

1 Flash-Based SSDs

Vocabularies

1. Solid-State Storage
2. NAND-Based Flash
3. Flash Page
4. Flash Block
5. Single-Level Cell
6. Multi-Level Cell
7. Triple-Level Cell
8. Banks
9. Planes
10. Pages
11. Wear Out
12. Head Crash
13. Disturbance
14. Flash Transition Layer
15. Wear Leveling
16. Direct Mapped
17. Logging
18. Logical Block Address
19. Program Disturbance
20. In-Memory Mapping Table
21. Garbage
22. Garbage Collection (GC)
23. Dead Blocks
24. Cache Flush

- 25. Trim
- 26. Overprovision
- 27. Background
- 28. Page-Level FTL
- 29. Hybrid Mapping
- 30. Log Blocks
- 31. Switch Merge
- 32. Partial Merge
- 33. Full Merge

1.1 Storing a Single Bit

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1.2 From Bits to Banks / Planes

1.3 Basic Flash Operations

1.4 From Raw Flash to Flash-Based SSDs

1.5 FTL Organization: A Bad Approach

1.6 A Log Structured FTL

1.7 Garbage Collection

1.8 Mapping Table Size

1.9 Hybrid Mapping

1.10 Wear Leveling

1.11 SSD Performance And Cost