

# DALNET DATABASE STRUCTURE TASK FORCE

## Report to the DALNET Steering Committee

April 28, 1998

### INTRODUCTION

At their first meeting on April 6, 1998, the DALNET Steering Committee authorized the formation of a Task Force to address the critical issue of DALNET's database structure for its shared Horizon system. Key Ameritech Library Services experts were available for two days during the week of April 20th to work with Task Force members in their deliberations on the database structure options. It was critical that the database structure be determined quickly to keep the University of Detroit Mercy on schedule as the first DALNET institution to migrate from NOTIS to Horizon.

The Task Force would be asked to recommend to the Steering Committee the best option for DALNET's Horizon database, including in its recommendation the bibliographic, authority, and patron databases. The Task Force needed to have members from both public and technical services as well as from systems/programming staff, and those members should represent all types of DALNET libraries.

The Steering Committee requested that the Task Force provide an opportunity during the first day of its meetings with Ameritech to present the database structure options and discuss the issues with a larger group of representatives from DALNET libraries.

The actual dates for the Task Force deliberations were set for April 22-23, 1998.

Members of the Task Force were:

Botsford Hospital: Deborah Adams (for part of the second day only);

Detroit Public Library: Randy Call, John Houser, and Robert Marcelain;

University of Detroit Mercy: Sue Homant and Mary Ann Sheble;

WCCC: Cindy Yonovich;

Wayne State University: Karen Bacsanyi, Barbara Heath, and Jeff Trzeciak;

DALNET Office: Anaclare Evans, Ana Fidler, Jim Green, and George Marck.

Interim DALNET Project Leader: Louise Bugg, Chair

Two DALNET Board representatives participated in the first day's deliberations: Margaret Auer, University of Detroit Mercy, and Phyllis Jose, Oakland County Library. Ameritech representatives were: Randall Jones, Horizon Project Leader; Harry Masek, Ameritech's Project Leader for the DALNET Partnership; Steve Neilsen, Horizon Product Manager (first day); and Jan Sheppard, Horizon Automation Specialist.

## TASK FORCE PROCESS

The Task Force tackled its assignment during two days of intensive meetings. On April 22, the Task Force spent the morning with the Ameritech experts learning about DALNET's options for its Horizon database structure. DALNET's current bibliographic database has over 4.6 million records. The shared authority file has about 940,000 records, and the shared patron database has over 600,000 records.

Steve Neilsen presented three database structure options for DALNET (see attached diagram):

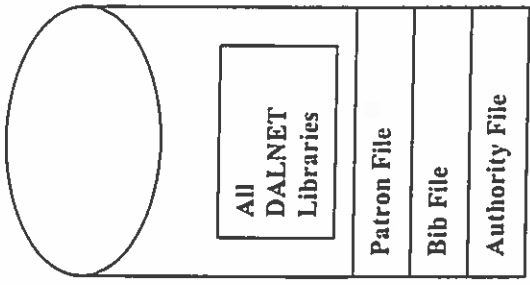
- A. Single bibliographic database, based on either one or many bibliographic records per title, with shared authority and patron databases;
- B. Multiple bibliographic databases, one for each DALNET institution, each with its own authority database, and with either shared or individual patron databases;
- C. Multiple bibliographic databases, as in B, but with some involving groups of libraries.

Task Force members asked about the impact of each option on cataloging, authority control, online catalog indexing and display, ease of use for library patrons, circulation, and technical support. Discussion was guided by a four-page list of "DALNET Decisions for Horizon" developed by Mary Ann Sheble and Anaclare Evans on April 9th as part of the University of Detroit Mercy's Horizon profiling process.

