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Configuring and getting the most out of your D-Star Radio
(This isn't Your Old FM Radio)

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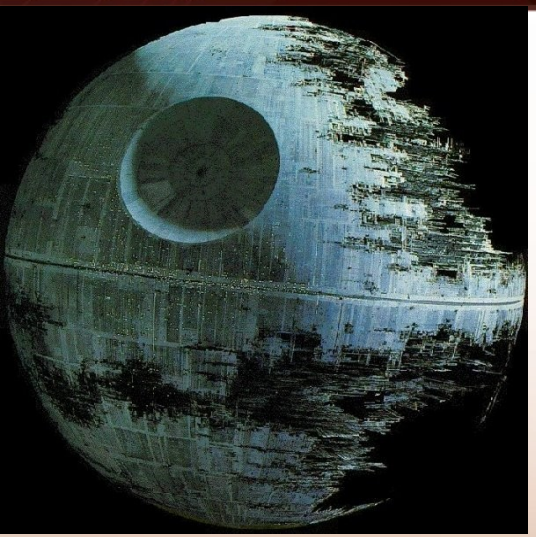
ICOM

Agenda

- Simplex Operation
- Repeater Operation
- Gateway Operation
- Multicast Operation
- Dplus Operation – Direct Connection
- Dplus Operation – Reflectors
- D-PRS Operation
- Chat Modes

Not that kind of Star!



D-Star stands for Digital Smart Technology for Amateur Radio. It's an open standard communication protocol developed by the Japan Amateur Radio League in conjunction with universities and amateur radio companies.

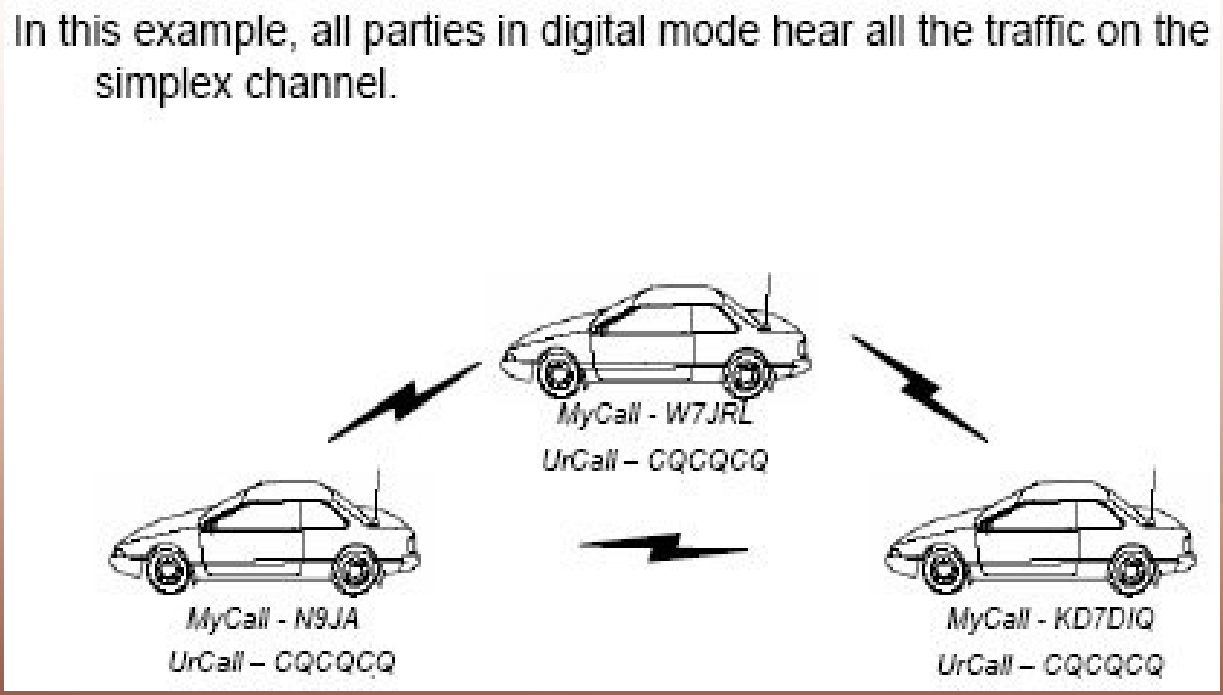
By being an open standard, anyone can make D-Star compatible equipment without paying a royalty. There are 2 flavors of D-Star: DD (Digital Data) and DV (Digital Voice). Both can be used simplex or through a D-Star repeater. Repeaters can in turn be linked together via gateways to allow long distance communication.

