

Capabilities in Venti

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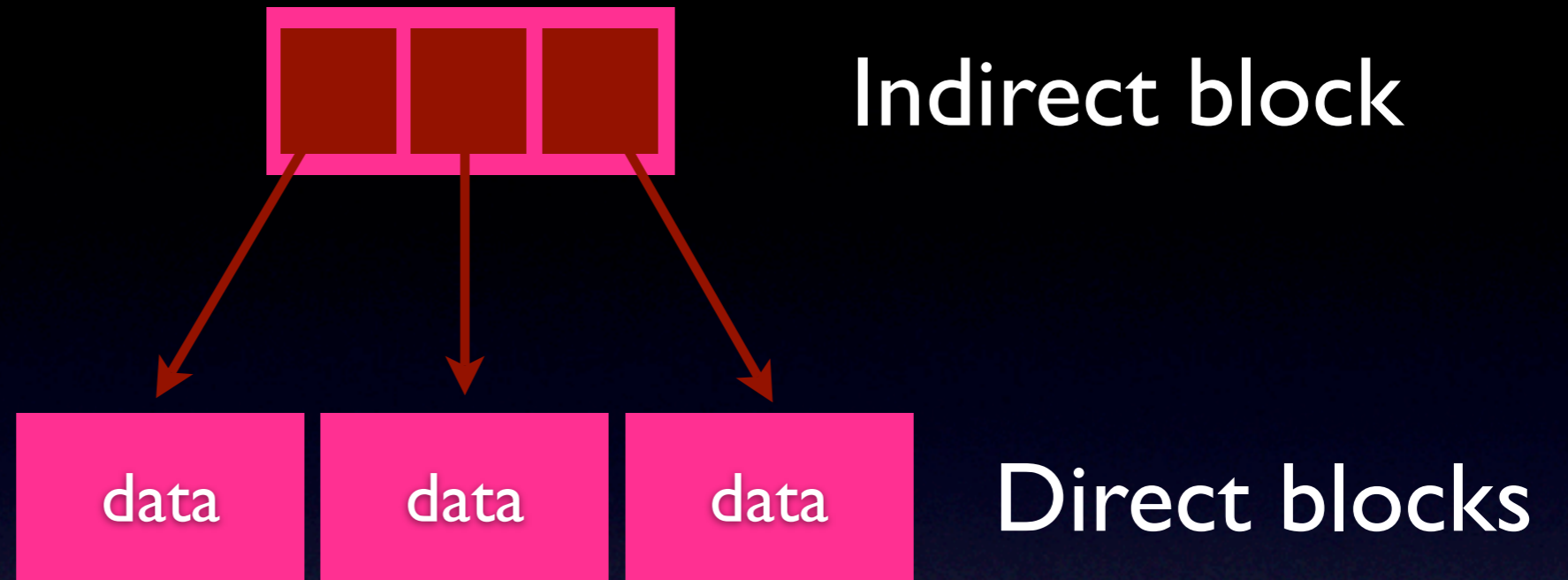
April 30, 2008

