

- **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,

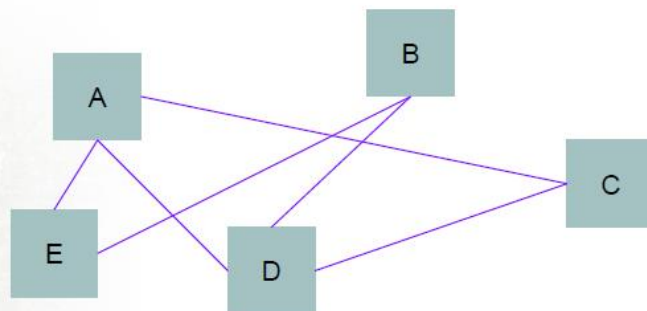
Hint:

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

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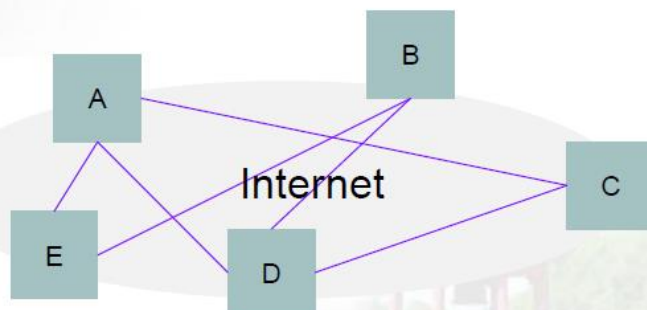
Step 1:

Design the virtual topo
(link cost)



Step 2:

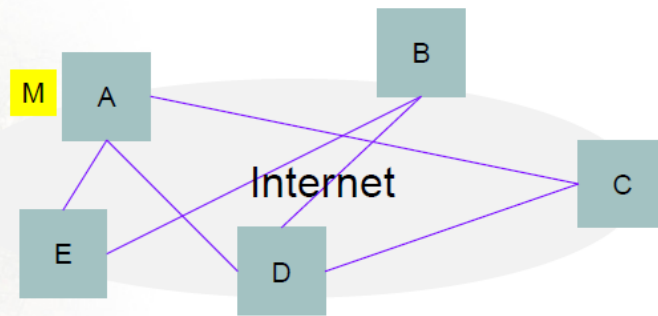
Build the virtual Topo
over Internet & exchange
the routing information
periodically



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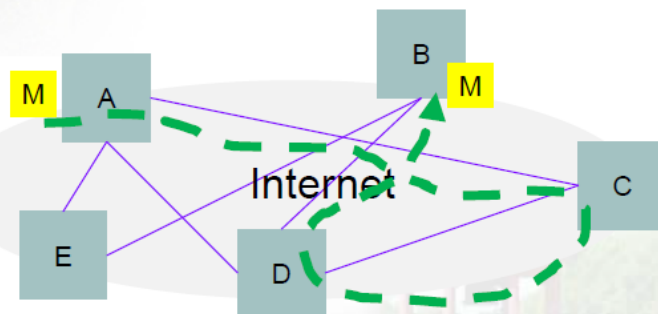
Step 3:

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:

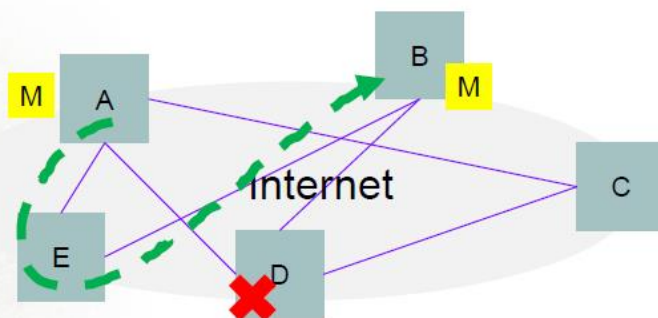
Transmit data M via the best path, e.g.,
 $A \rightarrow C \rightarrow D \rightarrow B$



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

Step 5:

A node is down.
e.g., D

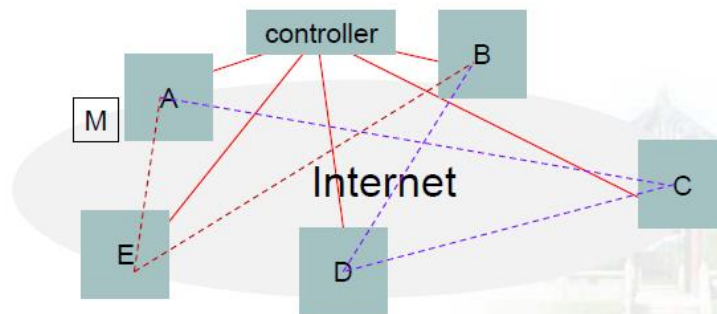


Please try different topos and different routing algorithms (LS & DV).

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



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• 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.

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