D-Star Naming Conventions

- MYCALL – The callsign of your station (ex: N5EBW)
- URCALL – The callsign of the station you are sending your traffic to locally, or across the gateway. Local mode only: CQCQCQ. (More on this later)
- RPT1 – The D-Star Node you are connected to. Example: 442.000 +5.000 MHz is K5TIT B.
- RPT2 – The Gateway designator of the repeater you are using. Example: K5TIT G

D-Star Simplex Operation

- D-Star can be used for Simplex operations without any issues. You only need to program MYCALL for this to work.



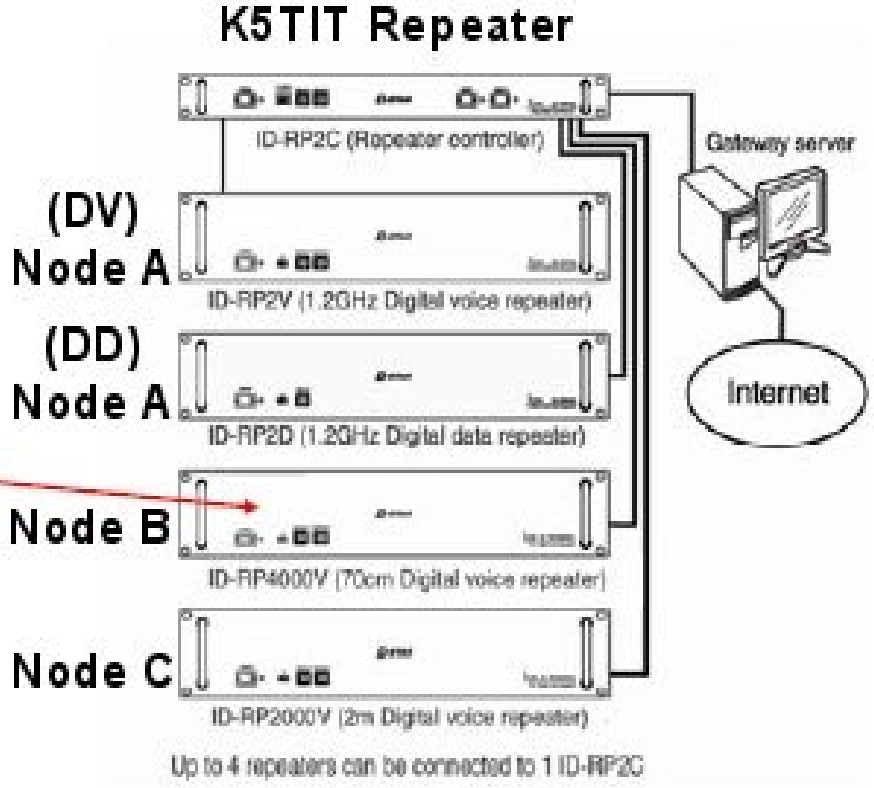
D-Star Repeater Operation

- You will need to program RPT1 to the call sign of the Repeater being used with a band designator of A, B or C.
- The band designator needs to be in the eight character position of the RPT1 field. (K5TIT B) *Note: That's two (2) spaces you see between the callsign and node letter.*
- A URCALL of CQCQCQ can be used or a specific users call sign.
- The RPT 2 field can be loaded with the Repeaters call sign with a G in the eight character position. (K5TIT G) *Note: Again, that's two (2) spaces between the callsign and node.*

