

FORWARD

The future world will be a networked world. The trend is fueling the merging of digital information and integration of innovative products and services, which in turn drives the change at an ever-increasing pace. Therefore world IT powerhouse Taiwan is consciously upgrading its manufacturing efficiency and shifting industrial focus to value creation.

As Taiwan continues to enhance IT information exchange and know-how, as well as implement IT infrastructure, its national competitiveness is enhanced. A case in point is TWNIC's support for the government's e-Taiwan initiative in recent years. We help the government consolidate tremendous material and human resources; facilitate broadband network deployment; create network security mechanism; and upgrade R&D efforts in an attempt to create a healthy network environment that will reshape Taiwan into an information society.

TWNIC is also committed to promoting IPv6, the next-generation Internet protocol. Thanks to the devoted governmental IPv6 Task Force and private IPv6 Forum Taiwan, general implementation of IPv6 has borne fruit. Commissioned by the Directorate General of Telecommunications (DGT), TWNIC has been running the IPv6 Development and Deployment Program, whose organization comprises a general program office and four project teams.

On the infrastructure front, TWNIC actively helped domestic network operators participate in IPv6 network deployment. We also joined forces with the SIP/ENUM Trial program of the National Technology Initiative to create Taiwan's SIP/ENUM trial network. In terms of R&D, we worked with academic researchers to publish numerous studies of Taiwan IPv6 development current status and future direction last year. Furthermore, our research was recognized by the first annual IPv6 Application Competition. With regard to test service, IPv6 Standard & Test Laboratory was inaugurated to certify IPv6 equipment in Taiwan and helped many manufacturers with IPv6 Ready Logo certification. To promote applications, we mapped out basic training,

international exchange and industrial promotion roadmaps. We also created IPv6 Showroom Center at TCA in Taipei and Computer & Communications Research Lab in Hsinchu, to further demonstrate our leading technology.

Moreover, to enhance international technology exchange and showcase Taiwan's Internet developments, NICI IPv6 Task Force, DGT, IPv6 Project Office, IPv6 Forum Taiwan and TWNIC will organize the IPv6 Summit in Taiwan 2004 at the Taipei International Convention Center from August 23 to 29. Directed by the IPv6 Forum, the event will give Internet community an active educational forum on IPv6 technology.

In April 2004, in light of increasing network traffic and security issues, TWNIC successfully introduced the Information Security Management System (ISMS) after 7 month of focused efforts, and was awarded BS 7799:2-2002 certification by the standard development and certification authority British Standards Institute (BSI). As the first national certified network information center in the world, TWNIC provides Taiwan Internet community with excellent domain name dispute resolution and domain name registration administration service. This highlights TWNIC's long-term commitment to sustained service targeting Taiwan's Internet community.

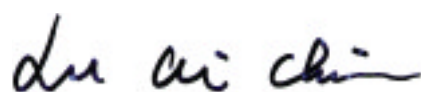
Inspired by the successful first TWING (Taiwan Internet Next Generation) Camp in 2003, TWNIC continued the education program for next-generation Internet elite. This year ICRT and TWNIC organized TWNING Camp campus tour at 8 colleges and universities, and resulted in a big success of more than 800 participants. Provided students with a forum at Internet technology, international relations and social exchange, this event enhanced Taiwan's competitiveness and would lead to an successful e-society.

What we have achieved in the first half of year 2004 surely sets major milestones in our history. For 2nd half of 2004 and beyond, TWNIC will keep our steady pace and march toward the better networked future.

Board Chairman



Acting Executive Director



HEADLINES



TWNIC – the World's First National Network Information Center to Receive BS 7799:2-2002 Certification

TWNIC announced on May 20 that the Information Security Management System (ISMS) has been implemented for its two core services, .tw domain name registration administration and .tw top-level domain name dispute resolution service. Verified by a standard development and international certification authority, the British Standards Institute (BSI), the system was also awarded BS 7799:2-2002 certification, making TWNIC the world's first certified network information center (NIC). TWNIC provides Taiwan Internet community with domain name dispute resolution and domain name registration administration service that meets international security standards.



