



# ICMR Virtual Registry Services Proposal

September 29<sup>th</sup>, 2000



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# 1 Introduction

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## 1.1 Overview

VeriSign Global Registry Services (VeriSign Global Registry), by virtue of their unique experience with the core workings of registry operations of the .com, .net, and .org top-level domains is proposing to develop a subcontract relationship with ICMR to provide a virtual registry infrastructure and management services for ICMR in support of a new gTLD being offered by Internet Corporation for Assigned Names and Numbers (ICANN).

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## 1.2 Purpose

The purpose of this proposal is to describe how VeriSign Global Registry Services can provide ICMR virtual registry services consisting of a registry infrastructure and services in support of a new gTLD. Once in place, ICMR will have a scalable architecture capable of supporting the rapid growth anticipated in the new gTLD. The architecture and processes provided as a result of this proposal will position ICMR as a premier provider of gTLD registry services.

An ancillary goal of agreement between ICMR and VeriSign Global Registry Services is to provide ICMR the Technical Capabilities and Plan section of the ICANN gTLD Application: Registry Operator's Proposal (Section D15) from which to develop a winning proposal to ICANN for hosting a new gTLD. As the Internet's leading registry, VeriSign Global Registry has unparalleled experience and knowledge in registry infrastructure and operations. By teaming with VeriSign Global Registry, the ICMR will be assured of a technical and service solution second to none.

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## 1.3 Objectives

VeriSign Global Registry wants the opportunity to apply to ICMR the knowledge and expertise gained from over seven years of building and operating the heart of the Internet. VeriSign Global Registry would design and support the ICMR by building a comprehensive registry infrastructure that would allow the ICMR to provide registry services for a new gTLD. This proposal presents VeriSign Global

Registry's proposed technical and service solution to the ICMR, and explains how it would be implemented.

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## 1.4 Terms and Definitions

**Domain name system (DNS).** Distributed databases of information that is used to translate domain names (which are easy for humans to remember and use) into Internet Protocol numbers, which are what computers need to find each other on the Internet. People working on computers around the globe maintain their specific portion of this database, and the data held in each portion of the database is made available to all computers and users on the Internet. The DNS comprises computers, data files, software, and people working together.

**Generic top-level domain (gTLD).** A top level domain name (such as com, .net and .org) that is open to registrants around the world in contrast to country code top level domains that are often restricted to registrants located in a particular country or region.

**Registrant.** The individual or organization that registers a specific domain name in the ICMR registry database. This individual or organization holds the right to use that specific number for a specified period of time provided certain conditions are met and the registration and billing fees are paid.

**Registry Registrar Protocol (RRP).** A protocol for the registration and management of second level domain names and associated name servers in both top-level domains and country code top-level domains. The VeriSign Global Registry for use within the Shared Registration System developed this protocol. RRP is a TCP-based, 7-bit US-ASCII text protocol that permits multiple registrars to provide second level Internet domain name registration services in the top level domains administered by a top level domain registry.

**Shared Registration System (SRS).** A protocol and associated hardware and software that permit multiple registrars to provide Internet domain name registration services in the top level domains that are administered by the VeriSign Global Registry through the Registry. The SRS includes the following subsystems: a database server subsystem, a registration subsystem ensuring equivalent access to the registry by all registrars; a billing subsystem; a systems development and testing subsystem; a gTLD Zone file generation subsystem; and a Whois subsystem. The SRS is consistent with, and supportive of, the provisions of the Statement of Policy on Domain Name System administration, Management of Internet Names and Addresses, 63 Fed Reg. 31741 (1998) (the "White Paper"), as well as Amendment No. 11 to Cooperative Agreement NCR-92-18742 between the U.S. Government and VeriSign Global Registry.

**SSL.** Secure socket layer.

## 2 Background

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### 2.1 VeriSign Global Registry Services History

VeriSign Global Registry, a division of VeriSign as of June 9, 2000, has been the provider of .com, .net, and .org domain names since 1993. VeriSign Global Registry (formerly NSI Registry) was selected by the National Science Foundation, through a competitive cooperative agreement process, for a 5-year agreement to manage the gTLD registrations of .com, .net and .org. In 1999, VeriSign Global Registry, the Department of Commerce, and ICANN reached agreement on a process to bring competitive registrars into the gTLD names space. As part of that agreement, VeriSign Global Registry began business operations as a separate business unit of VeriSign Corporation in October 1998.

