2012

CNNIC Annual Report

To Users

2012 is a transitional year of the "12th Five-Year Plan". This year,adhering to the orientation of service improvement, CNNIC had been striving to provide netizens with user-friendly ccTLD and IP address services, provide the society with more valuable research reports on Internet and build a more open platform for international communication of the Internet industry.

Over the past year, CNNIC closely focused on the rights & interests of users and improved a series of services, including expansion of the scope of eligible registrants to cover all natural persons, launch of e-business applications in cooperation with other organizations, remarkable shortening of registration & verification duration and significant improvement of performance of the global service platform. Relying on its solid strength of scientific research, CNNIC sent the first email with internationalized email address; in 2012, CNNIC also provided users with safe and free cloud DNS services and CyberSpace domain name application services, etc. As China Internet Data Platform was put on line for operation, CNNIC could interact with netizens more efficiently in terms of Internet research, and will surely produce more valuable data and research reports within a broader area. In 2012, Internet Corporation for Assigned Names and Numbers (ICANN) decided to convene in Beijing the 46th ICANN Spring Meeting (2013), which will be an excellent platform for communication and dialogue between domestic and global elites of the Internet domain name industry.

2013 marks a year of in-depth implementation of the "12th Five-Year Plan".In the face of new opportunities and challenges, CNNIC will faithfully fulfill its duties, persist in enhancing the level of services represented by ccTLD, and make contributions to the rights & interests of users and healthy development of the whole industry.

We hereby express our sincere acknowledgement to the users for their great supports to CNNIC and their valuable suggestions and opinions. Now, we would like to report the specific work of CNNIC in 2012, and your valuable opinions are highly expected.

China Internet Network Information Center (CNNIC)

January 2013

📊 Work Overview of 2012

1.Key Work of 2012

Key Work in 2012	Description
ccTLD registration volume	7503733 CN domain names; 283484 Chinese domain names
Availability of ccTLD resolution service	100% for CN domain name; 100% for Chinese domain name
Availability of ccTLD registration service	100% for CN domain name; 100% for Chinese domain name
Availability of WHOIS service	100% for CN domain name; 100% for Chinese domain name
Customer satisfaction (telephone investigation of the users' satisfaction to the services of CNNIC)	95.16%
IPv4 address allocation	74167552
IPv6 address allocation	203 blocks/32
Research reports on Internet development	2 reports on macroscopic Internet situation and 34 reports in specific Internet fields
Reports on technological development policy	2 reports
Publications of national and international standards	1 IETF standard and 24 IETF drafts standards 1 national standard, 11 industry standards
Journal articles and conference articles	21 articles, including 6 SCI index articles, 7 EI index articles and 2 articles published in Chinese core journals.
Patent application	37 cases for domestic patent application, 10 cases for PCT patent application, 5 cases for authorized invention patent, 2 cases for U.S. patent application.
Software copyright application	21 items registered.
Positions of president or convener in international organizations	4 persons

2.Income and Expenditure

According to the audit carried out by Beijing Huachen Public Accounting Firm, the income of CNNIC in 2012 is RMB 135,170,240.50; the expenditure and the balance of the year are RMB 133,961,989.39 and RMB 1,208,251.11 respectively. In the view of Beijing Huachen Public Accounting Firm, the income and expenditure statements are formulated in accordance with Accointing Regulations for Scientific Research Instifutes and Financial Regulations for Scientific Research Institutes, and reflect fairly in all material respects the income and expenditures of domain name registration and service of CNNIC in 2012.

Administration and Operation of National Network Fundamental Resources

1.Domain Name Registration and Application

By the end of December 2012, the total number of registered CN domain names reached 7,503,733 and that of registered Chinese domain names reached 283,484.The real-name rate of CN domain names was 99.33%.

In 2012, the average daily resolution scale of ccTLD remained stable on the whole, up 10.3% on a year-on-year basis, indicating that China's Internet applications grew steadily.

Distribution of Average Daily Domain Name Resolution in 2012
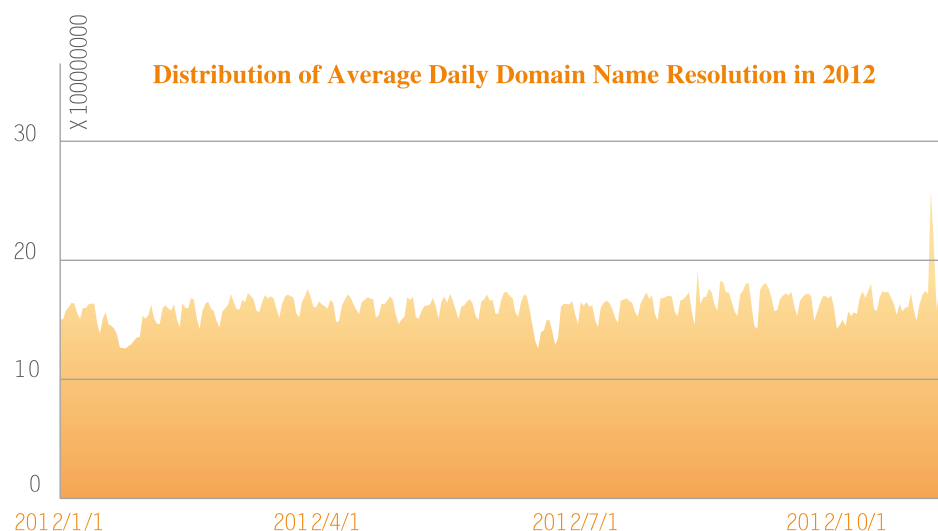
2.Domain Name Registration Administration and Service

- Natural persons are allowed to register".CN"and".中国"domain names

On May 28, 2012, CNNIC announced that the revised CNNIC Rules for Domain Name Registration, which had been approved by MIIT, would come into effect from May 29, 2012. The scope of domain name registrants is expanded from covering organizations only, to covering both natural persons and organizations. "Any natural person or organization that can independently bear civil liabilities is entitled to apply for registration of domain name under TLD specified in this detailed rule". It means that natural persons are entitled to apply for registration of TLD including ".CN" and ".中国" , etc.

- Independent registration of domain names of "中文.CN" and "中文.中国"

In July 2010, ".中国", as a full Chinese TLD, was delegated in the DNS root zone, enabling complete access to the global Internet. After 2 years of development, ".中国" domain name has attracted much attention from and is well received by users, and its registration service system and technical system have improved as well. As an independent TLD, ".中国" now has conditions and capabilities for independent registration and service. In order to

enable ".中国" ccTLD to develop positively and adapt to the needs of China's Internet communities, "中文.cn" and "中文.中国" have been registered and have provided services separately since October 29, 2012, so as to meet the requirements of users for personalized registration.

3.Combat with Inappropriate Domain Name Application

In 2012, CNNIC, in cooperation with CNCERT/CC, effectively carried on resolution and monitoring of domain names with conficker and restock viruses. It detected a cumulative total of 175,659 domain names with virus, laying a solid foundation for monitoring, analysis and alert of abuse.

From January to December in 2012, Anti-phishing Alliance of China shut down a cumulative total of 26,672 phishing websites.

Proportion of Phishing Websites with Various Domain Names Shut Down by Anti−phishing Alliance of China in 2012

.cn 0.34%
.hm 0.46%
other 7.87%
.to 6.56%
.lc 0.69%
.biz 1.33%
.tv 0.50%
.ms 0.95%
.pl 10.25%
.in 1.96%
.info 3.53%
.cc 12.08%
.tk 18.58%
.org 2.21%
.net 4.27%
.com 28.42%
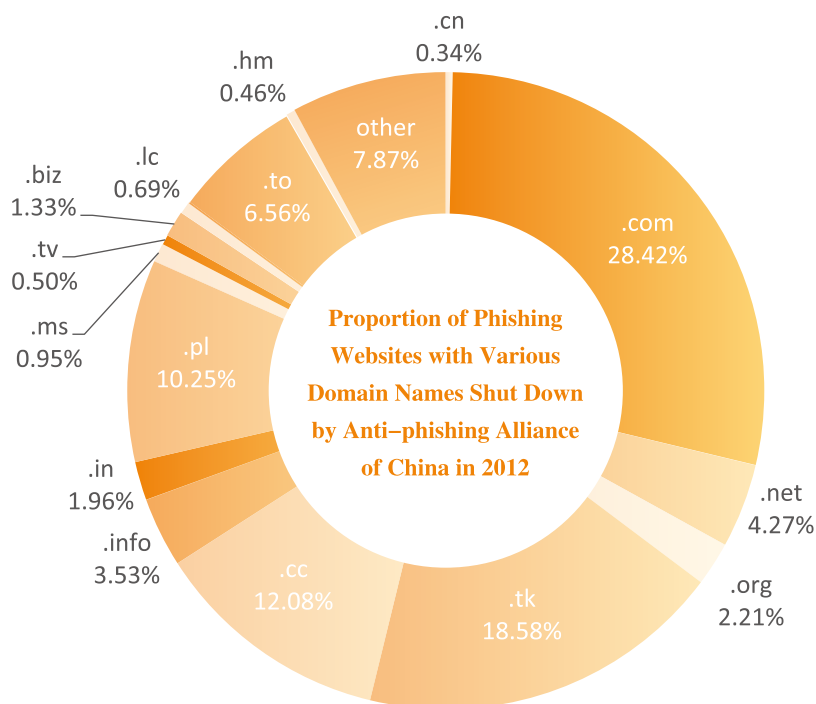
Number of Phishing Websites Shut Down by Anti−phishing Alliance of China in 2012 (by Month)

Month	Value
Jan. 2012	1859
Feb. 2012	2350
Mar. 2012	1840
Apr. 2012	2402
May. 2012	3083
Jun. 2012	2389
Jul. 2012	1921
Aug. 2012	1862
Sept. 2012	2386
Oct. 2012	1533
Nov. 2012	3312
Dec. 2012	1735
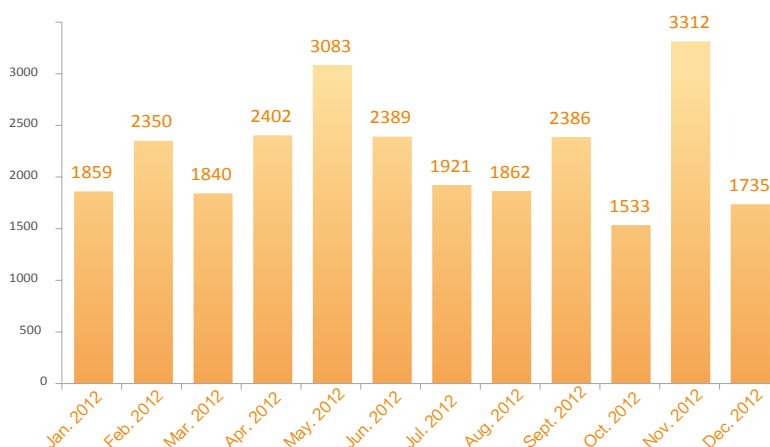
4.IP Address Allocation and Management

CNNIC is a national IP address registry certified by APNIC, and the sole registry that can distribute portable IP addresses in Mainland China. As a neutral address distributing institution, CNNIC is responsible for IP address allocation and registration, but does not provide network connection and router broadcast, and thus it can implement fair and uniform address allocation policy countrywide. CNNIC address allocation alliance currently has over 340 members, assigned over 74 million IPv4 addresses, 200 blocks/32 IPv6 addresses, and more than 440 AS codes.

Industrial Distribution of CNNIC IP Address Allocation Alliance

- ISP — 40%
- Enterprises and Public Institutions — 29%
- IDC — 16%
- Broadcast & TV — 10%
- ICP — 5%
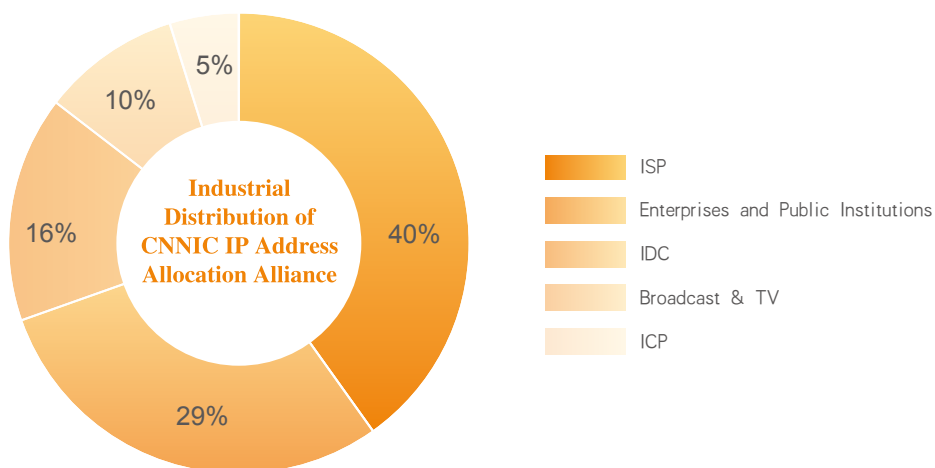
On June 6, 2012, IPv6 Open Exchange and Application Validation Center (6PILOT), which was initiated by CNNIC, was officially founded. To better promote IPv6 technological communication, experience sharing and project cooperation, CNNIC initiated the IPv6 Task Force of IP Address Allocation Alliance (IPv6TF for short).

Under the policy guidance of and with the support of the Chinese government for the next-generation Internet, China evolved its IPv6 network gradually. As of December 2012, China ranked the 3rd in the worlds in terms of the total number of IPv6 addresses, next only to Brazil and USA. CNNIC had been concerned with and promoting the development of IPv6. Partnering with APNIC and in cooperation with Guangdong and Zhejiang Internet associations, CNNIC held IPv6 technology workshops and training respectively in 2012, and provided domestic Internet communities with upgrade services.

5.Operation, Maintenance and Development of Domain Name System

● The service level of national domain name fundamental resource remained 100% for 3 straight years

In recent years, CNNIC has been intensifying its construction of operation and management systems, emphasizing improvement of scientificity and standardization of service operation and management, and raising the awareness and enhancing the capability of dealing with emergencies. Through carrying actively on specific work covering security protection examination, emergency drills, transformation and reinforcement of registration security domain as well as specific projects for service safety and so on, CNNIC kept driving down the number of annual average breakdown and ensured continuous, stable and safe operation of ccTLD services. From 2010 till now, in despite of the challenges in the process of developing various domain name services, CNNIC operation team worked hard and achieved 100% of core service operation SLA for 3 successive years.

In March 2012, in order to cope with the threats posed by international hacking groups to global TLD resolution, CNNIC took the initiative to introduce F root mirror nodes to enhance and ensure stability and security of TLD resolution within China. The introduction increased the number of global root nodes for domain name resolution in China to 5.

