

This document is part of Netsukuku.

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1 Preface

We're assuming that you already know the basics of the QSPN. If not, read the QSPN document first: [\[1\]](#).

2 The general idea

The aim of Netsukuku is to be a (physical) scalable mesh network, completely

Doing so, we've structured the network in $n + 1$ levels (from 0 to n).
 In the base level (level 0), there are 256 single nodes.
 In the first level (level 1), there are 256 normal gnodes. Each of them contains 256 single nodes.
 In the second (level 2), 256 gnodes of level 1 forms a single *group of groups of nodes*.
 In the third (level 3), there are 256 groups of 256 groups of 256 groups of 256 nodes.
 Continuing in this way, we arrive at the last level (level n), where there is a single group which contains the whole network.

The QSPN algorithm is able to operate independently on any level, considering each gnode as a single node of level 0. For this reason, we can view the Netsukuku topology as a fractal, where each level is composed by single nodes.

Example

Figure 3¹ 4(an)-332(e)-1(xamp)1(le)-334(of)-333(th)1(e)-334(f)1(rac)-1(t)1(al)-334(t)1(op)-28(ol)1(ogy)-334

In this topology, each gnode contains four nodes, i.e. each group contains four elements. The network is structured in 6 levels.

The red elements, are single nodes (level 0).

Four nodes forms4(a)-333(s)-1(in)1(gle)-334(gr)1(oup)-333(of)-333(n)1(o)-28(d)1(e)-1(s)-334((l)1(e)-1(v)28(e

6 Flat levels

6.1 The approximation of the group rule

The group rule implies that a node $c \notin G$

The situation is symmetric if G

7.2 Connected gnodes

A gnode G is internally connected if

$$a, b \in G$$

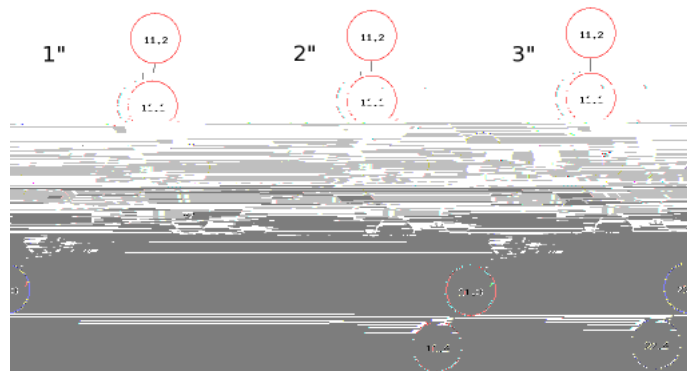


Figure 4: In the first step we have the gnode 11.* (in red). In the second, the gnode becomes broken. In the third, after the procedure described above has been applied, we have two gnodes: 11.* and 22.*

