Removing Technical Debt

Ben Evans, Cray

LUG 2016

Defining Technical Debt

- **Work that needs to be done to keep a codebase up to date**
  - Removal of old code
  - Refactoring of existing code
  - Commenting and documenting code
  - Migrating to new standards (tabathon)
  - Naming things
  - Better grouping of related items
  - etc.

Avoiding creating technical debt

- **Document what you wrote or changed**
- **Name things appropriately**
- **Don't write 'clever' code**
- **Remember your audience**
  - You
  - 6 months from now
  - On a weekend
  - At 3 AM

Coding Guidelines

- **http://wiki.lustre.org/Lustre_Coding_Style_Guidelines**
  - "Do what it says on the tin"
  - Naming:
    - Keep them distinct: rq_reqmsg and rq_repmsg
    - Use descriptive names: make_the_code_clearer, but do_not_let_things_get_out_of_hand

  - Commenting
    - Describe what a function does, input and outputs

Identifying Debt

- **Simple example**

```
rc = mdd_changelog_on(env, mdd, 1);
rc = mdd_changelog_on(env, mdd, 0);
static int
mdd_changelog_on(const struct lu_env *env, struct mdd_device *mdd, int
on)
{
     int rc = 0;


     if ((on == 1) && ((mdd->mdd_cl.mc_flags & CLM_ON) == 0)) {
              /*Code to enable changelog here*/
     } else if ((on == 0) && ((mdd->mdd_cl.mc_flags & CLM_ON) ==
CLM_ON)) {
              /* Code to disable changelog here */
     }
     return rc;
}
```

Cleaning it up

```
rc = mdd_changelog_on(env, mdd);
rc = mdd_changelog_off(env, mdd);


static int mdd_changelog_on(const struct lu_env *env,
struct mdd_device *mdd)
{
/* Code to enable changelog here */
}
static int mdd_changelog_off(const struct lu_env
*env, struct mdd_device *mdd)
/* Code to disable changelog here */
}
```
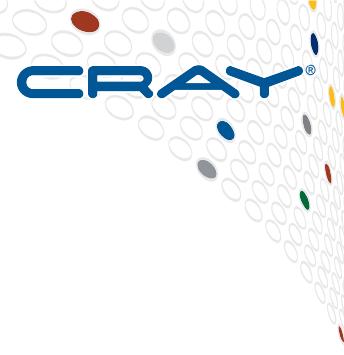
Things left out of example

- Adding comments
- Renaming variables
- Testing
- Reviews
- …

What this means to users

- **Fun, quirky behavior!**
  - Register/unregister cl users on an MDS
  - View and purge records from a client
  - View currently registered users (and other info) using cat
- **Things labeled (DANGEROUS)**
  - Get rid of the options labeled "Obsolete"
  - Move "testing" to it's own command
- **multiple options that do the same thing**
  - lctl –ignore_errors vs. ignore_errors

Questions?