TRILINOS FRAMEWORK RENAMED TO "DEVOPS"

Align nomenclature with other Sandia ASC teams

FY24 ACCOMPLISHMENTS

- SAST Scanning investigation (CodeQL), co-developing with Tpetra/MueLu teams
- Enabled using multiple GPUs in PR testing to speed turnaround and increase robustness
- Initial support for OneAPI compiler
  - Containerized build
  - Floating-point flags

- Tool to track PRs that had tests fail and pass for same commit hash
- Added a CUDA UVM build-only to PR testing
- Nightly build against ASC DevSecOps Unified Environment (leveraging container provided by ASCDSO team)
- Added nightly CUDA build for Kokkos/KokkosKernels integration section
- Added non-blocking Spack PR build
- Increased warnings around building/using deprecated packages
- Added DCO Signoff check
- Accommodated upgrade of all testing hardware RHEL7->RHEL8 (which also involved upgrading toolchains)
- Work open-source process for pieces of GenConfig system
- Upgrade nightly C++20 build to use GCC >8
- Design and implement warnings/errors policy

AT2-SPECIFIC ACHIEVEMENTS

- Added GCC, GCC+OpenMPI, CUDA+GCC+OpenMPI (A100) builds to GitHub
- Enabled ccache in GitHub Actions builds
- Enhanced reporting (e.g. CDash, links)
- Set up automated image rebuilds
- Add 'fmt'*
- Investigate external registries
- Correct red update column
- Document/test internal developer usage of AT2 containers
- Eliminate duplicate runs
- Use clear CDash site name

FY25 PLANS

- Promote AT2 experimental builds to replace corresponding AT1 builds

- Promote C++20 build to PR status (ensuring readiness for next standard advancement)

- Enhance support for Spack package.py from internal Trilinos developers

- Migrate from SEMS Autotester to GitHub Actions for CI/PR builds
  - Will also involve moving from SEMS TPL environment modules to containerized environments

- Add testing for CompSim and RAMSES configurations of Trilinos

- Add advanced hardware builds as hardware becomes available
  - AMD ROCm (hopefully + GPU tests)
  - Nvidia H100

DCO SIGNOFF REQUIREMENT

Example of workflow check:
https://github.com/trilinos/Trilinos/pull/13437/checks?check_run_id=31102516264

What am I signing off on?
https://github.com/trilinos/Trilinos/blob/develop/CONTRIBUTING.md#sign-off-your-work

Options for commit signing:
- **git commit -s   # --signoff**
- Commit template
- Shell alias

DCO SIGNOFF COMMIT TEMPLATE EXAMPLE

```
sebrown@hpws0361:~ $ cat .gitconfig
[user]
        name = Samuel E. Browne
        email = sebrown@sandia.gov
[push]
        default = tracking
[color]
        ui = auto
[commit]
        template = ~/.gitcommit_template.txt
[init]
        defaultBranch = main
[pull]
        rebase = false
[submodule]
        recurse = true
```

```
sebrown@hpws0361:~ $ cat .gitcommit_template.txt
name: summary

Signed-off-by: Samuel E. Browne <sebrown@sandia.gov>
sebrown@hpws0361:~ $
```

Plain `git commit` automatically adds the DCO sign-off for all of my commits now!

EPETRA DEPRECATION MECHANICS

Added deprecation warnings to all deprecated packages. The warnings are able to be disabled via the `Trilinos_SHOW_DEPRECATED_WARNINGS` option (this is also available as a per-package option). These warnings are intended to notify users that package capability they are using will be removed in upcoming releases.

There are also configure-time warnings that inform user that deprecated packages have been enabled and which ones (always on, unable to be hidden).

Using the `Trilinos_HIDE_DEPRECATED_CODE` option with deprecated packages enabled yields a configure-time error.

Packages will be removed in FY25 (plan is currently late FY25, e.g. July)

CONFIGURE-TIME WARNING EXAMPLE

```
**************************************************************
******** WARNING WARNING WARNING WARNING WARNING WARNING **********
**************************************************************
* Several Trilinos packages are scheduled for deprecation in 2025.
* The following deprecated packages are enabled (either explicitly
* or implicitly due to a dependency)
*
* Triutils
* ThyraEpetraExtAdapters
* ThyraEpetraAdapters
* ShyLU_DDCore
* Pliris
* ML
* Isorropia
* Intrepid
* Ifpack
* EpetraExt
* Epetra
* AztecOO
* Amesos
*
**************************************************************
CMake Warning at CMakeLists.txt:81 (message): Deprecated packages that are enabled:
Triutils;ThyraEpetraExtAdapters;ThyraEpetraAdapters;ShyLU_DDCore;Pliris;ML;Isorropia;Intrepid;Ifpack;EpetraExt;
Epetra;AztecOO;Amesos
```