Part-C

V.S.Shankara Raman
19S002106

13. P2P network:

- Application-level organisation of network to flexibly share resources.
- All nodes are equal, communication is directly between nodes.
- Large combined storage, other resources.
- Dynamic insertion and deletion of nodes.

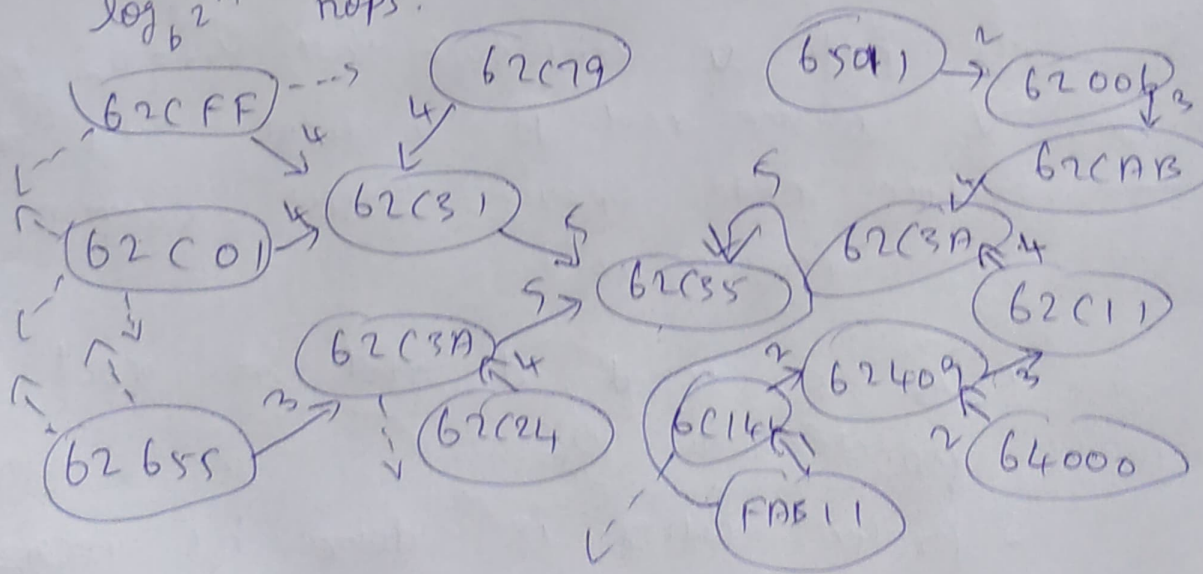
Tapestry:

- Nodes & objected are assigned IDs via a distributed hashing.
- Hashed nodes are VIDs, hashed objects are GUIDs.
- ID space has m=160 bits, expressed in hexadecimal.
- If node v exists, such that $v_{id} = O_G$ exists, v becomes root. If v donot exist, another unique node sharing largest common prefix is surrogate root.
- O_G is stored at root or root has pointer to O_G.
- Prefix routing is done by increasing

prefix match of next hop's VID with destination O_{GR}. Thus, for example, message destined to $O_{GR} = 62C35$ could be routed along nodes with VIDs 6^{th}, then 62^{th}, then $62C^{th}$ and so on.

Tapestry - Routing:

- The n^{th} entry in level n may not exist because no node meets the criterion. So, there is a hole in table.
- Surrogate routing can be used to route around holes. If n^{th} entry is missing, route to next non-empty entry in level i. All levels from 1 to $\log_b 2^m$ need to be considered in routing, thus requiring $\log_b 2^m$ hops.



An example of routing from F A B 1 1 to 6 2 C 3 5. is taken. The numbers on arrows show levels of routing table used. Dashed arrows are unused links.

14. In RPC, when client requests the server, server process the request & client has to wait for reply. At this time, client can perform other jobs like output/Input process while server is processing.
- client can send request to other servers for other jobs.