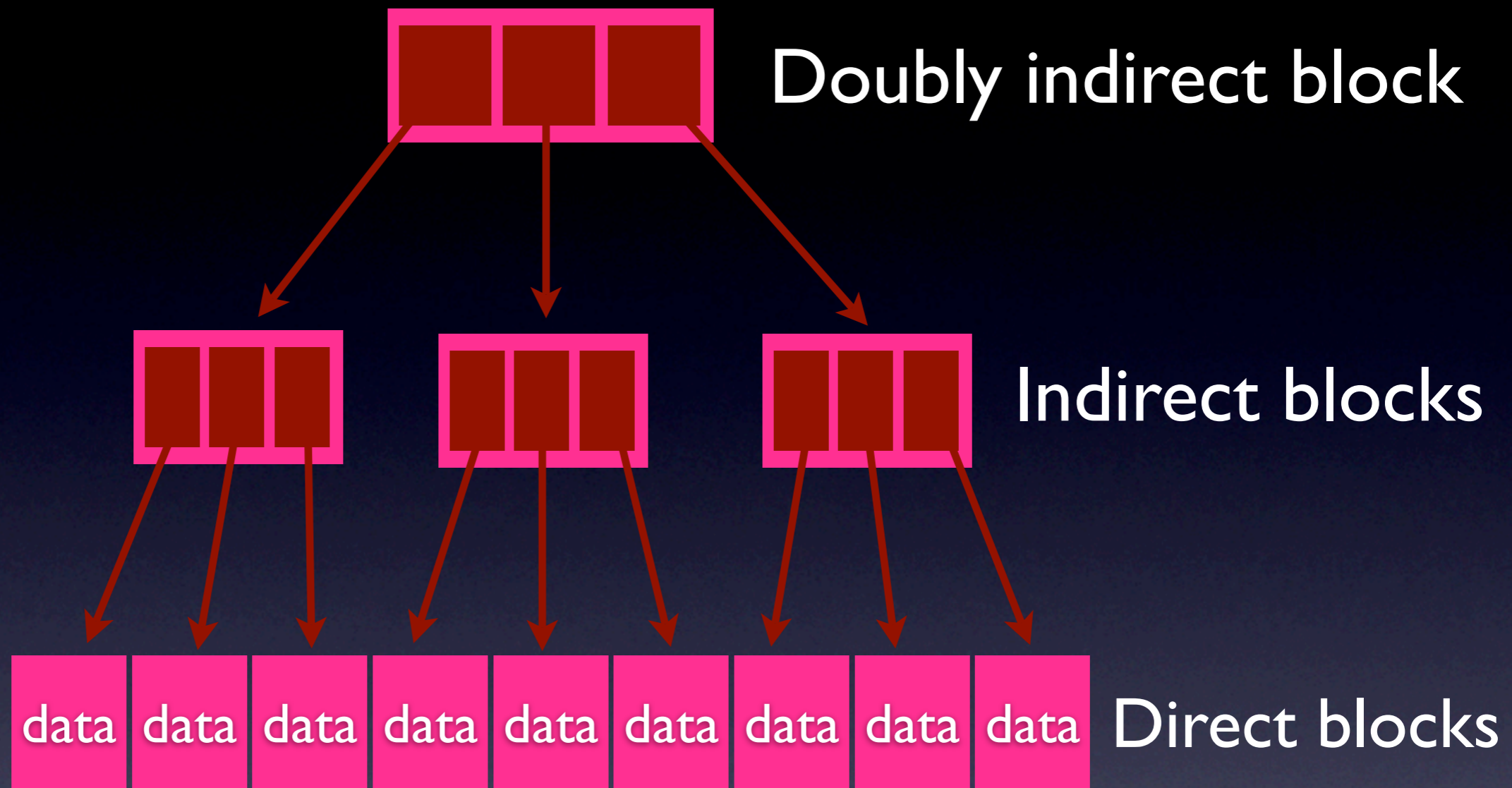
Venti

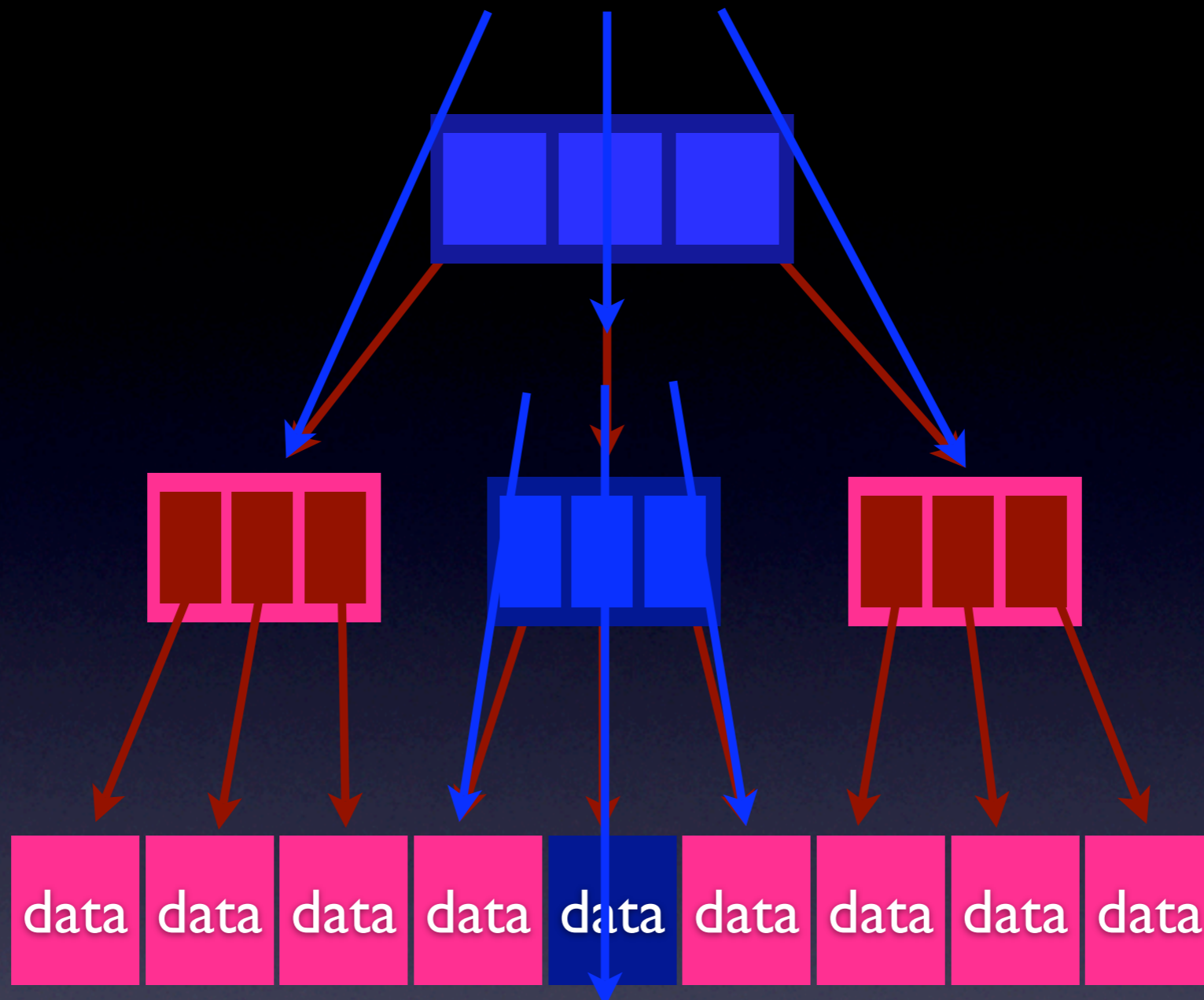
- Usually: serial index for each data block
- Hash: “unique” address for every ~~data block~~ *block of data*
- Write-once
- Transparent compression
- ★ Can't access *just any* block