As awarded BS 7799:2-2002, this highlights TWNIC's excellent long-term performance in Taiwan's .tw domain name dispute

resolution and registration administration service as well as commitment to sustained service targeting Taiwan's Internet community. Moreover, TWNIC's Acting Executive Director A.C. Lu and Department of Domain Name Service Director Anthony Lee both took the BS 7799:2-2002 Lead Auditor Course and were certified. Awarded the CISSP - Certified Information System Security Professional - certification, Department of Technology Support Service Director N.W. Hsu wishes to carry on TWNIC's information security management system with expert leadership and management.

TWNIC completed the BS 7799:2-2002 certification process in a little more than 7 months. Thanks to full support and empowerment from management, its flat organization as well as employees' support for the information security management system, which facilitated communication for the project team. The project introduces not only a new information security management system, but also a new corporate culture, which brings new information security insight and applications to employees within TWNIC.

"2004 Internet Trends Seminar" in Taiwan

2004 Internet Trends Seminar was held from March 29 to 31 at the Howard International House Taipei with more than 300 participants from Taiwan's industrial, government, academic and research sectors.



TWNIC's Acting Executive Director Ms. A.C. Lu said: "As a national organization, Taiwan Network Information Center is proud to introduce

the advanced Internet development. We have been organizing this event together with our anniversary since 2001 and this year we focused on "Internet Convergency Technology and Policy". We invited Dr. Mao Chi-kuo, Professor at Institute of Business and Management, National Chiao Tung University; Dr. John Klensin, ex-Chairman of IAB; Tony Holmes, Senior Manager of BTextact Technology; Chang Chin-fu, Director of National Chi Nan University; Legislator Pang Chien-kuo; Chen Jen-ran, CEO of Yam Digital Technology; and Tseng Shian-Shyong, Chairman of TWNIC among other guests. Topics such as the latest VoIP Trend, "Next-generation Internet Technology" and "Policy Guidelines and Value-added Services for Next-generation Internet", SIP/ENUM, IPv6 and IDN technology were covered in forums, speeches and lectures in hopes of connecting Taiwan to the Internet and telecom world through actual information exchange and experience sharing."

The March 29 agendas included VoIP Concept & Practice, IDN Standards & Development Practice, Comprehensive Domain Name Applications and Mobile IPv6 Technology. Agendas on May 30 and 31 included keynote speeches by Internet movers and shakers as well as panels on "Advanced Communication over Internet Technology and Policy" and "Advanced Internet Application and Service". Group discussions with network operators, ISPs and website operator participations were held in the afternoons of May 30 and 31. Subjects included the trends and strategies for broadband/wireless network and value-added services as well as keys to successful website management.

Taiwan's First IPv6 Show Room Ushers in New Internet Era

Taipei Computer Association (TCA) and Computer & Communications Research Labs, Industrial Technology Research Institute (ITRI) inaugurated Taiwan's first and the world's fourth IPv6 Show Room that demonstrates IPv6, protocol for the next-generation Internet, on April 17. The government added the implementation and promotion of IPv6 to the list of key programs for the e-Taiwan project. IPv6 Task force and IPv6 Forum Taiwan were created by the Executive Yuan's National Information, Communication Initiative Committee (NICI), and the Directorate General of Telecommunications (DGT). Furthermore, e-Taiwan and m-Taiwan initiatives will be combined to boost implementation and development of Taiwan's IPv6 network infrastructure. Minister without Portfolio Tsai Ching-yen, Director General of Telecommunications Chien Jen-ter and IPv6 Development & Deployment Program Director & TWNIC Chairman Tseng Shian-Shyong among other distinguished guests attended the inauguration as Taiwan's IPv6 roadmap was described at the event.



