

December 31, 2007

To: Mark Hopkins, NSS Senior Operating Officer (SOO)
cc: Members of NSS Board of Directors
cc: Members of NSS Internet Services Committee
Subject: ISC Activity Report, Period from April thru December 2007

Introduction

I am happy to provide this 9-month activity report to the NSS Board of Directors on behalf of the Internet Services Committee (ISC). The ISC continues to operate under the direction of an Acting Chair. Past ISC Chair Ronnie Lajoie is serving in this capacity until a permanent replacement is found, but his duties as the elected NSS Vice-President for Membership have been taking priority.

Overall, things are looking okay from an ISC perspective. Our Internet servers are stable and down-time has become a very rare occurrence. Our Internet email and Web services (including online forms) are operational, and response times for maintenance, fixes, and simple changes are very reasonable, usually within a day or two. Where the ISC is falling short is in helping the Web Oversight Committee (WOC) generate new content and capabilities for the NSS Web site, especially those associated with the long-desired Web site redesign. The one exception has been the terrific work of David Brandt-Erichson, who continues to develop and enhance the Space Settlement section, the Education Committee's "Resources" section, the Awards section, and others.

Now that the WOC has a new Chair, Jim Plaxco, the ISC will be under increased pressure to provide support for the redesign of the NSS Web site. In preparation for this, the ISC was restructured in October to separate Web page development work from new Web capabilities research (see Structure section for details). The revised structure will allow better utilization of existing and new ISC volunteers.

Issues for Executive Committee or Board of Directors

- NSS Email Plan still behind schedule — will focus on drafting the Email Policy portion first
- An NSS Web Site Policy still needed to document current and desired Web site management approaches
- Web site redesign will take the active participation of NSS leader stakeholders

Committee Responsibilities and Structure

The ISC is a collection of volunteers that provide free Internet services (Web, email, etc.) to the NSS. The NSS leadership can and does also utilize paid Internet contractors and services (e.g., CyberTeams, Xisp, Imaginova), especially for infrastructure. For the legal protection of NSS, ownership for the content on NSS Web pages rests with the NSS leadership and their committees that are responsible for functions similar to those described on "their" parts of the NSS Web site (e.g., Policy Committee over the Legislative Web section).

Per Policy III, Section 10 of the NSS Corporate Policies Document (CPD), the ISC "will be responsible for the development, maintenance, and security of NSS Web sites (excluding chapter-managed sites) and associated Internet services (online forms and databases, email forwarding, email lists, domain and server licenses, etc.), and for implementing the requirements of the Web Oversight Committee." The ISC will "report to the Senior Operating Officer and will work as necessary with staff, volunteers, chapters, and contract services ..."

Figure 1 shows the revised structure of the ISC. The ISC is now sub-divided into five Teams that focus on different parts of the three major aspects of Internet services (production, R&D, and operations). Each Team has two co-Leads to minimize delays in request responses. Figure 1 shows the names of each co-Lead as well as the reporting chain per the CPD.

