

www.14567.org News Archive

8/5/13: Icom is having a promotion on D-Star repeater modules. We bought a DD mode unit for the Twin Cities. It is likely the Little Falls group will buy a controller module for St Cloud using their current 2 meter deck.

6/25/13: There is some excitement by a few hams (RM-11699) for supporting encryption on our frequencies but I have never had an MD or EMS leader ask us for it. We can support it in life and death situations but are formally opposing the petition.

6/13/13: Reading the coverage of Boston in the current QST, somebody needs to remind us where in FCC Part 97 it states Amateur Radio has to play a secondary, backup role in emergency communications at volunteer events.

4/26/13: We saw some serious rain/snow fade on our 5G OLSR link in the recent storms. The idea of point to point high gain dishes seems to be more in line with reality here.

3/22/13: We are designating Reflector 53B for general use and the US Coast Guard Auxiliary (Nationwide)

2/18/13: Reflector 53 is happy in the cloud as a VPS - Virtual Private Server. Cheap, \$18/mo. no hardware to worry about. All our regional systems are tied together as of today. So are are now in full production status.

1/20/13: More 5G gear has been ordered for the OLSR mesh backbone. KE0NA demonstrated D-Rats to us.

12/28/12: We have our second 5G mesh site up- MPLS-S - which now talks to the TwinsLAN server @26megabits. We also ordered a D-Star controller for a new South Metro club/site TBD.

11/2/12: Ray Novak from Icom is in town the weekend of the 10th at Radio City and we will have a meet and greet as well.

10/21/12: We have developed a plan to add 5G mesh forwarding nodes to existing packet sites without bothering the packet setup. We will use MFJ power injectors and put the Ubiquiti 5G Bullet unit on the same antenna support, feeding DC power up the coax. The first one will be nicknamed "Piccadilly" after the busy London road junction.

8/22/12: The Fargo machine (KD0SWQ for 444.000) has arrived in Fargo :)

8/10/12: Our priority list: 1. Fargo 2. SW Metro New Site 3. Wash Co. 4. South upgrade /Mesh #2 5. Continued Statewide buildout

6/22/12: We had a good discussion about EMS rig dispatching with our top EMS leaders in the area. The idea is calling 911 works well - but needs a bit of oversight in overload situations when the system is overwhelmed, if you want to concentrate rigs ahead of time, and when you have out of town rigs participating. There have been documented cases of out of town rig drivers getting lost or going to the wrong hospital who may not be prepared for the type of patient/case you have.

6/21/12: We do have a new D-Star system in Duluth, site of the flooding. This can be used to link direct to the State EOC, which also has access to the gateway systems in the Twin Cities.

4/7/12: We have deployed six sets of eight identical laptops to be matched with ID-1 radios as major event/EOC "packages"- these with IP phone systems and routers can be used to set up highly scalable disaster public service centers as directed by our served agencies. KOZMR was a big help here.

3/18/12: Little Falls D-Star is up- WOREA B 444.000 - that is Reuben's old frequency. He was never a fan of D-Star but had a dream for a regional Internet linked amateur radio network.

2/18/12: We have an article about best practices for modern emergency medical response in the Winter 2012 issue of CQ VHF Magazine, pgs. 16-20.

2/7/12: D-Star UHF digital voice /data Repeaters for Fargo, Duluth and Little Falls have arrived and are being installed.

2/6/12: Anoka has their system up on the gateway :)

1/22/11: Icom America is supporting our statewide buildout (Duluth, Little Falls, Fargo) of D-Star(r)of gateway systems. This will be used for the Red River Flooding (US Coast Guard Auxiliary) and Central Minnesota Hospital Project and even MS-150 race. The only issue - each site requires dedicated Internet at around \$30/month, and localized support. Packet stations were install and forget.

12/31/11: This recent talk by the head of Amateur Radio/Emergency Planning for the FCC is fascinating. The best part is the Q&A at the end. Note the reference to personally installing D-Star stacks in his local county.

http://arvideonews.com/dcc2011/2011_DCC_Catastrophic_Communications.html

12/28/11: KC0WLB B 444.000 + is operational on USROOT. We ordered the DSL for our winter site and are deciding which of our high end sites is the permanent home for this system.

12/10/11: Icom shipped us an RP-2C / RP-4000V package and instructions to get it up on the Trust Server right away. That took a few days ... Now we can see what it can do.

11/19/11: We got the HSMM-MESH (tm) OLSR code working. In our lab it supports our main trivnetdb application. Next we want to test the IP phones. This is very cool stuff and a big day for us. We are going to build at least one go-kit with six routers, a thin client phone system/database and D-Star ID-1 uplink. The idea is you get to a disaster scene and you can just drop off these routers and plug in your phones and laptops and then get connected outside to the backbone. No long wires are needed. Note you cannot have a "user station" laptop connect to the mesh router itself wirelessly.

11/17/11: We ordered a pair of Nanobridge 5-25 radios with the large dishes and 1000 feet of the outdoor rated Toughcable Cat 5 and matching grounded connectors.

11/15/11: We have a new working group meeting location (3rd Saturday- 10:30 AM- Macalester Plymouth United Church) and re-flashed 18 Linksys WRT-54GL 1.1 routers with the HSMM-MESH DD-WRT + Mesh.

9/20/11: All the Ubiquiti gear was delivered to Doug NONAS for the TwinsLAN 2.0 project. We are going to have an interesting Marathon- we will need to run three D-Star uplinks out of the data trailer to three of our repeaters as we have some thin clients down, which provide DNAT.

9/11/11: The remarkable news reports of the F16 pilots who went into the air basically unarmed on 9/11/01 remind us we were unprepared back then but are now. A lot has been accomplished, particularly in the area of national first responder training and interoperability. Interestingly, ham radio was ready for 9/11, in a fairly primitive state, but has not evolved much.

9/10/11: The TWINSLAN 2.0 network project was launched today. With funding from Dan Skripka, they ordered the 801.11a/n gear. The idea is to establish a area wide mesh backbone running TCP/IP on 5Ghz. Then our various user access points (packet, D-Star etc) can attached to the backbone. Packet is too slow to be an effective choice here. We ordered Ubiquiti Bullet M5HP and Ubiquiti NanoStation M5 NSM5 5GHz 2x2 MIMO units. These will be re-flashed to OpenWRT and mesh. The (HSMM era) debate on encryption has been re-opened- our position - as a long time provider of large scale emergency medical communications - routine encryption is not allowed or needed on Part 97. But, if a written request is handed to us by a real served agency under life and death conditions- per FCC 97 - we can switch on the crypto to protect patient safety per HIPAA.

9/3/2011: Concept of the day: "Mass Calling Event" - we don't have these.

8/15/11: We are staffing up for the Medtronic Twin Cities Marathon on Sunday, 10/2/11. There is a volunteer web site, and even a job description for us- way at the bottom- Amateur Radio Communications. There are four teams- 154 volunteer slots- Net 1(Mpls), Net 2 (Mpls/St Paul), Net 3 (St Paul), and Net 4/Data Team (St Paul).

<http://volunteers.marathonguide.com/volunteerregistration/twincitiesmarathon.cfm>

8/14/2011: The September Emergency Communications issue of QST was underwhelming. I think we have seen enough primitive Go-Kits and the force fitting of proprietary, obsolete technology (Pactor/HF) onto every problem seems contrary to FCC Part 97 where the preamble uses the words "state of the radio art"

8/1/2011: If you have not taken at least the FEMA IS-700a course, now is the time. There are many references to exactly what we are doing here. Marathons, cache radios, span of control and backup radio plans are called out.

7/3/11: We are proud to announce we have established and tested three large, self managing communications teams in our area who have proven field experience in organizing large public service medical events. We have on purpose stepped out of the hands-on role for several events to encourage new leadership to step up.

6/21/11: The Bakken Radio Club (Anoka, MN) has finished the 2 meter and 1.2 DV/DD additions to their very nice D-Star repeater system. They are trying to get the Trust Server going and are a bit side tracked on an emergency response trailer project so their second site is not on the air yet.

6/20/11: Second hand reports suggest that our enthusiasm for creating formal ICS paperwork may not be fully shared by our served agencies any more. I think we need to be helpful in this work, but in general, if we are helping say a County, none of our folks (ham radio volunteers) would be in the

document (like a Form 205) in an official role. So a more "background" rather than "foreground" approach seems best. In our events, we are part of the volunteer event medical staff, and will develop an event medical communications plan (like a draft ICS 202) but will defer to the relevant government agencies in all cases for formal published ICS materials. This is one of our bits of magic we have that no one can take away or match - in a crisis, we (ham operators) will always, in the form of "muscle memory" establish a "net control" and then a formal communications structure in a crisis. This is what Incident Command is trying to do in the last few years, but we have been doing it since the invention of radio.

6/19/11: We heard there was a request to move electronic medical record files by radio during the 2011 Minneapolis tornado response. We are happy to support this, under the following general guidelines:

1. Needs to be a written request from a served agency- back of an envelope is fine.
2. The FCC Part 97 test for crypto use should of course be passed- no other way to move the data, emergency, life and death etc.
3. We would prefer medical records to be encrypted by the served agency as needed and to not ask us to store them - what crypto software to use is a good question - and how distribute keys.
4. If we are running a non-Part 97 network, i.e. mesh on 5G Part 15 then #2 can be bypassed.

This is an issue with modern electronic medical records- at our events we use paper charts- which can be slipped under the stretcher strap when you transport a patient - but the world is moving to electronic records. It might be easier to use a USB stick and move the file that way.

6/17/11: We found a bug in the newest AX.25 Linux stack at STPONE and took the packet side back offline. We also rebooted MNSTP, and found out the packet is on COM2 on the Linux box- no big deal.

6/13/11: STPONE is back online. It was the primary power supply- we have had good luck with 11.5 amp Meanwell open frame switchers we get from Radio City for packet sites, and the SEC-1223 units we put in the D-Star node sites. Packet is also back there, at reduced power.

5/29/11: We got a note from the US Coast Guard Auxiliary. They have people all over the area, providing flood relief lately. For the Red River operation, they are asking about D-Star. Our advice is to get some sites lined up (City water tanks are ideal), and think about putting in packet right away. D-Star repeaters linked to the Trust Servers are a good idea after that. At \$3000 each or so, getting a large number of full fledged repeaters plus the Internet needed could be costly. The idea is to get started, and see if a system provides value.

5/24/11: The new to us Neoware CA10 thin clients (\$9) are great. They run on 12V at less than 3 amps. The idea is we can load up Slackware, the newest Trivnet database code and the back end to the repeaters (DNAT, mini web site etc.) and the new failover code from Max.

5/20/11: TWINSLAN wants to develop a Part 97 radio microwave linked computer network in our area. One thing to add on is IPV6. D-Star DD Mode, which uses Ethernet only, is for user access from trucks, etc. and should not care about IPV6 vs IPV4. This might be good to test. IPV6 may be more challenging to hack.

5/15/11: Eight Neoware CA10 thin clients (\$9 each) have been shipped to us. These are five years newer than the current deployed units and do not have power supplies, which are a suspected failure mode.

5/14/11: Another new, 600 foot repeater site has been made available. One idea is to buy a new D-Star controller (\$1400) and use parts we have to develop another site. TWINSLAN needs an R&D site anyhow- as the current repeater fleet (5) were deployed in an operating, high availability public service network and are not available for hardware development purposes any more. The need for hands-on experimentation at the workbench level is critical now.

5/8/11: We need a work party meeting or two and a site for these. So far, an idea from Max is to develop fail-over on Linux thin clients at our repeater sites. The idea is you have two, and each checks on the other. If one goes down, (stops responding to pings) the other takes over. We have several down right now and need to replace them.

5/7/11: We have a new source of revenue for our operation- rental of our modest fleet of donated surplus laptops. These are not valuable but go to a used children's clothing sale twice a year for a point of sale/barcode application. The idea is we can now finance keeping those machines up to date on batteries and expand the number of laptops slightly. Two go-kits of eight stored in separate locations seems about right. More clubs need to look at a source of income, as donations are not plentiful, as radio group members do not depend on repeaters for routine mobile communications any more.

4/21/11: Dan Skripka has provided 2x \$500 Public Health grants for our network. Linking sites, emergency power and newer thin client hardware are on the list. Also a D-Star controller for a repeater for TwinsLAN would be helpful.

4/2/2011: We are getting set for event season. We also need to replace our Linux thin client fleet which are getting old. There are lots of choices. There is a lot of study on linking going on. The 5G Ubiquity gear looks ideal. The 2.4g spectrum, even in rural areas, is getting very congested.

Minnesota D-Star Emergency Data Network News

1/13/2011: We have a request for a DV 2M/440 machine in St. Joseph (NW) towards St. Cloud. MNWASH is ready to be

installed here. Thanks Max. Max also fixed our thin client software issue.

12/18/2010: With the worldwide supply of IPV4 addresses running out, it might be time for Amateur Radio to move to IPV6,

and possibly turn our 44/8 block (16 million addresses) back in to the pool. We are using few of those, and Stanford

University turned their large block in back in 2000. This could be good PR for us, and would demonstrate our sense of public

service and our committment to new technology in one statement.

12/17/2010: The Anoka/Bakken group is reported to be ready to put their DD mode capability on the air, and have also a

second repeater stack and connections to the Internet D-Star Trust Server ready to go. They are also waiting for a 2 meter

allocation for a DV repeater.

12/16/2010: We got a note from Rochester, MN. They have a 440 D-Star machine in and around the Mayo Clinic and want to

support NDMS activities. We are asking KCOKEP to work with them on NDMS. We would like to build a full time RF data

link Twin Cities to Rochester. It would likely cost a few thousand dollars.

12/14/2010: We have standardized on Ubiquiti hardware for high speed wireless Ethernet links. We think TWINSLAN needs

to build a network in our area/state to link any repeaters and EOCs as needed. <http://www.ubnt.com/>

11/21/2010: Our newest D-Star RP-1D is here, #5. 1251.500 for DD Mode on a nice 600 foot site in Washington County.

We even got a check from Dan Skripka's (KE8TX) /Skywarn donation fund. Thanks Dan.

11/20/2010: We sent a letter to QST suggesting the 1914 era ARRL RADIOGRAM form is obsolete. An interview with any

non-Ham emergency officials would confirm this. The replacement is the ICS-213.

11/7/2010: We got word there is a used first generation Icom RP-1D repeater available, which matches the four plus we

already have. So we bought it. It will be here next week, and will go on our new Washington County (East Metro) site. This

shifts the priority list around. So now:

#1 A 440 voice/data module for Ramsey County aka our Downtown St. Paul site- STPONE. This will serve the Twin Cities

Marathon, State of MN EOC, MN Health Department EOC and Ramsey County Emergency Management as well as St Paul

Fire. We need \$1400. The antenna and cabinet are installed.

11/6/2010: A D-Star User's Group meeting will be held at Radio City- Mounds View, MN @11:30 AM Saturday

11/20/2010.

10/16/2010: We have become aware of a small amount of new grant/donation money, say \$500. I would like to propose the

following, to be started on 11/1.

1. Gather all our spare donations, grants, and leftover funds and buy a D-Star RP-2C controller. These are \$1459.00

2. Use this for R&D and Icom gateway testing etc. in our lab

3. We can make it an instant real repeater with one of the spare 1.2 voice modules (needs a duplexer-Alan?) and maybe test

low speed data too? We have a fleet of 10+ ID-1s right now in area EOCs and rigs

4. Test the new analog repeater (440 FM Kenwood) to D-Star project just announced online

5. When this is running, we can add 440 voice to the STPONE site -need only a duplexer but it must be tested as site access is

not easy the idea is to provide more advanced services to the State EOC and MDH EOC

6. Raise funds for a 1.2 data module and another 440 voice module put the whole works then on our new Washington

County site

7. There is a slight chance another 1st generation repeater will appear- if so that would go to Washington County at once into

production

8. We have a long list of government sites requesting modern digital repeaters so we need to repeat this

10/6/2010: We had another great year supporting the Medtronic Twin Cities Marathon on 10/3/2010.

1. D-Star was again flawless. In 2010 we ran three concurrent 100kb data feeds via our STPONE node and just the

Hennepin truck data feed into MPLS-E. We could have run more than two ID-1 uplinks in the trailer to other repeaters. One

to many ID-1 DD mode support requires DNAT. We only needed mobile antennas @15 feet for 100% reliability into our

systems. We might cut back on finish line antenna towers for 2011.

2. A supply of iPads were provided by Apple- these worked well into the new Koozala Internet /Cloud PHR system. We did

not test these on our runner database system (trivnetdb) pre race and learned the Safari browser does cache some information.

We were provided an unclassified (no HIPAA) location only web interface that can run on D-Star.

3. We had a 100% new operator team in Family Medical Information- so our 802.11G/web browser/no training required

policy worked well- new operators + community volunteers were helping families locate their runners instantly

4. I talked to the Race Operations Director for the Los Angeles Marathon- which is much larger than ours. They also use

Amateur Radio. She said they are not using a "shadow" for her any more- we don't either, except for those key officials who

are driving.

5. This year, all event medical resources were listed on the Incident Action Plan, published by St. Paul Fire. This included the

two event rented UHF medical radio channels and the Amateur nets.

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two event rented UHF medical radio channels and the Amateur nets.

