

MOBILITY, PORTABILITY, REPLICATION AND CLUSTERING

Lesson 03

Basic Concepts of Multi-hopping

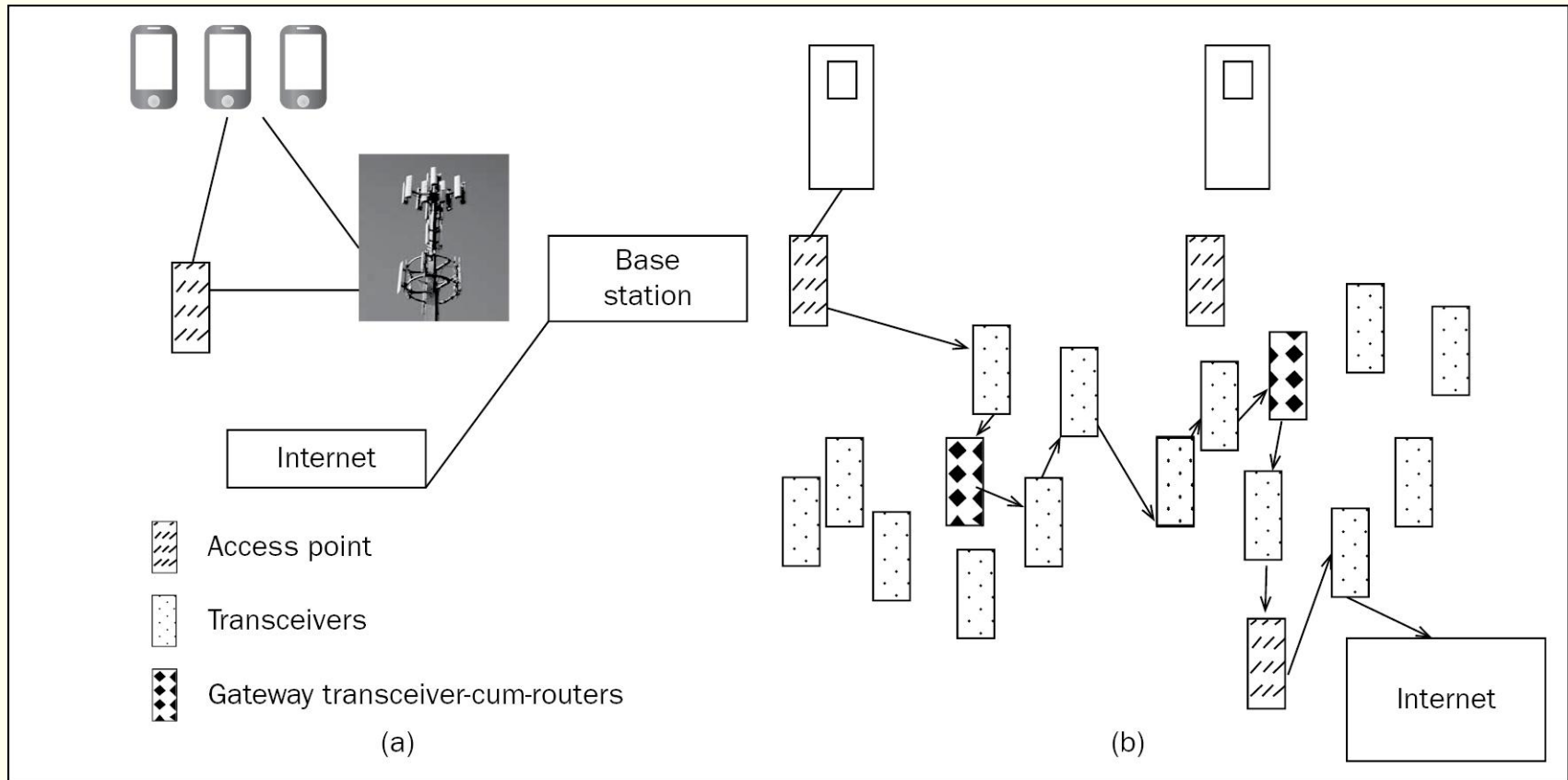
HOP

- Hop means a process to communicate between two adjacent transceiver nodes
- Adjacent means within the communication range

MULTI-HOPPING

- Means source to destination path has multiple intermediate routing nodes
- Data hops from one node to another adjacent routing link in the path
- Each node as transceiver (transmitter-cum-receiver)

USING ACCESS POINT AND MULTI-HOPPING FOR TRANSMITTING DATA



(a) Mobile node transmitting data using and access points or base stations (b) mobile node transmitting data using multi-hopping

MULTI-HOPPING

- More energy-efficient
- Energy needs are proportional to $2 \cdot p^m \cdot (d/2)^k$
- Here, p is data packet transmission rate and m is a constant greater than 1.
- k is path loss and $k > 2$.

MULTI-HOPPING

- Assume three nodes 1, 2, and 3 at positions x , $x + d$, and $x + 2d$
- Sum of hopping energy needed for transmission from Node 1 to Node 2, and Node 2 to Node 3 is less than the energy needed for transmission from Node 1 at x to Node 3 at $x + 2d$
- Energy needs also depend on p .

SUMMARY

- Source and destination data transfer
- Use access point and base station
- Use multi-hopping
- Data hops from one node to another adjacent routing link in the path

End of Lesson 03

Basic Concepts of Multi-hopping