Enabling Your Registry for Multilingual Domain Names

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There is a common misconception among domain registries and registrars that once a proposed IETF standard (in the form of an RFC: Request for Comments) for multilingual and Internationalized domain names (IDN's) is published; Registries will immediately be able to accept registrations and deliver a working multilingual domain names to end-users. In fact, the publishing of RFCs for IDN is but the beginning of a long transition towards a common and universal multilingual namespace.

Neteka's position on IDN:

1. Neteka supports the adoption of an **open standard** for Internationalized Domain Names.
2. Neteka has a working solution that provides a **seamless transition** to an IDN standard.
3. Neteka understands that the **client only** approach to IDN **will not work** because there is no effective distribution method and the number of clients required is unmanageable.
4. A **client only** approach to IDN ignores the need for functioning multilingual email addresses.
5. The client only approach to providing a working IDN will result in low initial acceptance and accessibility and in turn customer confusion, dissatisfaction, customer support issues and lower adoption.

In short, we understand that a server side approach to IDN is a crucial component for the successful deployment of a Multilingual Registry to ensure accessibility to multilingual domain names and the seamless migration to the IDN standard. This document will outline the contrasting approaches to the resolving a an IDN and how Neteka's solution can both accelerate adoption and reduce the risk of deployment of the IDN standard for registries.

The IETF Approach: IDNA + ACE (Client Side Approach)

After more than two years of contentious debate the IETF looks set to publish a set of RFCs on the framework for the provisioning of IDN in the DNS. The IETF working group has recently submitted a collection of Internet Drafts prescribing the use of IDNA (IDN Applications) with a specific ACE (ASCII Compatible Encoding) called ACE-Z (aka: Punycode).

Simply, ACE is a process whereby multilingual domain names are converted into an alphanumeric string containing only A-Z, 0-9 and hyphens "-" (e.g. bq--ad9ebbvfnqerv.com). IDNA mandates that this transformation take place before an application, for example the browser, sends a DNS request over the Internet to a registry name server.

Success of a "Client "only approach has a several inherent pre-conditions;

1. Firstly , all software programs that interact with a domain name **MUST** be upgraded with the ACE standard (browsers, email applications, html editors, audio/video streaming applications, word processors, operating system tools, ftp agents, etc.) before the prescribed IDN system would function universally; and
2. The success of IDN's will depend on the successful propagation of the client software, which will be highly dependant on a) the successful diffusion on client plug-in in the short-term and b) the incorporation of the standard it in next generations of application software (e.g. IE ad Outlook)

A key concern with respect to a client only approach to IDN is that there are simply no efficient or effective means to distribute the client plug-ins. Two companies, which have been dedicated advocates of the client approach to multilingual domain names failed to achieve a critical mass of adoption of their respective client software even with aggressive promotion. And, the recent demise of RealNames has dealt a significant blow to

registries that elected to align their IDN strategy with RealNames' anticipated strategy of being a launch pad for Verisign's client distribution.

Furthermore, even if we assume that a dominant software provider, such as Microsoft, with their stranglehold on the browser and email client market, were to introduce a new version of its Internet Explorer and Outlook line of products with the IETF prescribed client built in, it will still take a considerable amount of time before these new versions reach the majority of desktops around the Internet. Using Microsoft IE 6.0 as a yardstick for new browser adoption rates, which yielded an eye-popping 36% penetration within 9 months of its release, the industry is effectively looking at a minimum of 24-36 months before a critical mass of Internet users will have adopted an IDN standard-ready-browser. That is not taking into consideration the lead time for Microsoft to release the next version of their software, let alone whether IDN will make the cut for its next version which realistically adds another 12 months to the process..

The following chart summarizes a reasonable projected uptake in support for the IETF standard for browser software assuming Microsoft releases a new version of IE with IDN support as of Q2-2003:

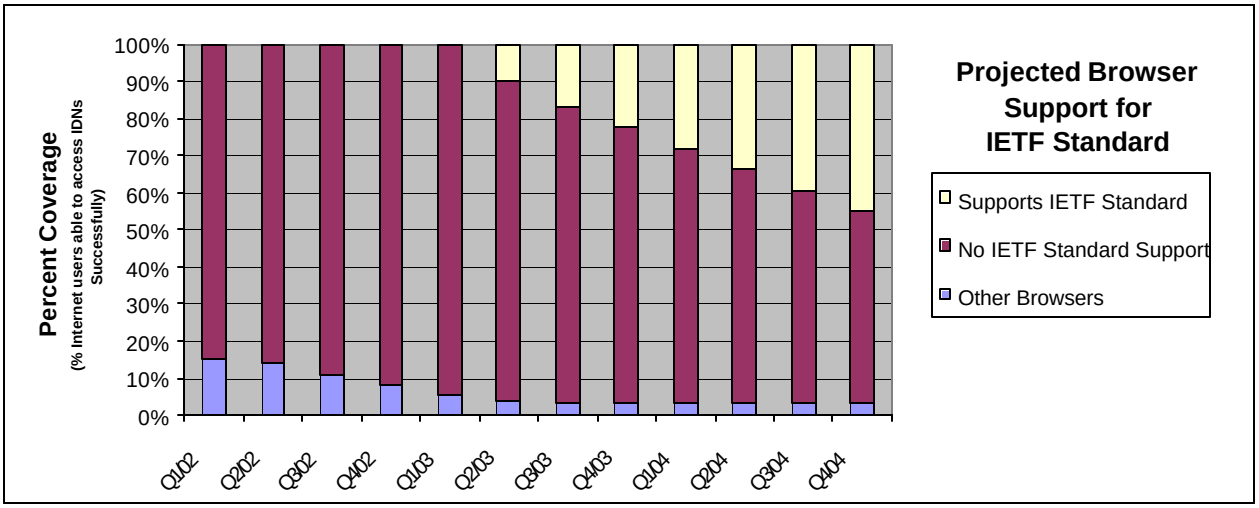


Figure 1: Projected Browser Support for IETF IDN

As the above diagram demonstrates, under some very realistic assumptions, even if Microsoft incorporates the IETF standard into the next version of Internet Explorer, less than half of the worldwide Internet users will have a browser that supports the IETF standard by the end of 2004. In short, even if third party software vendors like Microsoft do adopt the standard and Registries like Verisign do peddle a client plug-in, these combined efforts will still not achieve any meaningful universality for at least 24-36 months.

FInally, the client side approach to internationalized domains is especially susceptible to client plug-in software conflicts as providers scramble to push out these plug-in software applications. Client plug-in providers may purposefully or inadvertently interfere with how the browsers handle multilingual characters causing greater confusion.

To summarize, the purebred client approach requires no changes to the DNS infrastructure but does require fast and efficient distribution of client software that supports the standard – as we have demonstrated above this will be difficult to achieve. Registries that cannot guarantee almost universal access to multilingual domains from the start will likely experience support headaches and many dissatisfied customers who are confused and frustrated because their multilingual domain names do not work. Further, without universal access the value of multilingual domains will be compromised.

The Neteka Approach: IETF + Transition (Client-Server Coupling)

Neteka believes in an eventual convergence to a standard, moreover, Neteka believes in providing a smooth transition that takes into consideration the user experience and even more importantly, interoperability and backward compatibility with not just servers but also client applications.

1. Neteka supports the adoption of an open standard for Internationalized Domain Names (IDN)
2. Neteka believes in a working solution that will provide a seamless transition (e.g. users with existing software **WILL NOT** be denied access to multilingual domains) to an IDN standard
3. Neteka believes there are no efficient or economically viable methods for distributing, supporting and upgrading client plug-ins negating the possibility of a client only approach to IDN. Further, if software providers such as Microsoft quickly adopt the standard, it will take several years before a sufficient number of clients supporting the IDN standard render multilingual domain names universally available.
4. Neteka believes that a server side approach to IDN supports the use of multilingual emails out of the gate without the need for additional email client plug-ins or third party email client that support the standard.
5. Finally, Neteka believes the number of proprietary IDN plug-in software conflicts will continue to grow beyond those already identified.

Neteka's has combined a server side approach to the deployment of multilingual domain names with a client plug-in to provide universal access to multilingual domain names out of the gate. The DNS as it stands today already supports the transport of 8bit characters as a domain name. IDN queries made by existing browsers will be successfully transported through the resolvers (ISP name servers), and reach the registry name servers. They may be in the form of either UTF8 or local encoded characters (e.g. ISO8859-1 – Western European languages, Big-5 – Traditional Chinese, GB – Simplified Chinese, JIS – Japanese, etc.) or a variant. With the Neteka Multilingual DNS server (NeDNS) installed alongside current DNS servers at a Registry, most Internet users will be able to immediately access IDN's from that Registry again with no changes to the existing English registry DNS server.