Open to the public, the IPv6 Corner features 5 topics:

- ▶ IPv6 Products : Features small and medium-sized IPv6-Ready products, including wireless LAN base station, router for small- and medium-sized businesses, IPv4/IPv6 translator and VoIP gateway from Taiwan, Japan and Korea.
- ▶ What's IPv6? : Animation introduces IPv6 related subjects in plain language. Taiwan and international developments are also featured.
- ▶ IPv6 Applications : Showcase IPv6 - enabled applications and services, such as remote monitor and control, high-definition real-time video conferencing, VoD and VoIP, which highlight new features and potential of IPv6.
- ▶ IPv6 Hotspots : Instructions from the IPv6 Reference provided will enable visitor to upgrade PC to IPv4/IPv6 compatibility. Free IPv6 network access is offered on site.

Open from 9 AM to 6 PM, the IPv6 Corner is located in the downtown Taipei and its website address is www.v6corner.org.tw. Another is located at Industrial Technology Development Institute in the Hsinchu County. The location features IPv6 wireless and mobile, home automation and multimedia innovations.

TWNIC Revealed the 2004 Taiwan Internet and Broadband Usage Survey Results

According to the 2004 Taiwan Internet and Broadband Usage Survey published by TWNIC, as of the end of January 2004, there are 12.64 millions Internet users in Taiwan with Internet penetration of 61.01%. The number of broadband Internet users has reached 9.03 millions or about half of the population.

Home Internet Access

4.62 millions (71.58%) of Taiwan families have Internet connection. Lower penetration (49.11%) in Eastern Taiwan highlights the lack of network infrastructure and existence of digital divide created by the urban-rural gap and remote geographic location. Most family Internet access is ADSL-based (63.50%), followed by paid dial-up (14.21%), cable modem (3.63%), and free dial-up (2.40%). 18.41% of the non-broadband Internet access families wish to introduce broadband Internet access within next 6 months and most of them (68.91%) prefer ADSL.



The study also shows 51% of Taiwan households use broadband Internet access. People tend to choose ISP based on connection speed, rate and stability (in that order). 74.23% of the ADSL-enabled families use HiNet, followed by Seednet (3.79%). Most cable modem-using families access the Internet via Eastern Broadband Telecom (68.33%). In terms of download speed, most families choose ISP's basic package; rate-wise, 49.51% of the broadband users pay NT\$ 750-1250 (USD\$ 22-37) per month. In general, 57.28% are satisfied with their broadband ISP. The most dissatisfactory Internet-connectivity issue is slow download (24.63%) and bad connection quality (21.55%).

Personal Internet Access

With regard to personal broadband Internet access, more men use broadband than women (51.66% vs. 43.25%). Those between the age of 21 and 25 are most avid broadband users (81.55%); 56 or older population are least likely to use broadband Internet access (9.47%), and the numbers show there's tremendous room for growth for older Internet users. As for region-wise, broadband Internet



access has the highest penetration in Northern Taiwan (50.20%). There are 88.41% of the broadband users say they are most likely to access the Internet at home.



The survey shows most users surf the Internet either 1-2 hours (20+%) or 2-3 hours (also 20+%) a day. The most popular Internet access time period was between 8 Pm and 11 PM (30+%). The most common uses are WWW browsing (61.80%), e-mail access (58.75%), gaming (20.83%), file download (7.88%), instant messaging such as MSN and ICQ (13.48%). The interactive communication nature of the Internet is notable.

Wireless & Mobile Internet Access

11.12% of the population use wireless Internet access and the numbers are growing slowly. 45.28% of them use wireless Internet access at home, and only 6.17% of the population use mobile Internet access. 31.5% of them use GPRS technology for mobile Internet access. Most of the access (31.48% of users) involve downloading ring tones or graphics. Slow connection is the most serious issue.

2004 TWING Camp

Inspired by the successful first TWING Camp organized last year, TWNIC and International Community Radio Taiwan (ICRT) jointly organized campus promotions for the TWING Camp program in 8 colleges and universities. More than 100 student members later attended the second annual TWING Camp at the National Taiwan University's Convention Center on May 29.



This year's event focused on analysis of and study on Taiwan's Internet community in an effort to find out how young Internet users apply Blog, P2P and IPv6 among other new Internet technologies. Participants will have more time to exchange ideas with other members as well as share Internet experience with popular website management in person.