Example:
Local Repeater Operation

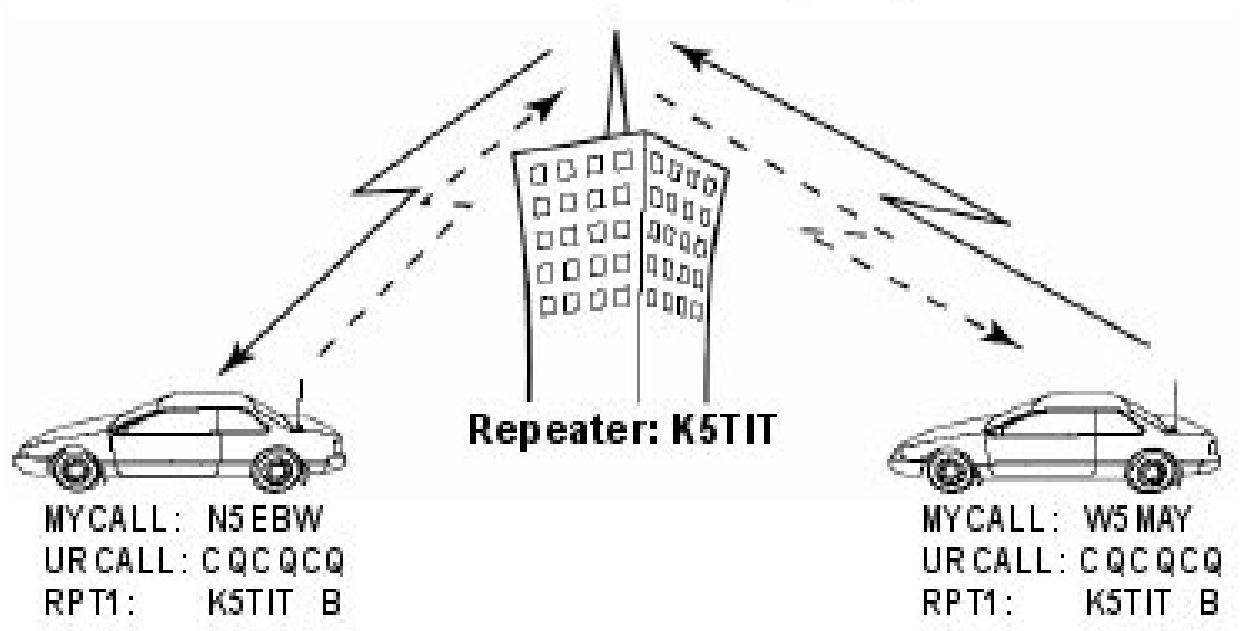
Example:
MYCALL: **N5EBW**
URCALL: **CQCQCQ**
RPT1: **K5TIT B**
RPT2: **K5TIT G**

Note: Although not required, it is suggested that the gateway node always be programmed into RPT2 during repeater usage.