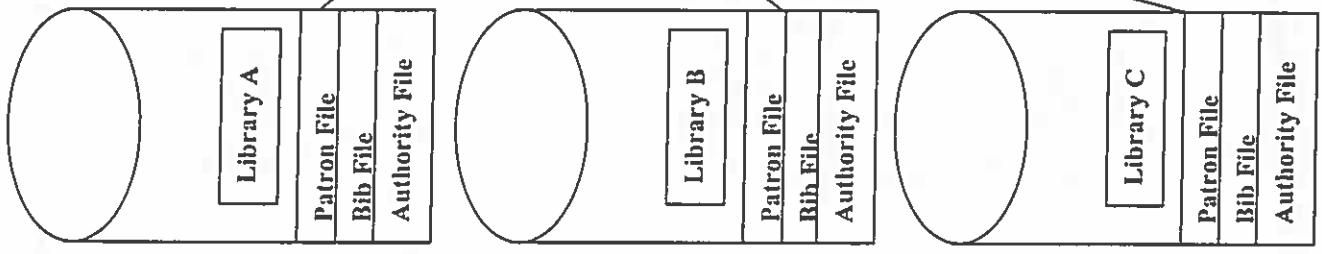
On the afternoon of April 22, over 50 people from DALNET libraries assembled in the WSU Purdy/Kresge Library Simons Room to hear about DALNET's Horizon database options and to see demonstrations of the public mode designed by other libraries using Horizon. Attendees were from all types of DALNET libraries, including community colleges and special libraries as well as the Detroit Public Library, the University of Detroit Mercy, and Wayne State University. After the demonstration, the group discussed the advantages and disadvantages of the options. Attendees were given Web sites of Horizon libraries that they could try out on their own. Ana Fidler volunteered to collect comments via electronic mail and forward them to the Task Force Chairperson by the end of the day on April 24.

The Task Force spent the entire day of April 23 analyzing the database options to come up with its recommendations. Jan Sheppard briefed the Task Force on the relationships between MARC maps and Horizon indexes and record displays. Decisions on the indexes are needed very quickly to keep the University of Detroit Mercy on schedule. Decisions on display and limiting options can be done later. She also detailed the tasks to be done to implement Horizon for the University of Detroit Mercy by the end of the year and, if it is necessary, to speed up Wayne State's migration from April to January of 1999.

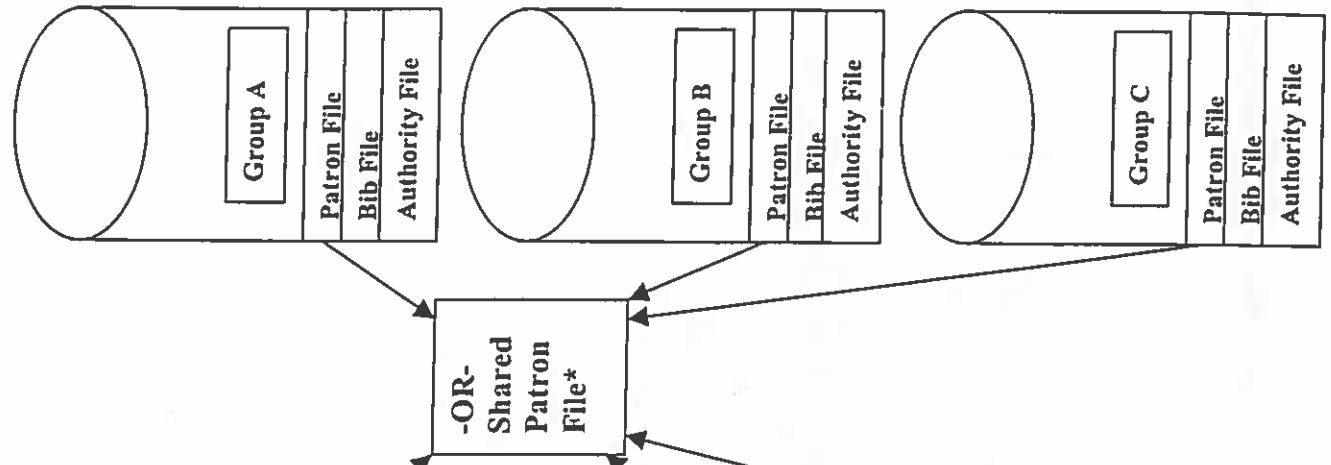
**Option A**  
**Single Shared Database**



**Option B**  
**Individual Databases**



**Option C**  
**Grouped Databases**



**-OR-**  
**Shared Patron File\***

\*Note: In either option B or C each library or group of libraries could have local patron files or could share a combined patron file.