9/18/2010: We are ramping up rapidly for the 2010 October 3 Medtronic Twin Cities Marathon. We gave our input to

Matt from St Paul Fire, who is Incident Commander and writing the Incident Action Plan. Our input was primarily an ICS

205 form, with all of our frequencies and the various nets. We are again operating the multi agency dispatch center for all

finish line medical resources including mutual aid. Paul, KOLAV will again hold the Emergency Phone for the event. This is

good practice for a "real" MCI, as you can send a volunteer medical team (Red Cross, Bike Medics, EMT student) with an

AED (but not a scarce full EMS rig or MD) to every suspected medical incident/ down runner and then they can decide if

higher level support is needed. This way everyone gets evaluated, there is quick response to all cases and we save our rigs for

transports of serious cases and heart conditions that need the full facilities of the rigs. We have lots of volunteer MDs as well

for evaluation of cases. Triage is a big part of MCI- you need to decide who needs (usually limited) full medical facilities.

We need more radio and non radio volunteers out on the course (Net 3) and in Family Medical Information at the finish line

(State Capitol grounds- Lot H). We did get a request for IP phones between Family Medical and Main Medical for semi

private conversations. These can be run point to point on an IP /802.11G network and encrypted.

8/16/2010: We had a meeting with a new partner for our runner Personal Health Record project. We were well along with

Microsoft /Healthy Circles, but they have a lot of big corporate projects and we needed more day to day support. So our new

development partner is Ashish Gadnes from KOOZALA. He is building a data repository and then a front end for runners to

enter their medical and running history (last run, best time, etc). We will have a physician portal for data query race day, and

they are even building a ham radio interface with runner location only information that is non-HIPAA. This can be accessed

on D-Star. Apple is providing iPads on race day for the doctors. It is being reported there is a trial of Physician Order Entry

on iPads at Mayo Clinic.

9/1/2010: This is some pretty cool technology- open source GSM access points. Burning Man is a little like our big running

events- a real world test bed.

<http://www.networkworld.com/news/2010/083010-open-source-voip-cell-phones-at-burning-man.html?t51hb>

8/26/2010: We have an article in the Spring 2010 issue of the TAPR Packet Status Register magazine on our network. This

was an outgrowth of some talks we have delivered at Dayton and the hard work by our software team here.

<http://www.tapr.org/psr/psr111.pdf>

7/23/10: The Medical Team Meetings are starting for the 2010 Medtronic Twin Cities Marathon. We are retaining our usual

methods and procedures, but we will be using an Incident Action Plan we will jointly develop with St. Paul Fire. Matt (St.

Paul FD) is the Incident Commander again this year. St. Paul Fire is now using IAPs for their events.

If you want to volunteer we need the support- you can go to the volunteer registration page and way at the bottom is a

category under Sunday events call "Amateur Radio Communications" that is us.

<http://www.mtcmarathon.org/volunteers/volunteerregistration.cfm>

7/22/10: We had a great experience supporting the new 7/4 Minneapolis Red White and Boom Half Marathon.

For scheduling reasons, we were asked to take over the Medical Division as well as Communications Division for this race.

This was easy to do, as we have a fabulous communications unit, the Hennepin County Mobile Corps. We also had the

SMES Mobile and their team of medics. And we knew we had a team of MDs (most with sports medicine training/interest)

who would arrive as volunteers race morning and provide the actual injured runner care and medical decision making. All the

protocols and best practices for this type of care are published in advance and well known.

We sent out our scheduling spreadsheets, wrote up our IAP, set up the medical tent as best we could and right before the start

our MDs arrived and took over the actual medical duties. Our Incident Commander, Mike from HCMC and his team

provided the overall leadership and EMS transport. It was all good. We have given up on our idea to get the frequencies and

PL/DPL data from the rented event radios to put in our equipment- it is too much trouble. We just need a few mobile radios

and we can use magnet mount antennas on the trucks.

L to R Dr Steve, Alan, Jim and Mike checking our state of the art lightning detector.

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and we can use magnet mount antennas on the trucks.

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7/2/10: Red White and Boom is Sunday, 7/4 6AM-10AM. We can still use volunteers- course radio operators. We have

changed our minds and are on 146.700 (FM) primary.

<http://www.mtcmarathon.org/Volunteers/SpringEventsVolunteerRegistration.cfm>

6/8/10: We got a call soon after the Minneapolis Marathon requesting the same team support the new Red White and Boom

1/2 Marathon on July 4th, 6:30-11AM. This will only need a small group of volunteers, and we are going to use 100%

digital voice. This is consistent with FCC Part 97, which has the words "advance the state of the radio art" - the state of the

radio art in emergency communications is 99% digital.

6/6/10: We had a great day 6/6/10 for the Minneapolis Marathon. We got set up in the early morning and the event was well

organized. Amateur Radio, using an Incident Action Plan we developed provided an Incident Command Center for

Hennepin County and the medical team. We had communicators at many mile markers and aid stations and run two

controlled nets, including the interagency medical coordination net.

6/4/10: With help from the City of Minneapolis we have developed an Incident Action Plan for the Minneapolis Marathon.

5/8/10: We currently have open commercial/government antenna sites for up to five more D-Star systems. These are about

\$3000 each. There is no current source for any funding. All new grant funding recently has been going for FM, packet radio

and HF gear.

5/7/10: We have built a revised outline plan for the Minneapolis Marathon. We will have one tactical radio net for medical

purposes, and an Amateur net for dropped out runner tracking. Both large mobile rigs will be at the finish line area. One will

be for the Incident Command and the other will handle data and D-Star uplinks. We are now scheduled to write our Incident

Action Plan next week with a team from the City of Minneapolis. Here is the volunteer sign up link:

Here is your opportunity to give back to your community and practice your emergency communication skills as well as have fun in

a beautiful part of Minneapolis. TeamOrtho.us, the sponsor of the Minneapolis Marathon is requesting Amateur Radio Support

for there "everyman-everywoman" marathon on June 6th. I think this is a great opportunity to activate the hospital based hams

to practice their emergency communications craft. Volunteers are needed from 5am to about 2:30pm Sunday June 6th, at least

one ham per mile. The course that winds a tree filled beautiful tract from downtown Mpls to Minnehaha Park and back to the

Guthrie downtown.

Amateur radio operators will support the medical teams at each mile, providing tracking of runners who drop out for inquiring

families and serving as back up medical communications. Because this is an all amateur runner event, and it is scheduled in early

June, medical teams will need to be particularly alert to runners in distress.

A radio is required, a handheld 2m radio is preferred, but we may have some loaners available.

Plans are in motion for a hands on radio training before the event to familiarize the new hams with their radios and train basic

radio net skills.

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Plans are in motion for a hands on radio training before the event to familiarize the new hams with their radios and train basic

radio net skills.

Let me know if you can make this event. Email me at n0kbd1@gmail.com or call me at 763-421-3242.

Please register at the sponsors site using the following instructions. There is a help email address there in case you have some

trouble. The website has been newly built, so there may be a few bugs. Thanks for your interest!

Steps to Register as a Certified Volunteer (Radio Communications)

1. Click on the following link

<https://2010minneapolismarathon.theregistrationsystem.com/en/registration/index/723> to be taken

to our volunteer registration site. This can also be access through our website under volunteering at <http://teamortho.us/>

Volunteer-Info/

2. Click on the Register Now

3. Enter your email address and click on the No I am a new user

4. Under New Registration select #3 Medical and Other Certified Volunteers

5. Create a password

6. Enter the following access code 2255

7. Fill in all the information as necessary

8. Under volunteering specific information you will be given the chance to list your specific certifications in terms of Radio

Communication. Please use this box to enter your specific call sign

9. After all information is complete click on Register

10. Enter you initials and accept our Terms and Conditions Waiver for Volunteering

11. Next you will see a list of opportunities. Under the Run Course Opportunities you will see Amateur Radio

Communications Group click on the arrow right in front of that and a box will be displayed. Click on the box to select that as

your volunteer opportunity.

12. Underneath that opportunity will be a list of other opportunities available to you. These opportunities are for the previous

day, June 5th at our packet pick up event. If you are interested feel free to volunteer for one of those opportunities as well.

13. Scroll down to the bottom after you have selected your opportunities to exit to the next page.

14. You will be given three items to be review. Once you have reviewed them click on each box and click I agree

15. Now you will be able to Complete Registration

16. You will be given an itinerary to review and then you will be asked to click on Complete Registration again.

If you have any questions feel free to email me at volunteer@teamortho.us. I would be glad to assist you and answer any

questions.

Thank you for volunteering with us at the Minneapolis Marathon. We look forward to working with you.

4/20/2010: We have been informed of a NDMS drill and asked for support- 10/8/2010.

4/19/2010: We will not have a hospital facility net at the Minneapolis Marathon for 2010. It was a good idea but there is too

much paperwork. So the idea is hospital employees who wish to volunteer can support the event (and the nonprofit Team

Ortho Foundation) out on the race course and at other locations just not at their (employer) hospital.

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Minneapolis Marathon in a big way. We will be providing medical communications for the event and between aid stations.

They will have medics at each aid station, so it might make sense to make their Mobile Unit the Net 1 (course) medical control

center. We are seeking amateur radio and medical and general volunteers for the event.

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is to put a stainless steel hose clamp over the metric bolt which holds the antenna base casting on the aluminum tube. In

commercial rooftop installations the antenna + casting wobbles in the wind and loosens that screw. Once the screw falls out

the entire antenna /base casting rotates, and breaks the coax ground. We have seen this failure mode several times.

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that "inefficiently used government spectrum might be made available" - hmmm one wonders who might have lightly used

UHF and up spectrum and be running a lot of old technology.

3/13/10: The used first generation D-Star repeater we thought was available has been sold- it's in Florida. We need a new

plan- such as the purchase of a controller to start a new repeater or the 440 module for STPONE.

The D-Star meeting morphed into a discussion of the new Minneapolis Marathon. This event has already been successful for

us- we have been advised to attend the FEMA 200 and 700 ICS classes online and the 300 and 400 classes in person, in order

to develop an incident action plan. One of these is being used for the MN State Fair as an example.

The plan for the Minneapolis Marathon is looking like:

1. One Amateur tactical radio net for operators in yellow shirts every mile and at aid stations. The main job is reporting

the bib numbers of runners who leave the course for use in helping families find their runners at the finish line if they don't

arrive.

2. A net at area hospitals for tracking the location of our runners (mostly a practice for the stations there)

3. A rented radio medical network for all the various agencies and volunteer groups (i.e. bike medics)

We have been requested to provide support and mentors for new hams who might be out for the first time in a real event.

3/5/10: Tomorrow (3/6/10) @12 Noon we have a D-Star User's Group meeting at Radio City in Mounds View. All are

welcome.

2/25/10: Amateur Radio has been requested to support Team Ortho and the Minneapolis Marathon by the Race Director and

Medical Director. This race will include 8000 runners in a 5K, 1/2 and full Marathon on June 6, 2010. The course starts in

the area of the Guthrie Theater and goes down to the Airport and back along the river. We will likely deploy operators in

yellow shirts every mile and at aid stations. One voice repeater and backup would be used. We will offer to set up a multi

agency dispatch and command center. We are in range of three of our high speed data systems and will try to deploy some of

the large medical vans.

<http://www.teamortho.us/>

2/21/10: There was a significant fiber optic cable cut in the Duluth, MN area 1/26- it lasted up to 12 hours.

<http://minnesota.publicradio.org/display/web/2010/02/19/duluth-communications/>

We do have a dual, redundant packet radio data link Twin Cities to Duluth on 145.01 MHz and 145.67 MHz which does not

by design use any common carrier facilities. This work was done after 9/11/01 with support from the MN Department of

Health and MN DNR. We also continue to resist strident calls to use the Internet as backup to the Internet (Internet services

were down in the area as I understand it) and would be open to upgrading any of our long haul links to 100 kilobit speeds.

Our advice for cable cut/phone outages:

1. Get on your local repeater and figure out the size of the outage.
2. Small ones can be reported locally
3. County wide and larger outages can be reported to your ARES/RACES county level emergency officials
4. Large outages should probably be reported to the State Duty Officer. You do not have to reach them via the shortest path.

A message can be relayed. We need to develop a protocol to minimize hoax messages here. One idea is a pre-arranged set of

message sequence numbers that can be delivered with the message. This would be used to authenticate the sender.

1/20/10: The folks in charge of the renamed US Military Auxiliary Radio System (MARS) seem to share our view on the

complete folly of using the Internet as a backup to the Internet. In the ARRL Letter it is reported that the document renaming

the service includes the following instruction: "MARS must also be capable of operation in "radio only" modes -- without landlines or

the Internet"

1/9/10: We are working on our Network Strategic Plan. Some highlights:

- Good, overlapping high speed data coverage inside the 494/694 ring is in place now
- Plan to add more repeaters in Washington and Dakota counties as well as down by the National Weather Service
- 440 at St Paul #1
- TwinsLAN might invest in a used Generation One repeater- we have a little funding (\$500) left over we just discovered

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- TwinsLAN might invest in a used Generation One repeater- we have a little funding (\$500) left over we just discovered
- Get a 2 meter D-Star machine up - we have a frequency pair available
- We are re-focusing on repeater controller linking, via some newer 802.11 equipment + dishes
- We might decide to only keep two core repeaters off the linked backbone - one for each side of the Metro Area
- There is strong interest by served agencies in ICS/HICS message formats which our equipment supports
- Our strategic open source mail, messaging and conferencing package, Citadel, supports a wiki, which is ideal for ad-hoc

incident support

- We got a report of a large Amateur Radio supported event that was expecting VoIP /SIP expertise, which we have

12/22/09: The new Anoka /Bakken D-Star repeater in Mounds View, MN reinforces our Statewide Network Strategic Plan.

The idea is there is an inner core network of seven powerful, non linked, non Internet D-Star DD nodes that is secure and

resistant to remote hacking and jamming. An outer ring of linked, Internet connected nodes can be used for routine operations

and is fun to chat on, work DX etc. The existing AX.25 packet network (also non Internet connected) would be used for long

haul data traffic such as Twin Cities-Duluth and Twin Cities-Fargo until we can get a technology upgrade.

12/19/09: We heard the newest argument against D-Star. The idea is that when the current generation of VHF/UHF digital

commercial equipment becomes surplus in a few years D-Star would not be compatible with it. Huh?

11/21/09: We have been offered the exclusive use of two 180 foot commercial towers - one in Hampton, south of St. Paul on

the way to Rochester, and one midway between Rochester and Mankato in Medford. These could be used for a nice packet,

D-Star or voice radio link Twin Cities/Rochester and Rochester/Mankato, which does not exist today. We are not interested in

funding any more corridor projects ourselves, as this one would involve one time costs of \$1000/tower and about \$680/

tower in annual operating costs. So if a funding/sponsorship source came forward we could project manage the installation.

10/24/09: As the long time organizers of a major all-volunteer Amateur Radio led emergency services event here in

Minnesota, we are not impressed by any of the arguments being made recently to allow paid employees to use amateur radio

services on behalf of their employers.

10/22/09: We want to congratulate Illinois Amateur Operators who have established a brand new relationship with the

Chicago Marathon. 75 Hams helped out at the 2009 race. We gave a talk in Chicago in 2008 describing how good a fit there

can be between volunteer race medical teams and volunteer radio operators. A Race Director we know says there is

widespread recognition in his community of the training and experience and dedication we bring to the events.

10/21/09: We were saddened to read of the deaths of 3 half-marathon runners at the Detroit Marathon. Detroit is about a 2000

runner Marathon not 19,000 as reported in the press.

10/4/2009: The 2009 Medtronic Twin Cities Marathon was another big success. We had more than 120 Amateur Radio

volunteers participating, supporting medical communications. The weather was good for running- in the 50s, which is ideal

for a low injury rate. We ran on 100% D-star DD mode for the data for 2009, (+ some FCC Part 15/802.11G) and had the

usual 7 concurrent FM VHF/UHF voice nets. All event medical assets were on directed nets on a range of radio services run

by trained volunteer radio operators from the Twin Cities Amateur Radio Service.

On the Shakopee Mdewakanton Sioux Community Mobile Unit we used a 1.2G NMO antenna and 70 feet of RG58 feedline

on the 50 foot tower here for D-Star 100kbps data access as our STPONE repeater site was about a mile away @270 feet.

Even in this low lying location the van could hit three of our data repeaters. This illustrates the value of a decent tower on

these types of vehicles. Rooftop only VHF/UHF radio antennas in a "lights out" or rural emergency situation have a limited

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range.

Alan in the mobile - note the 4-screen course video (3 + a TV feed in this shot) - above is the new IC-7000 and ID-1

A status screen from KD8GBLs TRIVNETDB V2.1 from the Family Medical Information Tent during the race. Zero end

user training is required. At the finish line, the 100 yard link from the laptops to the data trailer is via 802.11G (FCC part 15)

so unlicensed community volunteers can be used for data entry and query operations without control operator supervision.

Note we are not using text messaging per se - the application is based on Mysql, php and Apache

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The word "Mass" in a Mass Casualty Incident refers to scale. Our use of D-Star and 802.11G allows the rapid expansion of

capacity. Kelly Black, KB0GBJ, (yellow shirt) led the Family Medical Information Tent team in 2009. Each operator has

access to our web based runner information system, that tracks the location of dropped out or possibly injured runners to assist

family members. One of the laptops has a commercial "aircard" to access the Internet for Marathon Web Site access. We

have learned that mixing Internet and Ham Radio traffic on the same radio data network is not ideal.

We have retired AX.25 from even a backup role in the event- note the two 10 watt D-Star ID-1 uplinks in the data trailer- we

had four remote ID-1 stations coming in via two of our rooftop RP-1D "repeaters" to the server. We did test the use of

multiple laptops on a single remote ID-1 via the RP-1D. You need a dedicated LAN segment- do not share traffic with other

services- the ID-1 will attempt to put all Ethernet frames it hears on the RF link. All data traffic is monitored and supervised in

the trailer.