TWING Camp showcased vitality of the youthful members and the "bottom-up" spirit of the Internet. Participants of the fruitful event said they would like further involvement in future



TWING Camp events and Taiwan Internet development. Four students were selected by TWNIC afterwards to attend the APNG Camp in Cairns, Australia for ideas exchange with elite from the Asia Pacific region.

TWNIC Published its First Annual Report of 2003

Established in 1999, TWNIC is committed to integrating and managing Taiwan's Internet resources; assisting the creation of quality Internet environment; and providing the best domain name and IP services.

2003 marked a fruitful year for TWNIC. TWNIC successfully invited APRICOT to its first conference in Taiwan; we are again appointed as APTLD secretariat; contracted with NeuLevel to promote .tw global registration service; signed the ICANN-ccTLD Sponsorship Agreement; established IPv6 Development & Deployment Program Office ; created SIP/ENUM Forum Taiwan; verified by the British Standards Institute, a standard development and international certification authority, we were awarded BS 7799:2-2002 certification in April, and it made TWNIC the world's first certified network information center that offers services meeting international security standards.



With years of network management and operation experience, TWNIC created a set of standard operating procedure. We put it along with the accumulated network management and operation know-how, current network development and Internet-related statistics in a book. Starting this year, we will publish our annual report every year to detail annual international and domestic Internet developments for public reference so that those who enjoy the convenience enabled by the Internet may witness Taiwan Internet environment's development track.

A Successful Event – 2004 IPv6 Testing Seminar and Initiative of NICI IPv6 Standard and Interoperability Testing Lab(SITL)

To expand and improve services to Taiwan IPv6 industry and academics, TWNIC organized the "2004 IPv6 Testing Seminar and Initiative of NICI IPv6 Standard and Interoperability Testing Lab(SITL)" on April 1, 2004.

The event announced standardized test groups for the National IPv6 Development and Deployment Program, which is part of the e-Taiwan program that TWNIC manages. Intel Innovation Center, Alpha Networks, DrayTek and other organizations which have been awarded "IPv6-Ready Logo" were also invited to share their experience. There, experts from IPv6 Ready Logo Program Committee, the key technical agency for UNH IOL tests in North America, introduced the IPv6 Internet trial program (Moonv6) commissioned by the US Department of Defense and IPv6 Ready Logo Phase II test guidelines. Attended scholars and experts from Taiwan and abroad exchanged industrial development and promotion insights with audience.

The event also featured IPv6 Ready Logo Phase I-compliant product demos from Intel Innovation Center, Alpha Networks and DrayTek, in addition to the actual IPv6 Ready Logo test tool and IPv6 development results from the NICI IPv6 team. Visit following websites for details of this event:

Seminar information

- ▶ Latest international developments in IPv6 tests
http://interop.ipv6.org.tw/pdf/20040401Seminar/2004IPv6TestingWorkshopHandout_040401.pdf
- ▶ Introduction to UNH-IOL
<http://interop.ipv6.org.tw/pdf/20040401Seminar/IOLpresentation.pdf>
- ▶ Services from NICI Ipv6 Standard Test Lab
http://interop.ipv6.org.tw/pdf/20040401Seminar/IPv6STD_930401.pdf
- ▶ Introduction to Pv6 Ready Logo Program Phase II
<http://interop.ipv6.org.tw/pdf/20040401Seminar/IPv6LogoProgram.pdf>

Reference

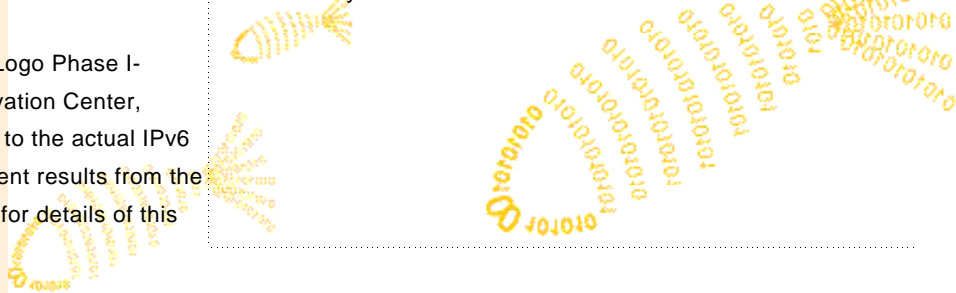
- ▶ Taiwan IPv6 Portal:
<http://www.ipv6.org.tw/>
- ▶ NICI IPv6 Standard Test Groups:
<http://interop.ipv6.org.tw/>