Historically, VeriSign Global Registry has provided back-end domain name addressing, resolution, and distribution services for .com registrars. We are currently serving some 63 .com registrars with another 36 registrars in the pipeline preparing to become active. The VeriSign Global Registry is now extending its services and providing expertise to country-code and potential global top-level domain name registries.

VeriSign Global Registry has an extensive infrastructure comprised of both technology and human capital. Having invested millions of dollars in the infrastructure and having operated the .com registry function since 1993, we have unparalleled experience and expertise managing the growth and operations of a commercial registry. On a daily basis, we bear the responsibility of making sure that the .com web address for every domain name is located without interruption.

VeriSign Global Registry has designed the Registry to provide exceptional availability, maintainability, scalability, accuracy, utility, and security. To support these goals, VeriSign Global Registry has developed systems and partnered with industry vendors who offer the following:

- ✍ Proven solutions that are widely implements in 24x7 production environments
- ✍ Open, non-proprietary solutions that do not tie VeriSign Global Registry to specific vendor products
- ✍ A variety of solutions that VeriSign Global Registry can tailor to its environment
- ✍ A migration path to larger platforms as the need arises

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## 2.2 Service Overview

VeriSign Global Registry provides prospective new gTLDs and ccTLD registries with registry infrastructure services. We have the capability to provide services ranging from a Virtual Registry Service that is managed by VeriSign Global Registry and leverages our current facilities and infrastructure, to Onsite Registry Services, a remotely managed, turnkey registry solution that is resident on customer premises. The Virtual Registry Service provides the customer with the added flexibility to focus resources and capital towards other customer acquisition and value added service efforts.

Thus VeriSign Global Registry Services offers the added benefit of mitigating the risk of developing a new registry by enabling new registries to begin with a virtual registry service and migrate to a turnkey onsite registry solution once they have achieved a critical mass of registrations and capital.

### 2.2.1 Virtual Registry Services

With Virtual Registry Services, VeriSign Global Registry establishes a dedicated instance of the customer's registry at its Dulles, Virginia facility. Customers benefit from immediate access to high-bandwidth connectivity, specialized systems and our skilled technical staff. The customer's registrars interface directly with the VeriSign Global Registry using the standard registry/registrar protocol (RRP), and the process for bringing on new registrars is analogous to the current process for implementing new .com registrars.

The customer is responsible for establishing and managing policies with their registrar community. VeriSign Global Registry will train the customer's staff to provide support for its registrars (first-level helpdesk). Virtual Registry Services is a fast, cost-effective, risk-mitigating method for enabling a customer to become a registry without the initial burden of large capital expenditures.

### 2.2.2 Onsite Registry Services

VeriSign Global Registry delivers a turnkey solution to the customer's premise for the Onsite Registry Service. VeriSign Global Registry provides the customers with the option of purchasing their own hardware and commercial off-the-shelf software as specified by a bill of materials (BOM) provided by the VeriSign Global Registry. Onsite Registry Services provides the customer with a limited license to use the VeriSign Global Registry's registry software. The customer benefits from the knowledge transfer of being involved in the day-to-day operation of the registry while leveraging the VeriSign Global Registry's expertise to perform remote monitoring and problem resolution.

Should the customer elect to use Onsite Registry Services, they will be responsible for securing a facility that meets VeriSign Global Registry specifications and establishing the required connectivity. Additionally, if the customers elect to



procure the equipment themselves, it must also meet the VeriSign Global Registry's specifications. The Onsite Registry Service is a great solution for customers that want to keep their hand on the pulse of day-to-day operations and that project large volumes of registrations in geographically diverse regions.

### **2.2.3 Shared Registry System**

The Shared Registry System (SRS) provides equivalent access to all registrar domain names in the gTLDs administered by VeriSign Global Registry. Registrars access the system through Registry-Registrar Protocol (RRP), an Application Programming Interface (API) specifically designed to support the SRS. The SRS ensures that all registrars will receive consistent, equivalent access to the registry that VeriSign Global Registry will construct for the ICMR.