● The constrction of disaster recovery system of "Two Regions and Three Centers" was completed

In April 2012, the local data center officially went into operation following equipment hardware debugging and internet performance test, beefing up the service capability and scale of CNNIC.

In May 2012, on the basis of the "two regions and three centers" disaster recovery architecture, CNNIC implemented disaster recovery of SAN storage network and database, realized smooth upgrade of database hardware and migration of core services and upgraded its core service data synchronization mechanism from Standy mode to storage-level copy mode, thereby dramatically enhancing data reliability and service continuity and increasing core service recovery point object (RPO) by nearly 70 times compared with the original one. So far, CNNIC has built the NAS+SAM storage network environment at the level of 1.5PB and created synchronous and asynchronous data replication mechanisms among the 3 centers in the 2 regions, marking the completion of the construction of the system.

| **Beijing Primary Data Center** | **Chengdu Data Center for remote backup** | **Yizhuang Data Center for local backup** |

Core network upgrade project (phase II) started

In February 2012, based on the core network upgrade & reconstruction project (phase I) in the early state, CNNIC successfully implemented separation from the network and database of KNET, and completed migration of 249 related services.

In April 2012, CNNIC kicked off the core network upgrade & reconstruction project (phase II), completed a series of activities involving planning & design of network architecture and flow model, partition of service security domain and implementation construction, etc., and successfully transferred the core services to the new network, thereby enhancing security and redundancy of core services on an all-around basis.

Network Upgrade & Reconstruction	Work Done
Core network equipment(s) upgraded	14
Network Information Point(s) Relaid	1247
Service Security Domain Planned	6

Simultaneous construction of ccTLD security monitoring platform and ccTLD service platform

In recent years, CNNIC' number of ccTLD service platform resolution nodes increased continuously since 2009 and reached 30 at the end of 2012. CNNIC has built a global service system with nodes in Europe, North America and Asia as well as the 7 major Internet companies in China.

ccTLD security monitoring is one of key approaches to ensure safe operation of domain name services. In 2012, CNNIC completed construction of 39 monitoring nodes of the ccTLD security monitoring platform, including 21 nodes of China Telecom, 11 nodes of China Unicom and 7 nodes of China Mobile, covering 32 large and medium-sized cities and providing an excellent hardware support platform for domain name monitoring work.

In order to fully enhance the service capabilities of SDNS and CDNS, CNNIC carried out reconstruction and extension of the cloud resolution platform. By the end of 2012, it had completed the work, created a service system comprised of 5 main resolution nodes and 1 backup resolution node, and covered service providers in Mainland China, Hong Kong and Russia, etc.

Self-owned operation & maintenance system was preliminarily set up

Through comprehensive survey on SLA execution of gTLD and ccTLD as well as in-depth gap analysis on the basis of its previous breakdowns, CNNIC proposed new domain name service level target according to the actual situation and effectively carried out service level management in terms of planning, design, implementation and operation of domain name service infrastructure, thereby not only enhancing scalability and adaptability of operation & maintenance techniques, increasing controllability and improving relevant documents, but also facilitating service quality quantification and effectively enhancing satisfaction of core service users.

In order to reduce dependency on the commercial monitoring platform and set up a service operation & maintenance platform with proprietary intellectual property rights, CNNIC formulated and implemented a plan for self-owned operation & maintenance platform. By the end of 2012, CNNIC had preliminarily set up its self-owned monitoring platform system by virtue of OSS technologies, and has now realized contrast and monitoring of network, domain name service response time and SDNS response time and so on among the 3 data centers. Meanwhile, CNNIC persisted in implementing the monthly report system and conducting long-run analysis on operation data, thereby discovering rules in the system operation.

6.Customer Service System

● Call Center

Based on successful completion of the existing business, CNNIC, according to the analysis on characteristics of users, constantly refined user needs, actively concerned about user experience and provided users with one-stop services among the 3 major service systems for end users, registrars and key domain name users.

▶ Smooth accomplishment of all indexes

In 2012, the Call Center received 38,779 phone calls in total, processed 3,139 emails, received and processed 230 faxes, received 29 visits, and successfully reached all service indexes. User complaint was zero and the user satisfaction of the whole year was 95.16% on average, therefore, a solid foundation for exploiting new service area was laid.

▶ Constantly enhancing efficiency and scope of user interaction

In June 2011, CNNIC launched a public message service window, which, as an all-new online service mode, had been known and recognized by users and smoothly integrated into external service channels of CNNIC. In 2012, the Call Center received 1,226 public messages in total, involving domain name audit, conventional business handling, survey and data of CNNIC's website, IP business as well as record policies, etc.

CNNIC pressed ahead with the supervisor mechanism for ccTLD registration services. So far, it has recruited 31 supervisors in total. In the process of long-term communication and exchange, supervisors put forward lots of opinions on the work of CNNIC, mainly involving core business including domain name registration policy, domain name promotion and registration market supervision, etc., of which some comments and suggestions, such as punishing domain name infringement, opening natural person registration and announcing support policies on name domain name, have been adopted and implemented after being discussed or approved by component authorities. The valuable suggestions put forward by supervisors facilitated smooth implementation and further improvement of the work of the Call Center.
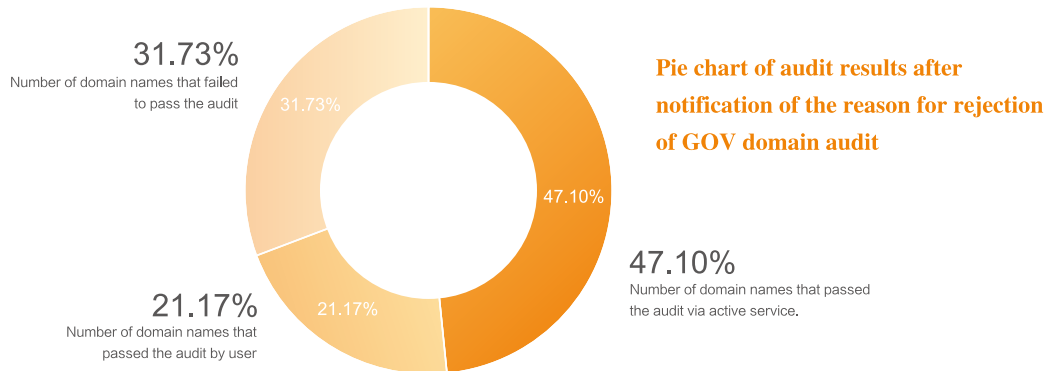

In addition, in order to facilitate business handling between users and registrars, the Call Center established a "through-train" mechanism and began to put it into operation in July 2012 as a supplement and extension of user complaints channels, and has solved 205 difficult problems in total. The number of problems successfully solved was on the rise, involving domain name registration, opening resolution, renewal and transfer of ownership, etc.

▸ Making in-depth analysis on user needs and paying close attention to user experience

In 2012, CNNIC, as always, carried on key domain name user services. Besides the previous basic services including around-the-clock hotline service and verification of revised key domain name information, CNNIC expanded its service scope to cover notification of the reason for failure of GOV domain audit, notification of modification due to non-standard use of GOV domain name for commercial purpose, preferential audit of domain name registration, protection of key domain name registration information against malicious tampering, 7*24 security monitoring and reminder services for key domain names as well as offering of emergency security plan for key domain name, etc. Moreover, we carefully organized the service items and formulated and sent Key Domain Name User Service Manual V1.0 to users, so as to demonstrate relevant service items to users more systematically and visually.

Since launch of the service of notification of the reason for failure of GOV domain audit, we have

successfully assisted 47.10% of the total registered users of GOV domain name in passing the audit and increased the pass rate. In addition, during the 18th National Congress of CPC, we, through the emergency security plan, ensured normal operation of key websites and enabled key domain name users to effectively enjoy more professional, intimate and considerate dedicated services.

31.73%
Number of domain names that failed to pass the audit

21.17%
Number of domain names that passed the audit by user

Pie chart of audit results after notification of the reason for rejection of GOV domain audit

47.10%
Number of domain names that passed the audit via active service.

▸ Providing professional support for primary-level staff

CNNIC further maintained and improved the customer service knowledge base oriented to end users and key domain name users, and carried out 259 maintenances involving professional knowledge, activity scale, workflow, service requirements and service skills, etc., thereby providing the Call Center team with strong information support services.

In order to fully enhance the service level of telephone service representatives of the Call Center and the overall service quality, CNNIC re-planned and rebuilt its telephone QC test system. As the system went live and operated, the entire process of quality test was effectively consolidated, thereby providing effective data support for analysis on service quality and professional skill level of telephone service representatives.

▸ Building the customer relationship management system (CRM system)

In order to fully enhance user service quality and user satisfaction, in 2012, CNNIC built the user relationship management (CRM) system on the basis of the original service system.

● User support

▸ Sharing experience in user support with registrars

Due to poor and deficient domain name after-sale services offered by some registrars, CNNIC attached importance to summary and accumulation of hands-on experience while conducting user support work, organized and formed a user support system comprised of work plan, work flow, skills and methods of telephone return visit, skills of customer support return visit, auxiliary knowledge base and call work requirements, etc. Also, by means of telephone, email and face-to-face communication, etc., CNNIC shared relevant experience with registrars to assist them in further improving the user support system and increasing customer service level.

▸ Consolidating resources of the Call Center and undertaking call projects

Under the preconditions of accomplishment of the existing customer service indexes and smooth operation, in 2012, CNNIC's customer service department consolidated the resources of platform, telephone service representatives, site and customer service staff and so on of the Call Center, strived to develop new business mode, successfully undertook call projects including special audit of telephone, domain name registration and renewal term of the participants of Symposium on China's Network IPR Protection and Value as well as customer survey of CNNIC's full-line products, etc. Call projects tended to be pressing and challenging, but the customer service team, by relying on its advantages in terms of operation experience, insight into the products and sensitivity to the market, overcame the great difficulties, successfully completed the call tasks and made contributions to organization cost reduction and process optimization.

Notification Service and Service Tracking

Market Survey on Customer Satisfaction

Customer Care Customer Retention

Customer Data Verification

Conference Invitation

Survey on Illegal Behaviors of Registrars

● Audit Supervision

▸ The efficiency of domain name audit increased by leaps and bounds

CNNIC adhered to the responsibility consciousness, kept carrying out research and innovation and successfully created all-new and efficient domain name audit mode of "combination of automatic system audit & manual audit". By relying on the all-new audit mode, CNNIC audited over 3,120,000 Chinese and English domain names in 2012, up 224.68% over the previous year. CNNIC kept zero complaint about audit during the whole year, and the accuracy rate hit 99.99%. Under the precondition of ensuring audit

quality, CNNIC increased its domain name audit efficiency rapidly and improved the experience of .CN domain name users on an all-around basis.

Audit Cycle

The domain name audit cycle was shortened from 3.28 work days to 0.91 natural days.
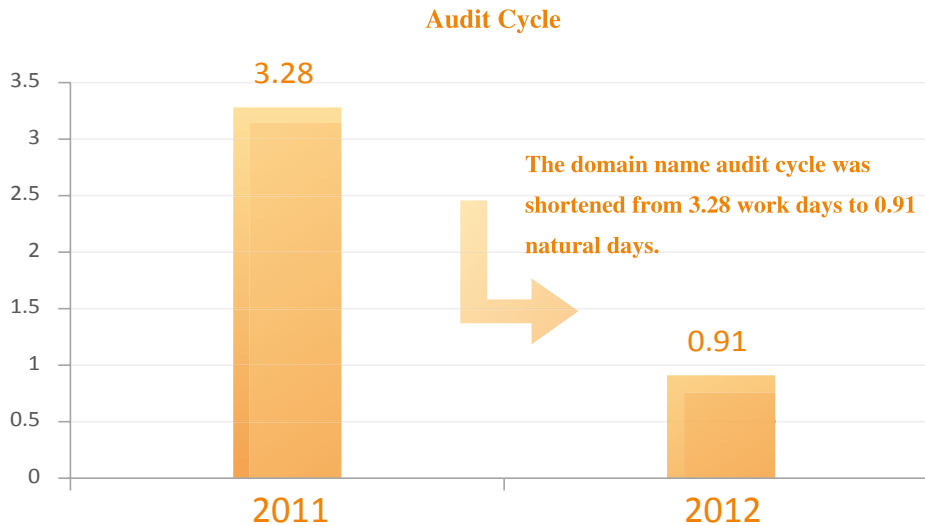
▸ Fully enhancing domain name audit service quality

To ensure that domain name auditing work has a definite and improved audit standard, CNNIC updated and adjusted the domain name audit standard and the registrant ID information verification standard in a timely manner, thus providing domain name auditing work with a normative, authoritative and complete guidance.

Meanwhile, in order to ensure registrars to get familiarity with the latest audit policy in a timely manner, CNNIC organized 11 trainings and lectures and carried out remote online video training and communication for 8 overseas registrars in 2012 in Asia, Europe and Americas. The training attracted 118 participants (person-time), benefited over 1,000 employees of registrars and provided domain registration services with accurate guidance and support.

In addition, CNNIC specially set up an audit service support post to answer questions of registrars and users related to audit services, thereby realizing one-stop solution for audit problems, strengthening interactive communication between auditors & registrars and users, effectively enhancing audit business efficiency and quality, and improving the customer service system.

▸ Further improving the domain name application supervision mechanism

To ensure authoritativeness and normalization of domain name application management work, the Call Center, together with the Ministry of Public Security, established a concerted mechanism for detection of malicious domain names, thus effectively curbing illegal behaviors including website malpractice and abuse, etc. and ensuring healthy and stable development of China's Internet industry.

Technological R&D and Security Assurance

1.Technological R&D

• IPv6

On June 6, 2012, CNNIC set up IPv6 Open Exchange and Application Validation Center (6PILOT), which now has 6 members.

CNNIC was also active in providing local governments with services related to IPv6 informatization. In June 2012, authorized by Guangdong Economic Information Commission and Guangdong Network Center, CNNIC, as an expert member, participated in the research activities for development and construction of the next-generation Internet in Guangdong.

Since 2012, CNNIC took part in "Research on and Application Demonstration of Supporting IPv6 Transitional Mechanism and Management & Control System", a National Key Technology R&D Program of the Ministry of Science and Technology.

In 2012, CNNIC also undertook special CNGI programs of National Development and Reform Commission and soft topics of Advisory Committee for State Informatization, summarized and analyzed the situation of China's management of IPv4 addresses, carried out systematic consolidation and refinement of international policies and technological standards in allocation and configuration of IPv6 address resources, discussed about feasible IPv6 address management & planning scheme, advanced the approvals of relevant industry standards, and provided China's Internet address code resources management with technical support and implementation methods.

