

Enclosure 11

From: Dan Graser
To: ARP_Materials
Date: Sat, Feb 19, 2000 12:16 PM
Subject: TWG presentation overheads

I apologize for the delay in getting this out. Hopefully, some of you may receive this over the weekend, and have Monday & Tuesday for familiarization.

This is a Powerpoint 4.0 file. If you do not use Powerpoint, you should be able to import it into other presentation packages without losing too much of the formatting.

There will be paper-copy handouts of this file available at the LSNARP meeting on the 23rd.

CC: Irish III, R., Steven Zane

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Subject: TWG presentation overheads
Creation Date: Sat, Feb 19, 2000 12:16 PM
From: Dan Graser

Created By: DJG2.TWF2_PO.TWFN_DO

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chris	

internet:terraspectra.com

elaine

internet:terraspectra.com

threeputt.hawthorne.nv.us

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winston.com

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ymp.gov

internet

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Saturday, February 19, 2000 12:16 PM

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Expiration Date:

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No

Priority:

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Reply Requested:

No

Return Notification:

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Concealed Subject:

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Security:

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To Be Delivered:

Immediate

Status Tracking:

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Licensing Support Network Technical Working Group Report

Analysis of LSN Design Alternatives



February 23, 2000



Technical Working Group Objectives

- *Performs any investigation, research, or analysis as is directed by the ARP*
- *Provides various products, analyses, presentations, etc., for the ARP for their consideration and possible action*



OUTLINE

- **Summary of October and December Technical Work Group Meetings**
- **Overview of Alternatives**
- **Alternatives 3, 4, and 5 – Description, implications, and decision factors**
- **General Expenditures Assessment**
- **Summary and Next Steps**

Questions will be entertained at the end of each section

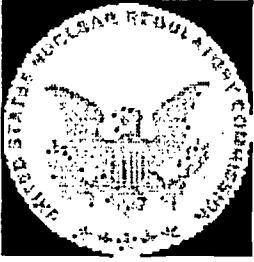


TWG Participants

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John Gandi
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Thomas Moore
Paul Bollwerk
Jack Whetstine
Chris Berlien
Elaine Ezra
Tony Neville
Joe Speicher
Sam Hobbs
Tom Nartker
Harvey Spiro
Harry Leake
Kazem Taghva
David Hunt
Dennis Bechtel
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NRC/ASLBP (301)415-7454
NRC/ASLBP (301)415-7391
Nye Co (702)795-8254
Nye Co (702)795-8254
NRC/Labat (703)506-1400x506
NRC/Labat (703)506-1400x835
M&O/YMP (702)295-5472
UNLV-ISRI (702)895-0848
NRC/OCIO (301)415-5862
M&O/YMP (702)295-5531
UNLV-ISRI (702)895-0873
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October Meeting Accomplishments

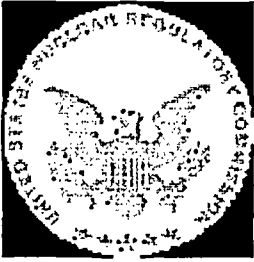
- Reviewed three alternative LSN technical solutions
- Walked through technical description of each of the alternative solutions
- Proposed a fourth technical solution (*variant on technical solution 3*)
- Considered & Compared:
 - Integration and Interaction
 - Server performance
 - Text accuracy standards
 - Documentation
 - Performance statistics and documentation
 - Acceptable formats
 - Document management and control
 - Software licensing
 - Search engine performance standards
 - Security
 - Data maintenance
 - Training



October Meeting Action Items

LSN Functional Requirements – Items and assigned responsibilities:

- Revised version of Functional Requirements (NRC)
- Recommendations for bibliographic headers (NRC)
- Detailed descriptions for the two (now three) viable alternatives (NRC-LABAT)
- Ballpark pricing estimates for the two (now three) viable alternatives (NRC- LABAT)
- Portal software vendors. Identify if any of them operate on non-NT systems (e.g, UNIX?) (NRC)
- Applicability of data mining tools (NRC)
- Experience of DOE/ES&H performance statistics from their portal site. (NRC)
- Records packages and issues to be addressed



December Meeting Accomplishments

■ **Defined Mission of System:**

- Web-based system—providing all documents uniformly
- Independent compliance auditing
- Ensure system performance

■ **Defined Key Attributes of System:**

- LSNA control of system
- Timely availability of the system
- Highest performance at reasonable cost.

■ **A fifth solution proposed (portal with enhanced central storage)**

■ **Focus on bandwidth as an important and difficult issue**



Additional Activities

Nevada Public Libraries -

"All public library systems in Nevada provide Internet access to the public, including library branches in outlying suburban areas as well as rural and remote libraries. So if your documents are available on the Internet, Nevadans will have access to them. Libraries in all of the areas you mentioned provide access to Internet. You'll find a directory listing of all Nevada libraries and the hours during which they are open on our Departmental website at dmla.clan.lib.nv.us (click on Nevada State Library and Archives, then on Nevada Library Directory and Statistics)."

