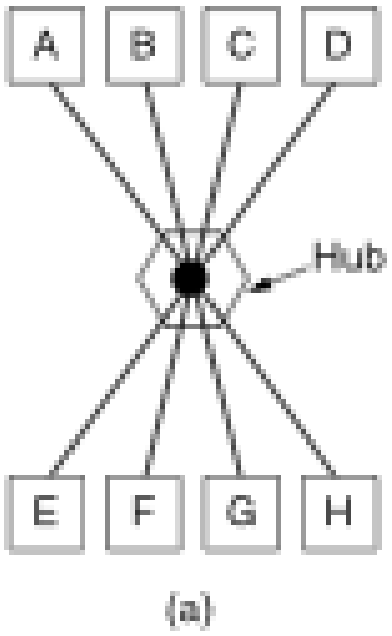
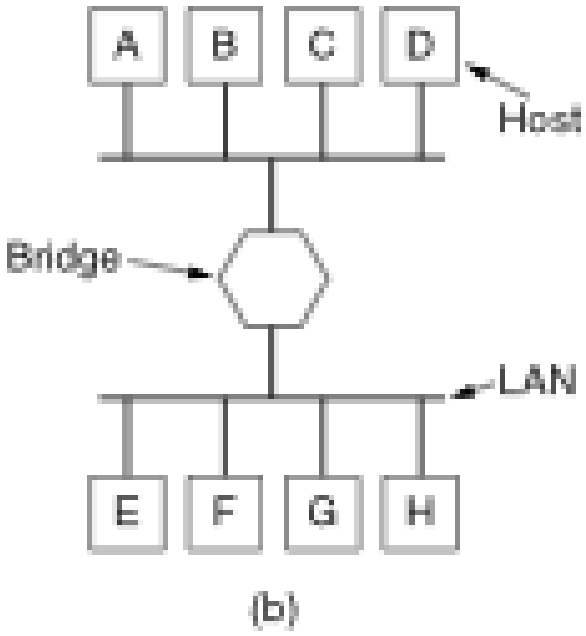
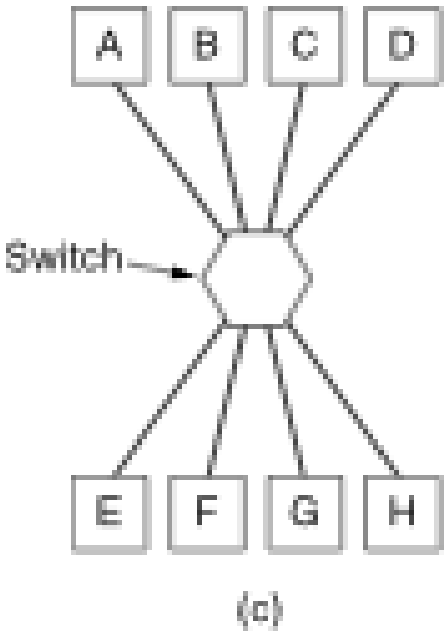
Lecture 16

Network Devices

Devices


A
B
C
D
Hub
E
F
G
H
(a)


A
B
C
D
Host
Bridge
LAN
E
F
G
H
(b)