We are using all Cisco (mostly borrowed) commercial 802.11G/Part 15 gear. We have seen a 100% failure rate under real

outdoor and high data traffic/ambient RF conditions of consumer grade 802.11 access points and dislike low budget/low

power notebook adapters. We have a firm policy to only allow FCC Type Accepted equipment + legal power levels in our

networks.

Note the donated former microwave link trailer in the foreground is back to all microwave for data. 2x 802.11g antennas and

2x D-Star L-Band antennas are on the 65 foot tower. In the background is the antenna array for the Medical Communications

Center. Given what is at stake we have extensive redundancy in all systems.

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course emergency phone for the last four years.

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course emergency phone for the last four years.

We use our in place, redundant repeater/data nodes on race day. Having five-way sparing allows multiple concurrent failure

survivability and significant surge capacity. Our policy is to have minimum three-way redundancy.

9/20/09: From Randy Donahue WB0ZSO: We purchased a new D-Star repeater to put up in place of the analog system we have

now in Slayton, MN (146.79). It's on the air from his latest report.

News: 9/9/09: A new mobile asset is being tested for a finish line medical command and control role at the Marathon in our

organization. We are adding a D-Star ID-1, IC-7000, 802.11g links and using the impressive onboard array of 7 video

cameras, including two wireless remote cameras.

Jim from Shakopee Mdewakanton gives our team the briefing on the various systems aboard - right before we started rewiring

his vehicle.

We have spread the word that a well equipped Emergency Communications Van in Minnesota needs an ID-1 for high speed

data network support.

News: 9/7/09: We are getting ready for a final meeting to test some new software releases before the Marathon. And we are

working on our long delayed site linking project. An article has been accepted on the Mining ARC DD mode scoring

demonstration described below.

News: 9/6/09: One of the largest hospitals in our area, and a leading trauma center, HCMC, will be ordering equipment for

our network.

News: 8/31/09

Wayne Green, W2NSD, who ran the magazine "73 Amateur Radio Today" used to publish an annual report card on the American Radio

Relay League. We talked to Wayne about carrying on some of his traditions and ideas- he said we should strike out on our own. This is

one we are going to revive. The high percentage of uncontested board elections lately indicates any pressure for change needs to come

from external sources.

Our 2008 ARRL Board of Directors Report Card

FCC - A

Mr. Hollingsworth was fabulous and things seem to be off to a good start under the new leadership. The BPL battle is going well.

Historical Preservation - A

Every past word and deed has been lovingly captured in print, and from the looks of our basements, so has every piece of equipment

ever used as well.

Technology - F

There is not a word in FCC Part 97 encouraging the use of legacy operating modes- they are permitted, but right in the preamble it says

we are supposed to "advance the state of the radio art" - this problem, if not fixed, is very serious.

Emergency Communications - D

We are not named in the National Disaster Plan - why not? Are we getting in the game enough on ICS/NIMS? Is there a role for legacy

technology in modern EmComm? Are we regularly impressing served agencies with our advanced capabilities and training as FCC Part

97 says we are supposed to?

Youth CLots

of effort here, but how cool is 30-50 year old radio technology really?

Member Services - A

Given limited resources, could some energy be redirected to other areas?

Public Relations - D

The unaided awareness of the concept of Amateur Radio is falling in the general population.

News: 8/23/09: The Mining ARC used two ID-1 radios and laptops to report rowing race results from the middle of a lake to

shore. You set up static IP addresses in the same subnet (and the same mask) on two laptops, and set the radios up with dissimilar

callsigns in DD (simplex) mode. The ID1s make powerful, stable long range Ethernet bridges. The software used

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was the free NetMeeting that is packaged with Windows XP. Note the ID-1 does not have an IP address.

News: 8/13/09: At the request of the Mining ARC, we tested Microsoft NetMeeting on Windows XP Professional laptops

connected by Icom ID-1s. The microphones must be muted as the audio traffic (lots of small packets) works poorly in DD

mode (which is half duplex) and saturates the RF link. The white board and chat worked well. NetMeeting is included free

with some versions of Microsoft Windows(r) like XP Professional. The other benefit of this software is not having to train

operators, as many people use it at work. Thanks to Ed, WB0VHF for the idea and equipment.

News: 8/13/09: Those interested in volunteering for the Medtronic Twin Cities Marathon as part of our communications

operation can sign up online now. We have our own volunteer category, "Amateur Radio Communications" and should not

be part of an "organization" which they ask about.

<http://www.mtcmarathon.org/volunteers/volunteerregistration.cfm>

News: 8/1/09:

Packet & Radio Workshop Sunday, Aug 2, 2009 at 9am to 5pm:

1710 N Douglas Dr, Suite 285

Golden Valley, MN 55422

Call on 146.520 for entry or the phone number on the door.

We will be working on D-STAR and packet. We'll be willing to help on whatever other projects you have. We're getting

fairly late in the year and have a lot to get done before the Marathon in October.

If you are planning to bring a project and may need tools or RF test equipment, send me an email Friday or early Saturday and

I'll see what I can do.....

My favorite route to get to the location is Hwy 100 to the Duluth St exit. West on Duluth till it ends at Douglas Dr in front of

Honeywell.

South on Douglas a little more than a block. Enter the parking lot using the last driveway on the east side before you hit the

railroad tracks.

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railroad tracks.

The entrance door is usually locked and we are half the building away, so plan to give a call on 146.520 when you arrive.

Kelly hangs a note with the phone number in the door so you can call on your cell phone instead.

Doug.

News: 7/24/09: We are going to be adding yet another large medical/communications asset for the 2009 Medtronic Twin

Cities Marathon. We are going to integrate D-Star DD mode and our area wide network of four DD mode repeaters into the

very high end communications suite they already have installed. This rig is 84 feet long and has four treatment rooms and a

communications center.

News: 7/23/09: John Leeper came through with a number of surplus Compaq N800V laptops to supplement our rapidly aging

laptop fleet. We can now show up with a good number of decent laptops and we have now finished getting rid of all 802.11b

cards.

News: 7/21/09: A DVD of our talk from the 2008 TAPR Conference (almost identical to) Dayton 2009 is on Disk-1 of this

set:

<http://www.arvideonews.com/dcc2008/>

News: 7/11/09: There are reports of a possible sponsor for a new D-Star repeater in the direction of St. Cloud.

News: 6/22/09: We are getting ramped up for the 2009 Medtronic Twin Cities Marathon. Our team had a meeting today and

started in on our project list:

1. We have a new version of our trivnetdb database for down /injured runner tracking - 3.0. Peter is making some adjustments

and we will test it next meeting and also clone it off onto a thin client for demo and training purposes.

2. We need a lead data operator for Net 2. Kelly is moving to the Finish Line.

3. We need to work on repeater linking- one more try with the Ricochet equipment. If that does not work we are moving up

to Canopy equipment.

4. There is some interest by our Medical team in remote, tower mounted video cameras to track and locate down runners at

the finish line and in the last mile or so. These are used extensively at the Marine Corps Marathon.

5. We are working on plan to better integrate personal health records supplied by runners with the medical records in the

Medical Tent. The idea is if we see a runner in the tent, we are able to print out the medical record form pre-populated with

any available history information.

6. We are looking for a mobile command center to use for Net 1 - the Hennepin County part of the race.

News: 5/17/09: We had a chance to speak at the D-Star User's Group in Dayton. The talk is available (very similar to the one

from the DCC/TAPR show this summer) from Amateur Radio Video News www.arvideonews.com

The show was well attended. There is a lot of interest in the repeater linking feature of D-Star. More than 420 gateways exist

world wide, and there are in excess of 8000 registered gateway users not including Japan, who are running on an older

version of the gateway. We shared a booth with Ed Woodrick WA4YIH from Georgia D-Star Inc. They have an excellent

newsletter.

<http://www.dstarinfo.com/>

We talked to the Wisconsin folks, KB9MMA in particular. We were wondering what happened to the big statewide packet

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network they had. It has all moved to RMS, which is a Linux variant of the Winlink2000 program supported by the ARRL

They are still on 145.61. We have an idea to link our two statewide systems together.

<http://www.winlink.org/SysopSoftware>

Several areas are deploying large scale high speed data systems, similar to ours. These areas include New Jersey and

Houston. We are going to release our DNAT and other code in an easy to use distribution soon. We have not wanted to get

into the Linux support business.

News: 5/10/09: We are in the process of establishing friendly relations with yet another State Agency who owns some water

towers. These, as we have written before, are excellent sites for packet nodes, D-Star equipment, voice repeaters, etc. We

are practicing our "elevator pitch" - a short, pithy mission statement of why we need to put our equipment on their sites. I

think listing the agencies you are supporting and the services you provide (we are a backup for the Pandemic Flu response as

an example) is very good. You need to provide names of references, and the heads of State Agencies are a good start. You

need to be a team player in a larger effort here.

We own a commercial tower site and were approached by some nice and responsible railroad scanning enthusiasts. They said

they were hobbyists, and wanted tower space for free. I was completely unmoved and all I could think of were the words

"rent" and "insurance." Just saying you are ham radio operators is no longer enough.

News: 5/9/09. Max had completed our demo for Dayton. He has built web forms you can fill out for essentially all of the

ICS templates. These are picked up and mailed via Citadel behind our D-Star repeaters from Outlook Express (r) on the

workstations in the emergency scene.

News: 5/1/09: It is looking like this strain of H1N1 is "looking like a normal seasonal flu" in the words of one Public Health

MD on the radio today. We need to pat our Public Health Planners on the back here for a good solid response, do a bit of fine

tuning of procedures and get ready for the next one, or the next version of this virus. I think we do not need to go out and

borrow more money and increase government funding here, as the next new strain will be as this one is -random and

unpredictable, and spending more money now won't change that fact. We actually need to fund pandemic response a few

years from now, when the current stockpile of equipment and medications gets out of date.

News: 4/26/09: Swine Influenza A (H1N1) has been identified in several US states by the CDC, and there was discussion of

the SNS antiviral supply on a press conference today.

News: 4/24/09: There is a novel type of swine flu in Mexico, that appears to be transmitted between humans.

<http://www.msnbc.msn.com/id/30389150/>

News: 4/24/09: We may be expanding into Washington County on an excellent site. We would add a new repeater stack

there, to extend the high speed data coverage to the border with Wisconsin, and also provide East Metro digital voice

coverage on 440, and possibly use the site as a hub for a more reliable Twin Cities-Rochester link on packet. This will require

fund raising, as we have a repair reserve only in the bank.

We have located a water tank in Moorhead for a 145.67 packet node near the State University that would be good also for a

temporary 800 MHz antenna site for visiting mutual aid units in the area. This was a big issue during the recent floods. The

idea is if a Comm Van from the Twin Cities came up they could "plug in" to a tall water tank antenna for better range. For

some reason, the million dollar emergency communications vans that are being ordered by counties here do not have decent

(i.e. tall) antenna masts.

News: 4/16/09: We are presenting "D-Star and Real World MCI" at the Dayton Hamvention D-Star Forum Friday night, and

will be in the Icom booth Friday.

News: 4/11/09: If you are using Windows Vista (r) or Windows 7 and need an async terminal program, the Airmail (from

www.winlink.org) package has one that works great. Thanks KE6RK.

News: 4/9/09: We have been invited to staff the Icom booth in Dayton and to work on a program for the D-Star night Friday

down there in Dayton

News: 4/5/09: We had four stations on the Sunday D-Star net- 9:00 PM on the K0FVF machine- 442.900. The next D-Star

User's Group is at 11:00 AM Saturday May 2 at Radio City in Mounds View.

News: 4/5/09: We've changed our minds about D-Star DV mode. Using the CQCQCQ "your" call, it is about the same

amount of work to look up a repeater call sign and enter it in the RPTR memory as it is to put in a PL tone. So the "extra

effort" argument is gone. Our experience lately with the mode has been very positive. So we are raising funds to add the 440

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Lakes in order to get our backbone extended to Moorhead. We are working on the Staples location now. Packet equipment

and an antenna was installed at a hospital in Staples by Jack, W0MBD.

News: 3/28/09: K0LAV reported four check-ins to the D-Star 440 voice net a week ago Sunday.

News: 3/24/09: We are calling in our markers to try to get a packet node installed up in the Red River area- the primary users

would be the Red Cross, MN DEM and MN Department of Health. We need a site for a small node cabinet and antenna at

80 feet or more. We have a few pre staged node packages ready.

News: 3/23/09: There are reports of flooding in the Red River area. It might be time to push some more links up that way via

packet that can be built out to higher speeds later.

News: 3/22/09: Max is reporting progress on putting an ICS 213 message form in Citadel. He is working on the rest of the

ICS forms. The ARRL Radiogram is important for historical reasons but that is about it, by a reading of FCC Part 97.

News: 3/12/09: Paul, K0LAV has joined the ranks of 440 D- Star voice users tonight. We also discovered that my little ICU82

was not reaching the repeater over in Golden Valley from indoors so I had a high priced scanner. If you are having DStar

issues, the first place to check is your RF connection and paths. We again need to get a 440 machine in Ramsey

County.

News: 3/12/09:

After the TwinsLAN meeting is the next

Packet & Radio Workshop Saturday, March 14, 2009 at Noon to 5pm:

1710 N Douglas Dr, Suite 285

Golden Valley, MN 55422

Call on 146.520 for entry.

We will be working on D-STAR, linking, IP telephones, and project planning for the year. May even get some packet work

done....

I'm be bringing an RF analyzer and sig gen to this work party in case you have a packet station to test. There will be plenty of

other stuff to work on.....

If you are planning to bring a project and may need tools or equipment, send me an email Friday or early Saturday and I'll see

what I can do.....

My favorite route to get to the location is Hwy 100 to the Duluth St exit. West on Duluth till it ends at Douglas Dr in front of

Honeywell.

South on Douglas a little more than a block. Enter the parking lot using the last driveway on the east side before you hit the

railroad tracks.

The entrance door is usually locked and we are half the building away, so plan to give a call on 146.520 when you arrive.

Doug. (NONAS)

News: 3/10/2009: The next Hamfest in MN is 3/28/09

Midwinter Madness Hobby Electronics Show

Robbinsdale ARC

<http://www.k0ltc.org>

Buffalo, MN

Buffalo Civic Center

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Talk-In: 147.000 +600

Contact: Jerry Dorf, N0FWG

PO Box 22613

Robbinsdale, MN 55422

Phone: 763-537-1722

Email: k0ltc@k0ltc.org

Buffalo, MN

Buffalo Civic Center

1306 Calder Avenue NE

Div: Dakota

Sect: Minnesota

News: 3/10/2009: The next ARRL/TAPR Digital Communications Conference is in Chicago 9/25-2/09 again. We have to

see if we have some updates to write about

<http://www.tapr.org/dcc.html>

News: 2/22/09: Our talk on the Minnesota Packet/D-Star network & strategy from the 2008 Chicago TAPR Conference is

commercially available on DVD

<http://arvideonews.com/dcc2008/index.html>

News: 2/21/2009: Our work session list is growing. One is in the making soon. (3/22?)

Build a full time D-Star application gateway to "Safe and Sound" for the Red Cross

Test IP Phone system #1

Test IP Phone system #2 (PBX in a Flash 1.3)

Build a hard disk based Linux appliance running our database + Internet /Intranet gateway -uplink for home /served

agency use. These can have a disk drive vs. flash as you can get to them easily for repairs. A 17 watt 110V AC

appliance is a lot more electric bill friendly than a 65-150 watt desktop computer.

There are reports from KOLAV who is our Site Engineering Consultant of a linking microwave system being

available for \$200/end. The idea is to link Minneapolis South, STPONE and Mining. One idea is to set up a

microwave relay site at the MNMPLS rooftop packet site @300 feet. The Minneapolis East site would be standalone,

as it has a main job of supporting County /State mobile command centers and the Red Cross.

We need to investigate a new patient care/PHR/bed tracking system for the hospital tent. This needs to be standalone

and HIPAA aware. It would then feed person location information to the non secure Amateur Radio system. The

Doctors want to have a runner wheeled into the admissions area, have their runner bib barcode scanned and be able

to hand back a sheet of paper with the medical record form pre-populated with personal health record data. Ideally

this would be available on a handheld wireless computer. This is how the US DoD does battlefield triage.

Somebody needs to start documenting our operations plans and frequencies in IC 205 format. John Dooley (MN

EOC) gets credit for a way forward here- we were wrapped around the axle on needing forty pages of stuff in a

binder but the forms are pretty simple/one page.

There is a patch or two needed for the 2008 Production Linux/Sun System on the packet side

Need to test live streaming video ("on scene assessment" per one of our agencies) on one of our repeaters. This

should work.

Need to test multiple laptops on a switch/hub behind a single ID-1 to a repeater- we do this all day long on 802.11

Test the barcode scanner for patient admissions.

Need to record our systems as "repeaters" with the Minnesota Repeater Council. Each has a 1.2 DV module. We

can record those to get "in the book"

News: 2/20/09: John Leeper, who is our expert on computer equipment that is otherwise headed to the recycling plant, has

hinted we may see a dozen "new to us" laptops. Our old fleet is severely dragging. The 146.85 MARA repeater, clearly the

crown jewel of Minnesota amateur radio assets, reportedly has no UPS on it right now. John located a pair of late model,

modular UPS systems we should deploy there. Our best gear needs to be used on our key systems.