**Bonnie Buckley,
Library Planning and Development
Nevada State Library & Archives**



Additional Activities

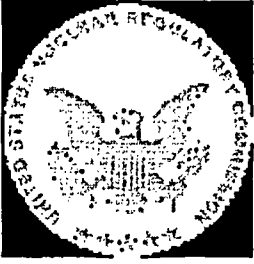
■ **LSN Functional Requirements**

- **48 Core Requirements Identified**
- **Attributes of Central Mainframe Scrubbed Out**
- **Reviewed by TWG**



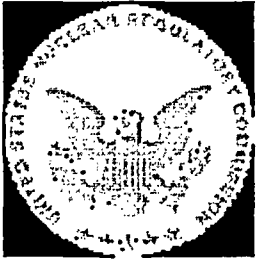
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Overview of Alternatives

- ❶ **Simplified** - *Just Link Everyone's URL*
- ❷ **Moderate** - *Central Search Interface*
- ❸ **Portal fed by distributed participant web sites** (*remote storage*)
- ❹ **Portal fed by distributed participant web sites on campus** (*proximate storage*)
- ❺ **Portal with enhanced central storage fed by distributed participant web sites**

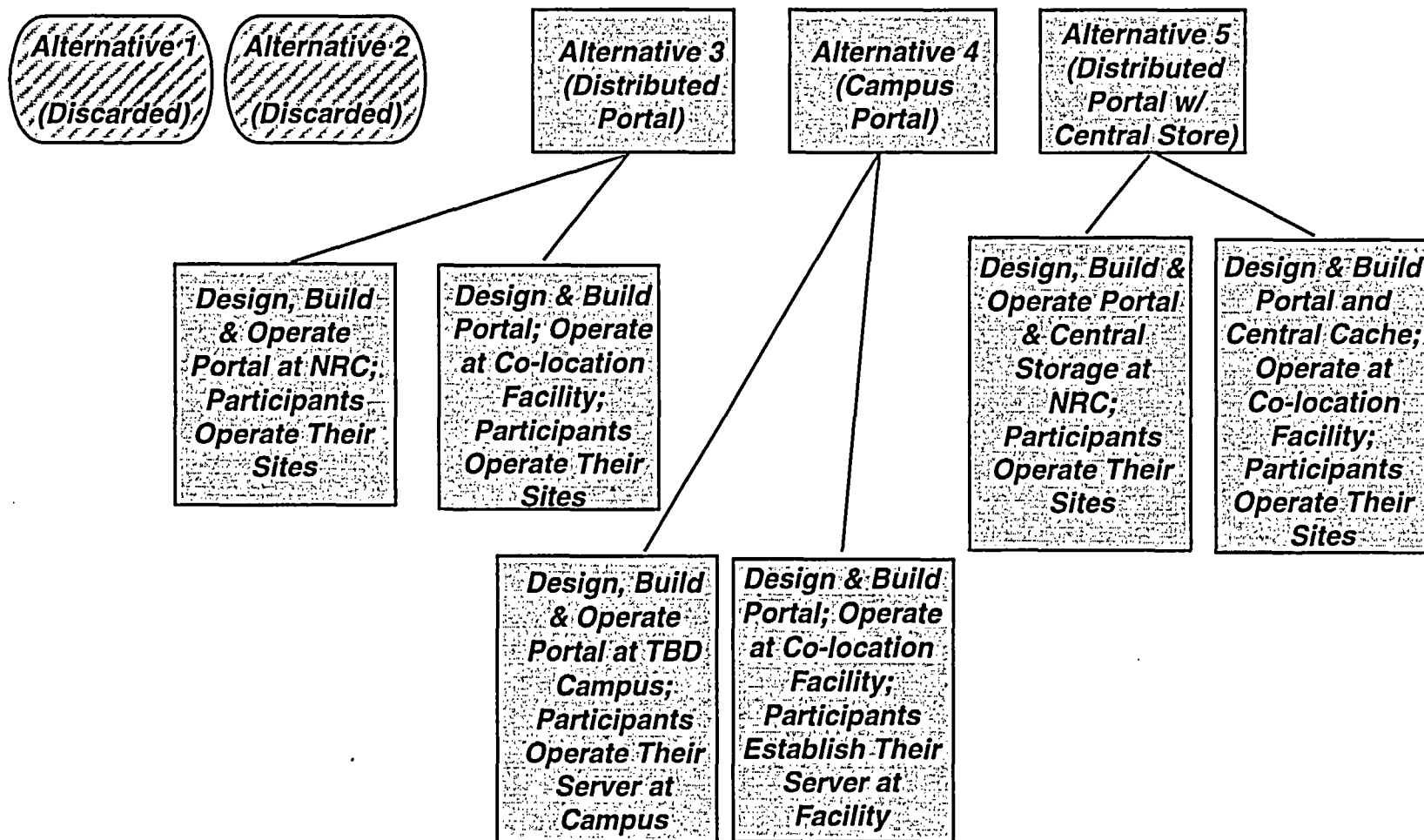


Options for Implementing Alternatives

- Operate ourselves vs. outsourcing
- **Campus** – a location where each participant's server is housed in close proximity. Participants cooperate on shared resources; servers/storage are connected via a LAN.
- **Co-location Facility** – buy standard equipment and install at a commercial, full service computer installation. They provide connectivity, security, backup, etc., for standard fee.



Options for Implementing Alternatives





Common Aspects for Alternatives 3, 4, and 5

- **Portal-based user interface**
- **Audit system for LSNA**
- **Use NRC EIE for motions practice and ADAMS for docket**
- **Web-based system**
- **Participant to establish web site presence**
- **Standard file formats**