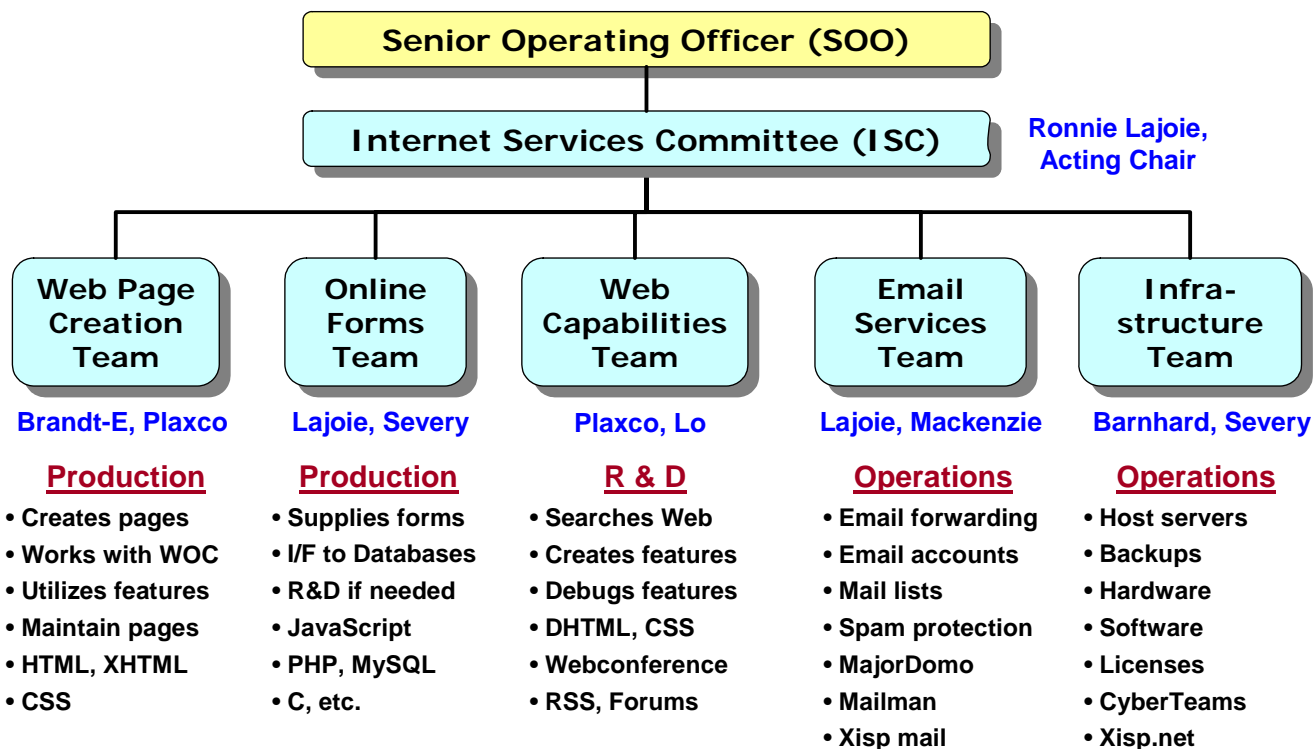


Figure 1. NSS Internet Services Committee structure and basic functionality.

- Active ISC members: Ronnie Lajoie (Acting Chair), Dale Amon, Gary Barnhard (CEC, Xisp), David Brandt-Erichsen, Yohon Lo, Bruce Mackenzie, Karen Mermel, Jim Plaxco (WOC), Stephen Prater, Randall Severy (CyberTeams), and Drew White (ISDC).
- Non-active ISC members: David Hitt, Joe Latrell, Steve Milhiser, Brian Lundquist, Ben Nault, Jim Sealy, and Arthur Smith (past Chair).

It should be noted that while Gary and Randall do participate occasionally on the ISC as volunteers, they mostly now provide contracted services to the NSS. Randall owns CyberTeams, which hosts the NSS Web site, and is contracted by NSS for server maintenance, Membership Database support and upgrades, and certain online forms (ISDC and Space Blitz). Gary owns Xisp, which hosts the Membership Database, and is contracted by NSS for server maintenance and upgrades, and for Internet services at NSS off-site meetings and conferences. The NSS also contracts Stephen Prater for discounted, specialty Web graphic ads and pages (e.g., ISDC).

NSS Email Lists and Email Protection

- Development and implementation of the NSS Email Plan is on hold while more urgent matters are addressed. The Chapters Committee and HAL5 have volunteered to be guinea pigs for the first “Mailman” email lists using the to-be-proposed configuration settings. This will help in the formulation and execution of the Plan.
- Despite these delays, ISC Email Subteam members continue to provide email forwarding capability to many NSS leaders, and the new system of include files makes maintenance a breeze. The group also continues to provide email list capability via “MajorDomo” on the CyberTeams server and “Cobalt” on the Xisp server. The plan is still to transition all needed email lists to the more powerful and user-friendly Mailman software, which can be partly automated via Web forms and PHP scripts.
- The CyberTeams Great Firewall of China continues to keep the Spam Barbarians at bay, as indicated in Figure 1. The attacks of the White Internet Horde never let up, however, and they seem to be weakening our

defenses. To reduce the spam burden on recipients at HQ and elsewhere, a new Online Feedback Form will be introduced in January. The spam-bombarded email addresses on our Web pages, including those in the common NSS Web page footer, will be replaced with links to variants of this new online form.

