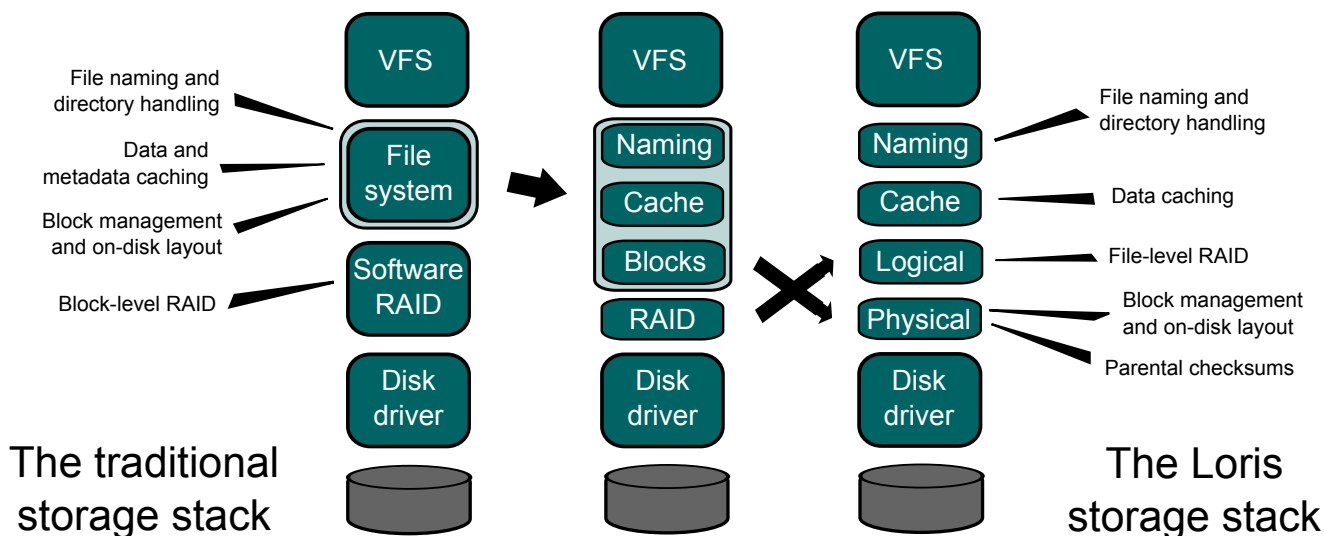


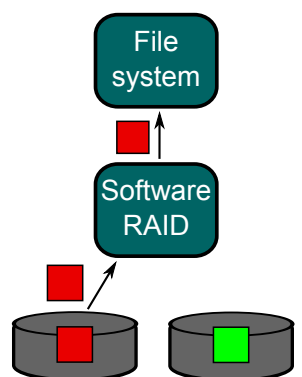
Loris - A Redundant Array of Independent Physical Layers

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Rearranging the storage stack

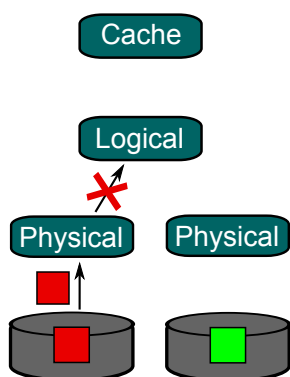


End-to-end data integrity with Loris

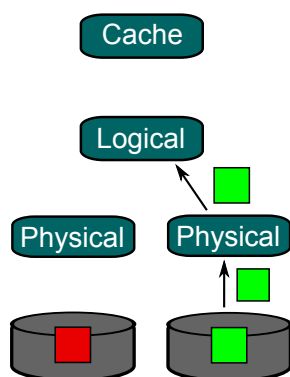


The traditional stack

When a corrupt data block is read from disk, it is forwarded through the storage stack, all the way to the application.

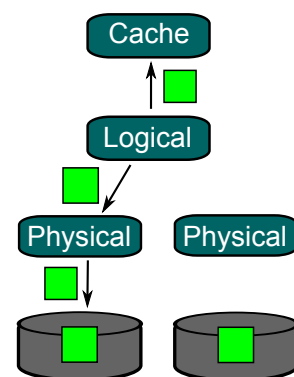


1) With Loris, the physical module detects the corruption using parental checksums. It returns an error to the logical layer.



The Loris stack

2) The logical layer then reads in the redundant, valid copy of the data from the other physical module.



3) The valid data is restored onto the first physical layer, and returned to the application.

And there's more!..

- Other advantages in the paper:
- Per-file policy specification
 - Per-device layout management
 - Support for graceful degradation

- Ongoing research:
- Unified process, system crash recovery
 - Fully automated storage tiering
 - Search-friendly naming scheme



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