The Task Force identified three sets of recommendations for the Steering Committee:

1. DALNET's Horizon database structure;
2. Policy recommendations; and
3. Task Forces/Working Groups needed.

## DALNET HORIZON DATABASE OPTIONS

As the Task Force deliberated about the three Horizon database options for DALNET, these advantages and disadvantages were identified. A shared patron database can be supported in all three models.

### *Option A (Single Shared Database)*

In this option, either one bibliographic record could be used for a title or multiple bibliographic records could be used, especially in cases where local information about those titles varied. Cases where local information could require separate bibliographic records include serials (e.g., for prediction patterns), electronic resources (with differing URLs and user access), media, and rare or valuable materials (e.g., signed copies). A future Horizon enhancement for record ownership is expected to make it easier to have varying local information associated with a single shared bibliographic record, however, and that enhancement could be available by the end of 1998.

Not only was having to agree on a master record seen as problematic, but updating and maintaining those master records would require centralized decision-making for both the bibliographic and authority records and field level security for DALNET's library staff. On the other hand, cataloging titles held in common once for all could reduce cataloging workloads in DALNET libraries to just adding their holdings to that master record. It is estimated that 31% of DALNET's titles are held by more than one institution.

Currently, having a union database is the only way to have a shared Horizon authority database for DALNET. An important benefit of the current shared authority file for DALNET is that 1.5 FTE update it centrally and do global changes across all DALNET bibliographic files. This work is done once for all to provide more consistency in retrieval for our users, especially for Library of Congress Subject Heading changes.

In a large union database, users would have one place to search for holdings across DALNET, however, they may have to learn how to "scope" or "limit" their searches to get their own libraries' holdings. For searches on authority-controlled access points, small libraries' holdings could be buried in large DALNET result sets, even though their titles were highlighted. Indexes

would need to be agreed upon by DALNET libraries, however, individual libraries could decide which of those indexes to offer their users. Horizon profiles for locations, online catalog displays, search limiting, etc. would need much more coordination to ensure the desired results for users than in the individual database model.

Furthermore, one of the largest drawbacks to this model is that there would be a major negative impact on those DALNET libraries already using Horizon as each additional library's bibliographic records were merged into the union database. The data loading process would slow down performance for lengthy periods, e.g., a month for a 1.5 million record load. The ideal way to create a union bibliographic database for DALNET is all libraries at once, rather than migrating them individually or in groups over 24 months. This is not a realistic option for DALNET.

A technical benefit to a single shared database is that Horizon software upgrades, which are delivered as often as twice a year, can be done once for all of DALNET, rather than having to be done for each individual database.

#### *Option B (Individual Databases)*

In this option, each DALNET institution would have a separate bibliographic and authority database. There would be individual bibliographic records for serials and their prediction patterns, for electronic resources with their corresponding URLs, for media and rare books with local notes.

DALNET libraries would not have to agree on a master record in this model, however, they would need to reaffirm their commitment to cataloging standards to help users identify and locate titles held in multiple DALNET libraries. Cataloging records for titles held in common would need to be added to each individual database, however, they could be copied from each other's databases, as is done now in DALNET's NOTIS system. Field level security may be less of a concern in this option.