- The email auto-reply capability created in September 2006 continues to provide user-friendly referrals for obsolete, spam-bombarded NSS email addresses. This auto-reply message explains that the email address has been removed from the system or does not exist, and to use the new Online Feedback Form or call NSS Headquarters instead. One of the goals of the auto-reply capability is to convince spammers that these email addresses are not worth spamming and to stop sending them email. This may be happening, but it seems to a slow process (see Figure 2), as 80-percent of auto-reply messages sent back to spammers just bounce, as shown in Figure 3.

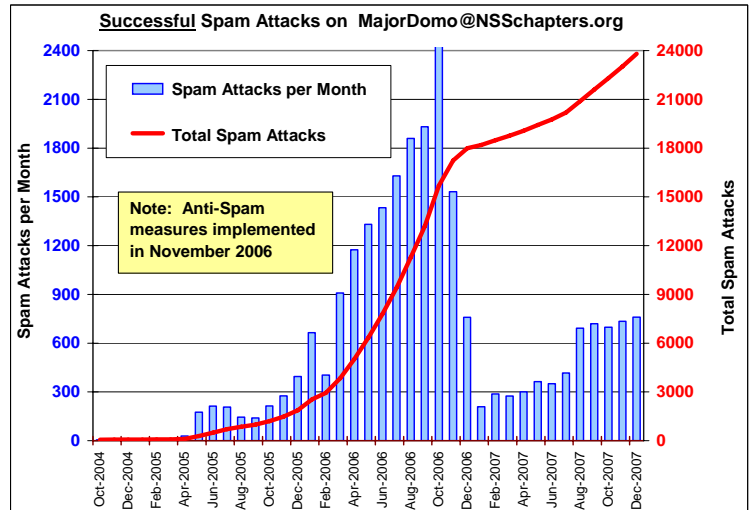


Figure 1. Fraction of spam attacking MajorDomo.

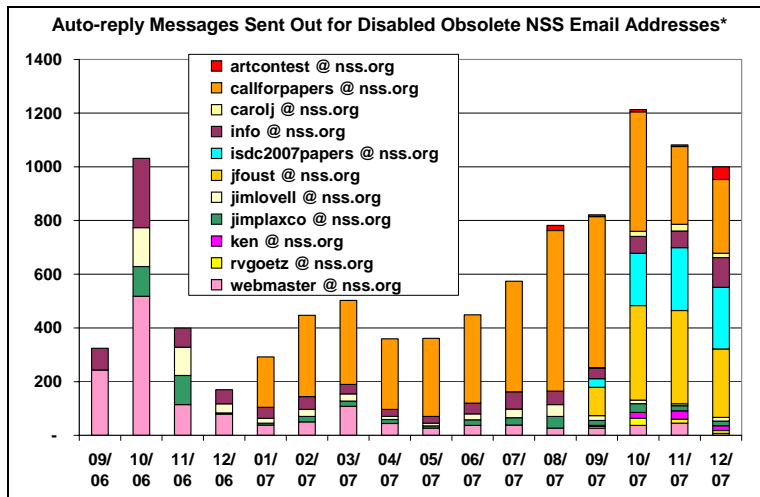


Figure 2. Auto-Reply messages sent back to Senders.

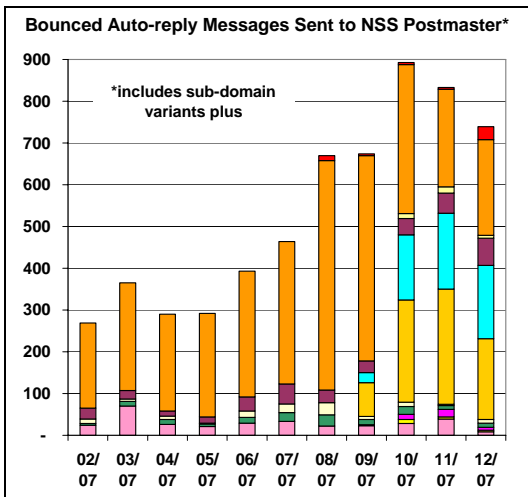


Figure 3. Bounced Auto-Reply messages.

NSS Web Site

David Brandt-Erichsen provided a report from the NSS Website Content Development subcommittee of the Web Oversight Committee (WOC) back in October, so this section will supplement his report with any other ISC Web site support between April and October, plus developments since October.

