Selecting for Storage

Local Problems, Local Responses, and an Emerging Common Challenge

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Off-site storage has become increasingly common as academic libraries run out of space and the political and financial costs of central campus construction soar out of reach. As it splits collections and denies browsability, storage is commonly regarded as a necessary evil for which there are no obvious alternatives. How we select what we store is therefore central in ensuring results that disrupt students, scholars, and collections as little as possible. After reviewing the purposes of off-site storage, I consider the conditions necessary for viable storage arrangements and suggest how these basic conditions have evolved over time. I then explore criteria that can be employed in selecting materials for storage as well as the interplay between these criteria, the mechanics of storage operations, and the pressures associated with storage goals. I close by suggesting some of the larger challenges whose solutions may be informed by our struggles with storage.

Off-site storage has become increasingly common as academic libraries run out of space and the political and financial costs of central campus construction soar out of reach (Association of Research Libraries 1990; Chepesiuk 1999; Kennedy and Stockton 1991; O'Connor 1994; Young 1999). Storage splits collections, denies browsability, and is commonly regarded as a necessary evil for which there are no obvious alternatives. How we select what we store is therefore central in ensuring results that disrupt students, scholars, and collections as little as possible. Grappling with storage as a local phenomenon can also highlight some of the challenges it shares with cooperative programs to create shared or distributed collections. More imaginative ways to describe and manage all of our holdings can emerge as a result.

Why Store?

First and foremost, we store books when our libraries run out of space. Lack of space is a condition normally determined as much by economics and politics as by absolute physical limitations. Building new libraries is far more expensive than warehousing little-used materials in remote storage: some projections put off-site construction and operating costs at less than 10% of those for central facilities (Cooper 1989; Powell 1998; Yale 1996; Young 1997). Unoccupied space that could accommodate enlarged libraries, or any other new construction, is often at a premium in campus centers. Promises that bookstacks will shrink as digital collections replace print holdings have not yet borne fruit. In the meantime, remote storage provides a compelling solution.

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While space constraints are the most common cause for storage, at least three other considerations enter into the mix. The first is the need to rationalize the physical distribution of library collections. Two scenarios are particularly common. Space limitations have often resulted in collections in which topically related materials are split between different sections of the stacks. In some older libraries, the scatter is even worse as a result of multiple classification schemes. (Many of these libraries developed idiosyncratic local classifications in their early years, eventually switching over to the Library of Congress system but without then recataloging their older holdings.) Full shelves make it difficult to shift books around, and users are expected to move instead. A second problem emerges when the evolution of research interests, book collections, and library buildings leaves high-use materials far from entry points to the stacks, with little-used collections more readily at hand. The efficiencies possible by moving heavily used books close to library patrons can, once again, be difficult to achieve when the stacks are full.

Preservation is another consideration in storage decisions. Off-site housing can provide secure, environmentally favorable conditions for materials that would be at risk in open stacks. Deteriorated items, books or newspapers with inherently fragile paper, and materials susceptible to vandalism or theft can thus be relocated to remote facilities from which they can be recalled for controlled use. Most storage facilities can accommodate a broad range of imperiled holdings.

Finally, remote storage can provide a lever for certain kinds of cooperative programs. Two examples may suggest both the possibilities and their limitations. The Center for Research Libraries has appointed a Foreign Official Gazettes Task Force to formalize CRL's effort to absorb hardcopy backfiles of foreign official gazettes, heretofore collected extensively by perhaps a half-dozen North American libraries, in order to create master sets (Center for Research Libraries 2000). These publications are voluminous, normally printed on poor quality paper, and used only occasionally. They are also essential research resources for which a single, well-managed collection of record may suffice. Cooperative reliance on remote storage at CRL's Chicago headquarters will at once ensure the availability of the materials, rationalize access, produce savings for participating institutions, and strengthen CRL's institutional presence.

Other attempts to make the leap from a cooperative storage facility that stores any and all volumes sent by individual libraries to a facility with a unified collections policy that imposes specific criteria for materials to be stored have proven more problematic. Some consortial storage facilities, for instance, will accept but one copy of any work (Northern Regional Library Facility 2000). Save in a few specific circumstances, duplicates are either returned or discarded. The effects can be difficult, and not just because participants' volume counts might suffer. Local collection integrity is challenged by this kind of approach. Scarce or unusual materials sent to storage for security reasons, or materials acquired by gift or donation, can all be important to retain for the local collection regardless of whether the title is already held within a certain group of libraries. Insisting that a storage facility can only house nonduplicative materials of last resort can, paradoxically, undermine the potential of remote storage as a tool for cooperation.