data

Direct block



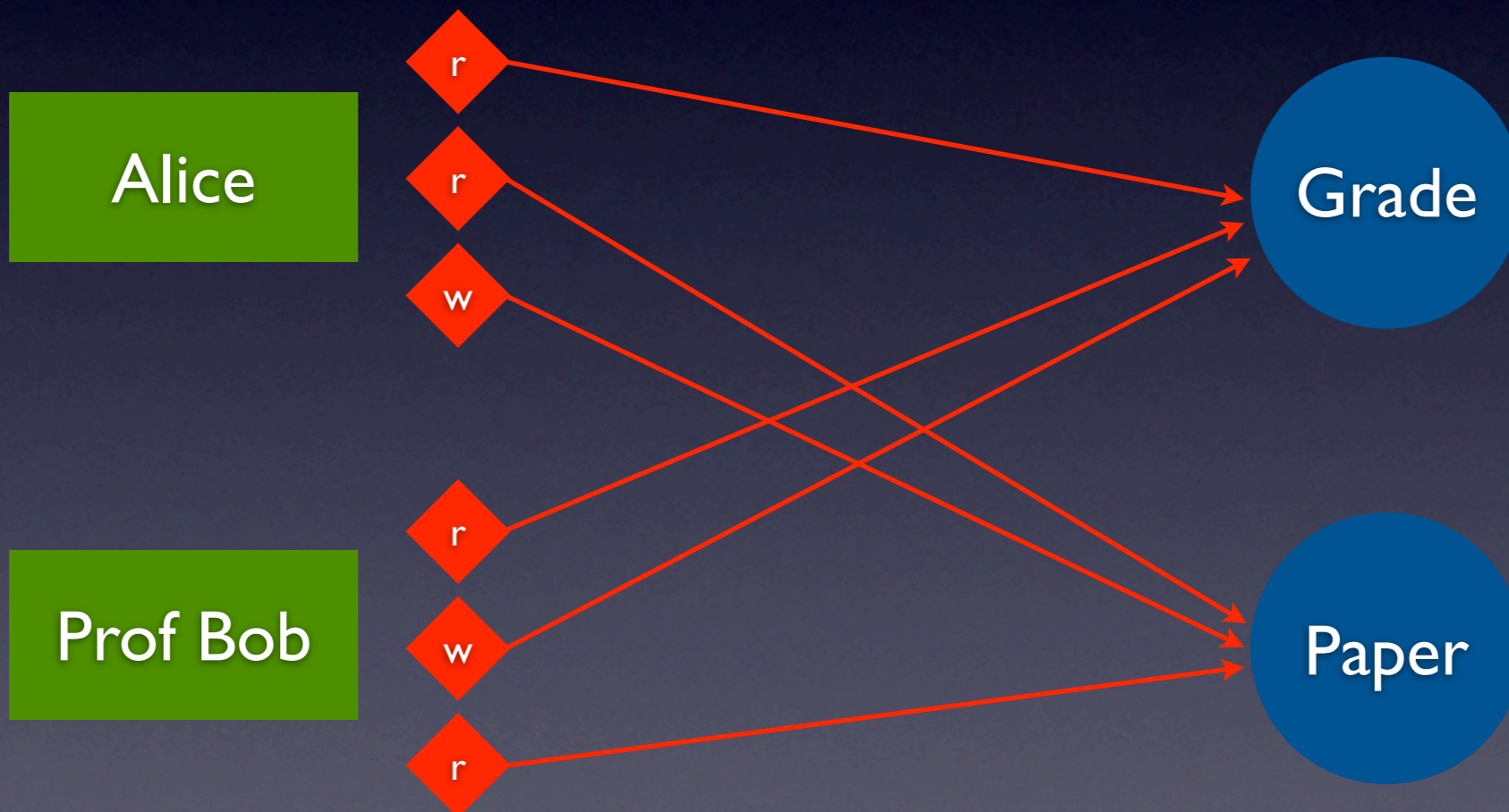




Capabilities

Subjects

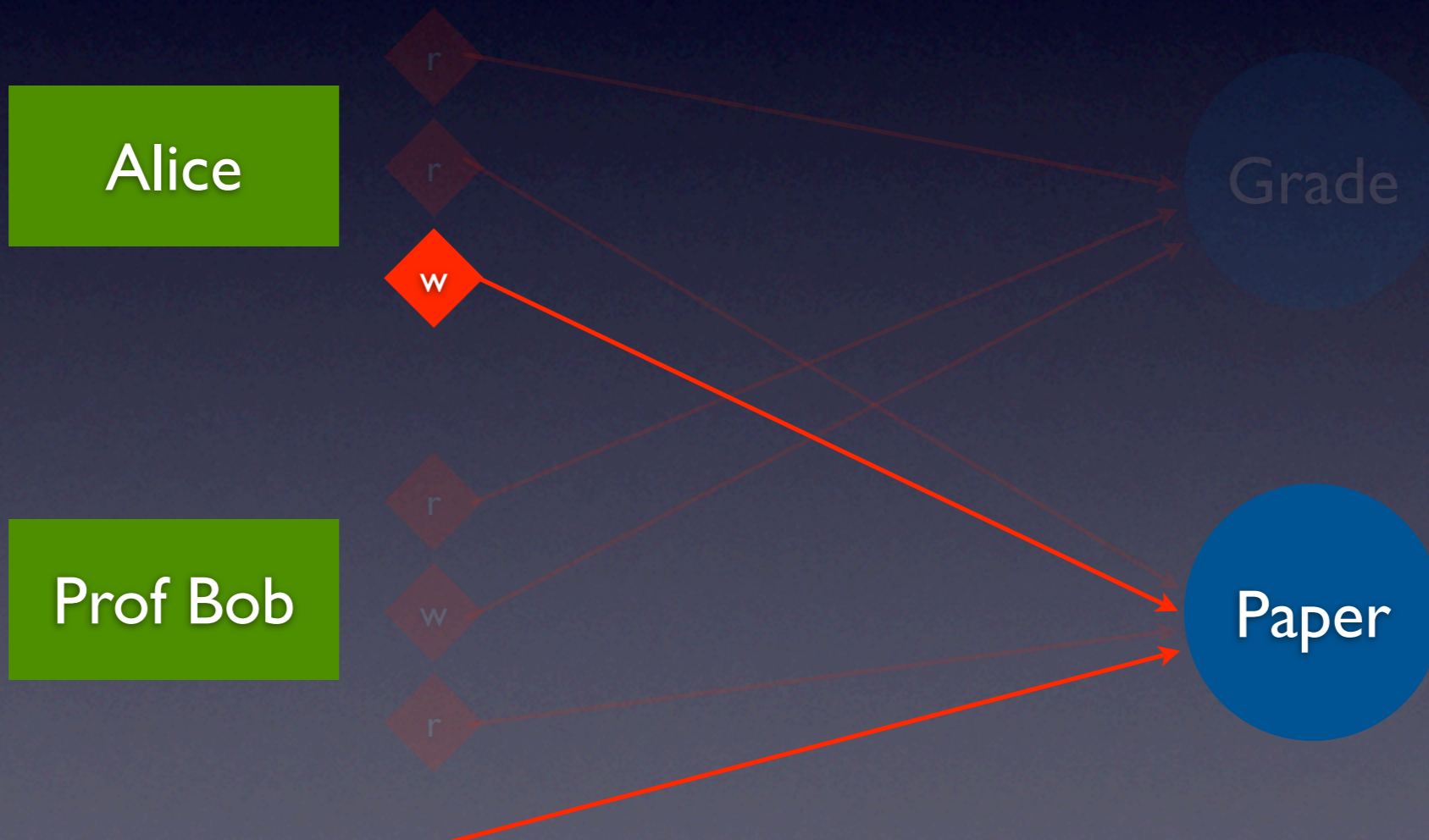
Objects



Capabilities