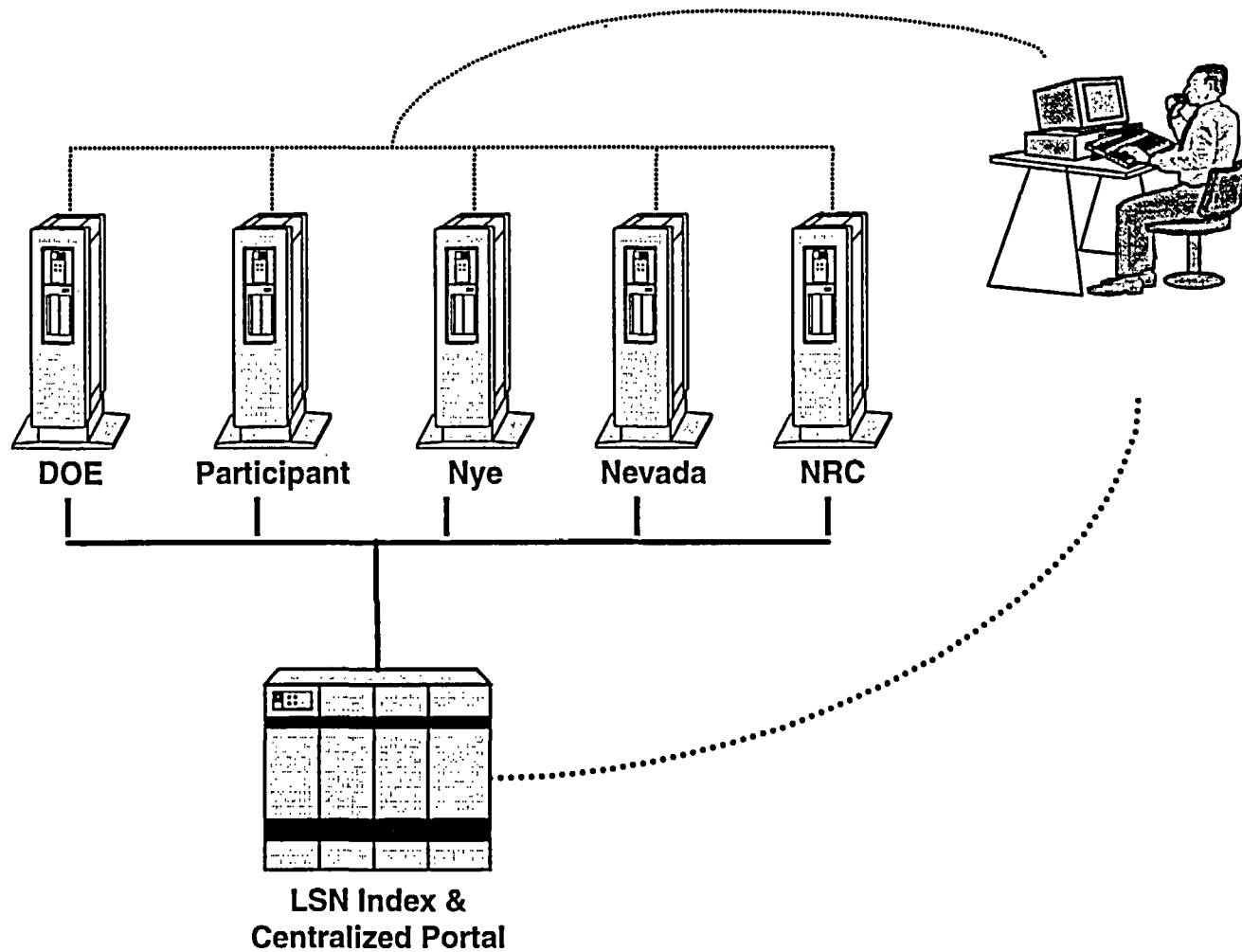
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