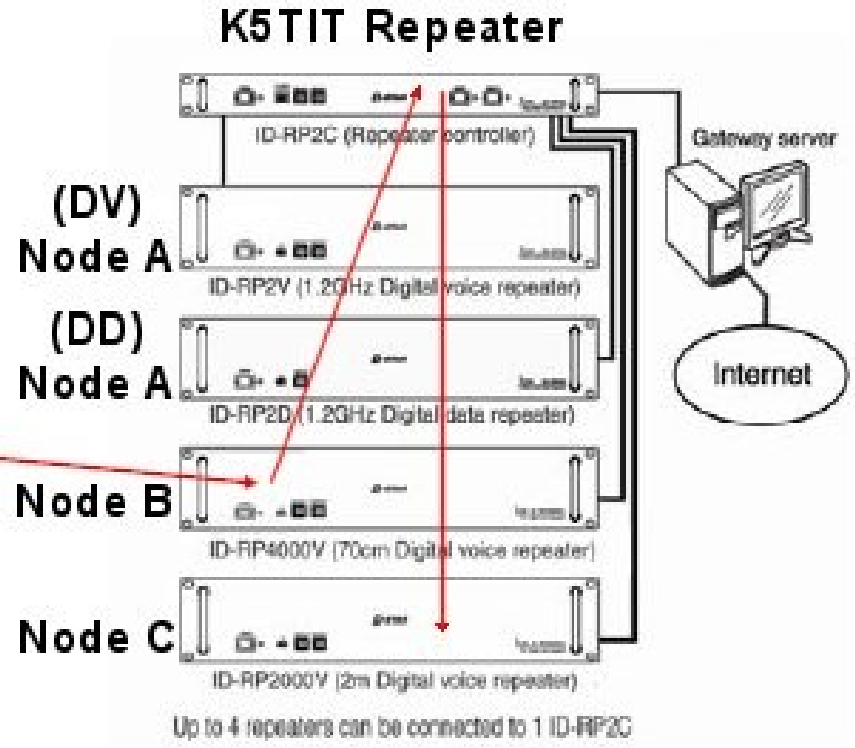
Example:
Local Repeater Operation

All parties on the local repeater channel will hear all the local radio traffic on that frequency.



