City University of Hong Kong
Department of Electronic Engineering

EE3009 Data Communications and Networking

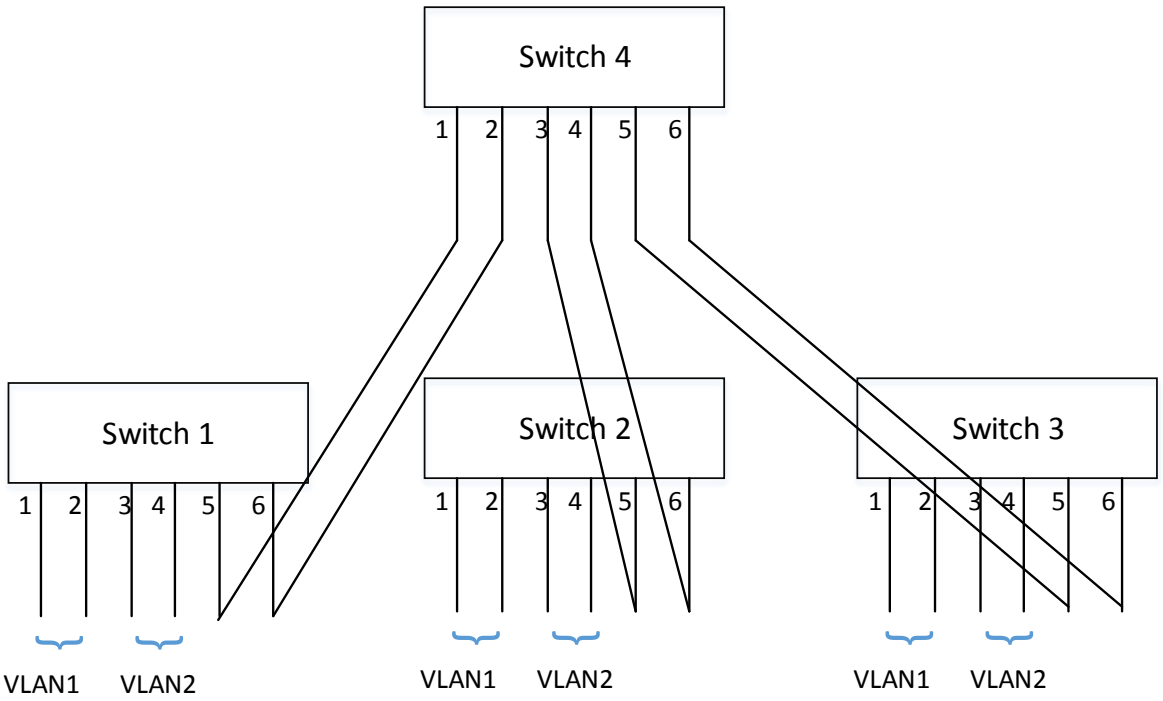
Solution to Tutorial 7

1. Station mobility: Unlike wired LANs where stations connected to the LANs are static, in wireless LANs, the stations can be mobile and portable. Wireless LAN protocols may have to implement service handoff when the stations moves from one service area to another.

Collision detection: Collision detection is not effective in wireless LANs. The wireless LAN protocol implements a collision avoidance algorithm rather than the collision detection in wired LAN.

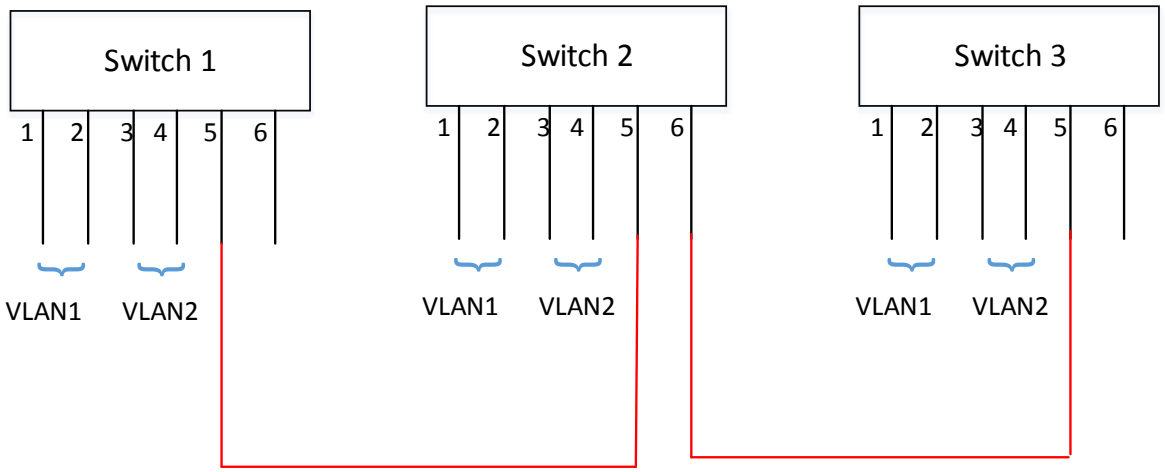
Security: In a wired LAN, the transmission medium is usually physically secure. In a wireless LAN, any device within the geographic transmission area can intercept the transmissions. To provide data security, wireless LANs need to implement encryption function.

2. When port-based VLAN is used, the switches are connected as follows:



switch 1, port 5 -> VLAN1
switch 1, port 6 -> VLAN2
switch 2, port 5 -> VLAN1
switch 2, port 6 -> VLAN2
switch 3, port 5 -> VLAN1
switch 3, port 6 -> VLAN2
switch 4, port 1, port 3, port 5 -> VLAN1
switch 4, port 2, port 4, port 6 -> VLAN 2

With VLAN trunking, switch 4 is not needed, and the switches are connected as follows:



Switch 1, port 5 -> trunk port
Switch 3, port 5 -> trunk port
Switch 2, port 5 and port 6 -> trunk port