Homework 3

Team 1
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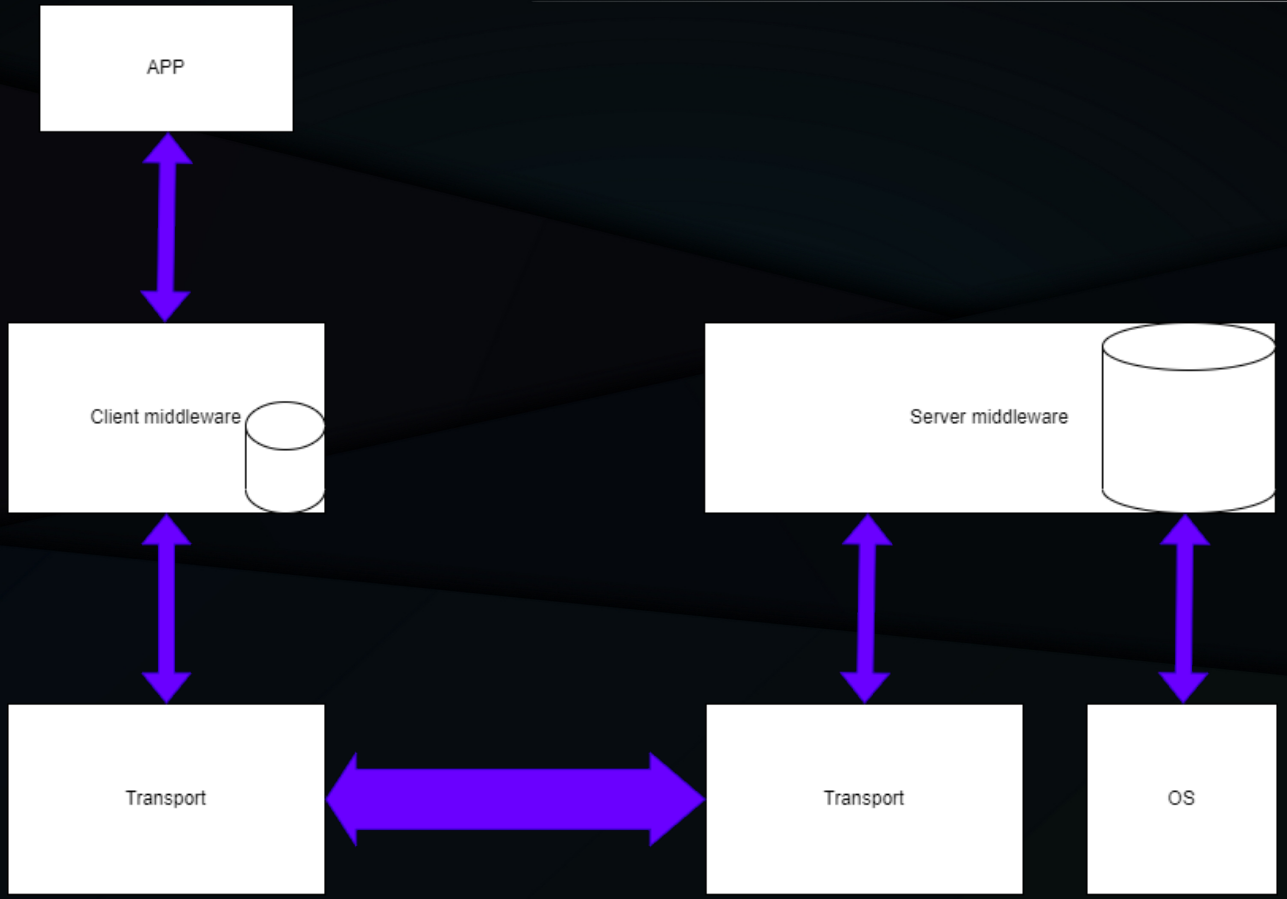
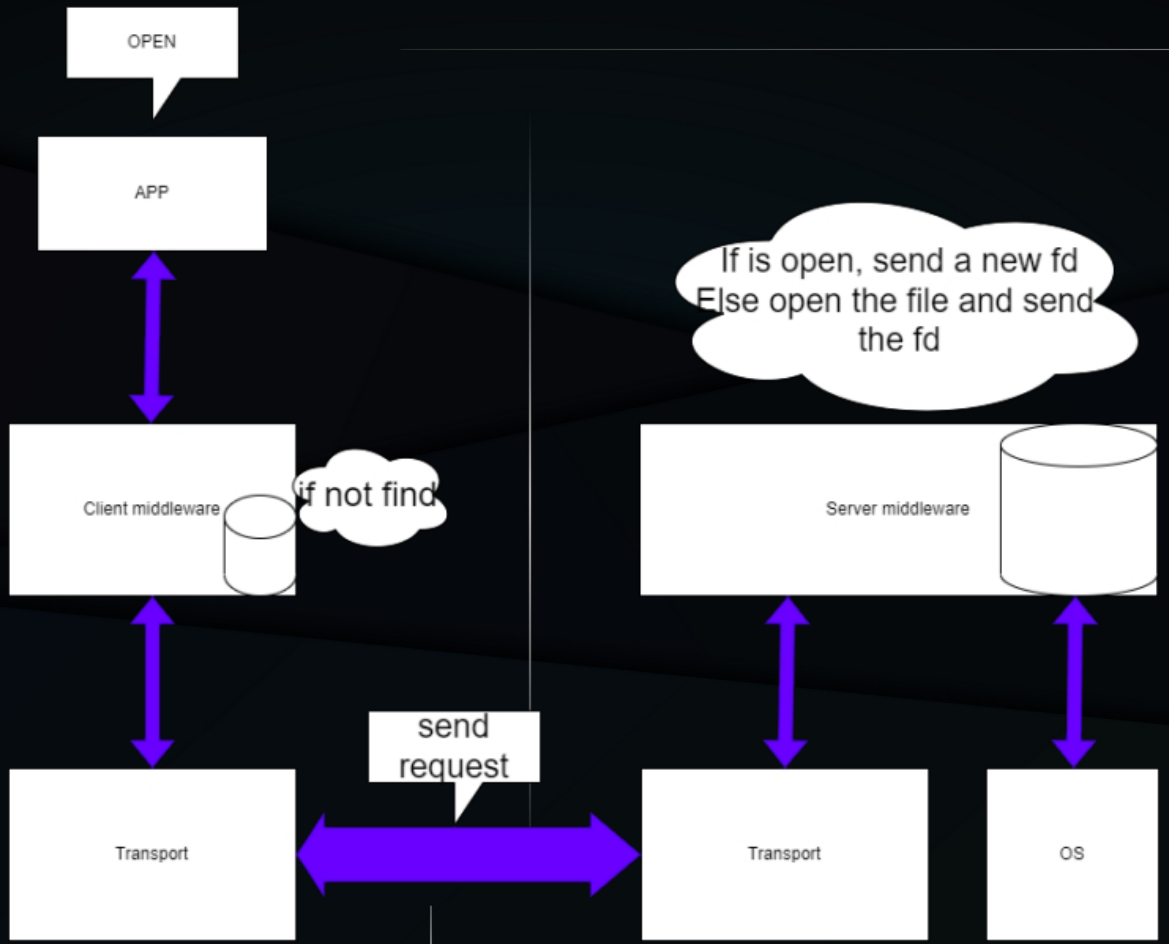

APP
Client middleware
Server middleware
Transport
Transport
OS

Operations

- Client Side
  - Application sends a request to client's midleware
  - If request is read from file midleware checks cache
  - If data do not exist in cache client's midleware sends the request to server through network UDP/IP protocol.