Making Off-site Storage Work

Whatever the reasons for remote storage, its success depends heavily on how well its proponents address several philosophical, psychological, and operational concerns. Technological change has permitted ever more satisfactory arrangements over time, though our solutions are still far from ideal. The operational issues requiring attention include: bibliographic control; inventory control and physical access; political support; financial support; and the adequacy of the storage facility itself.

The possibilities of bibliographic control, and also user expectations concerning bibliographic access, have expanded with time. Early storage facilities, such as the Midwest Inter-Library Center (the predecessor of the Center for Research Libraries) or the New England Deposit Library, were created in an era of catalog cards and manual files. Book catalogs, printed lists, and general statements of collecting policy—proclamations of CRL's commitment to foreign dissertations, for instance—were the only access tools. The limitations of this approach, in turn, affected the nature of storage decisions. In our experiences at Harvard, it proved more satisfactory to relocate categories of materials or entire classification segments (some newspaper backfiles and certain classification segments from Harvard's holdings to the New England Deposit Library, for instance) than to move a selection of unrelated pieces.

Online catalogs, and more recently the gradual implementation of meaningful serial holdings statements, have transformed both possibilities and expectations. Storage decisions by now almost invariably focus on materials with complete online records. Processing efficiencies for preparing, transferring, and ultimately for retrieving for patron use are thus possible for the library, while users are still able to identify the materials that they need. Fully adequate bibliographic access remains a weak point in some remote storage operations, but the improvements have nonetheless been dramatic.

A second area of concern involves inventory control and user access (Bellanti 1992). Early storage facilities in many ways simply replicated the central libraries that they supple-

mented. Whether the stacks were open or restricted, materials were shelved in call number order because that was the only way to arrange and then retrieve them. Computer-assisted methods for inventory control have since enabled more efficient arrangements. Current storage is built around barcoded materials that are packed in cartons sized for books of specific dimensions and then housed in quasi-industrial structures. These systems save space and facilitate retrieval. Physical browsing, however, becomes impossible.

Libraries, as they have coped with limited space in existing buildings, have typically adhered to a fairly predictable sequence of palliatives. Parts of the central collections may in the first place be hived off to form independent units. Holdings in music or fine arts, for instance, may thus be relocated to separate quarters, usually amid proclamations of increased efficiency for both specialized users and the mass of library patrons who work with the general collections. This coordinated decentralization took place, and continues, at many large research libraries, including Yale and the New York Public Library. Compact shelving, to house more efficiently parts of a library's classified collections, is often the next step. Frazzled users and damaged books are more common as a result of this step than we like to admit, though at least the materials remain onsite.

The next tier of decisions often focuses on relocating little-used materials off-site. Closed-stack, classified collections are one possibility, exemplified by Vanderbilt University's "Library Annex," though most such arrangements were implemented when sophisticated methods for inventory control (barcodes and the like) were not available. Some storage facilities, e.g., the Northern Regional Library Facility in California and the New England Depository Library, provide reading rooms as well. Size-based shelving in book warehouses completely dissociates book locations from users, leaving computer-based tracking systems as the only means to re-establish the connection.

The best bibliographic control and the most sophisticated storage arrangements mean little unless users can readily obtain the materials they want. Efficient delivery services are therefore essential. Most libraries with storage facilities now promise turnarounds within one working day. Some are considering more frequent shuttle runs, as well as the use of Ariel or other document delivery software to service requests for specific articles and other small pieces.

Requirements concerning delivery locations can raise additional complications. Most online catalogs allow users to request stored materials without coming to a circulation desk. But, with some notable exceptions at institutions that routinely offer office deliveries of library materials, the books usually need to be retrieved at the library itself. In some multiunit library systems, moreover, each unit may retain formal rights of ownership and control over the materials it has deposited, and require users to pick up or use the holdings within its facility. A profusion of service points can persist, even though requested items are all coming from a single location.

