



i-DNS.net

Corporate Position Paper

October 2001

i-DNS.net International

URL: www.i-DNS.net

E-mail: info@i-DNS.net

1 Introduction

- The purpose of this paper is to:
 - introduce i-DNS.net;
 - articulate i-DNS.net's strategy to normalizing the adoption and use of Internationalized Domain Names (IDN)
 - state i-DNS.net's position to the following industry issues:
 - Evolving technical standards
 - DNS and Keyword-based implementations of IDN
 - Multiple IDN scenario
 - Protection of consumer interests
 - Emergence of 'Alternate Root' services
-

2 i-DNS.net

- i-DNS.net had its origins as a research project at the National University of Singapore, conducted under the auspices of the Asia-Pacific Networking Group (APNG) in 1998.
- In 1999, i-DNS.net pioneered the development of the Internationalized Domain Name System (i-DNS) and successfully test-bedded it over a 6-month period, in collaboration with APNG and the Network Information Centers of China, Japan, Korea, Hong Kong, Taiwan, Malaysia, Thailand and Singapore. The results were presented at 1999's Asia Pacific Regional Internet Conference on Operational Technologies (APRICOT, Singapore) and the Annual Internet Society Conference (INET, San Jose).
- With backing from US-based General Atlantic Partners LLC, i-DNS.net International was incorporated later that same year to bring IDN solutions to commercial reality. The first registry for full multilingual (or native-script) domain names was launched in December 1999.
- Today, i-DNS.net is a leading full-service IDN solutions provider headquartered in Palo Alto, CA with offices in China, Japan, Korea, Dubai and Singapore. The company licenses its IETF-compliant technology globally and is the pioneer behind a full suite of Registry/Registrar solutions encompassing the entire cross-section and life cycle of the domain name and e-mail industry.
- The generic top-level domains (gTLDs) supported by i-DNS are local language versions of .com, .net and .org selected in consultation with local NICs and in-country linguistic experts.
- All names registered and hosted in i-DNS.net's registry database are compatible with, and enjoy full and total delegation under the existing DNS. These names are globally resolvable via the widest range of resolution methods available today, including:
 - iClient™ - a robust Windows-based resolution plug-in
 - iResolve™ - a Browser Help Object for Internet Explorer (from versions 4.0)
 - IDN SDK™ - a Software Development Kit to enable application developers to make their applications IDN-aware and incorporate local language domain name handling and resolution

- iBIND™ - a server-side solution that transparently enables an ISP's user-base with resolution ability
 - XPCOM - a modular plug-in for Netscape Navigator (from versions 6.0)
 - NJStar's Asian Explorer, the award-winning browser for Chinese, Japanese and Korean
 - i-DNS.net's IDN offerings:
 - are compliant with the recommendations and standards promulgated by the IDN Working Group at the Internet Engineering Task Force (IETF)
 - respond to market-driven demands for a native-language complement to the existing DNS
 - facilitate efforts at international marketing, brand recognition and intuitive online navigation
 - preserve the stability of the DNS by providing reliable, predictable and unambiguous routing to websites, whilst ensuring interoperability across all established Internet protocols and commonly used applications.
-

3 i-DNS.net's Vision

i-DNS.net's vision is for all non-English speaking consumers and businesses to enter the Internet economy on their own terms, in their own languages.

By deploying its solutions on a global scale and championing the use of IDN, i-DNS.net seeks to bridge the global digital divide that has resulted from language barriers on the Internet.

This vision is exemplified by the internationalization of the domain name system for web addresses, email addresses, and other Internet resource identifiers across all applications and devices with which people communicate with one another. In order for this vision to be complete, users must be able to

- navigate an entire website including content, domain names, and URLs in their native language
 - administer websites in native language applications, domain names, and URLs.
 - receive and send email using a local language email address and domain name. Such an email would be able to link to native language URLs and refer to native language resources, such as other email addresses.
 - utilize other global or local network resources and resource identifiers in their native language, such as ftp, gopher and server names.
-

4 i-DNS.net's Strategy

i-DNS.net recognizes that in order for the Internet to become a truly global medium for communications and commerce, it must first evolve to provide robust support for non-Roman character identifiers, such as Domain Names.

i-DNS.net's global deployment strategy is to work closely with valued partners located worldwide as a solution provider of local-language Internet technologies.

