

# Introduction to HSMM-MESH

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[www.HSMM-MESH.org](http://www.HSMM-MESH.org)

What is an  
Amateur Radio?



# What is HSMM-MESH?

HSMM-MESH is a automatically configuring, fault tolerant Ham radio wireless network.

HSMM-MESH uses off-the-shelf commercially available hardware that has its internal software changed to perform completely different from a Wifi router.

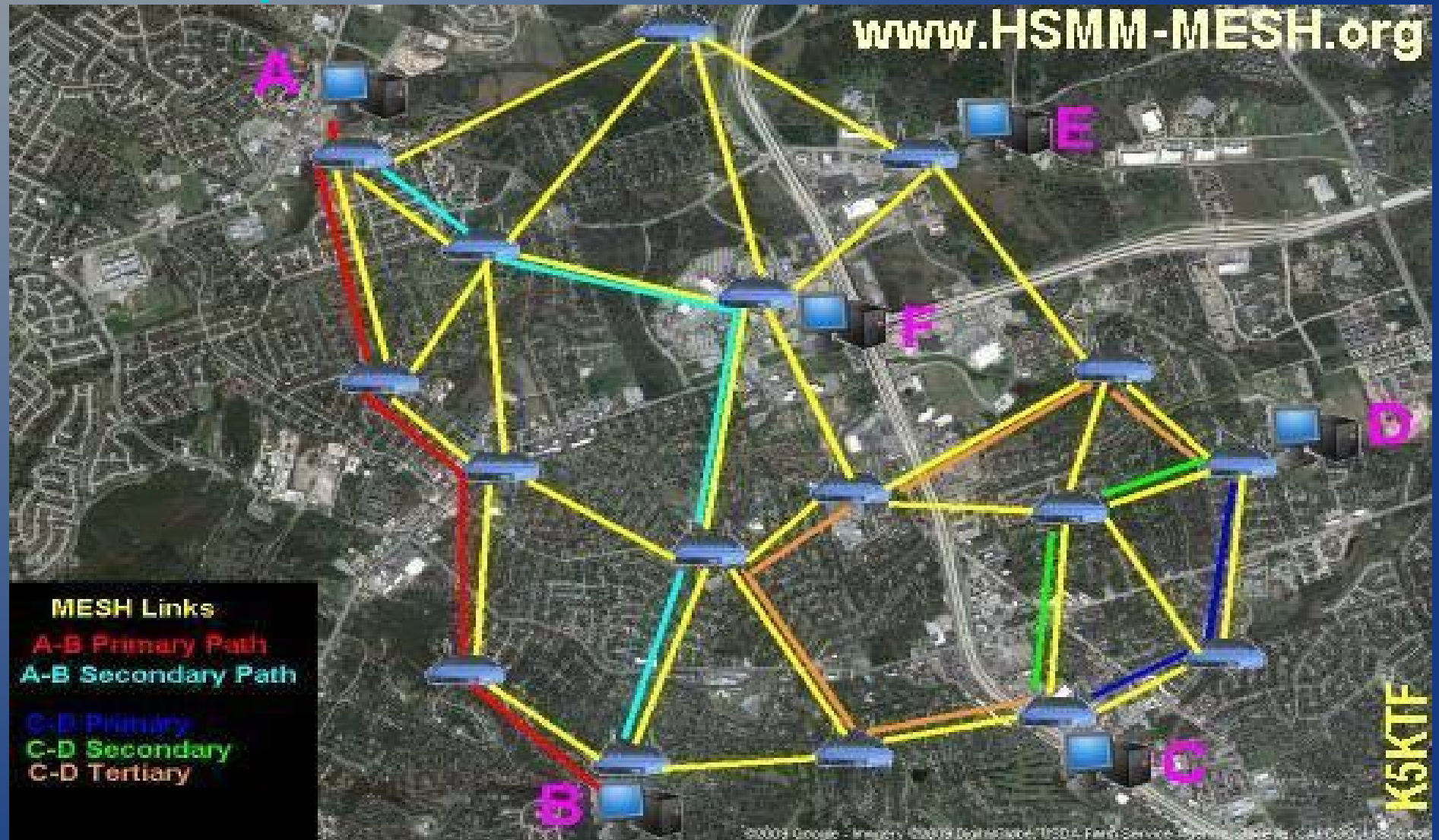
An HSMM-MESH node is an endpoint connection AND a repeater.

If one endpoint cannot see its desired destination, but CAN see nodes in between, the data will hop from one to the next until the final connection is made.

Completely automatically.

If one repeating node falls out, the software automatically re-routes traffic through other available nodes.

# Example of HSMM-MESH network



# How HSMM-MESH is used

- Connect two or more devices
  - Computers
  - Webcam
  - VoIP phones
  - Servers
  - Anything that talks over a computer network

# Ease of setup

- “Update” the original firmware with HSMM-MESH
- Login to the *new* mesh node
- Give it a node name
- Change the password
- Save & reboot
- Get one within range of another
- **CONNECTED !**



# Ease of Deployment

- Connect a node to your laptop/pc
- Connect another node to a device
- Throw a couple around to bridge gaps in coverage
- Self-configuring and fault-tolerant
- Automatically connect to each other
- An internet connection to *one* node provides the entire mesh network with internet access

# Cost

- For less than the cost of an inexpensive brand new chi-com VHF HT, you can buy multiple nodes
- Found usually at second-hand stores or online easily
- Good antennas are still a big priority

# Details of the system

- QRP anyone?
  - Software selectable power output up to 19dBm=79mW
- Microwave
  - Software selectable channels 1-6 are in the overlap of the 2.4Ghz ham band and the ISM band.
- Part 97 allows gain antennas and amps
  - Use the minimal power necessary

# Real-life Examples

- Range:
  - With a node and 24dBi dish on each end: 6 miles across South Austin between 2 parking garages-100% Link Quality. Secondary test-1 dish + 1/2w Bi-directional Amp, and stock 3.5dBi rubber duckies on other end !
  - With a dish and a small yagi: 10 miles from central Austin to South Austin
  - Trees and structures present challenges

# Real life usage

- Webcam out in hot workshop to keep eye on rodent trap. Also could be used for security surveillance
- Webcam mounted inline with dish to 'see' where it's aiming. Also for storm watching
- Ability to transfer files/documents to other users
- VoIP telephone conversations across network (EmComm)

Questions before the Step-By-Step