

Home Networking
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Experience with the Distributed Node Consensus Protocol (DNCP)
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Abstract

This document reports experience with Distributed Node Consensus Protocol (DNCP). It includes an introduction of existed known implementations and simulation results of DNCP.

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1. Introduction

- o DNCP is a protocol used for state synchronization. It is described in [draft-ietf-homenet-dncp-03], and right now its use case is mostly in homenet. DNCP provides a way for each node in the network to publish a set of TLV tuples, which is the data that it wants to share with other nodes, and validate the data received from other nodes by making sure the source node of the data is reachable. It takes advantage of trickle algorithm to control the sending of the status updates, thus decrease the amount of traffic especially when there are no updates in the network.
- o Since DNCP is a protocol not yet standardized, it has not been widely deployed, but in order for the homenet to run on it, it is important to evaluate its performances under various scenarios which is not so easy to do in real life but relatively easy using network simulators such as ns3. With the help of ns3, we can create various topologies and get logs for analyzing. This draft documents our experience of implementing dncp and integrating it in ns3, as well as the results of performance evaluation. We believe that the results obtained from the simulation are helpful for the implementation of dncp and can be a useful reference for the potential users of dncp.
- o The document is organized as follows: First we introduce the current implementation of dncp in Section 2. Then the draft describes simulation setup, including simulation environment, the metrics being evaluated and the topologies used for simulation. The third part documents the results of performance evaluations under different scenarios. And finally from all the above, we draw our conclusions.

2. Implementations

TODO list, for each known implementations (I think we have only one at this point?)

- o conducted by who?
- o open/close source? if open source, the link?
- o if available, number of lines/foot print
- o if available, operational experience.

3. Simulation Setup

3.1. Simulation Environment

dncp + ns3

layer 2 settings

3.2. Performance metric

convergence time ...

convergence ratio...

3.3. Chosen topologies

4. Performance Evaluation

4.1. Scenario 1: xxx

4.2. Scenario 2: xxx

5. Conclusion

conclusions

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