Subjects

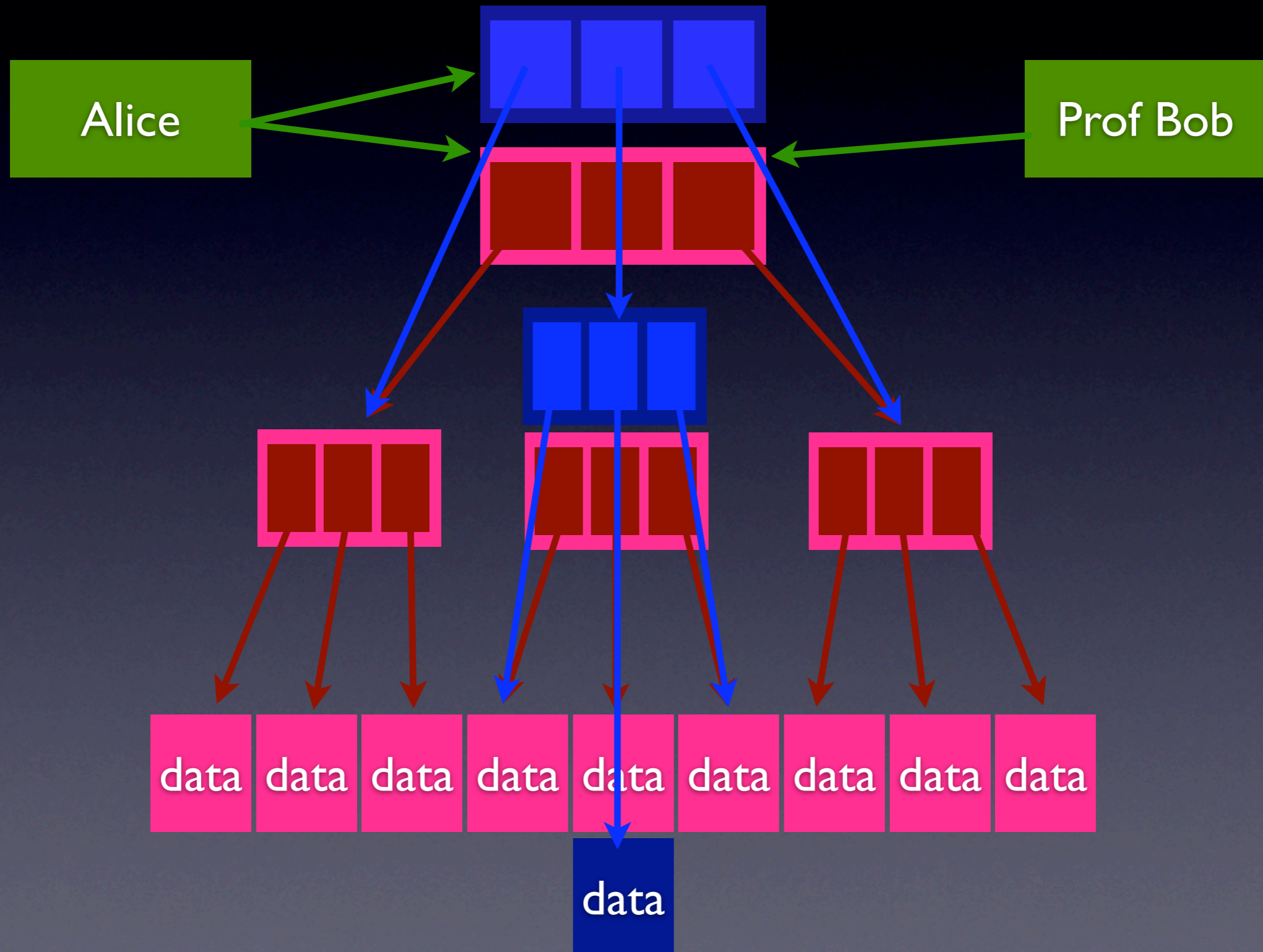
Objects



Capabilities

- Structures allowing access
 - ✓ ● Reading
 - Writing
 - ✓ ● Unforgeable Requirements
