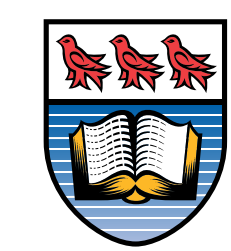


A Forest of Code

Visualizing the Release Information of the Linux Kernel

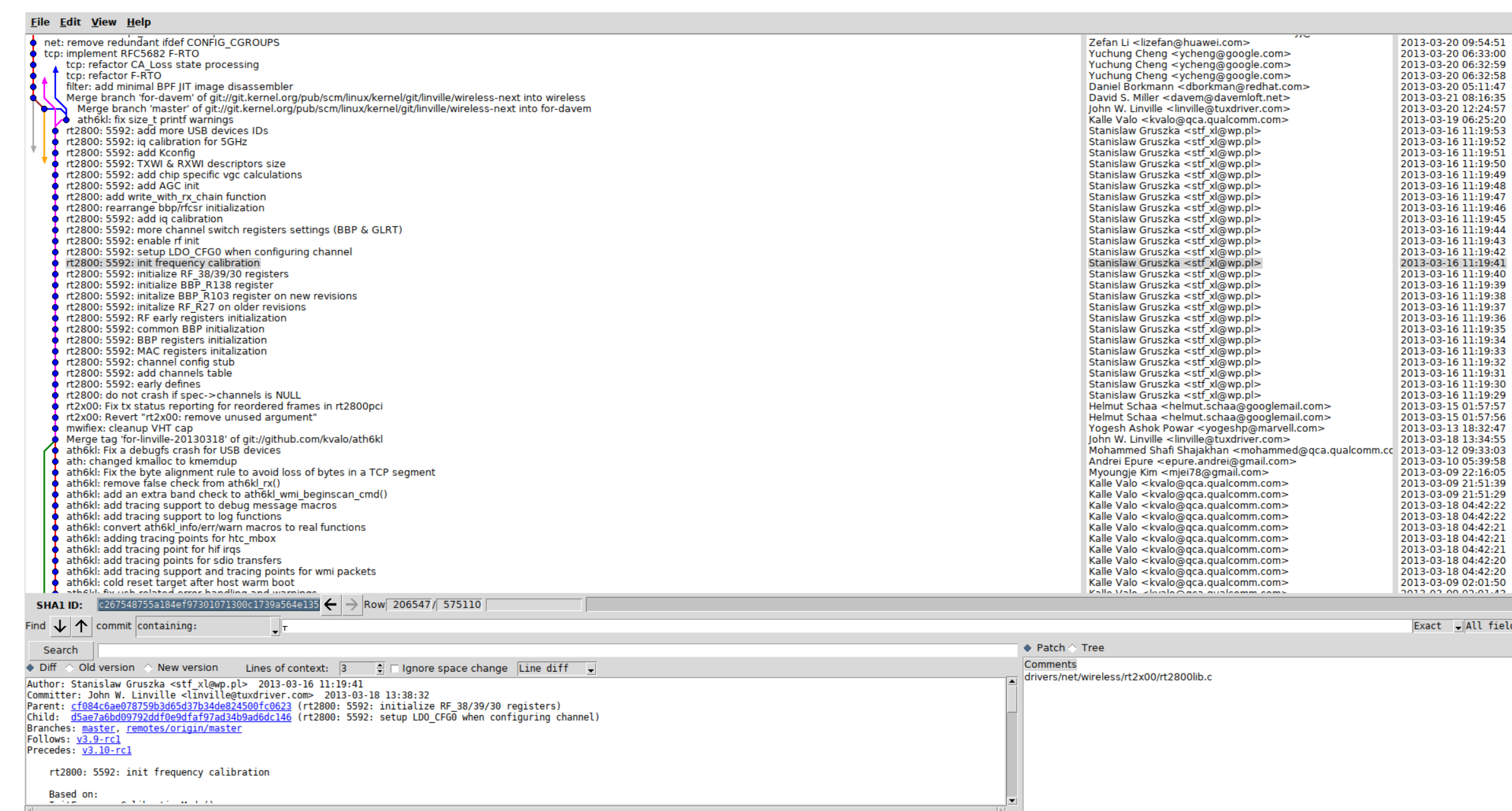


University of Victoria | Department of Computer Science
Evan Wilde | Supervisor: Daniel German

Research Funded by: Jamie Cassels Undergraduate Research Award

Motivation

Current visualization solutions do not provide a clear and meaningful explanation of large repositories. These systems use a directed acyclic graph (DAG) to model repositories which has a few major drawbacks, including a non-intuitive visual appearance and the inability to aggregate metadata in merges.