- Server Side
  - When server's midleware receives a request
    - Searches for file's fd in buffer
    - If file does not exist and request is open file creates a new file in OS and returns the fd.
    - When request is read from file server's midleware sends to client the data requested.
    - When request is write or truncate server save the changes to file and only if client asks for refresh cache, server sends the changed data.
    - If request is is_modified server returns the latest version of file.


OPEN
APP
Client middleware
if not find
If is open, send a new fd
Else open the file and send
the fd
Server middleware
send
request
Transport
Transport
OS

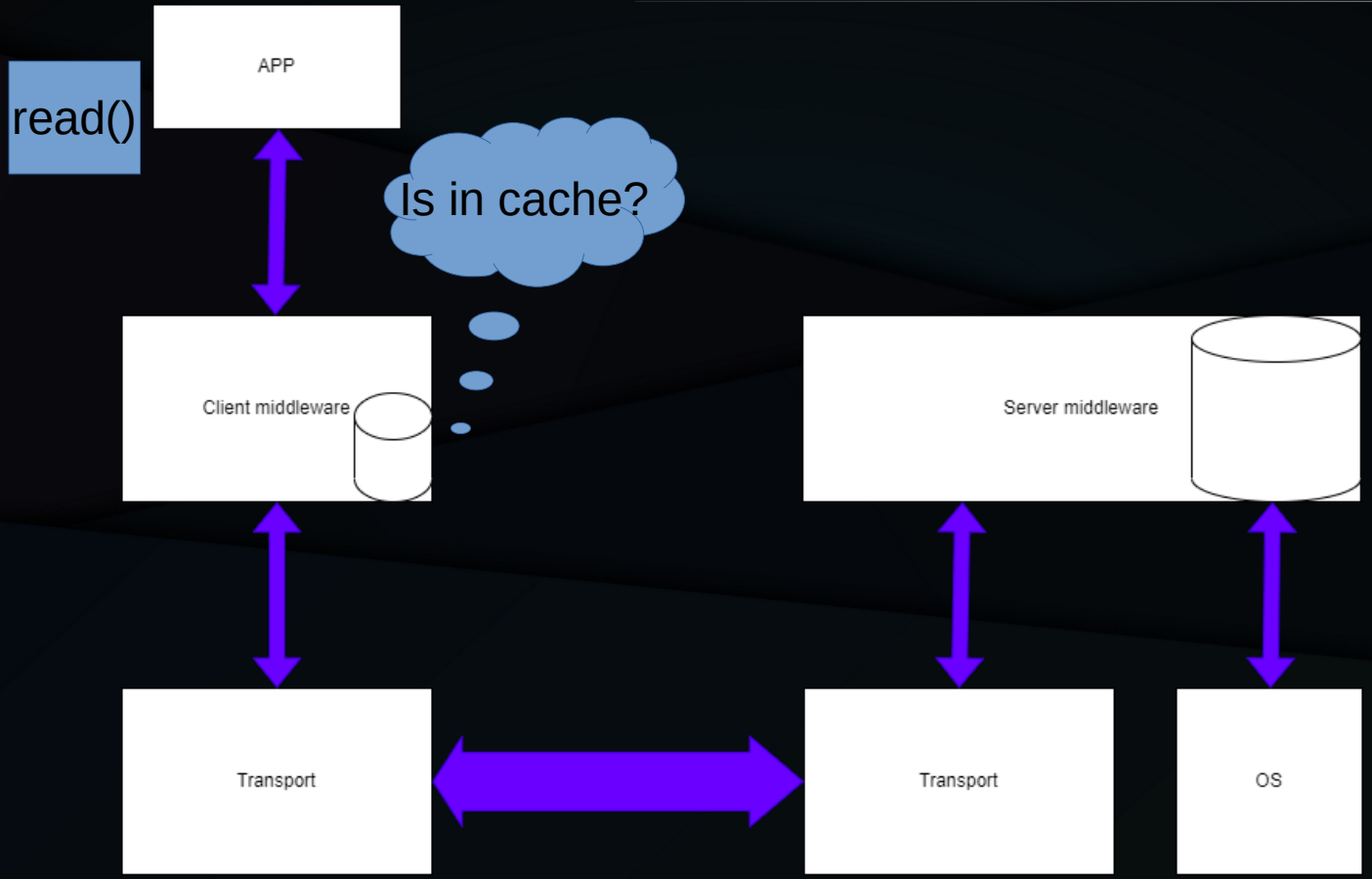
Message Format Open()

