Network Enhancements Implemented in the CT/NJ/NY Region

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The problems of the prolifferation of flood routings, widespread mesh forwarding and an ever-expanding system census had combined to reach a point where the PBBS network in the CT/NJ/NY tri-state region was in dire need of an overhaul. This paper details the approaches taken by the majority of systems in the region to address these problems.

1. Introduction

As part of the June 31992 ARRL Hudson Division Convention, a forum was held for regional packet radio System Operators (sysops) and Network Administrators. Our aim was to begin dialog among those operating packet systems in the region, with the goal of improving the packet environment in the region for all concerned. (The systems "talked" with each other, but not the -people behind the systems... Until this meeting.)

SWe this June meeting, Sysops and Network Managers in the tri-state region have continued meeting and planing. This work has developed a cooperative system for the distribution of bulletins. The solution developed combines a consensus on which distribution routes will be supported, a list of suggested "To:" fields which users are encourged to use, cellular hub and spokes bulletin distribution topology, and time

reserved exclusively for user access to **PBBSs** and other network services.

2. Forwarding 'Quiet Hours'

The initial decision reached by the group was to prohibit BBS-to--BBS forwarding between 1800 and 2400 local, daily, on all paths which may also carry real-time user data. This provides users with six hours each day, during "prime **time**," when their enjoyment of the packet network is not impaired by contending with automated stations.

3. Hub and Spokes Forwarding Topology

At the group's mid-July meeting, a plan to reduce bandwidth consumption by bulletin distribution was formulated. Bulletin distribution now follows a cellularized, hub/spoke or server/client design.

Many of the systems in the region use a series of regional backbone nodes maintained as part of the **Eastnet** Backbone Network (EBN). Others are served by the ROSE X.25 Packet Network maintained by the Radio Amateur Telecommunications Society (RATS).

Those systems using the EBN regional nodes receive their bulletins from a single, designated hub/server within their "cell." The cells were defined based upon the existing backbone EBN nodes. The cells currently resolve to Connecticut, Long Island, New York City, Downstate New York, Northern New Jersey and Central New Jersey. Cell size and definitions may change, over time, as a function of network traffic and topology.

The RATS ROSE Network has bidirectional connectivity with the two New Jersey EBN-based cells and a **bi-directional** feed to the cellularized (non-EBN) network in Southern New Jersey. Bulletin distribution for systems on this network also follows the client/server model.

This design has freed the bandwidth previously occupied (wasted!) by everyone trying to forward everything to everyone else.

In addition, this dual-network topology provides redundancy and robustness often lacking in **Amateur** Packet networks.

4. Supported Flood Distributions

The following is the list of flood distributions (@-field routes) the region has decided to support for forwarding:

Bulletin Flood Routes	
Route	**Description and Useage**
xxBBS	Distribution to areas other than a state (ARRL sections, etc.)
xxNET	State–wide routing, using 2–letter state designation xx
AMSAT	Amateur satellite (AMSAT) bulletins
ARESCT	Conecticut Amateur Radio Emergency Service bulletins
ARL	ARRL bulletins (@ARRL is not to be distributed)
ATLDIV	ARRL Atlantic Division distribution
CTBBS	Connecticut ARRL Section distribution (same as CTNET)
CTNET	State of Connecticut distribution (same as CT ARRL Section, CTBBS)
ENYBBS	ARRL ENY Section distribution
EPABBS	ARRL EPA Section distribution
HUDSON	ARRL Hudson Division distribution
LOCAL	Non–flood bulletin, for ONE LOCAL PBBS ONLY
MGTBBS	Administrative distribution for NJ/NY/CT Ad-Hoc Managed Network
NASA	Material for NASA sources
NEBBS	New England regional distribution (CT, MA, **ME**, NH, RI and VT)
NEWHDR	New Headers parsed by the N2MH program
NJEOC	NJ State Office of Emergency Management "Official" bulletins
NJNET	NJ state distribution
NJPSC	NJ Public Service Communications (includes ARES)
NLIBBS	ARRL NLI Section distribution
NNJBBS	ARRL NNJ Section distribution
NYNET	State of New York distribution
PANET	/State of Pennsylvania distribution
SNJBBS	ARRL SNJ Section distribution
TRIBBS	Tri–State (CT, NY and NJ) regional distribution
USBBS	United States distribution (replaces ALLUS, ALLUSA, USABBS, USA)
WNYBBS	ARRL WNY Section distribution
WW	World–Wide distribution (replaces ALLBBS, WWW)

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5. Suggested "To:" Fields

The following is a list of "To:" fields the group decided to distribute as a partial list of suggestions. The entries for the various PBBS software were originaly proposed as flood routes, but were recast as "To:" values based on explicit statements and examples from several PBBS software authors.

Suggested "To:" Field Useage	
"To:"	**Useage**
ALL	Should only be used if nothing else applies!
AMSAT	AMSAT-specific space/satellite information
BEACON	Beacon lists and information
CBBS	Program-related distribution: CBBS
CLASS	Amateur Radio and other class announcements
DX	DX related information and questions
EVENT	Special events, on-air or not, including hamfests
EXAM	VE Exam session announcements
FBB	Program-related distribution: FBB
HELP	Requests for help which don't fit into other categories
ICOM	Icom product-specific postings
KEPS	Keplerian elements (satellite tracking)
KENWD	Kenwwod product-specific postings
MBLBBS	Program-related distribution: MBL
MSYS	Program-related distribution: MSYS
PRMBS	Program-related distribution: ROSErver/PRMBS
PROP	Propagation reports
QSL	QSL information: routes, managers, etc.
REBBS	Program-related distribution: AA4RE
RLIBBS	Program-related distribution: RLI
SALE	Items for sale (Amateur Radio, of course!)
SWAP	Items offered for swap
SWL	Short Wave Listening
SYSOP	For System Operators (usually type "P")
USERS	Postings for System or Network users
WANT	Items wanted
YAESU	Yaesu product-specific postings

6. Conclusion

The plan outlined above, combined with ongoing efforts in user education by the participating SYSOPs, has improved packet operation throughout this region. While not all of these steps may be as useful in other areas of the country, they may serve as a basis for development of a broad based (dare we hope world wide?) consensus. We also urge the adoption. of dedicated user time, for without users our systems are not needed.

7. Contacting The Authors

The authors of this paper, along with the sysops of all systems participating in the Ad-Hoc Tri-State Managed Packet Group, can be contacted by sending (using the "SP" command) a single packet message addressed to:

RMAIL@KB4CYC.NJ.USA

and containing as the first line of text the following:

To: rmail@kb4cyc.nj.usa, sysop@mgtbbs

This Remote MAIL message will be processed automatically at the KB4CYC PBBS and become a. flood bulletin to all the participating MGTBBS systems. (See the paper, "RMAILER: A Remote Ad Hoc Mailing List Expander," elsewhere in these procedings for a complete explanation of Remote MAIL.)

Alternatively, as each of the authors operates a PBBS, they may be reached via packet radio using the following addresses:

> kb4cyc@kb4cyc.nj.usa
> kb7uv@kb7uv.#nli.ny.usa
> kb2ear@kb2ear.nj.usa