• IOT

Project	Name
Research on IOT Projects	CNNIC won 2 CAS-city cooperation projects of Foshan *Smart Home Appliance Service System based on IOT Identity Public Service Platform* and *Furniture Commerce & Trade Service System based on IOT Identity Public Service Platform*
	CNNIC won 1 institute-level youth fund project. Research on P2P Platform for IOT Fundamental Resources Resolution
Construction of IOT Identity Public Service Platform	CNNIC developed prototypes of registration system and resolution & discovery system of public service platform for the IOT identity management.
	CNNIC launched the official website of public service platform for IOT identity management.
Platform and Various IOT Industrial Applications	In cooperation with Fudan University, CNNIC provided "Research on Agricultural IOT and Food Quality & Safety Control System" (a theme project of National 863 Program during the "12th Five-Year Plan" period in the field of modern agricultural technologies with identity resolution services.
	In cooperation with WIOT Group Co., Ltd., CNNIC provided elevator monitoring and smart furniture commerce & trade of the pilot project of "National Smart Cities and Towns" of Lecong Town of Foshan City with advisory services related to identity resolution and system construction.
	In cooperation with Chongqing University of Posts and Telecommunications, CNNIC developed the application system of IOT Identity Public Service Platform in the red wine sector.

● DNS

▸ DNSSEC safe operation technologies entered in the pilot phase

In 2012, CNNIC made innovations and breakthroughs in some key technologies such as DNSSEC key automatic rollover, multi-zone share key, hardware encrypted signature and locking & unlocking of key rollover, etc. SmartDNSSEC developed by CNNIC entered in the pilot phase. SmartDNSSEC is DNSSEC software developed on the basis of ccTLD node DNSSEC technical advanced research platform and for the purpose of realizing domestic domain name system DNSSEC deployment through standardized development and test. The researches in 2012 not only offered complete DNSSEC technical solutions, but also provided abundant theoretical references and proactive technical guidance for resolving domain name security problems.
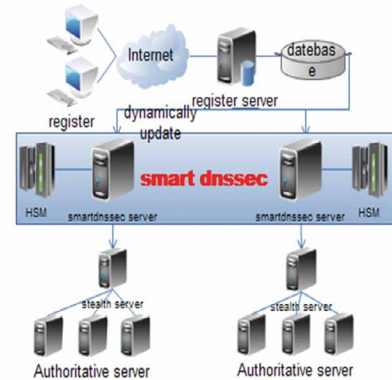
▸ SDNS software/hardware is optimized constantly

SDNS full-line software & hardware is the long-term accumulation of CNNIC in the field of domain name technologies. It is also domain name software & hardware product with independent IPR as a result of researches on national vertical subjects and active transformation of scientific & technological achievements. The product series can provide the government, enterprises and operating agencies with complete domain name technical solution for construction of DNS system. By combining the dedicated hardware platform and the dedicated software developed by CNNIC itself, SDNS full-line software & hardware product covers DNS resolution, DNS security protection and DNS traffic management, etc., providing a full set of professional solutions for operation services in all aspects of the DNS system.

—— DNS resolution server

DNS resolution server consists of authoritative resolution server SDNS-A and recursive resolution server SDNS-R. In 2012, CNNIC enhanced its DNS resolution processing capacity by means of adopting efficient smart cache technologies; in terms of data processing, CNNIC put forward a method for full automatic synchronization of data in main and auxiliary zones and submitted relevant patent applications; at the level of data management, CNNIC realized the dual zone data management mode based on database and memory data structure, shortened the loading time of zone data, increased zone data management & resolution efficiency and provided seamless docking of Chinese domain names with technical support.

—— Domain name management software

CookDNS, a type of domain name management software, provides various general and ccTLD massive domain name data management with automatic solutions. The management software, from the perspective of management, regulates generation and update processes of domain name data, enhances domain name data management efficiency, built-in software BOSS zone data generation tool

module, resolves the problems related to generation of zone records and realizes seamless docking of domain name registration system and resolution system. In 2012, through integrated test with the security software SmartDNSSEC, CNNIC consolidated the international top-level domain name incremental system, simplified the generation process of zone data, improved the generation efficiency of zone data and optimized the generation & verification process of key domain names.
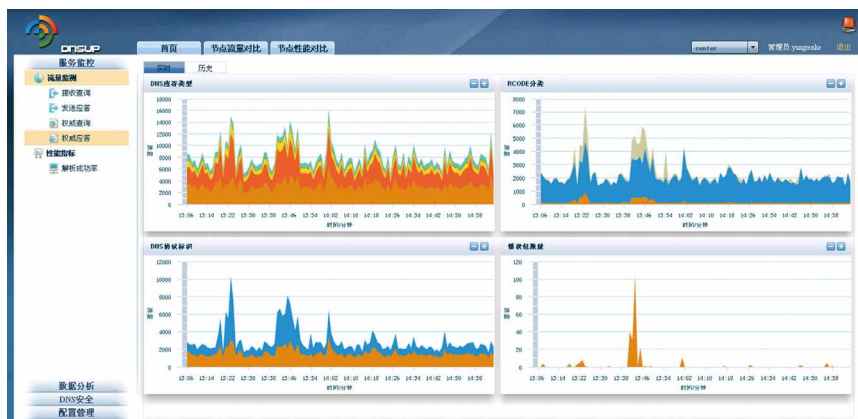

▸ SDNS-D anti-attack devices were applied to national fundamental network key nodes

SDNS-D anti-attack devices have been successfully applied to national fundamental network key nodes and gradually formed an anti-attack network to ensure stable operation of the domain name service system on an all-around basis.

In 2012, to cope with the changes of the DNS security environment and meet the actual needs of DNS users, CNNIC further increased and improved the performance of SDNS-D and the capability of DNS anti-attack devices. Following the successful development of DNS anti-attack device (SDNS-D1.0) in 2011, CNNIC launched SDNS-D 2.0 device and successfully put it into commercial applications in the first quarter of 2012. In 2012, SDNS-D devices had been commercially deployed in 9 DNS nodes all over China, including national fundamental network key nodes such as .CN top-level domain and CNNIC public cloud resolution nodes in Beijing, Shanghai and Hong Kong, as well as well-known DNS operator nodes such as Xinnet Digital, Xinnet Internet, Western Digital, HZECA and Xiamen eName, etc. By means of real-time monitoring of DNS traffic of the deployed nodes, cleaning and speed limitation of illegal traffic as well as screening of illegal and malicious query messages, etc., SDNS-D successfully held back over 1,000 malicious DNS attacks. Through deployment of SDNS-D devices, CNNIC increased DNS service quality of related nodes remarkably, reduced operation & maintenance costs of operators significantly and improved DNS security environment effectively, thereby gaining high evaluation and recognition from users.

The core of SDNS-D device is the dedicated FPGA board. In 2012, CNNIC expanded its R&D achievements on the basis of the successful experience in SDNS-D researches and development while consolidating R&D work of dedicated devices, and succeeded in developing the new-generation FPGA board. Adopting FPGA chips with high processing capacity, the new-generation FPGA hardware features

in-platform high-speed data channel, extended memory, scalable interface and dedicated software system, and is a high-bandwidth and high-performance network processing platform based on FPGA hardware technologies. The new-generation FPGA hardware platform may not only serve as upgrade platform of anti-attack device and basic platform for DNS hardware cache platform and DNS traffic monitoring hardware platform, etc., but also serve as general network hardware accelerator for acceleration of various network servers. In 2012, CNNIC completed the integrated test of the new-type dedicated FPGA card and corresponding general host computer platform and designed the plan for migrating DNS anti-attack device SDNS-D2.0 to this platform. The new-generation FPGA hardware laid a solid foundation for research and development of dedicated DNS devices in the future.
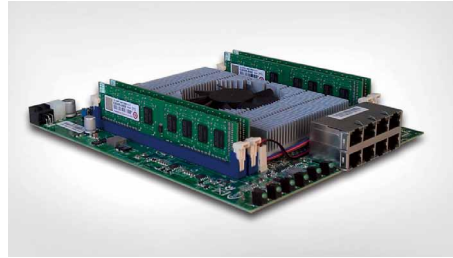
In 2012, CNNIC relied on its R&D capability on the basis of characteristics and needs of DNS operation, adhered to the guidelines of translating technologies into products, further improved DNS network solutions on the basis of constantly improving the existing products, while actively cooperated with all walks of life and expanded the application scope of the corresponding products. Now, CNNIC has completed the planning of the anti-attack network and reached initial intention for cooperation with several external vendors.

● BOSS System

In 2012, CNNIC further realized consolidation and optimization of the business system, and initially built the business support system that can flexibly adapt to business changes and ensure steady and sustainable development through a series of service upgrades including combination of registrars' IDs, opening of natural person domain name, service splitting of .CN and .中国 domain names, WHOISD revolutionary upgrade, intelligent exemption and domain name application binding, etc. The system significantly reduced the service management costs of the registries, enhanced service experience of registries, registrars and end users and provided powerful support for development of the basic services, exploration and progression of innovative services and enhancement of the overall professional image of CNNIC.

The integrated BOSS system is closely linked with CNNIC's business efficiency and service quality. Since 2011, CNNIC had been committed in construction of the ccTLD Business Operation Service System (BOSS). After 2 years of efforts, it has now realized full lifecycle service of ccTLD and full lifecycle business management of registrars, preliminarily established ccTLD basic resources operation support platform, met the requirements of operation management of basic resources and management and control services of Internet at the national level, and fully supported domain name full lifecycle services and full lifecycle management of registrars.

In order to better support business development requirements and optimize the BOSS system itself, CNNIC carried out approximately 20 iterative upgrades on the BOSS system and provided major business changes such as opening natural person domain name registration, launching name domain name product, splitting Chinese domain name and opening of "英文数字.中国" and so on with powerful system support, thereby ensuring satisfying the business development requirements of CNNIC. As for improvement of real-name audit efficiency that all registrars are very concerned about, after several upgrades of the BOSS audit subsystem, CNNIC established automatic domain name audit mechanism and optimized the record undertaking uploading mechanism, and enhanced audit efficiency and experience of domain name registrants.

ROSS (English), which was put online at the beginning of 2012, provided overseas registrars with better business support. In October 2012, CNNIC upgraded the ROSS system on an all-around basis. The upgraded ROSS system has more user-friendly features and powerful functions, covering a service system comprised of finance, audit and interface management modules. The functional layout of the new ROSS system was adjusted to provide a clearer functional structure. The new ROSS system was added with a "Finance" module, which included the consolidated relevant functions of the former Chinese and English financial verification systems; the new "Data" module was added with downloading functions of "daily data, monthly data and specified data" for financial reconciliation; by means of the newly-added function of "balance alert", registrars may, on its own, set the balance alert limit for all accounts and alert email recipients. The query performance of the new ROSS system was greatly optimized, up over 10 times than that of the original system.

21 outdated systems of the BOSS system were reconfigured and consolidated in 2012, and all subsystems are expected to be consolidated at the beginning of 2013.The system, ultimately, provided users with an integrated service platform, thereby improving user experience and lowering service operation & maintenance difficulties. Compared with the previous WHOISD1.0, WHOISD2.0, which went live at the end of 2012, was increased by 14 times in system query performance, up 30% in throughput and down 1/3 in server resources. The SLA index had reached the top international standard.

IP address allocation management system

In 2012, IP address allocation management system was put online, providing support for further enhancement of CNNIC's expertise in the aspect of IP address allocation services.

As a service support platform for resources allocation and management of IP addresses and AS numbers, IP system is required to operate safely and stably so as to effectively support the basic address allocation in China. For this reason, CNNIC upgraded the IP system on an all-around basis in 2012. The new IP system consists of the following 3 parts: ALLOCATION, RMS and IP WHOIS.

— ALLOCATION mainly supports allocation and record of internal IP addresses and AS numbers as well as storage of information on IP Alliance members, meanwhile, it provides users with services including data query and statistical statements, etc.;

—— RMS is mainly used by Alliance members to create, store and maintain IP address and related information;

—— With authoritative data record of information on organizations of IP address resources or AS numbers of CNNIC WHOIS and APNIC WHOIS mirrors, IP WHOIS is open to the public for query.

With the exhaustion of IPv4 address resources, in order to enhance IPv6 address allocation service capacity, CNNIC upgraded the IP system so as to better support allocation of IPv6 addresses, and opened the information channel between the original system data ALLOCATION and RMS to better serve internal IP allocation personnel and Alliance members, and provided better allocation and management services of IP addresses and AS numbers, etc.

Schematic Diagram of IP Group Business System Relationship
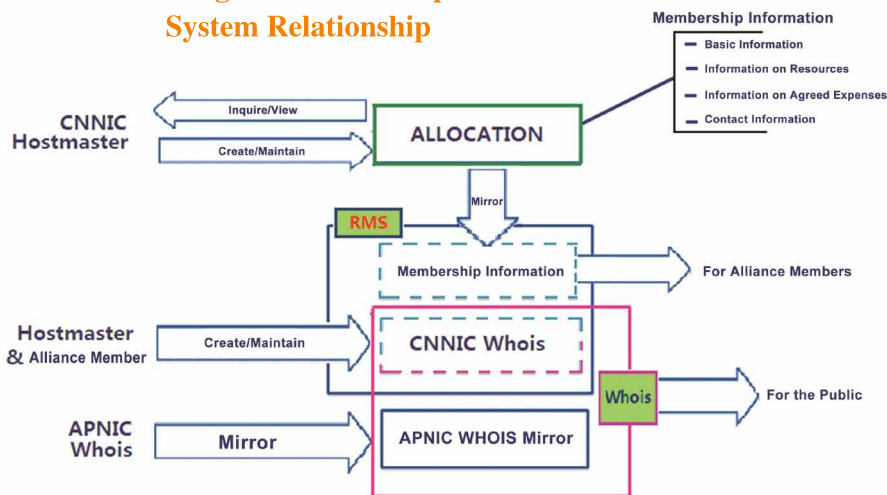
● Domain name security monitoring & analysis platform

The domain name security monitoring & analysis platform was significantly improved and enhanced in terms of data collection, data analysis and data mining, providing support for further enhancing CNNIC's position in the field of domain name security.

At the beginning of 2012, CNNIC built preliminarily the ccTLD security monitoring & analysis platform to carry out domain name service security evaluation services at the dimensions of domain name breakdown, configuration, traffic, performance and security. CNNIC has deployed DNS monitoring system at 44 nodes across the world to issue and dispatch distributed monitoring tasks via the central node server and carry out real-time and uninterrupted data snooping & scanning work centering around 22 DNS monitoring projects. Through the DNS distributed monitoring platform, CNNIC can learn about the operational status of the entire DNS service system in a real-time manner and provide the key domain name service system with real-time protection and alert services. The data generated by the DNS distributed monitoring platform is reported in the form of security report to DNS operation & management administration, so as to provide data support for improving overall security of DNS services.

