300H
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Assignment 1 problem 2

Four people, Bob, Carol, Ted and Alice, are walking in the mountains at night with one flashlight. They arrive at a chasm that is crossed by a flimsy rope bridge. They decide that at most two people can be on the bridge at the same time. , and whoever crosses must have the flashlight with them. None of them can throw the flashlight across the bridge. Therefore they will cross the bridge in five steps as follows:

- *Step 1. Two cross the bridge together with the flashlight (so there are two on each side)*
- *Step 2. One walks back with the flashlight (so there are three at the beginning and one at the end)*
- *Step 3. Two cross the bridge together with the flashlight (so there is one at the beginning and three at the end)*
- *Step 4. One walks back with the flashlight (so there are two on each side*
- *Step 5. Two cross the bridge together with the flashlight (finished!)*

Each person walking alone would need the following amount of time to cross the bridge:
Bob 1 minute
Carol 2 minutes
Alice 5 minutes
Ted 10 minutes
Whenever two people travel together, they go at the speed of the slower person. Determine the fastest way to get all four people across the bridge. Give a careful argument that your plan is best possible.