

Enclosure 9

**From:** Dan Graser  
**To:** Chris Berlien, David Hunt, Dennis Bechtel, Elaine Ezra, Englebrecht vonTiesenhausen, Harry Leake, Harvey Spiro, John Gandi(...)  
**Date:** Fri, Feb 11, 2000 3:11 PM  
**Subject:** DRAFT TWG Presentation Materials for Feb 23 ARP meeting

Item #1. Attached is a powerpoint (4.0) presentation prepared by Labat-Anderson comprising a report on TWG activities and report to the ARP. A report by the TWG is going to be the core of the February 23 ARP meeting at the Alexis Park.

We hope that this presentation is close to final. However, I ask that the members of the TWG review this draft and provide me with comments, requests for corrections, and proposed changes in order that we may say that the report presents all the salient findings. I ask also that - - in your responses back to me - - if you want to express that some part of the discussion has not been properly characterized, that you also propose replacement language, chart or graphic. This will speed up the process of incorporating any changes. Also, if you want to propose any changes, please "reply to all" on your e-mail so that the other members of the TWG can benefit from the exchange.

I have had discussions with Labat on the issue of how to characterize the report. During the introductory remarks we will note that the TWG:

- a) is "reporting back",
- b) reached consensus that the first two scenarios were non-starters viz. the mission of the system,
- c) is not recommending any of the three remaining viable alternatives to the ARP, merely stating that all three are technically viable, and
- d) we recognize that there may be other issues that the participants have with one or more of the technical solutions but we intend to allow the ARP members to surface those non-technical issues during Q&A.

It will be the responsibility of the full ARP to perform the evaluation on which, if any, should be identified as the ARP's "consensus" choice.

If any of you have a problem with characterizing the report this way, please let me know.

Item #2: Do any members of the TWG want to (or specifically NOT want to) be part of the team that responds to questions that may be raised? For example, we finish talking about alternatives 2, 3, and 4 and open things up to questions. Labat takes a crack at answering it, but there may have been a good insight made during the TWG meetings that you would like to bring back up. So, we could offer the TWG members the microphone and let you be part of "the answer team" if you would like. I would be glad to hear from you re: your willingness in that regard.

I'd like to get this presentation to the printers COB Tuesday February 15. I realize that is a short turnaround but it took us a few rounds of review to get this crafted to its current state.

Also, please let me know if you cannot open /import this file with your existing tools.  
Thanks!

**CC:** Chris Hoxie, Glen Foster, Jack Whetstine, Joseph Speicher, Paul Bollwerk, Tony Neville

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**Subject:** DRAFT TWG Presentation Materials for Feb 23 ARP meeting  
**Creation Date:** Fri, Feb 11, 2000 3:11 PM  
**From:** Dan Graser

**Created By:** DJG2.TWF2\_PO.TWFN\_DO

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co.clark.nv.us dax (Dennis Bechtel) evt (Englebrecht vonTiesenhausen)	Transferred	02/11 3:11 PM
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**Files****Size****Date & Time**

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**Options**

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 Standard

**To Be Delivered:**  
**Status Tracking:**

Immediate  
 Delivered & Opened

# *Licensing Support Network Technical Working Group Report*

*Analysis of LSN Design Alternatives*



*February 23, 2000*



# *Technical Working Group Objectives*

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- *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**



# *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*

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## ■ **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**

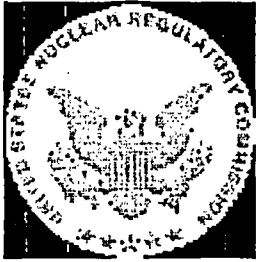


# *Additional Activities*

## **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](http://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**

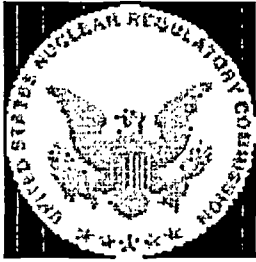
- **48 Core Requirements Identified**
- **Attributes of Central Mainframe Scrubbed Out**
- **Reviewed by TWG**



