Everett Periman
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EEL 5737 – EDGE
Professor Renato Figueiredo

Homework 2

- PathToInodeNumber

This method checks recursively resolves all parts of a general path name until it reaches the end file/dir. It checks at the beginning if the general path name is fully resolved (no more "/") and if it is it Looks up the current file. If the path still needs to be further resolved it is split up and passed through into a recursive call by using the next directory and changing the search term.

- GeneralPathToInodeNumber

For this method I referenced the textbooks design of the general path resolution. I divided the calls into either root or non-root calls. If it was a non-root call, then the path can be resolved with the PathToInodeNumber method from the current wd. If the call is "general" or starting from root, then I check if the path for special cases and call the PathToInodeNumber but referenced from the root.

- Link

There were several steps involved in getting the linking method to work well. Several checks were made to ensure that the link would be valid including, checking the cwd is a dir, checking that there are available file entry's, that the link name does not exist, and the link type is a file. Once these are check then a new Inode is mapped to a filename in the cwd, using the cwd inode, the new file name, and the target inode. The target inode's reference counter is then updated to reflect this change.

- Chroot

Change root method was straightforward to implement. I started with resolving the requested chroot inode and checking if it was a valid directory. If these steps passed, then the rootdir variable was set to the new inode. Now whenever the GeneralPathToInodeNumber method is called, if the path starts with a reference to the root it uses the newly set rootdir to direct the call.

- cd

Only had to change the Lookup call to GeneralPathToInodeNumber.

- mkdir

The existing Create method was used, by passing in the cwd, desired directory name and noting that it will be a directory inode. The response is checked to ensure that no errors were encountered.

- create

        The existing Create method was used, by passing in the cwd, desired file name and noting that it will be a file inode. The response is checked to ensure that no errors were encountered.

- append

        The approach for this method was to simply copy out the items from the existing inode, combine the string with the new text and then overwrite the existing block with this new information.

- ln

        This method only calls the Link method as described recently and provides an error message if any errors were encountered.

- ls

        LS was updated by leveraging the information exposed in the Inode object. Specifically, the Inode.refcnt variable was added in the printed information to include the reference counts.

- chroot

        This method serves mostly as an interface call for the Chroot method. The Chroot method is called and if it returns a valid response then the rootdir variable is updated to the new root. If it is not a valid response, then it will display and error message.