## 3 ICMR Technical Solution

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### 3.1 Introduction

VeriSign Global Registry has developed a very successful business providing registry services that are unparalleled in the high-tech industry today. As purveyors of the domain name information that is so critical to the day-to-day Internet operations of millions of customers, VeriSign Global Registry requires a secure, high performance systems and network infrastructure that is available 100% of the time. An outage or publication of bad information would have devastating consequences for those companies and individuals that depend on the Internet. This is the environment that VeriSign Global Registry has operated in since 1991, and from which we have derived countless years of experience in registry architecture, design, and deployment.

Registry support for a new gTLD must accomplish the following high-level functions: maintain the database of domain names; ensure the quality of Registry data and products (zone files, Whois, and the like); provide a global network for remote distribution of the registry products; and provide ongoing support and access to users. Successful performance of these functions requires rigorous standards of availability, maintainability, scalability, utility, and security, as well as highly skilled personnel to accomplish the work.

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### 3.2 Scope

The VeriSign Global Registry proposes to offer a service to ICMR that consists of a registry infrastructure and services to support the storage, generation, maintenance and distribution of a new gTLD. Operationally, the new registry will mirror the VeriSign Global Registry in Dulles, VA, albeit scaled for the anticipated volume of new gTLD domain name registrations.

Registrars for the new gTLD can be accredited through ICANN as they are today. ICMR would manage registrar access to VeriSign Global Registry supplied SRS software and documentation through a certification process that includes an OT&E environment provided by VeriSign Global Registry. This process is the same used for managing registrar access to the *com*, *net*, and *org* domains.

ICMR will provide customer support services for the new gTLD. VeriSign Global Registry will provide the registrar support services tools for registry maintenance, reporting, billing, and other services functions.

VeriSign Global Registry will also provide the name server lookup capabilities for the gTLD. GTLD name servers will be located in multiple geographic locations and on diverse Internet service provider (ISP) networks.

The following sections provide a high-level overview of the proposed solution. For specific details, please refer to the Virtual Registry Services Information that will be provided upon an executed agreement with VeriSign Global Registry.

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## **3.3 Registry Requirements**

The following top-level requirements guide the architecture, operation, and management of the Registry. These requirements, many of them interdependent, drive the specific technical approach to be provided as a result of this proposal.

### **3.3.1 Availability**

The gTLD registry is designed to operate continuously, and produce its products on schedule, 24 hours a day, 7 days a week (24x7). Registration service should never be interrupted for a significant period of time, in spite of the need for maintenance, repair, and technology refresh. This level of availability requires highly reliable facilities, computers, software, and network connections, organized into an inherently redundant technical architecture. The Registry operations center is monitored round the clock with staff able to take corrective action, when necessary, without compromising registry functions.

### **3.3.2 Maintainability**

The gTLD registry is designed to accommodate routine maintenance, repairs, and updates seamlessly and without creating inconsistencies between primary and backup databases or between registry and registrar databases. No computer system will operate indefinitely without hardware and software maintenance, particularly a large, complex, high-demand, high-availability system like the registry. Unplanned failures inevitably require hardware repair or replacement, while over time, unexpected conditions will result in occasional software malfunctions. Unanticipated innovations may require changes in registry database content, registrar service capabilities, or DNS support functions. The registry must be able to adapt to unpredictable events without compromising its services.

### **3.3.3 Scalability**

The gTLD registry is designed to accommodate the continuing growth of the Internet transparently, maintaining the responsiveness, security, and accuracy of its services. In addition, future registry services will require additional support for new processes. The baseline configuration of the registry and successive incremental expansions will be large enough to allow for volume growth without continual rearrangement of equipment. Scalability of registry technical architecture

provides for graceful addition of more equipment when required. The construction of a global network for remote distribution of registry products via gTLD servers ensures that data will be accessible even as the Internet expands.

### **3.3.4 Accuracy**

The gTLD registry is designed to provide the required technical services to the registrars and to the Internet DNS system with virtually 100 % accuracy. This must be accomplished within an architecture that allows equivalent access to registration services by all accredited registrars and provides open access to registry Whois services for all Internet users.

