Problem

Space Station Security

Due: February 23, 2024

Starfleet has just promoted you to First Lieutenant, and you have just received your orders transferring you to Deep Space 17, where you will be Chief of Security. The station consists of many nodes (where humans and aliens live, work and fraternize) and these nodes are connected by zero-gravity tubes. It is possible to reach any node from any other node, using one or more tubes, and no two nodes are directly connected by more than one tube. As you are greatly concerned about the hostile Vogons, you wish to install transporters in some of the nodes, so that in case DS17 is attacked, its inhabitants may transport to rescue ships. Obviously, the safest option would be to install a transporter in each node, but transporters are expensive! "Maximize safety and minimize costs!" your captain thunders. What's a poor lieutenant to do?

You have decided to install the minimum set of transporters so that if any single junction is overrun by the Vogons, every inhabitant still has access to at least one transporter. Now, your job is to find the minimum number of transporters so that you can submit the Purchase Order to Starfleet as soon as possible.

Specifically, you are to have one of your eager ensigns (they never seem to be around when you need 'em!) write a function:

```
int transporters(int n, VI& tubes) { }
```

that returns the minimum number required. Here, `n` is the number of nodes (conveniently numbered from `0` to `n - 1`), and `tubes[2 * i]` and `tubes[2 * i + 1]` indicate the junction numbers that are the endpoints of a tube. (There will be at most 50,000 tubes.)