Goals

RAID-5

Need to support at least 4 but up to 8 servers (N)

Distribute data and parity across all servers at a block scale

Need to store a checksum to detect single block failures 128b MD5

One 128B block can store 8 checksums

Reads

When there are no failures distribute load across servers

Small reads should be handled by a single server

First check integrity by using the checksum block

If detected as corrupt use parity to correct

Writes

Update both data and parity blocks

If not all ack’s received the server is dead and lock from being used

Repair

“repair server\_ID”

Connects the ther server and remakes the file system

Client Program

Implement logic to handle N block server instead of a single server,

each with their own Endpoint

Implement logic to distribute blocks across multiple server for Put and Get

Come up with a method that maps a virtual block number for RAID get and put

Implement logic to deal with corrupt blocks and fail-stops

Implement repair procedure

Server Program

Expose server\_ID as command line arg sid

Allocate extra blocks to store checksum information

Store checksum on a Put()

Verify checksum on a Get()

Return error if it does not match

Expose a block number to be damaged with an emulated decay

Use cblk as the cli arg

Shell RPC Program

Command line argument ns specifying number of servers

CL argument for all ports