News 2/19/09: We applaud the developers of the new Twin Cities APCO-25 ARMER interoperable public safety radio

system. It worked well during the RNC and 35W bridge collapse. We are going to disagree professionally with some advice

we are getting though from system backers. There is interest in creating radio caches and handing out the radios to various

support and volunteer groups. In a real emergency, especially a large disaster, this is incorrect practice. The big trunked

systems have a finite number (16, 24, 32 etc) of *shared* radio channels and backbone channels. If you have an all hands on

deck situation, with every police and fire and public works unit out rescuing people, you may have all the channels tied up

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systems have a finite number (16, 24, 32 etc) of *shared* radio channels and backbone channels. If you have an all hands on

deck situation, with every police and fire and public works unit out rescuing people, you may have all the channels tied up

with that. Adding a few hundred volunteers will tie up channel/trunk capacity that could be used to save lives. We use about

3-4 full time Amateur radio channels at the Marathon, with only 120 radio operators and highly experienced control operators

on directed nets. The Marathon also uses five shared/rented commercial UHF repeaters for race operations, and have had

trouble with channel capacity on those, (even on a Sunday morning) which has interfered with transportation and logistics

work. The symptom of a full shared repeater is the blocking of transmissions.

Ad-hoc volunteer activities need to be directed to Amateur Radio, as we have 40 "channels" of UHF/VHF repeaters (and

simplex) in the Twin Cities alone. We are all in favor of training, but the notion of big trunked radio systems and "surge

capacity" needs to be looked at from an engineering perspective.

News: 2/18/09: We had a chance to present the system and see a live demo (thanks Don Heppleman) of the STPONE D-Star

data machine from the State of Minnesota Emergency Operations Center. It was interesting to hear from some of the staff

there on what they are interested in seeing. One requested feature is the ability to print out messages. The idea is if you need

25 sheets of plywood for boarding up storm damage, it is helpful to have on paper the exact size and thickness of the

plywood. We are investigating the notion of adding a form to Citadel to let you enter and print messages is ICS 213 or

ARRL Radiogram format. We got some strong coaching to use ICS forms, like IC 205 to document our plans and

frequencies used for events. This is good advice. The IC 205 form is pretty easy to use. We think the State EOC Team in

various capacities will be joining us in 2009 for the Marathon.

We discussed our idea of using phone numbers as the key field for missing persons tracking. The apparent Federal standard is

first name /last name which is fine too. We are not fond of using Social Security numbers.

Our local school district last week had 3500 computers and 41 servers infected with the Conflicker virus/worm. These

machines have been offline for more than eight days. I told our hosts at the State EOC that they would never be getting a call

from us that our system (providing backup, when all else fails volunteer emergency communications) had been hacked from

the Internet as we do not connect to the Internet or use Windows. This is what the old computer security orange books

called an "air gap." Those who have been pleading with us to connect to or link to the Internet- we do support very controlled

served agency gateways/uplinks that could be used in a dire emergency but that is it. There are a zillion ways to commercially

reach the Internet- we are not one of them.

Other groups with different mission statements are encouraged to put up Internet linked D-Star systems as that technology is

pretty cool. A ham from Iowa drove up to attend our D-Star User's Group meeting, and is hoping we can get a linked system

(using the Icom gateway software) up soon. Any takers?

News: 2/16/09: We have requested County grant funding for a 440 UHF voice/data D-Star module for our STPONE site.

And we need to start adding more UPS power to several of the sites. Our primary Minneapolis site has been up more than a

year - that is 100% uptime in 2008 for those who are counting.

News: 2/15/09: There is still some mystery on getting ID-1 radios to talk to our repeaters. The problems can be traced to RF

paths and settings. Here is a screen shot from this morning, about ten air miles from each of three repeaters. The beam is

pointed at the Mining ARC system, and two other repeaters can be reached off the side lobes of a 24 element beam at 20 feet

on 100 feet of LMR-400. The antenna used is low tech these days- very similar to that used by the 802.11 folks for long

hauls. At the top is an MFJ tri band antenna (\$99) (2M/440/1.2) and below that is the beam. Two systems can be reached

from the omni antenna.

Note the settings on the bottom screen. If you don't have multiple connected repeaters via Icom software/gateways/assist

ports, RPT2 has to be deselected. The A/S suffix on RPT1 seems to not matter. The "Caller" callsign suffix issue bears some

investigation. If you are getting flashes of the *repeater* call sign on your ID-1 screen that is a good sign on the RF path.

172.16.0.20 is the address of the little web server- .20 is our standard for the web/Citadel servers. Note that address is non

routable across the Internet :-).

News: 2/14/09: News Flash to Amateur Radio Manufacturers: Direct OEM and retail sales of Microsoft Windows

XP ceased on 30 June 2008. Most new laptop and desktop computers are equipped with 64 bit microprocessors and do not

News: 2/14/09: News Flash to Amateur Radio Manufacturers: Direct OEM and retail sales of Microsoft Windows

XP ceased on 30 June 2008. Most new laptop and desktop computers are equipped with 64 bit microprocessors and do not

have serial ports standard. Windows Vista Beta 1 (5112) was released to TechNet/MSDN users on 7/29/2005. The final

RTM version of Windows Vista was released to MSDN/TechNet subscribers (6000) on 11/16/2006. If you still can't get

your Windows Vista (64 bit) USB or other drivers to work, you need to hire smarter engineers or go into the wind up toy or tshirt

business.

News: 2/7/09: We will be starting a Twin Cities D-Star User's Group. The first meeting is 2/7 at 2PM at Radio City in

Mounds View.

News: 2/1/09: We have a dozen IP/SIP phones on hand, so will be deploying an IP phone system to support the 2009

Marathon. Ideally, we can use an appliance sized computer, to avoid the space and power drain of a desktop. We have two

flavors of phones- Cisco 7905G (SIP, 48V DC power/POE) and more of the Sipura / Linksys SPA-841 (5 volt DC) units. It

might be easier to come up with 5V DC power vs. 48V DC in our trailers, via solar panels, etc. One new challenge - an adhoc

power over Ethernet strategy. POE is used extensively for IP phones and wireless access points.

News: 1/14/09: The final, detailed report on the performance of the new digital Motorola Apco 25 /ARMER public safety

voice radio system at the 35W Bridge Collapse incident was published in December 2008. Anecdotal indications right after

the incident were quite positive, and these findings were confirmed in the report. The radios performed well in the

challenging conditions at the river disaster scene, which was well below average grade level.

There was a fair amount of discussion of who was assigned to what trunk/talk groups etc. One interesting finding was just

that listening to a given talk group used up system capacity. So if you hear of an incident and "tune in" you use up scarce

resources across the system when your radio registers to that talk group. This was a fairly small incident as disasters go, so a

renewed focus on training and channel discipline seems to be in order. The mass issuance of these radios to volunteer groups,

given the fairly high cost and finite nature of the channel capacity, does not seem prudent. Another strategy is for systems to

restrict talk groups to local "membership" - you can have wide area ones, but you need to limit far away users from joining

local talk groups.

News: 1/10/09: The New York Times is reporting today that the \$2B contract in New York State to build a statewide data

network in that State for public safety purposes is close to cancellation. According to the copyrighted story, after \$52m in

work in two counties, the system was unsatisfactory. The winning bidder, M/A Com, apparently underbid Motorola by \$1B.

We built our Statewide Packet Network here in Minnesota in 2002-2005 for about \$8000, which covers 75% of the

population.

A guess would be they underestimated the number of sites/towers they would need. New York State has a lot of hills. These

very effectively block radio signals. The larger cell phone companies have an average of 1000 cell sites per state. \$2B does

not buy a lot of sites, and sites are hard to get, etc.

News: 1/3/09: Our donated and surplus laptop computer "fleet" did not fare well during the 2008 MTCM. Out of a dozen

units, perhaps three were working at 100% capacity. So for 2008 we are upgrading. All units will be running legal copies of

Windows 2000 Professional at least, and all 802.11b wireless cards have been retired. Just one 802.11b card takes the whole

network from 54 mbps down to 11. All new 802.11g cards will support 100mw output power and WPA. We are going to

support Family Medical with diversity receive antennas on the data trailer in 2009 as well. Windows Update is a two edged

sword- good for security, bad for "thin" temporary networks.

News: 12/18/08: There are reports of two new Marathon races being established in the Twin Cities in 2009.

<http://www.individual.com/story.php?story=93628335>

News: 11/29/08: We are happy to welcome members of the Metropolitan Hospital Compact to the D-Star system in the Twin

Cities. Amateur operators supporting member hospitals can set up accounts on the STPONE system, overlooking the

Minnesota Department of Health in St. Paul. It can be reached via packet radio on 145.01, and on D-star on 1249.000 -

DHCP is enabled. You can use your Amateur callsign for an ID. On packet, we are working on a way so passwords are not

sent in the clear. If you use your callsign as an ID, it is Federal Crime to transmit with a fake callsign, so there is some

protection. Note this system is not on the Internet, and should present a low risk for common Internet security exploits.

News: 11/24/08: Our highest priority radio project right now is the purchase of a UHF /440 D-Star RP-4000 module for the

STPONE site. There is a controller port and antenna ready there. Digital voice technology is more challenging to jam, and

should be more dependable under emergency conditions than FM technology.

News: 11/24/08: We are grappling with how to handle runner supplied Personal Health Records during the Marathon. The

idea is if runners provide basic information on pre-existing conditions and medications being taken and allergies, medical

treatment during the event would be safer and more effective. The issue is we (volunteers) are nervous trying to secure that

data. Ideally, runners would enter it once, and for a given race, healthcare professionals (i.e. MDs) could securely access that

information if needed. We are looking at two widely available platforms - Google Health and Microsoft Health Vault. This

would also further the cause of national adoption of electronic health record technology, as runners (and the Sports Medicine

Community) are very leading edge in healthcare technology adoption and research.

News: 11/17/08: Here is a link to the new Minnesota Mobile Medical Unit - we need to see what associated communications

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volunteers it has.

<http://www.health.state.mn.us/news/mmu.html>

News: 11/17/08: The Minnesota Hospital Compact is looking for some help and we have offered to nose into that space. Our

big data networks are done, and getting served agencies on them is a good next step.

News: 11/15/08: Dan reminded us that the ID-1s do not have an IP address, and we are using them as bridges to networks

behind them, so a larger address block might be better- say a /28 or larger. And there was more discussion that routing

protocol overhead is not good. The notion of a fixed /24 per repeater /ARAP system seems to still have merit.

News: 11/9/08: Peter has come up with an idea to use DHCP and /29 subnets. The idea is all ID-1 attached networks

connecting to the repeaters would get assigned a /29 address, and we would use OSPF to ensure the IDs could talk to each

other via the Ethernet on the Linux appliance. This would replace DNAT. We would retain the .1 to .20 addresses on each

repeater for fixed services, like .1 for the repeater and .20 for the web server. We made good progress on a design for our

new Field Hospital Management System, based on a locked down version of our current database server. We are going to

make extensive use of handheld devices for triage, admissions, bedside care and remote secure inquiry. Handheld device

triage input is used by the US DoD.

News: 11/9/08: We have a request to get some uplinks going to test the Red Cross Safe and Well system on our network.

News: 10/24/08: The underlying D-Star DD protocol does not seem to support error correction. So the overall system relies

on the upper layer protocols to handle retransmission. Web browsers don't seem to care much- they get slow on poor RF

paths with lots of packet loss. FTP on the Linux appliances is not as happy, and Max is reporting some corrupted tar files. It

might be time to dredge up some of the bulletproof file transfer packages like Xmodem - maybe we need one of our own-

"Dmodem" for D-Star.

News: 10/22/08: We are resisting the call to pile more applications on our NeoWare Linux appliance computers. I think we

are going to call these "Amateur Radio Routers" since they have all the services we use- AX.25, TCP/IP, D-Star services,

etc. Faster ones could support VoIP/SIP, repeater control, IRLP, etc. Then there is mesh networking. If you want an actual

database or email server, that needs to be on a regular computer we think.

News: 10/21/08: Max is reporting he has upgraded all four of our D-Star systems to support DHCP. Alan's has for some

time. We are retaining our separate subnets to facilitate linking.

News: 10/20/08: Programming D-star radios can seem complicated. There are just three things you need to program for basic

voice repeater operations. The Icom manuals, likely translated from Japanese, are inscrutable:

Mycall (the U82 book on P. 11 says this is "your" call sign - see below) - This is the call sign of the radio owner - i.e. you

Yourcall (not to be confused with "your call" above) what Icom calls the "desired station" - i.e. somebody else - use

CQCQCQ - lets you talk to anybody

RPT1 - use the call of your local repeater. You can get confused with a second repeater and remote repeaters and suffixes.

Just put in the call of your local machine to start.

If this is right, you will hear local operators talking. If it sounds like Donald Duck, that means the RF signal is weak- use a

better antenna.

News: 10/18/08: We are looking for tower climbers. No experience needed- we have a ton of expertise and equipment -

(belts, etc) and can train -but we are getting some projects that we need a larger crew for. The latest one, the link build-out at

Monticello, needs almost 1000 feet of hardline pulled and seven antennas, all at the 110+ foot level.

News: 10/16/08: We have been calling in all of our markers in trying to develop a Northwest receive site for the 146.85

repeater. This machine is, and had been for almost 30 years the primary repeater for Metro Skywarn volunteers, and has

several new jobs, such as supporting the Area Hospital Compact. Storms come from the Northwest as a rule, and we want

our spotters to be there looking for rotating wall clouds, etc. The .85 system can be heard out there, but can't hear the

spotters. After three in person meetings with area elected government officials, we have identified a candidate site. More to

follow.

News: 10/14/08: There was some drive time activity on the 442.90 D-Star voice repeater here - I think the FM machines are

not very lively and some folks might have moved here. We are going to set up a voice ID-1 machine in Ramsey County this

winter.

News: 10/10/08: Several of us are going up to our site in Monticello, MN on Saturday, 10/18 to install seven antennas and

several repeater systems, to finish the long planned voice radio link from the Twin Cities to Brainerd, and get the Superlink

going again. Anyone interested in helping can send a note to Paul, KOLAV.

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going again. Anyone interested in helping can send a note to Paul, KOLAV.

News: 10/6/08: The over 100 Amateur Radio volunteers (we were a few of thousands of community volunteers at the event)

had a cool, damp but fun day at the 2008 Medtronic Twin Cities Marathon. Our new D-Star data repeaters performed

flawlessly. Everything went well- it was great practice all the way around. The level of runner injuries was very low. That

made us all happy. We ran six formal voice nets, and trained in some new operators. The level of cooperation across the

various public safety and medical organizations was flawless. Life is good.

Above is the 2008 Medical Tent the day before. Don brought his tower trailer (center) with 2x UHF business band antennas

and our 440 Net 4 antennas. To the right is the data trailer - 1.2G antenna for Minneapolis East, (10 miles away), packet

antenna (145.67) and 802.11b for the finish area. On the front of the trailer is a mobile whip for STPONE on 1.2G. Running

two D-Star data 100 kilobit repeater uplinks 2 MHz apart was no problem. We can scale up for massive events this way.

A picture of Net 1 (Golden Valley Public Center) from K0BUD. Max from our Data Team is on the left.

Net 3 (St. Paul Fire Department Communications Center) from Bill Hughes. Doug Reed installed an ID-1 the week before

the race and they got into the system via STPONE.

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A surprise visit from an alumni- Tim Neu, our first Linux Systems Manager- he did the first install of Trivnet (our database

and packet radio /TCP-IP interface) for us. He volunteered in Medical Records/Admissions.

It was soggy but cool - decent running weather for us in 2008.

It was soggy but cool - decent running weather for us in 2008.

Our Medical tent at 5:00 AM race morning- all set.

Peter in the data trailer - behind him is the new (to us) Sun Netra server- and Trivnetdb 2.0 which he re-wrote for 2008, also

the MPLSE uplink, the packet radio, and the STPONE uplink. There is a new (to us) ID-800 as well. We are going to try to

run the 2009 event 100% on D-Star data, and trying to further phase in digital voice. Net 3 was on APCO-25 again this year.

We are currently about half digital. - 2/3 of the data and 1/3 of the voice.

An unknown Medical volunteer, Dr. Roberts (c) and Dr. Morrison (r) working triage outside of the tent. Dr. Morrison keeps

explaining triage - it sounds simple- "chest pain- into a rig to the ER; ice pack or blister- self help table; everybody else goes in

the tent" I think that is Ryan in the doorway in a yellow shirt doing check in.

Three of around eight electric carts failed in the wet conditions and impacted all kinds of logistics activities. It has been

popular in recent years to have ham operators and MDs team up on carts and zoom around taking care of down runners- they

can maneuver around barricades and crowds and even across lawns, taking care to not hit underground sprinkler heads (\$\$\$).

News: 10/5/08: Here is the 2008 Post Race Letter from Dr. Roberts:

Thanks to all of you who spent the day helping the runners.

You did a great job in challenging conditions for both the runners and many of you who were stationed outside in the rain.

This is the first time we have had any significant rain during the race and it increased our early encounters.

Once the rain stopped, we saw a significant decrease in encounters and it was almost "boring".

Thanks again and I hope to see all of you again next year.

As always, if you have suggestions to improve the medical team, email me with your thoughts so we can discuss them in the

steering committee. We made several changes on the fly today that improved care and outcomes.

Cheers,

Bill Roberts

Medical director

News: 10/4/08: It's Marathon Weekend in the Twin Cities. We are currently running multiple D-Star DD mode data

uplinks this year from our data trailer on the State Capitol Grounds, to our repeater systems in Ramsey and Hennepin

counties. We discovered late last week our new microwave antenna on the St. Paul Fire Department Communications Center

(Net 3) is blocked by a building from line of sight to Minneapolis. We are running Net 3 on our new STPONE site, and Net

2 on MPLSE. Last year we ran a single feed from the data trailer to one repeater. There are several other ways to make this

work- the key is the DNAT software Max put our four thin client repeater controllers. We are testing an iPhone as a medical

admissions client system in the Hospital Tent. We have been requested to integrate the databases for 2009. The Marine

Corps Marathon does this- we have been hesitant on the HIPAA front here, but a secure database and network design should

make this possible. The idea is the Ham Radio (Part 97) side of things gets a "public" view, and the inside of the Medical

Tent (now 40X80 feet) gets a secure, encrypted view over 802.11 with a VPN running.