This includes collaboration with government bodies, local Internet authorities, ISPs (Internet Service Providers) and ICPs (Internet Content Providers), country network information centers (ccNICs) etc, amongst others.

i-DNS.net supports ICANN's coordination efforts to introduce Internationalized Domain Names (IDN) in a manner that maintains the stability and interoperability of the Internet.

i-DNS.net is committed to providing solutions that comply with the technical direction, standards and design requirements recommended by the Internet Engineering Task Force (IETF) and the Internet Architecture Board (IAB).

i-DNS.net is committed to participating in the development of community-based policies at the Multilingual Internet Names Consortium (MINC), the Arabic Internet Names Consortium (AINC) and the recently formed Japanese Domain Names Association (JDNA).

5 Industry Issues

a) Evolving Technical Standards

i-DNS.net agrees that the IETF is the proper authority and forum for the establishment of any strategies and technical standards for IDN. It commits to adhering with directives from IETF, whilst still responding to market demands for professional implementations that are globally resolvable.

i-DNS.net believes that there will never be one final single technical standard for IDN. Like any other market-driven technology, there will always be technical improvements in response to changing market requirements. These technical recommendations have, and will continue to be made by the IETF as a series of evolving technical standards.

In the past, these have included calls for interoperability across established Internet protocols and applications; the use of ASCII-Compatible Encoding (ACE) for IDN conversion and for NAMEPREP to be handled client-side via resolution software.

In compliance, i-DNS is engineered to function across protocols and applications, provide ACE-based solutions (support for DUDE and AMC-ACE-Z recently added) and has since early 2000, enabled the handling of NAMEPREP via a client plug-in known as iClient.

i-DNS.net commits to continue tracking IETF-compliance, incorporating backward and forward-compatibility features and keeping all of its offerings up-to-date with market expectations and applicable technical standards. The progressive nature of its engineering also mean that partners can now focus on the *appliance* of IETF-compliant solutions, rather than worry about the development and maintenance of their own technologies.

i-DNS.net does however, urge the Working Group to encourage continued debate regarding key implementation issues and to openly publish its action plan, items, and schedules to the wider community. This will give transparency to the Working Group's processes, govern expectations/actions of technology providers, and expedite the promulgation of industry guidelines and evolving technical standards.

b) DNS and Keyword-based implementations of IDN

IDN are Domain Names represented by native language characters. Like regular ASCII domain names, IDN reside on the basic DNS infrastructure and every query here returns a definite and unique result.

“Keywords” are *not* domain names. Rather, they exist as an additional layer above the DNS. Therefore whilst domain names only require the use of the Internet’s DNS resolution infrastructure, keyword-based solutions also require a “URL Forwarding” technique to map simple references/names/phrases to domain names or IP addresses.

As a pre-requisite to using “keywords”, each resolvable domain name is registered in a keyword-based directory in addition to the DNS registry. The keyword directory is searched during the “look up” process, and matches in the keyword registry are used to locate a particular URL or a list of matching sites under that particular keyword.

Whilst it may appear that they are similar, consumers need to note that both IDN and Keyword services operate on different levels. Only IDN provide the full user experience as required by market demands for IDN solutions that:

- are IETF-compliant
- retain the native language script after resolution (thereby facilitating brand awareness for native language web address on the URL bar)
- work across all established Internet protocols and commonly used applications (ie, email)
- support hyperlinks

As service offerings however, both IDN and “Keywords” provide useful and complementary dimensions to website accessibility.

c) Multiple IDN Scenario

Since the launch of i-DNS.net’s registry for IDN in 1999, there has been a proliferation of service providers. i-DNS.net urges consumers to make an informed choice on which provider to use, based on consideration of the following factors:

1) *IETF-compliant technology*

i-DNS is IETF-compliant. All names registered through its system are ACE-based, NAMEPREPPED and globally resolvable via a client-side resolution plug-in.

It is a robust and flexible solution designed to complement the core Domain Name System without disruption and retaining the very same hierarchy and delegation behavior.

Based on Unicode, the technology supports all legacy encoding standard, including GBK, BIG5, Shift-JIS, EUC-KR (widely used in China, Taiwan, Japan and Korea respectively), ISO-8859 standard (used in European and Middle East) and Windows CodePages (used in localized Windows 3.1 and 95 system). In addition, it also supports UTF-8 (used in Windows 98/2000/ME, Internet Explorer, Netscape 6) and various others ACE such as RACE, LACE, DUDE, AMC-ACE-Z and UTF-8.