With Neteka's NeDNS technology, IDN queries are resolved. The advantage of this server side approach is that IDN's can be registered immediately and will be resolvable by the majority of Internet users today. In addition, registries will not be required to develop or deploy their own client plug-in or wait years for Microsoft to populate the market with software that supports the IDN standard. With Neteka's solution registries can control the implementation of multilingual domains without having to develop client plug-ins, rely on third parties to distribute those clients or rely on Microsoft to make the IDN aware browsers universally available and adopted. The following diagram summarizes Neteka's complete solution for your registry needs in enabling the use of multilingual domain names:

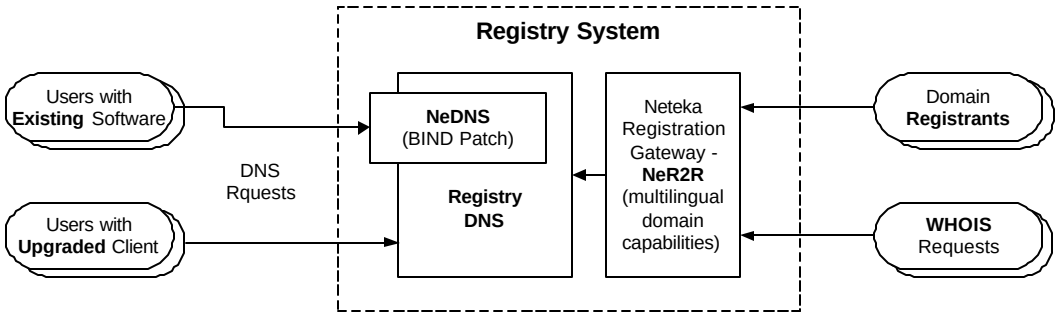


Figure 2: Overview of the NeDNS Solution

Note that Neteka's NeDNS will NOT affect DNS requests for English (ASCII) domain names, nor will it affect multilingual domain names that were sent via IDN aware clients. With NeDNS the registry can accomplish two goals at once a) deploy multilingual domains and b) prepare for the reality of an IDN standard.

NeDNS and Multilingual Email Addresses (NeBOX)

In order for multilingual domains to be accepted by the market, your IDN deployment must also support multilingual email addresses. As demonstrated above (Figure 1), a client only approach to IDN for just domain names for use in a browser is already a lengthy transition making it an unfavorable tactic, now consider the myriad of applications that have already been deployed for emails: Mail User Agents (MUA – Outlook, Lotus Notes, etc.), webmail clients (Yahoo Mail, Mail.com, etc), mass mailers, and so on, and you will appreciate that a client only approach to multilingual emails really **will not be viable** for the same reasons we outlined above.

The NeDNS approach will again smoothen this transition period and make possible immediately the general usability of IDNs in email addresses (please refer to Figure 3), in allowing your registry name server to serve multilingual domain name requests sent by existing email applications. When integrated with Neteka's NeBOX, providers may even provide multilingual user names to left of the @ sign e.g. ? ? ? @? ? ? .bz. NeBOX.NET is a webmail server that also provides a multilingual interface. The NeBOX architecture is designed to be scalable and flexible and can be implemented by the registry, registrar or any third party hosting provider and integrated into their existing offerings easily.

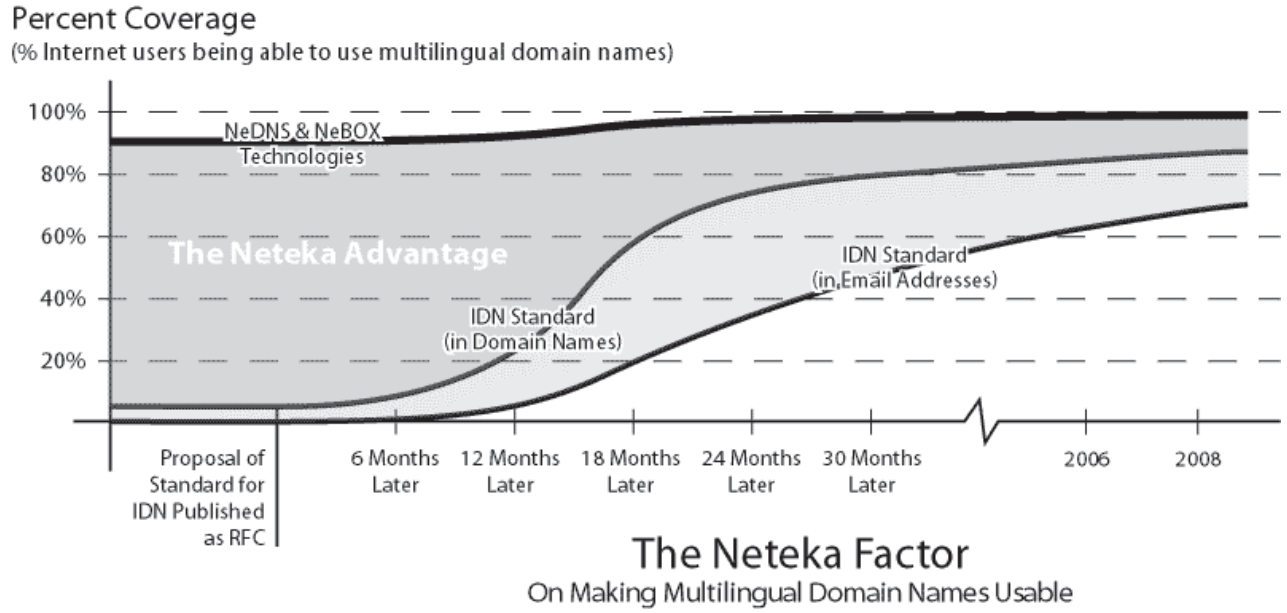
Similar to the DNS situation, many email applications (including SMTP servers) today can pass along multilingual email address information, whether the receiving mail servers are upgraded to accept accounts with multilingual names is up to the provider. NeBOX offers email providers the ability to quickly become multilingual capable with usable multilingual email addresses.