### **3.3.5 Utility**

Registry operations must provide optimum support to new registrars in attaining operational status and for hands-on analysis of problems. Registrar tools and Customer Support Representatives (CSRs) are available for supporting the registrars on a 24x7x365 basis. Access to tools and Customer Services at the registry are designed to be as simple as possible to permit efficient training and support of independent, competing registrars.

### **3.3.6 Security**

The gTLD registry is operated according to well-documented principles for information and physical security, implemented by adequately trained personnel. Due to its importance, the registry will be a paramount target of sophisticated Internet hackers worldwide, motivated by curiosity, malice, or greed. It therefore must incorporate the most robust information assurance technology to protect the database from corruption, preclude theft of private information by unauthorized third parties, and resist external denial-of-service attacks. Similarly, the physical registry system must be secured against intrusion and protected against normal vicissitudes of operation that might compromise operational security. Personnel responsible for software implementation and hardware operation must be screened carefully to eliminate potential internal security risks. In addition, to ensure the integrity of remote distribution of the registry products, VeriSign Global Registry must have 100 % control of the remote gTLD name servers.

### **3.3.7 Personnel**

Successful administration of the registry depends critically on the skills and capabilities of development, operations, and management personnel. Technical development staff must be conversant with state-of-the-art communications, database management, and security technologies. They must be able to decompose complex design problems and apply COTS solutions without reinventing well-developed techniques. Because of the unusual complexity and critical nature of the registry, Operations personnel must be highly trained and possess a strong sense of personal responsibility for the excellence of their work. Registry management

must understand the special character of these staff members in order to successfully recruit, train, motivate, and retain their services to maintain quality of support and control turnover costs. This requires strong leadership, clear delegation of responsibility and authority, and creation and maintenance of an attractive work environment

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## 3.4 Proposal Requirements

This section lists the requirements that need to be fulfilled by this proposal:

- ~~///~~ Description of the VeriSign Global Registry components and functions
- ~~///~~ Clear delineation of VeriSign Global Registry and ICMR roles and responsibilities
- ~~///~~ Staffing and support Requirements
- ~~///~~ Escalation processes and procedures
- ~~///~~ Facility Requirements
- ~~///~~ Training

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## 3.5 Assumptions

- ~~///~~ The growth is assumed to emulate the growth of the .com zone.
- ~~///~~ ICMR provides all of the registrar services, including the addition of other registrars.
- ~~///~~ VeriSign Global Registry will not be provided any direct support to the registrants – the registrars will handle this.

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## 3.6 Registry Functionality

The registry accepts registrations and registration service requests from all accredited, licensed registrars, while protecting the integrity of registrations from unauthorized access and interference by third parties. Every new domain name application is checked to ensure that the domain name is not already registered. This function demands exceptional speed and accuracy to confirm registrations definitively and to arbitrate near-simultaneous requests for the same domain name.

Domain name registrations and name servers, including domain name, name servers, IP address, registrar name, transfer date, registration period, expiration date, status, registration creation date, created by, updated date, and updated by information is maintained by the registry. The registry is the authoritative source

for its gTLD zone file content (i.e., domain name, name server, and associated IP address). The registrar of the particular domain name or name server maintains all other customer data. This protects customer privacy, gives greater flexibility to registrars, and allows them to determine their business model.

The Registry database used to support inquiries to identify the registrar associated with a specific domain name is currently called “Whois.” Whois enables registrars and potential registrants to establish the availability for registration of selected domain names. Internet users also use it to identify the registrar controlling a domain name.

Registration of a domain name or name server in the Registry database does not automatically create entries in the Internet DNS. For this to occur, a zone file associating all registered domain names with their corresponding IP addresses is generated and exported to the DNS name servers for the gTLD. VeriSign Global Registry will operate and maintain distributed root servers to which the zone file is exported and from which the domain name information is disseminated to the Internet community.

To enable close to 100% registry availability, multiple database servers are used, with off-site operations and data storage to protect against full or partial failures. Redundancy is found at almost every level within the registry to ensure high-availability of the systems and applications for the Registrars.

