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05 Aug 2015

Scalable Data Infrastructures

Problem Solving

1. A Cat, a Parrot, and a Bag of Seed:

A man finds himself on a riverbank with a cat, a parrot and a bag of seed. He needs to transport all three to the other side of the river in his boat. However, the boat has room for only the man himself and one other item (either the cat, parrot or seed). In his absence, the cat could eat the parrot, and the parrot would eat the bag of seed. Show how he can get all the passengers to the other side, without leaving the wrong ones alone together.

Define the problem:

A: This man must transport the items across the river one at a time and make sure he doesn’t loose any of the items to each other while he is crossing back on forth.

B: The order of transporting the items at first seems to be fairly easy but after thinking about it you find out it isn’t. .

C: The overall goal is to keep the three items safe from one another

while crossing the river.

Break the problem apart:

A: There is only so much room on the boat and most of the items cant be alone together.

B: I think a main sub-goal is to make as few of trips as possible.

Identify potential solutions:

A: A solution that comes to mind is to take the cat over first followed by the seed and then the bird. Another solution would be to place the cat inside the bag of seed and transport them both together, and then bring the bird over last.

Evaluate each potential solution:

A: After thinking about my first solution it doesn’t work. I would have to leave the bird alone with the bag of seeds to take the cat over. The second solution seems to be a little more feasible, but putting the cat in the seed bag I don’t leave the bird alone with the seed or the cat alone with the bird.

B: I believe the second solution would work for all cases.

Choose a solution and develop a plan to implement it.

A: I would choose the second solution of placing the cat inside of the bag of seeds and leaving the bird behind while making the first trip. I would then come back and get the bird.

B: Attach diagram