A major concern about this option is that each library will have to maintain its own authority database for its own bibliographic database. It may be possible to create a resource authority file of Library of Congress and MeSH records for the catalogers to copy into their individual databases, however, the benefit of having DALNET staff do authority maintenance once for all would be lost. DALNET libraries will vary in their abilities to handle this additional authority workload, which could be as much as 1 to 1.5 FTEs for the larger libraries based on DALNET central staffing. The end result would be controlled access points that are not consistent for DALNET's users. For example, if two DALNET libraries update an LC subject heading to Y and the other eighteen DALNET libraries leave the heading as X, users searching under Y will get no hits for those other eighteen libraries.

With individual bibliographic databases, users could only get a union catalog retrieval with broadcast searches through WebPAC, i.e., with Web browser software. The retrieval results would be a clustered display, rather than a true union view, from which they could select libraries' holdings to view. This WebPAC broadcast searching using Z39.50 enhanced for Horizon is scheduled for Release 1.3 in Summer 1998. To make broadcast search results more consistent, DALNET would need to have at least a minimum number of commonly-structured indexes.

A drawback is that the Windows client for staff use does not have a union retrieval, so that staff would need to do multiple searches in individual databases or switch between the Windows client and a Web browser during their work.

A major benefit to this option is that database loading as DALNET libraries migrate would have much less impact on those libraries already using Horizon. The individual databases and their indexes could be created on the test server and then copied to the production server with minimal disruption. However, upgrades of the Horizon software for new releases would have to be installed in each individual database, with the potential of the databases getting out of synch. This could mean 20 or more upgrades twice a year, if new releases are delivered that frequently.

### *Option C (Grouped Databases)*

Option C is a variant on B in that there are still separate bibliographic databases each with their own authority files, however, libraries that could share a database would be grouped together. Possible groups of libraries include the hospitals, the community colleges, and the public libraries, i.e., Detroit Public and McGregor Public of Highland Park. The most likely groups to share a database are the seven DMC hospitals in one group and the two Beaumont hospitals in another.

Those libraries sharing a database could decide on a master record for holdings they have in common, or they could choose to keep individual records, as needed. Benefits to having groups of libraries share a database include: (1) fewer databases to manage, upgrade to new releases, etc.; (2) fewer separate authority files to create and maintain, enabling some pooling of staff resources; (3) faster retrievals across like collections than having to do WebPAC broadcast searches; and (4) the ability to catalog titles in common once for all in that group and thus reduce cataloging costs.

With fewer authority files to maintain, the problem of controlled access points getting out-of-synch across databases could be somewhat lessened.

## DALNET HORIZON DATABASE RECOMMENDATIONS

After deliberating at length on the Database Options A, B, and C, the DALNET Database Structure Task Force came to consensus on a hybrid option that combines the best of Option A with Option B and was named Option B+ (see attached diagram). This option has individual bibliographic databases for each DALNET institution, or for groups of institutions, that all contribute to a union database. Synchronization of the records in the union bibliographic database, the union authority database, and the individual institution databases will be done automatically, e.g., by batch processes.

The union database will be supported by a shared authority file, which will include such resource files as the electronic versions of the Library of Congress Subject Headings and the Anglo-American Authority File (names and series), and the MARC version of the machine readable Medical Subject Headings (MeSH). In this model, authority work will be done initially in the union catalog and copied, electronically, into each library's individual authority database. Eventually, the individual authority databases will no longer be needed.