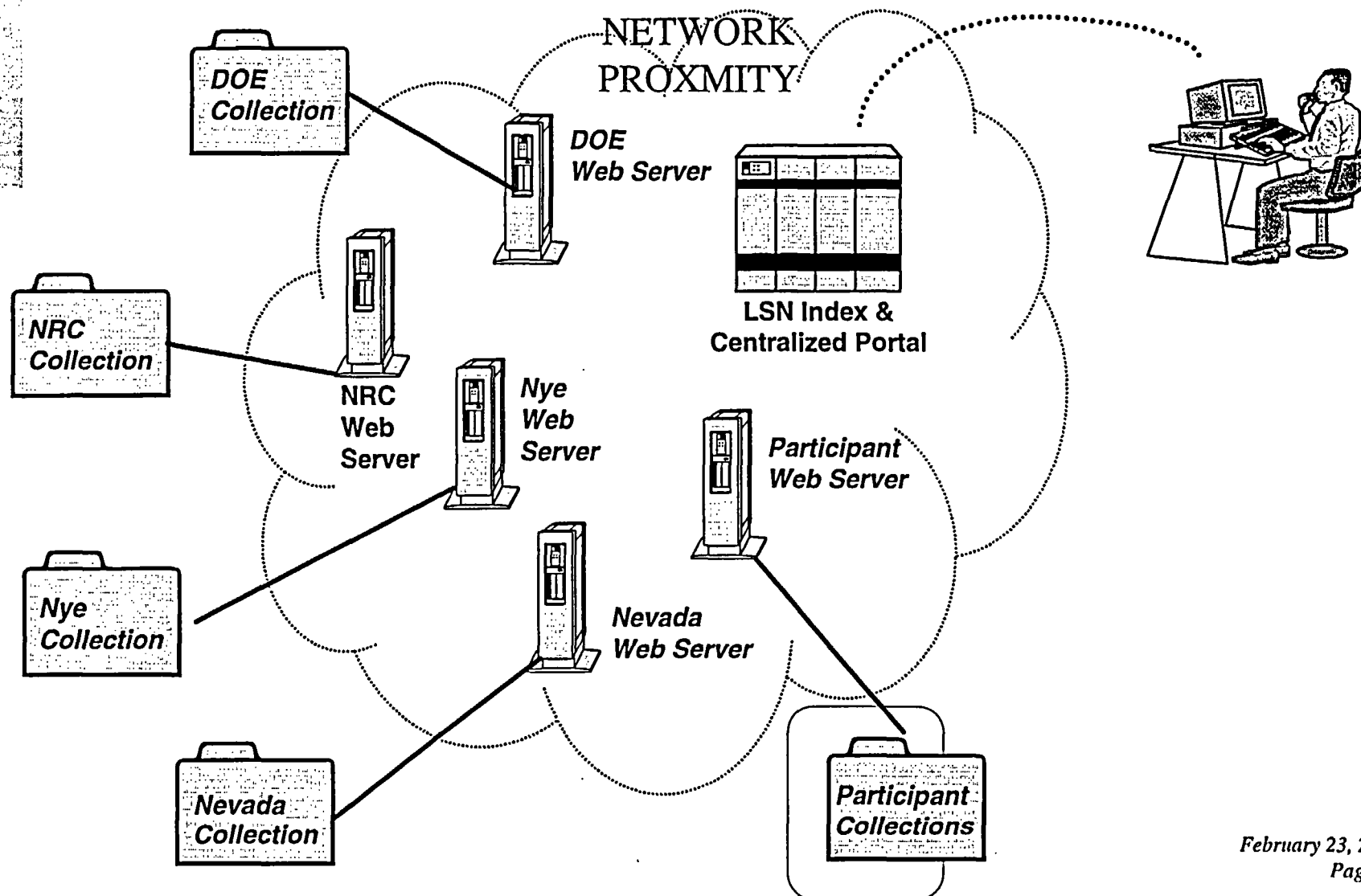
Alternative 3 Schematic

