

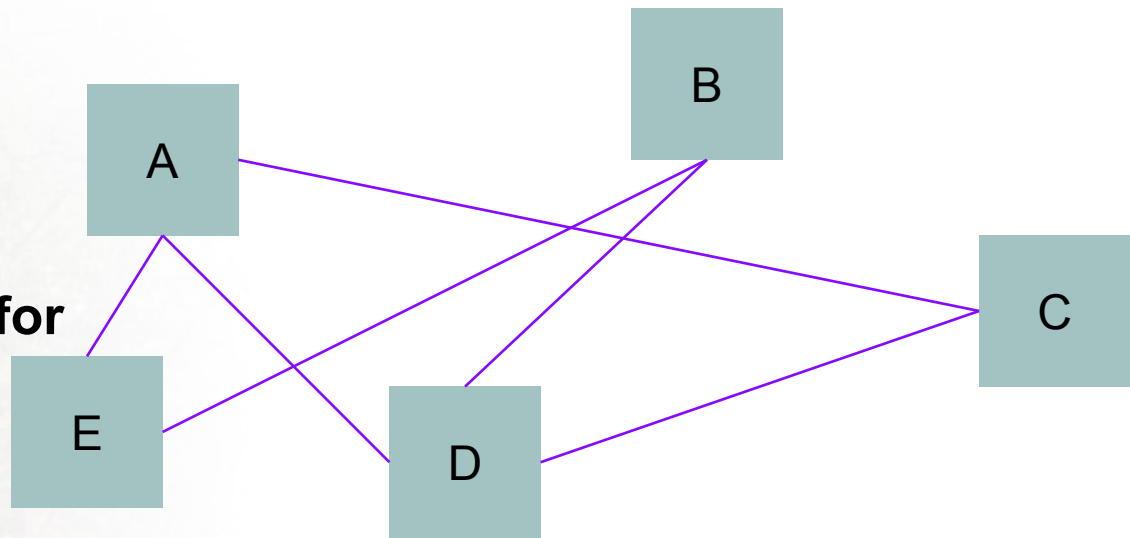
- **Task-2: virtual routing**
(Application-layer routing)
 - **self-organized routing**
 - ◆ **Select a virtual topo for members' computers**
 - ◆ **Build virtual connection between computers according to the virtual topo;**
 - ◆ **Each computer acts as both client and router.**
 - ◆ **Each computer exchanges and updates routing table periodically.**
 - ◆ **A computer can send message to other computers,**

Hint:

- **IP-in-IP (IP-layer virtual routing) or**
- **use sock directly (Application-layer routing)**
- **Use TCP or UDP**

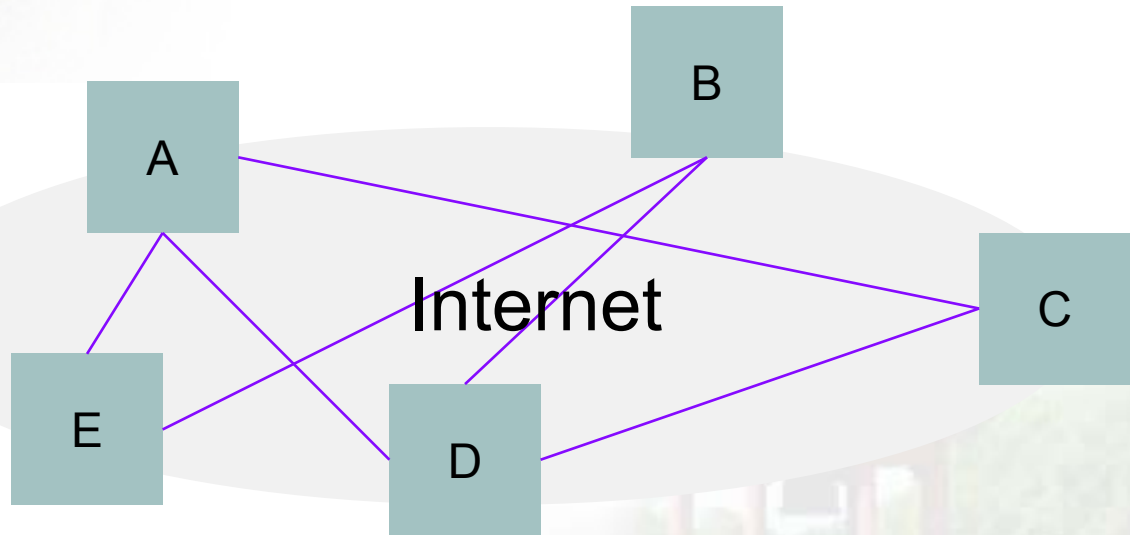
Step 1:

- Design the virtual topo (link cost)
- Each node has two ports for receiving and sending: Prt_i , Prt_o .