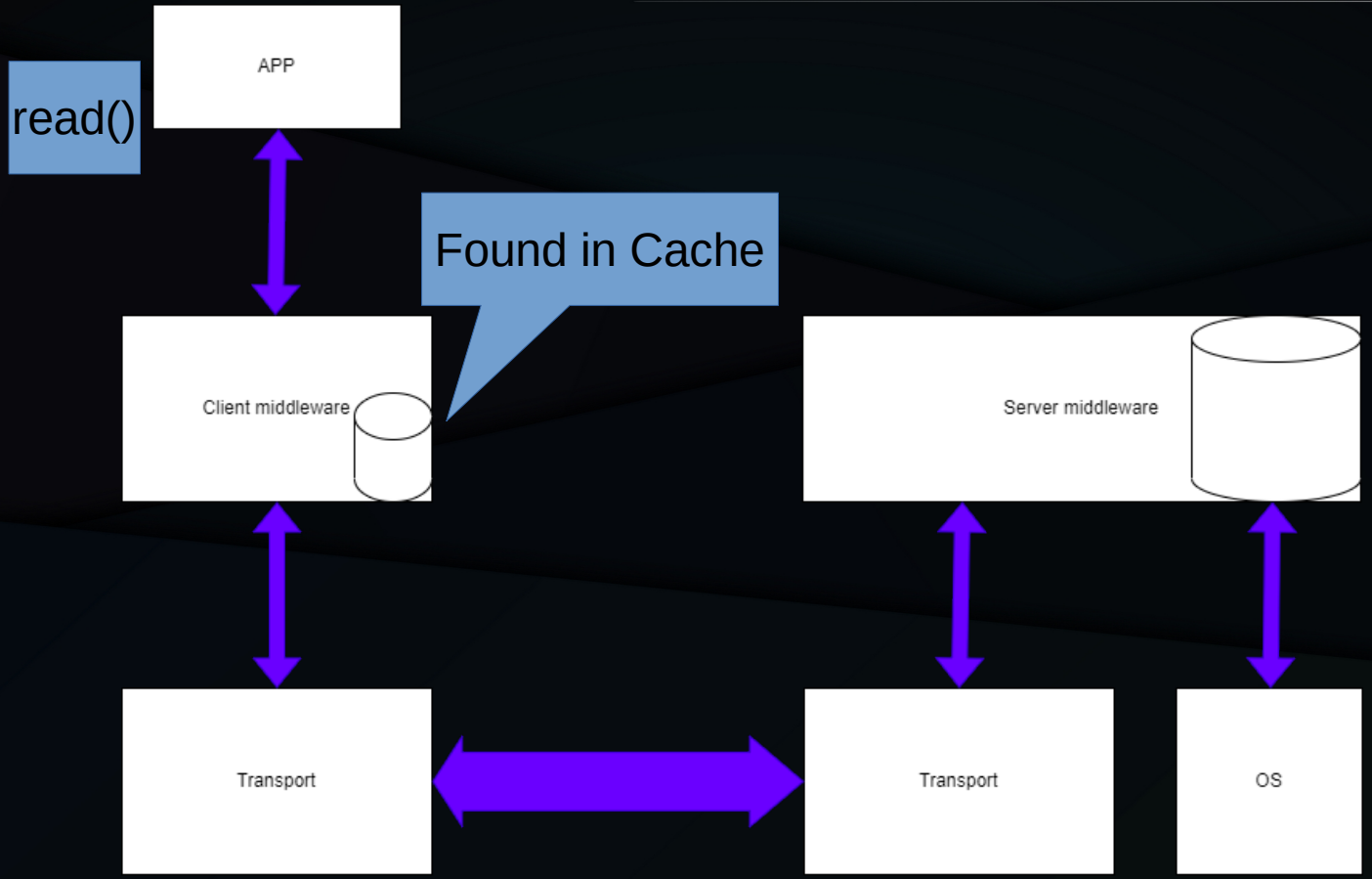
- Client Side :
-

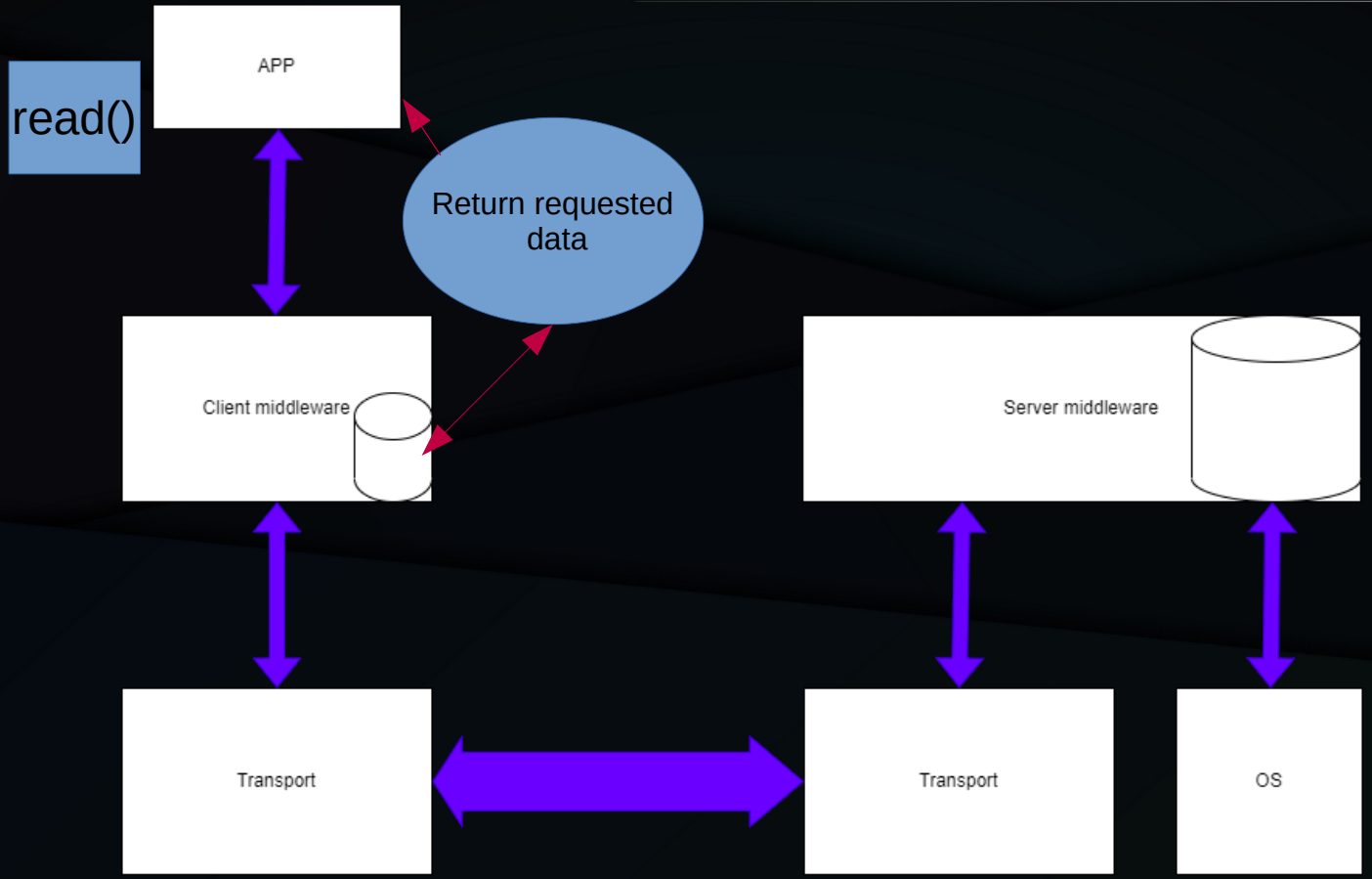
“ o ”	0	#	path	“ ”	flags