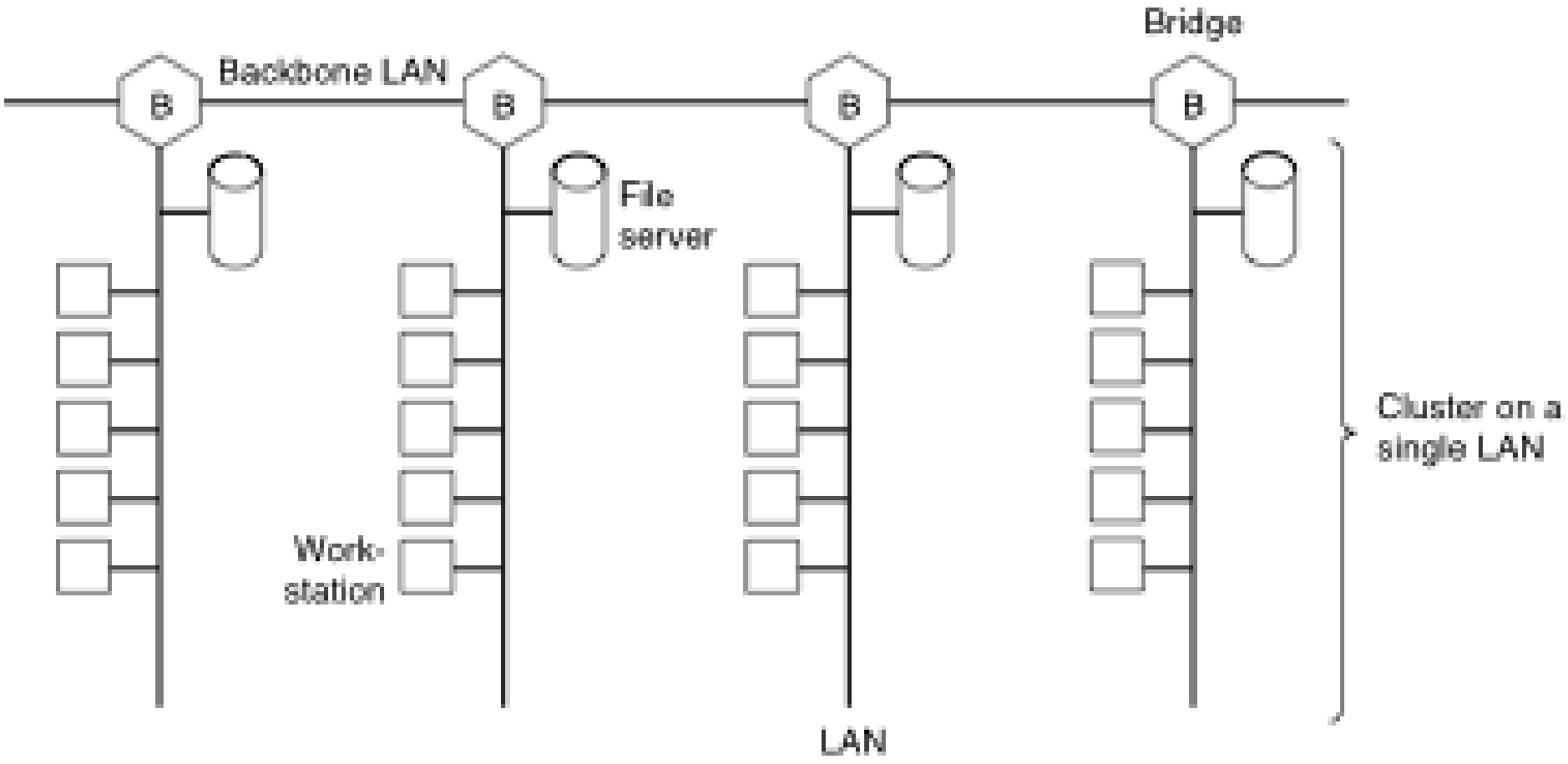

A
B
C
D
Switch
E
F
G
H
(c)