Because Internationalization is carried out at the fundamental DNS level, i-DNS is also able to extend its application beyond website URLs to support e-mail, FTP, Telnet, SNMP and any Internet protocol in general.

2) *Established Track Record*

i-DNS.net is the pioneer of the Internationalized Domain Name System (i-DNS) and operators of the first and longest-running IDN registry since 1999.

Together with its network of registrar partners, the Company has launched its registration services across the globe in more than 30 languages and 29 multilingual Top Level Domains.

As testimonial to its expertise, i-DNS.net has worked with and enabled industry leaders like VeriSign Inc, Register.com, Melbourne IT, dotTV Corporation, eNIC Corporation, GMO, OnlineNIC, New Cyber International, e-LUX Corporation, Netscape, Lycos Asia, NJStar and Slangsoft.

In addition, it is the developer behind the popular iClient resolution plug-in and the IDN SDK for IDN application development.

It continues to share its technical expertise and deployment experience with key industry organizations (IETF, APNG, Asia-Pacific Top-Level Domain (APTLD), Asia-Pacific Internet Association (APIA), Pacific Basin Economic Council (PBEC), World Wide Web Consortium (W3C), Unicode Consortium etc) and leading in-country players.

To minimize the potential of confusion and to safeguard the interests of the local Internet community, i-DNS.net undertakes to formulate mutual understanding amongst providers and work together with a central coordinating body to reduce the degree of overlap and clarify choices confusion to the market.

d) Protection of consumer interests

Speculation is inevitable as more domain name permutations become available. i-DNS.net has, as part of its Registration Policy, several initiatives in place to protect registrants and provide channels for recourse to name holders.

First and foremost, i-DNS.net has a comprehensive accreditation process that all its registrar and registry partners have to pass before being turned 'live' to be able to accept IDN registrations.

On the legal end, i-DNS.net endorses the World Intellectual Property Organization's ("WIPO") Final Report of the WIPO Internet Domain Name Process (dated 30 April 1999) - a copy of which can be found at: http://ecommerce.wipo.int/domains/process/eng/final_report.html

i-DNS.net's dispute policy at <http://www.i-DNS.net/dispute.html> is drafted & modeled along WIPO's recommendations and ICANN's Uniform Dispute Resolution Policy (UDRP).

i-DNS.net believes that the registration of a domain name entitles the registrant to the use of the domain name in accordance with its terms and conditions.

Registration does not confer any legal ownership or intellectual property rights over the domain name. The existence or extent of such rights depend on the intellectual property rights (e.g. trademark rights) the registrant may have over a particular name.

In the event of a domain name dispute, i-DNS.net commits to follow the processes on its dispute policy at <http://www.i-DNS.net/dispute.html> and forward the matter to the relevant body for dispute resolution.

e) Emergence of 'alternate root' services

Recently, the industry has seen the emergence of several companies operating properties beyond ICANN's restricted set of TLDs. In response, ICANN has written about these companies in its Internet Coordination Policy paper titled: A Unique, Authoritative Root for the DNS dated 9th July 2001).

The paper states several policy and technical requirements that differentiate 'safe' alternate roots and experiments from 'unsafe' alternate roots, which operate TLDs not launched through the ICANN consensus processes.

i-DNS.net finds some of these views to be broad generalizations, which do little justice to companies looking to:

- Service a tangible and growing market demand
- Comply with all applicable technical standards and design requirements
- Participate in community-consensus processes
- Operate within community-established policies
- Conduct themselves responsibly in the interests of the public
- Preserve Internet stability through professional best practices

i-DNS.net believes in the market-based approach of providing 'choice'. 'Choice' in terms of a variety of options to choose from and also 'choice' in terms of the provision of premier standards-based solutions to consumers who are increasingly discerning about what they want.

i-DNS.net operates a commercial service that addresses the linguistic limitations of the existing DNS. It seeks neither to usurp nor obviate the need for the present implementation but offers to Internet users, the freedom to utilize an innovative service that makes for intuitive surfing in one's language of choice.

i-DNS.net strongly believes that the provision of choice comes bundled with a critical responsibility on the provider to clearly articulate and differentiate its service offering so as to reduce the potential for market confusion.

