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COMPTROLLER'S MEMORANDUM 2002-42

To: All Department Heads

Attention: Data Processing Coordinators

From: Mary Alice Evans
State Comptroller

Subject: State Intranet Standards

The State's intranet, **HiGov.Net**, is an internal web site that serves all State employees, and is available to all agencies connected to the NGN (Next Generation Network) at http://www.HiGov.Net.

Statewide services to be implemented on the Intranet must be on the HiGov.Net domain. Any violation on the provisions stated on the attached policies may result in the unavailability and/or revocation of access to information systems.

Please call Lester Nakamura, ICSD Administrator, at 586-1910, if you have questions on the standards.

Attachment

State Intranet HiGov.Net Standards

General

This policy applies to all agencies connected to the NGN (Next Generation Network), which enables access to the State's intranet. The State's intranet is an internal web site that serves State employees. The domain name for the intranet is ***HiGov.Net***. The State's internetworking requirements and new initiatives require the need to adopt certain basic 'Information Technology industry' standards, which in this case is a common approach to an enterprise-wide Domain Name System (DNS). These naming standards are issued to achieve the following primary objectives:

- Centralization of the naming management authority.
- Protect, enhance and maintain privacy within the State's information systems.
- Consistent application of standards.
- Accessibility to intranet services.

Ultimately, these goals will create benefits of (1) reduced technical support and training costs, (2) improved network responsiveness, (3) network resource savings, and (4) greater interoperability.

Definitions

DNS – Domain Name System (DNS), is used to translate domain names of hosts to IP addresses and vice versa.

Domain – In a LAN, a sub-network comprised of a group of clients and servers under the control of one security database. Dividing LANs into domains improves performance and security.

Extranet – A web site for customers rather than the general public. It can provide access to research, current inventories and internal databases, virtually any information that is private and not published for everyone. An extranet uses the public Internet as its transmission system but requires passwords to gain entrance. Access to the site may be free or require payment for some or all of the services offered.

Intranet – An in-house web site that serves the employees of the enterprise. Although intranet pages may line to the Internet, an intranet is not a site accessed by the general public.

Internet – "The" Internet is made up of more than 65 million computers in more than 100 countries covering commercial, academic, and government endeavors. Originally developed for the U.S. military, the Internet became widely used for academic and commercial research. Users had access to unpublished data and journals on a huge variety of subjects. Today, the Internet has become commercialized into a worldwide information highway, providing information on every subject known to humankind.

RFC - The Requests for Comments, (RFCs) discuss many aspects of computer communication, focusing on networking protocols, procedures, programs, and concepts as they relate to the Internet.

TCP/IP – Transmission Control Protocol (TCP) provides transport functions, which ensure that the total amount of bytes sent is received correctly at the other end. User Datagram Protocol (UDP), which is part of the TCP/Internet Protocol (IP) suite, is an alternate transport that does not guarantee delivery. It is widely used for real-time voice and video transmissions where erroneous packets are not retransmitted.

TCP/IP is a routable protocol, and the IP part of TCP/IP provides the routing capability. In a routable protocol, all messages contain not only the address of the destination station, but also the address of a destination network. This allows TCP/IP messages to be sent to multiple networks within an organization or around the world, hence its use in the worldwide Internet. Every client and server in a TCP/IP network requires an IP address, which is either permanently assigned or dynamically assigned at startup.

Scope

The guidelines for the **HiGov.Net** Domain Naming Systems are addressed within this document. Any statewide service to be implemented on the Intranet must be in the **HiGov.Net** domain. Non-compliance with the provisions of this policy may result in the unavailability and/or revocation of access to information systems.

Policy

A. Guidelines for Domain Name System

a. DNS is most commonly used by applications to translate domain names of hosts to IP addresses. Because domain names are alphabetic, they're easier to remember.

   The DNS system is, in fact, its own network. If one DNS server doesn't know how to translate a particular domain name, it asks another server, and so on, until the correct IP address is returned.

b. Applicable standards guidelines based on RFC:

   i. RFC 1035 - Domain Names—Implementations and Specification
   ii. RFC 1183 - New DNS RR Definitions
   iii. RFC 1123 - Requirements for Internet Hosts (Note: this is a required Internet Standard [per RFC 1720]).