NETGEAR

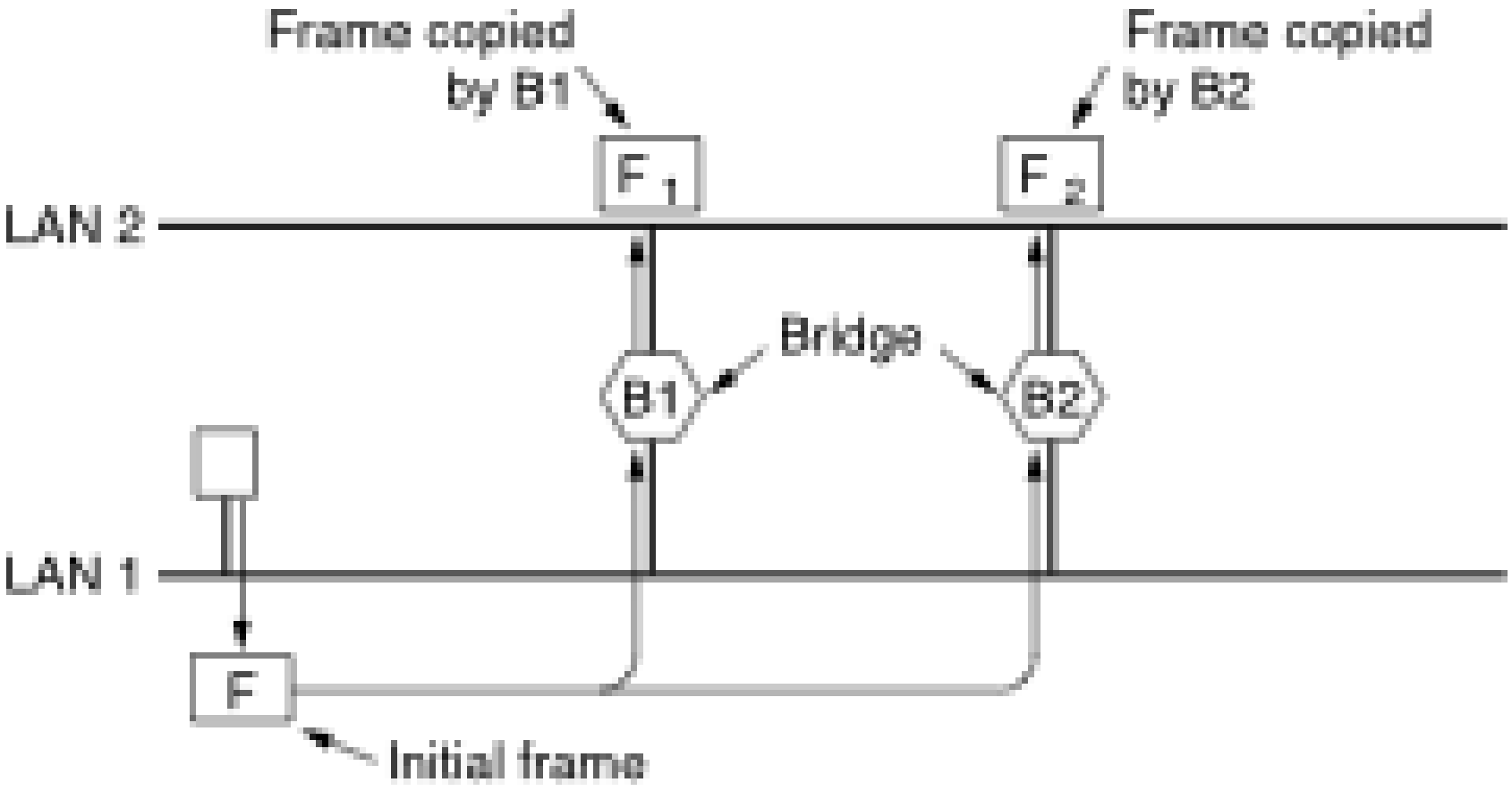

NETGEAR
NETGEAR


NETGEAR

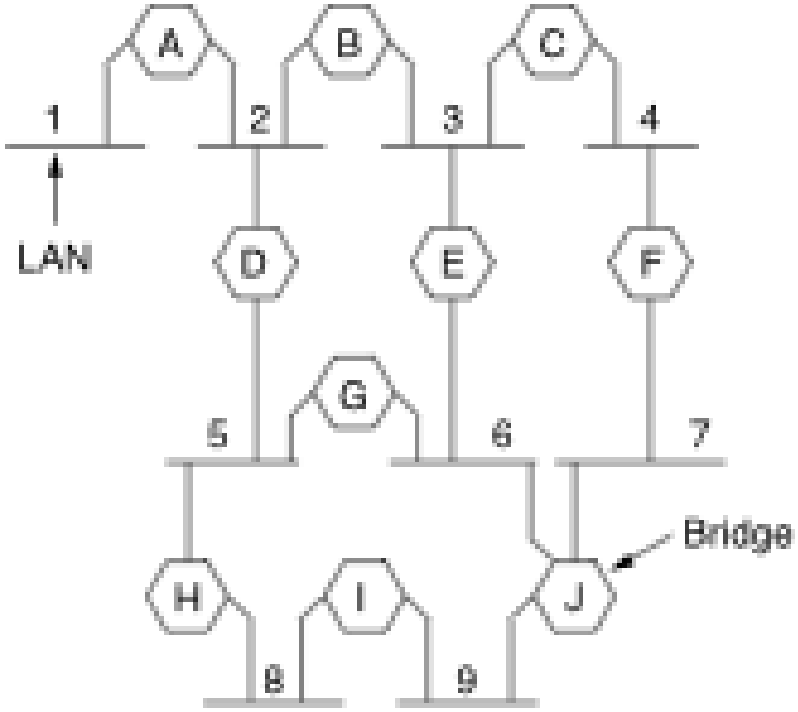
Bridge Connected LANs

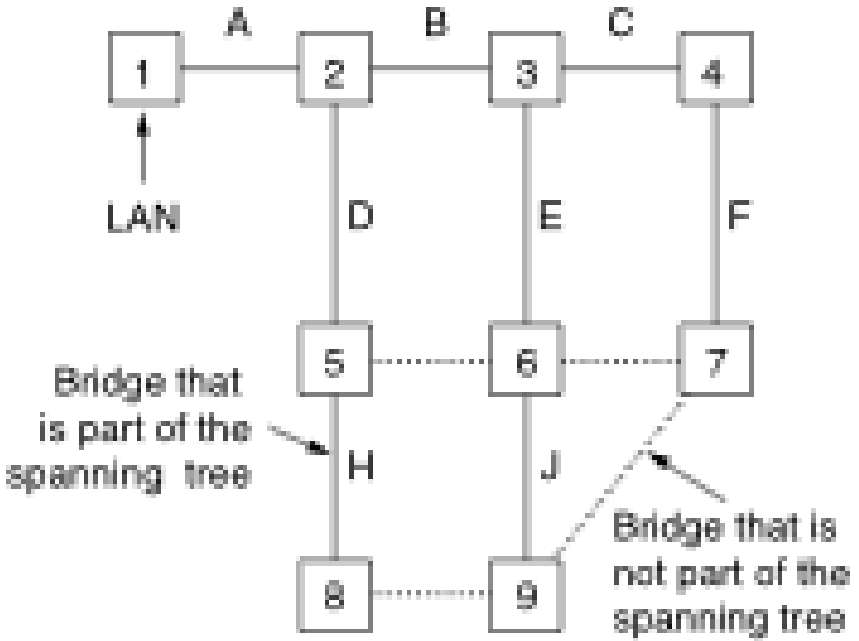


Loops in routing paths



Spanning Tree Example





Spanning Tree Algorithm

```
class BPDU {
    SwitchID root;
    int distance;
    SwitchID source;
}
class Switch {
    SwitchID id;
    BPDU transmit;
    List portList;
}
```

```
class Port {
    LanId lanId;
    BPDU best;
    boolean rootPort;
    boolean designatedPort;
}
```

```
if(m < p.best){
   p.best = m; // m is now the best message this port has seen
   p.designatedPort = false; // there is a better message on the LAN
}
m.distance += 1;
m.source = this.id;
if(m < transmit){
   transmit = m;
   p.root = true;
   for each port q in portList other than p {
      if(m < q.best){
         q.best = m;
         q.rootPort = false;
         q.designatedPort = true;
         write m on port q; }
   }
}
```