CNNIC Brief and Internationalized Email

Jiankang Yao
CNNIC Brief
## CNNIC Brief

### Operation, Management
- ccTLD Registry (CN, 中国),
- APNIC NIR

### Research, Development
- DNS software & Hardware
- Technical Standards (IETF, CCSA standards)
- Security: DNS monitoring and analysis, Anti-abuse of domain names

### Research and Consulting Services of Internet development
- China Internet development report
- Consultation Services

### Platform for International communication and cooperation
- ISOC, ICANN
- IETF, APAC, CDNC
- Joint Project And Joint Labs
The amount of .CN and .中国 at the end of Sep of 2012 is 5,970,234, .中国 320,000
Reliable Registration service with enhanced audit

- Customers Registry Online

- Customers Submit the data via web pages, fax, email or by post.

- Registrars Audit (user-info and domain names)

- CNNIC Re-audit and confirm

- Start this process at the end of 2009
- The whole audit process is accomplished in 2 days
- 67 domestic registrars, 22 overseas Registrars, in USA, Europe, Asia, Australia, as well as local business partners of CNNIC
- CNNIC developed ROSS system as the online service interface
Operation-Infrastructure of Service Platform

Three Datacenters

- Zhongguancun IDC, Beijing (Primary)
- Yizhuang IDC, Beijing (Local Backup)
- Chengdu IDC, Sichuan (Remote Backup)

30 Resolution Nodes

- Geographical Balance
  - Mainland China 22, Oversea 8
- ISP Balance
  - Peering with as many as ISPs
- Broadcasting Strategy
  - Global 12, Local 18
- Still in Expanding….
Operation - Global Geographical Distribution

- San Francisco
- Washington
- Frankfort
- Moscow
- Shenyang
- Beijing (10)
- Xian
- Chengdu
- Guangzhou (3)
- Shanghai (3)
- Hong Kong
- Singapore
- Tokyo
- Seoul
- Jinan
- Nanjing (2)

Established
Signed
### SLA Requirement vs Actual Performance

<table>
<thead>
<tr>
<th></th>
<th>SLA Requirement</th>
<th>Actual Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Check Domain</strong></td>
<td>1000 milliseconds for 95%</td>
<td>120.98 milliseconds</td>
</tr>
<tr>
<td><strong>Add Domain</strong></td>
<td>1500 milliseconds for 95%</td>
<td>194.60 milliseconds</td>
</tr>
<tr>
<td><strong>Update Domain</strong></td>
<td>1500 milliseconds for 95%</td>
<td>128.26 milliseconds</td>
</tr>
<tr>
<td><strong>Delete Domain</strong></td>
<td>1500 milliseconds for 95%</td>
<td>182.90 milliseconds</td>
</tr>
<tr>
<td><strong>DNS Update Frequency</strong></td>
<td>4 hours for 95%</td>
<td>5 minutes</td>
</tr>
<tr>
<td><strong>WHOIS Update Frequency</strong></td>
<td>15 minutes for 95%</td>
<td>5 minutes</td>
</tr>
</tbody>
</table>

### Availability

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SRS</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>99.9%</td>
</tr>
<tr>
<td></td>
<td>Whois</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>99.9975%</td>
<td>99.999%</td>
<td>99.9%</td>
</tr>
<tr>
<td></td>
<td>DNS</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

- DNS peak volume achieves 6 billion QPS, average 1.6 billion QPS.
- Supporting both IPv4 and IPv6.
- SLA for registration, WHOIS and DNS keeps 100% respectively for consecutively three years.
DNSSEC simulation system was built for one and half years. There were 5,600,000 CN domains filled, 6,900,000 domain records updated, 170,000 DS records submitted in that platform. ZSK rotated 72 times in this platform while KSK 36
So as to a full functional DNS System

<table>
<thead>
<tr>
<th>Root Mirrors</th>
</tr>
</thead>
<tbody>
<tr>
<td>• I-root, F-root, L-root</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other TLDs</th>
</tr>
</thead>
<tbody>
<tr>
<td>• New Gtld application: .公司, 网络,</td>
</tr>
<tr>
<td>• .DE Swap with DENIC</td>
</tr>
<tr>
<td>• .KR Swap with KRNIC</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SLDs under .CN</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Public Authoritative DNS Service</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Recursive Name Servers</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Public Recursive DNS Service</td>
</tr>
<tr>
<td>• 1.2.4.8 210.2.4.8</td>
</tr>
</tbody>
</table>

Besides .CN…

Operation--Entire DNS System
Anti-phishing alliance of China (Founded by CNNIC) set up the quick-settlement mechanism to address the problem of phishing websites that jeopardize the public information security. As of Sep, 2012, the phishing websites disposed totaled 55,867.

