National Capital Region D-Star Association

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D-Star Ideas

TAPR DCC 2011

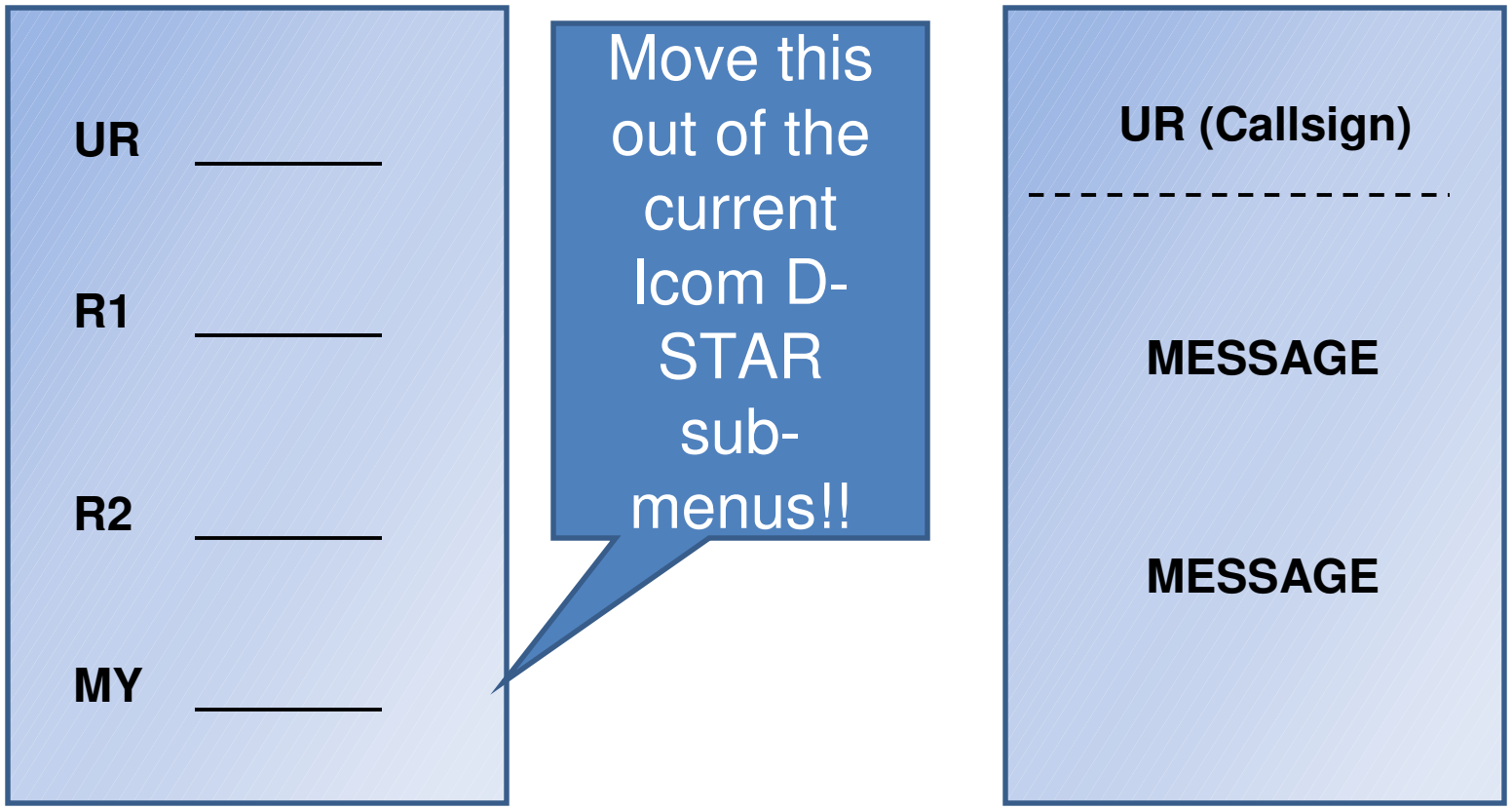
September 17, 2011

WA4KFZ

Food for Thought…

- FEC on data streams – just like the AMBE-2020 vocoder does for voice
- Provide a data-only mode
  - 4800bps stream with FEC for an effective throughput of approx. 2400bps
- Build radios equipped with a D-STAR-only display mode

Food for Thought…



Food for Thought…

- Establish ‘beacon stations’ to automatically load radios with local repeater/hotspot data without using printed directories or internet-based listings
  - Allow radios to ‘discover’ their nearest repeater/hotspot
- Let repeaters broadcast their call signs to automatically populate RPT1/2 during scanning
  - Transmit during non-traffic periods
  - Compliment to standard repeater ID functionality

Food for Thought…

- Have a D-STAR bit error rate test mode for setting up repeaters, gateways, and user radios
  - Ideally would be at the 4800bps stream level vs. inside the voice/data frames
- Have a manufacturer other than Icom build an embedded D-Star radio module for experimenters
- Add FEC to ID-1 data modes instead of relying solely on Ethernet CRC to request retransmission

Food for Thought…

- Use DSP to create multi-channel, in-band repeaters operating within the same duplexer passbands
  - would allow approx. double the 2m capacity available today
- Have a ‘high fidelity’ audio mode by using data frames for voice-only applications
  - AMBE chip can support higher channel rates for improved audio fidelity, while still employing internal FEC
  - Consider using Codec2 as an alternate vocoder

Food for Thought…

- Have a manufacturer build a DV Adapter with display
  - Revamp what Satoshi originally did
  - Target 9600 bps compatible analog radios
  - It is unreasonable to think that hams are going to abandon all of their analog radios overnight!
- In urban areas, allow clusters of hotspots to perform cell-like handover functionality
  - ‘distributed repeater’ concept since its becoming more difficult to find decent repeater locations on top of mountains, buildings, etc.
  - Commercial services now own the ‘premium’ sites

Food for Thought…

- Experiment with putting D-STAR adapter at Echolink sites to digitize audio streams of ‘sufficient quality ‘
  - Use the SNR of the PL tone to determine if the signal is good enough to support digital audio
  - Possibly have an advanced PL mode or burst transmission to provide callsign routing information (i.e., use the PL tone spectrum as a data subchannel)
  - Perform pseudo-callsign routing using DCS squelch or the advance PL mode

Food for Thought…

- Push for state/federal grants to provide internet connectivity for gateway-enabled repeaters
  - Bandwidth of D-STAR is low enough to be shared with other EMCOMM users