- ✓ ● Infrastructure denying access otherwise
- ✓ ● Method of transfer

Trouble with Writing



Capabilities for Venti

- Solve the writing trouble
- Minimal overhead

Alternatives

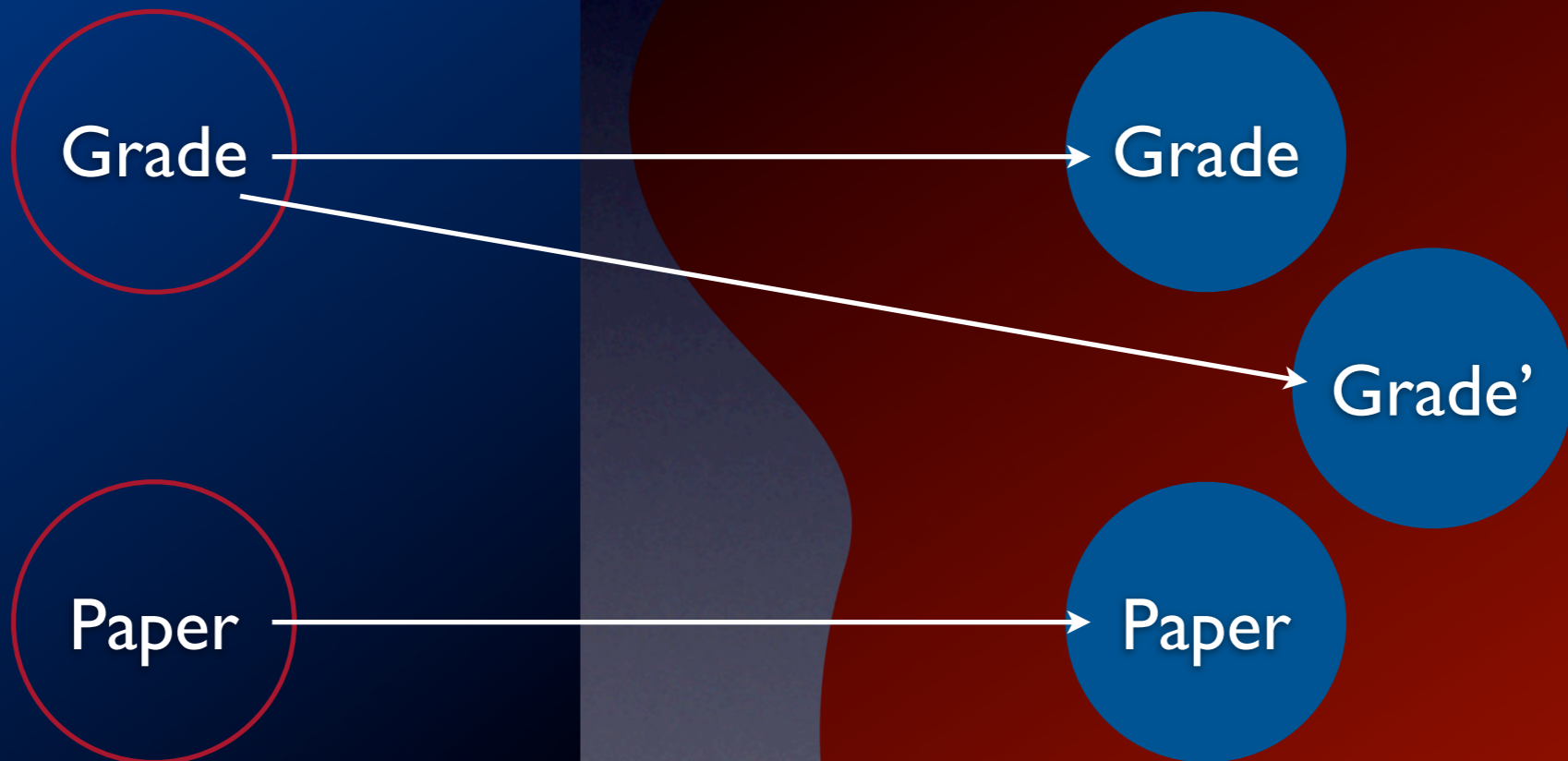
- OS-managed resource wrappers
- Block version linking
- Venti resource wrappers