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# *Overview of Alternatives*

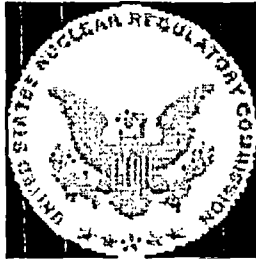
- ① Simplified** - *Just Link Everyone's URL*
- ② Moderate** - *Central Search Interface*
- ③ Portal fed by distributed participant web sites** (*remote storage*)
- ④ Portal fed by distributed participant web sites on campus** (*proximate storage*)
- ⑤ Portal with enhanced central storage fed by distributed participant web sites**



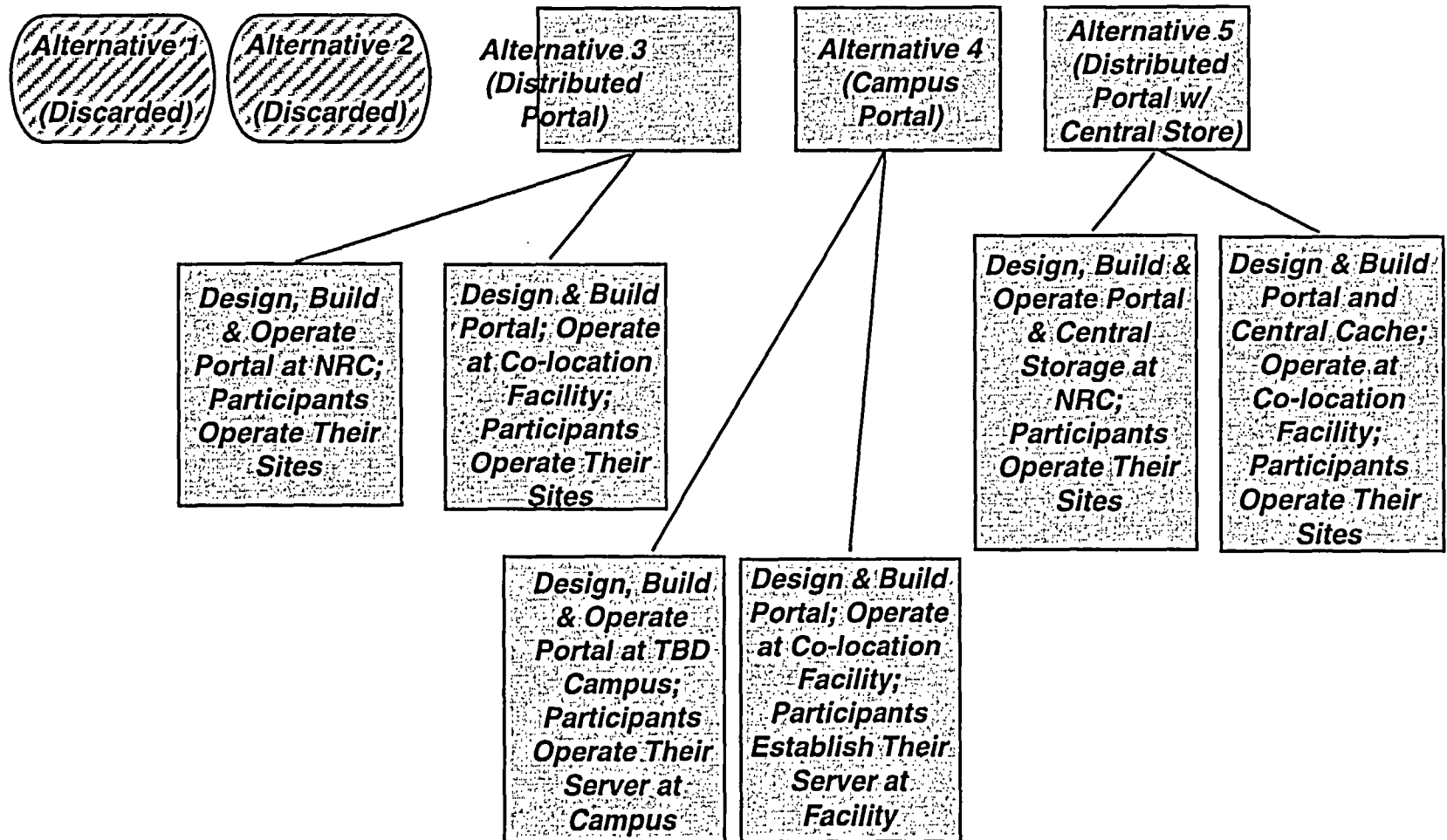
# *Options for Implementing Alternatives*