Based on the data produced by the ccTLD security monitoring & analysis platform, CNNIC produced several security monitoring reports for global DNS, 1 monitoring report for key domain names and 1 for major recursive

servers respectively, and submitted such reports to competent authorities including the Ministry of Industry and Information Technology (MIIT) and Chinese Academy of Sciences (CAS), etc. CNNIC produced monitoring report according to the security conditions of each registrar, thereby ensuring construction of a safe and reliable domain name service system and offering of reliable data support.

In 2012, the ccTLD security monitoring & analysis platform provided SDNS with monitoring service data, thus effectively supporting operation and product planning of SDNS.

The ccTLD security analysis & monitoring platform features distributed monitoring model and flexible scheduling algorithm, and can provide website detection services with platform support and Statistical Report on Internet Development in China with data support.

2.Innovative Service

● CyberSpace

In May 2012, .CN domain names were opened to natural persons for registration and individuals were allowed to make registration. In order to facilitate more new users to rapidly register and experience .CN domain names, CNNIC officially released CyberSpace domain name registration experience platform to provide Internet users with .CN domain name registration and experience services. CNNIC established a user identity authentication system via CyberSpace platform, allowing all verified users to apply for domain name for free via the platform or import the existing domain names into the platform for management. In addition, the platform offered services including cloud resolution, enterprise mailbox, Chinese mailbox, 360 domain name security scanning and personal space, etc, assisting users in experiencing the complete domain name lifecycle ranging from registration, resolution and ultimate application. In 2012, CyberSpace officially launched "myid.cn" as its website, facilitating users to remember

and visit. Now, CyberSpace has functions of personal name card, biography, personal space, free domain name experience, website security scanning, WHOIS query as well as domain name import and management, etc. It allows users to either import registered domain name into CyberSpace, or receive mobile phone domain name for free through registration of mobile phone number, so as to use domain name application functions of CyberSpace. CyberSpace provides users with personal webpage templates to facilitate them to create their own websites rapidly; meanwhile, it expands application functions of other domain names through introduction of partners. For example, via website security scanning function, users can carry out security scanning for websites under the domain name in the platform and view result feedback; via Chinese mailbox function, users can configure Chinese mailbox services for free for Chinese domain names. Besides the functional improvements, CyberSpace optimizes the style of the platform, unifies demonstration and operation interfaces of all functions and enhances user experience.

Schematic Diagram of Introduction of Chinese Email and Cloud Resolution Services
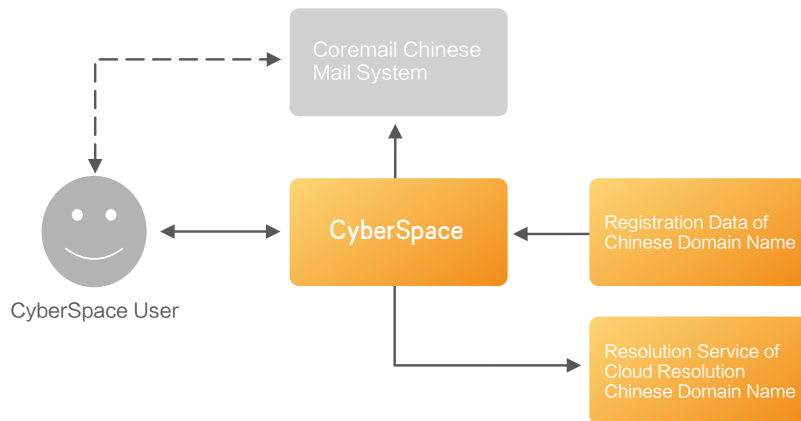
Space Setup

- **CDNS**

As the world's first free authoritative resolution service for public interest provided by a ccTLD registry, CNNIC CDNS has been working on turning itself into the preferred DNS service platform for ccTLD registrants and users with the needs for basic resolution. After more than one year of steady operation, the CDNS platform has attracted

lots of ccTLD registrants.

In order to better facilitate safe and reliable national network and information and provide ccTLD DNS overall service system with stable support, CDNS started to make plans for and deploy independent 5+1 resolution nodes based on BGP+Anycast technology in June 2012. Meanwhile, CNNIC took the lead in equipping the CDNS platform with state-of-the-art anti-attack devices and traffic cleaning devices that were developed by CNNIC by virtue of its experience accumulated during the past 15 years in operation and maintenance of ccTLD, as well as Zebra, a type of high-performance resolution software with independent IPR, so as to better create safe domain name resolution services for CDNS users.

In 2012, under the precondition of ensuring basic resolution services, CDNS integrated new technologies of CNNIC in the field of domain name resolution, launched key domain name backup resolution technology and built safe, reliable and rapid data transmission channels together with registrars, thereby providing domain name systems of domestic enterprises and public institutions with strong support for safe and stable operation.

• Secure DNS service (SDNS)

CNNIC provided ccTLD users with domain name resolution service (CDNS) in 2011, and again provided Internet end users with free Secure DNS service (SDNS) in 2012. By relying on Zlope, the self-developed security resolution series, and adopting cross-regional and cross-operator distributed asynchronous deployment based on IP Anycast+BGP technology, SDNS can carry out all-around monitoring by making use of CNNIC's ccTLD security monitoring platform, self-developed anti-attack device (SDNS-D) and automatic traffic analysis system (SDNS-AM), so as to fully enhance online resolution speed of Internet users, reduce or avoid unexpected interruption or network hijacking of DNS services and effectively improve online experience of netizens. To further improve overall security of the domain name resolution service system, effectively enhance the level of the Internet public service system and promote healthy and orderly development of the network

security support system, SDNS provides operators or self-built DNS with emergency backup services and websites and domain name users with high-speed, safe and stable emergency resolution services.

● Domain name application binding service

As a type of basic application mode, domain name application binding service means binding an independent domain name to a webpage address of a certain user on the e-business platform, thus allowing users to directly visit web pages on such e-business platform via independent domain name. Domain application binding service can better meet the above market demands.

On the principle of serving service providers, users and domain name registrants and on the basis of ensuring manageable and controllable webpage contents, CNNIC carried out domain name application binding services actively and steadily. After a domain name has been successfully bound, the public may inquire about the bound domain name and its corresponding webpage address on the record system.

The binding service was well received by registrars, and has been applied to 9 e-business platforms provided by 9 registrars at the end of 2012. The number of bound domain names is expected to exceed 300,000, thus greatly facilitating popularization and application of ccTLDs.

● Chinese domain name navigation website

To promote development of Chinese domain names, provide registrants with an approach to demonstrate domain names and enable netizens to experience convenient application of Chinese domain names, CNNIC developed and launched Chinese domain name navigation website in 2012.

● Multi-lingual email service

In February 2012, RFC6531 "SMTP Extended Support Internationalized Mail", an IETF international standard initiated by CNNIC, was officially released and took effect. On June 19, 2012, CNNIC held in Beijing a press conference, during which it sent the world's first email with internationalized email address to Internet communities in Beijing, Hong Kong, Macao, Singapore, Malaysia, Germany, Australia, Canada and USA, etc. Based on the technical standard, COREMAIL carried out technological realization and will deploy it in CAS and CNNIC, etc.

● China Internet Data Platform

In 2012, China Internet data platform realized data collection and analysis in segments of "search, video and advertisement" and deepened data analysis; realized "all UI design" and "user-defined media plan" and enhanced user experience; developed the subsystem of "distributed network speed measurement and statistics about mobile platform applications" and broadened data analysis to a large extent; completed development of "anti-phishing system and advertising effect monitoring system" and expanded third-party service applications of data platform; completed pilot studies on "multi-label statistical model", and on such a basis, fully upgraded the data platform in terms of processing of multi-dimensional data, time evolvement and demonstration, etc.
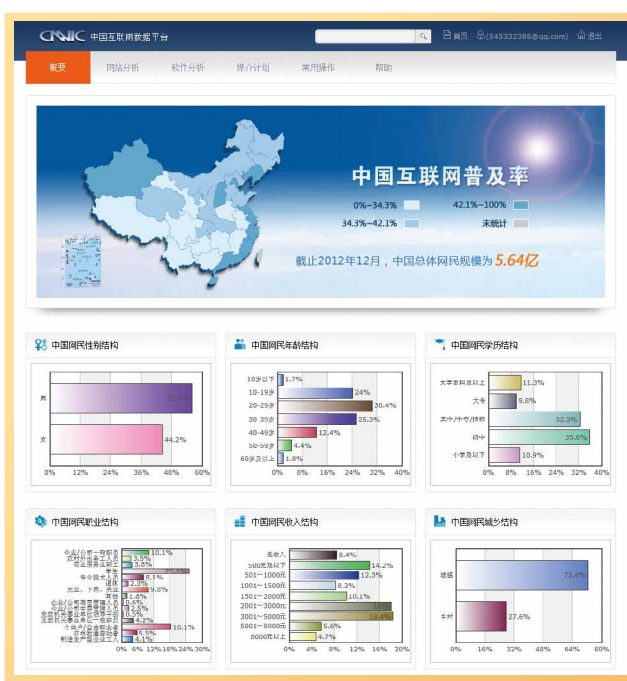
● New gTLD

Since its participation in the New gTLD project in 2011, in order to realize professional services of New gTLD operation hosting, CNNIC has actively followed up the new domain name system standard issued by ICANN,

constantly reinforced the technical strength of the domain name operation support system and laid a solid foundation for official deployment of the New gTLD system.

Guided by the technical bidding document of ICANN, CNNIC upgraded the existing SRS and WHOIS-D, added data hosting and monthly report systems, as well as introduced the extended trademark library model, WHOIS search and the next-generation WHOIS standard. In terms of performance, the new system increased its compatibility with IDN, supported deployment of IPv6 and DNSSEC and shortened the response time of registration, resolution and query to the magnitude of 10 seconds. In 2012, CNNIC successfully completed a series of preparatory work for official New gTLD deployment, achieved all indexes brought forward by ICANN to registrars, made breakthroughs in R&D work of domain name system and was expected to provide operation hosting of general top level domain with more professional, normative and efficient services.

In 2012, ICANN officially lifted the control over application for New gTLDs, and finally announced 1,930 qualified applications for New gTLDs and 1,409 New gTLDs. In the face of a mass of forthcoming New gTLDs as well as numerous local New gTLD registries and foreign New gTLD registries that intend to make inroads into China, CNNIC planned various services for New gTLD registries on the basis of full analysis of user needs and its advantages.

● Face Experience System

At present, it takes a relatively long time from registration, resolution to domain name application; therefore, it is prone to the security risk of fake user status in the entire process. However, CNNIC has built an all-new domain name registration service experience system through the introduction of OCR technology and facial recognition technology. Through automatic reading of certificate information, user login by face registration and domain name automatic audit, etc., the face experience system can significantly shorten domain name service cycle and thus effectively reduce the risks of false information and fake user status.
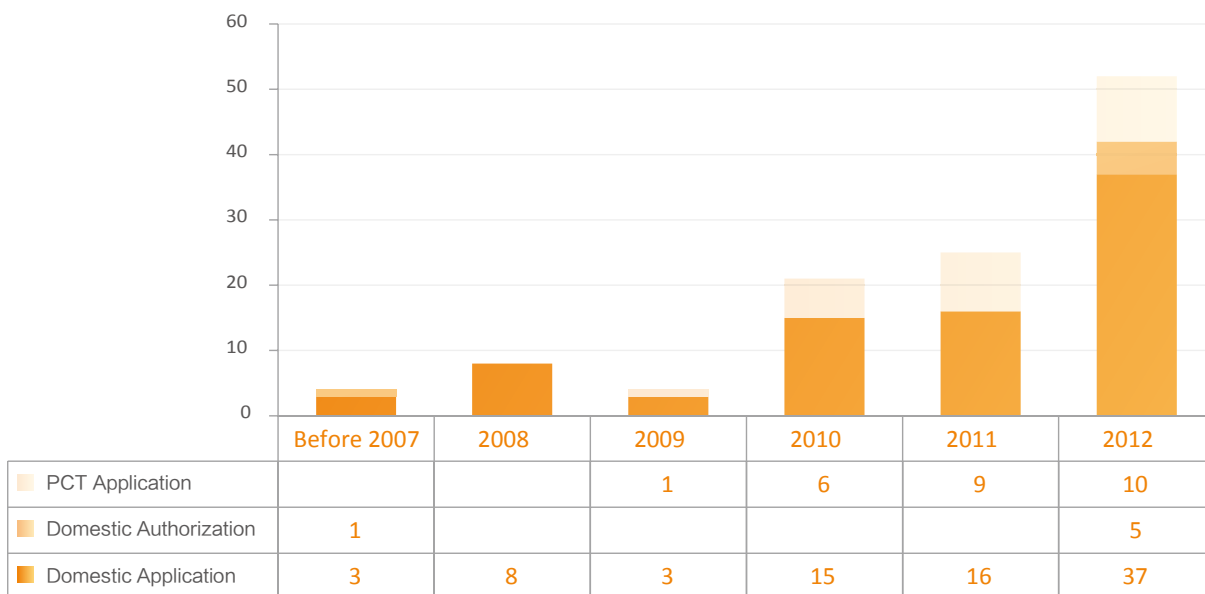
3.Achievements in Patent Application

• Patent

CNNIC's application for invention patents has been maintaining a momentum of fast and steady development over the years. As of December 2012, CNNIC had applied for an accumulative total of 82 domestic patents (including 79 invention patents and 2 utility model patents) and 26 PCT patents.

In 2012, CNNIC carried out patent application and patent mining centering around the research projects and product lines. In the year, CNNIC applied for 37 domestic patents (comprised of 36 invention patents and 1 utility model patent) and had 5 authorized invention patents. Meanwhile, it also geared up the applications for foreign patents, applied for 10 PCT patents and succeeded in application for 2 U.S. patents in 2012.

	Before 2007	2008	2009	2010	2011	2012
PCT Application			1	6	9	10
Domestic Authorization	1					5
Domestic Application	3	8	3	15	16	37

Previous Application for Patents

Authorized Invention Patents of CNNIC in 2012			
No.	Name	Type	Legal Status
1	Method for and Equipment and System for Testing Abnormal DNS Query Traffic	Invention	Authorized
2	Test Method for Domain Name System Traffic and Domain Name Server	Invention	Authorized
3	Domain Name Resolution Availability Evaluation Method, Server and System	Invention	Authorized
4	Method, Verification Method, Equipment and System of Digital Signature	Invention	Authorized
5	Method, Device and System of Authoritative Server Load Balancing	Invention	Authorized

● Standard

Over the years, CNNIC has been attaching importance to research on standards. It has formulated 31 national and international standards, including 5 IETF international standards, 21 CCSA standards and 5 national standards, and is formulating 41 national or international standards, including 16 IETF international standards and 29 national standards, involving Chinese domain name, Internet address resources and Chinese email, etc.

