

MOBILITY, PORTABILITY, REPLICATION AND CLUSTERING

Lesson 04 Adaptive Clustering

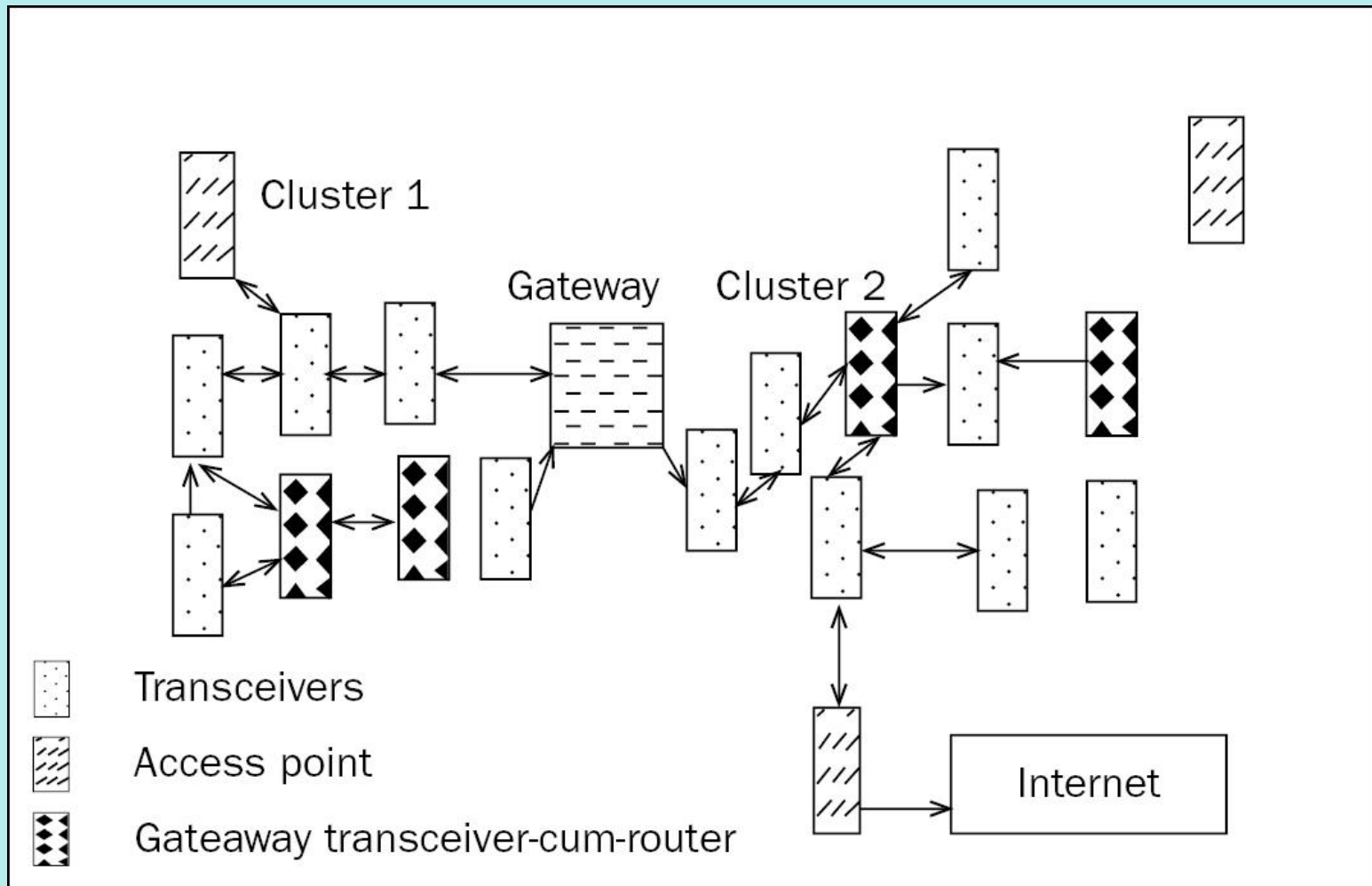
CLUSTER

- A set of fixed or mobile nodes
- A node communicates to another node—
within the cluster only due to transmission
range limitations

ADAPTIVE CLUSTER

- The cluster with an appropriate adaptation and routing plan
- A node in a cluster communicates to another cluster node only through a coordinating node (gateway)

CLUSTERS 1 AND 2 CONNECTED THROUGH GATEWAY



ADAPTION

- Adaption causes communication with the acceptable
 - (a) data transmission rate,
 - (b) BER, and
 - (c) QoS
- Inter-node distance must remain less than the node communication range r_c .

NODE ADAPTAION

- Power level at which a node transmits
- Data transmission rate, which a node uses
- Data aggregation and compaction strategy, which a node uses for energy-efficient networking

ADAPTATION

- The inter-gateway distance (size of the cluster with gateway at the cluster boundary of two clusters) set such that the packet delays between the clusters, between the source and destination minimize

SUMMARY

- Nodes in a cluster communicate to node at another cluster using gateway
- Adaptive clustering means a method to adapt the packet transmission rate and paths to minimize energy needs and delays

End of Lesson 04

Adaptive Clustering