A third critical condition for successful off-site storage encompasses political and administrative support. Users resist off-site storage because it limits browsability. Librarians typically counter that onshelf collections are already fragmented and incomplete: inhouse holdings are split among the main stacks; the reference room; the current periodicals area; and so on. Moreover, an invisible and often substantial portion of the collection is at any moment checked out, on reserve, in preservation queues, or otherwise not on the shelves. Such correct but not necessarily helpful clarifications aside, access and browsability clearly become more difficult when materials are moved off site. The degradation is especially palpable in libraries whose strength and appeal include extensive holdings of little-used materials.

Effective financial and operational support are essential to the success of off-site facilities. Service must be quick and reliable, and appropriately staffed to make such service a reality. Staffing support is needed as well for units that prepare books and bibliographic records for transfer. Service guarantees must typically come from the highest levels of the university administration, as well as the library. Even when remote storage is a fiscal and operational imperative, implementation will only work when the tradeoffs are openly acknowledged and when there is a clear-cut, ongoing institutional commitment for support.

Finally, the success of off-site storage depends on the storage facility itself. Arrangements for remote housing have evolved from makeshift shelves in unappealing and environmentally inappropriate basements or attics, to rented warehouse space, and most recently to specially constructed modular structures featuring state-of-the-art security systems and environmental controls. Here, as in other areas associated with remote storage, standards and expectations have risen together. Quarters that might once have passed muster are no longer acceptable.

Criteria for Selecting for Storage

Once off-site storage has been embraced or mandated, both the political process to secure user acceptance and the logistics of relocation require decisions concerning general selection criteria and specific transfer procedures. Users must be convinced that the decisions will be as sensible as possible. They must likewise know that mistakes can be corrected. Librarians of course share these goals, even as they are keenly aware of the overflowing shelves. The way that the process typically plays out suggests a number of general observations.

Libraries usually begin to move materials only when their buildings are full. "Full" in some cases implies a comfortable shelving load with as much as 15 to 25% free space to accommodate collection growth, minor stack shifts, and empty shelves for users to spread out books. More often, and dramatically, it can reflect an emergency situation in which books are piled on windowsills, floors, and in special staging areas. Such conditions can be compelling in making the case for storage to reluctant library users.

Starting to store when the library is full implies that one volume must be relocated for every volume added to the stacks. This usually leads to arrangements to divide current receipts between materials for the stacks and for storage. Selectors typically make the decisions, though it is also possible to display all incoming materials so that users can identify any items that they find particularly important. New receipts are "unknown" to the existing collection, and choices made upon receipt allow these items to be directed off site through a single decision and processing sequence. Storing large numbers of current materials may not, however, be an optimal approach in terms of research priorities and needs.

The criteria for relocating materials that are already in the stacks tend to be more contentious, and the processes correspondingly more complex. Longtime users know the books in the areas of the stacks they consult most frequently and often become visually attached to these concrete manifestations of the collections. Materials whose existence has never been registered except through the online catalog don't usually stir the same level of allegiance or arouse the same kind of anxiety when they are housed remotely. Ideal selection priorities will enable and also reflect a simple, expedient, reversible, and cost-effective process that takes into account considerations of collection integrity and of security and preservation. Six criteria commonly used in determining which materials to transfer to off-site storage merit discussion.

Decision-Making Simplicity

Storage decisions reflect the relationship between transfer candidates and bibliographic control, at times with unintended consequences. Contemporary library systems and practice mandate machine-readable bibliographic records for all stored items. New receipts, ordinarily processed entirely online, are obvious candidates. Research libraries that have fully converted their card catalogs can freely draw from retrospective holdings as well, because all these materials are also represented online. But some libraries have made only piecemeal progress with RECON. Their machine-readable records might thus reflect specific projects to improve access to particularly important parts of the collection. Virtually all libraries by now rely on automated circulation, and items charged out without full online records are normally processed fully upon their return.

Records for older materials that are considered important, plus those for items that have actually been used, are thus the first to appear in electronic form. Under these circumstances, storage decisions will be based on a universe comprised of recent receipts, high-profile holdings, and high-use parts of the collection. The dusty volumes that no one wants will remain untouched. The rhetoric of storage typically speaks of moving research materials that exhibit low use. In collections not yet fully converted, this use criterion is easily turned upside down.