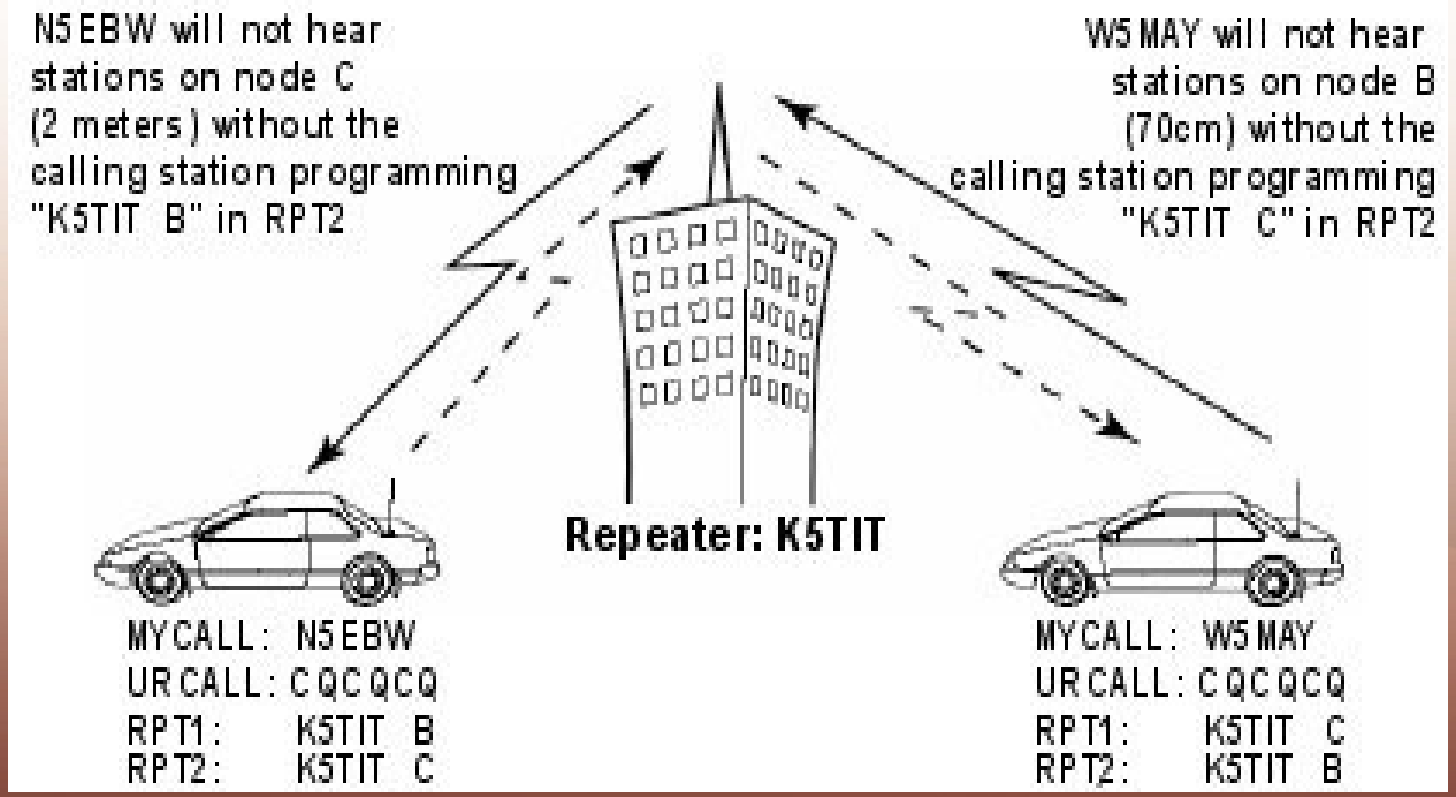
Example: Cross-band Repeater Operation

Example:
MYCALL: **N5EBW**
URCALL: **CQCQCQ**
RPT1: **K5TIT B**
RPT2: **K5TIT C**



Example: Cross-band Repeater Operation