TWNIC Published 2003 ISP Directory

As Taiwan's Internet penetration continues to increase at an incredible rate, the island's international connectivity bandwidth reached 44,923 Mbps in Q4, 2003, up 81.12% from Q3. In response to the development, Taiwan Government came up with the e-Taiwan initiative, the 6 million/2008 target (6 million broadband Internet users by 2008) and 3G program among other broadband Internet projects. Telecom regulations are also revised or created to meet current and future needs of an IT society.



To help the public understand current development of Taiwan's ISP industry, TWNIC began to public ISP Directory in 2002. The ISP Directory includes expert forum, statistics on the ISP industry, ISP description, ISP rules and regulations as well as reference to major Internet conferences of that year. It's designed to meet user needs and as a reference to Taiwan's Internet industry.





TWNIC publishes 2004 Q1 Taiwan Internet Bandwidth Survey

Together with Internet News and Data (FIND) and Net Consumers Association, TWNIC published quarterly Taiwan Internet Connection Bandwidth Survey, which showed Taiwan's international connectivity bandwidth totaled 52,469 Mbps as of the end of January 2004 (Table 1), up 7,547Mbps or 16.8% from Q4, 2003.

The Survey is designed to provide information on interaction between Taiwan and international Internet connection as well as the latest detailed Internet connectivity bandwidth numbers and trends. As of March 2004, the US was Taiwan's most connected country/territory with bandwidth of 31,829 Mbps or 60.66% of Taiwan's total international connectivity bandwidth. The number was up 4,747Mbps from last season. The US was followed by Japan (9,055 Mbps), Hong Kong (5,853 Mbps), China (4,092 Mbps), Korea (611 Mbps) and Singapore (474 Mbps). In general, with the exception of the US, UK and France, Taiwan's most connected countries were in Asia Pacific. The US, Japan, Hong Kong and China accounted for most of the international connectivity bandwidth.

HiNet, TWGATE and Seednet were the top 3 suppliers of Taiwan's external connection. Inter-local ISP bandwidth continues to grow as domestic Internet use was very active.

TWNIC Inaugurates New Customer Service System Featuring Real-Time Progress Inquiry

To provide Internet users with a quality Internet environment and easy-to-use e-service, TWNIC inaugurated a new on-line customer service system on May 1. With concise webpage and question categorization system, the system enables TWNIC's customer service personnels to resolve the most common or specific issues as Internet users can communicate their questions and needs in a fastest and easiest way.

With the bi-lingual (Chinese and English) Internet customer service system interface in place, users can expect answers much sooner than before since waiting and replying time is minimized. The system also enables the management to control reply speed on the Internet. It's also designed to maximize efficiency and minimize time cost.