The Neteka Factor

To resolve or not to resolve, that is the question. Neteka's technology provides a distinct advantage over a client only approach. With Neteka's NeDNS, Registries can adopt the IDN standard without loosing control over the quality and functionality of multilingual domains. We call this the Neteka Advantage!

1) IDN's work for the majority of users out of the gate making them more viable and valuable.
2) Registries can generate additional revenues from IDN's immediately.
3) Registries gain a seamless transition path to the IDN standard.
4) Registries are not required to develop client plug-ins or rely on third parties to distribute IDN aware application software.

As seen below, Neteka's server side solution has clear advantages over other solutions.



The above diagram (for the statistic on the NeDNS & NeBOX Technologies) is based on extensive testing by Neteka on a wide variety of platforms and user scenarios to ensure maximum coverage for multilingual domain names that could be deployed immediately. For more detailed results of the tests please contact us directly: info@neteka.com

Figure 3: The Neteka Factor

Neteka Inc.

Neteka is a software specialist with expertise in multilingual Internet naming technologies. Neteka began with two patent-pending technologies (multilingual domain names & email addresses), this core formed the foundation for an array of corollary products to complement the use of multilingual identities on the Internet. Neteka products are deployed at *over 3,000 websites* around the world to enable the registration of multilingual domain names, and our end-to-end solutions are being used in several Top-Level Domain (TLD) registries as well as at ICANN accredited Registrars.

The three main products and end-to-end solutions now offered by Neteka are:

- Multilingual domain naming solution for registries (NeDNS – DotTV, DotBZ)
- Complete registrar and registry solutions (NeR2R – DotSG, DotBZ, KR.COM, FRN.CA)
- Multilingual email solutions (NeBOX – 32101.com, InterSpace Inc.)

On May 3, 2002, DotTV successfully deployed Neteka's technology making it the first registry in the world to provide working multilingual domain names. On May 18, DotBZ (Belizenic) went live with Neteka's technology. Beyond multilingualizing the DotBZ DNS, Neteka is also a close partner in the deployment of the DotBZ registration gateway. DotSG in Singapore has licensed Neteka's complete end-to-end registry solution making them one of the most advanced ccTLD registry in the world, with intelligent auto-screening for registration and state of the art EPP (Extensible Provisioning Protocol) deployment. The DotSG system (SgR2R) is scheduled to go live in June 2002.

Beyond multilingual characters, Neteka technologies also support the use of common keyboard symbols: $ & * ! ' + = ( ) [ ] , ^ ¢ £ € ¥ £, in domain names and email addresses. In addition to these uniquely new domains, with Neteka's NeBOX technology, registries and registrars can also offer email services that support multilingual names. Again, seamlessly usable immediately without depending on a user client upgrade. Here are just some of the endless possibilities:

Multilingual Domains	Accented Domains	Symbols	Email Addresses
? ? ? .tv	español.bz	ca$h.bz	? ? ? @? ? ? .bz
? ? .bz	cinéma.tv	yahoo!.bz	español@español.bz
? ? ? .bz	grüne.bz	€urope.tv	ca$h@ca$h.bz

To showcase our email technology, we have deployed it at 32101.com, which was the world's first webmail service that supports Chinese email addresses. In addition, the NeBOX technology is currently being deployed at two other commercial sites in China.

Other Neteka products and services include FRN.CA and KR.COM . FRN.CA is a domain targeted at French Canadians that will be marketed jointly with Bell Canada – Canada's largest telecommunications company. KR.COM will be launched in Korea in June and will provide Koreans with Korean language domains with a national flavor. Neteka is also an ICANN accredited registrar and we are showcasing our technologies at http://www.NamesBeyond.com.

Neteka is a privately held company based in Toronto, Canada. Started in 1999 as a partnership with the University of Toronto, under the Innovations Foundation, Neteka is built around patent pending technologies to develop and promote the use of multilingual domain names and email addresses. You may contact us via email: info@neteka.com or visit our website at http://w!.neteka.com.