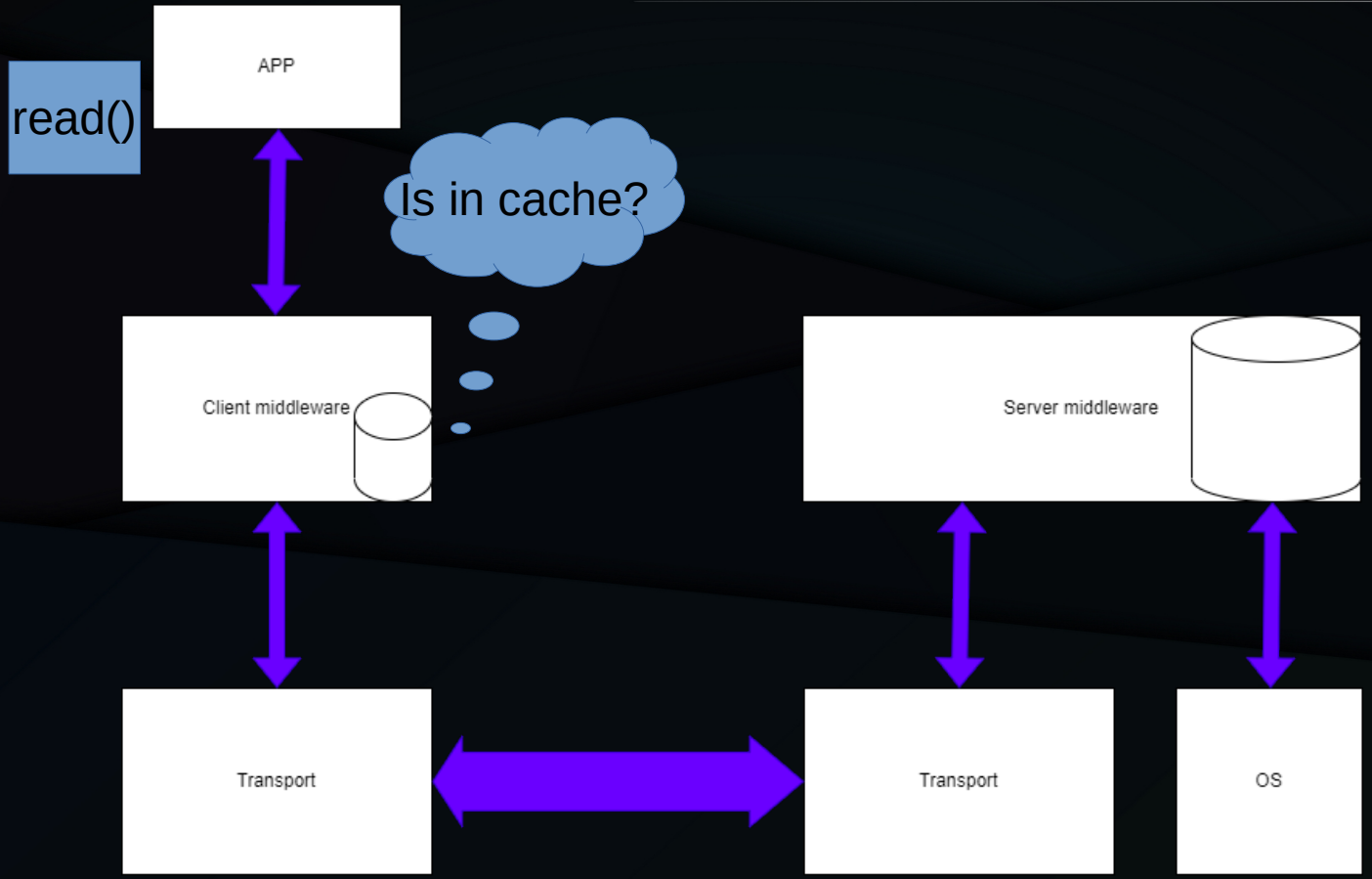
- Server Side:
-

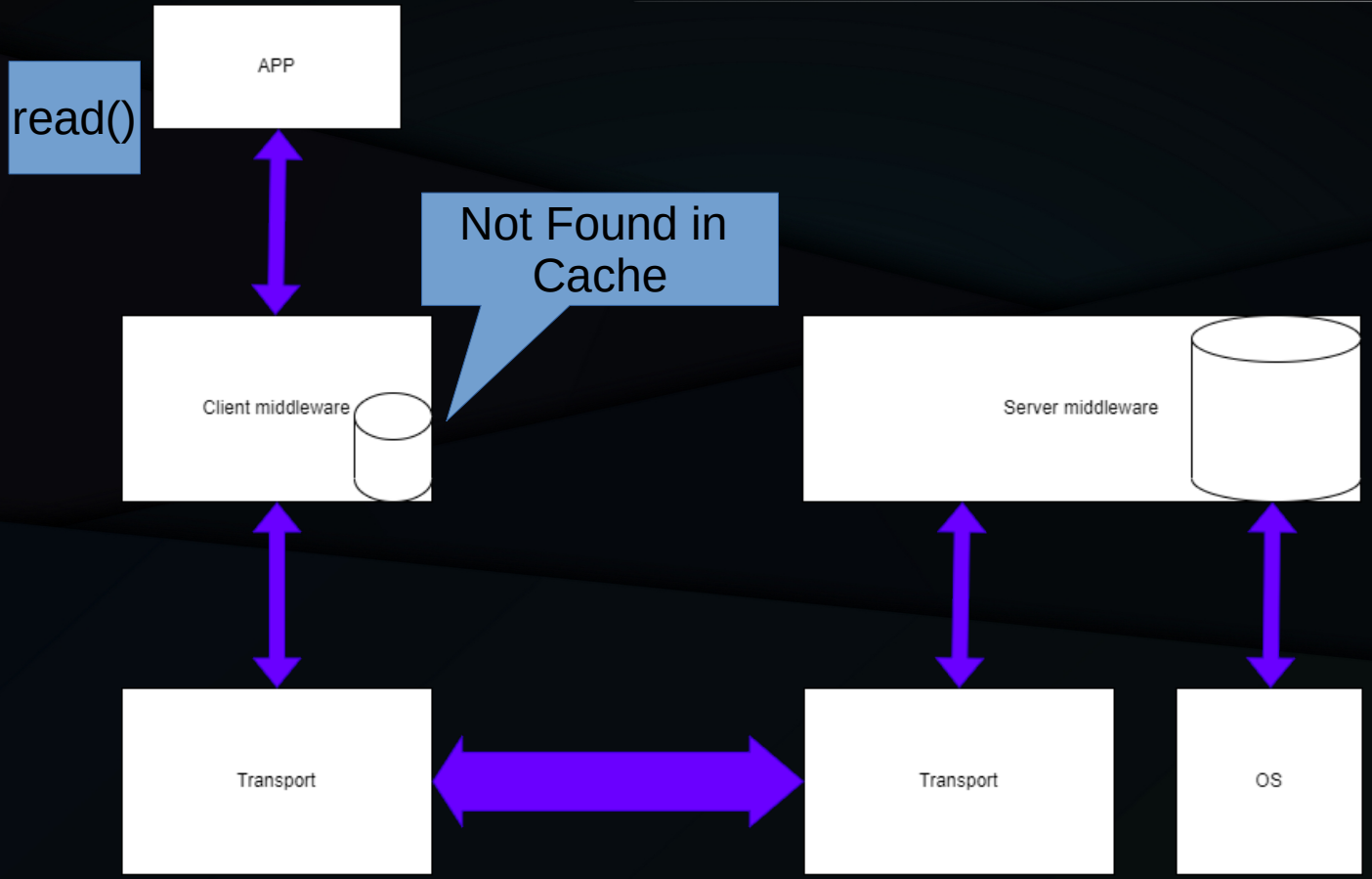
id	#	Last modified	#	size