News: 10/1/08: If you are having trouble getting connected with ID-1s in DD mode, remember the end computer IP address

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News: 10/4/08: It's Marathon Weekend in the Twin Cities. We are currently running multiple D-Star DD mode data

uplinks this year from our data trailer on the State Capitol Grounds, to our repeater systems in Ramsey and Hennepin

counties. We discovered late last week our new microwave antenna on the St. Paul Fire Department Communications Center

(Net 3) is blocked by a building from line of sight to Minneapolis. We are running Net 3 on our new STPONE site, and Net

2 on MPLSE. Last year we ran a single feed from the data trailer to one repeater. There are several other ways to make this

work- the key is the DNAT software Max put our four thin client repeater controllers. We are testing an iPhone as a medical

admissions client system in the Hospital Tent. We have been requested to integrate the databases for 2009. The Marine

Corps Marathon does this- we have been hesitant on the HIPAA front here, but a secure database and network design should

make this possible. The idea is the Ham Radio (Part 97) side of things gets a "public" view, and the inside of the Medical

Tent (now 40X80 feet) gets a secure, encrypted view over 802.11 with a VPN running.

News: 10/1/08: If you are having trouble getting connected with ID-1s in DD mode, remember the end computer IP address

masks *must* be compatible. The easiest way to accomplish this is to have them be an exact match. So ours are

255.255.255.0. ID1s do not seem to be aware of IP addresses- they just move Ethernet packets around but care about

callsigns. See our directions below.

News: 9/28/08: We had a sighting of the actual Dennis Boone, KB8ZQZ, (L below) who wrote Trivnetdb for us a few years

back. I was telling the audience at the TARP/DCC Conference in Chicago how grateful we were for his work and there he

was. Pictured with him on the right in the photo is Jeff Goeke-Smith, who in working with him on a Ricochet project. It is

being reported that large quantities of remaining hardware have found their way into friendly hands via an asset purchase.

Dennis is showing a 900 MHz spectrum analyzer that uses the Ricochet USB hardware platform. Talk about a small world...

News: 9/19/08: Our fourth Twin Cities D-Star high speed data repeater and newest full time 145.01 packet gateway, STPONE, is operational on an excellent downtown St. Paul commercial site @260'

AGL. Many thanks to all those who helped out over the last few months. We now have two systems serving

Ramsey County and two serving Hennepin County and one on air spare. The new system overlooks the MN

Department of Health, State Emergency Operations Center and St. Paul Fire Department. It is in clear view

of the State Capitol and will also serve the 2008 Medtronic Twin Cities Marathon.

News: 9/17/08: Alan is reporting quality control problems with Comet base station antennas - improperly soldered internal

parts on GP95s and GP3s. You need to test SWR before installation. We have ourselves had in service failures on GP21s

due to wobbling and the base set screw popping out.

News: 9/17/08: KOLAV, Paul, has developed a voice radio setup for the Marathon Operations Center that we manage. It

consists of two Motorola Maxtrac 2 channel radios in a metal case with power supply. With the channels pre-programmed to

the main and backup repeater for each radio net, we cannot have race day radio programming issues. We'll see :-)

News: 9/16/08: Our newest repeater was delivered to the site today. We expect it to be on the air this week.

News: 9/16/08: We need voice operators for Net 1 on the Marathon - contact KOBUD via N0OEL@aol.com

News: 9/15/08: We will be presenting on Saturday 9/27 at the annual TAPR Conference in Chicago right after lunch. Our

talk, on the future of volunteer emergency communications, is called "It's the Network" - rumor has it magazine editors are

down there "trolling for articles" :-)

News: 9/11/08: There is a an interesting article in a trade magazine, Network World, on 8/25/08 about a concept called

disruption tolerant networks. These are used in field deployments and are designed to withstand outages. The idea is packets

keep trying to find a way to the destination.

<http://www.networkworld.com/news/2008/082208-dtn-networks.html>

News: 9/10/08: The St. Paul Downtown site project is back rolling again. We plan to install it in the next two weeks. We

have some more ideas for projects, now that the D-Star Phase 1 is nearly done.

1. A packet /voice link to Mankato. This is needed for the Health Department. One action item- find a nice water tank about

half way and get a tri band antenna on it. Then a nice cabinet at the base, and some feed line. Then we can install packet,

voice links etc as needed.

2. The Twin Cities to Rochester corridor needs an intermediate hop someplace.

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2. The Twin Cities to Rochester corridor needs an intermediate hop someplace.

News: 9/4/08:

Just an early reminder that next weekend, Saturday Sept 13, is the next

TwinsLAN member meeting. The usual time and usual place, 9:30AM at Pavek.

As usual, feel free to join us for breakfast at Byerly's behind Target, south from Pavek. Max & I are usually there sometime around 8AM.

We haven't yet planned a speaker for after the meeting. Who has suggestions to fix that? I'm out of ideas, so please pass them along.

What would you like to hear about? What have you been doing recently?

Did you use packet or digital modes during Field Day or on the DXpedition to Lake Wobegon? Found any good tricks to pass along? Got your APRS tracker working in the RV? Been using WinLink 2000 at all? We could certainly use a Program Director for the TwinsLAN meetings.....

And we'll be doing another Packet Workshop after the meeting. The

scheduled time is Noon to 6PM. The location is Kelly Black's work place over on Douglas Drive just south of Duluth Ave west of the Hwy 100 exit. Better directions in the Workshop email or probably on the TwinsLAN web page.

This will probably be the last workshop before the Twin Cities Marathon, so we'll be trying to do final check-out of computers and D-STAR stuff we'll use for the event. Hopefully by then we'll have the next D-STAR digital repeater installed. This one is planned for downtown St Paul so it will hopefully be easy to hit from the finish line.

73, Doug Reed, NONAS.

News: 8/30/08: There were some folks from the Federal Government at Radio City - they were in town for the RNC and

getting parts for their radio truck. I was bragging about our data networks, and they asked about our provisions for emergency

i.e. solar power. Good question. We have a little grant money left, and getting one or more systems up on 100% solar power

is a priority.

News: 8/21/08: Given that the R.N.C. will be in town shortly, we are going to declare a network freeze and stick to repairs

only between now and then. That is a new policy for us- try to lock down the configurations a week before the events.

News: 8/17/2008: There is an interesting article in the September issue of QST on Project 25 radio technology. This is

another open standard for digital radios. We have so far been underwhelmed by the digital voice aspects of D-Star - at the

user interface level it seems to be too complex, counter-intuitive and not plug and play when used with repeaters. Our

extensive mass casualty incident experience here indicates that systems that require a lot of user training and configuration are

not helpful in the press of events with ad-hoc volunteer resources. Our Marathon systems at the user interface (i.e. laptop) do

not require any training, and telephones and well designed voice radio systems should not either. If the Project 25 voice radio

gear was easy to use we might like it. The idea would be a box of radios would be issued- "Select Channel 1" is about the

limit of user training that seems reasonable. Further proof of this is in the level of difficulty some still have with "CTSS" tones

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not require any training, and telephones and well designed voice radio systems should not either. If the Project 25 voice radio

gear was easy to use we might like it. The idea would be a box of radios would be issued- "Select Channel 1" is about the

limit of user training that seems reasonable. Further proof of this is in the level of difficulty some still have with "CTSS" tones

on 30 year old voice radios. One could pre-build and clone radios but what to do about callsigns.

One idea for somebody like Icom is to come out with some D-Star radios that are cheap, but require pre-programming the way

Motorola radios do. So the radios are \$150 or \$200 and you mass-program and issue them. They could be digital only for

that matter. Groups could buy them in bulk and pre-program them for large scale go-kits the way governments do with

Project 25 radios.

News: 8/17/2008: After a series of meetings with the Marathon Medical and Race Operations leadership, we have our plan in

place. A little testing is in order, and we have a new capability in the plan. We are going to try to have on-site access to

MNTRAC for logging and monitoring hospital transports and capacity. And we need to system test our new Sun server. We

are out of space at the finish line in the secured area for any new large medical assets like tractor-trailer based mobile hospitalswe

have been offered two of them so far.

We need more Amateur Radio volunteers as we have a role in keeping track of golf carts and small "gator" type mini medical

vehicles which can run in a crowded area with the roads blocked off. Several of these are available to the Minneapolis Fire

Department, etc. We are also integrating runner supplied personal health information with our medical record form on a

secure system to provide history information to the medical staff when someone arrives for treatment.

News: 8/10/08: The talk down in Rochester went well. After we left there were reports of "outstate grant money" being

available. This is interesting, but we long ago learned that it takes four or five in person meetings to get big infrastructure

projects off the ground, and that local political leaders like to only deal with local folks. Fast talking outsiders are not often

helpful, and the smaller the city/county the more this is true. After at least five less than productive 120 mile round trips in the

last few years, we are convinced we are right here.

News: 7/29/08: We will be speaking for the first part of the ARES Forum (around 9:30-10:30 AM) on 8/9 (Saturday) at the

ARRL Dakota Division Convention in Rochester, MN.

Complete Information at <http://www.rarexpo.org/>

News: 7/28/08: Dan Skripka is reporting the last installment of our matching grant has been approved. Thanks Dan! We

need to buy some more antennas and may be investing in an electrician for a site install. The antenna we like best is the Comet

GP-95. The one at the Mining ARC works great.

News: 7/27/07: The final system test is complete on the hardware for our St. Paul #1 site. There is a Bloomington tower site

available @160 feet - we do not need it for 145.67 and we do not have any D-Star repeater equipment in stock. The two

priorities we can see is for one of the "backyard" systems to move there,

News: 7/25/08:

The next workshop is tomorrow at the Golden Valley location, 9AM till around 5PM. Main project is to try and get the next

D-STAR data repeater ready for install in St Paul and whatever else we can do in our preparations for the RNC and the MTC

Marathon.

News: 7/20/08: All the parts needed for the St. Paul Downtown #1 Site are in hand, thanks to the grant for Dan Skripka and

the support from Metro Skywarn. The machine is now running in test mode- the D-Star is up we need to add on the packet.

We got a new radio for that.

News: 7/16/08: At our "East" repeater/node site we are having stray RF issues (?) which are causing our Linux Thin Client

system to crash. So Max added in the capability to reboot if there is a kernel panic. This seems sensible as we are all about

reliability. The very long (50 foot) stock Ethernet cable on the RP-1D might be a factor.