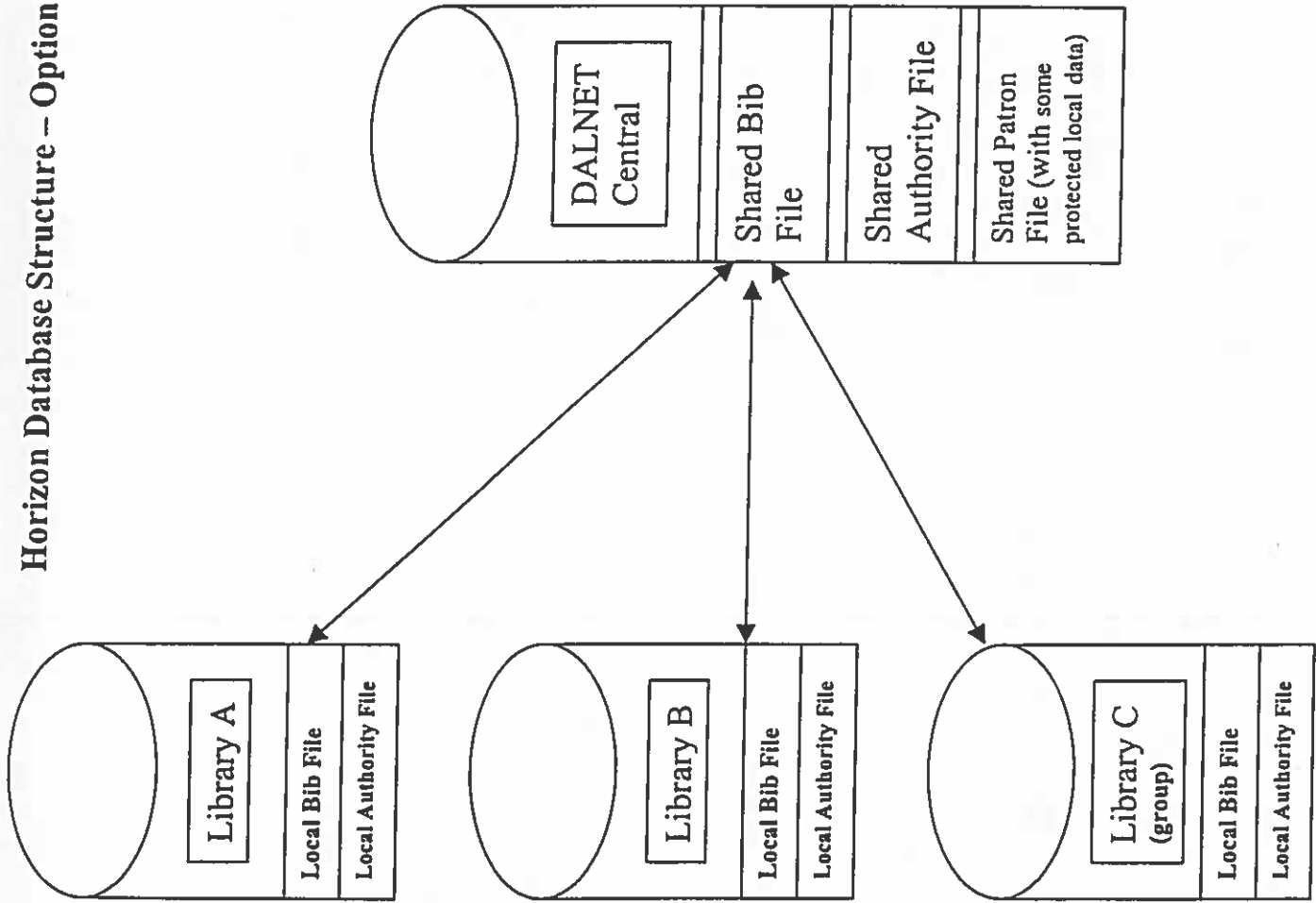
A shared patron file is recommended to maximize opportunities for resource sharing among DALNET libraries.

In this model, library users will have the option of searching a union catalog as well as their own libraries' catalogs. Union catalog searching should be faster than broadcast searching across separate databases. In addition, DALNET staff will be able to search the union catalog with their Windows client software.

With a shared authority file, especially one with authority resource records, DALNET libraries can continue to share the work of authority control rather than duplicating that work in their individual authority databases.