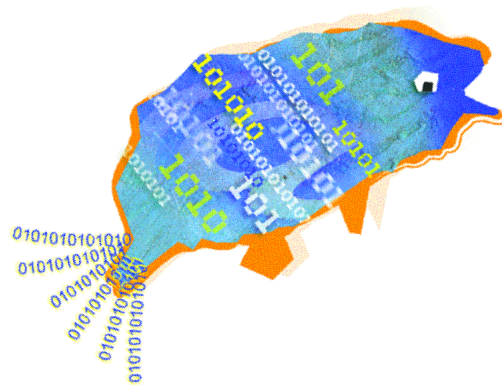


Table I. Taiwan International Connectivity Bandwidth (Mbps) April 2004

Item	Country/ territory	2003/06	2003/09	2003/12	2004/01	Percentage	Growth (cf. last quarter)
1	US	11785	12162	27082	31829	60.66%	17.53%
2	Japan	4813	5167	7856	9055	17.26%	15.27%
3	Hong Kong	3721	3823	5413	5853	11.16%	8.14%
4	China	1939	2352	3119	4092	7.80%	31.20%
5	Korea	455	611	767	611	1.16%	-20.29%
6	Singapore	321	321	319	474	0.90%	48.78%
7	UK	200	200	200	200	0.38%	0.00%
8	Malaysia	51	51	51	200	0.38%	293.58%
9	Australia	57	51	51	51	0.10%	0.00%
10	Philippines	47	47	47	49	0.09%	4.38%
11	Macao	10	10	10	45	0.09%	336.88%
12	Thailand	4	4	4	4	0.01%	0.00%
13	Saudi Arabia	2	2	2	2	0.00%	0.00%
14	Indonesia	2	2	2	2	0.00%	0.00%
15	France	0.256	0.256	0.256	0.256	0.00%	0.00%
Total		23,407	24,803	44,923	52,469	100.00%	16.80%

SPECIAL REPORT

Enthusiastic discussions characterized second Open IP Policy Meeting & Resource Management Conference

To offer Taiwan Internet community the access to IP/ASN policy making in Asia Pacific and create an open, transparent network community in Taiwan, TWNIC organized the first Open IP Policy Meeting & Resource Management Conference last December. Resounding success inspired TWNIC to organize the second Open IP Policy Meeting & Resource Management Conference on July 24, 2004. The event is known for active participation, exciting discussion and stimulating exchange, which provided TWNIC with many valuable recommendations on IP policy and administration.



The event was comprised of 3 Special Interest Groups: Address Policy SIG, Database SIG and Routing SIG, each with its discussions and presentations.

▶ Address Policy SIG

Address Policy SIG involved two presentations and one proposal. They are IP Address Allocation & ASN Statistics, NTT/VERIO IPv6 Services and Guidelines on ADSL/Cable Address Allocation by TWNIC's C.W. Kuo, NTT's T.C. Wang and Seednet's C.Y. Chen respectively. They covered current IP address allocation and ASN allocation statistics; Japanese experience and current state of IPv6 promotion (courtesy of NTT); and revised ADSL/Cable address allocation guidelines. The revised guidelines were approved by participating members and will be announced pending TWNIC IP Committee approval.

▶ Database SIG

Database SIG included one presentation "Privacy of Customer Assignment" by TWNIC's S.W. Chen and a proposal for Whois DB Query by TTN's C.N. Wang. The presentation focused on a hidden feature in whois

information, which enables selective concealment of certain uploaded customer data. The proposal followed up on the whois inquiry structure proposed last year by proposing a new whois inquiry mechanism.



▶ Routing SIG

Routing SIG included one presentation and one proposal: "An Introduction to IX - A Look at Major Nations" by HiNet's C.P. Lin, and "Implementation of Taiwan's Routing Detection Service" by Great Taipei Broadband's K.C. Fu.

The presentation centered on IX operations in major nations. The proposal advocated the creation of a Looking Glass portal that will facilitate routing detection as Taiwan ISPs in general lack Looking Glass mechanism for external inquiry.

To create a fair and open environment for IP policy development, TWNIC will organize two Open IP Policy Meeting & Resource Management Conferences a year.

TWNIC wants to thank the following SIG chairs and co-chairs for their support and commitment.

▶ Address Policy

Y. Lee (Seednet), C.H. Wei (NCIC)

▶ Database

C.C. Lee (TTN), C.N. Wang (TTN)

▶ Routing

C.Y. Kang (HiNet), K.C. Fu (GTBC)

SIP / ENUM Trial in Taiwan

TWNIC has played the key role in Taiwan SIP / ENUM trial since 2002. From the very beginning, Dr. S.S. Tseng, the President of TWNIC and the Chairman of SIP / ENUM Forum Taiwan (SEFT), has led his trial team moving towards to higher ground.