[gitk]

Our goal is to explore the possible uses of a tree-based model, building clearer visuals and providing better summaries of the changes in the Linux kernel.

Results

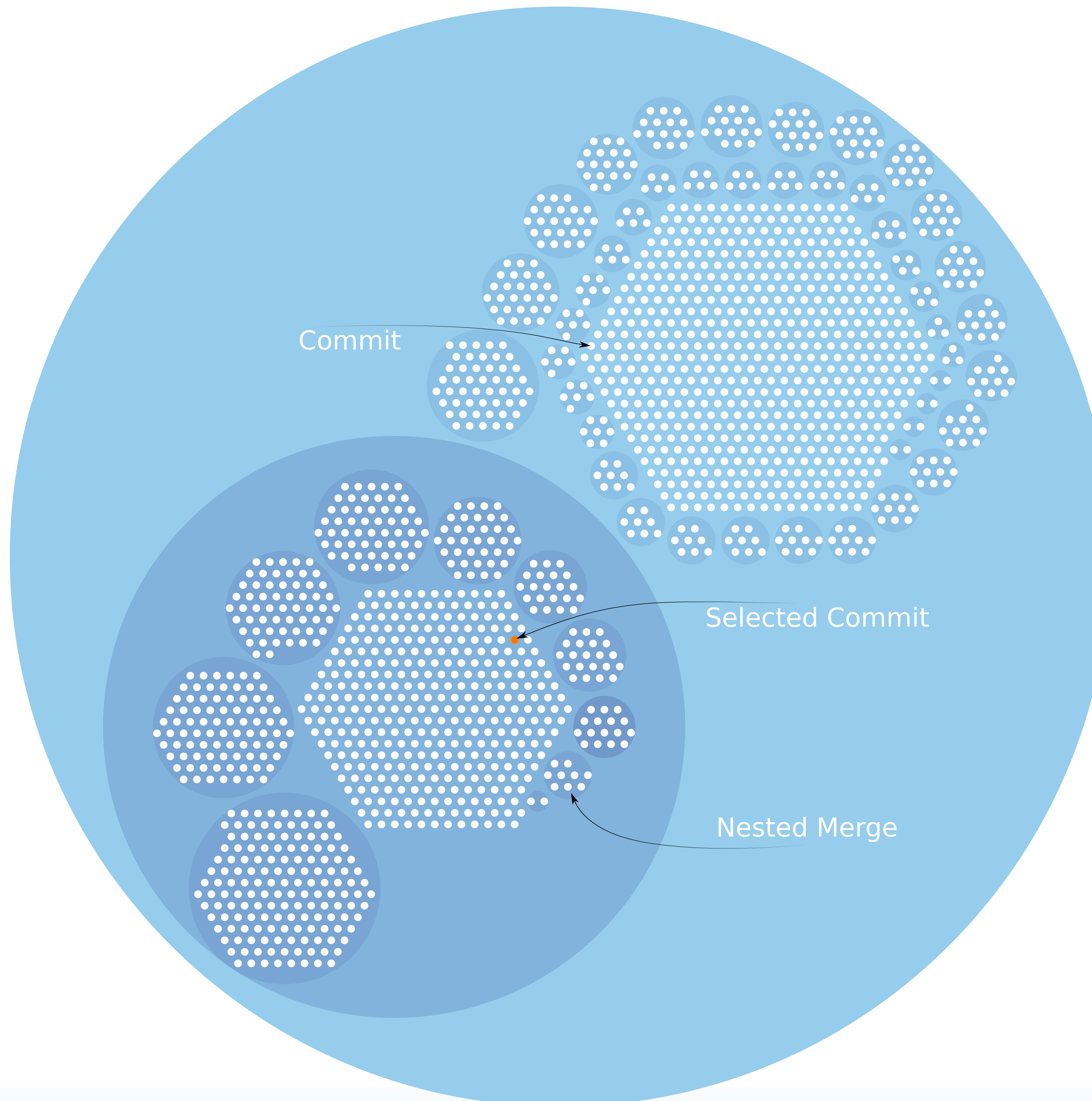
The tree model enables us to provide a clearer explanation of the merges and commits in a given subtree. We are able to quickly identify the type of merges and gain more information if necessary.

