# D. Additional Services and Functions

| Highlights |
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| • **NeuStar has successfully implemented IPv6 in line with U.S. Government objectives.**<br><br>• **NeuStar proposes to implement a fully compliant IDN solution to increase utility of usTLD to non-English speakers.**<br><br>• **NeuStar proposes to implement a WHOIS Accuracy Program and DNSSEC to increase security and integrity of usTLD.**<br><br>• **Finally, NeuStar will implement other additional services and functions to research the state of the usTLD domain and communicated with the usTLD users.** |

*As the Internet grows and evolves, it is imperative that the usTLD Administrator be positioned to lead the way in new technologies and enhanced services.*

There are a number of services and functions not described in the SOW portion of the RFQ that we are proposing to perform as the Administrator of the usTLD space.  We believe the services outlined in this section will further improve the quality of space, and provide an enhanced user experience.

## IPv6

NeuStar's SRS is currently accepting IPv6 nameserver registrations.  IPv6 registrations were first introduced in the usTLD space in 2004.  This functionality allows registrars to provide IPv6 nameserver information into the registry database, where it is subsequently deployed into our DNS infrastructure. This capability is critical to the adoption and growth of IPv6 technology, an important technology at the infrastructure layer of the Internet, especially in growing and emerging markets.  NeuStar's use of IPv6 technology is in line with the U.S. Government's objectives.

## Internationalized Domain Name (IDN) Registrations

There is an increasing need in the United States to support a growing base of non-English speaking communities.  IDNs provide a means of making the usTLD more inclusive to all Americans. We propose to consult with the DoC to formulate a plan for implementing IDNs in the usTLD space in languages that will most benefit the minority communities in the United States.

usTLD IDN registrations involve registering a specially encoded ASCII domain that can be decoded into its native character set.  As the registry operator for .biz, we have extensive experience with IDN registrations.  Our .biz registry currently provides registrations in Chinese, Danish, German, Icelandic, Japanese, Norwegian, Spanish, and Swedish.  In addition, we will be a launching Korean in August 2007.  Our IDN implementation includes advanced technology to accommodate the unique bundling needs of languages such as Chinese.

If approved by the DoC, our implementation will be fully compliant with ICANN's *Guidelines for the Implementation of International Domain Names version 2.1* (http://www.icann.org/general/idn-guidelines-22feb06.htm).   The implementation will also be compliant with the relevant IDN RFCs, namely 3454, 3490, 3491, and 3492.

Registrars will collect the desired domain name from the Registrant in a character encoding scheme (CES) (e.g., Unicode).  The Registrar will then convert the encoded string into punycode. Open source software is available to assist registrars (see http://www.gnu.org/software/libidn/).  After performing the necessary conversions, the registrar will submit the Spanish tagged registration to the Registry for registration.  An IDN registration in Punycode contains only ASCII characters and begins with "xn--", followed by encoded characters.

For example, célébrités.us would be registered as XN--CLBRITS-BYABE.US.  When an internet user types in célébrités.us into an IDN compatible browser, the browser will convert the domain back into its ascii format (XN--CLBRITS-BYABE.US), which will then allow the DNS to properly resolve the domain.

Each registration will be associated with a language tag, which must be submitted by the registrar at the time of registration.  NeuStar uses the two character ISO 3639-1 language tags, which can be found at http://www.loc.gov/standards/iso639-2/php/English_list.php.  For example, the language tag for Spanish is "ES."

In addition to the standard data displayed in whois, the following data will also be displayed for IDN registrations:

- ASCII Domain Name (standard whois display)
- International Domain Name
- Unicode Hex
- Unicode HTML
- Language Code

Finally, if approved by the DoC, we will follow a conservative implementation policy, and consult with the language experts and various other ccTLD operators and regulators to formulate standard language tables used.

## WHOIS Accuracy Program

WHOIS accuracy is a critical requirement in the usTLD space.  Accurate and up-to-date WHOIS data is often a key investigative tool for law enforcement and for American consumers to help protect themselves from bad actors on the Internet.  It also provides the means to allow intellectual property holders to monitor and, if necessary, to enforce the protection of their trademarks and other intellectual property.

As further discussed in Proposal Section B, Sub-section C.4.1.v.b, NeuStar is proposing to launch a new WHOIS Accuracy Program (WAP). As part of the WAP, NeuStar recommends implementing the following proven successful programs implemented by ICANN, including:

- **WHOIS/Nexus Data Reminder Policy** which will require that a registrar present current WHOIS information to each registrant at least annually and remind the registrant that the provision of false data can be grounds for the cancellation of a registration;

- **WHOIS/Nexus Data Problem Report System,** which will be a system designed to receive and track third party complaints about inaccurate, incomplete or proxy WHOIS data;

- **WHOIS Data Accuracy Audit and Report,** where NeuStar will commence a WHOIS data accuracy audit during each year of the contract that will test whether usTLD Accredited Registrars are investigating and correcting WHOIS and Nexus related contact details in response to inaccuracies reported through WHOIS Data Problem Report System;

- **Semi-Annual Sampling of Domain Names,** whereby NeuStar will perform a manual review of a large number of domain names, randomly selected, to test the prima facie accuracy of WHOIS records;

- **Inspection of Registrar WHOIS Functionality**, where NeuStar will enforce a Registrar's requirement to either provide a WHOIS interface or link to NeuStar's authoritative WHOIS service; and

- **WAP Annual Report**, presented to the DoC, describing the results of the WAP initiatives described above.

## DNSSEC

NeuStar's SRS Registry and DNS infrastructure is capable of supporting DNSSEC. Over the past several years we have conducted a number of DNSSEC trials, including registration of DNS data via the EPP protocol extensions, performing the signing of the data and demonstrating that DNS queries show proper execution across the public Internet.

We recognize that there is still work to be done in finalizing the technical standards and operational recommendations to be followed for DNSSEC. We also recognize that the DNSSEC may play an important role in providing additional security for the usTLD space. As such, we are prepared to work with the DoC at the appropriate time to create an implementation plan.

## RSS Feeds

Technology for easily communicating information in an efficient and machine readable format has progressed significantly in recent years. One such technology is RSS (Really Simple Syndication). RSS is a mechanism to provide a continuous feed of information. Users read RSS content by using software called "feed readers" or "aggregators." The user subscribes to the RSS feed, and their client software then periodically checks the feed for new or updated information.

To manage the ever growing communications between the usTLD Administrator and Registrars, we are proposing to create an RSS feed to provide registrars with information related to planned maintenances, unplanned outages, or other registry events.

In addition, separate RSS Feeds will be available to all usTLD users to receive updates to the information contained on the usTLD Blog and Message Board described in Proposal Section L. The RSS feeds would not replace our normal email announcements or mechanisms to communicate with Customer Support; rather they will be alternative methods for usTLD users to receive important messages regarding the operations and policies of the usTLD.

## Domain Usage Surveys

An important measurement of the performance and growth of the usTLD is how the domain space is being used by the Internet community. The most effective way to determine how many domains are in use and what they are being used for is to conduct regular surveys that analyze the current usage trends. It is important to conduct these sorts of surveys on periodic basis so trends in usage can be detected, and to be able to compare data over time to formulate a more complete picture of the progress of the space.

NeuStar proposes to conduct periodic surveys to analyze usage trends in the usTLD space. The results of the survey will provide statistical data on how many domains are being used, how they are being used, and who is using them. The results will help NeuStar design marketing programs targeted to specific segments of the market to further increase usage and visibility of the usTLD.