

“Algorhyme”

I think that I shall never see

A graph more lovely than a tree.

A tree whose crucial property

is loop-free connectivity.

A tree which must be sure to span.

So packets can reach ever LAN.

First the Root must be selected

by ID it is elected.

Least cost paths from Root are traced

in the tree these paths are placed.

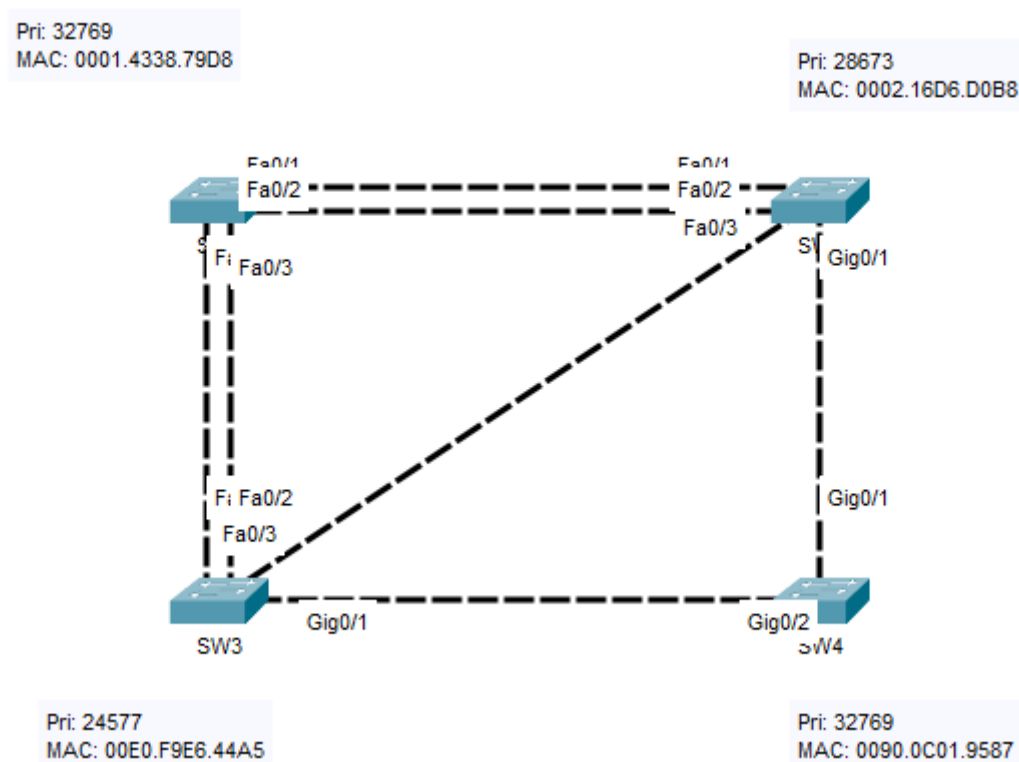
A mesh is made by folks like me

Then bridges find a spanning tree.

- Radia Perlman, the inventor of Spanning Tree Protocol

STP is a technology that prevents broadcast loops, enabling the use of redundant links without causing network instability. It will put certain ports in a blocking state in order to prevent potential broadcast loops. Generally, when analyzing STP metrics such as path cost or bridge ID, smaller values indicate more desirable paths.

1. Base Network Topology



2. Which switch is the root bridge?
 - SW3 is the root bridge. All of its ports are designated.
3. Identify the role (root/designated/non-designated) of each switch port:
 - SW1: F0/3 is the root port; F0/1, F0/2, and F0/4 are non-designated.
 - SW2: G0/1 is the root port; F0/1 and F0/2 are designated; F0/3 is non-designated.

- SW4: G0/2 is the root port, G0/1 is designated.