1 Routing Protocols

Consider the network presented in Figure 1. The routers run the Distance Vector routing protocol and apply the "poisoned reverse" rule: if X sends packets to Z via Y, X announces this route to Y with the cost ∞. We assume that all the routers start to operate. Give the data structures maintained by the routers after convergence—fill in the tables below.
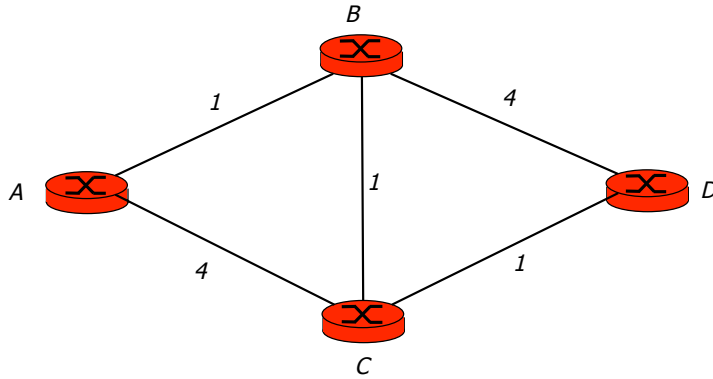

Figure 1: Network topology.

Costs of A	via	
Dest.	B	C
A		
B		
C		
D		

Routing tables of A		
Dest.	via	cost
A		
B		
C		
D		

Vector of A	sent to	
Dest.	B	C
A		
B		
C		
D		

Costs of B	via		
Dest.	A	C	D
A			
B			
C			
D			

Routing tables of B		
Dest.	via	cost
A		
B		
C		
D		

Vector of B	sent to		
Dest.	A	C	D
A			
B			
C			
D			

Costs of C	via		
Dest.	A	B	D
A			
B			
C			
D			

Routing tables of C		
Dest.	via	cost
A		
B		
C		
D		

Vector of C	sent to		
Dest.	A	B	D
A			
B			
C			
D			

Costs of D	via	
Dest.	B	C
A		
B		
C		
D		

Routing tables of D		
Dest.	via	cost
A		
B		
C		
D		

Vector of D	sent to	
Dest.	B	C
A		
B		
C		
D		

Solution:

Costs of A	via	
Dest.	B	C
A	-	-
B	**1**	5
C	**2**	4
D	**3**	5

Routing tables of A		
Dest.	via	cost
A	local	0
B	B	1
C	B	2
D	B	3

Vector of A	sent to	
Dest.	B	C
A	0	0
B	∞	1
C	∞	2
D	∞	3

Costs of B	via		
Dest.	A	C	D
A	**1**	∞	7
B	-	-	-
C	∞	**1**	5
D	∞	**2**	4

Routing tables of B		
Dest.	via	cost
A	A	1
B	local	0
C	C	1
D	C	2

Vector of B	sent to		
Dest.	A	C	D
A	∞	1	1
B	0	0	0
C	1	∞	1
D	2	∞	2

Costs of C	via		
Dest.	A	B	D
A	4	**2**	∞
B	5	**1**	∞
C	-	-	-
D	7	∞	**1**

Routing tables of C		
Dest.	via	cost
A	B	2
B	B	1
C	local	0
D	D	1

Vector of C	sent to		
Dest.	A	B	D
A	2	∞	2
B	1	∞	1
C	0	0	0
D	1	1	∞

Costs of D	via	
Dest.	B	C
A	5	**3**
B	4	**2**
C	5	**1**
D	-	-

Routing tables of D		
Dest.	via	cost
A	C	3
B	C	2
C	C	1
D	local	0

Vector of D	sent to	
Dest.	B	C
A	3	∞
B	2	∞
C	1	∞
D	0	0