Max: "This is the command I put in rc.local to get the kernel to reboot after a panic:

```
echo "5" > /proc/sys/kernel/panic
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Normally, that value is 0 - don't reboot automatically, changing it to a non-zero value causes the system to reboot after that

many seconds. A good thing for remote or hard to get at servers. There are other ways to do the same thing, sysctl being

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many seconds. A good thing for remote or hard to get at servers. There are other ways to do the same thing, sysctl being

another."

News: 7/3/08: Our new St. Paul Downtown #1 repeater/node site has been approved by the site owner. So we have a cabinet

and are building up the equipment as we speak. The plan is to have it installed by 8/15 at the latest. It will support D-Star DD

mode and have a packet gateway.

News: 7/1/08: It is being reported there is a new State Van under construction that will be used for emergency medical

response. We would like to get that van set up with D-Star equipment as well, and test it this fall at the Marathon.

News: 6/30/08: We got copied on a note today from the Minnesota Department of Homeland Security and Emergency

Management, who had the following advice on which ICS/NIMS courses to take:

"Simply, if you are an active participant in an event you need (ICS) 700,100, and 200. If you are making decisions about how

the resources are used, requesting or sending, or leading resources, you need the additional training of the (ICS) 800, 300, and

400 courses"

News: 6/23/08: Alan has made some homebrew 1.2G cavities. These go along with the homebrew 1.2G beams. We are

going to pester him to make a duplexer next.

News: 6/23/08: Dennis Boone, KB8ZQZ. who wrote Trivnetdb for us way back when, has fixed the Trivnetdb source

distribution site

<http://www.kb8zqz.org/trivnetdb/>

News: 6/22/08: We can report the RP-1D units do support DHCP pass-thru. We tested it this morning. Doug Reed, N0NAS

was supervising, so there was no funny business. By the way the Icom manual says to use uppercase letters only for the

repeater call sign- the manual is right. Peter, KD8GBL, also had the idea to test PPPoE - that works as well. The idea is that

can be used for many to many ID-1 connections via the repeater. We do that today with DNAT, but it has to be set up in

advance. We tested two ID-1s talking to our newest repeater via PPPoE- thanks Radio City.

News: 6/21/08: The ARRL-ARES 6/20 E-Letter is reporting the following, which is encouraging - he is viewing the Icom

ID-1 as yet another tool in our toolbox.

There is new software entitled JNOS for passing e-mail messages over Amateur Radio during emergencies:

<<http://ronhashiro.htohanenet.com/am-radio/packet/jnos.html>>

Readers can download the program, and try it as noted in the documentation. Configuration is simple: it takes only ten to

fifteen minutes editing in your call sign, password, and log-on banners to get started. The beauty of JNOS is the sending and

receiving of e-mail messages over the Internet as well as Amateur Radio seamlessly. It can print incoming e-mail messages on

a printer unattended, one message to a sheet, just like a fax machine.

JNOS will also take advantage of the ICOM ID-1 in digital data mode, and I'm in the process of testing and documenting that

configuration.

At some point, I'd like to implement this at Hawaii State CD and Oahu DEM, when a sufficient critical mass has been

implemented. -- Ron Hashiro, AH6RH, Honolulu, Hawaii State Civil Defense RACES

News: 6/17/08:

The next packet & radio workshop will be Sunday June 22. The location for this workshop is Golden Valley. The

workshop will run from 9AM until 5 or 6 pm

The focus of this workshop will again be on various D-STAR projects. We have a lot of work to do getting ready for some

installations this summer. I am NOT going to have much in the way of test equipment and tools available. But if you have

small projects we'll still be trying to help you complete them. If you tell me ahead of time you need something special, maybe I

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can bring it.....

The location is 1710 N Douglas Dr, Suite 285, Golden Valley, 55422.

From Hwy 100, north of I-394, exit on Duluth St. Go west of Hwy 100 about 1/2 mile to Douglas Drive. You will go south

from Duluth St and watch for the railroad tracks. Immediately on the north side of the tracks is a long, low, 2 story office

building on the east side of the road. We'll be in Suite 285 but you will need to knock on the outside door or ask on 146.520

simplex for entry. If on Hwy 55, go north on Douglas Dr and it should be the second railroad crossing.

If you want a map, Google search for:

1710 North Douglas Drive, 55422

If you are worried about getting lost, the Duluth Street exit from Hwy 100 is the best. You go west on Duluth St and it ends at

a T intersection. Turn left, go south a few blocks and you will come to the railroad tracks, the building on the left is the one

you want. Very hard to miss this way....

I hope to see you there! The next workshop will be in July. Come this Sunday and help choose some dates.

73, Doug Reed, NONAS.

News: 5/28/08: There is a list of projects building for our next open work session.

Formally test and document DCHP pass-thru on RP-1Ds. Does it work? The jury is out. We are reading reports both ways.

Build D-Star system #4. We need power, a cabinet, Linux system, etc. System #4 will include a Packet gateway. For the

moment, System #4 is our lab repeater, though Alan might bring his portable repeater. We are assigning 172.16.4.1 and .20 (/

24) to the new system and might use 1249.000.

System test the new 2008 server that Peter built. The existing one then goes into hot standby backup status. We could also

test multiple ID-1 to ID-1 connectivity to see if two server uplinks could be used at once. In production in a disaster, we

might have ten remote stations, each accessing two remote servers as an example at once. This would let us support multiple

served agencies. We will run two live ID-1 to repeater uplinks in 2008. We should have six repeaters to choose from.

System test the two new vans. Antennas in these as well as the internal Ethernet and 802.11 capability will need to be

verified.

News: 5/25/08: We are getting offers to borrow more high end mobile communications vans for the Marathon. As of right

now, a new 50 foot mobile fire command center may be joining our "fleet", and we are also working on the MN State Mobile

EOC van. If both had D-Star ID-1s, they could tie into our database trailer at the finish line via our repeater systems. We can

loan them equipment out of our radio pool for the event. It might be nice to have say five ID-1s going back to one ID-1 at the

database end. We have DNAT on our repeater back end systems set up to support multiple uplinks from multiple remote

databases. We continue to not be fans of the databases co-located with repeaters model.

News: 5/17/08: The American Radio Relay League has announced a change in direction for the organization. There is a new

"Fifth Pillar" - technology. This is a timely move, as this heads off a very strong movement in the organization to become

largely an historical society. As someone who owns more than 75 history books this is OK, but was causing trouble in

several key areas. One is with the recruiting of young people who expect us to teach them current technical skills, the FCC

rules, which reference "the state of the radio art," and served agencies, who are tired of hearing about the limitations of 30-80

year old radio operating modes, given the other choices they have.

ARRLWeb: ARRL NEWS: ARRL Introduces "Fifth Pillar" at Dayton Hamvention

News: 5/16/08: We have seen a 15% failure rate on the little five dollar RJ45 F-F adapters that go on the Ethernet pigtails on

new out of the box Icom ID-1s. If the Ethernet seems "dead" on yours, try a different adapter. Spare ones of these are a

handy item to have if you need to extend RJ45 cables anyhow. These cables are used for other applications, such as

microphones and serial cables. It is helpful to own an RJ45 crimper as well.

News: 5/15/08: At the last work session we issued an ID-1 radio to Max, who is able to now drive around and test the

systems. We have at least 10 D-Star repeaters in Minneapolis/St. Paul. One issue- can we get these listed in the ARRL

Repeater Directory? The issue for us is the DD machines by themselves are not technically repeaters and also do not do well

on shared frequencies. So our systems need to be coordinated, even though they are simplex.

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on shared frequencies. So our systems need to be coordinated, even though they are simplex.

News: 5/11/08: We have long suspected there is not a lot of spare emergency room capacity in major US cities, based on our

experience at the Marathon here. A story in USA Today on 5/6/08, while having limited scientific validity (one random

sample was taken) showed that Minneapolis had five empty emergency room beds. Other cities in the sample were in about

the same shape. Washington DC had zero, and Chicago had eight. The notion of improvised facilities that would somehow

be set up to handle a big flood of cases was discussed. Those who are skeptical about the role of Amateur Radio in disaster

recovery need to read that - there is no other group that has this level of experience in ad-hoc communications.

http://www.usatoday.com/news/nation/2008-05-05-citiesready_N.htm

News: 5/10/08: Peter built us a new production server for the 2008 Marathon on a rack mounted 1U Sun Netra server. These

have several advantages, and they are compact and cheap enough (\$50) to install permanently places like in trailers. Hauling

desktop computers around is not much fun. The one he found has two Ethernets and two serial ports- just enough, (one DStar

uplink, one 802.11, one packet TNC and the server console) and built in RAID. We also have a new release of our web

server code and more database fields. We are upgrading our IP phone system as well. We think the last \$2000 of our current

grant will go to one more ID-1, and then some antennas and power supplies and lightning arrestors.

Prediction: IP Phone systems will be as important to ham radio post 9/11/01 as war surplus prop pitch motors were

after WWII.

News: 4/24/08: The final US Fire Administration report on the 35W Bridge Collapse was issued and is interesting reading.

The strong and effective event response was marked by good communications practices, a solid following of Incident

Command System (aka NIMS) procedures and the fact that the agencies involved in relief efforts had trained together. The

number of EMS runs (50) was very similar to that from the 2007 Medtronic Twin Cities Marathon.

The concept of "freelancing" - self dispatching of emergency resources without orders from the Incident Commander was

mentioned. This is one thing volunteer groups like ours need to be vigilant on. Volunteers who show up at a disaster scene

without being requested may have good intentions, but add to the burden of the Incident Commander, as they then have to be

looked after from a safety and logistics perspective.

http://www.usfa.dhs.gov/downloads/pdf/publications/tr_166.pdf

News: 4/23/08: We have been given approval to proceed with our new Minneapolis Downtown #2 site. We just

picked up our fourth RP-1D D-Star DD mode repeater- thanks Radio City. Exactly where this machine will go

depends- one good choice is St. Paul #1 depending how the paperwork goes there, or the Minneapolis #2 site. We are

expecting one more grant shortly- the question is- do we ask Dan to order Repeater #5, or do we add 440 capability on to one

of the machines we have? Icom is reported to be out of first generation D-Star repeaters as part of the "Buy Five"

promotion.

News 4/23/08: We are pestering the ARRL to do something about callsign authentication. Right now it is trivial to spoof a

callsign in an email message. When we get a message from W0XYZ, is it really from W0XYZ or someone pretending to be

W0XYZ? So using off the shelf digital signature /public key infrastructure software would fix this. There are those (we are

in that camp) who oppose encryption of amateur radio traffic - this is not encryption it's authentication. The FCC rules

require it actually "97.219...(1) Authenticate the identity of the station from which it accepts communication on behalf of the

system." If the ARRL does not take the torch here we might try it ourselves. The other thing you can do with this

technology is to sign/authenticate message content- this is like a checksum to prevent/detect tampering with the content. This

is part of what is called in the security business "non repudiation" - did you really send that message.

News 4/14/08: We need to think about upgrading our 802.11 facilities and to get our mesh networking research project

moving again. We are meeting with the Medical and EMS teams for the Marathon soon, and will get our summer work plan

in order. We got a little busy last fall on infrastructure work and need to see what they are asking for. One idea they liked

was a "bed dashboard" application for the hospital tent - to show who was where and provide a live view of capacity - one

key requirement is deciding where incoming patients need to go, and to keep the ER section open for new critical cases.

News 4/14/08: We are getting calls and notes about the new "RMS" /Winlink software. We are mostly network builders

here, and these networks should be an ideal platform for this software. Jerry, N0MR, is a leading expert in MN on this topic.

One interesting issue - we are seeing more packet activity in Wisconsin on 145.61 and will need to build some bridging

stations. Our practice would be to install two or three gateways if we decide to go ahead.

News 4/11/08: We may be getting two new repeater/node sites, including possible one in St. Cloud. Work is underway on

the packet gateway at MNSTP and we are experimenting with DHCP on that machine. DHCP is not looking good at the

moment. One hunch is it is a broadcast based protocol and D-Star DD mode (via repeaters) does not seem fond of broadcast

protocols (for good reason).

News 4/2/08: We are again putting the Medical Communications Team together to support the 2008 Medtronic Twin Cities

Marathon. We are looking for volunteers, and have openings out on the race course and at the finish line. It should be

possible this time to run the data side of the medical support operation all on D-Star DD with packet radio as backup. We

need to get an ID-1 to the Twin City FM Club and one in the Ramsey County EOC. The Ramsey County one is on order.

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protocols (for good reason).

News 4/2/08: We are again putting the Medical Communications Team together to support the 2008 Medtronic Twin Cities

Marathon. We are looking for volunteers, and have openings out on the race course and at the finish line. It should be

possible this time to run the data side of the medical support operation all on D-Star DD with packet radio as backup. We

need to get an ID-1 to the Twin City FM Club and one in the Ramsey County EOC. The Ramsey County one is on order.

The team is organized as follows:

Chair

Asst. Chair /Finish Line/ Operations Center

Net Control Net One /Volunteer Check in

Net Control Net Two

Net Control Net Three

Are the main leaders, and then we have departments at the Hospital Tent, Family Medical Tent, and the Remote Bus Drop

off/EMS staging area, and then for the Data Trailer and database servers and for Net Four and various medical radio

channels. All operations are decentralized and the Net Controls are spread out across the geographic area. This is helpful if

there are problems- if you can't reach higher authority you just keep going, and too many radios in one place leads to RF

interference and general confusion.

News: 3/26/08: We got a new (to us) Icom ID-800H D-Star radio, which we are experimenting with. Thanks Ed,

WBOVHF. This is for the trailer and will be used for all kinds of duties. The setup complexity (programming all the call

signs) here is a little bit of a barrier- there is of course software available for the radio which makes it easier. It is being

reported the MNSTP upgrade and packet gateway work was successful. We'll post some screen shots.

News: 3/22/08: A team from Twinslan and the Mining ARC are upgrading the MNSTP site to include a full time D-Star DD

mode to AX.25 packet gateway. We run one for the Marathon but have not had one online all the time. We are also

experimenting with some ideas we have for linking. We have a new appreciation for the work that AMSAT does, as they do

not get to rework anything once launched.

News: 3/19/08: The talk down at Mankato went well. The club there is running late model commercial equipment for their

repeaters, and uses all diverse Government sites. Some clubs run the oldest possible, often fussy repeater and data equipment

for some reason.

The question came up in Mankato: "how can we get more involved in operations and exercises?" and answer is pretty simple

for them. We have an ongoing mission to support the MN Health Department. The club down there can meet with their local

Public Health Officer (who they already know) and set up a drill/exercise- a "what if all the phones/Internet are out" kind of

drill. And move some messages around. One group in Northern MN ran a drill last year where they distributed colored

M&Ms(r) as a test of vaccine delivery. There are outlying counties down that way that need to be engaged here as well.

They also need to get some links built to the Twin Cities (about 66 miles and some big 1000 foot ridges away as they are at

about 800' ASL). They also need a second path to be built on packet to the Statewide Network that does not go via the Twin

Cities. Then they could become a remote hub and even a operations center/hub with a BBS system etc. We hatched an idea

for a big Statewide drill where they would be in charge. Our thought was, if something really bad happens in the Twin Cities,

do we want that event managed from the Twin Cities, or with Twin Cities based operators- no. One idea as well- if there is a

School of Public Safety at Mankato State University, they could learn exercise planning and use us as the persons to run the

drills.

Long term they can get some sites along the way to the Twin Cities on a link via packet and then upgrade that link to

Microwave. And then they can put a D-Star system in and link that in. The National Weather Service is down their way and

might a good connection point.

News: 3/19/08: We think the MNSTP System was down for a day. Ed reset the power and are back up. That one is

borrowing 12V power from someplace and needs a dedicated late model switching power supply. These, like the SEC 1223

units we get at Radio City, have been highly reliable and have low standby current draw. We say "we think" as you need

four things to reach a DD mode system- a good RF path, the right frequency, the right repeater callsign and the right IP

address. If you have just the IP address wrong as I did this morning the ID-1 gives you this ?KC0TQI message back from the

repeater which is a version of "I'm here" which is good.

News: 3/18/08: We are promoting Dan Skripka, KE8TX to CFO of our organization.

News: 3/16/08: There will be a talk sponsored by the Mankato Radio Club on 3/18/08.

Digital Communications in Emergency Response

Erik Westgard, NY9D will provide a presentation on the following topics...

The need for digital communications in response situations.

History of the current digital network in MN. (Packet 145.01, 145.67, APRS)

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History of the current digital network in MN. (Packet 145.01, 145.67, APRS)

The future need for a faster digital network.

Do D-Star digital data repeaters have a place in MN?

Background Information:

Current Packet Network <http://www.14567.org/>

D-STAR at the 2007 Medtronic Twin Cities Marathon By Erik Westgard, NY9D

<http://www.arrl.org/news/features/2008/03/01/2/?nc=1>

March 18th, 2008 @ 7:00 PM

Red Cross, 105 Homestead Road Mankato, MN

Map to Red Cross

RSVP to k0yr@arrl.net

News: 3/16/08: Dan Skripka, KE8TX, donated some money to our project, and has managed to get that matched by one of

the area foundations- so we have the funding in hand today for the equipment for our St. Paul Downtown #1 site. Thanks

also to Doug Reed and to Metro Skywarn for handling the behind the scenes processing on these grants and donations. Dan

from Radio City is used to us as he knows when we call to ask him to order \$3000 repeater/radio packages we never have any

money at the time but it shows up from someplace at the last second like clockwork.

By the way the key to getting new sites and funding for Amateur Radio infrastructure is the proper handling of paperwork.

The days of handshake-only arrangements are long gone. Relationships and trust are important, but all your agreements need

to be in writing to protect all parties.

News: 3/16/08: Do weather maps work on the D-Star DD mode system- yes. This one is a 250KB JPEG viewed on our

Minneapolis Downtown #1 system- the download time was pretty good this morning- a few seconds

News: 3/15/08: It is being reported the new rooftop antennas at the MN Health Department HQ (Freeman Building in St.

Paul) are installed. Radios of all kinds (except, interestingly, our Packet Network) and cell phones worked poorly inside that

building likely due to metal film tinted windows. There was a long struggle with the architects over outside antennas- we

won :-)

News: 3/8/08: We have a new location in progress for our workshops. Many thanks to the Maplewood Fire Department for

helping us over the years. They are remodeling their station there and needed the space back.

News: 3/8/08: The paperwork on our new St. Paul Downtown #1 Site is moving along. We contacted Dan Fish up at Radio

City in Mounds View about equipment for the site. The plan is to have that on the air in <60 days. The site is at >250' AGL

and will require minimal site preparations. We are slated (based on a conversation with Max on our Software Team) to have

Packet (145.67) to D-Star linking there.

News: 3/1/08: Our 2007 Medtronic Twin Cities Marathon story is on the ARRL Web Site today

<http://www.arrl.org/news/features/2008/03/01/2/?nc=1>

News: 3/1/08: Here is a note from Tom Azlin, who runs the digital aspects of the Marine Corps Marathon in Washington,

DC. They started using L-Band D-Star a year before we did, and have a much larger race in terms of runners.

3/1/08

Very cool Erik!

It is indeed a really good D-Star public service application. Here in the Washington DC area we are about to kick off the third

year of using the ID-RP2C/2D and multiple ID-1s for the Marine Corps Marathon (MCM).

Our Operational Readiness Demonstration in 2006 was switched part way through that race to the primary comms for the four

demonstration aid stations.

We have a different back end set up as we plug the controller into the existing Marine Corps network at the finish line which

simplified our role to the communications between the MCM finish line servers out to the seven aid stations supporting over

20,000 runners. This allowed direct access to the MCM runner databases by the officials at the aid stations using the MCM

created web applications. BTW, the selection of D-Star was made by the amateur radio team and is not Marine Corps

endorsement. What they see is simply using their existing applications via amateur radio.

The past two years of success with D-Star at the MCM has led to discussion of the 23cm DD system in one of the local