Our solutions are built on the following principles:

1) *i-DNS is IETF-compliant*

i-DNS complies with the technical recommendations from IETF's IDN Working Group. All names registered through its system are ACE-based, NAMEPREPPED and globally resolvable via a client-side resolution plug-in.

2) *i-DNS.net supports ICANN's mandate in preserving the stability of the Internet*

i-DNS.net commits to ensuring that all of its offerings co-exist with the present DNS; are interoperable across all established Internet protocols; usable on all commonly used applications and provide unambiguous routing to websites.

3) *i-DNS.net subscribes to community-based approaches to the development of operational policies*

As part of its community-based commitment, i-DNS.net regularly and actively contributes to technical and policy deliberations at the Internet Engineering Task Force (IETF), Internet Corporation for Assigned Names & Numbers (ICANN), Multilingual Internet Names Consortium (MINC), Arabic Internet Names Consortium (AINC), Japanese Domain Names Association (JDNA), Asia Pacific Internet Association (APIA), Unicode Consortium, World Wide Web Consortium (W3C), Pacific Basin Economic Council (PBEC) and has affiliations with the Asia Pacific Internet Association (APIA), Asia Pacific Networking Group (APNG), Asia Pacific Top Level Domain (APTLD) and the Internet Society (ISOC).

i-DNS.net remains committed to, and looks forward to working with any and all organizations, companies and individuals interested and intrigued with the development of robust multilingual solutions for the world.

i-DNS is not an experiment. Whilst it may have started as a research project, it is today, a full-fledged offering of i-DNS.net with an established partner portfolio and customer base.

As pioneers of i-DNS and operators of the first and longest running IDN registry, i-DNS.net's experience and technical know-how in IDN Technology, Registry Operations, Registrar Services and Multilingual Email are highly sought-after by industry and technology collaborators like VeriSign Inc, Register.com, Melbourne IT, dotTV Corporation, eNIC Corporation, GMO, OnlineNIC, New Cyber International, e-LUX Corporation, Netscape, Lycos Asia, NJStar and Slangsoft.

Its products and services are in use by businesses and individuals around the world and registrants of its multilingual domain names have enjoyed live global resolution since 1999.

6 i-DNS.net's Design Tenets

i-DNS.net is today, a leading provider of standards-based solutions encompassing the entire cross-section and life cycle of the domain name and e-mail industry. Its offerings have and will continue to satisfy, the following requirements:

Complete

i-DNS meets an urgent need with a complete solution that is backward and forward compatible.

Conservative

i-DNS conforms to the current domain name system of master-slave-caching servers, zone transfer etc.

Minimalist

i-DNS co-exists peacefully with the existing DNS system, whilst providing IDN support at the network and applications layer.

Universal

i-DNS maintains a single, global, universal, and consistent hierarchical namespace because its multilingual namespace fits underneath the existing DNS hierarchy of name spaces.

Deterministic

i-DNS is however, a true DNS solution. Its IDN resolve in exactly the same way as an ASCII domain name - every query returns a definite and unique result.

Transition-Friendly

i-DNS allows for a user-friendly transition from and co-existence of, the ASCII environment with an IDN approach..

Providing Comprehensive Language Coverage

i-DNS covers all languages in the ISO/Unicode, therefore supporting all languages supported by ISO-compliant computers, including PC based operating systems.

Facilitating Localization

i-DNS facilitates localizations, such as bi-directionality, whilst preserving the separator.

Canonicalization

i-DNS supports canonicalization throughout the system – on both the network and application layers. Canonicalization is executed before the name resolution process occurs.

Administrator-Friendly

i-DNS's DNS records are IETF-compliant and ASCII-based, with user-friendly conversion tools for easy DNS management.

Security Conscious

i-DNS is compatible with DNSSEC specifications

References

1. <http://www.ietf.org/internet-drafts/draft-ietf-idn-idna-01.txt>
 2. <http://www.ietf.org/internet-drafts/draft-ietf-idn-nameprep-03.txt>
 3. <http://www.rfc-editor.org/rfc/rfc2825.txt>
 4. <http://www.rfc-editor.org/rfc/rfc2826.txt>
 5. <http://www.rfc-editor.org/rfc/rfc2026.txt>
 6. <http://www.gleach.com>
-

Contact Information

For additional information, please contact info@i-DNS.net.

