Distance Vector Routing Protocol Simulation

Student Information

Course: Computer Networks
Assignment: Distance Vector Routing Simulator

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Instructor: _____
Submission Date: _____

Objective

The objective of this project is to implement the Distance Vector Routing Algorithm using a distributed network simulator in Java. Each node exchanges routing information with neighbors to determine shortest paths.

Distance Vector Routing Algorithm

Distance Vector Routing is based on the Bellman-Ford algorithm. Each router maintains a distance table and updates routes whenever it receives new routing information.

Implementation Description

Four entities were implemented: Entity0.java, Entity1.java, Entity2.java, Entity3.java. Each entity initializes its distance table, sends initial vectors, processes updates, and propagates changes only when costs change.

Development Environment

Language: Java
JDK Version: 17
IDE: VS Code / IntelliJ / Eclipse

Compilation and Execution

Compile: javac *.java
Run: java Project
Input Parameters:
Trace Level = 3
Link Change = 0
Seed = 1

Conclusion

The simulator demonstrates distributed routing using Distance Vector principles and successfully converges to shortest paths.

Final Shortest Path Costs

Node	To0	To1	To2	To3
0	0	1	2	4
1	1	0	1	3
2	2	1	0	2
3	4	3	2	0