

UNT Libraries' Archival Storage Replacement Fund

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UNT Libraries' Archival Storage Replacement Fund

Overview

The Archival Storage Replacement Fund (ASRF) was created in 2013 by the University of North Texas (UNT) Libraries as a way of lessening the financial effect of the replacement of archival storage for the UNT Libraries' Digital Collections.

Background

The UNT Libraries operate a large digital library infrastructure locally referred to as the UNT Libraries' Digital Collections. This digital library platform stores archival copies of both digitized analog and collected born-digital resources used by users around the world. These collections are defined by the UNT Libraries' Collection Development Policy for Digital Collections.

Two copies of the archival master content are stored: one copy on the UNT main campus in the Willis Library server room; a second copy is stored at the UNT Discovery Park research campus in the UNT ITSS server room, located 3.5 miles north of the main UNT campus. Each of these copies of data are stored on spinning disk technology and are part of an active replication and monitoring system developed by the UNT Libraries called Coda.

The underlying storage used by the UNT Libraries' Digital Collections is on a refreshment schedule for every five years. The last storage refresh took place in the summer of 2012 with the next full refresh of the underlying storage technology expected for 2017.

The ASRF was started to help minimize the impact of this planned storage replacement on the UNT Libraries yearly budget by placing a portion of the replacement cost into a local account each year that will be used to replace the existing archival storage infrastructure in the future.

Assumptions

The ASRF was created with the following assumptions in place:

- UNT Libraries is committed to the long term preservation and archiving of all items accessioned into the UNT Libraries' Digital Collections.
- UNT Libraries will operate two complete copies of the digital libraries' content locally on spinning disk.
- Storage costs will decline over a five year period.

- Future storage technologies will offer denser and more cost effective storage platforms over time.
- Replacement solutions for archival storage will exist with similar or better performance and cost metrics than the previous generation of storage infrastructure used.
- The UNT Libraries will deposit the calculated allotment into the storage fund at the beginning of each fiscal year.
- While the ASRF is expected to cover the replacement costs of storage used by existing digital objects in the UNT Libraries' Digital Collections, additional storage will be purchased at each refresh cycle that may add costs to the overall storage purchase and exceed the funds in the ASRF.

Calculating yearly allotments

In order to maintain adequate funding for future storage replacement costs in the ASRF, it is necessary for the UNT Libraries to contribute the calculated allotment for the given year.

To calculate the yearly allotment, the total number of terabytes (TB) stored in the UNT Libraries' Digital Collections is used as the base storage amount with a storage Cost-Per-Year Multiplier multiplied to the base storage amount.

Base Storage Amount * Cost-Per-Year Multiplier = Yearly Allotment

Calculating the Cost-Per-Year Multiplier

With each equipment refresh, the multiplier for the following five years is set based on twice the cost per formatted and usable TB of storage purchased, once the new storage is in place.

This cost per formatted and usable TB of storage is calculated on one instance of the storage infrastructure. Costs to include in the calculations include all compute, storage, warranty and directly associated rack-networking needs for the purchase. Below is an example of how these costs are determined.

168 TB of formatted and usable TB of storage purchased for \$42,000

$42,000 / 168 \text{ TB} = \250 per TB

$\$250 \text{ per TB} / 5 \text{ year lifespan} = \$50 \text{ per TB-Cost-Per-Year}$

$50 \text{ per TB-Cost-Per-Year} * 2 \text{ copies} = \$100 \text{ Cost-Per-Year Multiplier}$

Adding to the fund.

At the beginning of each fiscal year, the Assistant Dean for Digital Libraries will alert the Administrative Office and Technology and Computer Operations (TACO) as to the current

amount of content being consumed by the UNT Libraries' Digital Collections. This number is calculated as the amount of data registered within the Coda archival system at <http://coda.library.unt.edu/>. This amount is used for the Base Storage Amount used in the funding calculation described above. The amount of funding needed to cover this amount of storage is then added to the ASRF for the next fiscal year.

Example Archival Storage Replacement Fund 2013-2017:

September 1, 2013 = 120 TB = \$12,000 placed in Archival Storage Replacement Fund
September 1, 2014 = 160 TB = \$16,000 placed in Archival Storage Replacement Fund
September 1, 2015 = 192 TB = \$19,200 placed in Archival Storage Replacement Fund
September 1, 2016 = 240 TB = \$24,000 placed in Archival Storage Replacement Fund
September 1, 2017 = 300 TB = \$30,000 placed in Archival Storage Replacement Fund

Total Funds Available in 2017 to supplement storage replacement: \$101,200

Expending funds

It is expected that the ASRF will be used once every five years for the purchase of replacement hardware for the UNT Libraries' Digital Collections. It should be used in its entirety to cover the costs of storage and, if available, supplement the cost of new storage also purchased at that time. It is expected that this funding will be used in conjunction with funds from other funding sources such as grants, local accounts, or other funding pools as appropriate. It is expected that in order to receive the most aggressive storage costs, this funding may be pooled with other infrastructure expenditures that the UNT Libraries incurs at the same time to make the best deal for the library.

Calculated Storage Multiplier

For the period of 2012-2017, the storage multiplier is \$100 per TB per year. This will be recalculated after the next storage refresh.