counties to connect to emergency shelters with the EOC. This will be tested over this next year in exercises as we now have

our Tysons Corner D-Star repeater up and running.

Again, great story and application Erik. We have learned a lot over the past years from how you are supporting the marathon

there.

73, Tom n4zpt

MCM digital coordinator

News: 3/1/08: We are making progress on our new St. Paul Downtown #1 site. The idea is to have our fourth D-Star DD

machine there.

News: 3/1/08: We attended a huge Healthcare Information Technology show called HIMMS 2008 in Orlando. Avaya was

there and had an emergency response truck, which is similar to the one Cisco has. The Cisco one is called the NERV and I

there.

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News: 3/1/08: We attended a huge Healthcare Information Technology show called HIMMS 2008 in Orlando. Avaya was

there and had an emergency response truck, which is similar to the one Cisco has. The Cisco one is called the NERV and I

have toured it as well. These have routers, and an IP PBX in there. (So do we in our trailer- see below). They have a satellite

dish and a bank of VHF/UHF public service radios. They each also have an Icom IC7000 UHF/VHF/HF amateur radio.

One of the things they can do is interconnect the audio from the various radios and the phone system and the satellite. This is

a high tech version of the old ham radio "phone patch" in a way. Video is a big part of the system. And they support

teleconferencing. Our ancient donated trailer has a much better antenna tower (65') than any of these state of the art money is

no object vans - and big towers give you range when you are trying to access or provide emergency radio coverage.

http://blogs.cisco.com/news/2007/11/video_ciscos_network_emergency.html

There was a nice presentation from the IT folks who run the Palomar Pomerado Health and Scripps Health hospitals during

the recent San Diego wildfires. They gave a talk on how they dealt with the wildfires, which were expected at one point by a

senior fire official "to burn all the way to the ocean (the entire San Diego County)" and included the evacuation of an entire

hospital. The utilities stayed up, and they did a good job on the evacuation- around 200 patients moved in 2.5 hours. They

had a lot of problems with smoke and ash getting into ventilation systems and into buildings. There were lots of times when

they did not have good information on the unfolding crisis, but they practiced and practiced before hand. Employees

developed an interesting technique to see if their house burned down while they were at work- if their old fashioned

answering machine answered, their house was still standing. They also ran an emergency day care center as schools were

closed- this helped key employees report to work.

At the show we learned there is a priority over-ride system officials can use for cell phones to get a line in a period of overload

(though this would not work if the overload was caused by too many officials who also had priority) and this can be combined

with another priority system to get access to long distance services as well.

News: 2/17/08: Based on a conversation with Ed, WBOVHF who has been a big supporter of our project, and some of our

served agencies, we are ready to discuss our plans for high speed data infrastructure for the RNC event on September. We

will add one more system to our network between now and then and possibly two. The goal is to go from three to five DD

Mode D-Star machines ("repeaters/ARAPs") on line by 9/1/08 under our jurisdiction. The idea is these will be on wide area,

secure, commercial/government sites and will be available for volunteer Amateur Operators supporting the agencies when

they are required. We are down to needing about \$1500 to get the first new machine going. The second one will be about

\$3500. Hennepin and Ramsey Counties are both purchasing user radios for the system.

Current Sites:

Minneapolis Downtown #1- Up

Minneapolis South/MofA/MSP Airport- Up

Mining ARC /Oakdale/St. Paul - Up

New Sites:

St. Paul Downtown #1 - site candidate in discussions

Minneapolis Downtown #2- site candidate in mind

News: 2/14/08: Kelly helped us build a field deployable IP PBX with six phones. The idea is if we have to build an ad-hoc

Emergency Operations Center we would have telephones, which do not require control operators, and when you are running

a large field hospital (as we do every year) phones are just easier. We can tie into any existing Internet network, and bought

some SIP VoIP service from an outfit way out of town. We are using the Internet to provide ad-hoc phone service in case

other types of phone services are unavailable. We also have an analog trunk card if we do find a real phone jack. The Red

Cross uses this type of technology over satellite.

News: 2/9/08: There is a work party at the Maplewood Fire Station tomorrow, 2/10- 9A to at least mid afternoon. I am not

sure on the agenda.

News: 2/3/08: We happened to rent a copy of the movie "Live Free Die Hard" with Bruce Willis. This movie accurately

characterizes the current wild enthusiasm for putting critical SCADA utility and infrastructure control systems on the Internet.

And it should be considered the last word on why modern Internet based communications systems need a backup that is not

also based on the Internet.

News: 1/28/08: A question came up today if our system was open to general Amateur use. The answer is yes. We think

credible backup communications systems have to be regularly tested and exercised. This includes hands-on operator training

and general use. We also have a ton of experimentation to perform. FM Voice was pioneered back in the 1970's. D-Star

technology is brand new, and we are helping to develop it. This band, L-band, is unknown to most folks in Minnesota.

Actually, data over L-Band (aka DD mode) is new to almost everyone.

News: 1/23/08: There is an article by Craig Kuhl in the 1/15/08 issue of Wireless Week Magazine <http://www.wirelessweek.com/Article-8-Hours-Long-Time.aspx> that states there was an FCC order issued after Katrina that all

210,000 US cell sites must have at least eight hours of backup power available. The article goes on to say this requirement

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210,000 US cell sites must have at least eight hours of backup power available. The article goes on to say this requirement

came about after a "stinging" post event report from the FCC: "...a lack of adequate backup power for communications

facilities was a critical problem after Katrina that caused communications network interruptions and hampered recovery

efforts." The article goes on to provide a quote from Caterpillar the engine people to suggest that "more players on cell

towers...(including) ham operators..." were driving an increased demand for backup power. As we have the backup

communications mission from the FCC and world wide we need to very gently remind our agencies they still need a backup

communications system of some kind- and preferably more than one "layer" of backup.

News: 1/18/08: We got a donation yesterday of some surplus flat panel monitors and a big 24 port LAN switch. We were

short of both items at the last workshop. Thanks, John Leeper. Max is working on the routing architecture between the Linux

appliances behind our repeaters that are not repeaters. We think RIP will be fine for us. A network convergence time of say

ten minutes might be fine- the last thing you want on a fairly slow network when you have important traffic to pass is a lot of

automatically generated routing chatter and flapping. We talked to the Minnesota Department of Health - they are updating

their web based emergency health information system and want the new one ready for the big Republican Convention. Note

the term "web based" - we tested the old one on our network.

News: 1/12/08: We got an email from the folks in Rochester, MN interested in D-Star. Other than Internet linking to say the

system at the U of M, they could also link to us up here by email. The idea would be to set up a TCP over Packet (AX.25)

VHF link between the Linux back end systems on the repeaters. So mail could be forwarded and folks could participate in

live conferences. There is even a way to set up "linked" conference rooms under Citadel. This could be done on 145.01.

The 145.67 network was designed to not support TCP/IP and automatic mail forwarding. If there needed to be a faster radio

channel over the 70 miles we can build one.

News: 12/30/07: We spent most of our workshop session today loading up an Asterisk VoIP system on Debian 4.0. After a

while we started pestering Doug Reed, N0NAS to let us test this over D-Star, so he set up two ID-1 radios for us in the lab.

We tried a Cisco 7905 (SIP firmware) phone on one ID-1, and the Asterisk server (+ Sipura 941 SIP phone) on the other

ID-1. We had a known good simplex DD path. The phones could call each other but the voice quality was very very

choppy. We did not have time to research which CODEC we were using in the phones. DD mode is simplex, and does

not seem to like a full duplex stream of small packets. We think a more "half duplex/push to talk" type voice mode

would work over DD. This was a research project, and we plan to spend some more time on it. Phones of all kinds

sometimes don't work in disasters, and the ability to make a VoIP call has been requested. Having a phone system in our

trailers seems like a good idea. There are legal restrictions on the use of Part 97 frequencies for routine phone service. It

might work just fine and be regulation-free as another emergency communications tool for us if we use WiFi or our Ricochet

network backbone.

News: 12/29/07: We are out on the ARRL Web Site today:
<http://www.arrl.org/news/features/2007/12/29/1/?nc=1> and on

the front page of QRZ.COM.

News: 12/29/07: On re-reading the ITU G.114 spec for Voice over IP, it says one way delays of <150ms are acceptable for

most applications. We can hit this easily - this may be a good test project. So that is why those surplus IP phones have been

sitting there.

News: 12/19/07: Our next open workshop is at the Maplewood Fire Station on Century Avenue
12/30/07. 9:00AM-5PM.

The US Coast Guard Auxiliary is discussing starting a Ham Radio Club locally and they are asking about some advice on

radio modifications. I asked Doug to please bring the microscope and fine tip soldering iron.

News: 12/18/07: We got a call from the folks in Mankato, MN who are interested in our new project. They have been

running a powerful 145.67 packet node down there for years, using our standard naming convention and on a tall government

site. They want to get in the high speed data game. I think we'll go down there with our slides. We might try to contact the

TCRC or SMARTS clubs down that direction and do a "Southeast Metro" session as well.

Our advice to them is to start saving their nickels for a D-Star controller (\$1200 or so) and some RF modules, at \$1400 each.

They have two good sites. The next big project is to build a high speed data link back to the Twin Cities. This will take

several hops. We can use Motorola Canopy equipment if we have some water tower sites. We are building links right now

on four corridors- Twin Cities to Duluth, Brainerd and Rochester plus Mankato. It would be helpful if some of our grants

were to arrive.

News: 12/15/07: The next open workshop looks like the end of December. It is a busy month at the Fire Station. We also

want to get back at our Mesh Networking via Open Source project.

News: 12/15/07: It is being reported there is a new U of M DV repeater on the air on 443.425 from Moos Tower - U of M

West Bank.

News: 12/1/07: There was a note on the Minneapolis East Citadel Server from WB0ZKB, who indicated he was getting into

the machine from Maple Plain, 22 air miles away, on a 900 MHz paging antenna. So much for the "short range" argument.

A friend, Kent, KC0DGY, works for a local TV station, and their video remote truck needs to "see" the IDS Tower in

Downtown Minneapolis to allow their microwave video feed to work. He has many stories of various places around town

that he knows will work and places that do not. This reinforces the notion that mobile emergency communications vehicles

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Downtown Minneapolis to allow their microwave video feed to work. He has many stories of various places around town

that he knows will work and places that do not. This reinforces the notion that mobile emergency communications vehicles

need towers.

News: 11/30/07: We are getting emails from Metro Skywarn who wants to test live streaming video. It should work. We

have a test repeater...or four or five.

News: 11/25/07: This morning brought a note from Kelly, KB0GBJ asking about our priority list for 2008. Other than adding

some more sites for data machines, we do need to solve the repeater/access point linking challenge using radio, as we are radio

people. Max has installed Ricochet USB (900 MHz Part 15) modems with some of the Linux repeater controllers, and these

can "see" light pole mounted legacy Ricochet modems two miles away just on the little folding antennas. We think putting an

actual pole-top unit at each repeater site with a decent antenna might be enough to link the systems that are not very far (2-5

miles) apart. We are calling this effort "Poor Man's D-Star" as the little modems are \$15.00 used, and the data rate

@100kbps is similar.

In the Site Department, our Mining site covers Downtown St. Paul well enough but we do need coverage South. We might

need to round up another water tank site. I have another site idea which will be amusing if it happens. We will be meeting

with the MN Department of Health on the 30th, with whom our organization has a separate signed memorandum of

understanding. We gave a talk at the Twin City FM Club last week and a person in the audience slipped us a business card

for another good site.

News: 11/24/07: Our Minneapolis South site is fine, and we suspect has been the whole time. It was full scale this morning in

the Mall of America approach roads, parking lot and by the MSP Airport on a small magnet mount mobile antenna. The

notion of needing to link our machines is key, as they do not have great non LOS range- this is not LA, or Phoenix, with

mountains overlooking our sites.

It was interesting Windows Server 2008 RC1 gives you a "limited connectivity" message on the Ethernet-ID-1 connection,

until the ID-1 "sees" the repeater and then the little message goes away.

News: 11/21/07: Hennepin County is looking for us to come up another 1.2 data machine for a site they have @400 feet.

They have an idea for multiple machines linked via dedicated land lines which has considerable merit.

News: 11/14/07: The next open workshop is November 18th in Maplewood at the East County Line Fire Station on Century-

9:00 on.

News: 11/9/07: We are requesting that the rest of the State and Metro Area County Communications Vans and EOCs install

ID-1s. Ramsey County is working on theirs. If we buy enough ID-1s we might be able to pull in another ARAP aka

Repeater from Radio City. We have lots of sites for another machine. Metro Skywarn has taken title to the machine now

called Minneapolis East based on a second donation from Dan Skripka- thanks Dan. TwinsLAN is going to try to put some

nice block diagrams and code samples on their web site to help others. We need another work party to do some more

development.

News: 11/8/07: We have received a donation from the Brainerd Motorola dealer of four truckloads of late model FM VHF/

UHF repeaters and duplexers and cavities. We think there are some broken repeaters around Minnesota that need help- talk to

KOLAV.

News: 10/27/07: We are struggling with what to call our 1.2 GHz data repeaters. They are not repeaters. They are not

"nodes" as they don't behave like packet nodes. So since we are a leading user of these devices we are going to come up with

a name "Amateur Radio Access Points" - they look more like a \$39 wireless router than anything else, and they are simplex,

and not taking up two frequencies. We would like to have the ARRL Repeater Directory list these.

News: 10/24/2007: I have an idea for fundraising for our D-Star network. Every Amateur who calls or writes and says we

(Amateur Radio) should use the Internet instead of Amateur Radio for backup disaster communications and inter-site linking I

charge \$1 via PayPal. If a served agency calls and says they have no possible other way to reach critical data in an

emergency I'm OK with providing access to them- but as a routine matter using D-Star for normal ISP Services is on the list of

prohibited communications under FCC Part 97.113:.

(5) Communications, on a regular basis, which could reasonably be furnished alternatively through other radio services.

And there is the tired argument that 30 and 40 year old technology- like 1200 bps packet- is "all we need"- is interesting in

the face of the evacuation of almost one million people from the LA /San Diego fires today.

<http://www.latimes.com/business/printedition/la-fi-cell24oct24,1,68147.story?coll=la-headlines-pe-business>

News: 10/21/07: Max has identified the uplink /DNAT issue with FTP. He was missing some kernel modules. This was

overlooked during the rush to get the machines built and installed.

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News: 10/12/07: We are getting some mail. So far in the last two weeks some folks wrote from Sacramento, who are trying to

do some modern stuff and getting taken to task for not using packet. That sounds familiar somehow. The South Carolina

National Guard was next, and then some folks from Virginia working on some aspect of the Republican National

Convention. I want to get a list out of who works on what on our team here so you can go to the right person directly.

News 10/7/07: It worked! We operated Medtronic Twin Cities Marathon/TC10 Net Two (Mile 19-22.5) on one of

our three new L-Band D-Star-DD repeaters in Downtown Minneapolis to the database server at the finish line in

Downtown St. Paul all day today, helping get medical aid to and tracking the locations of several hundred runners

who needed medical attention. More than 16,000 runners were in our database, and there were hundreds of

thousands of spectators. We had hot, challenging weather. We had 140 licensed volunteers and ran seven voice nets

as well as the data system. Most of the load was on our three main on-course radio nets today, led by Mike, KOBUD,

John, NOYR and Bill, NOQHP.

The Chicago Marathon was today, and in even warmer temperatures had to halt their race after four hours. Based

on reliable sources they ran out of community medical resources- i.e. rigs for hospital transport. The MTCM is the

8th largest marathon in the USA, and the argument that D-Star is "unproven" in large scale, multi agency planned

mass casualty events is now incorrect. Thanks everyone!!

MTCM Family Medical Information Tent 10/7/2007- six laptops running on 802.11b to our database at the race finish

line fed by packet and D-Star DD Mode via our four new L-Band repeaters. More than a dozen computers were

required to run the medical system- more than can be supported via packet radio, but easy for D-Star. Pat,

KB0OLI,(I) runs the tent. Note the Yellow Shirts are Hams, the other operators are community medical volunteers.

The use of unlicensed 802.11b allows the integration of available staff into emergency operations.

KD8GBL was the "Maytag Repairman" today in the data trailer- no troubles were reported on the data system.

Note the ID-1 repeater database uplink transmitter on top of the database server. 145.67 packet radio and TNC is to

the right, and 802.11b access point to the upper left.

A hot day for a road race 10/7/07

News: 10/6/07: A special thanks to Barry Altman who spent most of today testing our system. At about 5:30PM, after the last

route statement was added by KD8GBL to our production server (with Max on the phone) he reported success. He could go

up to the repeater from 10 miles away in Minneapolis, and down to the remote database server in our trailer at the finish line in

front of the State Capitol in St. Paul. So the notion of the ad-hoc deployment of Amateur Radio assets- users and servers under

D-Star DD repeaters allowing the use of easy to use web applications comes true. We'll let you know how it works in

production after we care for 15,000 Marathon and 10 Mile runners about 3PM tomorrow :-)

News: 10/4/07: So far for the Marathon, we can report that both the Mining ARC and Minneapolis East D-Star DD repeaters

are full scale with no packet loss at the finish line in the exact spot where the MARA radio/database server trailer will go from

a mobile Comet antenna on my vehicle hatchback. The spot for the Hennepin County Van is full scale into Minneapolis

East, so we are ready to go. The South Repeater was not reachable from either site and may have issues. Dual "Have you

Tested Your RF Paths rather than Rely on Luck" awards go to Greg Kitchak, who did some testing a few weeks back and

warned me about the issue with South, and to Dan Skripka, who had me do some testing this evening.. One more repeater as

a backup would not hurt. If you have ever wondered why we install data repeaters in threes (the 145.67 packet network is

this way) to cover a given area when we are making commitments to people now you know.

News: 10/3/07: Minneapolis Downtown East is up. 1251.000 /DD 172.16.2.1 /24 the web site is on 172.16.2.20 /24.

This one is at a 33 story downtown rooftop. The range looks great. I get one bar (maybe 10% packet loss on beam that was

aimed only roughly) on my radio in Shoreview. Many thanks to a large team who helped here, esp Dan Skripka and Doug

Reed who sponsored the system. We are expecting one more system to go in this week..

News: 10/2/07: We will be installing our newest ID-RP1VS + Linux controller at a certain Downtown Minneapolis site

@30 stories. This has provided some clarity on our plans- as the Marathon is Sunday. Dan is making progress on our other

Downtown site, and we are asking Erik (the other one) to loan us his machine for that site. The idea there is we would have

also 440 voice/data in addition to 1.2 DD mode. Note a "DIN" RF connector in the foreground on a cable.

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also 440 voice/data in addition to 1.2 DD mode. Note a "DIN" RF connector in the foreground on a cable.

News: 9/29/07: The Icom ID-1 setup software works fine under Windows Server 2008(r) Beta 3- formerly known as

Longhorn. The software works great as a user you just have to turn off all the misc "stuff" on the Ethernet Interface- all the

other stacks except IPV4 and all the extra authentication stuff should be disabled. Broadcast traffic on the Ethernet with IP

addresses will be transmitted by the radio... Make sure you have automatic configuration checked on Explorer under LAN

options.

News: 9/28/07: In the "deadlines are good" department, we have three independent teams working on final prep for two more

repeaters on good Minneapolis >300' rooftop sites in the next week. This would bring the total number of D-Star repeaters in

the Twin Cities to Eight, with one more on order, and one in stock up at Radio City. The goal is to reach the both Net 2 van

and the finish line on a challenging RF path. Greg and Alan have built another 1.2 DD repeater- they have four between

them.

News: 9/27/07: We picked up another RP1D / RP1V repeater today from Radio City. It will go on the first available

downtown Minneapolis site in the next week. We told Dan Fish up there to order another repeater under the "buy five get