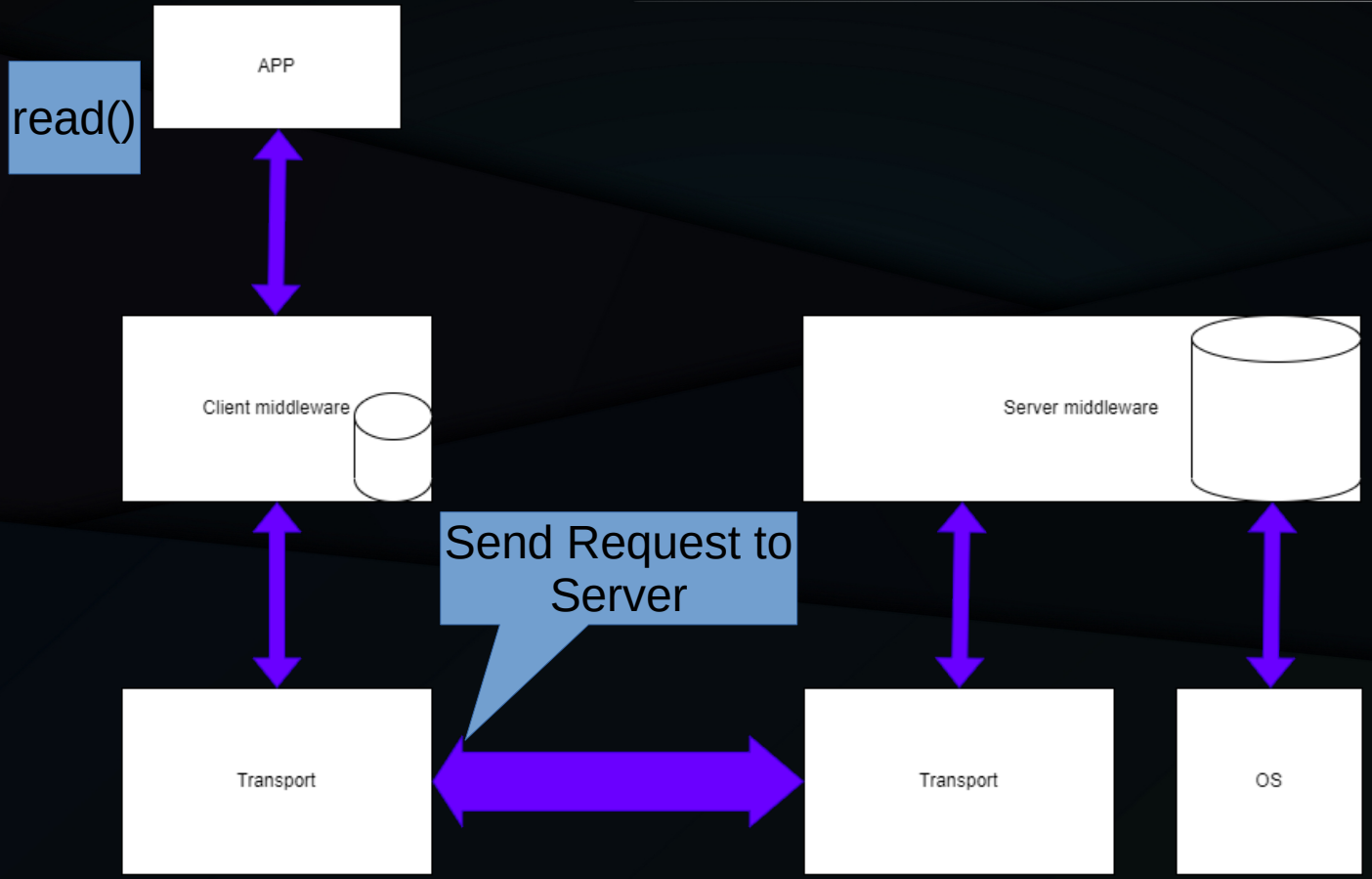

read()
APP
Is in cache?
Client middleware
Server middleware
Transport
Transport
OS