In February 2012, CNNIC and Ccoremail, a top-notch mail service vender of China, reached a strategic cooperation agreement to jointly advance the development of Chinese emails. Now, CNNIC has enabled the internationalized mail system to support SMTP protocols of RFC6531 and RFC6532 concerning receiving & dispatching of Chinese

	Before 2007	2008	2009	2010	2011	2012
▨ Standard Published by IETF	21			1		1
▨ Chinese National Standard					4	1
▨ Industrial Standard	1		2		3	11
▨ Project Approved	1	3	15	17	4	7
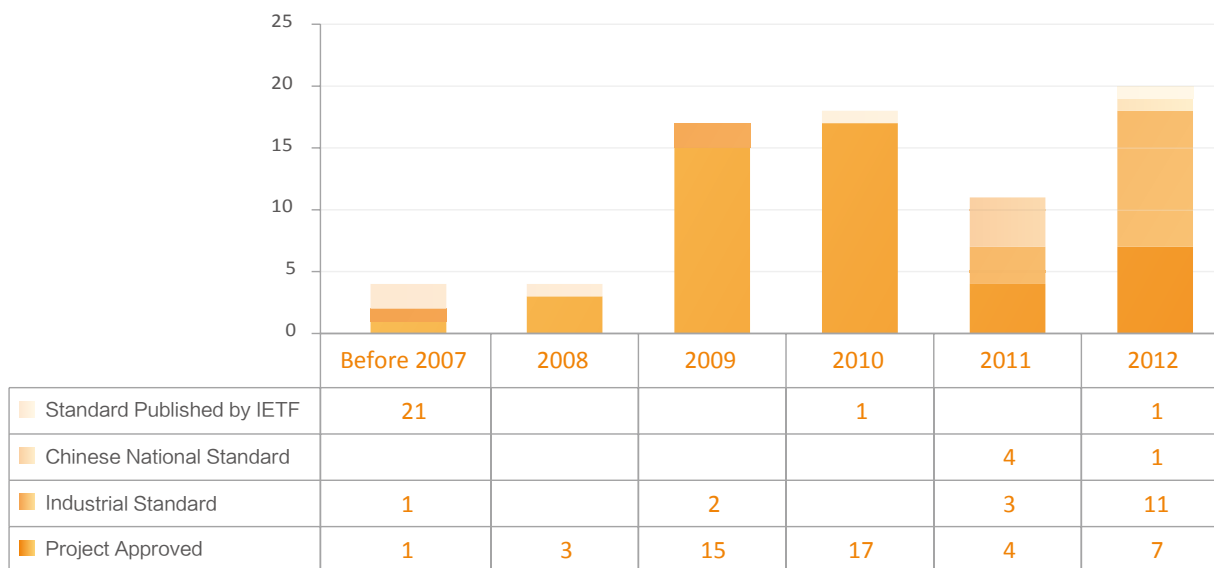
Previous Standard Drafting Work

mails, and will support RFC technical standards with POP functions. CNNIC initiated the founding and development of the Internationalized Mail Work Group and release of RFC5336 and RFC6531 related to internationalized mail, thereby laying a solid technical foundation in terms of internationalized mailing technologies.

● Paper

In 2012, CNNIC published 21 papers, including 6 SCI index journal papers, 7 EI index journal papers and 2 papers in Chinese core periodicals.

	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012
Conference Paper		3	2	11	9	13
Periodical	3	11	19	28	11	15
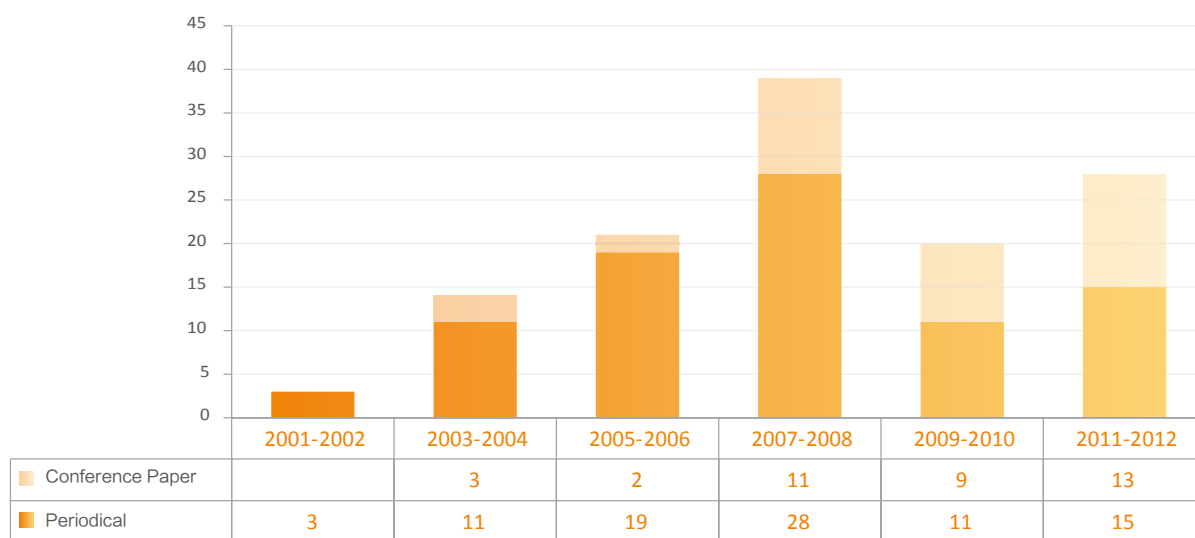
Previous Paper Publications

● Software copyright

In terms of computer software copyright, CNNIC has a total of 104 items of authorized or accepted computer software copyright , which mainly involves technologies of domain name registration, domain name resolution, domain name security and IOT label service, etc. At the dawn of the 21st century, CNNIC entered into a fast track of development and became increasingly mature in terms of computer software development. Now, it has established a complete set of software development system after years of exploration and development.

	2003- 2004	2005 -2006	2007 -2008	2009- 2010	2011- 2012
Registration of Software Copyrights	5	9	20	24	46
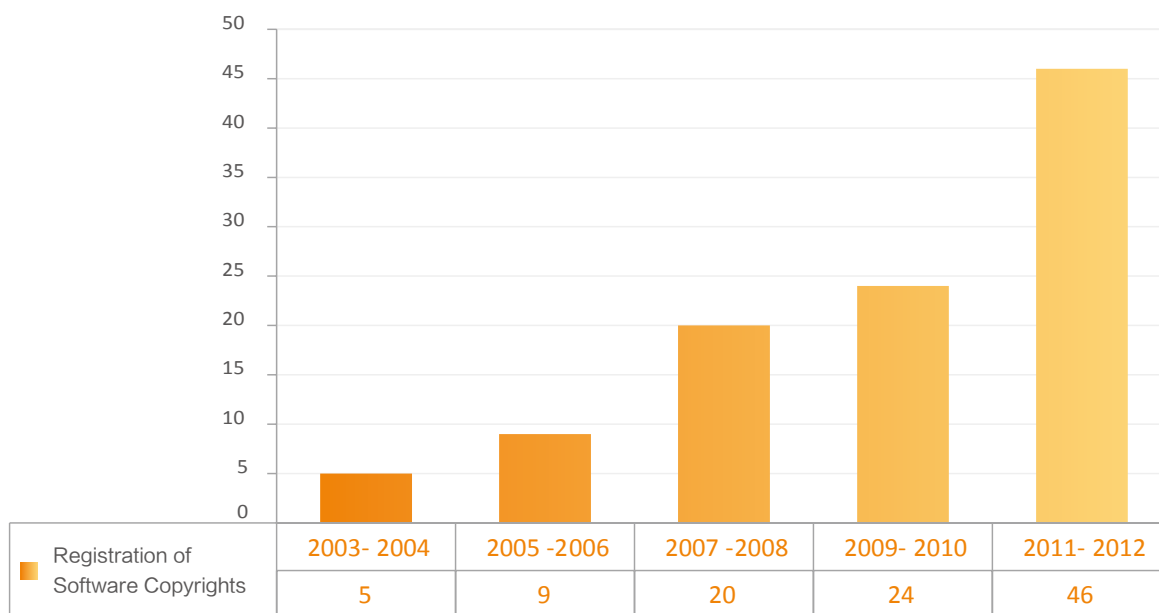
Previous Registration of Software Copyrights

4.Security Assurance

- ### Building a ccTLD security evaluation system

To further improve safe and steady operation level of ccTLDs, CNNIC built in 2012 a ccTLD security evaluation system, which set the targets for safe and steady operation of ccTLDs in terms of security, stability and recoverability, and evaluated the current situation of ccTLDs.

Under the guidance of the ccTLD security evaluation system, CNNIC actively carried out information security construction that mainly consisted of construction of the information security management system, construction of the information security technology system and ccTLD security support.

— Construction of the information security management system

CNNIC focused on construction of business continuity and formulated the standard of Business Continuity Management Requirements on Domain Name Services, and released Regulation on Information Confidentiality Management so as to strengthen the confidentiality management of internal information.

— Construction of the information security technology system

At the beginning of 2012, CNNIC revised the Plan on Information Security Technology System, according to which, it completed construction of the single sign-on system and the concerted emergency command platform, and formulated the Construction Plan on Information Confidentiality Technical Measures of CNNIC.

— Security support for ccTLDs

On the basis of the Notice on Matters concerning Security Protection of Communication Network and Security Protection Inspection Work in 2012 released by the Communication Support Bureau of MIIT, CNNIC specially formulated Content of and Plan on Communication Network Security Inspection of CNNIC in 2012, arranged the specific work during the phases of self check, spot check and summary, established internal work coordination and regular report mechanism, so as to ensure that the work can be done smoothly and effectively. According to the third-party spot check report, no major risks were found in the 2 network units that had been checked, and the main node of the ccTLD resolution system gained an overall score of 90.70 and the .CN domain name registration system gained an overall score of 98.28.
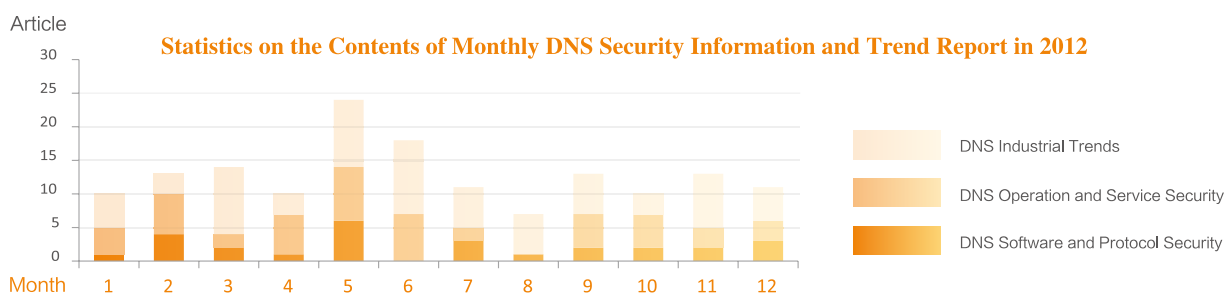
- ### Construction of the security monitoring platform for domain name service system

In order to build state-level domain name security monitoring center, pre-warning center and emergency response center, CNNIC carried out construction of the security monitoring platform for domain name service system last year, so as to undertake the functions of security detection and monitoring of the domain name service system. In 2012, CNNIC completed needs determination and system development of the platform and deployed 39 monitoring nodes across China, covering the core business areas of the 3 major operators, so as to monitor over 2 million DNS servers and more than 400 key domain names in terms of security, performance, breakdown, traffic and configuration. Based on the platform, CNNIC successively completed a series of reports including Analysis Report on Domain Name Service Security Status & Situation in China, Analysis Report on Security Status Monitoring of

Recursive Servers of Basic Telecom Operators, Analysis Report on Security Status Monitoring of Key Domain Name Resolution Servers in China and Special Report on Domain Name Service Security Status & Situation in China, etc., and thereby gained high attention and full recognition from relevant authorities.

● Carrying out DNS security information tracking work

In addition, CNNIC continuously carried out DNS security information tracking and report work for the purposes of analysis and pre-warning of security threats, notification of DNS security incidents and macro analysis of DNS security situation, etc. As of December 2012, CNNIC had reported and released Special Report on DNS Security Information for 4 times and Monthly Report on DNS Security Information and Trend for 12 times in total (from January 2012 to December 2012), of which 154 items were related to DNS security information and trends, mainly including 27 security information on DNS software and protocols (of which 8 were high-risk vulnerabilities related to DNS), 51 DNS operation and service security information and 76 trends related to the DNS sector.

Statistics on the Contents of Monthly DNS Security Information and Trend Report in 2012

Legend:
- DNS Industrial Trends
- DNS Operation and Service Security
- DNS Software and Protocol Security

● Consolidating advantageous resources of the industry

In 2012, CNNIC, in partnership with Anti-Phishing Working Group (APWG), wrote Statistical Report on the Current Situation of Global Chinese Phishing Websites (First Half of 2012) in both Chinese and English. In addition, in order to ensure success of the 18th National Congress of CPC, CNNIC completed the project of "Domain Name Security Management and Application Test Platform". Moreover, it successfully applied for relevant scientific research projects of DNSLAB, together with Asia University of Taiwan, Shandong University and the Institute of Computing Technology of CAS.

In order to consolidate the full chain of the entire domain name industry, create a concerted mechanism for prevention and emergency response and enhance security of ccTLDs, CNNIC initiated ccTLD Security Alliance in 2012 and served as the secretariat of the alliance. As of December 2012, the alliance had 45 members. In 2012, CNNIC carried out trial use of DNS anti-attack devices, domain name system security and analysis scanning as well as domain name abuse detection and so on for members of the alliance, sent DNS security information and trend regularly to the members and notified the members of DNS security vulnerabilities as soon as possible. As of November 2012, CNNIC had tested DNS authoritative services of all members of the alliance and sent 40 copies of Report on Security Test of CN Domain Name Authoritative Servers, and thus effectively increased the security protection capacity of domain name systems of all members of the alliance. In terms of Concerning the combat with inappropriate domain name application, CNNIC tested monthly the ccTLDs registered by members of the alliance as an agent and sent test reports, thereby deepening alliance members' overall understanding of applications of their domain names. As of December 2012, CNNIC had finished 258 test reports in 6 issues in total.

