media recovery
Datacenter products and services

**Lifecycle Management for Midrange Tape**

**Error Standards:**
The rules for the Midrange are the same as those for Enterprise: if a cartridge fails in the same place for the same reason on different drives, most likely the media is at fault; if a drive fails multiple pieces of media in the same way for the same reason, most likely the drive is at fault.

**The Challenge:**
The challenge in the Midrange is that the tools and infrastructure to report on and analyze these error conditions does not exist in the same user friendly way as with Enterprise. Additionally, the tools that do exist in the Midrange respond to error events, so any activities that take place as a result of them are "reactive".

**Possible Solutions:**
In the Midrange the backup application is the reporting source for media error conditions. The backup application does not generally have the sophistication to know if the media error condition was caused by the media itself, the drive, or something else. Nor does it know where and how the media error occurred. Usually the backup application has a media error setting whereby the media is ejected from the system after a given number of error conditions.

The first thing to do is understand at what point the backup application will report an error, and determine if this condition is acceptable. These conditions are set up with a default, but it can be moved up or down. The next step is to catalog these error conditions by media volser and drive serial number to determine if there is a trend. If there is a high amount of media error activity, determine if the average cartridge life used exceeds the specified useful life. If the average cartridge life exceeds the specified useful life, it is recommended that the tapes be replaced. If the average cartridge life is less than the specified useful life, contact Imation to assist in the root cause determination of the problem. Imation can work with you to look at trends (i.e., media age, media/drive vendor, application, etc.), and determine if a sample of cartridges would aid in root cause analysis. Imation can also test the sample cartridges on the same type of drive that you are using in your library to look at the base performance of the media. In the case of LTO products, Imation can also scan the memory chip inside of the cartridge to view performance history in your library.

**Estimating Cartridge Life as a Function of Media Usage**

- Cartridge life used (CLU):
  CLU=(total GB backed up/mo)/(#of cartridges)*(age of cartridge in months)

- For example, assume you have a 2000 cartridge library that is approximately three years old that backs-up 80TB per month:
  CLU=(80,000GB/mo)/(2000)*mo/4wks*3yrs*52wks/yr=1560GB

- Imation tests each product under extreme conditions for its useful life, or durability:
  - Imation's specified useful life can be found in the Lifecycle Matrix column titled "GB(native) Stored over Life"
  - -If cartridge life used>Imation's specified useful life, replace or upgrade
  - -If cartridge life used< cartridge avg. and performance monitor use to continue life, useful specified>
  - Monitor performance and avg. cartridge life