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- 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*

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- **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 formats for documents**





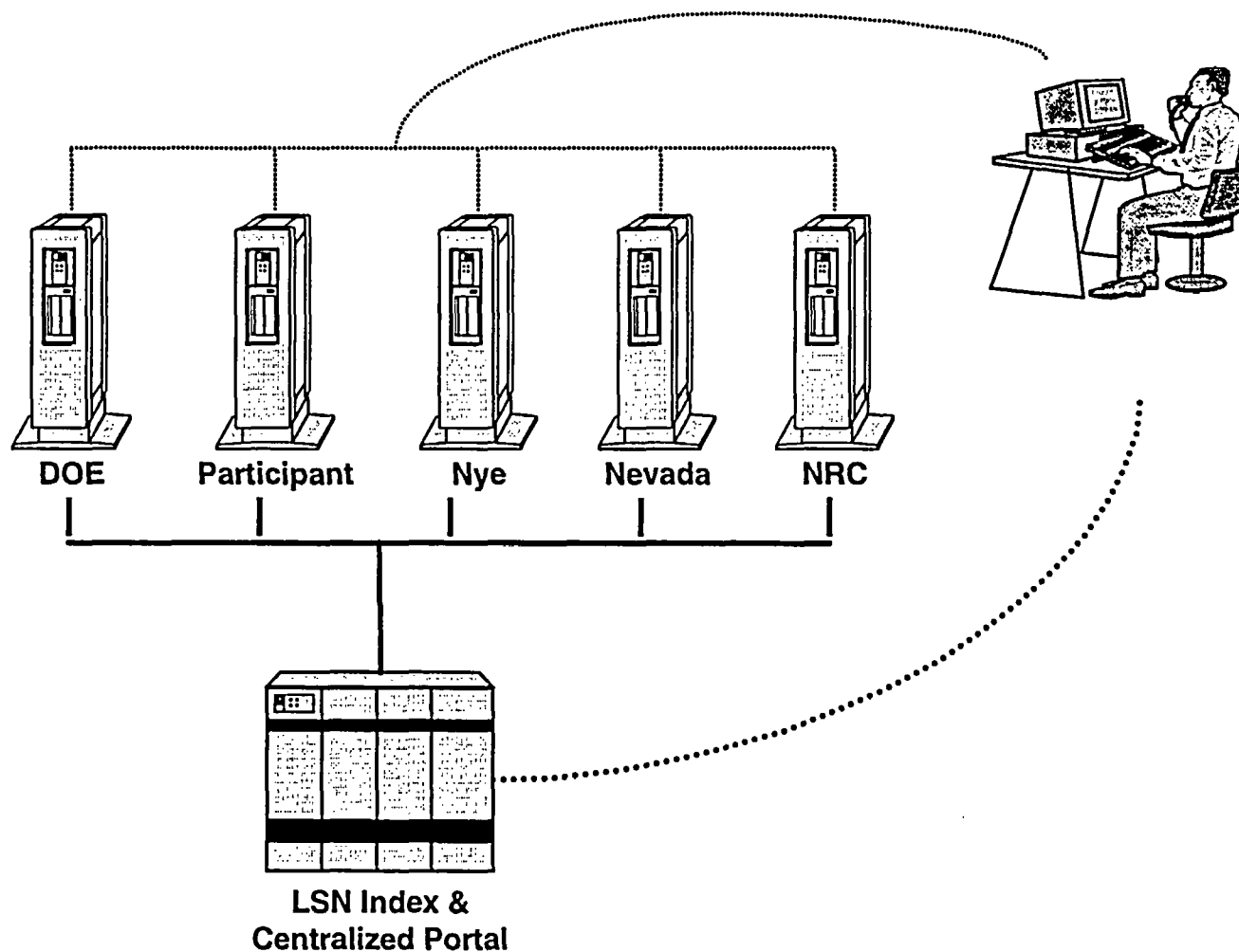
# *OUTLINE*

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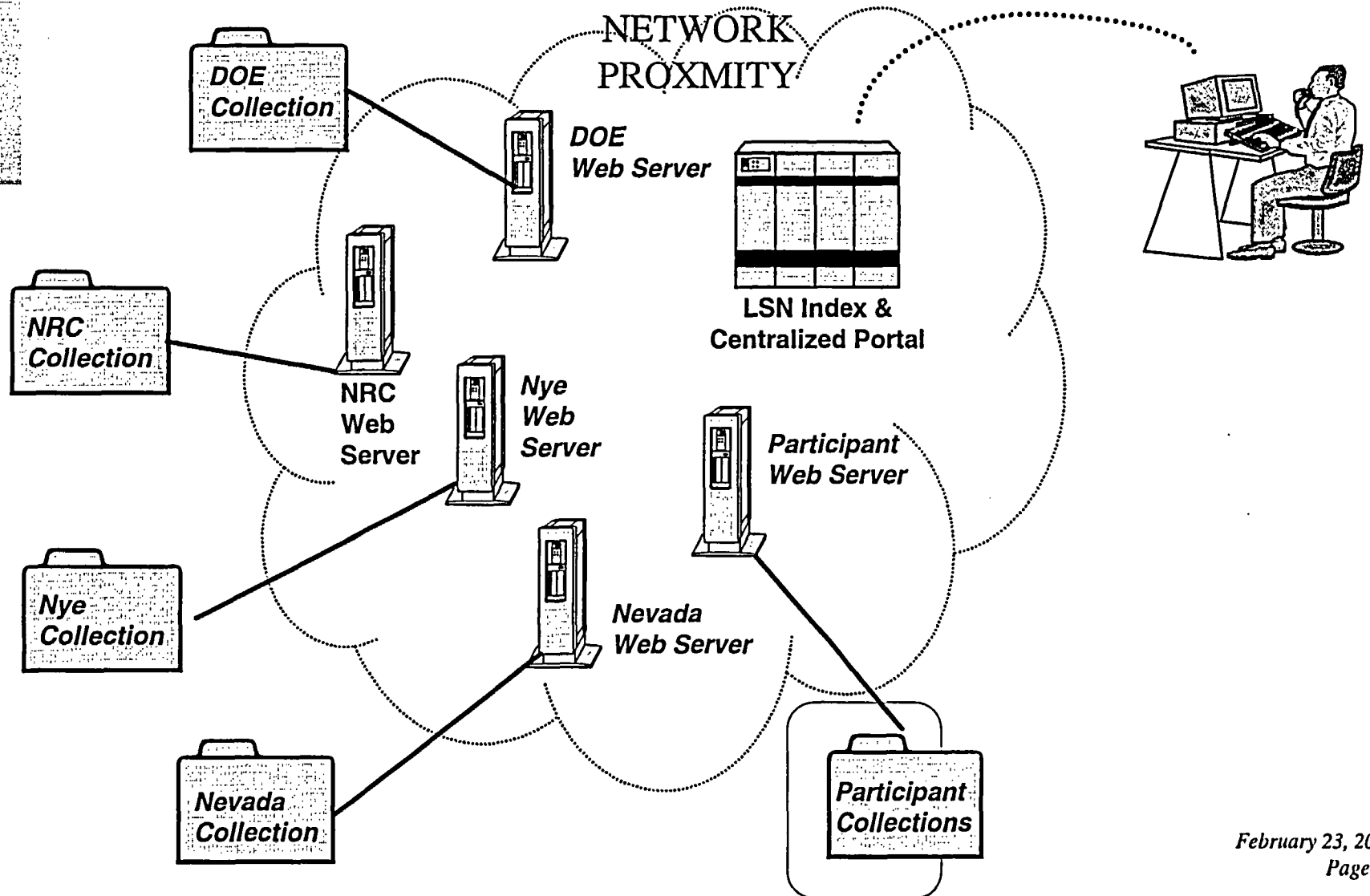
# Alternative 3 Schematic