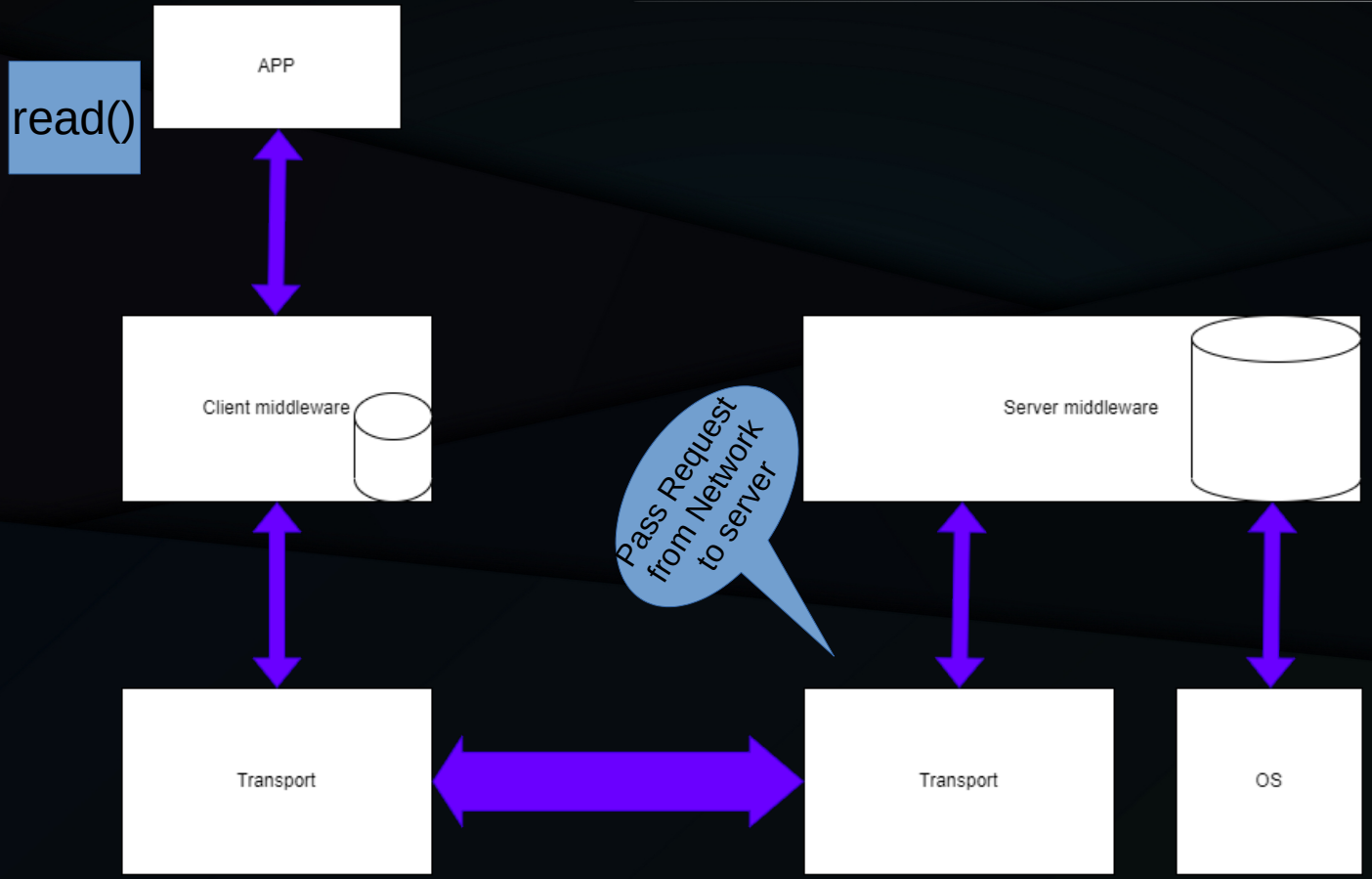

read()
APP
Found in Cache
Client middleware
Server middleware
Transport
Transport
OS

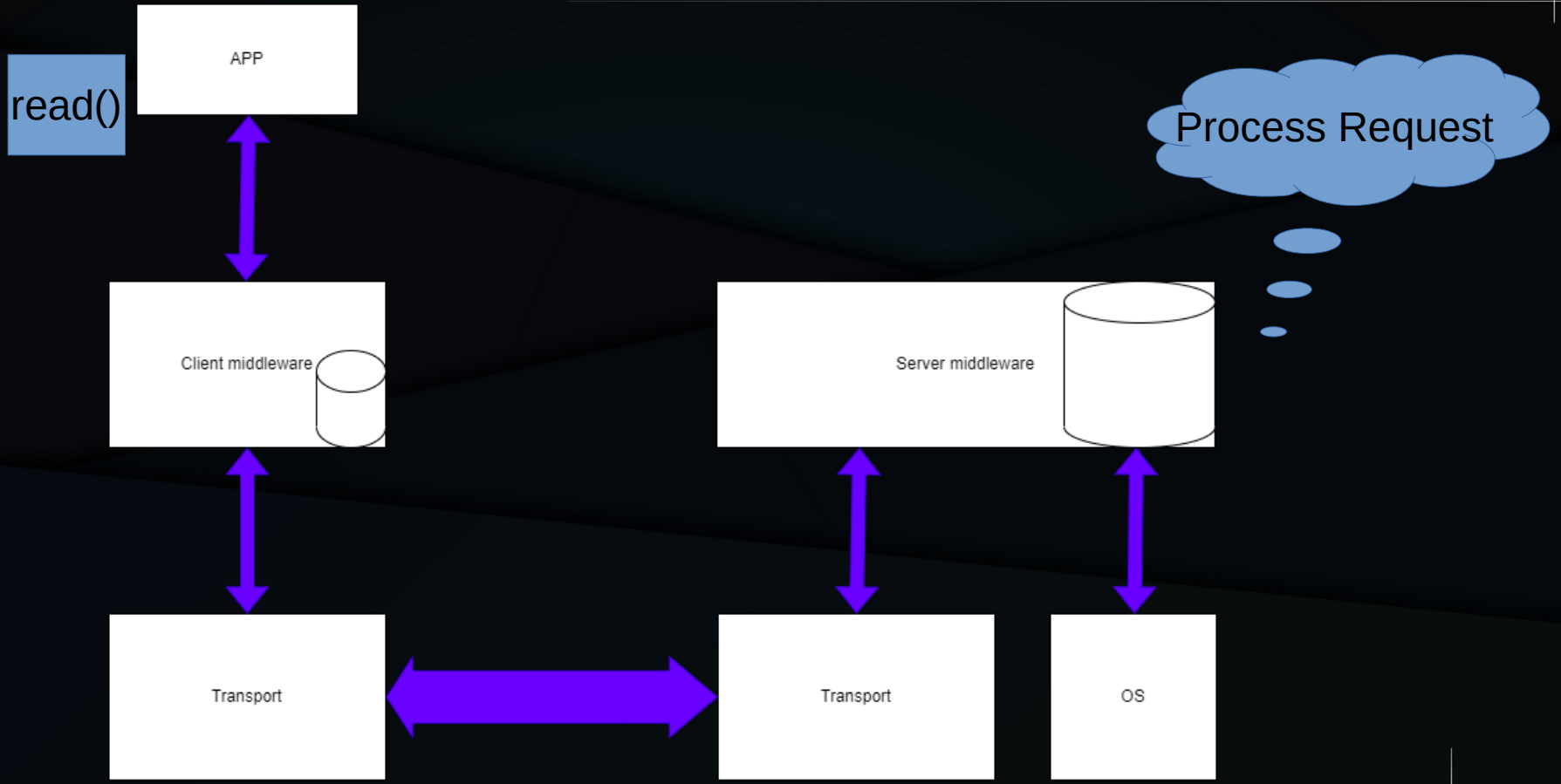

read()
APP
Return requested data
Client middleware
Server middleware
Transport
Transport
OS