“We need to move fast and smart”, said Dr. Tseng. “VoIP industry in Taiwan is rapidly growing, and we need to make sure all stakeholders, including manufacturers, service providers, and consumers, that SIP / ENUM will be the converging standard for the future of communication”. The SIP / ENUM trial in Taiwan includes the major academic network, namely TANet, and major fixed network carriers and ISPs in the island. There are totally about 170,000 numbers issued in the prefix of 09440 and 070. 09440 is officially delegated by the DGT, the telecommunication regulator in Taiwan. And 070 is the self-regulated number range initiated by IPOX (Internet Phone Open Exchange), a subsidiary of SEFT.

In order to make the trial more attractive to the users, each user is given 25 minutes free call to the local PSTN network (including mobile numbers). The 09440 trial is now greatly welcome by students in the universities, which they use softphone to communicate with their classmates. On the other hand, 070 allocation is used mostly in hardphone, which ISPs give away free telephone adaptors (TA) to be attached



with the traditional phone and then linked to the ADSL / Cable modem in the household. All 09440 numbers are SIP / ENUM based, while some 070 numbers are H.323 based but gradually shifting to SIP / ENUM enabled.



TWNIC also participates the regional ENUM project, namely APEET (Asia Pacific ENUM Engineering Team), which is jointly initiated by 5 ccTLD registries in the AP region. APEET will have its inaugural meeting on July 16th in Singapore, and plan to host the VoIP Program track and perform the live SIP / ENUM trial in the next APRICOT 2005 in Kyoto. TWNIC will contribute its ENUM operational experiences and invite Taiwan VoIP vendors and service providers to join such historical trial event.

For more information, please contact Mr. Ching Chiao at chiao@twmic.net.tw

STATISTICS & CHARTS

Internet Users in Taiwan

Population Body:

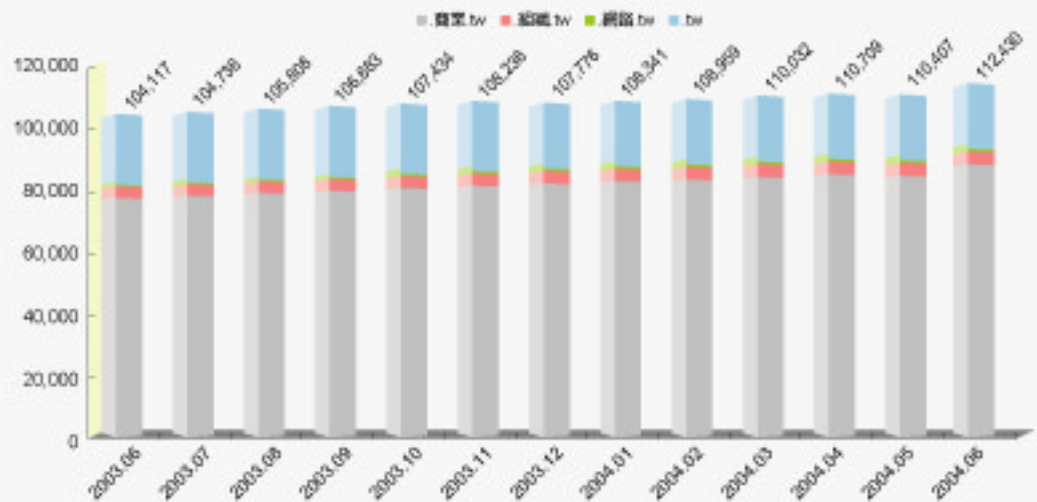
TWNIC 09/2002: Above 15 years old
 TWNIC 07/2003: 0-100 years old
 TWNIC 01/2004: 0-100 years old
 DOS, MOI: 0-100 years old