B. DNS Architecture

Generally accepted network security practices recommend separating DNS into internal and external services (see attached HiGov.Net diagram):

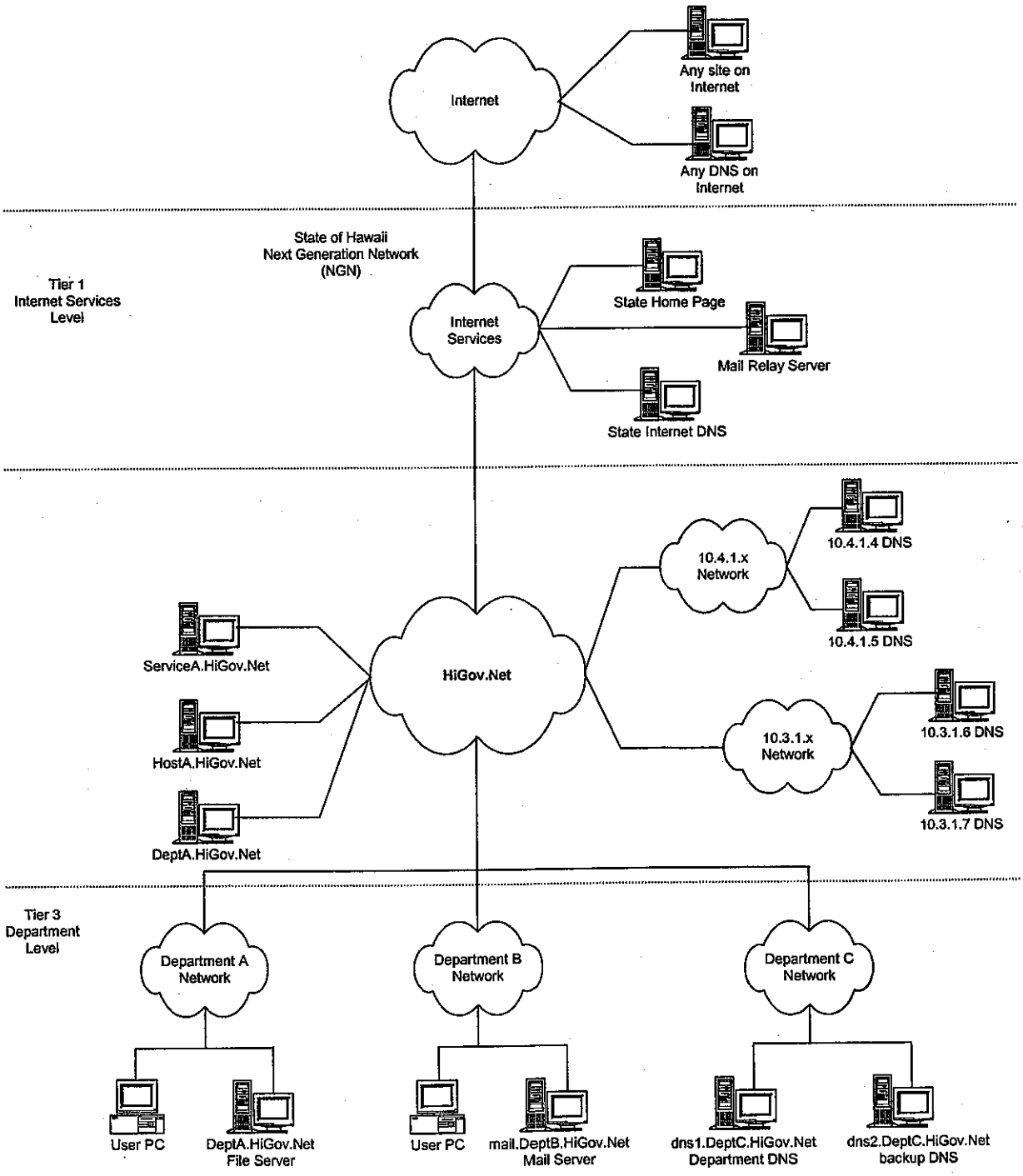
a. Public DNS (Tier 1) - One that is accessible to inquiries from the Internet. It resolves names from Internet resident hosts on the public part of the network.

b. Private DNS (Tier 2) - Resolves names inside the State's network for hosts located within HiGov.Net.

c. If needed, a Departmental DNS (Tier 3) can be set up at the departmental level.

The ICSD shall maintain the central DNS at Tier 1 and Tier 2 and will be the DNS Central Authority. Requests for HiGov.Net domain name host names shall be made to the ICSD using the form attached in Appendix B, or an electronic copy is available at http://www.higov.net/portal/Members/WUG/index_html/Forms/.

HiGov.Net
Diagram



C. DNS Delegation

1) Efforts shall be made to keep names at a four-level qualified name, e.g., A.B.**HiGov.Net**, where:

- A is the fourth level *Host Name*;
- B is the third level *Department Name Abbreviation* (or for applications/services available for statewide use);
- **HiGov** is the second level Network Domain Name; and
- **Net** is the first level Domain type.

a. Departments/agencies requesting a third level Department Name Abbreviation shall use their assigned departmental budgetary program identification designations (see Appendix A), or their common and accepted acronym. For example, the Department of Accounting and General Services may use *ags.Higov.Net* or *dags.Higov.Net*

b. The third-level department name may be replaced with a common but unique application (or service) name. This name must be consistent with the function of the requesting department/agency and shall not conflict with the functions of a larger entity. Such a name request shall be subject to review to ensure the non-infringement of functions and must be registered with the ICSD; e.g., famis.HiGov.Net.