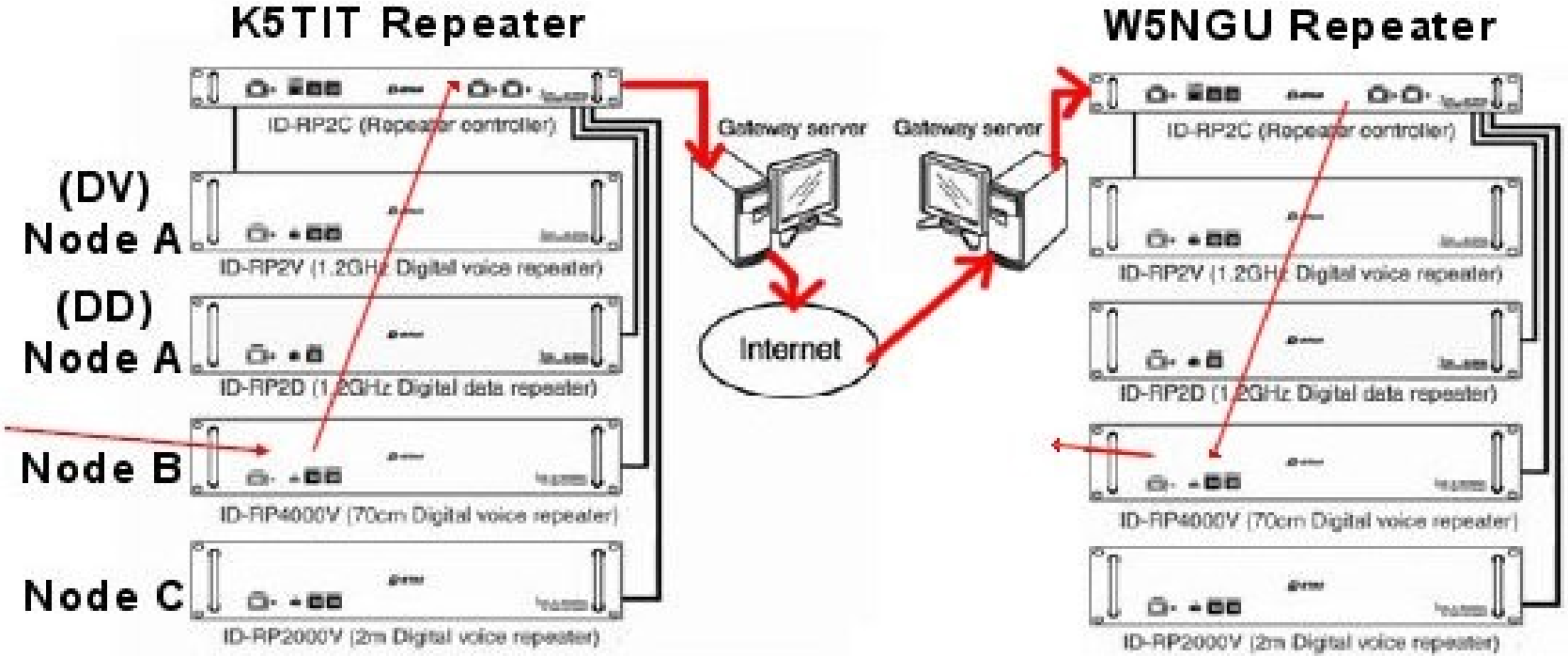
All stations can hear N5EBW on node B (70 cm), and node C (2 meters).
All stations can hear W5MAY on node C (2 meters) and node B (70cm).