- Web site Redesign — The WOC gained a Chair, Jim Plaxco, in October, and has been very active since in starting the process of redesigning the NSS Web site. Thus far, the WOC has designed a cleaned-up Home Page and a new menu-based site navigation system. The ISC is providing volunteer support to this process, while the HQ staff researches ways to raise sufficient money to include professional Web developers. The ISC is recommending that professional Web services be used for designing elegant new Web pages and template files that can be tailored for other Web pages by ISC volunteers, who will likely maintain the site.

- *Ad Astra* section — Josh Powers continues to oversee the maintenance of the *Ad Astra* Online site at <http://www.space.com/adastra/>. Meanwhile, David Brandt-Erichsen performed a much-needed cleanup up the “primary” site at <http://www.nss.org/adastra/> while awaiting redesign direction from the WOC. Both ISC and WOC Chairs are encouraging the new *Ad Astra* magazine team to designate a WOC representative (or two) for the *Ad Astra* section as soon as possible.
- Awards section — No progress due to other priorities and lack of demand from the Awards Committee. A quick update needs to be performed to list the winners of awards presented at ISDC 2007.
- Chapters section — Ronnie Lajoie (ISC) for Chapters Committee (WOC) continued to maintain the Chapter Web Listing at <http://chapters.nss.org/a/lists/> via the automated macros in the Excel Chapter Database.
- Chapters section — Chapters VP Candace Pankanin and Chapter Projects & Events Coordinator Veronica Zabala continued to maintain the main Chapters page and the Chapters Projects & Events section at: <http://chapters.nss.org/committees/ProjectsandEvents/NSSChaptersNetworkProjectandEvents.html>. For more information, see Candace’s report for the Chapters Committee.
- Giving section — Ronnie Lajoie (ISC) and Katherine Brick (MOI) for the Fundraising Committee (WOC) designed and created a set of Web pages and downloadable files for the new Recurring Donation Program. The main page is located at <http://www.nss.org/giving/recurring/>. This page and an associated “Program Overview” page demonstrate a modern, CSS-based, Web page design capability that uses no <TABLE> elements for page layout. These pages also demonstrate the use of a small JPEG file for a full-screen, graphic background image (made from lightening a Space Settlement Calendar image). This CSS-based layout could be used as a template or a model for other simple “portal” pages on the Web site.
- Giving section — The main Recurring Donation Program and “Program Overview” Web pages also demonstrate a new JavaScript-based technique for autoscaling Web pages — text *and* graphics *and* layout — to the browser window (currently based on browser width). The pages have been successfully tested at numerous small and large browser window sizes and shapes and across screen resolutions ranging from near-obsolete VGA (640x480) to HD-TV era 1920x1080. The technique has also been successfully tested using Firefox and Internet Explorer (6 and 7) browsers, plus the latest versions of Opera and Safari browsers. In case JavaScript is disabled, the default CSS settings are based on the current NSS Web page layout rules. This new capability offers NSS a powerful new tool for designing Web pages that look as intended regardless of the user’s screen resolution and browser settings.
- Home Page — New WOC Chair Jim Plaxco initiated a cleanup operation and partial redesign of the Home Page in October, while Ronnie Lajoie (ISC Chair for WOC) led a Home Page overhaul working session in Alamogordo at the NSS Fall Meeting. During testing of the new page with WSD’s LiveUpdate capability, it was discovered that the version of the FCKeditor WYSIWYG editor was not up to the job of properly handling CSS-based Web pages. A just released new version of the FCKeditor WYSIWYG editor, one redesigned to handle CSS-based layout, is being installed and should be operational in January.
- ISDC section — The ISDC 2008 Web site at <http://isdc.nss.org/2008/>, as the ISDC 2007 site before it, is an application of WSD “page layout templates” that is being considered for general implementation across the NSS Web site. ISDC Chair Josh Powers has recruited volunteer Drew White to head Web site development.
- ISDC section — Randall Severy (contractor) for Conferences Committee (WOC) updated registration files and provided initial setup support for ISDC 2008 Web site at <http://isdc.nss.org/2008/>.
- Legislative section — David Brandt-Erichsen (ISC) for Policy Committee (WOC) updated the Legislative Action section at <http://www.nss.org/legislative/> to advertise and provide links to information about the first alerts from the Political Action Network (PAN) and Phone Tree.
- Legislative section — PAN and Phone Tree Coordinator Veronica-Ann Zabala has created a Web page for the Phone Tree at: <http://chapters.nss.org/committees/NSSPhoneTree/NSSPhoneTree.html> The previously-

created PAN shortcut at <http://www.nss.org/PAN> still points to the Legislative Action main page. The ISC Chair will get with Veronica to discuss if this should be redirected to the above page or other possibilities.