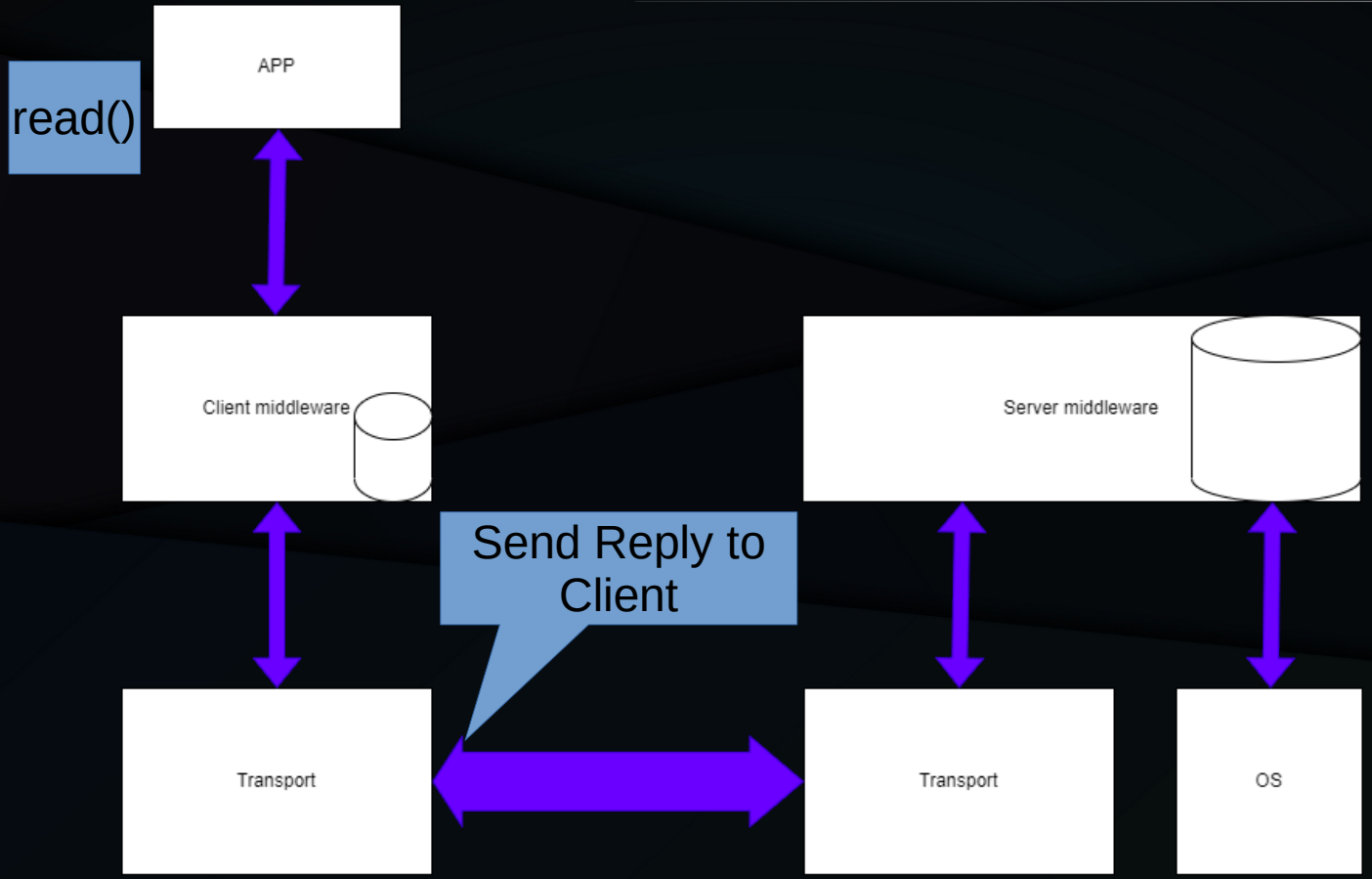

read()
APP
Is in cache?
Client middleware
Server middleware
Transport
Transport
OS


read()
APP
Not Found in Cache
Client middleware
Server middleware
Transport
Transport
OS


read()
APP
Client middleware
Server middleware
Send Request to Server
Transport
Transport
OS


read()
APP
Client middleware
Server middleware
Pass Request from Network to server
Transport
Transport
OS


read()
APP
Process Request
Client middleware
Server middleware
Transport
Transport
OS


read()
APP
Client middleware
Server middleware
Send Reply to Client
Transport
Transport
OS

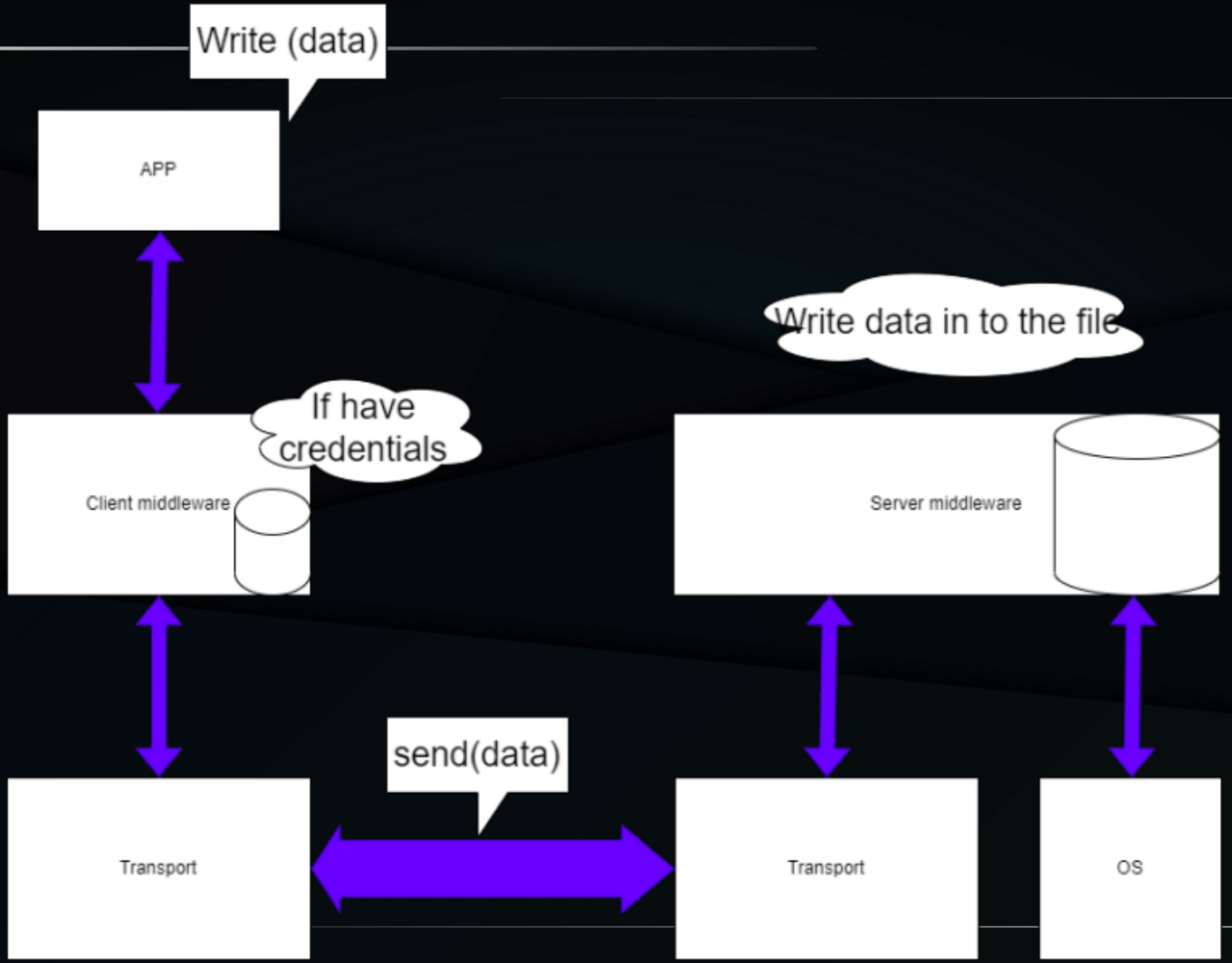
Message Format Read()

