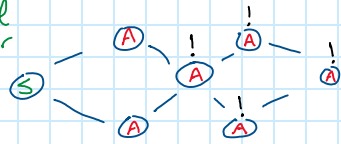


SP Transformation

Saturday, July 11, 2020 12:53 PM

Say you have a network of drones

A - Authenticated
S - SP/Master



NOTE: This process assumes you will add more drones in flight, meaning the network will grow beyond an initial size.

Current Status:

S - 2 neighbors

4 nodes do not have access to an SP!

What does this imply?

- No access to an SP means no new nodes in the immediate network may be added! Could kill ability for network to grow past initial size

What to do? Do we need another SP?

We need to find where the master node is!

A - Authenticated
S - SP/Master



- Could start on any of these four

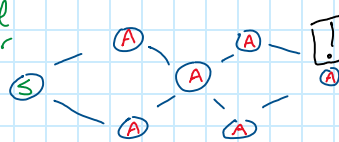
Current Status:

Enter a state that doesn't allow any new nodes into the network until the Master node is found.

This can be accomplished by using a special state

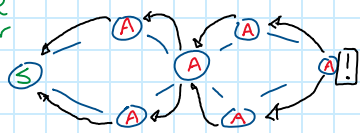
- One of the four nodes that are boxed will begin this process; as such they will need to stop the other boxed nodes so we don't have duplicate processes.

A - Authenticated
S - SP/Master



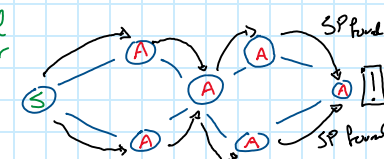
Let's say that this node controls the process. It has entered the SP_SEARCH mode

A - Authenticated
S - SP/Master



The origin node sends a message to all neighbor nodes to return if they have an SP node as a neighbor.

A - Authenticated
S - SP/Master

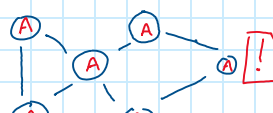


If they do not, then the nodes sent this request to all of their neighbors. If a neighbor SP is found a response is sent back through the network.

Once the SP is found, it is decided that an SP still resides in the network, ∴ Reassignment not needed.

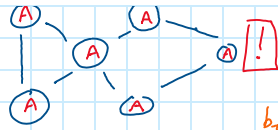
If no SP can be found in this process...
Say, the SP is offline or out of range.

A - Authenticated
S - SP/Master



The node that flagged that an SP is missing will

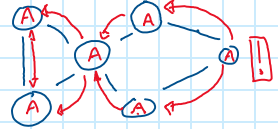
S - SP/Master



The node that flagged that an SP is missing will become the SP for the nodes in the network.

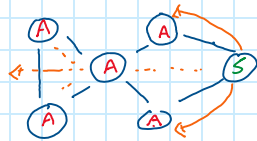
This will cause a purge of all current certificates + a "reboot" of the Authentication Module on all of the nodes.

A - Authenticated
S - SP/Master

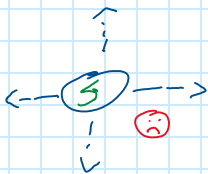


To prevent double sends + loops, a special state will be used to differentiate b/w nodes that have Kill Switched or not.

A - Authenticated
S - SP/Master



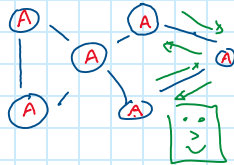
The New SP will register with the nodes in the network and restart the AM Scheme.



In this scheme, if the SP node cannot find any of its children nodes as neighbors, it is shut down to prevent any issues w/ the network.

It is reset as an unauthorized node. The new SP becomes the only SP in the network.

If an SP is not needed after initial authentication,
I.E. no new drones will enter the network mid-flight



The system can fully interact on its own as such, it does not need an SP, since no new nodes/drones will enter the network.