netCDF Support for In-Memory Files

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The NC_DISKLESS MODE FLAG

- New nc_open/nc_create mode flag:
  - NC_DISKLESS
- Setting NC_DISKLESS causes netCDF to create the file only in memory
- Unless otherwise specified, the in-memory file will be destroyed when nc_close is called

NC_DISKLESS With nc_create()

- Can be used with netcdf-3 and netcdf-4
- NC_DISKLESS flag only
  - Create in memory
  - Destroy on nc_close
  - File path is ignored
- (NC_DISKLESS+NC_WRITE)
  - Create in memory
  - At nc_close, store contents in the file whose path was specified in the nc_create call

NC_DISKLESS with nc_open()

- Can be used with netcdf-3 only
- NC_DISKLESS flag only
  - Read into memory
  - Destroy on nc_close (but leave disk file unchanged)
- (NC_DISKLESS+NC_WRITE)
  - Read into memory
  - At nc_close, store contents back into the file

Performance Note(s)

- If NC_DISKLESS is going to be used for creating a large classic (netcdf-3) file
  - Use *nc__create*() and specify an appropriately large value of the *initialsz* parameter
  - This avoids too many in-memory heap reallocations

Uses

- Temporary files
- Re-organizing existing files
- Performance (when in-memory access is significantly faster than disk access)
- If you discover a new use case for NC_DISKLESS, let me know

Questions?