

Milestone Completion for the Project 3: Removal of Dead Code in Lustre* of the SFS-DEV-003 contract.

Revision History

Date	Revision	Author
2014-06-04	Original	R. Henwood
2014-06-09	Added overview, reviewed patch list.	R. Henwood

Introduction

The following milestone completion document applies to Project 3 – Removal of Dead Code in Lustre* of the OpenSFS Lustre Development contract SFS-DEV-003 agreed August 23rd, 2013.

Overview

The Removal of Dead Code project agreed the [project scope](#) in February 2014. The primary source of leads for identifying Dead Code is a Clang plugin developed specifically for this project. This tool is used to identify:

- unused variables
- unused structure members
- unused structures
- unused types
- unused macros

A shortlist of unused items is then reviewed by an engineer. Items for removal are presented as a patch against the Lustre code base. Due to code churn caused by external project work some items on the shortlist are not scheduled for removal.

The removal patches are listed in the section 'Record of the Completed Solution' below. A detailed description of the process is provided in the [project high level design](#).

In addition, a 'HPDD Checkpatch' automatic reviewer has been implemented. This tool identifies specific style issues. The automatic reviewer posts suggestions for improving style against all patches that arrive in gerrit.

Project Description

Per the contract, Implementation milestone is described as follows:

Ongoing restructuring of the Lustre source code has created large swaths of unreachable code and unused data. At the same time, the layering and complexity of Lustre makes this dead code and data difficult to identify during restructuring, adding unnecessary complexity to ongoing development and maintenance. We propose a concerted effort to address this issue.

This project will identify and remove code from the Lustre codebase which is no longer being used. This will be achieved by using static code analysis tools to isolate areas of dead code. Engineers will then hold inspections to

* Other names and brands maybe the property of others.

understand why the code is dead and how to best remove the code with minimal impact to other on-going projects.

Some areas that will be targeted:

- *OBD methods and handlers*
- */proc files and structures*
- *libcfs module APIs*
- *Utilities*
- *liblustre*

Milestone Completion Criteria

Per the contract, Implementation milestone is described as follows:

Contractor shall complete implementation and unit testing for the approved solution. Contractor shall regularly report feature development progress including progress metrics at project meetings and engineers shall share interim unit testing results as they are available. OpenSFS at its discretion may request a code review. Completion of the implementation phase shall occur when the agreed to solution has been completed up to and including unit testing and this functionality can be demonstrated on a test cluster.

Code Reviews shall include:

- Discussion led by Contractor engineer providing an overview of Lustre source code changes*
- Review of any new unit test cases that were developed to test changes*

Record of the Completed Solution

The agreed solution has been completed and is recorded in the following patches:

a44f229	LU-4961 lustre: move ioctls to lustre_ioctl.h
38fa948	LU-4826 lmv: cleanup req in lmv_getattr_name()
6a9e714	LU-4817 osd: fix some leXX_to_cpu() usage issues
3d01380	LU-4738 lmv: access lum_stripe_offset as little endian
c8a022a	LU-4718 osp: clear oxe_ready on old oxe
4cfa87d	LU-4699 libcfs: unify ERR_PTR definitions
59f0a47	LU-4679 liblustre: remove dead code and clean headers
f1685b4	LU-4655 libcfs: properly (un)define CDEBUG_ENTRY_EXIT
5cd7c3f	LU-3498 kernel: remove uses of IS_ERR_VALUE()
27bc60a	LU-2785 osc: remove unused obd methods
3e7573c	LU-2753 lvfs: cleanup lvfs.h and collateral
7277179	LU-2675 liblustre: disable liblustre by default

C10172 †	LU-2675 llite: remove liblustre includes
C10195 †	LU-2675 lmv: remove liblustre includes
C10196 †	LU-2675 lov: remove liblustre includes
C10510 †	LU-2675 utils: remove unused utilities
14d162c	LU-2675 obd: remove dead code
c0a8fa3	LU-2675 fid: remove liblustre includes
8d161d4	LU-2675 obd: decruft md_enqueue() and md_intent_lock()
a2877f1	LU-2675 obd: decruft md_enqueue() and md_intent_lock()
0f9a574	LU-2675 mdd: remove dead code
1a937b3	LU-2675 mdt: refactor mdt_getattr_name_lock()
adb0b75	LU-2675 llite: remove dead code
8e357d9	LU-2675 obdclass: remove uses of lov_stripe_md
7da33dc	LU-2675 lov: remove unused lov obd functions
6856289	LU-2675 cleanup: const correct FID/OSTID/... helpers
a8252d0	LU-2675 lustre: remove lustre/include/ioctl.h
22da3f9	LU-2675 lod: remove lov and lod stuff from obd.h
7d76b8e	LU-2675 lov: remove unused lov llog code
78e16f8	LU-2875 mdt: use lu_name for rr_name and rr_tgt
02571dc	LU-2675 echo: remove #if 0-ed out regions from echo_client.c

† Indicates a currently un-landed change

Added lines: 5117 removed lines : 20267: **Net removed: 15150**

Conclusion

Implementation has been completed according to the agreed criteria. 20431 lines have been identified as redundant with patches to implement their removal. The net removal line count of 15103 surpasses the line count goal from the [Scope Statement](#) by 50%.