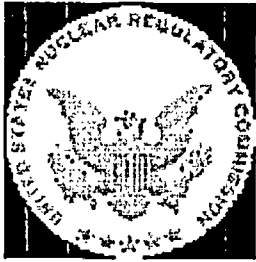
**WEB  
SERVERS**



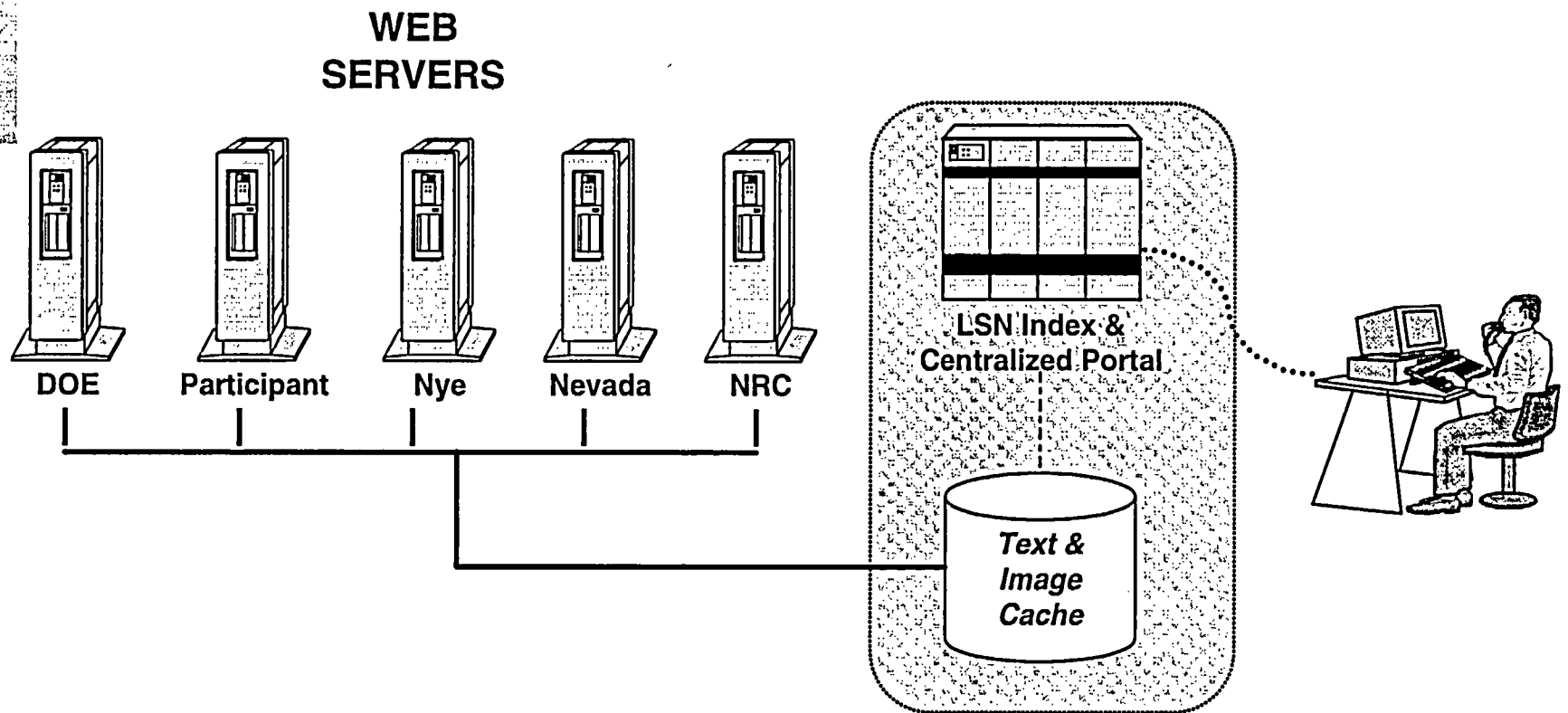


# Alternative 4 Schematic





# 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

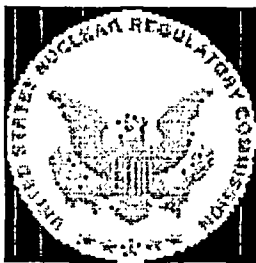


# ***Alternative 4: Campus Portal/Participant Maintained Proximate Storage (continued)***

## **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:**

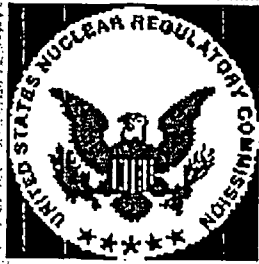
- **Participant Roles**
  - Decreased requirement for system management
  - No 24 X 7 availability requirement
- **Ease of use**
  - Very flexible: users can tailor desktop/interface
  - Consistent query screen
  - Highest level of availability
  - Response characteristics are predictable



## *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

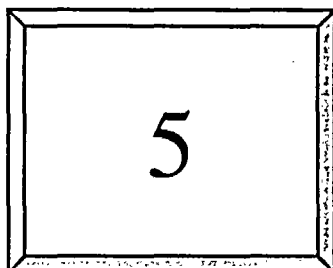
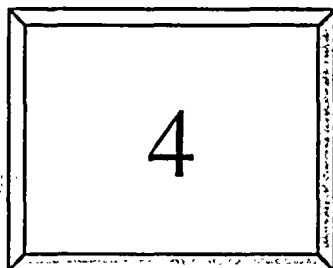
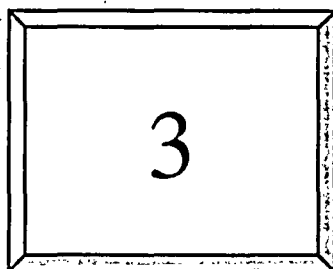


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# Cost to Establish Web Presence