D-Star Gateway Operation

- RPT1 & RPT2 must be loaded with the proper call signs for the Gateway to work.
- A URCALL either the distant Repeater and its band module or an individuals call sign must be entered.
- Make sure you are in a good coverage area of your local Repeater.
- Please drag your feet between transmissions
- MUST Be Registered on a gateway somewhere on the D-Star network in order to utilize the gateway features.

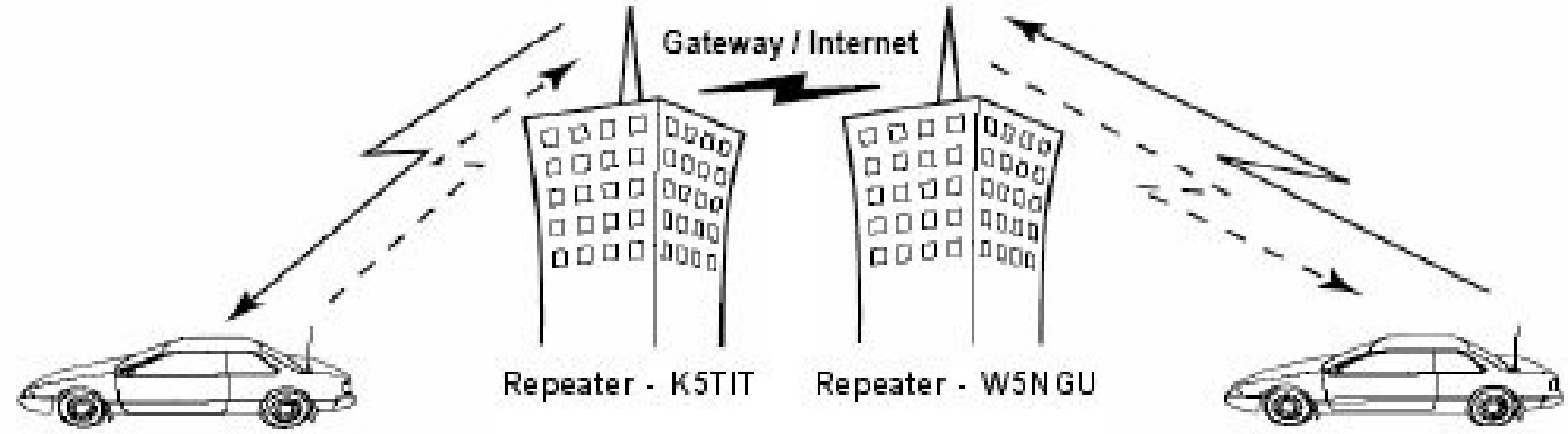
Example: Gateway Operation



MYCALL: N5EBW
URCALL: /W5NGU B
RPT1: K5TIT B
RPT2: K5TIT G

Example: Callsign Routed Gateway Operation

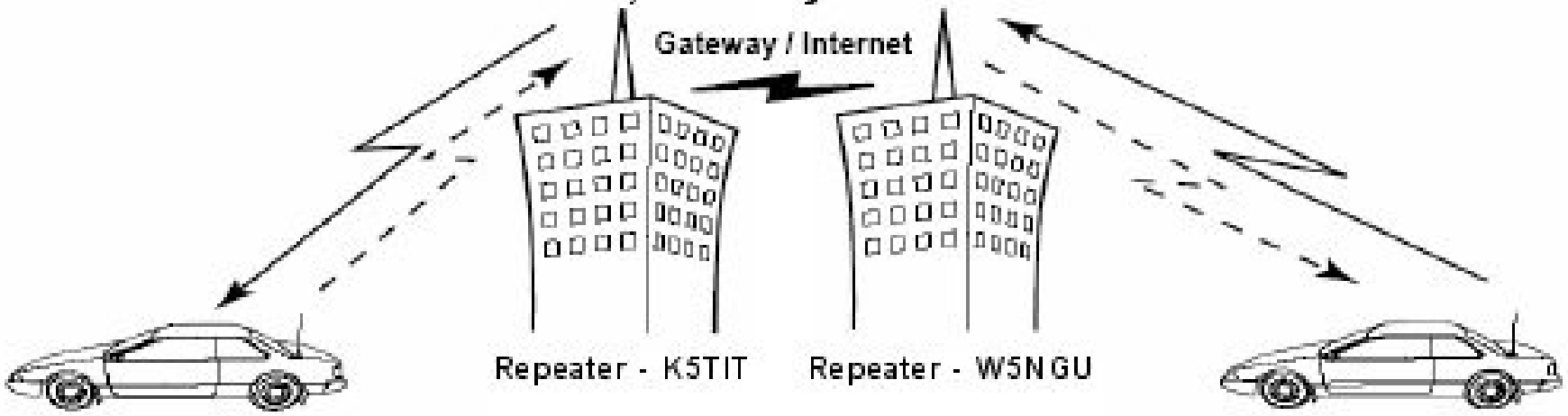
Using the call sign of the desired party to be reached in the "UrCall" field automatically routes to wherever the radio was last heard.



Example: "Zone Call" Gateway Operation

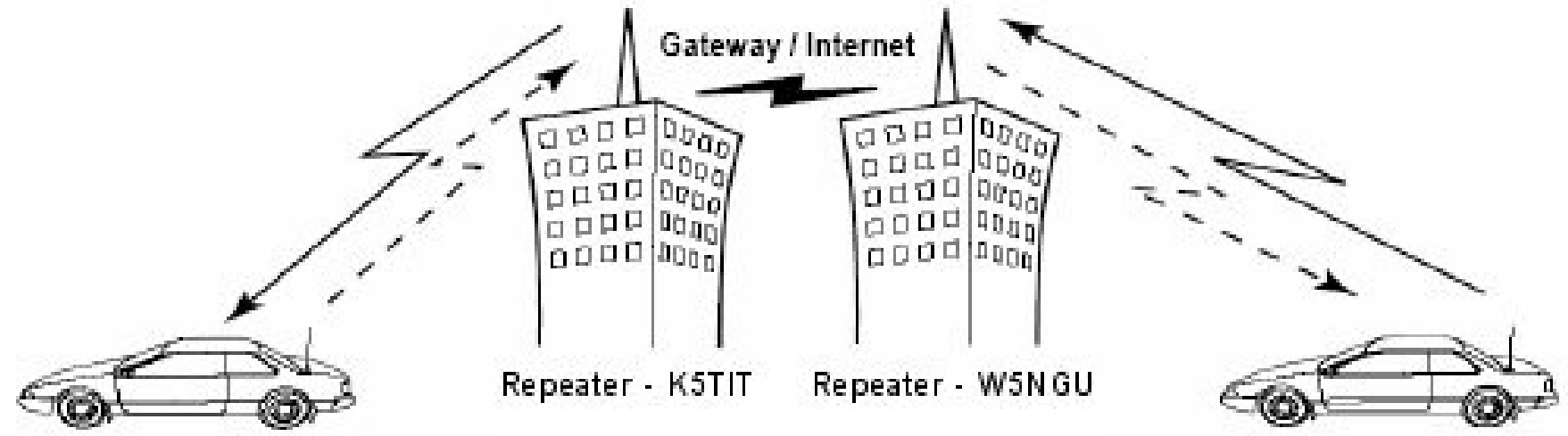
You can route communications to another repeater node directly by prefixing the repeater and node with a slash in the URCALL field. In D-Star, we refer to this as a "zone call".