As of Sep, 2012, the self-developed phishing and monitoring system detected 1,377 Chinese phishing websites.

"National domain name security alliance", Founded on March 27, 2012
Initiated by the CNNIC, 28 members
CNNIC acts as the Secretariat of the League.
Active Phishing (illegal) Attacks Detection

- Base on DNS logs combined with phishing URLs to detect phishing attacks actively
  - DNS data mining technology
  - Phishing Reports statistics and analysis
  - Phishing URL automatic generation technology

Phishing Websites Judgment Technology

- Registration Information Analysis
- The Third Party Information Analysis
- Webpage Content Analysis
- Other characteristics Analysis
National plan 2011-2015
- Aiming for a High bandwidth, integrated, secure, ubiquitous next generation network
- Deploy the next generation Internet based on IPv6 (CNGI, China Next Generation Internet)

CNNIC is serving as a steering role for IP address allocation.

Allocation by CNNIC
- IPv4 increased 150B, IPv6 added 35 blocks of /32 in 2012.
- Total Number: v4 is 74,569,216; v6 is 183 blocks of /32
• report of Chinese internet development. Until June 2012, 538,000,000 Internet users in China, 388,000,000 with Mobile Terminal among of them;
• Registered domain name 10,073,000(all tlds), active websites 2,600,000, nearly 1,000,000 .CN Websites
IPv6 Application Pilot Center

- IPv6 Pilot Network Services
  - Tunnel
  - Leased Line

- IPv6 Application Pilot Services
  - Testing & Staging
  - Application migration guide
  - Development & testing tools
  - IPv6 applications
    - Audio/Video
    - IPv6 enabled Webcam
    - IPv6 enabled Websites

- Promotion Activities
  - Global IPv6 Summit
  - Joint ‘World IPv6 Launch’
  - Public Press
Based on EPP registry system

**Clients**
- CyberSpace
- CRM
- Domain Name Resolution

**Registrar/registrant**
- Registrar lib and system (whois, epp client)

**Registry**
- WHOIS Service
- Registration & Audit
- Resolution
- Registrar Support Service

**Develop New system for NewGtld**
- Apply new technology (i.e., Face recognition and OCR) to improve user experience

CNNIC selected to implement “Open Source Project Of Restful Whois Server” from ICANN
Achievements - SDNS Series

- High performance
- Friendly web
- High capacity
- Big resistance to pressure

SmartDnssec

- Data integrity and verification
- Key rolling
- Disaster Recovery and Backup

- Black/White list
- Redirection
- Access control
- DNSSEC & DNS64

- Participate in BIND Development

qps (单位：万)
Hardware technology for DNS: FPGA-based, Udp flood, tcp syn flood,

- latency: <5us
- capacity: 1300K QPS/1G
- B/W list size: 1000K
- Domain names in hot Cache: 4096
Public Recursive DNS Service Development

Fast, Smart and High-Speed

Public Recursive DNS Service Core Tech

- Anti-DDOS
- High Availability
- Anti-phishing
- White/Black List
- Porn Content Filtering
- Website Monitoring

1.2.4.8
210.2.4.8
Public Authoritative DNS Service Development

High Security

- Anti-DDOS

High Availability

- Several DNS Node located in the world’s different locations

High Performance

- DNS Dynamic Update
- DNS Operation API
DNS Monitoring Platform

DNS Analysis & Monitor Service Platform
International Standardization

IETF

DANE
DNSEXT
WEIRDS
DNSOP
EAI
IRI
APPSA
PRECIS
BEHAVE
DHC
LWIP
CORE
6LOWPAN
HOMENET
ROLL
HIPRG
IOT BAR BOF

IETF

DNS Basic

Internationalized Domain Name Applications

IPv6 Technology

IoT

TC1
TC8
TC10

Data Formatting Group

Architecture Group

Identity Group

China Communications Standards Association (CCSA)

RFID Standardization Work Group

China Standardization Working Group on Sensor Networks (WGSN)

IoT Standardization Working Group

Standardization in China

Internationalized Domain Name Applications

IPv6 Technology

IoT

DNS Basic

Internationalized Domain Name Applications

IPv6 Technology

IoT

DNS Basic

Internationalized Domain Name Applications

IPv6 Technology

IoT

DNS Basic

Internationalized Domain Name Applications

IPv6 Technology

IoT
Chinese Email Address
(Internationalized Email Address)
Technology Progress
What is Chinese Email Addresses (CEA)

Email address is an essential element of business card; CEA makes the information exchange smoothly between Chinese without barriers.
In 2005, CNNIC plans to push Email address Internationalization (EAI) WG in IETF