- Membership section — Ronnie Lajoie (ISC) for the Membership Committee (WOC) updated the introductory Web page at <http://www.nss.org/membership/> to point to the new SHTML versions of the online forms, including the new one dedicated to people joining NSS to qualify for the NASA Federal Credit Union.
- Membership section — While planning a new “Membership” menu category for the new site navigation system, the Membership Committee proposed a handful of top-level links that require new Web pages. The committee will start to plan the development of these pages in January.
- Public Affairs section — Ronnie Lajoie and David Brandt-Erichson (ISC) for Public Affairs Committee (WOC) updated the “About Us” section at <http://www.nss.org/about/> with cleaned up, XHTML-compliant Web pages. Ronnie created a new Web page at http://www.nss.org/about/nss_structure.html showing the organizational structure of the Society, based on existing charts. He has approached the Operations Committee about creating photo-based org-chart pages with links pointing down the organizational tree.
- Public Affairs section — Ronnie Lajoie and David Brandt-Erichson (ISC) for Public Affairs Committee (WOC) updated the “News” section at <http://www.nss.org/news/> as part of the start of the Web site redesign. The list of NSS press releases was moved to a new index page at <http://www.nss.org/news/releases/>. This is to make room on the main index page for news-related RSS feeds to be moved from the NSS Home Page.
- Resource section — David Brandt-Erichson (ISC) for Marianne Dyson (WOC) continues to update the “Reading Space” book reviews section at <http://www.nss.org/resources/books/>. David and Marianne, along with Marianne’s team of volunteer reviewers, are again to be congratulated for their great efforts.
- Resource section — David Brandt-Erichson (ISC) for the Education and Outreach Committee (WOC) continues to add content to the new Library section at <http://www.nss.org/resources/library/>. Thanks to his tireless efforts, the Library section now consists of eight major categories of useful space information. See David’s report for more details.
- Settlement section — David Brandt-Erichson (ISC) for Al Globus and the Space Settlement Advocacy Committee (WOC) continues to enhance the great new Space Settlement section of the NSS Web site at <http://www.nss.org/settlement/>. One major addition is a new section on Space Solar Power (SSP), which has recently become a hot issue on the environmental scene due to global warming concerns. The main page is located at <http://www.nss.org/settlement/ssp/>. SVP Mark Hopkins has reported that both the Settlement and SSP sections have been recognized as. See David’s report for more details.
- Settlement section — David Brandt-Erichson (ISC) for Jim Plaxco and later Bart Leahy of the Space Settlement Calendar Committee (WOC) continues to develop and maintain the Calendar Art Contest section of the NSS Web site at <http://www.nss.org/settlement/calendar/>. David, with minor assistance from Yohon Lo and Ronnie Lajoie, continues to keep his clients happy with his quick response time and hard work. See David’s report for more details.
- Volunteer section — No progress due to other priorities and lack of demand from the Operations Committee.

NSS Online Forms

The long-awaited (by me anyway) operational release of the SHTML versions of the NSS online forms finally occurred on December 22, 2007 — one year later than originally desired. The SHTML versions use server-side includes (SSI) to assemble common and unique HTML file components into the desired online form. This greatly reduces maintenance associated with changes to common online form elements such as headers, footers, submit buttons, help/contact information, credit card fields, and especially pull-down menus (countries, states, name prefixes/suffixes, Chapters, etc.). Using common “include” elements increases the reliability of the forms and reduces training time for ISC volunteers. The SSI technique was implemented several years ago for the

NSS chapter listing pages, and has proven to be operationally robust. SSI is also a step towards CyberTeams *Web Site Director* (WSD) page layout templates, which offer more capability than the simpler SSI technique.