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+

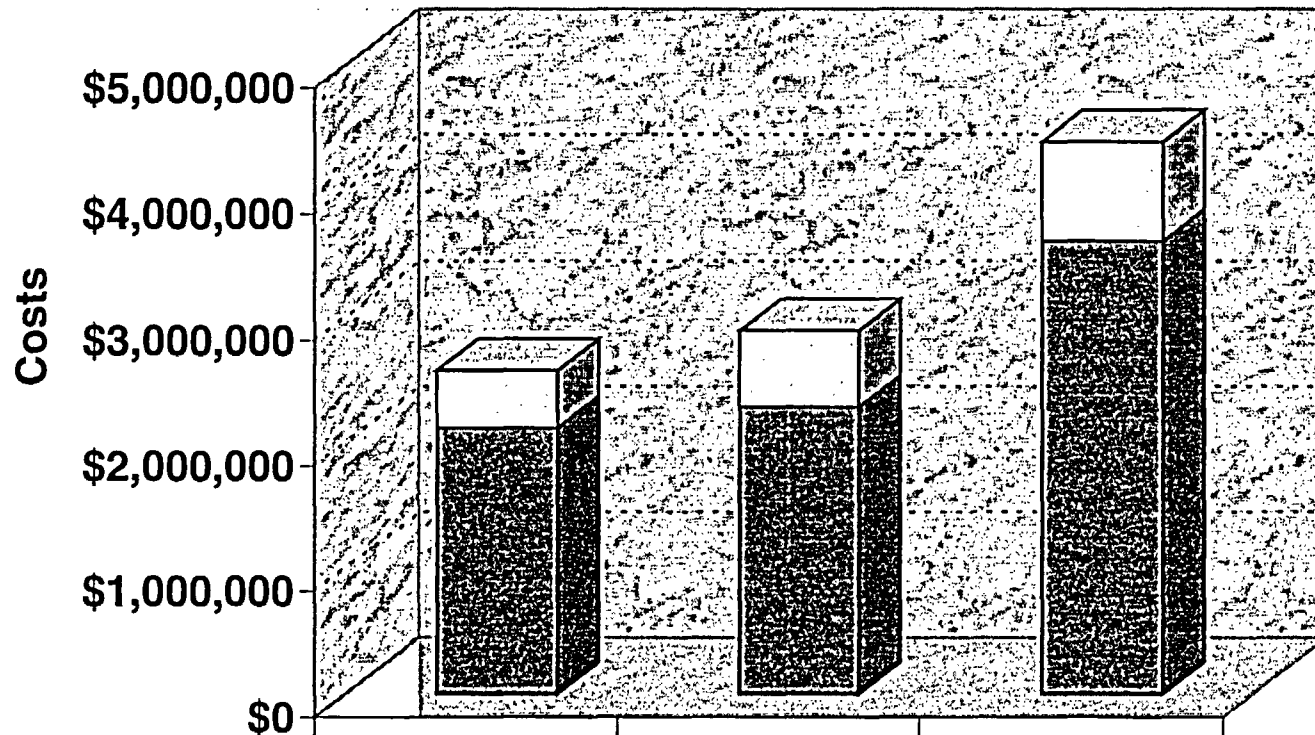
Table presents reasonable cost ranges only. Upper range of costs may be significantly higher.

\* 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

□ Annual Recurring Costs\*

■ One-time costs

**Total:**

3

\$459,000

\$2,115,000

\$2,574,000

4

\$611,000

\$2,280,000

\$2,891,000

5

\$784,000

\$3,601,000

\$4,385,000

Consists of LSNA portion only

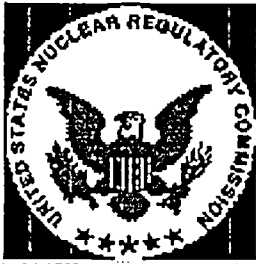
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NOT a quotation – for general use only

\* First year

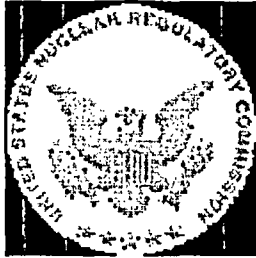
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Page 26



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# Decision Factors

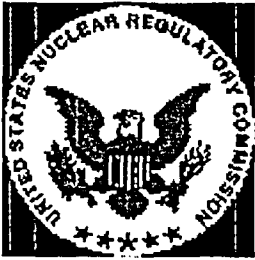
Discriminators Among the Alternatives	Alternative(s) Which Best Address the Factors		
	3	4	5
Most predictable response to user request for documents (lowers reliance on expensive bandwidth)		✓	✓
Least complex design (lowers risk of LSN completion delay)	✓		
Lowest level of integration (lowers risk of LSN completion delay)	✓		
Most well-defined administrative framework (lowers risk of unanticipated shared costs and intra-participant interference)	✓		✓
Most readily identified document delivery accountability (lowers risk of inability to ascertain compliance with Rule)	✓	✓	
Lowest cost to participants			✓
Lowest cost to LSNA	✓		
Lowest cost overall	✓		



## *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)*

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## **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*

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**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*

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**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)*

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### **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*

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**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***