OS Resource Wrappers

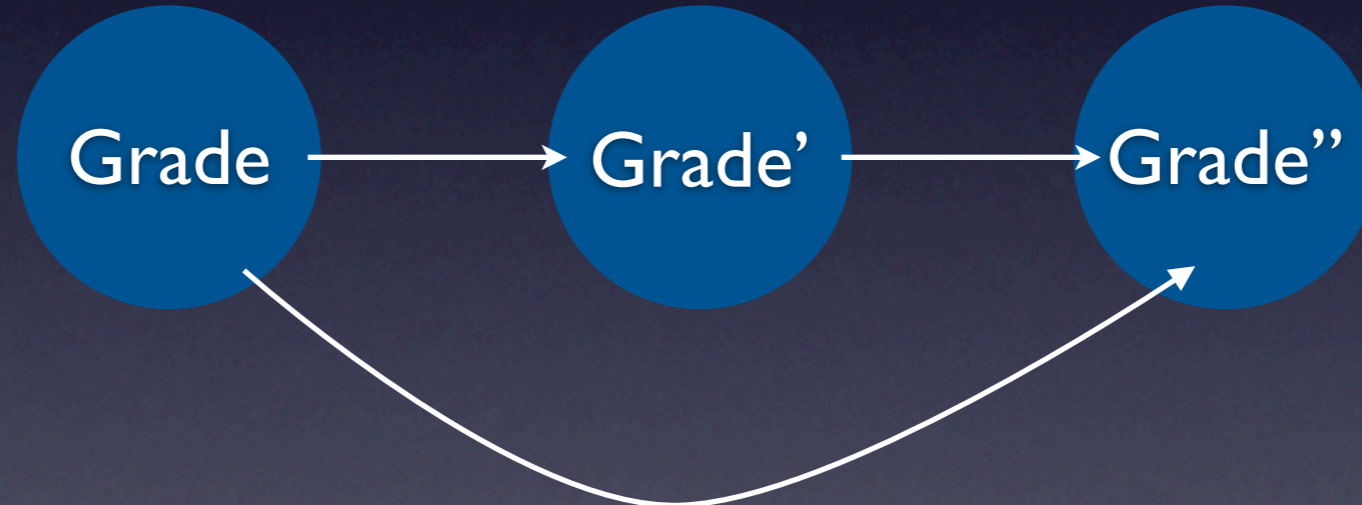
Something Else

Venti

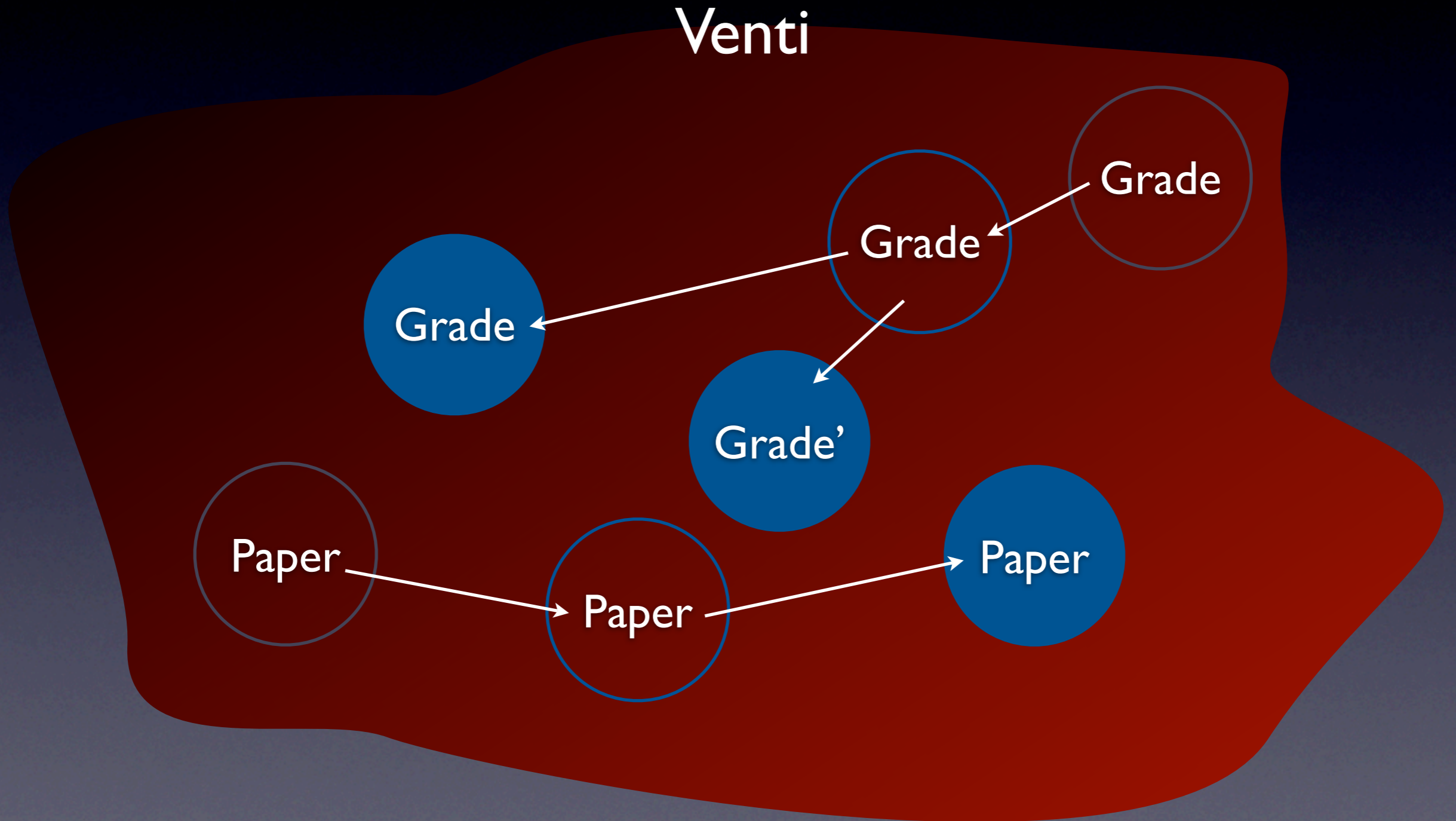


Block Version Linking

- Extend Venti's mutable block metadata



Venti Resource Wrappers



Venti Resource Wrappers



Grade

“Read” capability



Grade

“Write” capability

Both just hashes!