Step 2:

Build the virtual Topo over Internet & exchange the routing information periodically



Step 3:

Simulate the routing and forwarding. For example:

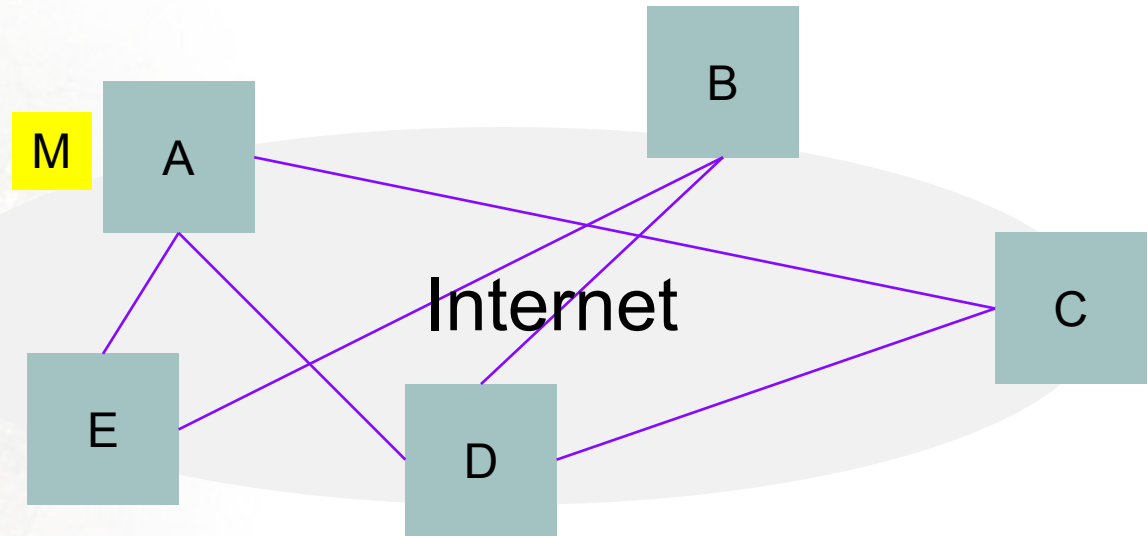
A sends M to B. Which

path is better?

$A \rightarrow E \rightarrow B$? or

$A \rightarrow D \rightarrow B$?

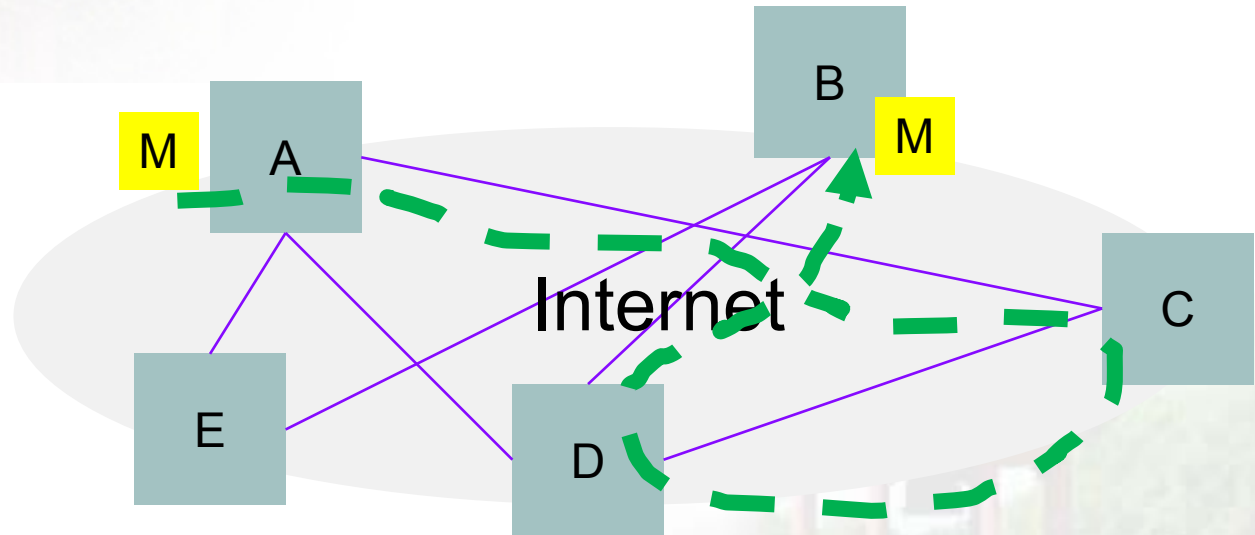
$A \rightarrow C \rightarrow D \rightarrow B$?