With the tree, we are able to show the topography of the repository, easily showing where a selected commit sits and what commits it is bundled with.

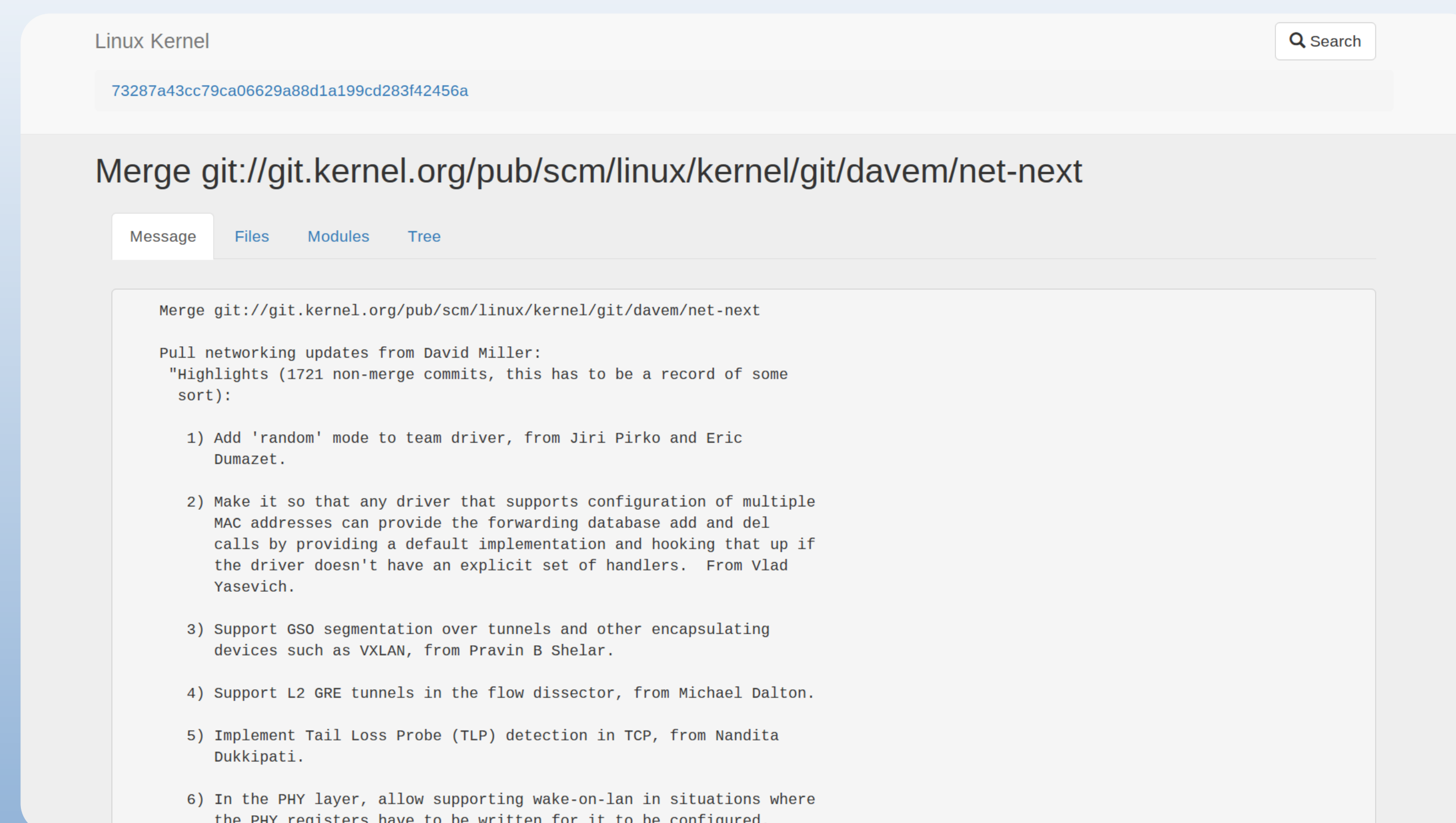
In addition to providing clearer explanation, the tree model enables us to aggregate commit metadata in merges. This provides us with a mechanism to display

- Files modified in a merge.
- Authors contributing to a merge.
- Modules in a merge.