**WEB
SERVERS**



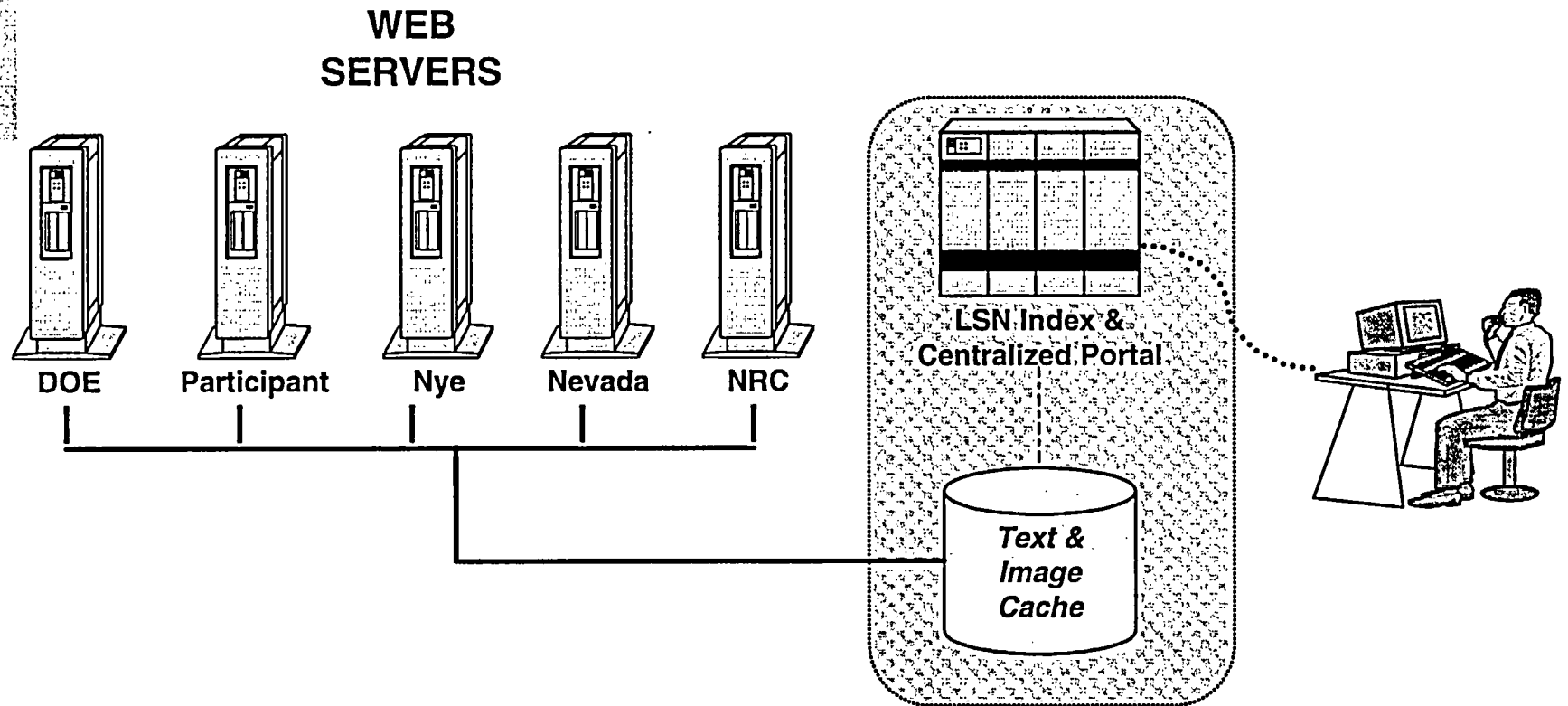


Alternative 4 Schematic





Alternative 5 Schematic





Alternative 3: Distributed Portal/ Remote Storage

DESCRIPTION: *Remote portal software indexes files that are maintained by participants at their sites*

IMPLICATIONS:

- **Participant roles**
 - Critical role for ensuring availability and performance
 - ✓ Portal provides some availability aspects
 - ✓ Participant ensures file delivery and bandwidth
- **Ease of use**
 - Very flexible: users may customize desktop/interface
 - Consistent query screen/results
 - Highest level of availability: portal & participant sites independently available
 - Response time performance can be variable
 - Image & text delivery depends on participant resources



Alternative 3: Distributed Portal/ Remote Storage (continued)

DECISION FACTORS:

- **LSNA administrative control**
 - LSNA controls search, interface, security, and access
 - Monitoring and tuning tools provided
 - Fetching text files and image files is constrained
- **Risks**
 - **Design complexity:** Moderate to higher schedule risk of participants being operational to support licensing and moderate schedule risk for LSNA to have operational for licensing
 - **Integration issues:** Moderate implementation complexity risk to participants and moderate complexity of integration risk for LSNA
- **Costs**
 - Lowest cost for the NRC
 - Variable cost burden to participants to do system administration and data management



Alternative 4: Campus Portal/Participant Maintained Proximate Storage

DESCRIPTION: *Portal software indexes files maintained by participant web servers located at central site*

IMPLICATIONS:

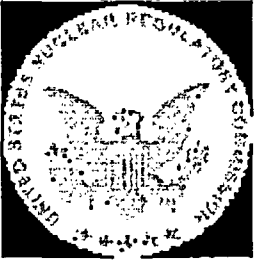
- **Participant roles**
 - Ensures file delivery, but not bandwidth
 - Remote administration required
 - Responsible for availability and performance
 - Responsible for a portion of the shared campus costs
- **Ease of use**
 - Very flexible: users may freely customize desktop/interface
 - Consistent query screen
 - Lower level of availability
 - Response characteristics are predictable
 - Image and text delivery depends on participant resources



