# Simple Object Storage - Weekly Report

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This week, I have worked on data node implementation. I have finalized the draft architecture of the data node. Following is the graphical view of the components of the data node.

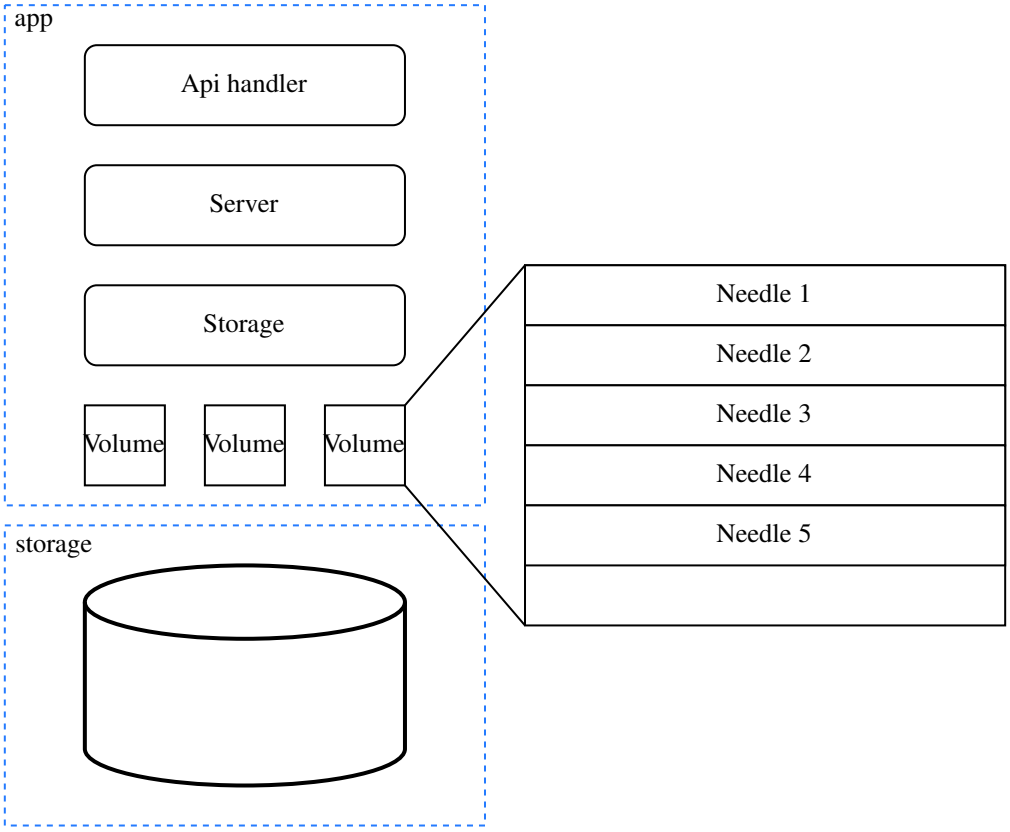


Figure 1: Data node components

Here is the description of the each component.

1. **Api handler** will be responsible for the api calls. In this layer, there will be no logic apart from some input sanity checks. It will basically parse request params and pass it to the server layer
2. **Server** layer will be responsible for the translation of the incoming requests to the storage layer like constructing the needle to the format storage layer understands and so on.
3. **Storage** layer is responsible for the management of the volumes.
4. Each **volume** will contain some number of small objects(needles).

Currently, I have the basic version of data note ready. But it has some bugs like concurrent writes corrupts the volume. In the upcoming weeks, i will fix the bug by introducing locks on volumes so that multiple threads wait each other on write.

Additionally, I need to consider following points for the the upcoming weeks.

- Heartbeat mechanism to report the volume data to primary server(previously metadata server)
- Storage layer needs to have in memory mapping of object id to volume offset. This is the essential part in the design to reduce disk IO operations on object metadata.

- A process which reads the volume on startup of the data node, and initializes the memory map on storage layer
- To make previous operation faster it would be good to have an separate index file for each volume which will basically contain the mapping of the needle id to object offset on the volume