This model is very similar to one being developed by the academic libraries in the California State University system as part of a Horizon project called Sunrise. It will require some of the already planned Horizon enhancements for Release 5.2, including record ownership and shared authority records, targeted for delivery by the end of the year. Jan Sheppard will explore the possibility of DALNET participation in this development project with the California libraries. If Jan is able to join the development team, she would be DALNET's liaison to the project. This project matches the Horizon product enhancement for a shared authority file that is included in the DALNET/Ameritech partnership proposal.

# Horizon Database Structure -- Option B+





Concerns about this model include the additional work involved in developing, creating and maintaining the union bibliographic database, the additional work of doing software upgrades for the individual databases plus the union database, and the cost of additional disk drives for both the union bibliographic and union authority databases. An assumption is that the union bibliographic and authority databases can be created separately, more in the background, without negatively impacting DALNET libraries using their individual Horizon databases in production.

DALNET participation in the Sunrise project is critical to coming up with a design that automates as much as possible the work of managing the union databases and keeping them in synch with the individual databases. One scenario is that the cataloging is done in the individual databases and "uploaded" to the union database, where the authority work is done. The union authority records are then matched against skeleton records in the individual authority databases where they will overlay the skeleton records based on an updating algorithm.

To lessen the workload of migrating to new releases of Horizon software, it would be highly desirable for groups of DALNET libraries to share a bibliographic database. There would be other benefits to their sharing as identified under Option C.

The additional disk for Option B+ was not included in the original hardware configuration for DALNET's Horizon servers. Ameritech should be able to provide cost estimates for the additional disk that would be needed.

**Assuming delivery of the needed shared authority file and record sharing enhancements in development for Horizon, the DALNET Database Structure Task Force recommends Option B+, a union database with shared authority and patron databases as well as with individual, or grouped, institution databases. Furthermore, the Task Force recommends participation in the Sunrise Project to develop the union catalog and authority file capabilities that will meet the needs of DALNET's libraries.**

## **DALNET POLICY RECOMMENDATIONS**

The Task Force recommends these policies for consideration with the adoption of database Option B+.

1. *Software upgrades for the separate databases recommended under the B+ model must be installed almost simultaneously.*

Adopting the B+ database structure means that future software upgrades will have to be installed separately on each of the databases. If upgrades are not installed together, problems will be encountered when searching between the databases. These problems could result in error messages and/or the inability to open up a database which has either

an earlier or later software release than the one in the database searched from. This means that DALNET Office staff will need to install software upgrades almost simultaneously in the individual and union databases and that individual DALNET libraries will have to upgrade their client software at the same time, as needed by the new release.

2. *Separate databases should have at least a minimum number of commonly-structured indexes.*

Constructing a core of common indexes will enable users of the catalog(s) to move easily from one catalog to another and to retrieve consistent results while searching all catalogs.

3. *The Library of Congress Anglo-American Authority File (names and series) and the MARC version of the machine readable Medical Subject Headings (MeSH) file should be purchased and loaded into the union authority database.*

The DALNET libraries already purchase the Library of Congress Subject Headings file as a resource file. Having this resource available streamlines the process of doing subject authority work. The Anglo-American Authority File and the MeSH Subject Headings file will function as a resource file in the proposed union catalog option and will streamline authority work even further.

4. *Reciprocal borrowing between DALNET libraries should be actively pursued while the shared Horizon patron database is being developed.*

DALNET libraries should look at borrowing policies between all member libraries with the idea of developing reciprocal borrowing, to the extent possible. The creation of a common, uniform borrower's card should also be explored to make it easier for library users to move among member libraries.

5. *Shared Horizon statistical categories should be created.*

Creating similar statistical categories will enable DALNET libraries to more easily collect statistics across all libraries when needed.

6. *A commitment should be made to adhering to DALNET standards when doing name or subject authority work.*

DALNET libraries should reaffirm their existing commitment to doing authority work that adheres to approved DALNET standards, which are based on accepted national standards. This commitment has been important in the past and will be even more critical in the new Horizon database environment.

