OVERVIEW

In this lab, we will study how the network layer uses forwarding and routing to try to deliver a packet from a source node to a destination node as quickly as possible. For that purpose, we will first learn how each node in a network uses its routing or forwarding table to deliver an incoming packet to the link taking the packet to the next step in its journey to the destination node. Then, we will study how each node initializes and updates its routing table by the distance vector algorithm. Finally, we will represent a network graph by a matrix and then use Dijkstra's algorithm to find the shortest path between two nodes. In particular, you will complete four tasks:

1. Task 1 simulates a network with six nodes. You will use the routing tables of all nodes to trace the path between the source and destination nodes.
2. In task 2, you will find the neighbors nodes, with the respective connection cost, for each node of the network. You will use such information to initialize the routing table of the distance vector algorithm.
3. In task 3, you will use the distance vector algorithm to update the routing table of each node iteratively until convergence to the optimal routing tables.
4. In task 4, you will create a matrix representation of a network and use the Dijkstra's algorithm to determine the shortest path between any two nodes.

Week 2 Quiz due Feb 01, 2016 at 15:30 UTC

4.4 Summary of Routing Algorithms
Week 2 Quiz due Feb 01, 2016 at 15:30 UTC

4.5 Lab 2: Network Layer
Lab due Feb 01, 2016 at 15:30 UTC

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