2) Delegating Management of a Domain

In the event that a department/agency wishes to manage their own sub-domain on a departmental DNS name server, the departmental name server must point to the ICSD central DNS as the resolver for any DNS names not in their sub-domain. This will ensure that all hosts on the Internet can continue to be reached from the central name server.

D. Functional Requirements

In order to ensure access to HiGov.Net, the following configurations are required:

1. DNS Configuration – the order in which DNS servers should be configured on external networks/servers are:

10.4.1.4
10.4.1.5
10.3.1.6
10.3.1.7

The 10.4.1.4 DNS will serve as the primary DNS for HiGov.Net. In the event of failure/maintenance to the 10.4.1.4 DNS, the 10.4.1.5 DNS will serve as a backup.

In the event of failure to connect to the 10.4.1.x network, the DNS's in the 10.3.1.x network will serve as backups.

2. Domain Name Search Order – the domain name search order that should be configured on the various department networks/servers/PCs are:

   HiGov.Net
   hawaii.gov
   state.hi.us

   Setting the search domains will allow users to use "hostnames" to refer to servers/services. For example, rather than keying in "famis.HiGov.Net," you could just enter "famis."

3. Departments/agencies should not point to any external/non-NGN DNS servers. This will prevent possible name resolution conflicts between internal and external domains. This also ensures that for State controlled domains, the proper Intranet IP address is returned for such hosts that exist both on the Internet and the Intranet.

Questions

Questions regarding the content of this document should be directed to the ICSD, Public Information Access Section, at 586-1940.

Appendix A
Name Abbreviations

The following are the Executive Branch department name abbreviations:

AGR	Department of Agriculture
AGS	Department of Accounting and General Services
ATG	Department of the Attorney General
BED	Department of Business, Economic Development and Tourism
BUF	Department of Budget and Finance
CCA	Department of Commerce and Consumer Affairs
DEF	Department of Defense
EDN	Department of Education
GOV	Office of the Governor
HHL	Department of Hawaiian Home Lands
DHS	Department of Human Services
HRD	Department of Human Resources Development
HTH	Department of Health
LBR	Department of Labor and Industrial Relations
LNR	Department of Land and Natural Resources
LTG	Office of the Lieutenant Governor
OHA	Office of Hawaiian Affairs
PSD	Department of Public Safety
TAX	Department of Taxation
DOT	Department of Transportation
UOH	University of Hawaii

The following are the Legislative and Judicial Branch abbreviations:

HSE	House of Representatives
SEN	Senate
LRB	Legislative Reference Bureau
AUD	Auditor's Office
OMB	Ombudsman's Office
JUD	The Judiciary

The following are the County abbreviations:

CCH	City and County of Honolulu
COH	County of Hawaii
COK	County of Kauai
COM	County of Maui

Appendix B
DNS Request Form

INFORMATION AND COMMUNICATION SERVICES DIVISION

DNS REQUEST FORM

Note: Form must be typewritten and signed. Please allow five working days for processing

Section A

DATA PROCESSING COORDINATOR INFORMATION	
DP Coordinator Name:	
Dept/Div:	
Email Address:	Phone:
Signature of DP Coordinator:	Date:

Section B

REQUESTOR INFORMATION			
First Name:	M.I.:	Last Name:	
Dept/Div/Br/Sec:			
Email Address:		Phone:	Fax:

Section C

DOMAIN: _____ Date Required By: _____

DATE	REQUESTED DNS INFORMATION

Instructions

The "DNS REQUEST FORM" is used to request any new DNS services for the State Intranet and Internet. A request for DNS services can be:

a. Request for a new sub-domain to the "state.hi.us" domain.
b. Request for a new sub-domain to the "higov.net" domain.
c. Request for ICSD to host a miscellaneous domain acquired by the "REQUESTOR."
d. Change of "REQUESTOR" information.

Requests for changes to records in the DNS tables may be done via phone or email by the "REQUESTOR" and only after the initial signed form has been submitted. Any such request shall require email confirmation or callback for verification and shall be documented in Section C.

Section A:
Should be filled out with the Departmental DP Coordinator data. Form must be signed, and the signed form (not a fax nor a xerox copy) must be sent to the Information and Communication Services Division/Public Information Access Section, Kalanimoku Building, Room B-20.

Section B:
Should be filled out with the information of the individual making the request for DNS services/updates. Updates for this domain shall be accepted solely from the person listed here.

Section C:
The "DOMAIN" is the domain the "REQUESTOR" is asking DNS services for.
The "Date Required By" field is the date which the request should be completed by for testing purposes.
The "DATE" column shall be the date which the DNS records/changes are submitted.
The "REQUESTED DNS INFORMATION" column shall be used to indicate what records the "REQUESTOR" would like entered into the DNS tables.

This section shall also be used as a comment area for explanation of the DNS request. It will also be used by ICSD to record the history of DNS requests for updates.