SNS COLLEGE OF ENGINEERING
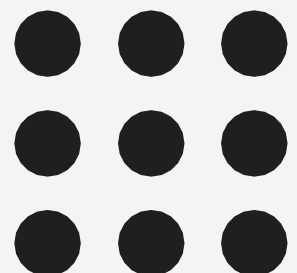
Kurumbapalayam(Po), Coimbatore – 641 107

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19EC701 - ADHOC NETWORKS

Unit -1 – ADHOC WIRELESS INTERNET

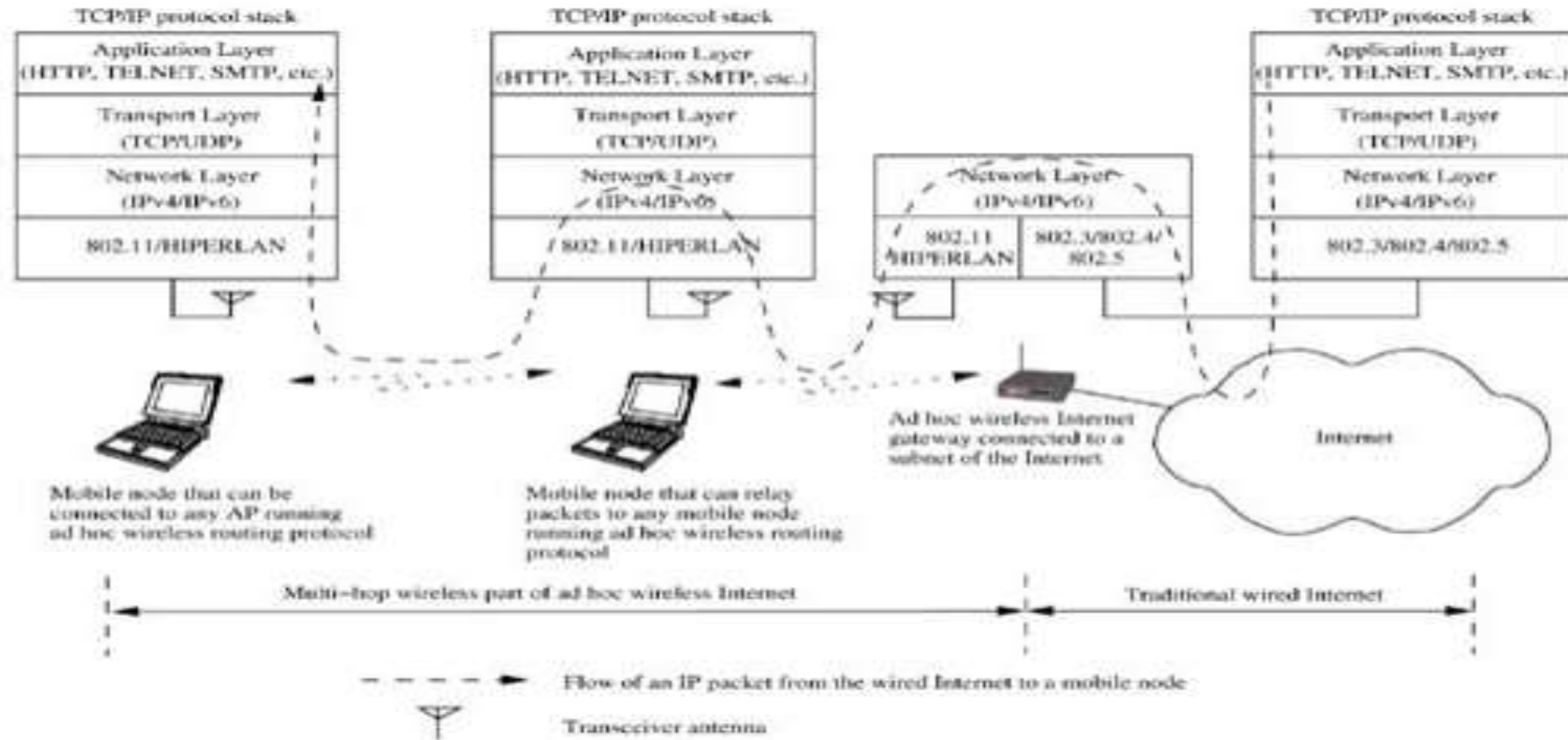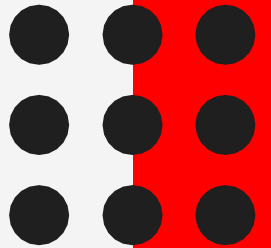# Ad Hoc Wireless Internet