SRS is the registry architecture and processes used to enable registrations by multiple registrars. It includes the Registry Registrar Protocol (RRP), which is used to support communications between the registry and registrars, and provides the security and authentication functions to protect the registry database while supporting all necessary registrar operations. RRP is also used during the certification process for accredited registrars for operational testing and evaluation of registrar implementations of the RRP prior to commencement of actual registrar operations. ICMR will be responsible for providing the RRP software interfaces, documentation, and training to accredited registrars for the new gTLD. Hands-on technical support to new registrars should be available from ICMR to assist them in resolving difficulties in successful interfacing with the Registry.

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## 3.7 Architecture

The registry system will support and maintain domain name registrations, DNS server names, IP numbers, and an identifier for the responsible registrar for each domain name. The registry will be the authoritative source for the new gTLD zone file, while other customer data will be maintained by the registrar of the each domain name or name server. This model is often referred to as a “thin” registry model.

In addition, VeriSign Global Registry will maintain the hardware, software, network, and database architectures to support Registry functions. ICMR must provide the facilities and customer services staff to support registrars.

The Registry responsibilities can be divided into the following categories:

- ~~///~~ Network Infrastructure Connecting the critical components of the registry together.
- ~~///~~ Internet Services Providing and maintaining the public Internet infrastructure components that allow the public to access the registry.
- ~~///~~ Application and Database Supporting day-to-day processing, including registration services and corporate support services such as billing and business affairs.
- ~~///~~ Operational Test and Evaluation Supporting a fully functional registry interface to support testing and evaluation of registrar client software. This system can also be used to verify registry system upgrades before going into production.
- ~~///~~ Customer Service Training of 1<sup>st</sup> level Support Staff and tools to be used by Customer Service Representatives (CSRs) to perform registry data maintenance functions for registrars. The Registry will provide staffing for 2<sup>nd</sup> level Support.

Each of these is described in detail in the Virtual Registry Services Information packet.

### 3.7.1 Shared Registration System

The Shared Registration System (SRS) includes protocols, services, and the database system. The SRS provides data for all products (e.g., zone files, transaction logs, Whois snapshots). It enables multiple registrars or agents to provide Internet domain name registration services and ensures equivalent access to all registrars.

The SRS is scalable to support the expected growth in registrars' domain name registrations and operates on fully redundant system components.

#### 3.7.1.1 External Public Services

External public services comprise the registration, resolution and Whois service.

The registration service enables registrars or agents to register domain names, and provides the following functions:

- ~~///~~ *Add*—register a domain name or domain name server
- ~~///~~ *Check*—check availability of a domain name or name server
- ~~///~~ *Delete*—delete a domain name or name server
- ~~///~~ *Describe*—give general information to the registrar about RRP
- ~~///~~ *Modify*—update a domain name or name server

*Quit*—close RRP session

*Renew*—extend the registration period of a domain name

*Session*—create an RRP session

*Status*—query a domain name or name server

*Transfer*—transfer a domain name from one registrar to another.

The resolution service enables Internet users to access and use domain names already registered.

The Whois service allows Internet users to query the Whois database for domain name availability and ownership.

### **3.7.1.2 Internal Services**

Internal services enable external services and support audit and tracking information for functions such as billing and performance measurement.

### **3.7.1.3 Interfaces to Shared Registration System**

The interfaces to the SRS, protected using the Secure Socket Layer (SSL) protocol, are a secure Registrar Web interface, a Customer Service Web interface, a Whois Web interface as well as Whois command line access.



## 4 Support Services

### 4.1.1 Problem Management

VeriSign Global Registry Command Center (VGRCC) will track and report all problems that are escalated to VeriSign Global Registry (e.g., those resulting from 2<sup>nd</sup> level alerts or other alerts escalated by the remote Registry operators). Problems escalated to VGRCC will be prioritized according to the following guidelines:

- ?? Severity 1 – Service is down. Business is halted.
- ?? Severity 2 – Service is impacted. Business is degraded.
- ?? Severity 3 – Service is not impacted. Business is proceeding in a normal fashion

For Severity 1 problems, VeriSign Global Registry will investigate and respond with an action plan within 4 hours of notification or escalation to VeriSign Global Registry. Every reasonable effort will be made to restore some level of service as quickly as possible.

For Severity 2 problems, VeriSign Global Registry will investigate and respond with an action plan within 8 hours of notification or escalation to VeriSign Global Registry. Every reasonable effort will be made to restore full service as quickly as possible.

