6 deployment program for the 2026 – 2030 period.



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