Original Question:

Hi Spyros,

We met last month at the poster session at MIT conference. I'm working with NDN at University of Massachusetts Amherst.
I wonder if you could help me with the following scenario:

I am running a wireless scenario with 9 nodes on a 3x3 grid fashion, with the consumer being node-0 and the producer node-8. In order words, one on each edge of the grid. When running simulations, I noticed that the nodes had line of sight, making the hop count almost always one (no cache was used).

To limit the nodes line of sight, I added the propagation loss model to use range in meters, where one node could only see the next hop. However, I noticed that the Interest was not being broadcasted to the second hop nodes. The Interest never reaches the custodian.

As an workaround, I added an extra consumer on the middle of the grid (node-4) for five seconds, but the ideal scenario would be with only one consumer. Another workaround was change the broadcast-strategy.cpp by commenting line 52 "if (pitEntry->canForwardTo(*outFace))"

I wonder if I'm missing something, as my wifi nodes are not relaying the Interests (as the car2car communication does, for example).
Please see attached the code for your convenience. Let me know if you want me to post the question on the ndn-mailing-list.

Best,
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My answer:

Hi …,

I hope that you are doing well.

Regarding your issue, I would like to comment the following things:

your nodes actually relay the Interests, as I noticed that they are data packets coming back to the consumer.

To my understanding, the misunderstanding is the following (it is not your fault, but rather ours because we have picked a misleading name):

The broadcast strategy is not really broadcast, but rather a kind of multicast. Specifically, each node will transmit the Interest through the faces that are specified

by a FIB entry.

If you run your scenario and enable the logs for the forwarder class of NFD by typing:

NS_LOG=ndn.Producer:ndn.Consumer:nfd.Forwarder ./waf --run ndn-simple-wifi-thiago

you will notice that many interests are getting rejected by intermediate nodes. That is due to the fact that there are no FIB entries determining any outgoing faces at these nodes.

Another workaround was change the broadcast-strategy.cpp by commenting line 52 “if (pitEntry->canForwardTo(*outFace))”

In this way, you actually turn the “multicast” forwarding strategy to pure broadcast, that is why it works. I guess that this workaround is enough for your scenario and you would not need to install a second consumer. You may also need to increase the lifetime of the interests in order to avoid PIT entry expirations (I noticed that many data packets are treated as unsolicited and I guess this is due to the expiration of the corresponding PIT entries).

Let me know if you need anything else.

Thank you,
Spyros