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ORCFS: ORGANIZED RELATIONSHIPS BETWEEN COMPONENTS OF THE FILE SYSTEM FOR EFFICIENT FILE RETRIVAL

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Abstract. The need for efficient organization of files grows with the computer storage capabilities. However, a classical hierarchical file system offers little help in this matter, excepting maybe the case of links and shortcuts. OrcFS proposes a solution to this problem. By redefining several file system concepts, it allows the user to set custom metadata, in the form of propertyvalue pairs, that describes both files and folders. Using it, the system automatically creates a classified view of the components in which both classical navigation and query interrogation are possible. The enhanced system is compliant with the current applications. A prototype of the project was implemented in userspace using the FUSE library to reimplement system calls. The performed tests proved that even if introducing new data in the OrcFS implies some overhead, this is negligible compared with the gain obtained when searching for files in an immense file tree.