Research on Internet Development

1.Research on Internet Development

- Undertaking researches on internet development

By 2012, CNNIC had released Statistical Report on Internet Development in China for 15 consecutive years. In the past 15 years, CNNIC had been conducting researches on development of Chinese Internet and carrying out in-depth analysis on various data about Internet development. In 2012, CNNIC published 36 Internet reports (including 2 Internet macro-reports, 15 sub-industrial Internet reports and 19 regional Internet reports), compiled Milestones of Internet Development in China and Internet Development Information and Trend, released Diagram of China Internet Link Bandwidth 2011, carried out projects of Market Evaluation on Online Shopping in China 2011, Researches on Development Tendency of Online Retail and Statistics on Electronic Commerce of China 2011, etc. which were entrusted by ministries and commissions of China, coauthored Report on Internet Development in China 2012 and Research Report on Development of Chinese Internet Industry, a part of the Series of China's 2nd Economic Census, and co-drafted Testing Methods for Broadband Rate and Online Experience Standard for Users, etc., thus tailoring a variety of Internet management and development strategies for the reference of the government and enterprises.

Sub–Industrial and Regional Internet Reports Released by CNNIC in 2012

Sub-Industrial Report	Regional Report
Survey Report on the Development Situation of Mobile Internet in China (2011)	Statistical Report on the Internet Development Situation in Guangdong Province (2011)
Research Report on Online Video Application of Chinese Netizens (2011)	Statistical Report on the Internet Development Situation in Foshan City (2011)
Survey Report on the Internet Application Situation of Chinese SMEs (the second half of 2011, the first quarter of 2012 and the first half year of 2012)	Statistical Report on the Internet Development Situation in Beijing City (2011 and the first half of 2012)
Survey Report on Electronic Commerce of Chinese SMEs (2011)	Statistical Report on the Internet Development Situation in Shandong Province (2011)
Survey Report on the Internet Development in Rural China (2011)	Statistical Report on the Internet Development Situation in Tianjin City (2011)
Report on Online Shopping Market Research in China (2011)	Statistical Report on the Internet Development Situation in Hebei Province (2011)
Research Report on Social Website Application of Chinese Netizens (2011)	Statistical Report on the Internet Development Situation in Guizhou Province (2011)
Research Report on the Behaviors of Search Engine Users in China (2012)	Statistical Report on the Internet Development Situation in Heilongjiang Province (2011)
Research Report on the Development Situation of Mobile-phone Browsers in China (2012)	Statistical Report on the Internet Development Situation in Shanxi Province (2011)
Research Report on Online Behaviors of Mobile phone Netizens in China (2012)	Statistical Report on the Internet Development Situation in Shanghai City (2011 and the first half of 2012)
Report on Security Situation of Online Payment in China (2012)	Statistical Report on the Internet Development Situation in Sichuan Province (2011)
Research Report on the Information Security Situation of Chinese Netizens (2012)	Statistical Report on the Internet Development Situation in Hainan Province (2011)
Survey Report on Online Tourism and Booking Behaviors of Chinese Netizens (2012)	Statistical Report on the Internet Development Situation in Fujian Province (2011)
	Statistical Report on the Internet Development Situation in Zhejiang Province (2011)
	Research Report on the Development of Internet Culture Industry in Sichuan Province (2011)

- Transmission and sharing of research achievements of Internet development

In 2012, CNNIC continued to strengthen transmission and sharing of the research achievements of Internet development and made more people gain an in-depth understanding of China's Industry in various ways.

CNNIC fully utilized micro-blog, blog and questionnaire center to publicize the Internet development situation of China to the public. By the end of 2012, a cumulative total of 868 micro-blogs had been published on "CNNIC Internet Research Micro-blog" and 228 articles had been published on "CNNIC Internet Development Research Blog", gaining a cumulative browsing volume of 1.16 million times, and the cumulative registered users of "China Internet Questionnaire Center" exceeded 117 million.

CNNIC sent handbooks about skills and methods for using Internet every week to traditional enterprises, and carried out onsite training on online marketing for traditional enterprises in Shenzhen, Guangzhou, Nanjing, Chengdu, Shenyang and Zhenzhou, etc.

In addition, CNNIC held "Internet Data Mining Competition" for computer and Internet learners, practitioners and researchers on the basis of the data of "China Internet Data Platform".

- Regular release of tracking report on the trends of Internet

Over the past years, CNNIC paid close attention to and kept tracking the latest technical and policy development trends of international Internet communities.

2.Research on Informatization Development

Over the years, CNNIC has been providing support to the informatization research and evaluation of CAS. In 2012, CNNIC completed annual informatization evaluation of CAS for 2011 and continued to perform the annual informatization evaluation of CAS for 2012.

🌐 International Communication and Open Cooperation

1.Involvement in International Internet Communities

● Involvement in ICANN's events

In June 2012, CNNIC representatives attended the 44th conference held by ICANN, during which the participants discussed about the process of applying for New gTLD, DNS security and IPR, etc. During the conference, CNNIC representatives further publicized the brand value of the center, actively advanced overseas business development and construction of the platform for communication among registrars.

The 44th Conference of ICANN

In October 2012, CNNIC representatives took part in the 45th conference of ICANN, better promoting and facilitating overseas business of ccTLDs of China, further expanding the overseas market and increasing the influence of Chinese national ccTLDs in the global domain name market. During the conference, CNNIC representatives communicated and talked with many current registrars on development of current business, promotion of new business and cooperation in the future. Meanwhile, CNNIC, through its booth at the conference, developed many new registrars, gave priority to high-quality overseas registrars that were interested in Chinese national ccTLD business and succeeded in reaching cooperation agreements. At the conference, CNNIC developed 3 overseas registrars in total and discussed with registrars about the matters on advancing cooperation so as to promote Chinese domain names in Germany, France and Australia, etc.

● Participation in international conferences

At the 34th conference of APNIC that was held at the end of February 2012, CNNIC succeeded in bidding for the 36th conference of APNIC to be held in August 2013, and the success is of great significance to the development of China's Internet industry.

APTLD Taiwan Conference was held in November 2012 in Taiwan. CNNIC representatives delivered important speeches at the conference, which was an annual meeting of APTLD. As a founding member of APTLD, CNNIC participated in matters and activities in various aspects.

APTLD Taiwan Conference

The 134th Annual Meeting of INTA

The 7th Internet Governance Forum

In May 2012, CNNIC representatives attended the 134th annual meeting of International Trademark Association (INTA) in Washington.

In October 2012, CNNIC representatives attended the Autumn Summit of E-crime Researchers of APWG in Puerto Rico, and further defined the key direction of anti-phishing R&D work of CNNIC in the future through communication with participants of the summit..

In November 2012, CNNIC representatives took part in the 7th Internet Governance Forum (IGF) and delivered a speech in the session of key resources management of IGF forum. During the conference, CNNIC representatives shared experience in application for New gTLD.

● Business promotion and communication

In June 2012, CNNIC representatives left for the United States to promote New gTLD services, and exchanged views with ICANN on batch policy, convening ICANN conference in China, global allocation of root servers, qualifications of data hosting organization and Chinese variants, etc.

CNNIC Representatives are Communicating with Staff of ICANN in the United State.

In June 2012, the 1st Chinese National ccTLD Overseas Business Cooperation & Exchange Meeting was held in Hong Kong. During the meeting, the participants from CNNIC delivered wonderful speeches, and made a detailed report on the latest policy and development direction of CNNIC in the future.

In November 2012, CNNIC held the 1st Development and Promotion Conference for CNNIC Overseas Registrars in Koln of German, and held the first .CN domain name and Chinese domain name overseas promotion campaign together with Mailclub in France. During the meeting, the participants from CNNIC delivered wonderful speeches, and made a detailed report on the latest policy and development direction of CNNIC in the future.

In November 2012, CNNIC held a ccTLD promotion and exchange meeting in Australia. During the meeting, the participants from CNNIC delivered wonderful speeches, and made a detailed report on the latest policy and development direction of CNNIC in the future.

In September 2012, CNNIC representatives attended the 6th Domain Name Seminar in Taibei, Taiwan, and exchanged ideas with representatives from registrars and other enterprises.

The 1st Chinese National ccTLD Overseas Business Cooperation & Exchange Meeting

CNNIC Held the 1st Development and Promotion Meeting for Overseas Registrars in Germany

2.International Communication and Visitor Receptions

• China-Laos internet management training

From Dec. 2 to Dec. 8, 2012, CNNIC carried out China-Laos Internet Management Training in Kunming to provide 15 representatives from the Ministry of Telecommunication and LANIC with Internet fundamental resources and management training. Meanwhile, 4 representatives from Jordan, Mongolia and Viet Nam were invited to participate in the training. The participants exchanged ideas on issues of common concern such as Internet technologies, security and management, etc.

• CDNC Annual Meeting 2012

In 2012, CNNIC undertook the annual meeting and special meetings of Chinese Domain Name Consortium, during which CNNIC representatives made in-depth discussions with representatives from CDNC members on the issues related to the new constitution of CDNC, word table updates, promotion of internationalized mails, researches on IPv6DNS technological development as well as technologies in application for general New gTLDs, etc.

• CNNIC was visited by the president of APIPv6TF and members of APNIC

On March 6, 2012, Tony Hill, President of Asia-Pacific IPv6 Task Force, together with members of the expert group of Asia-Pacific Network Information Center, visited CNNIC, and the both sides carried out in-depth communications on the current situation of IPv6 management & allocation and overall progress of IPv6 in China, etc.

● CNNIC was visited by the president of PANDI

On November 6, 2012, Andi Budimansyah, President of PANDI, Mr. Tedd Purwadi, one of the founders of PANDI, and Mr. Aris Heru Utomo, First Secretary of the Embassy of Indonesia in China, accompanied by Huang Xiangyang, Director of CAS Computer Network Information Center and Director of CNNIC, and Liu Bing, Deputy Director of CNNIC, visited CNNIC.

Mr. Huang showed the guests around the showroom of CNNIC and introduced the development situation of .CN domain names in China. The president of PANDI introduced relevant information on PANDI and ccTLDs of Indonesia. The both sides conducted communications on the current situation, operation & maintenance and technology and so on of the domain name market, and hoped to establish long-term cooperation and exchange.

3.Establishment of Joint Labs

● CNNIC-ISC Joint Lab

In 2012, CNNIC-ISC Joint Lab dispatched 6 engineers to develop the next-generation DNS Bind10 software and release α version in collaboration with ISC.

Now, a stable DNS software security notification mechanism has formed in the joint lab, and CNNIC received 3 emergent security notifications of ISC (earlier than the notification of CNCERT) in total in the past year.

From June 4 to June 5, 2012, Joao Damas, Vice President of Internet Systems Consortium (ISC) (the responsible person of the joint lab on the U.S. side), Shane Kerr, Bind10 leader of the next-generation domain name server project, and Mounira Ruma, Asia-Pacific customer service supervisor, attended the mid-year work conference of CILAB in Beijing, summed up the work of CILAB in the first half year and formulated work plans for the future.

During the conference, the both sides made discussions and decided to further carry forward construction of F root Chinese mirror and the matters on construction of .CN/.中国 service nodes in North America through cooperation, and decided to conduct training on domain name and IP technologies in China; the both sides communicated fully with each other on the matters on cooperation in global projects including Bind9, Bind10 and DHCP, etc. According to the conference, CNNIC will dispatch more Chinese technical engineers to take part in these projects. In terms of technological research, the both sides planned to make further cooperation in the field of Internet technological standard. In addition, ISC demonstrated its latest RSF (Resiliency and Security Forum) platform.

● DNSLAB

On December 30, 2011, DNSLAB was officially established. Now, it has built and improved the work mechanism for DNSLAB, drafted and applied several rules and regulations including Management Methods for DNSLAB Open Projects, Guidance on Solicitation for Projects and Constitution of the Committee, designed, built and launched its

official website (dnslab.cn). DNSLAB reviewed and released 19 open projects and facilitated the cooperation with nearly 20 units including scientific research institutions, colleges & universities and well-known companies of the industry. In 2012, it donated RMB 3.46 million to the society. As of the end of 2012, 21 papers had been submitted or published for the first phase of the project; and it is estimated that approximately 70 items of IPR including papers and standards, etc., approximately 10 software prototype systems and over 10 patents or software copyrights will be produced in the 2 rounds of project for the year.

In the future, DNSLAB will continue to fulfill its mission, further integrate the advantageous resources of CNNIC and all walks of the society, and deepen the win-win cooperation with the society with the tenet of "openness, circulation, alliance and competitiveness" based on the strategic positioning of public interests.

4.Positions in International and Domestic Organizations

Organization name	Position	Type	Name
ISOC	Member, Advisory Committee	International	Shen Shuo
ICANN	Expert, HSTLD Work Group	International	Shen Shuo
ICANN	Expert, DSSA Work Group	International	Shen Shuo
ICANN	Expert, Tech WHOIS Work Group	International	Shen Shuo
ICANN	Member, ROOTLGR Work Group	International	Zhou Linlin
OASIS	Member, TOSCA	International	Shen Shuo
OASIS	Member, OASIS ID-Cloud	International	Shen Shuo
Advances in Internet of Things	Review member	International	Kong Ning
IETF	Secretary, EAI WG	International	Yao Jiankang
IETF	Member of APPsDir	International	Yao Jiankang
APNIC	Member, Executive Committee	International	Zhao Wei
APNIC	Co-chair, NIR-SIG	International	Shen Zhi
APTLD	Member, APTLD Council	International	Chen Ting
APIRA	Chair, APIRA Council	International	Liu Bing
Ministry of Industry and Information Technology	Member, Communication Science & Technology Commission	Domestic	Huang Xiangyang
Ministry of Industry and Information Technology	Member, the expert group for Communication Standard & Planning during the "12th Five-Year Planning" Period	Domestic	Shen Shuo
Healthy IOT Standard Work Group	Member, Experts Committee	Domestic	Huang Xiangyang
CCSA	Director	Domestic	Mao Wei
CCSA	Deputy Head, TC10 WG1	Domestic	Shen Shuo
CCSA	Deputy Head, TC1 WG4	Domestic	Kong Ning
China Computer Federation	Member, CCF TFBD	Domestic	Shen Shuo
Anti-Phishing Alliance of China	Director, Experts Steering Committee	Domestic	Mao Wei
Anti-Phishing Alliance of China	Secretary general	Domestic	Qi Lin
ISO/IEC	Consultant, JTC1 SC6 Technical Administration WG1	Domestic	Kong Ning
WGSN PG5	WGSN Technical Editor	Domestic	Wang Yan

♥ Social Responsibility

1.Social Responsibility Building

CNNIC issued its first social responsibility report (SRR) in 2011 which was well received by the general public. A year later CNNIC wrote and published its Social Responsibility Report 2012. While preparing the report CNNIC reviewed and refined its social responsibility system (SRS). According to the responsibilities of different parties involved, it subdivided the concept of social responsibility (CSR) into 10 fine items from the perspectives of public social responsibility and specific social responsibility. In this way a clearly-structured CSR system was formed and a complete picture of CNNIC's SR framework was outlined.