NOTE: Remember, the entry has to total 8 characters!



Example: Improper Config, Gateway Operation

In this example, KE5BRT would hear N5EBW's transmission, but N5EBW would not hear KE5BRT since no gateway is selected.



Limitations of Gateway Operation

- If a node is not specified after the repeater callsign in URCALL, the traffic will route to node A (1.2 GHz) by default. Pay attention to where you are routing traffic.
- Currently, you can only route traffic to one module in the remote repeater system during gateway operation.
- Both repeater systems, the local and destination, MUST have working gateways.
- All users making gateway calls must be registered on a gateway. (A gateway, not necessarily the one locally they are using)

D-Star Multicast Operation

- A Multicast Group name, of up to seven characters, is created in the Gateway software, by the System Admin.
- The Users uses that Name in the URCALL field to route traffic to up to 10 other Repeaters.
- Coordination between the Repeaters Sysops and users is Key for this to work.

D-Star Add Ons: D-Plus

D-Plus is an add on to D-Star Gateway servers that allows lots of features not found in the native Gateway 2.0 software. Some of the features implemented are echo tests, gateway linking capability, and reflector linking, all of which can be done from a user's D-Star radio.

D-Plus was written by Robin Cutshaw, AA4RC, and is maintained at http://www.opendstar.org

D-Star Add Ons: D-Plus Direct Connect

- Connects one band module from two different System together.
- The users just need to have CQCQCQ in their Urcall field and have RPT1 & RPT2 loaded properly. (Assuming someone has already linked two gateways)
- Seems to work very well between two Repeaters with low activity.

D-Star Add Ons: D-Plus Reflector Connect

- The use of a Reflector allows MANY Repeaters to be connected at the same time.
- Users need to have CQCQCQ in their URCALL field and the RPT1 & RPT2 loaded properly. (This is assuming someone has linked them already).
- Important to understand the scope of your transmissions.

D-Star Add Ons:
D-Plus Reflector Connect

All Reflectors have an A,B,C node

REF001 United States
REF002 United States
REF003 Australia
REF004 United States
REF005 United Kingdom
REF006 United Kingdom

D-Star Add Ons: D-PRS

D-PRS is the act of converting Icom GPS information generated by D-STAR radios in GPS mode into TNC2 fomatted APRS strings.

It is important to note that D-PRS is not a protocol but a conversion specification.

The D-PRS conversion specification was developed by Pete Loveall, AE5PL, and more information can be found at:
http://www.aprs-is.net/DPRS.aspx

D-Star
D-PRS Operation

- The GPS feature in the IC-2820H and IC-92AD allows you to send your GPS position when you are in transmit mode at the same time you are talking.
- On busy Systems please watch your beaconing. (Beaconing is actually discouraged on any system)
- Is your home location MOVING??

D-Star Chat Mode Operation

- You can use a Chat program (IE: D-RATS, D-Chat, etc.) to send text messages while you are talking or just by themselves.
- Text Chat conversations, by themselves, using a Repeater, cause the Repeater to be busy.
- When the Repeater has heavy activity please be careful.

D-Star Websites/Resources

D-StarUsers.org:

http://www.d-starusers.org

(Applications page, forums, repeater directory, callsign last heard display, etc.)

Texas Interconnect Team:

http://www.k5tit.org

(Club Website for Dallas Area D-Star Repeater, K5TIT. Help Forums, presentation repository, and more)

Icom America:

http://www.icomamerica.com

(D-Star Standard information, help forum)

D-Star Websites/Resources

OpenDstar.org:

http://www.opendstar.org

(D-Plus, DV Dongle, Dshark, etc.)

D-RATS:

http://d-rats.danplanet.com

(A D-STAR communication tool developed with EMCOMM in mind)

D*Chat:

http://nj6n.com/dstar/dstar_chat.html

(D-Star keyboard to keyboard chat application for Windows by NJ6N)

Questions?

Thank You!

Welcome to the Fun!

This presentation is located at:
http://dstar.n5ebw.com/presentations/Hamcom2008.ppt