Alternative 4: Campus Portal/Participant Maintained Proximate Storage (continued)

DECISION FACTORS:

- **LSNA administrative control**
 - LSNA controls search, interface, security, and access
 - Monitoring and tuning tools provided
- **Risks**
 - **Design complexity:** Higher schedule risk of participants being operational to support licensing and moderate-to-high schedule risk for LSNA to have operational for licensing
 - **Integration issues:** Moderate-to-high implementation complexity risk to participants and LSNA
- **Costs**
 - Moderate cost to the NRC
 - Variable cost burden to participants to perform system administration and data management (*some presence at the central site is required*)



Alternative 5: Distributed Portal/ Enhanced Central Storage

DESCRIPTION:

Remote portal software indexes files maintained by participants at their sites. Portal, with enhanced central storage, maintains copy of participant site. Local cache ensures timely delivery to user.

IMPLICATIONS:

- **Participant Roles**
 - Decreased requirement for system management
 - No 24 X 7 availability requirement
- **Ease of use**
 - Very flexible: users can tailor desktop/interface
 - Consistent query screen
 - Highest level of availability
 - Response characteristics are predictable



Alternative 5:Distributed Portal/ Enhanced Central Storage (continued)

DECISION FACTORS:

- **LSNA Administrative Control**
 - LSNA controls search, interface, security, and access
 - Enhanced monitoring and tuning tools provided
 - Assured interface performance and assured file delivery performance
- **Risks**
 - **Design complexity:** Higher schedule risk of participants being operational to support licensing, and moderate-to-high schedule risk for LSNA to have operational for licensing
 - **Integration issues:** Low implementation complexity risk to participants and moderate-to-high integration risk to LSNA
 - LSNA bears responsibility for accuracy/availability of participant documents
- **Costs**
 - Highest cost to the NRC
 - Lowest (operational) cost burden to participants

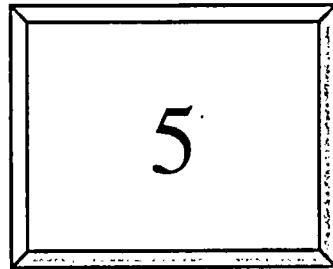
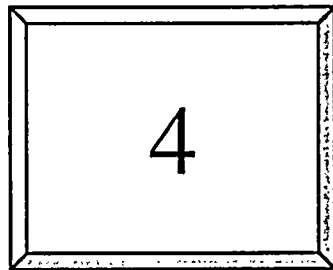
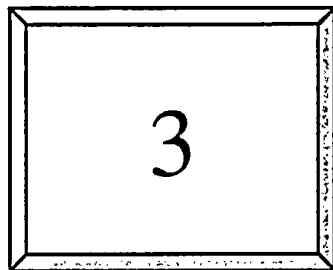


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Cost to Establish Web Presence



Cost Factor*	< 1,000 Pages	1,000 – 10,000 Pages	> 10,000 Pages
Web server implementation	500 – 5,000	1,000 – 50,000	20,000+
Maintenance and administration (annual)	5,000 – 10,000	5,000 – 15,000	10,000+
Communications (annual)	600 – 12,000	3,000 – 18,000	6,000+
Web server implementation	500 – 5,000	1,000 – 50,000	20,000+
Maintenance and administration (annual)**	30,000 – 60,000	30,000 – 90,000	60,000+
Communications (annual)	100 – 2,000	100 – 2,000	100 – 2,000
Web server implementation	500 – 5,000	1,000 – 50,000	20,000+
Maintenance and administration (annual)	5,000 – 10,000	5,000 – 15,000	10,000+
Communications (annual)	600 – 4,000	1,200 – 6,000	6,000+