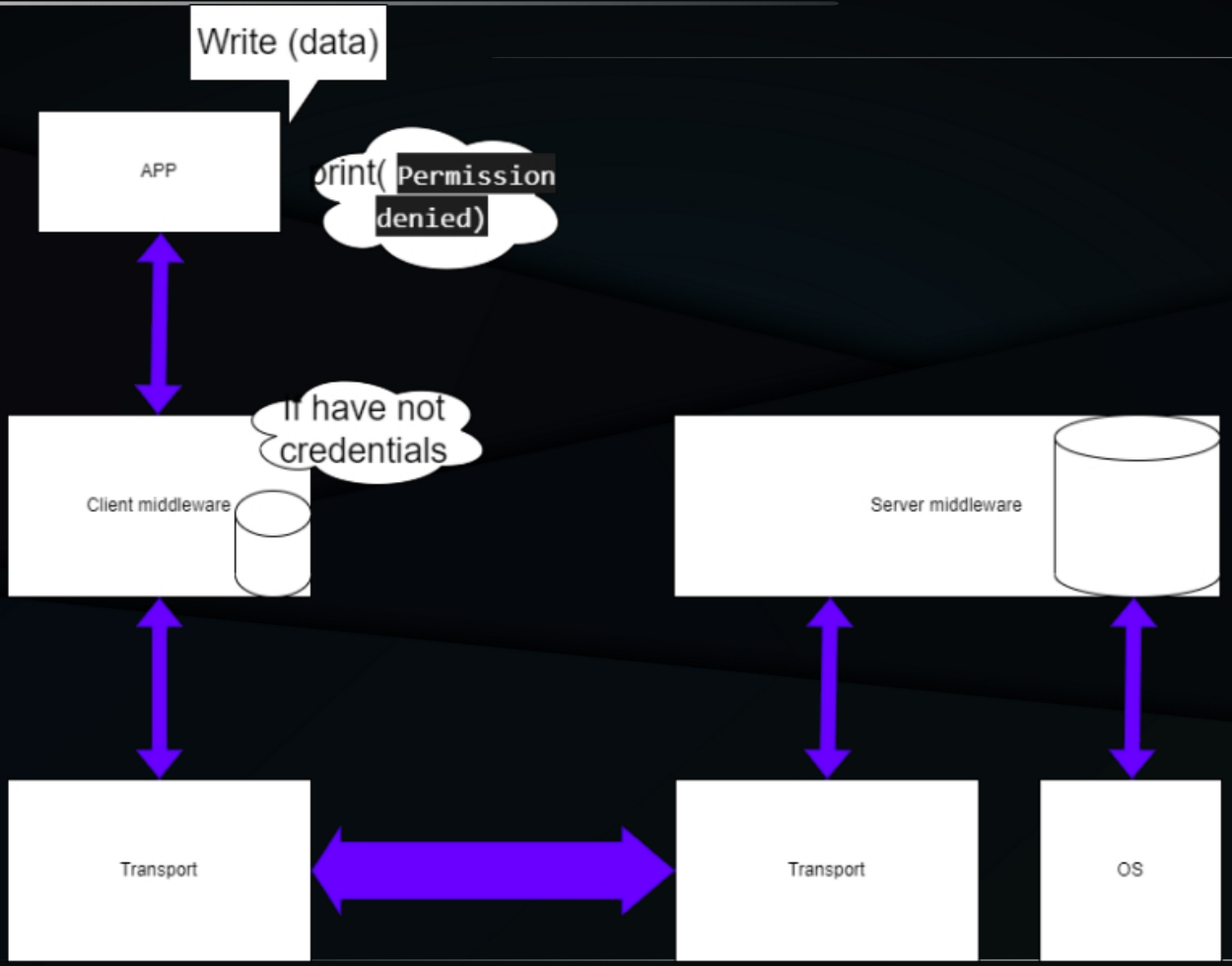
- Client Side :
-

“ r ”	File id	“ ”	seek	“ ”	size

- Server Side:
-

id	“#”	Last modified	“#”	data


Write (data)
APP
Write data in to the file
If have credentials
Client middleware
Server middleware
send(data)
Transport
Transport
OS


Write (data)
APP
print(Permission denied)
If have not credentials
Client middleware
Server middleware
Transport
Transport
OS

Message Format Write()

- Client Side :
-

“ w ”	File id	“ ”	seek	“ ”	data

- Server Side:
-

id	“#”	Last modified	“#”	size

Message Format Truncate()

- Client Side :
-

“ w ”	File id	“ ”	seek	“ ”	“$#trun#$

- Server Side:
-

id	“#”	Last modified	“#”	size

Message Format Refresh()

- Client Side :
-

“ n ”	File id	“ ”	Last modify	“ ”	

- Server Side:
-

id	“#”	Last modified	“#”	Ok Or Not

Protocol

- Client Side
  - Send the message with first position have the magic number
  - Check the magic number for duplicate discovery
  - Send the message every 20 second if have not get answer
- Server Side
  - If server’s midleware receives a message, get the magic number and sent the same magic number with the answer.