In order that the report could comprehensively, truly and objectively reflect the social responsibilities performed by CNNIC in 2012, the public relationship department solicited expert opinions from CNNIC Work Committee and invited experts from the Corporate Social Responsibility Center of CASS to give third-party comments.

In 2012 CNNIC communicated with interested parties through various channels to hear their voices on social responsibility and disseminate the concept of social responsibility. At the annual conference of registrars held at the beginning of 2012, CNNIC gave the attendees a detailed report on its SR-related work and solicited their appeals by means of questionnaires. The results of SR investigation facing registrars provided a valuable reference for all the departments of CNNIC to improve their work. In addition, CNNIC also interacted with the general public and its employees on the issue of CSR in the form of online questionnaires, open-house days, SR seminars, etc.

Visitors are introduced to CNNIC's CSR on an
open-house day

The scene of a CSR seminar

2.Social Responsibility Practice

In the year 2012 CNNIC continued to adhere to its positioning as a state commonweal organization and practiced in its daily business the CSR of "Being dedicated to the responsibility to the country, benefits to the society, and harmony among people". At the same time it actively promoted and participated in the activities for public interests, and made due contributions to the Internet community, the general public and the country.

Since CNNIC launched the "Internet Lecture Series" in 2011, a number of free lectures have been given to

college students and Internet-related professionals. Further, in 2012 the lecture series reached and benefited retired citizens in urban communities, left-behind children in rural areas, and other disadvantaged groups by teaching them the basic knowledge of the Internet.

Over the years CNNIC has kept funding disadvantaged groups by various means. In addition to mobilizing its own employees to make donations to students in poverty-stricken areas, it has also encouraged its partners to fulfill their social responsibilities. In 2012 CNNIC succeeded in applying to ISOC for a public charity project and got funded for it. This is the first time that CNNIC has been funded for such a kind of international public charity project, marking another firm step forward of CNNIC in performing and in encouraging its partners to perform social responsibilities.

🔄 General Management

1.Talent Team

• Caring for employee health

CNNIC attaches great importance to the health and personal development of its employees, 100% of whom are covered by regular physical examinations and career development programs. A full set of mental stress management practices has been established to integrate stress management into development training programs. Through "self-testing of stress", employees analyze the status and source of the stress that they and their teams suffer from, and discuss with each other in an atmosphere of mutual trust and openness to relieve the stress. In the whole year of 2012, nearly 100 employees participated in such self-testings and discussions.

• Advocating work-family balance

To further advocate the concept of work-family balance in 2012, CNNIC continued to encourage all employees to care about their health and work happily and actively. Through implementation of the "Work-family Balance Program", the "Employee Care Program" and a series of other considerate special services, a healthy work atmosphere of mutual-understanding has been created. Through career training and EAP service, CNNIC supported employees' personal development and enhanced their sense of job security. All these have been welcomed by employees and their families.   Furthermore, the "Open-house Day" activity was organized to let employees' family members know more and better about the work at CNNIC.

• Employee participation and continuous improvement

In 2012 CNNIC combined employee participation with continuous overall improvement. Employee satisfaction survey was carried out throughout CNNIC to listen to employees' comments and suggestions on 14 issues, namely, the present job, salary & welfare, personal development training, work conditions, teamwork, immediate supervisor, operational efficiency, leadership, communication, corporate values, performance management, corporate image, customer orientation to market competitiveness. For areas where improvement was needed, nearly 100 suggestions were solicited from employees.

• Talent team building

In the year, preliminary explorations were made in setting up a talent development model with CNNIC characteristics. A model framework of "identifying talents — developing talents — driving talents to higher levels" has taken form, laying a sound HR foundation for the sustainable development of CNNIC.

More systematized and specialized talent training

CNNIC continued to improve its pyramid-style talent training mechanism. Based on many years of accumulation, a grassroots staff training platform was established and a complete multi-tier talent nurturing system covering all employees took form in 2012. Now a project-supported learning pattern has taken shape which is featured by a combination of high-level, medium-level and basic-level online learning, off-line learning, organized learning and

self-learning.

In 2012, CNNIC continued to professionalize talent training by introducing third-party assessment, online learning platform, and qualification of HR professionals, which has produced good preliminary results.
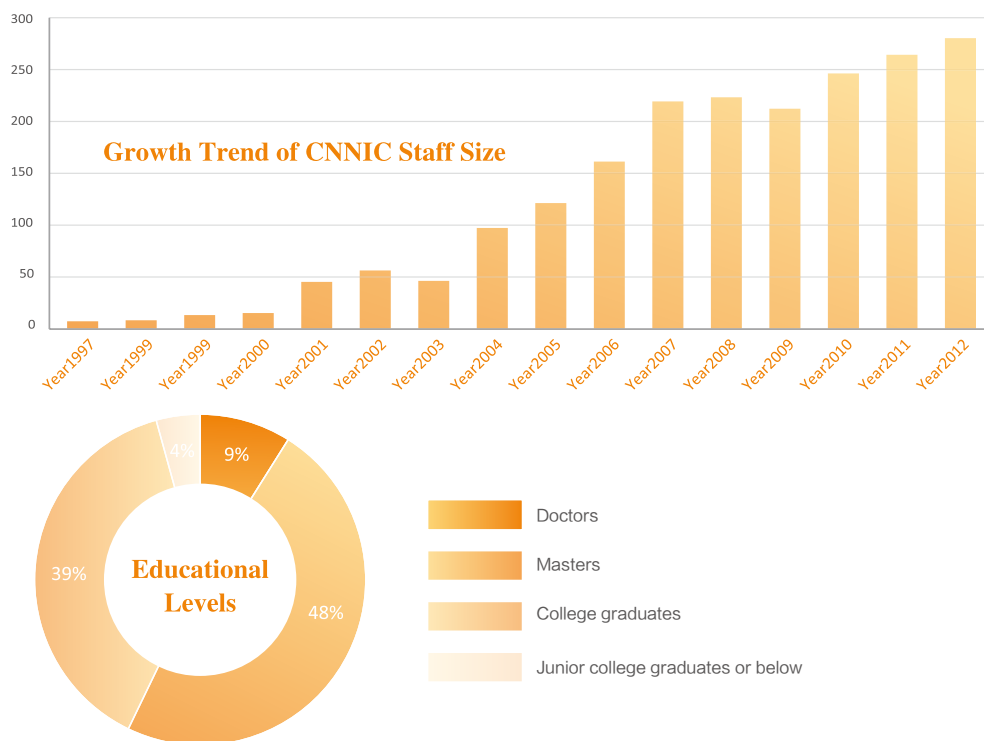
Talent-training projects being launched frequently

Based on the "Grassroots Management Takeoff Plan" and other current training programs, CNNIC launched a number of new programs/plans in 2012 in order to thoroughly implement its talent strategy. These widely acclaimed programs/plans include:

— The Pilot Program, which is intended to proactively nurture high-level managerial personnel;

— Employee Self-selected Learning Program, which is designed to support key personnel in directional learning;

— Core Staff Career Development Program, which focuses on core staff members' professional development;

— The "Go-out Plan", which aims to send abroad special talents in key areas for international exchange and cultivation;

— The "Micro Classroom" Learning Program, which facilitates general employees' learning and interdepartmental communication.

Overall situation

As of the end of 2012, CNNIC had a total of 280 staff members at an average age of 32. Of them, 57% had a master's degree, 7.9% had an experience of studying overseas, and 37 held a senior technical title. There were one master tutor and one doctorial supervisor. So this is a highly educated and highly qualified young talent team.

Growth Trend of CNNIC Staff Size

Educational Levels

- Doctors
- Masters
- College graduates
- Junior college graduates or below

● Intensive and meticulous operation support

Workflow management moving into a new stage

CNNIC currently has 110 workflows covering business, R&D, operation & maintenance, customer service, internal operation management, etc., which provide strong support for standardized and effective operation of the overall business. Based on 8 years of experience in workflow management, CNNIC, from the perspective of integrating systemization with informatization, introduced a special workflow management system in 2012 to build a systematic and visual workflow system knowledge base and effectively support continuous optimization of workflow management.   The first phase of work was completed in 2012, including workflow rationalization and system construction, thus laying a good foundation for overall construction.

Legal arbitration efficiency improved

To fully protect the interests of users, CNNIC revised the CNNIC Rules for Settling Domain-name-related Disputes in 2012 and formulated that a domain name in dispute should not be transferred to another registrar until the dispute resolution is implemented. It also revised the CNNIC Procedures for Settling Domain-name-related Disputes, and stipulated that files should be sent and received mainly through electronic means and that dispute resolution service providers shall not deliver paper documents unless otherwise required by the parties involved. All these improved the efficiency of arbitration.

2.Brand Culture

In 2012 CNNIC further implemented its brand strategy of "building a world-class professional, responsible and service-orientated network information center" set forth in its 12th Five-year Plan and systematically improved its brand framework. Interviews and learning activities were held in every department to dig and quantitatively analyze brand awareness and brand value. The brand targets of all business sections were publicized both internally and externally. According to the features and demands of different user groups and along with the rollout of innovative services, a series of visual images of products and services jumped out. In the meantime, according to the requirement of systemized brand building, CNNIC publicized consistent and standardized principles, gradually unified the visual image system, constantly optimized brand points and generated brand materials and brand tools to maintain a standardized brand image.

Brand Image Designs

CNNIC Ⅵ—Office Supplies Application Specification

The New Chinese and English Websites of CNNIC

3.Work of the General Party Branch

Under the leadership of the higher-level party committee, the General Party Branch of CNNIC thought deeply about its mission, actively explored new ways of working and put forward five requirements on party work, i.e. "organization development should be guaranteed; business should be promoted; decisions should be made through brain storming; a platform should be established for public welfare activities; and ideological education should be strengthened". Based on these requirements, the General Party Branch organized a series of activities that were instructive in content and popular in form. It gave full play to the exemplary role of the party members and made them the backbone of CNNIC.

- Organization development guaranteed

  In terms of party member recruitment, the General Party Branch strictly implemented the criteria for party member recruitment. Those with high ideological awareness, excellent professional quality and good reputation among the staff were selected as candidates for recruitment. In the year, 5 comrades were admitted to the party, 4 others became full members, and another 8 main administrators or business backbones became active applicants for party membership.

  With respect to organizational construction, the General Party Branch of CNNIC smoothly completed the organizational adjustment of 4 party branches in light of changes in the administrative organizational structure of CNNIC. Meanwhile, according to the needs of organization work, by-election was carried out for 2 branch members and re-election was conducted for 1 branch secretary, thus improving the integrity and ability of the party branches.

- Business promoted

  By promoting CNNIC business through party work, the General Party Branch has made party members the core strength in combating and overcoming various challenges and difficulties. In 2012 the party branches of CNNIC successively organized a "Business Process Reengineering" party member commando and a "New gTLD" party member commando, which made key contributions to the two annual core projects in the most difficult stages.

- Decisions made through brain storming

  In the year 2012 the General Party Branch continued to implement the "Golden Idea Project", which has become an effective channel for CNNIC party members and other employees to participate in management and to promote CNNIC development. In the year a vast majority of party members and other employees, by keenly observing and seriously thinking about all the aspects of the work of CNNIC, put forward a lot of "golden idea" proposals which later were carefully reviewed and considered by the management. The proposals adopted were soon put into practice; for those that were not adopted for the time being, a reason was given in a timely manner. A total of 84 proposals were put forward in 2012, of which 2 were rated as "golden ideas" and 6 as "silver ideas".

- A Platform Built for Public Welfare Activities

  CNNIC Volunteer Group was formed in 2012 to better fulfill CNNIC's social responsibilities.

  CNNIC volunteers continued to make and call on other employees to make donations to the Daxing Good Faith School both in kind and in cash. They spent the International Children's Day with the kids on June 1.

  Also in the year CNNIC General Party Branch, through " China Welfare Fund — Clear Spring Educational Welfare Fund", donated winter clothes and more than RMB 16,000 in cash to middle school students in poverty-stricken areas, in addition to directionally aiding 4 excellent high school students.

The volunteers also took active part in CNNIC "Internet Lecture Series" activities. They went to residential communities and schools in mountainous regions to teach people Internet knowledge and modern information technology.

Students aided by Clear Spring Educational Welfare Fund came to Beijing for a tour

• Ideological Education Strengthened

CNNIC General Party Branch pays high attention to the ideological education and progress of the party members. On the one hand, party members were organized to watch a series of high-quality video materials such as "The People's Good Children" and listen to the report of General Yinzhuo. On the other hand, they were organized to join in special reading clubs and singing contests. All these activities were instructive in content to touch the participants' hearts and innovative in form to attract a vast majority of party members.

📖 **Appendix**

1.Basic Information of CNNIC

China Internet Network Information Center (abbreviated as CNNIC) is an administration and service organization set up on June 3, 1997 upon the approval of the competent authority and undertakes the responsibilities as the national Internet network information center.

In light of the policies of "providing efficient and application-oriented services through secure and stable Internet infrastructure for public interests", CNNIC, as an important constructor, operator and administrator of infrastructure in Chinese information society, is responsible for operation, administration and services of fundamental Internet resources, undertakes R&D and security work of fundamental Internet resources, conducts research on Internet development and provides consultancy, and promotes the cooperation and technological exchange of global Internet in an effort to become the "professional, responsible and serviece" world-class network information center.

Main responsibilities of CNNIC:

▸ Operation, Administration and Service organization of national network fundamental resources

CNNIC is a registry of domain names and root zone operator. It operates and administers country code top level domain of .CN and Chinese domain name system, and provides 24-hour services of domain name registration and resolution as well as WHOIS lookup for worldwide users with its professional technologies.

CNNIC is a member of Asia-Pacific Network Information Centre (APNIC) as a National Internet Registry (NIR). As the convener of IP Address Allocation Alliance, CNNIC is responsible for providing allocation and administration services to China's Internet service providers (ISPs) and Internet users and promoting the transition to Internet of next-generation based on IPv6 in China.

▸ Research, Development and Security center of national network fundamental resources

CNNIC constructs a world-leading, efficient and safe & stable service platform for fundamental network resources. It provides multi-level and multi-mode not-for-profit services for fundamental network resources, and seeks to make a breakthrough in the core competence of fundamental network resources and self-developed devices and softwares so as to improve the reliability, security and stability of China's system of fundamental network resources.

▸ Research and consulting services driving force for Internet development

CNNIC is responsible for conducting surveys about the Internet including survey on the development status of China's Internet, and it gives a description of the macroscopic picture of the development status of China's Internet and records its development faithfully. CNNIC will continue to beef up its support for the research of government policies on one hand and provide not-for-profit research and consulting services for Internet development for enterprises, users and research institutes on the other hand.