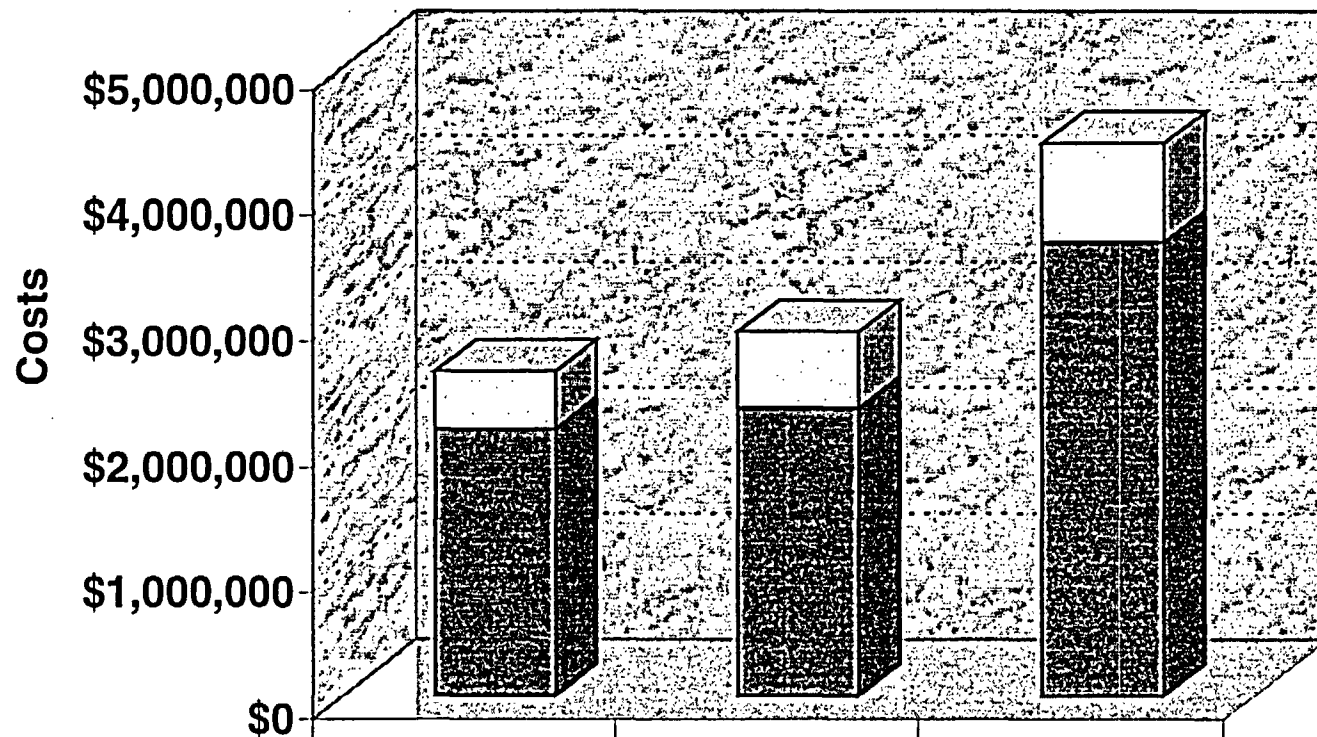
Table presents reasonable cost ranges only. Upper range of costs may be significantly higher.

* Document conversion costs will be significant and are predicated on size and type of collection

** Includes partial FTEs



General Expenditures Assessment Among Alternatives 3, 4, and 5



Alternative Number	3	4	5
□ Annual Recurring Costs*	\$459,000	\$611,000	\$784,000
■ One-time costs	\$2,115,000	\$2,280,000	\$3,601,000
Total:	\$2,574,000	\$2,891,000	\$4,385,000

Consists of LSNA portion only
Travel costs not included
NOT a quotation – for general use only
* First year



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Decision Factors

**Bandwidth /
Performance**

**Alternatives 4 & 5 Provide Single
Throttle Point for Better Control**

Design Simplicity to LSNA:

Alternative 3 Least Complex

**Design Simplicity to
Participant:**

Alternative 5 Least Complex

Location Constraining:

**Alternative 4 Requires Parties to Agree
on Single Facility to Place Their Equipment**

**Completion Schedule
Risk to LSNA:**

**Alternative 3 Least Amount of Hardware &
Software Acquisition and Integration**

**Document
Integrity / Availability:**

**Alternatives 3 & 4 Parties Accountable;
Alternative 5 LSNA Ultimately Accountable**

Financial Administration:

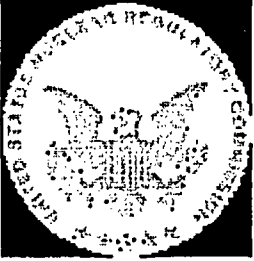
Alternative 4 Requires Cost Allocation Structure

Cost to Participant:

Alternative 5 is Lowest

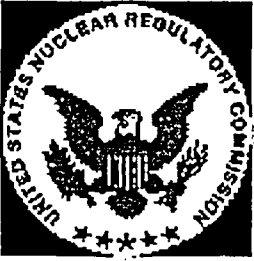
Cost to LSNA:

Alternative 3 is Lowest



Next Steps

- **Seek LSNARP Endorsement or Consensus Preference**
 - Discard of alternatives 1 and 2
 - Achieve consensus among alternatives 3, 4, and 5
- **Finalize Functional Requirements**
- **LSN Administrator Prepares Capital Planning and Investment Control (CPIC) Document**
- **Present CPIC with LSNARP's Advice to NRC's Executive Council**
- **Notify LSNARP of EC Approval or Decision**



