How Much Does This Cost?

Objectives

Explain the operation of dynamic routing protocols.

Scenario

This modeling activity illustrates the network concept of routing cost.

You will be a member of a team of five students who travel routes to complete the activity scenarios. One digital camera or bring your own device (BYOD) with camera, a stopwatch, and the student file for this activity will be required per group. One person will function as the photographer and event recorder, as selected by each group. The remaining four team members will actively participate in the scenarios below.

A school or university classroom, hallway, outdoor track area, school parking lot, or any other location can serve as the venue for these activities.

Activity 1

The tallest person in the group establishes a start and finish line by marking 15 steps from start to finish, indicating the distance of the team route. Each student will take 15 steps from the start line toward the finish line and then stop on the 15th step—no further steps are allowed.

Note: Not all of the students may reach the same distance from the start line due to their height and stride differences. The photographer will take a group picture of the entire team's final location after taking the 15 steps required.

Activity 2

A new start and finish line will be established; however, this time, a longer distance for the route will be established than the distance specified in Activity 1. No maximum steps are to be used as a basis for creating this particular route. One at a time, students will "walk the new route from beginning to end twice".

Each team member will count the steps taken to complete the route. The recorder will time each student and at the end of each team member's route, record the time that it took to complete the full route and how many steps were taken, as recounted by each team member and recorded on the team's student file.

Once both activities have been completed, teams will use the digital picture taken for Activity 1 and their recorded data from Activity 2 file to answer the reflection questions.

Group answers can be discussed as a class, time permitting.

Required Resources

- Digital or BYOD camera to record Activity 1's team results. Activity 2's data is based solely upon number of steps taken and the time it took to complete the route and no camera is necessary for Activity 2.
- Stopwatch
- Student file accompanying this modeling activity so that Activity 2 results can be recorded as each student finishes the route.

Scenario – Part 2 Recording Matrix

Student Team Member Name	Time Used to Finish the Route	Number of Steps Taken to Finish the Route
Kit Ryan Betancor dela Cruz	22.65 seconds	36
Jhon Harvey Cagape Babia	23.66 seconds	40
Maria Monica Carreon Carbon	25.47 seconds	45
Alyssa Jane Enricoso Gabatan	24 seconds	40

Reflection Questions

1. The photographer took a picture of the team's progress after taking 15 steps for Activity 1. Most likely, some team members did not reach the finish line on their 15th step due to height and stride differences. What do you think would happen if network data did not reach the finish line, or destination, in the allowed number of hops or steps?

   The network data would be dropped

2. What could be done to help team members reach the finish line if they did not reach it in Activity 1?

   Shorten the route

3. Which person would best be selected to deliver data using the network route completed in Activity 2? Justify your answer.

   dela Cruz, because he completed the "route" in the shortest time and fewer steps

4. Using the data recorded in Activity 2 and a limit of 255 steps, or hops, did all members of the team take more than 255 steps to finish their route? What would happen if they had to stop on the 254th step, or hop?

   No, they would repear the "route" a couple more times

5. Use the data that was recorded in Activity 2. Would you say the parameters for the route were enough to finish it successfully if all team members reached the finish line with 255 or less steps, or hops? Justify your answer.

   Yes, since they all completed it in less than 255 steps

6. In network routing, different parameters are set for routing protocols. Use the data recorded for Activity 2. Would you select time, or number of steps, or hops, or a combination of both as your preferred routing type? List at least three reasons for your answers.

   The best parameter to use would be Time.
   Reasons:
   1. A faster time would indicate a better performance of the network
   2. Hop count for me would depend on the kind of network traffic network data would cross
   3. Since time is usually the same measurement we use in real life, even those that doesn't have basic knowledge of networking would understand