Shelf space and decision-making time are typically the commodities in shortest supply as transfer processes are put into place. Serials, multivolume sets, and fat books are attractive storage candidates: one decision can free lots of shelf space; it is easier to change the shelving location on a single record than to adjust many; and the impact in the stacks is visible and dramatic. The unintended consequence, however, can be an inhouse collection increasingly biased toward thin books and pamphlets. Moving long runs of unindexed serials can also be particularly grave in terms of diminished user access.

The simplest sort of storage decision is simply to move an entire classification segment or category of materials. As research agendas become broader and the supporting resources more encompassing, this kind of "clearcutting" is less and less likely to work. When it does, it can be extremely effective.

Expediency and User Involvement

Goodwill and efficiency are alike served by storage decisions that are easily borne by both users and the library staff. Certain constituencies may in some cases want to review all storage recommendations. Other groups might be more comfortable with decisions made within the library. A balanced approach is essential in order to demonstrate that no collections are exempt from storage. But it is also important to minimize antagonism and disruption.

Reversibility

Users require general assurances, and also concrete procedures, to bring back permanently materials that have been transferred off site. Repeatedly retrieving materials from storage incurs real costs, so many libraries also utilize automatic procedures to identify heavily used off-site items that might be returned to the stacks. Circulation counters, for instance, can generate reports of materials reaching a predetermined threshold of charges. Some rare or vulnerable items may need to remain off site, regardless of their level of use.

Cost Effectiveness

Storage decisions should privilege materials that are easy to identify and process, and that will generate significant free space. Such categories as duplicates of little-used materials, superseded editions, some translations into some foreign languages, and the accession lists of other libraries can represent some of these areas. Considerations of cost-effectiveness should inform the entire storage cycle, both in overall terms and for specific operations including selection, processing, and storage and retrieval.

Collection Integrity

Research libraries have built their collections through expensive, carefully planned efforts that have extended over decades and in some cases centuries. Their holdings are deliberate creations of mutually reinforcing materials, not just haphazard accumulations of books and journals. The depth that distinguishes these research collections is reflected most immediately, albeit imperfectly, by the materials in the stacks. Multiple classification systems, separate shelving locations, materials not on the shelf at a given moment, and other imperfections of course limit how much of any collection can actually be apprehended at any one time. Removing materials for remote storage exacerbates the problem.

When criteria of costs and benefits prevail exclusively, little-used items are those most likely to be relocated. The process thus tends to remove precisely the sorts of materials that give research library collections their character. Off-site storage can easily result in onsite holdings that offer only minimally more than the core collections in much smaller libraries.

Possible solutions include measures to leave some distinctive materials in the stacks, even if they have not been used. For some literature collections, for instance, at least one work by every author might be retained. A few narrow topical segments might likewise be left intact, as well as occasional (noncirculating) examples of rare or classic works that students, in particular, might otherwise never encounter. New approaches to bibliographic control, as described below, may allow more imaginative solutions.

Security and Preservation

Contemporary storage facilities are secure. They also provide near-ideal environments for books. They therefore enable libraries to preserve materials at risk due to high value, susceptibility to theft or vandalism, scarcity, or poor physical condition. Most repositories own materials that should not be shelved in open stacks, and off-site storage provides an obvious solution.

Practical Approaches to Selecting for Storage

Off-site storage is often difficult for both librarians and library users. Reduced access to library holdings is always unsettling, even discounting users' sometimes-romanticized visions of current arrangements (Palladino 1999). The mechanics of moving materials can leave everyone suspicious that his or her areas of interest are being unfairly targeted. Political awareness, communication, and consensus building are crucial.

Off-site storage has to be understood and accepted on two levels. The university and library administration need to explain and justify the general concept of remote storage, usually by demonstrating the hard facts of exhausted library space and limited capital budgets. But explaining storage as an unavoidable though abstract solution is only a first step. Focused meetings with departments and faculty members are also essential to build consensus around the specific criteria that will inform transfer decisions. The choices will normally be based on local patterns of use and on research trends within each discipline and field. They must also reflect the concrete research interests of individual professors and students. Agreements can sometimes be reached through discussion alone. In other cases it may be useful to share and evaluate sample lists of transfer candidates. And sometimes it is most productive to walk the stacks with one or two faculty members, discussing the specific items and categories of materials that are immediately at hand. Whatever the approach, faculty involvement is essential.