For Severity 3 problems, VeriSign Global Registry will investigate and respond with an action plan within 24 hours of notification or escalation to VeriSign Global Registry. Every effort will be made to solve the problem without impacting service (e.g., requiring a system outage). The timeframe for resolving the problem will be determined in conjunction with the customer, considering all benefits and risks.

### 4.1.2 Change Management

VeriSign Global Registry will track and report on all system changes. VeriSign Global Registry will notify the customer of system changes in accordance with the following guidelines:

- ?? Severity 1 problems – notification will occur when change is made
- ?? Other problems – notification will occur a minimum of 8 hours in advance.
- ?? Changes not requiring a service outage – notification will occur a minimum of 24 hours in advance.

Change management will also apply to planned modifications and upgrades. Although the registry infrastructure as provided will provide for significant growth, changes to the systems may be required to improve availability, reliability, and performance. VeriSign Global Registry will provide 30-60 days advance notice to ICMR of changes to the registry hardware and software architecture.

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## 4.2 Registry Customer Services

VeriSign Global Registry Customer Service (CS) is designed to provide second-level support to ICMR CS. This is accomplished through dedicated 24-hour Customer Service Representative support, seven days a week, 365 days a year. VeriSign Global Registry CS supports escalations regarding domain maintenance, technical troubleshooting of systems and networks, and report generation issues.

When ICMR CS receives a call from one of its registrars, it will collect all necessary information and attempt resolve the issue. If it is unable to resolve the issue, ICMR CS will forward the call to VeriSign Global Registry CS. VeriSign Global Registry CS will log the call in the CS tracking system and assign a tracking number. The VeriSign Global Registry CSR will work closely with ICMR CS to resolve and close the ticket. If necessary, VeriSign Global Registry CSR will forward the ticket to the appropriate VeriSign Global Registry department for investigation and resolution. Once resolution is obtained, the VeriSign Global Registry CSR will forward this information to the ICMR CSR who then contacts the registrar for closure. The VeriSign Global Registry CS will always be the single point of contact for the ICMR CS for updates and additional information until closure of the ticket.

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## 4.3 ICMR Customer Services

ICMR will be required to establish or supplement its existing Help Desk with Customer Service Representatives (CSRs) trained in registry-registrar support services. Customer Service (CS) is a critical function that is provided to Registrars starting at the certification process and carrying through to production. It is first-level support provided on a 24x7x365 basis to registrars regarding every aspect of the domain name registration business.

Customer Services offers support on domain maintenance, procedural questions and issues, technical troubleshooting, and billing questions. The ICMR Customer Service Representatives (CSRs) work closely with the registrars from the initial call receipt to its final resolution. The ICMR CSR will always be the single point of contact for the registrar for updates and additional information until closure of the ticket.

If ICMR CS is unable to resolve the issue, it will escalate the issue to VeriSign Global Registry CS for resolution. The ICMR CSR will work closely with the VeriSign Global Registry CSR to obtain all necessary information from the

registrar. Once completed, the resolution for the ticket is returned to the ICMR CSR who then contacts registrar for closure.

### 4.3.1 Registry Tool

VeriSign Global Registry provides a web-based maintenance tool, Registry Tool, for domain updates and administrative functions. This site is password protected to maintain security for individual registrar information. Through this site, the registrar will have access to daily and weekly reports, billing information, and the ability to update administrative and domain information.

To assist in providing quality support, ICMR CS will have access to view and update individual registrar administrative and billing information through this web-based tool. ICMR CS will also have the ability to update domain information for the registrar and view registrar reports.