Step 4:

Transmit data M via the best path, e.g.,

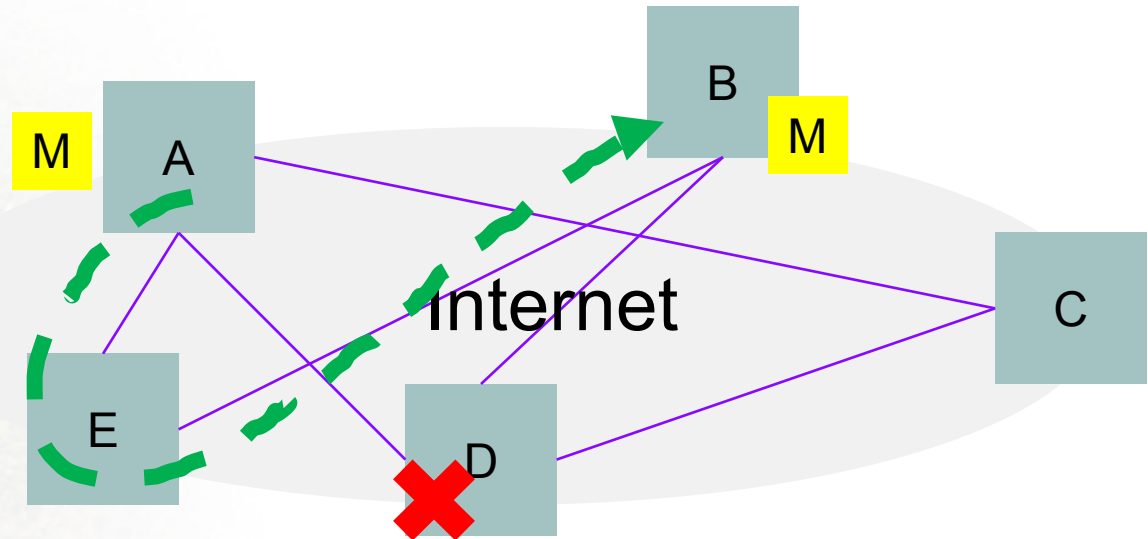
$A \rightarrow C \rightarrow D \rightarrow B$



Please try different topo and different routing algorithms (LS & DV).

Step 5:

A node is down.
e.g., D



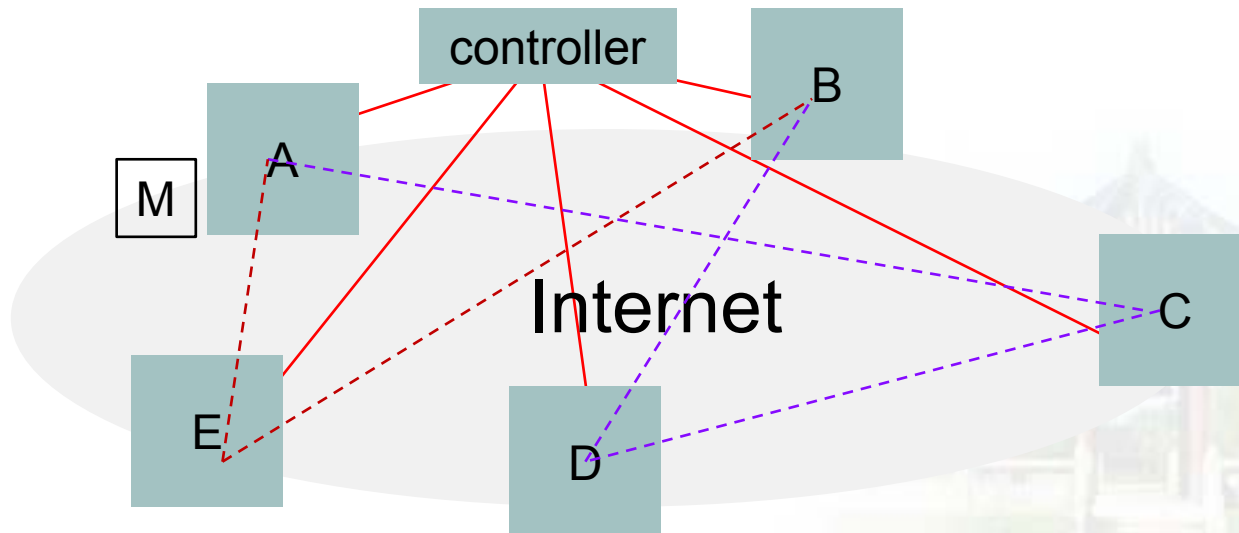
Please try different topo and different routing algorithms (LS & DV).

● Task-2: virtual routing

■ centralized routing

- ◆ Like the above self-organized routing
- ◆ Controller determines and distributes routing policy (routing table) to each member

Example: A sends M to B. Which path is better? $A \rightarrow E \rightarrow B$? or $A \rightarrow C \rightarrow D \rightarrow B$?



● Submit

- PPTs + demo video
- Source code (and the compiled executable files)
- The project report documents (including introduction, design, setup and deploy, and result, project management records)
- The individual report of each team members (your contributions, and anything else you want to talk about)
- votes of the top 5 teams (based on their presentations and your observations, give comments of 2-3 sentences)
- A list that shows each member's contribution and grade.

- Put all file into a package and name it as:
A_B_C.rar,
A: the student ID of group leader;
B: the name of group leader;
C: task1 or task2
example: 1500001_张三_task1.rar
- Group leader submit it to the given FTP server.

● **Basic points**

- **Protocol design. (10 points)**
- **Finish basic function correctly (w/o error). (60 points)**
- **On time (WEEK 15). (10 points)**
- **Documents, codes, presentation. (20 points)**
- **votes**
- **in-group assessment**