In the end, it required only 80 hours of PHP programming and testing in 2007 to complete the changes to NODAC for Version 0.D to support the revised forms, but only 30 could be squeezed in before December due to other priorities on the Internet Services Committee (580 hours) and (personal conflict) Membership Committee (450 hours). Some of those ISC hours were spent to further enhance the online forms with additional versions and/or input fields and revised or new JavaScript support capabilities. These include the revised Online Volunteer form and new Online Feedback forms, whose operational releases had to be unfortunately postponed until Version 0.E of NODAC. Barring major NSS crises, the goal is to get Version 0.E released by the end of January — 2008. The many changes and enhancements to the online forms associated with NODAC Version 0.D are described below, grouped by form type.

Online *Ad Astra* Trial Issue form

- No visible changes, but a number of common structural changes to the HTML source code and supporting PHP form processing code.
- NSS HQ, Membership Committee, and ISC are re-evaluating this form, which currently has no direct links.

Online Contest forms

- Visible changes include revising the online Space Settlement Calendar Art Contest form to match the requirements for the new contest to collect artwork for the *Space Settlement 2009* calendar.

Online Donation forms

- Common visible changes include replacing the never-selected \$1000 and \$5000 contribution choices with lower frequent-write-in choices of \$10 and \$20, adding a “minimum \$5” statement and JavaScript check, and adding an “Other Information” text input field. Also added “One-Time” to the title of the main donation forms to more clearly distinguish them from the new recurring one (see below).
- Added an online form to support the new NSS Recurring Donation Program (www.nss.org/giving/recurring/). This form offers choices of recurring monthly donations from \$5 (\$60 per year, equivalent to a Contributing membership) to \$100 (\$1200 per year, equivalent to a Visionary membership). Both recurring and now “one-time” donation forms cross-link each other, as well as now include a link to the gift membership form.
- Common structural changes include addition of fields in the NODAC Database to distinguish between one-time and recurring donations. These fields have been designed to support more or less frequent recurring donations as well as payment plans (e.g., separating a \$1000 donation into 10 payments).
- Per the Membership Policy, revised remaining non-compliant donation forms and introductory text so that donations of \$20 or more from a non-member convert the submission to a new membership submission with any amount over \$20 as an additional donation. The nature of the new Recurring Donation Form does not allow for a conversion to a new membership; so instead a comment is automatically added to the “Other Information” field explaining that the donation from a non-member qualifies for NSS membership.

Online Feedback forms

- Created a prototype Online Feedback form and several variants, including a “Full” variant with all possible input fields. These forms will become operational with the release of NODAC Version 0.E.

Online Membership forms

- Common visible changes to input fields include adding (to all except Gift Membership and NASA FCU forms) a Phone Tree participation level selection feature and a Chapter notification checkbox (“I would like to be contacted by my local NSS chapter about events near me”). By request, a PAN or Phone Tree selection

now results in an automatically-generated email notification to the PAN Coordinator (Veronica Zabala). The next version of NODAC will perform a similar function to notify the Chapter Contact of the nearest local NSS chapter when a new or renewed member checks the Chapter notification checkbox.

- Common visible changes to selection menus include a country-based Membership Level menu that disables the “Foreign” choice for U.S. mailing addresses and disables the “General U.S.” and “Student” choices for foreign addresses, and a Referrer-based Chapter menu that is disabled (along with the associated Chapter Code field) if “Chapter” is not selected as the reason for the person joining the NSS. This will help to eliminate the problem of people mistakenly crediting a chapter when they think they *must* select one.
- Common visible JavaScript-based changes to the main Online New Member and Gift Membership forms include the automatic selection of “Chapter” as the Referrer and assignment of the Chapter Code, if this information is passed as query options “Method=” and “Chapter=” in the URL of the online form address. These fields are then disabled to prevent the user from changing them. Thanks to George Howard of Heart of America Chapter NSS for the suggestion. For example, the following will pre-select George’s chapter:
https://www.nss.org/membership/new_member_form.shtml?Method=Chapter&Chapter=521
- Visible unique changes to the Online Gift Membership form include the removal of the PAN checkbox, since it had rarely been checked by people donating a membership, and the form was already too busy.
- Visible unique changes to the Online Membership Renewal form include moving the Country selection menu before the now country-based Membership Level menu, and adding an “Other Information” text input field.
- Added a simpler variant of the Online New Member form geared towards people who want to join NSS to qualify for membership with the NASA Federal Credit Union (FCU). This so-called “NASA FCU” form lacks the Referrer and Recruiting Chapter pull-down menus and instead pre-selects the Referrer as “NASA FCU”. It also lacks the PAN, Phone Tree, and Chapter notification fields, since the PAN checkbox had rarely been checked by people joining for the NASA FCU deal. By request (back in 2006!), a “NASA FCU” or “Car Dealer” Referrer choice (which can be selected from other New Member forms) now results in an automatically-generated email notification to an email address provided by the NASA FCU.
- Common structural changes include addition of fields in the NODAC Database to provide future support of automatic recurring membership renewals and payment plans (e.g., separating the dues for a \$600 Pioneer membership into 12 payments of \$50).