### 4.3.2 Registry Reports

Registry reports fall primarily into three categories: Registry, Registrar, and Billing and Revenue. A standard reporting format is used, although the Registry Tool can be used to generate custom queries. Many of the Registry and Registrar reports are Registrar specific. Following is a sampling of the reports and the group they are intended for:

#### **Registry**

- ~~///~~ Registrar Details
- ~~///~~ Registrar Domain Registration Summary
- ~~///~~ Registrar Transaction Summary
- ~~///~~ Domain History
- ~~///~~ Name server History
- ~~///~~ Domains Transferred by Registrar
- ~~///~~ Domain Registration/Transfer/Renewal Summary
- ~~///~~ Domain Credit Deletions

#### **Registrar**

- ~~///~~ Registered Domain Names
- ~~///~~ Domain Child Name server

#### **Billing and Revenue**

- ~~///~~ New Registrations (Monthly/Daily)
- ~~///~~ Transfers (Monthly/Daily)

- ~~///~~ Renewals (Monthly/Daily)
- ~~///~~ Available Credit Modification
- ~~///~~ Domain Credit Deletion

### **4.3.3 Finance**

The Finance team handles the accounting and finance issues involved in integrating new registrars into the Shared Registration System. They also manage the billing process and ensure that billing is generated accurately, and on a timely basis.

# 5 ICMR Staffing

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## 5.1 Customer Services

Customer Services should be staffed for 24x7x365 operation. The CSRs will be trained by VeriSign Global Registry to answer registrars' questions and provide assistance with many areas of the Registry. They are the registrars' initial point of contact with the registry, and they work closely with the internal groups to resolve customer issues. Their tasks include, but are not limited to, the following:

- ~~///~~ OT&E ramp-up and certification
- ~~///~~ gTLD data corruption
- ~~///~~ Account administration
- ~~///~~ Domain maintenance
- ~~///~~ Whois
- ~~///~~ Billing
- ~~///~~ Domain policy
- ~~///~~ Reports

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## 5.2 Customer Affairs

Customer Affairs (CA) manages the relationships the registry has with external bodies, most notably the registrars and ICANN. They initiate and maintain business and contractual relationships with ICANN accredited registrars, and work with newly accredited registrars to ensure a smooth and quick ramp-up process. In addition, CA interfaces with ICANN and is responsible for interpreting ICANN guidelines and making sure the registry and registrars are compliant.

# 6 Financial and Business Terms

## 6.1 Financial Terms

### 6.1.1 Pricing

The pricing schedule for VERISIGN Global Registry's Virtual Registry Service is identified in the following chart.

*Table 1 -Virtual Registry Service Price List*

<b>Registry Services</b>	<b>Start-up Fee</b>	<b>Annual</b>	<b>Other</b>
<b>VeriSign Hosted Service</b>	NA	\$100,000	\$6 per name

Virtual Registry Service pricing assumes that the registry system will be used in its current configuration which is designed to support the dot com business model.

## 6.2 Business Terms

### 6.2.1 General

- ?? The term of this agreement shall be 4 years with provisions for early termination due to non-performance subject to a 60-day cure period
- ?? This agreement will automatically be renewed for an additional 4 year term at the expiration of the initial term unless VeriSign Global Registry is notified by ICMR to discontinue service with 180 days of agreement expiration
- ?? VeriSign Global Registry will make new value-add registry products and services available to the ICMR under mutually agreed upon terms in the future as the products become available

### 6.2.2 Payment

- ~~ICMR~~ Initial service fees are due within 30 days of contract signature ICMR shall pay VeriSign Global Registry
- ~~ICMR~~ Domain name registration fees are payable within 30 days after the close of each month

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## 6.3 Benefits

The combination of the ICMR's registrar experience, its prominence in the registrations of .com and its leadership in the industry, provides ICMR with an excellent chance of being awarded a new gTLD by ICANN. Establishing a relationship with VeriSign Global Registry may enhance ICMR's prospects by ensuring the Internet community that the new gTLD will run reliably and securely. Some additional benefits of our relationship are as follows:

- ?? VeriSign Global Registry has unparalleled experience in the domain name registration space.
- ?? VeriSign Global Registry has proven track record that responds to over 1.5 billion DNS look-ups daily and maintained a 100% record of compliance with the .com, .net, and .org SLAs.
- ?? The ICMR can leverage the reputation of VeriSign Global Registry, one of the premier Internet companies to facilitate its entry into the Internet and e-commerce space.
- ?? The ICMR can leverage VeriSign Global Registry's current technical and business relationships to allow its customers to interface directly with the SRS without additional modifications to the registrars interface.
- ?? ICMR customers can be assured of the highest reliability of any registry service in the world
- ?? VeriSign Global Registry has the financial stability to ensure the ICMR continued registry services as ICMR gets its new gTLD off of the ground