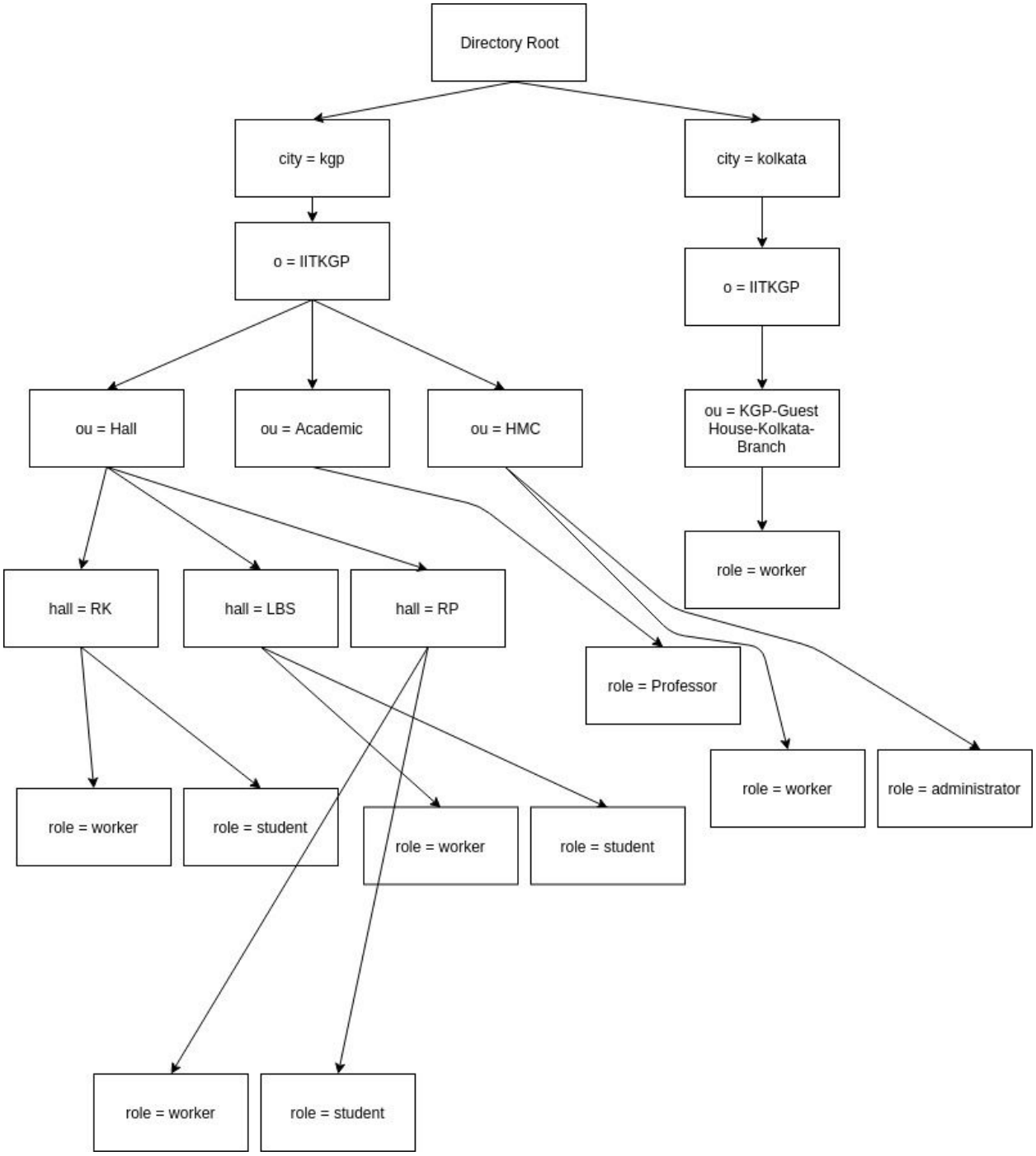
1. There are three servers.
2. The schema is fixed and is present in each server.
3. The main structure of the DIT is fixed as shown below.

   The directory stores information of all people at IITKGP.



4. Operations : We can add/remove/search(base,onelevel,subtree)/modify entries and the we make sure it satisfies the schema conditions otherwise failure is returned.
5. Schema change operations:

Promotion : A optional attribute can be made into compulsory attribute only if all the entries of that class has a non-null value for the attribute.

Demotion: A compulsory attribute can always be made into a optional attribute

Adding new attribute:Only optional attributes can be added.

Distribution, replication and fault : We have divided the tree into three parts

1. Part A nodes : root, city = kolkata,o=iitkgp,ou = KGP-Guest House-Kolkata-Branch, role = worker
2. Part B nodes : city = kgp, o = iitkgp, ou = Academic, ou = HMC,role = Professor, role = worker, role = administrator
3. Part C nodes : ou = Hall, hall = LBS, hall = RK, hall = RP. role = worker x3, role = student x3

We have 3 servers : server 1, server2, server3
Server1 stores Part A and Part B
Server 2 stores Part B and Part C
Server 3 stores Part C and Part A

Each part is stored in two computers. So if one server fails, still the system will work. Hence, one node crash failure tolerance is ensured.

Any operation request that arrives at a server is handled at the same server if has the part of the tree where the operation has to be done(each server has 2 out of three parts of the tree), otherwise it gives a referral to the client.

Consistency model : Eventual consistency
After every timeout each server requests it's replica to send the new updates, because of the new updates there can be conflicts which needs to be resolved using logical timestamp.

Schema and Tree storage:
The information about the part of the tree that a node handles is stored in SQL(using adjaceny list method mentioned in the website - http://mikehillyer.com/articles/managing-hierarchical-data-in-mysql/) and when the server comes up, the server uses this info to create a tree object structure from this and keeps is in main memory.

Schema is stored in pickle file. Schema contains information about classes, with the mandatory and optional set of attributes and info about their types. It is loaded into main memory when the server begins/starts.