|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| step | N’ | D(z),p(z) | D(y),P(y) | D(t),P(t) | D(v),P(v) | D(u),P(u) | D(w),P(w) |
| 0 | x | 8,x | 6,x |  | 3,x |  | 6,x |
| 1 | xv | 8,x | 6,x | 7,v | 3,x | 6,v | 6,x |
| 2 | xvw | 8,x | 6,x | 7,v | 3,x | 6,v | 6,x |
| 3 | xvwy | 8,x | 6,x | 7,v | 3,x | 6,v | 6,x |
| 4 | xvwyu | 8,x | 6,x | 7,v | 3,x | 6,v | 6,x |
| 5 | xvwyut | 8,x | 6,x | 7,v | 3,x | 6,v | 6,x |
| 6 | xvwyutz | 8,x | 6,x | 7,v | 3,x | 6,v | 6,x |

P3

Consider the following network. With the indicated link costs, use Dijkstra’s shortest-path algorithm to compute the shortest path from x to all network nodes. Show how the algorithm works by computing a table similar to Table 5.1.

P5

Consider the network shown below, and assume that each node initially knows the costs to each of its neighbors. Consider the distance-vector algorithm and show the distance table entries at node z.

Time 1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | u | v | x | y | z |
| v |  |  |  |  |  |
| x |  |  |  |  |  |
| z |  | 6 | 2 |  | 0 |

Time 2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | u | v | x | y | z |
| v | 1 | 0 | 3 |  | 6 |
| x |  | 3 | 0 | 3 | 2 |
| z | 7 | 5 | 2 | 5 | 0 |

Time 3

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | u | v | x | y | z |
| v | 1 | 0 | 3 | 3 | 5 |
| x | 4 | 3 | 0 | 3 | 2 |
| z | 6 | 5 | 2 | 5 | 0 |

Time 4

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | u | v | x | y | z |
| v | 1 | 0 | 3 | 3 | 5 |
| x | 4 | 3 | 0 | 3 | 2 |
| z | 6 | 5 | 2 | 5 | 0 |

Then the answer is 6 5 2 5 0

P9

Consider the count-to-infinity problem in the distance vector routing.

Will the count-to-infinity problem occur if we decrease the cost of a link? Why?

How about if we connect two nodes which do not have a link?

A: No, because if we decrease the cost of a link as according to the updates received the nodes find their new least costs and in turn send their updates for distance vector.

If we connect two nodes, the data cannot be propagated properly as face to cost-to-infinity problem and the find the minimum cost paths results in errors.