Figure 5.7. A schematic diagram of the ad hoc wireless Internet.
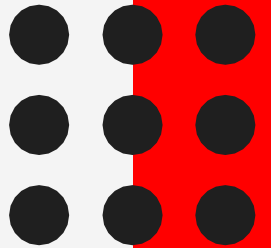
Issues in Ad Hoc Wireless Internet

Gateways:

• Gateway nodes in the ad hoc wireless Internet are the entry points to the wired Internet.

• The major part of the service provisioning lies with the gateway nodes.

• Gateways perform the following tasks: keeping track of the end users, bandwidth management, load balancing, traffic shaping, packet filtering, bandwidth fairness, and address, service, and location discovery.

Address mobility:

• Ad hoc wireless Internet also faces the challenge of address mobility.

• This problem is worse here as the nodes operate over multiple wireless hops.

• Solutions such as Mobile IP can provide temporary alternatives for this.
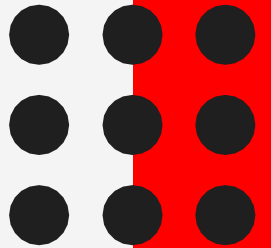
Issues in Ad Hoc Wireless Internet

Routing:

• Routing is a major problem in the ad hoc wireless Internet, due to the dynamic topological changes, the presence of gateways, multi-hop relaying, and the hybrid character of the network.

• The possible solution for this is the use of a separate routing protocol

Transport layer protocol:

Split approaches that use traditional wiredTCP for the wired part and a specialized transport layer protocol for the ad hoc wireless network part can also be considered where the gateways act as the intermediate nodes at which the connections are split.

Issues in Ad Hoc Wireless Internet

Load balancing:

• Ad hoc wireless Internet gateways experience heavy traffic.

• Hence the gateways can be saturated much earlier than other nodes in the network.

• Load balancing techniques are essential to distribute the load so as to avoid the situation where the gateway nodes become bottleneck nodes.

Pricing/billing:

Internet bandwidth is expensive, it becomes very important to introduce pricing/billing strategies for the ad hoc wireless Internet.

QoS support:

With the widespread use of voice over IP (VoIP) and growing multimedia applications over the Internet, provisioning of QoS support in the ad hoc wireless Internet becomes a very important issue

Issues in Ad Hoc Wireless Internet
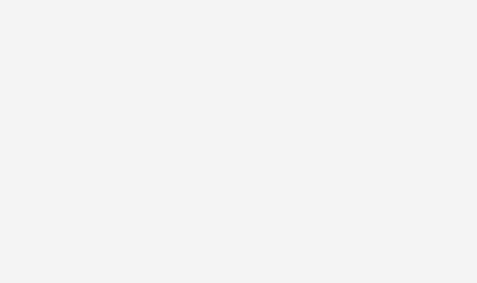
Service, address, and location discovery:

•Service discovery in any network refers to the activity of discovering or identifying the party which provides a particular service or resource.

•In wired networks, service location protocols exist to do the same, and similar systems need to be extended to operate in the ad hoc wireless Internet as well. Address discovery refers to the services such as those provided by address resolution protocol (ARP) or domain name service (DNS) operating within the wireless domain.

•Location discovery refers to different activities such as detecting the location of a particular mobile node in the network or detecting the geographical location of nodes.

•Location discovery services can provide enhanced services such as routing of packets, location-based services, and selective region-wide broadcasts.

Assessment

Give some real time examples of Ad Hoc Networks?

THANK YOU