▸ Platform for Internet open cooperation and technical exchange

CNNIC tracks the latest development of Internet policies and technologies and has business coordination and cooperation with relevant international organizations and the Internet network information centers in other countries and regions. CNNIC hosts important international conferences and activities concerning the Internet, and creates an open research environment and platform for international exchange and sharing. It promotes the application of scientific research achievements and development of China's Internet.

## 2.Macro Situation of Internet Development in China in 2012

- Number of Netizens

As of the end of 2012 Chinese Internet users totaled 564 million, including an increase of 50.9 million new netizens within the year. 42.1% of the entire population had access to the Internet, representing a rise of 3.8% over the previous year, but the rate of increase continued to fall compared with that of 2011.

Number of Netizens and Internet Penetration in China
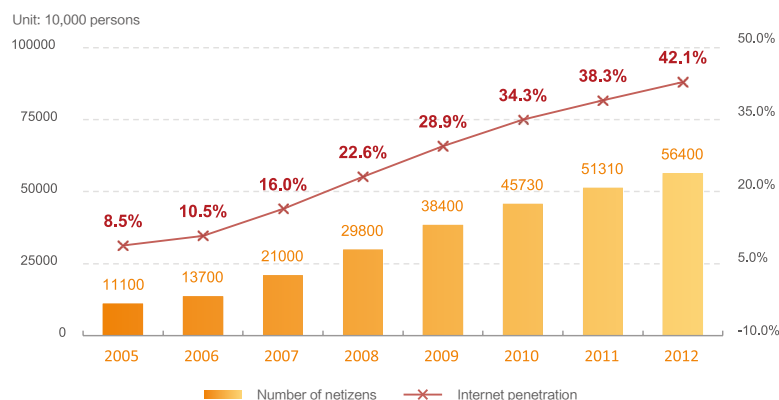
**Number of Chinese Mobile Phone Netizens and Their Proportion in the Total Netizen Population**
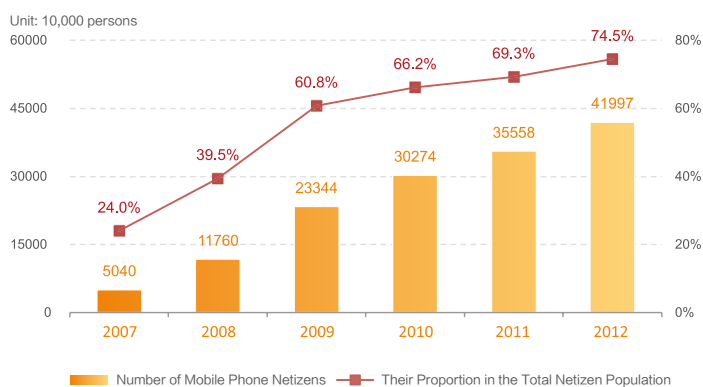

- Basic Internet Resources

	December 2011	December 2012	Annual Increase	Annual Rate of Increase
IPv4	330,439,936	330,534,912	94,976	0.0%
IPv6（block/32）	9,398	12,535	3,137	33.4%
Domain name	7,748,459	13,412,079	5,663,620	73.1%
In which, ".CN" domain name	3,528,511	7,507,759	3,979,248	112.8%
".中国" domain names	—	283,484	—	—
Website	2,295,562	2,680,702	385,140	16.8%
In which, websites under ".CN"	951,609	1,036,864	85,255	9.0%
websites under ".中国"	—	4,095	—	—
International exist bandwidth (Mbps)	1,389,529	1,899,792	510,263	36.7%

Comparison of Basic Internet Resources in China 2011/2012

Number of IPv6 addresses in China

Block /32
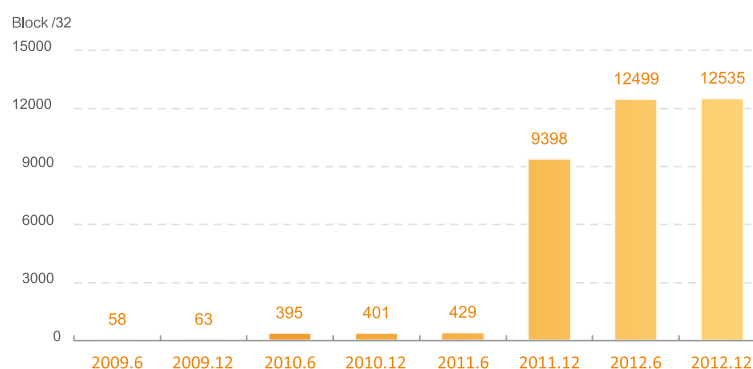
Number of IPv4 addresses in China and rate of increase thereof

Unit: 10,000

Number of IPv4 addresses — Rate of increase
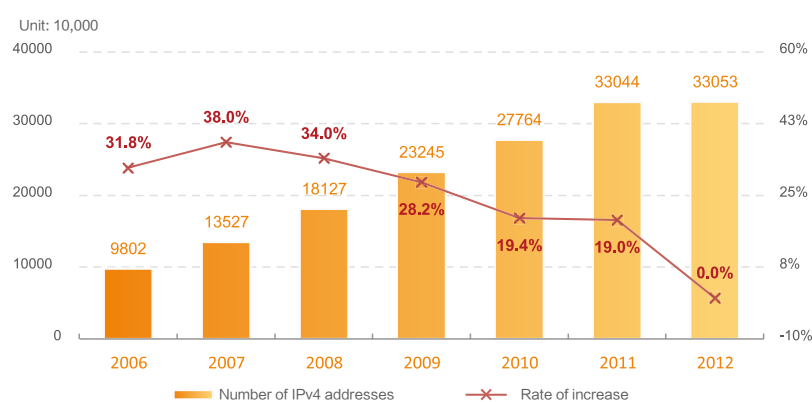
● Situation of Network Application

Situation of Network Application	Year 2012		Year 2011		
Application	Number of users (Unite: 10,000)	Rate of application	Number of users (Unite: 10,000)	Rate of application	Annual Rate of Increase
Instant messaging	46775	82.9%	41510	80.9%	12.7%
Search engine	45110	80.0%	40740	79.4%	10.7%
Online music	43586	77.3%	38585	75.2%	13.0%
Blog/personal space	37299	66.1%	31864	62.1%	17.1%
Internet video	37183	65.9%	32531	63.4%	14.3%
Online game	33569	59.5%	32428	63.2%	3.5%
Microblog	30861	54.7%	24988	48.7%	23.5%
Social networking website	27505	48.8%	24424	47.6%	12.6%
Email	25080	44.5%	24578	47.9%	2.0%
Online shopping	24202	42.9%	19395	37.8%	24.8%
Network literature	23344	41.4%	20268	39.5%	15.2%
E-banking	22148	39.3%	16624	32.4%	33.2%
Online payment	22065	39.1%	16676	32.5%	32.3%
Forum/BBS	14925	26.5%	14469	28.2%	3.2%
Travel booking	11167	19.8%	4207	8.2%	—
Group purchase	8327	14.8%	6465	12.6%	28.8%
Online stock trading	3423	6.1%	4002	7.8%	-14.5%

3.CNNIC Major Events in 2012

On January 16, 2012 CNNIC issued the 29th Report of China Internet Network Development Statistics, revealing that the number of Chinese netizens had topped 500 million by the end of 2011. According to the report, the country's population of netizens of 2012 rose by 4% over 2010, entering a plateau period compared with previous years.

On the same day CNNIC launched the "Internet Data Platform of China", the first free-of-charge product in the country for obtaining Internet statistics.

On March 16, 2012 CNNIC issued the CSR Report 2011, the first of its kind in history, as a new window for enhancing communication, exchange and coordination with various parties to make greater contributions to the healthy development of the Internet.

On 23rd of the same month CNNIC held the 2012 Thematic Meeting of CDNC. At the meeting, in-depth discussions and considerations were given to such issues as facilitating application for new Chinese TLDs, especially barrier-free equivalent operation of simplified and traditional Chinese TLDs.

On March 27, 2012 the CNNIC-initiated "National Domain Security Alliance" was founded under the guidance of the Communications Security Bureau, MIIT. Twenty-eight Domain name registries and registrars from across the country became the first members of the Alliance.

On May 28, 2012, CNNIC released the Announcement on Revising and Implementing "CNNIC Detailed Rules for Domain Registration". Article 14 of the former Detailed Rules that prescribes the subject of registration was amended. A special chapter was added to address the protection of registration information. Contents regarding domain name registration, transfer, renewal fees, etc., were also revised and improved.

On May 28 2012, CNNIC promulgated the Announcement on Adjustment of ".中国" Domain Name Registration and Services, declaring that as of October 29, 2012 "中文.CN" and "中文.中国" domain names ought to be separately registered.

On June 6 of the same year CNNIC successfully convened the "2012 Summit of China IP Address Allocation Alliance" in Zhuhai, Guangdong Province. The CNNIC-initiated "IPv6 Open Exchange and Application Verification Center" was formally established.

On June 19 the International Universal Multilingual Mailbox Email Presentation Conference was held in Beijing, at which a CAS scientist sent the world's first Email using the multilingual mailbox.

At the 44th ICANN International Conference held on June 25, CNNIC succeeded in applying to host the 46th ICANN International Conference. This was the second time that ICANN decided to hold its conference in the Chinese mainland following the 14th Conference held in Shanghai in October 2002.

On June 29 CNNIC formally rolled out SDNS which was designed to provide netizens with secure, intelligent and fast Internet access resolution service.

On July 19 CNNIC issued the 30th Report of China Internet Network Development Statistics, revealing that by the end of June 2012 the population of Chinese netizens had reached 538 million in which 388 million were mobile-phone netizens and that mobile phones had become the first Internet terminal, surpassing desktop computers.

On July 24, the "2012 Guangzhou Seminar on Basic Internet Resources" was successfully co-organized by CNNIC and Guangdong Internet Society in the city of Guangzhou, Guangdong Province. Representatives present at the meeting exchanged views on and discussed the latest development in Internet resources, especially the shortage of IP address resources.

At the 34th APNIC Open Policy Meeting on August 31, CNNIC succeeded in applying to host the 36th APNIC Meeting in Xi'an, China in 2013. This will be the second time for such meetings to be held in China's mainland following the 28th Meeting in Beijing in 2009.

On October 2012 ICANN signed a cooperation agreement with CNNIC, entrusting the latter to exclusively undertake the next-generation WHOIS system open-source project. The WHOIS system open-source software to be developed through this project will be very important basic software for the global domain name industry. Undertaking this project marks another big stride forward of CNNIC in developing domain name technology.

On October 30, the "2012 Seminar on Basic Internet Resources" was successfully held by CNNIC in conjunction with Zhejiang Internet Society in the city of Hangzhou, Zhejiang Province. Representatives present at the meeting exchanged views on and discussed the IPv6 development trend, the allocation direction of IP addresses, the policies and procedures for allocation of basic Internet resources, etc.

December 2-8 CNNIC held an Internet management training session in Kunming for 15 representatives from LANIC and the Ministry of Communication of Laos, in addition to 4 representatives invited from Jordan, Mongolia and Vietnam. During the session, exchanges of views were carried out on issues of common concern, such as Internet technology, security and management.

On December 5, the APAC Annual Meeting 2012 was convened in Beijing. At the meeting CNNIC released the APAC Work Report 2012.

On December 17, the 6th CNNIC Working Committee Conference of was held at the Software Park of CAS. Important persons present at the conference included Mr. Hu Qiheng, CAS Academician and Honorary Chairman of CNNIC Working Committee, Mr. Shi Erwei, Vice President of CAS, and Mr. Shang Bing, Vice Minister of MIIT. The 6th CNNIC Working Committee membership list was adopted and suggestions and expectations on the next step of work of CNNIC were put forward at the conference.

4. Abbreviation

ICANN	Internet Corporation for Assigned Names and Numbers. ICANN was established in October 1998, a non-profit legal person boasting a team of experts from commercial, non-commercial, technical and academic sectors in different regions, headquartered in Marina Del Rey, Los Angeles. ICANN is currently responsible for many significant fundamental network tasks worldwide, e.g. allocation of IP Address Space, configuration of Protocol Parameters and management of Domain Name System and Root Server System.
ITU	International Telecommunication Union. It's an UN agency engaged in information and communication technology related affairs, established on May 17, 1865, headquartered in Geneva, Switzerland, composed of 191 country members and over 700 section members and quasi-section members.
IETF	The Internet Engineering Task Force, established at the end of 1985. It's mainly responsible for R&D and formulation of Internet related technical specifications. IETF is currently the most authoritative large-scale technical research organization in the world Internet sector.
APNIC	Asia Pacific Network Information Center. It's situated in Brisbane, Australia, one of the 5 regional Internet registers (RIR) in the world, responsible for allocation of IP (v4 and v6) addresses and AS numbers to the 64 economies in the Asia-Pacific Region, and a non-profit membership organization providing reverse DNS authorization service. Its members include ISPs, national (or regional) NIRs and other Internet organizations. Besides, APNIC also conducts technical training for each IP address allocation organization in the Asia-Pacific Region.
CDNC	Chinese Domain Name Consortium. It was jointly established by the Internet network centers (CNNIC, TWNIC, HKNIC and MONIC) of Mainland China, Taiwan, Hong Kong and Macau in May 19, 2000, responsible for collaboration and regulation of Chinese domain names.
CENTR	Council of European National Top Level Domain Registries. It was founded in Mar 1998, a non-profit organization composed of European ccTLD administration institutions.
APTLD	Asia Pacific Top Level Domain Association. APTLD was founded in July 1998, mainly composed of top-level domain name management institutions in the countries and regions of Asia-Pacific Region. It plays a role in coordinating the top-level domain name registration institutions in each country and region of the Asia-Pacific Region, to enhance the influence of the Asia-Pacific Region in international Internet industry, seek more interests for the Internet development in the Asia-Pacific Region, and facilitated the healthy development of Internet in this region.
ISC	Internet Systems Consortium, ISC for short.
CIETAC	China Internet Economic and Trade Arbitration Commission, an institution for settling disputes on CN domain names.
HKIAC	Hong Kong International Arbitration Center, an institution for settling disputes on CN domain names.
CCSA	China Communications Standards Association, established on Dec 18, 2002. The Association is a non-profit organization jointly founded by domestic enterprises and institutions on a free will, approved by the competent authorities, registered at the national community administration, and engaged in standardization of communications technology.
IDN	Internationalized Domain Name
CNGI	China's Next Generation Internet
SCI	Science Citation Index
EI	The Engineering Index
SLA	Service Level Agreement
NSS	Naming Services Symposium
ccNSO	Country Code Names Supporting Organization
NIR	National Internet Registry