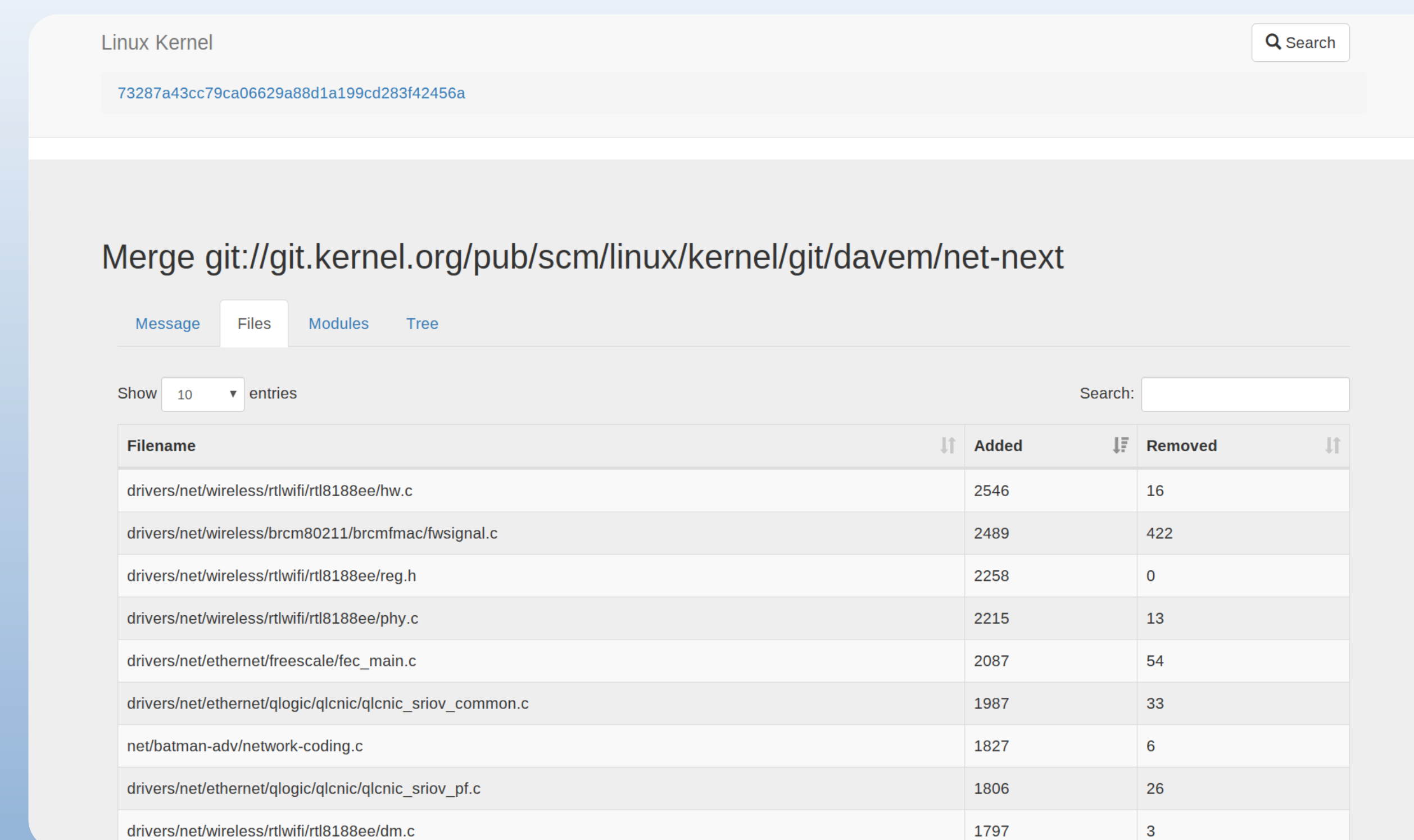
The conventional model cannot aggregate metadata, users must manually track this information in all commits they are interested in.