In 2006, EAI WG was built in IETF

In Feb. 2012, core RFCs for EAI were published

IETF RFC6530 RFC6855
IETF RFC6531 RFC6856
IETF RFC6532 RFC6857
IETF RFC6533 RFC6858
RFC6530 Overview and Framework for Internationalized Email

RFC6531 SMTP extension for internationalized email

RFC6532 Internationalized Email Headers

RFC6533 International Delivery and Disposition Notifications
IETF EAI core document plan

Framework

- SMTP Extension
- Header
- International DSN
- UTF-8 IMAP
- UTF-8 POP

Mailto
Mailinglist
Advice for 2 addresses
Advice for Deployment
Advice for MUA
CNNIC Pushes the civil standard for CEA in China

CEA —— Civil Standard in China

Framework for CEA;

IMAP to support CEA;

SMTP Extension to CEA;

POP to support CEA;

CEA mail header;
ICANN approves the IDN TLD plan
- New IDN TLD will emerge

IDN ccTLDs were deployed
- More IDN are registered in the world
- .中国 domain name registrations increase rapidly

More than 1900 new GTLD applications
- Chinese IDN TLD is the hot topic

New Chinese IDN TLDs eager for CEA
CEA——Reduce the Digital Gap

Convenient to internet surfing for Chinese

Convenient to message exchanging for Chinese

CEA is the symbol of Chinese Internet users

CEA will become one of the Chinese Cultures
Huge Market for CEA

- Chinese Internet User more than 500 million —— 《29th Chinese Internet Development Statistics Report》
- NetEasy and Tencent have more than 400 million email users —— Company Report
- 85% of Small enterprises in China use Internet in office——《2011 report of small enterprises Internet usage》
- 64.5% of Small enterprises in China use email in office——《2011 report of small enterprises Internet usage》
Ready for CEA Commercial Deployment

Email market is full of competition; CEA is a new feature for success.

Google, Oracle, Qualcomm, sendmail, opera participant in EAI work

Many persons from Microsoft are in the EAI WG list

Neteasy, Sina and Sohu claimed that if EAI RFC is ready, they will soon implement it.

Email Industry is ready for CEA

Trigger new application
New business opportunity
Push GDP Growth
CEA Deployment Principles

CNNIC position
- CNNIC, the state network information center of China, was founded to help to manage and run the basic internet resources, pushing the development of internet
- CNNIC, the writer of CEA, pushes Chinese application for Chinese

Supporting Service
- Help to analysis the CEA standard
- Participate in the technical solution for CEA
- Provide the consultancy for CEA

Cooperation Principles
- Top email service or software or solution providers in China and oversea
- First come first served
- Have a future possible cooperation to push CEA and other business
Cooperation Aims

Choose 2-3 partners to help CEA deployment
2012 June 19 Event

- Coremail has implemented RFC6531 and RFC6532
- CNNIC TWNIC HKIRC SGNIC dotASIA MONIC AFILIAS and VERISIGN join together to have the demo of sending EAI address
全球首次“国际化多语种邮寄电子邮件”

发送人：钱华林 中科院 中国 <钱华林@中科院.中国>

收件人：<钱华林@中科院.中国> <钱华林@中科院.中国> <钱华林@中科院.中国>

主题：全球首次“国际化多语种邮寄电子邮件”

尊敬的先生/女士:

很荣幸从北京向多个国家和地区发出全球首封“多语种邮寄电子邮件”——邮通多语，惠及全球。感谢所有投身此项工作的同仁们！

中国科学院 钱华林

2012.06.19
网行天下邮 翰墨四海扬

国际化多语种邮箱电子邮件发布会

支持国际化多语种邮件标准，推广多语种电子邮件应用普及，
共同推动中国互联网产业健康持续发展！
下午好，姚健康@互联网中心，中国

我的邮箱： | 邮箱容量： | 85.02 K / 500 M | 管理

未设置帐号密码保护 | 设置

邮箱功能介绍

日程管理

全新改版，高级版支持会议邀请和日程共享
引领邮件技术 沟通创造价值

2013年
盈世iCoremail第一届渠道大会 暨Coremail XT3.0产品发布会

诚邀您参加
2013盈世Coremail XT3.0产品发布会

4月26日
15:00 - 17:30 主题会议
18:00 - 20:00 晚 宴
北京朝阳区紫玉东路上1号紫玉山庄银树楼

盈世信息科技（北京）有限公司 网易联营公司
www.coremail.cn
中国信息社会重要的基础设施建设者、运行者和管理者

北京市海淀区中关村南四街四号中科院软件园
邮编: 100190
www.cnnic.cn