• One unit=10,000 people

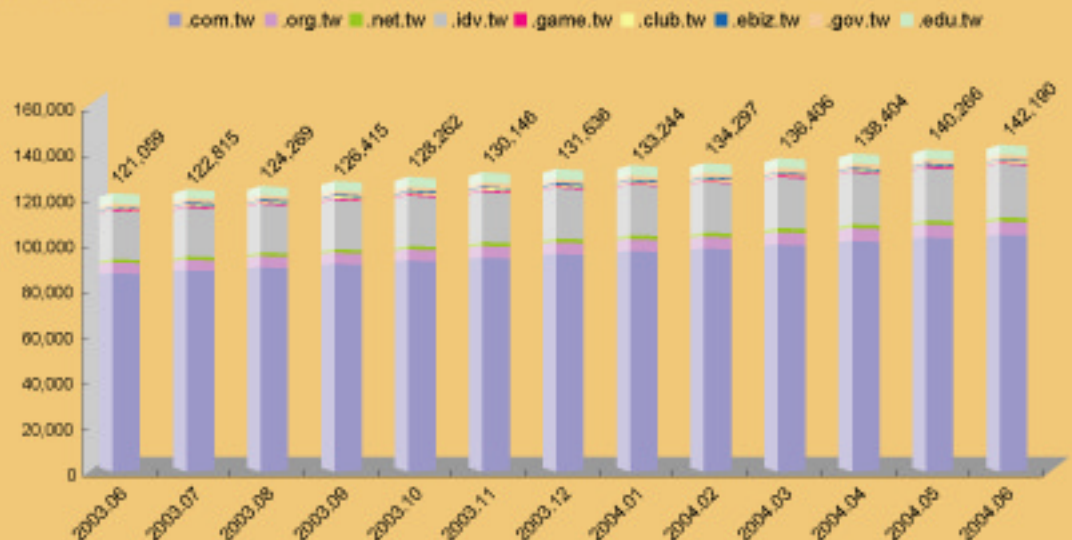
• Source : TWNIC, Department of Statistics, Ministry of the Interior



.tw Chinese Domain Name Growth Chart



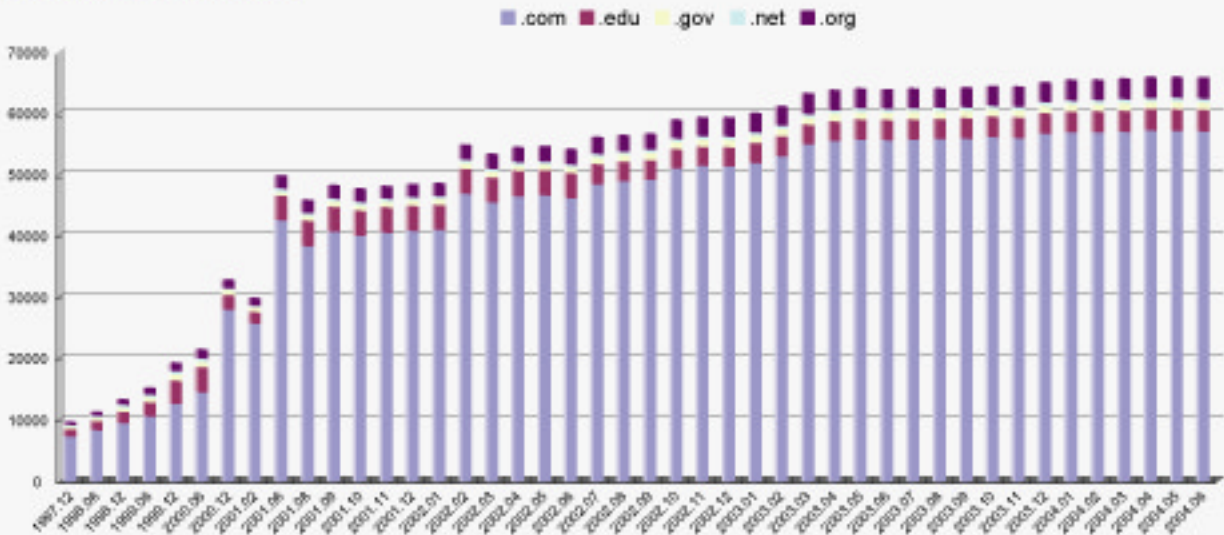
.tw English Domain Name Growth Chart



TWNIC Allocated IP Address Number Chart



WWW Server Growth Chart



Host Growth Chart