Explanations, communication, and attention to process are needed to prepare the way for remote storage. Making nuts and bolts storage decisions requires at least as much effort. The simplest choices focus on categories of materials. Hardcopy newspaper backfiles, materials housed on-site in limited access "cages" (for instance for semi-rare materials, or for items susceptible to vandalism or theft), children's books, and folio volumes are just some of the possibilities. Very few classified collection segments can be relocated in their entirety, no matter how esoteric they seem or how little they are used. Such sweeping decisions almost invariably provoke questions associated with whatever use the materials do receive and with the need to maintain some in-stacks representation of all library holdings. Sooner or later, item-level selection almost always becomes essential.

In some cases intermediate decisions can also be possible. When a library owns long runs of several news magazines from a particular country, for instance, it might be possible to keep one set in the stacks and to move other backfiles to storage, often with a cut-off date to keep all issues from the past five or ten years on the shelves. Users seeking to compare accounts of a particular process or event can orient themselves by consulting the title remaining in

the stacks, and then recall complementary volumes as needed. When good indexes are available, some scholarly journals can also be considered for storage. Some materials that have been reformatted as microform editions or digital products can likewise be plausible transfer candidates, though usability, demand, and functionality must all be weighed.

Item-level selection for storage is typically a two-stage process. Potential transfer candidates are first identified on the basis of recorded use and the tentative choices are then ratified either by bibliographers or users, or both. The initial phase usually consists of a broad sweep through some part of the collection to identify materials that have little recorded circulation. The threshold will vary between institutions, partly as a function of local decisions about the amount of space to be cleared. Specific approaches will be informed by the feasibility of working from computer-generated lists, or relying on teams sent into the stacks to inspect the volumes themselves. Libraries with well-established automated circulation systems often can generate lists of items that have not been charged out over a period as long as several decades. Libraries without good online circulation information, however, may need to assess use by consulting the date due stamps in the back of each book.

Variants are possible as well: for example, sophisticated computer algorithms that go beyond the single criterion of past circulation to weigh differential use patterns among separate classification segments (a surrogate for academic fields), and such additional features as whether a particular work is a translation or an additional edition, and its language and publication date (Silverstein and Shieber 1996). At least in theory, the result is a weighted, rank order list that predicts whether a given book is likely to circulate in the future. Such models can be costly to devise and validate, and the lists themselves tend to be more expensive to prepare than straightforward tallies of past circulation.

No matter how the candidates for transfer are initially identified, a successful process requires subsequent review by a bibliographer and perhaps by faculty members as well. Apart from possible errors due to coding mistakes, machine-generated lists may include non-circulating, reference-like works that have been housed in the stacks. Bare bones lists of items that have not circulated also fail to convey the broader context of the surrounding collection, which typically informs transfer decisions as well.

When low circulation items have been flyered or otherwise marked in the stacks (one common technique is to apply pressure-sensitive colored dots to the spines of transfer candidates), both librarians and users can be invited to remove the markers from materials that they want to keep on site. Even in list-based storage selection exercises, decisions are usually most effective when the materials are also inspected in the stacks. Stack reviews also can reveal other storage candidates—for instance materials needing preservation attention, duplicates that are no longer in demand, or superseded editions—that may not be apparent from circulation lists alone.

The most common approach to storage decisions begins with preselection based on circulation. Uncritically accepting use as the primary criterion for storage, however, can easily compromise collection integrity. Some of the most difficult professional judgments concerning transfers come in attempting to represent a collection's richness and depth without subverting the economistic logic that underlies the whole concept of off-site storage.

A final check on certain kinds of storage decisions typically comes from the staff members who process the transfers. Selection anomalies, for instance when a single volume in a multivolume set has been marked for relocation, can be returned for reconsideration. Processing staff can also keep track of items not found on the shelves in order to enable tracing activities and the determination that some pieces may need to be replaced or declared lost.

Remote Storage Writ Large: Problems, Palliatives, and the Link to Distributed Collections

More and more research libraries are grappling with the need for additional storage. Off-site facilities nonetheless remain a decidedly second-best alternative to the classified, inclusive, on-site, open-stack collections whose successful expansion has made off-site storage facilities necessary. The two major disadvantages of off-site storage respectively center on bibliographic and physical access.