APPENDIX

Alternatives 1 and 2 – Strategies and Final Findings



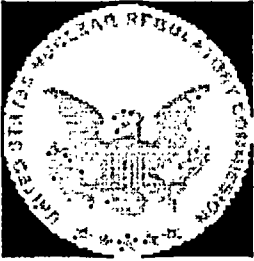
Alternative 1: Simplified Strategy

DESCRIPTION: *Homepage with pointers to other home pages*

IMPLICATIONS:

- **Participant roles**
 - Each participant maintains fully capable storage, search, and retrieval capability
 - Participant is totally responsible for availability, performance, and bandwidth

- **Ease of use**
 - Difficult for users to tailor desktop/interface
 - Difficult to use: multiple interfaces, one per collection/server
 - Alternative availability: if one participant is “down,” the rest are still available
 - Response time performance is variable
 - Overall performance is variable



Alternative 1: Simplified Strategy (continued)

DECISION FACTORS:

- **LSNA administrative control**
 - Participant site variety means LSNA has no systematic control
 - LSNA unable to respond quickly to performance problems
 - Certification of integrity requires:
 - ✓ Heavy auditing
 - ✓ Highly structured guidelines and procedures
- **Risks**
 - **Design complexity:** Low schedule risk of having ready for licensing; moderate schedule risk of participants being operational to support licensing
 - **Integration issues:** Low implementation complexity risk to participants and low complexity of integration risk
- **Costs**
 - Lowest cost to NRC
 - Low cost burden to participants

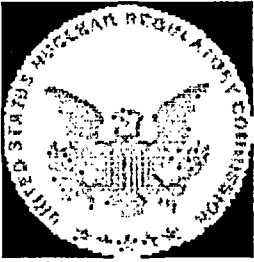


Alternative 1 Findings

DESCRIPTION: *Homepage with pointers to other home pages*

- **Why alternative 1 does not meet requirements:**
 - Too complex for users
 - User interface not consistent
 - Too difficult to navigate
 - Not possible to aggregate information
 - Not versatile
 - Does not meet needs of large, complex discovery system
 - Potentially excludes some participants and "tilts the playing field" for others.

***ALTERNATIVE 1 is not
recommended to the LSNARP***



Alternative 2: Moderate Strategy

DESCRIPTION: *Centralized search interface*

IMPLICATIONS:

- **Participant roles**
 - Each participant maintains fully capable storage, search, and retrieval capability
 - Participant is totally responsible for availability and performance, but relieved of search interface
- **Ease of use**
 - Relatively inflexible: difficult for users to tailor desktop/interface
 - Consistent query screen
 - Alternative availability: if one participant is “down,” the rest are still available
 - Response time performance is variable
 - Overall performance is variable



Alternative 2: Moderate Strategy (continued)

DECISION FACTORS:

- **LSNA administrative control**
 - Rudimentary LSNA control on interface and searching
 - LSNA unable to respond quickly to performance problems
 - Certification of integrity requires:
 - ✓ Heavy auditing
 - ✓ Highly structured guidelines and procedures
- **Risks**
 - **Design complexity:** Moderately low schedule risk of having ready for licensing; high schedule risk of participants being operational to support licensing
 - **Integration issues:** Low implementation complexity risk to participants and moderately low complexity of integration risk
- **Costs**
 - Low cost to NRC
 - Variable cost burden to participants to perform system administration

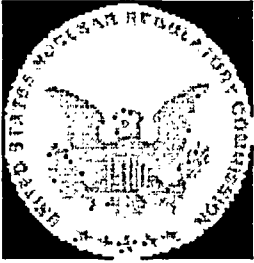


Alternative 2 Findings

DESCRIPTION: *Centralized search interface*

■ **Why Alternative 2 does not meet requirements:**

- Interleaving result sets while preserving "relevancy" will not be easy
- HTML forms query must be supported by each of the underlying sites (and this could be problematic to those participants on a leased site)
- Use of multiple search engines detracts from the consistency of retrieval results
- Reduces the overall capability to a level on par with the least capable search software provided by any single participant
- Thesauri may not be supported
- Increasing the required level of sophistication to meet basic functions will levy requirements on participants to provide some search engine capabilities at their site.



Alternative 2 Findings (continued)

■ **Why Alternative 2 does not meet requirements (*continued*):**

- "Lowest common denominator" effect may actually increase cost by requiring additional query tools and strategies, additional user assistance and documentation, increase the requirement for vocabulary management, and require significant customization.
- Poses greatest risk (of obtaining inappropriate query results) to the least skilled users
- While it appeared initially to be a less costly approach to implementing the LSN, by the time that the required additional features were added, it would approach or exceed the cost of simply purchasing the portal approach presented in technical solution 3.
- Agreement was reached that Alternative 2 would not be recommended to the full LSNARP.

***ALTERNATIVE 2 is not
recommended to the LSNARP***

