DC

ANISH ADNANI
D17B / 01

EXTRA ASSIGNMENT

1)

Task Assignment	Load Balancing	Load sharing
→ Each process is viewed as collection of tasks - These tasks are scheduled to suitable processors to improve performance	This approach distributes processes among nodes to equalize the load among all nodes - The scheduling algorithm that use this approach are known as load Balancing or load leveling algorithm	The design of load sharing algorithm require that proper decisions be made regarding load estimation policy, process transfer policy, state information exchange policy, priority assignment policy, and migration limiting policy
→ This is not widely used approach because it require characteristics of all the processes to be known in advance also this system does not take into consideration the dynamically changing state of the system	→ These algorithms are based on the intuition that for better resource utilization, it is desirable for the load in a distributed system to be balanced evenly.	It is necessary and sufficient to prevent the nodes from being idle while some other nodes have more than two processes. This specification is called the Dynamic load sharing instead of Dynamic load balancing.

Task Assignment	Load Balancing	Load Sharing
→ Assumptions of task assignment are: Minimize IPC cost, efficient resource utilization, quick turnaround time, high degree of parallelism	Categories of load balancing are: static, dynamic, deterministic, probabilistic, centralized, distributed, cooperative, non-cooperative	Priority assignment policies and the migration limiting policies for load sharing algorithms are the same as that of load balancing algorithm.

2) Considering the case of datacenter network say Google, load balancing is widely used in datacenter network to distribute traffic across many existing paths between any two servers. It allows more efficient use of network bandwidth and reduce provisioning costs. In general, load balancing in datacenter network can be classified as either static or dynamic. Static load balancing distributes traffic by computing a hash of the source and destination addresses and port numbers of traffic flows and using it to determine how flows are assigned to one of the existing paths. Dynamic load balancing assign traffic flows to paths by monitoring bandwidth utilization of different paths. Dynamic assignment can also be proactive or reactive. In the former case, the assignment is fixed once made, while in the

later the network logic keeps monitoring available paths and shift flows across them as network utilization changes.