Today's storage facilities house closed collections in arrangements that facilitate inventory control and minimize costs at the expense of browsing. In a nonbrowsing environment, books and journals can only be identified through the bibliographic records in local online catalogs. The bibliographic descriptions and retrieval tools must compensate for direct user access to the pieces and therefore must be well constructed. Four aspects merit special emphasis.

Bibliographic records should be complete with subject headings and classification. Minimal-level cataloging and other abbreviated records do not substitute for open access to materials shelved by subject. Further, online catalogs must be able to manipulate the wealth of coded and free-text information contained in full-level bibliographic records. Constructing sophisticated searches often remains difficult. Our catalogs should allow users to take quick and effective advantage of all the information built into full catalog records.

A third dimension considers bibliographic access to sources that aggregate many separate items within one phys-

ical or bibliographic unit. Serials, for instance, are at once attractive and problematic candidates for storage. Moving a serial can save lots of space, but without complete and ready bibliographic access via indexes or citation databases, effective intellectual access is almost impossible. Monographs published in series present similar problems. Easy access to the contents via effective representation of the contents online is essential.

We can by now represent detailed serial holdings in our online records. With appropriate initial processing, users should thus be able to verify a library's precise holdings of an off-site serial. Knowing what is inside these volumes, however, can be far more difficult. Printed indexes are an obvious resource, and many serials regularly produce their own cumulative indexes. External indexing services may also cover a specific journal, though it is important to confirm both time frame and completeness.

Where indexing does not exist, or even in addition to indexing, digital technologies may assist in creating information on the contents for inclusion in an online catalog. One approach is to scan page images of tables of contents for users to consult online, through a product somewhat analogous to the notebooks of photocopied tables of contents available in some institutions (see, e.g., Harvard Digital Library Initiative 2000 and Latin American Network Information Center 2000). Creating searchable text files of tables of contents, which could support queries based on author name, keywords, and the like, might be a (more expensive) next step. And full indexing could enable users to receive automatic bibliographic updates alerting them to articles falling within personalized subject profiles.

Finally, the example of digital representations of serial tables of contents can suggest other ways in which we can exploit electronic technology to improve access to stored library materials. Browsing often consists of quick riffles through a group of books. Most users can quickly assess the potential utility of a work by glancing at its table of contents, gauging the level and nature of the prose, and noting the presence of footnotes and the type font. The title page, the table of contents, and the introduction are perhaps the most revealing pages. Scanning a very few key pages from monographs destined for storage and then linking those digital images to catalog records might provide a partial surrogate for browsing. Users could at least get a peek at potentially useful materials, and on that basis decide whether to recall them from storage.

The second major disadvantage to off-site storage lies in the lack of direct physical access, which is an inevitable hurdle for users seeking materials housed off site. Stored books and journals must be recalled through a process that involves delay. In the best of circumstances, the delay is no more than a few hours although it can be one to three days in other instances. Further, there is sometimes a requirement to retrieve the piece from or consult it at a specific library unit. Multiple requests exacerbate these problems. Document delivery capabilities, e.g., Ariel and fax transmission of journal articles, minimize some of the inconvenience. Additional enhancements need to be worked out as well.

Conclusion

More and more libraries are running out of space and turning to off-site storage. These libraries face a multitude of political, philosophical, and practical challenges in selling the concept, selecting materials to move, and implementing their storage decisions. Browsability, bibliographic access, and physical access to collections all become problematic when materials are no longer at hand in the stacks.

These same challenges also arise for materials held (off-site) by other libraries. Here, even more emphatically than with local storage facilities, users must rely on bibliographic records and online catalogs to evaluate materials of potential interest. Physical access is mediated through interlibrary loan and document delivery. The solutions we devise for off-site storage are therefore pertinent to many of the hurdles that we associate with cooperative collection development and distributed research collections.

Both off-site storage and distributed collections are likely to be only grudgingly accepted until the issues of enhanced bibliographic records and systems, limited digitization of book contents as a partial surrogate for onsite browsing, and streamlined mechanisms for physical access are more directly confronted. When the issue of access to remote materials is cast in terms of our national and international library system, rather than as a purely local matter of storage and retrieval, the need to improve access across the board also comes into sharper relief. Off-site storage, which affects us one library at a time, requires rigorous local responses. The very similar problems of remote resources pose a challenge for us all.

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