## RECOMMENDATIONS FOR DALNET TASK FORCES

The DALNET Database Structure Task Force recommends that the Steering Committee create several working groups, or task forces, to implement Horizon database Option B+ as soon as it is approved by the DALNET Board. Due to the timetable for the University of Detroit Mercy's Horizon implementation, one task force needs to be created immediately--the one to recommend naming conventions for Horizon location and collection codes and descriptions.

**1. Horizon Indexes** **Completion needed in 2 months**

This task force would be responsible for recommending the Horizon indexes to be created in common in order to provide consistent searching across all databases. Their task would include developing the MARC maps for those search and authority indexes for STAFAC access. The goal is a base set of indexes used by all databases plus some special indexes from which individual libraries can choose. The indexes include browse indexes, key word, union ID numbers, inverted lists (ISBN, ISSN, LCCN), and call number lists.

**2. WebPAC Design** **Begin immediately and continue throughout migration**

The task force would develop an overall design for DALNET's WebPAC and guidelines for individualized WebPACs among DALNET libraries. Their assignment would include integration of Z39.50 accessible databases such as DALNET's NOTIS, MDAS, and InfoShare databases as well as other non-DALNET databases.

**3. Naming Conventions for Collections** **Begin immediately with completion May 22**

The task force would be responsible for recommending consistent naming conventions for DALNET's Horizon location and collection codes along with the descriptions that display in the online catalog. This needs to be done before the University of Detroit Mercy inputs its codes the week of May 18.

**4. Cataloging/Authority Design** **Briefing week of May 18, work during summer/fall**

This task force would be responsible for working with Ameritech on the development of the union catalog and union authority/resource databases. They would provide input to the Sunrise Project. They would review and update DALNET's database standards for the Horizon databases and propose master record concepts for the union database.

**5. Statistics Coding** **Completion needed in 2 months**

This task force would be responsible for developing common statistics coding to enable DALNET-wide data collection and reports. Common reports done by DALNET institutions need to be considered, such as IPEDS. Areas to include are item statistical classes (Istats), borrower statistical classes (Bstats), and call number ranges (for all classification types).

**6. Shared Patron Database** **Completion needed in 2 months**

This task force would be responsible for recommending the additional fields DALNET needs on its shared patron records, considering parents names and addresses, student ID numbers, etc. The current DALNET patron record standards need to be reviewed for Horizon. Patron record import and matching criteria need to be recommended.

**7. Horizon STAFFAC Views** **Completion in Fall 1998**

This task force would be responsible for designing the union catalog views and displays for Horizon STAFFAC for DALNET. The union catalog would be put in place after the University of Detroit Mercy's migration to Horizon.

**8. Horizon System Administration** **Completion in Fall 1998**

This task force would be responsible for recommending which aspects of Horizon system administration would be handled by the individual DALNET libraries and which would be the responsibility of DALNET central site staff. Areas to be considered are logon Ids and passwords, Horizon profile table input and update, day's end procedures, and reports.

## CONCLUSION

The members of the DALNET Database Structure Task Force spent two very productive days together learning about DALNET's Horizon database structure options and deliberating on each one. They received much input from the 50 attendees at the discussion session on April 22 as well as emailed comments afterward from three of the attendees. Detailed notes from their working sessions have been written and are available to the Steering Committee, as needed, to supplement this report.

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In summary, the Task Force recommends:

1. Horizon Database Option B+, a union DALNET database plus individual databases.
2. Participation in the Horizon Sunrise Project to develop a union database with a shared authority file that is synchronized with individual databases.
3. Six policies for software upgrades, common indexes, authority resource files, reciprocal borrowing, shared statistical categories, and authority standards.
4. Eight task forces to address these areas: Horizon indexes, WebPAC design, naming conventions, cataloging/authority design, statistics, shared patron database, Horizon STAFFAC views, and Horizon system administration.

Respectfully submitted,

Louise Bugg, Chair  
Interim DALNET Project Leader