Other common online form changes

- As allowed by the NSS Space Settlement Calendar Art Contest terms, started using submitted artwork in some of the primary online forms (donation, membership, and volunteer). Each art image used is a link to the associated Web page in the Calendar Art Contest section of the NSS Web site. Also, the artwork title and artist name appear when the mouse cursor is over the artwork.
- Added a small graphic image for each credit card type menu choice, each one a link that selects the matching menu choice.
- Common structural changes to the PHP code have further off-loaded similar form-processing operations to now common functions. This has further reduced the online-form-unique PHP code by another 25 percent. These improvements will decrease the time to create new types of online forms (such as Feedback) and allow for other ISC volunteers to help maintain and enhance the NODAC code.

NSS Web Forums, Blogs, Wikis, and other Web Goodies

- Our previous Web forum (BBS) capability continues to be off-line due to security issues with the chosen 3rd-party software package “phpbb”. Our Web logging (blogging) capability, via the software package “Movable

Type” is still operational with a small amount of administrative oversight and support from past ISC Chair Arthur Smith.

- Gary Barnhard continues to maintain and provide administrative oversight and training for the Wiki capability. There are numerous Wikis grouped into a WikiPharm at <http://nssdocs.xisp.net/nsswiki1/>, including one at <http://nssdocs.xisp.net/nsswiki1/NssWebsiteDesignWiki> to support the Web site redesign process. The acting ISC Chair (me) now pledges to become an active Wiki participant and advocate.
- Arthur Smith and Randall Severy successfully installed the latest version of the Drupal content management system. The ISC will be experimenting with this new capability during the Web site redesign process.

NSS Internet Infrastructure

The NSS Internet Infrastructure Task Force of Gary Barnhard, Randall Severy, and Dale Amon continues to make progress towards a secure and robust hardware and software infrastructure and working environment for the NSS Web site and email support services.

As identified in the evolving NSS Information Technology Infrastructure Plan (located at <http://nssdocs.xisp.net/nsswiki1/NssItInfrastructure>), NSS has invested in a high-availability, fault-tolerant server hosting environment that includes a file server (xena.nss.org), uninterruptible power supply, network switch, and a portable rolling rack/shipping case. This hardware hosts mission critical internal IP services such as the NSS Membership Database, and act as a shadow/backup server for the external IP services hosted on the CyberTeams server (e.g., NSS Web site and email services).

As reported in October 2007, NSS IP services are provided by the following family of servers:

- infinity.barnhard.net (system.nss.org, Amanda)
- infinity4.barnhard.net (Backup Master, Shadow Archive, Abstracts & Papers Database)
- grendel.xisp.net (Abstracts & Papers Development Database)
- cobalt0.barnhard.net (nsslists.xisp.net)
- astra.xisp.net (Firewall & IPSEC to HQ)
- pb7.pair.com (www.nss.org, chapters.nss.org, lists.nss.org, moo.nss.org, AWStats).

Once the consolidation of these IP services that is now underway is completed, the NSS server infrastructure will have xena.nss.org as primary server for all NSS internal IP services, as well as a shadow/backup server for all NSS external IP services. The primary server for NSS external IP services will remain on pb7.pair.com until such time as it makes sense to use other resources.

Final Comments

I would like to thank once again the small (too small) but dedicated team members of the ISC for their truly great work in enhancing the NSS Web site and other NSS internet capabilities. These members include Dale Amon, Gary Barnhard, David Brandt-Erichson (our super-star), Yohon Lo, Bruce Mackenzie, Jim Plaxco, Randall Severy, Arthur Smith, and Drew White. The ISC will make a special effort to recruit more volunteers in 2008 and give our overworked team members some relief.

— Ronnie M. Lajoie, Acting Internet Services Committee Chair