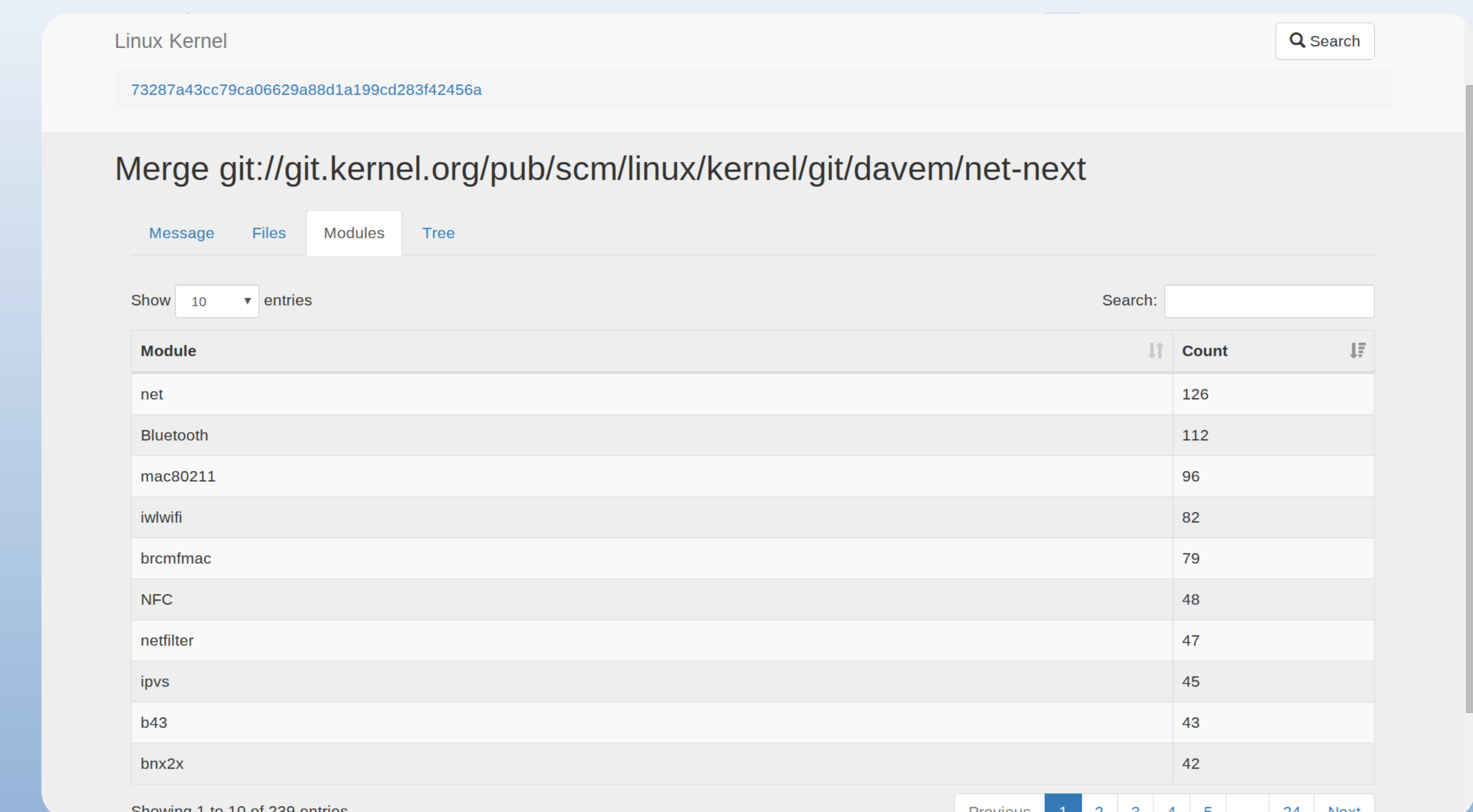
The tree view displays the topography of the subtree. This is the merge tree of the networking portion of Linux 3.10



Message View
Shows the commit log associated with this commit



File View
Shows the total lines edited in a given file within a commit or merge



Module View
Shows number of commits editing a module in a merge