one free" program.

News: 9/23/07: The Hennepin County Communications van stopped by our work session today for the final integration

testing of D-Star equipment including an ID-1. This means three of our best mobile communications assets are now D-Star

high speed data capable. We were able to reach the Mining ARC high speed repeater from the van. We found a bad Ethernet

coupler on a new radio which took a while to troubleshoot. We are going to try to install two more D-Star repeaters in the

next two weeks in Downtown Minneapolis to improve finish line coverage.

News: 9/20/07: We are going to try to get Minneapolis Downtown East on the air in time...and various other ideas...

News: 9/15/07: We may not be able to reach the Mpls-S repeater/node from the State Capitol. So the pressure is on to get

another good site going in less than three weeks. Can we do it?

News: 9/14/07: We are postponing the move to DHCP- it will go in the next release of our Linux appliance code. The final

Marathon dress rehearsal is on 9/23 at the Maplewood Fire Station.

News: 9/10/07: We sent notes to our served agencies for the D-Star project telling them we were operational. Whew. Now

to get ready for our 9/16 Hamfest at the Shoreview Village Mall from 8 to 11.

News: 9/9/07: We are declaring the first two nodes of our Twin Cities High Speed Data Backbone operational. Max

and Ed just installed the new version of the Linux control computer on the Mining site. We can cover both cities with

the two sites. They were able to reach both systems from the parking lot of the Maplewood Fire Station today on a

portable antenna from Greg's trailer.

News: 9/8/07: We might switch to DHCP on our systems. We'll let everybody know.

News: 9/5/07: The next work party is at the Maplewood Fire Station this Sunday. We will try for a dress rehearsal on the

complete system for the Marathon. I need to leave early again.

News 9/5/07: We are scrambling to get the Minneapolis Downtown East digital node installed in time for the Marathon. We

are more comfortable with a three node core system rather than just two nodes.

News: 8/30/07: According to the Anoka Radio Club Newsletter, they are slated to get a D-Star repeater soon courtesy of

Radio City. This one would support 23cm voice/data and 440. We think 440 is the way to go for digital voice repeaters and

low speed data. 2 meters is full and will stay that way in our view.

News 8/29/07: We have been informed there is today no working "9600 bps high speed packet" infrastructure capability in

the Twin Cities any more - there is some revival of it outstate- we have some new maps on the way.

News: 8/25/07. Max has tested our new Minneapolis South system from his truck- it's operational. We can ping it 12 miles

out.

News: 8/24/07: Our new L-Band simplex data repeater/node, Minneapolis South, is now operational. We are at

1298.000, with a new version of the Linux appliance software. This one supports multiple remote users and uplinks

to the repeater from served agencies and trailers, (including Internet and Intranet as requested by agencies), and

Citadel, our conferencing/mail/collaboration system, and will allow TCP/IP repeater linking without having to use the

as yet undocumented D-Star native linking protocol or linking radios. Thanks to Max and Kelly for their software

support here.

News: 8/23/07: Note we are going to be using D-Star as a high speed data only backbone for the Medtronic Twin Cities

Marathon medical communications. No digital voice is planned by us for the moment, and we are focusing on Net 2 and Net

3, to replace a "high speed packet" backbone, which has not met our reliability requirements for at least the last four years- it's

out of service right now. No changes of any kind to current voice operations are contemplated for 2007. The use of Lband

also means there is less RF on 2 meters and 440 at the finish line. We are tired of trying to run lots of updates/queries

over 1200 bps packet, which has been 100% reliable but is not designed for this much data volume. The 26 mile course

covers a lot of area, and we have to use fixed infrastructure. No L band is available at Net 1 so they will still use packet.

News 8/20/07: We were reading the situation reports from the State Emergency Operations Center last night and noticed some

possible communications issues in places like Winona, MN due to the serious rain/flooding. Towns in fact are isolated by

road closures. This is a nice reminder of why we spent the last five summers driving around the State putting up shared

infrastructure, and the fact that an end point is in the State EOC says when people need it it's there and does not involve

people getting out of bed and driving to set up portable equipment. We offered one group down in that direction some used

equipment to put up a replacement city packet. We also need some more regional bulletin board systems to be able to post

stuff. Any takers down there? Note we want to use .67 to access BBS systems but please not to automatically forward mail.

Some of the best nodes in the packet system were put up locally- and can be serviced locally.

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Some of the best nodes in the packet system were put up locally- and can be serviced locally.

News: 8/19/07: As we can now document there are more than 12 ID-1 radios alone in amateur operator hands in the Twin

Cities, the argument put forth that we should oppose the introduction of D-Star as "more users" are on packet is now incorrect.

(This does not include the 2M/440 radios that have been purchased- perhaps several times that number). We reviewed the

heard lists on our wide area packet digipeaters this weekend - they are few/no actual packet end users evident- there are plenty

of node beacons going which is a good thing. Packet is obsolete from an engineering standpoint any more but is useful when

there is nothing else. We have had a dozen people show up for our D-Star work sessions in the last few weeks.

News: 8/18/08: Max has uncovered a mystery involving one of our fleet of RP-1Ds - that it stops responding to pings on the

back end Ethernet interface only for ten seconds every minute. Data traffic seems to still flow- is this housekeeping? I want

to get my test bed going to validate this but re-did my 1.2 beam here and it is pointed in the wrong direction. And it's raining

and there is no rotator.

News 8/15/07: We would encourage everyone to read the editorial in the September 2007 QST Magazine.

News 8/12/07: We are all done testing the Minneapolis South system, and yet another D-Star repeater has been purchased

here by Alan. We plan to install next week.

News: 8/11/07: Next open workshops at Maplewood Fire Station #1 - 8/12 and 8/26. We are doing final systems integration

work on the repeater for Minneapolis South and our uplink system and back-end Linux boxes. I would like to get an early

start (9am) these two days as I need to leave early- 12:30.

News: 8/8/07: The electrical and antenna work for the new Minneapolis South D-Star repeater site is now done.

News: 8/7/07: Served agencies are talking about new high speed radio data networks - one on 700 MHz "Frontline" that

works at about 100 kilobits. This would be similar to what we can get with D-Star. We could provide a useful backup. It is

being reported commercial cell data air cards (which in some/all cases share cell site bandwidth with cell voice) worked

slowly during the recent Minneapolis bridge collapse.

News: 7/18/07. We have discovered that you sometimes need plenum rated coax/hardline cable, if run inside of buildings

anywhere near air ducts or elevator shafts at least in Minneapolis. We also learned that you cannot have radio equipment

installed in elevator rooms in Minneapolis.

News: 7/15/07: We are back in contact with the folks doing communications for the Marine Corps Marathon. This one, with

35,000 runners, is about three times the size of ours. They are also apparently using a version of trivnetdb, and used D-Star

DD mode last year in a secondary role. They will be using D-Star as primary in 2007 a few weeks after us.

News: 7/8/07. Kelly Black KB0GBJ and Max Klingert KB0RSQ from Twinslan solved our "uplink" puzzle. The

Icom D-Star DD mode does not allow one to many connections between ID-1 users. But DD mode is not IP address aware

(it routes only via callsign headers) so does allow us to have a server behind the repeater that all stations can reach, and using

destination NAT, (Linux IPTables command with DNAT) many stations can reach that server, and be NAT redirected to a

remote server coming in on an ID-1 link to the repeater in another IP address block. We tested it with 3 ID-1s today. This

will allow a group of system users to access remote databases, servers, or remote Internet or Intranet servers on ID-1s on the

repeater. This was our design goal and we had a few tense moments when it did not at first appear to work. We do not want

to have database servers co-located on repeater sites that are hard to get to. We can have a small, flash-programmed Linux

appliance there instead.

News 7/4/07: The 2nd Annual MARA Tailgate Flea Market will be held again in at the Shoreview Village Mall on Sunday

9/16/07 at 8:00AM. It started last year at 7:30AM but it was still dark. A lot of amateur radio gear changed hands. This is at

Highway 96 and Lexington Avenue, about a mile E of 35W, and a mile N of 694.

News: 7/3/07: The next open work party is at Maplewood Fire Station #1 on 7/8. We are going to try to test a full time packet

to D-Star gateway. This would then be deployed. We also want to test repeater to repeater routing. Our main issue so far we

want to have our databases in trailers and "uplink" them to our RP1D repeaters. This does not look possible right now.

One (untested) idea is to have an RP-1D in the trailer, and make the uplink a repeater-repeater hop. It would work if we

uplinked to the back end of the repeater, but that would require another pair of ID-1s, Icom link radios or something like an

802.11 bridge.

News: 7/1/07: It is being reported that Kenwood in Japan is marketing a D-Star radio
<http://www.kenwood.co.jp/>

[newsrelease/2007/20070628.html](http://www.kenwood.co.jp/newsrelease/2007/20070628.html)

News: 6/20/07: Dan at Radio City has ordered a fourth D-Star data repeater. This one is for Anoka. The Icom 10G

repeater-repeater link radio pricing is out- \$4995 per end.

News: 6/18/07. We are telling our served agencies to start ordering ID-1 for their EOCs, vans, etc. Icom is apparently

starting to market the 10G link radios.

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starting to market the 10G link radios.

News: 6/6/07. We are in the final funding negotiations for our third RP-1D repeater. I think this will give us a very large

concentration of data hardware, and puts our main goal, a triple redundant Twin Cities core network like we have today with

packet, in sight. The rooftop site arrangements are going well.

News: 6/3/07. We had a big day of testing on our second (WD0HWT) D-Star repeater - there are now five in the Twin

Cities. We (Kelly) got a D-Star to packet radio gateway tested out and accessed the Red Cross Public Website over our

repeater. We had three ID-1 radios there so we could work out routing issues. We are seeing good round trip delay figures

(100ms) to the repeater. Below the pic (l to r) is one of our RP-1Ds, a packet node, and a laptop running Trivnetdb, really just

debian and the AX.25 node software. The ethernet cable (blue) goes to the port on the back of the repeater and to the laptop.

We made an Internet gateway for by bringing up wireless Internet on the Linux machine.

Kelly Black had a good idea yesterday, repeated today by KC9JIK and KD0ASG - why not set up kids with a "Ham Radio

Chat/IM Client" that works over digital radio. It would be free. Jabber or another type of server was suggested.

News: 6/3/07: See us in the Pioneer Press Sunday Paper http://www.twincities.com/localnews/ci_6048442#recent_comm Thanks Matt and Sherri. I was going to suggest in the US we can talk about sports and

politics on the air but for international traffic Matt and his Editor did read FCC Part 97- it's in there: 97.117 International communications.

Transmissions to a different country, where permitted, shall be limited to communications incidental to the purposes of

the amateur service and to remarks of a personal character.

News: 6/1/07: We think there is another donation coming next week to help cover a repeater for Minneapolis Downtown

East. This would give us the required three systems in the core Metro. Linking them would be useful. One plan discussed

today is to move Erik's machine below from his back yard to a hospital rooftop in the SW Metro for coverage there- say

Burnsville. More discussions planned at the Mining Radio Club /TwinsLAN Swapmeet at 3M Center Sat 6/2/07 7AM-Noon.

News: 5/31/07: The 14567.org group now has our own D-Star RP-1D repeater, thanks to Dan Fish at Radio City. It

will be tested with the MN Department of Health Workspace application and installed shortly in Downtown

Minneapolis. We bought another ID-1 radio, which will go in our trailer, and will be used as the high speed data

uplink for the Medtronic Twin Cities Marathon database. We have yet another rooftop site in negotiations for our

systems in Minneapolis.

News 5/22/07: We are establishing a buying consortium to get a few more ID-1 radios. We just need one more radio to be

purchased from Radio City and Dan will hand over another repeater. This will go on our new Minneapolis /South site and

would cover both downtowns and wide circle of the Metro.

News: 5/14/07: A D-Star 1.2 GHz high speed data/digital repeater was successfully installed by the Mining ARC +

TwinsLAN on a good 230' site in East Ramsey County. The digital voice repeater is on 1285.100 (output), data is on

1299.000 KC0TQI. We bought an ID-1 - it's plug and play.

News: 5/9/07: There is apparently some confusion about codecs (which do compression and translation- such as analog to

digital voice over IP in D-Star) and codes, which are intended to obscure meaning and are not allowed under FCC Part 97

rules. We have received written, formal confirmation from N1ND at the ARRL Regulatory Affairs Department that the

codecs in D-Star are legal per the FCC. Note high speed data does not apparently use this codec. Our plans do not call for

the use of voice on L-Band, as the radios we have cannot do voice and high speed data at the same time. To have a \$1000

data radio act like a \$130 voice radio is needed only in Japan where there are too many operators and not enough voice

repeaters, but not here.

News: 5/8/07: We got our first D-Star related grant today. The grant is from a corporate sponsor, and includes a

new 500 foot rooftop site in Eastern Downtown Minneapolis. This site, and the site at 3M will cover much of the

Twin Cities Metro Area for high speed data access.

News 5/6/07: Doug Reed N0NAS of TwinsLAN / MN Skywarn helped conduct a successful test of our web based injured

runner applications over a new D-Star data repeater which was donated to MN Skywarn (the NWS affiliated tornado spotters

who are all hams BTW) by Radio City of Mounds View. This machine will be installed in a few weeks on a good site. On

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who are all hams BTW) by Radio City of Mounds View. This machine will be installed in a few weeks on a good site. On

the picture below, left is the Linux server, the ID-1, then the "user" laptop then the donated repeater which is now on the air.

News 5/5/07: At the American Red Cross sponsored Digital Symposium, the ARC representatives announced they have had

a strategy change for initial and ongoing disaster response- "we don't use voice radios much any more- our priority is to get

high speed data connections to our computer systems we use for taking care of our clients (disaster victims)" This is in line

with our strategy and advice here. Note they also use IP phones which are an interesting technical challenge to consider for

Amateur Radio.

News: 5/3/07: Dan up at Radio City is reporting he has one of the D-Star data repeater sets spoken for, and has a deal open on

the second one- any group that buys 3 (now two) ID1 radios gets the second repeater.

News 5/1/07: The next Packet Workshop is at Maplewood Fire Station #1 on 5/6. We hope to start to integrate D-Star with

our Trivnet Linux systems, and to build a packet to D-Star digital gateway. Doug Reed has one of the Radio City D-Star

repeaters in hand. There is also a Digital Symposium being run by the Red Cross folks in Minneapolis at Red Cross HQ on

5/5 starting at 10:00 AM. We will be giving the first talk.

News 3/30/07: Dan at Radio City up in Mounds View has purchased 10 Icom ID-1 radios for stock. For that under the

current promotion he got two complete D-Star repeaters which he is making available for local clubs. One will be used

for software development by TwinsLAN. He does though need folks to buy the remaining ID-1s so they are not still in his

inventory. Several of us are going to pick one up shortly. Four or five have already been sold. If we can get one of the 1.2

G data machines installed we'd like to use it for the 2007 Medtronic Twin Cities Marathon to be "primary" course/metro wide,

with packet as backup.

News 3/28/07: Greg Kitchak, NOGEF has installed another D-Star repeater in the West Metro. Call is K0FVF

145.150

442.900

News 3/16/07: We had a successful test of a D-Star repeater at our packet workshop. It is reported there are now four D-Star

repeaters on order or in hand in MN so far. We decided to deploy Citadel systems statewide using solar power and Linux

appliance computers. We will be having a Statewide drill on SET weekend in October. Stay tuned. Several new packet

nodes have been added to the map.

News: 3/1/07: Radio City in Mounds View has ordered five Icom ID-1 radios, and got the "free D-Star repeater" with that.

We are talking to Dan about where that should go. Anyone who wants to buy an in-stock ID-1 from Dan to help him out

would be appreciated. Why do Minnesota people buy radios from South Dakota/Wisconsin again? We had a great show at

the Washington, DC public health event- lots of interest across the 1300 attendees in Amateur Radio as a backup system.

News: 2/19/07: We have decided to use Citadel as our back end mail and conferencing system. We still have not heard back

on our two/three outstanding D-Star proposals. We are eagerly following the test results for the first few systems. Kelly and

Max from our Development Team are reworking the command line/tty interface to get rid of every-character echo and going

to line by line (cr) echo which is more radio-friendly.

News 2/15/07: It is being reported as of Sunday there are three complete D-Star repeater systems in the Twin Cities that are in

the process of being put on the air by various individuals.

News Flash: 1/22/07: Erik, N0SVX, has ordered a complete D-Star repeater system. This will include 2M, 440, and

1.2 both voice and data. More to follow. First site- Bloomington on 440 - it's on the air. 443.450 (correction)

New 1/7/2007: We are evaluating a Linux BBS/conferencing package called Citadel. Kelly Black is studying it and has built

us an AX.25 interface for it

News: 1/1/2007: John N0YR has donated three 2 meter radios. These will be used on our new Rochester link. Thanks,

John!!

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Max from our Development Team are reworking the command line/tty interface to get rid of every-character echo and going

to line by line (cr) echo who is more radio-friendly.

News 2/15/07: It is being reported as of Sunday there are three complete D-Star repeater systems in the Twin Cities that are in

the process of being put on the air by various individuals.

News Flash: 1/22/07: Erik, N0SVX, has ordered a complete D-Star repeater system. This will include 2M, 440, and

1.2 both voice and data. More to follow. First site- Bloomington on 440 - it's on the air. 443.450 (correction)

New 1/7/2007: We are evaluating a Linux BBS/conferencing package called Citadel. Kelly Black is studying it and has built

us an AX.25 interface for it

News: 1/1/2007: John N0YR has donated three 2 meter radios. These will be used on our new Rochester link. Thanks,

John!!

News 11/30/2006: We will be presenting our packet/D-Star network and partnership with the MN Department of Health at

the 2007 Public Health Preparedness Summit in Washington DC. <http://www.phprep.org/index.shtml> - We are building a

demo laptop to take with us to the show

News 11/25/2006: From Jerry, N0MR: The (new 145.01) path to Duluth is running nice and all TheNet, k net, or X1J.

Connect to MNSTP then MNHRIS then HINK then WISS. Then you can go to MNDUL, DULBBS, or my mailbox,

N0MR-1. Several places along the way you can branch to a cross to 145.67.

News 11/3/2006: The Lakes Area Repeater Association, (one of the sponsoring organizations behind the Statewide Packet

Network) now has now co-signed an MOU with the Minnesota Department of Health along with the American Radio Relay

League.

News 10/30/06: We made a run up to Pequot lakes and now have a APRS station there. We want to build an Internet APRS

gateway using a Linux appliance (Neoware 3000 + Slackware) box in Little Falls. Little Falls and Pequot now have dual port

TNCs- 145.67/145.01. There is more D-Star interest- the U of M Club is raising funds for one (440 band?) as well. Our

primary interest is high speed emergency data access and supporting our served agencies. This is "Amateur Radio the

Service" in action.

News 9/19/06: We are announcing our plans to buy an Icom D-Star digital data repeater. The first one will go in to one of

several secure commercial/governmental sites we have in Ramsey County. Future repeater stacks will go in Hennepin

County, and in Bloomington/Savage. The systems will be linked via a dedicated microwave radio backbone. The idea is to

support 128kbps digital data and web software based public service applications on Amateur Radio frequencies, and not

depend on commercial network services to back themselves up. Each high speed node site costs \$3000.

We are big fans of radio based backup systems. Many have suggested we use the Internet as a backup system in case the

Internet fails. This does not seem to be a sound engineering practice. We are not planning to become an ISP, which on a

routine basis is prohibited under FCC rules anyway.

Users of Icom ID-1 radios (10 watts, the fastest and most powerful data radio on the market in any service) will be able to use

the system to access public service applications, mail, and our two Statewide packet radio networks as well as the TwinsLAN

Metro Area network. 145.67/145.01 packet users can also reach the same applications and the D-Star users via a Trivnetdb

Linux gateway.

News 5/15/06: We have decided to deploy regional mail server/BBS systems on the 145.67 network. (Thanks Jerry,

NOMR). In the event of a disaster or incident, amateur radio packet users can go to the nearest BBS system, for updates and

instructions. Bulletin messages to "all" (SB is the command)) can direct people to which callsigns are in use for an incident.

We are also using Trivnetdb on Linux as an application for delivering services on the 145.67 network. Multiple users can

connect to these servers and access databases for missing persons, and also build new databases (!) such as for Pan Flu work

and use the conference services. The KCOLQL node and Trivnet have a conference service- sign in with your call or tactical

call (such as the first six letters of the County name for Public Health Officers). A grant request is in for an Icom D-Star

system to provide high speed web access between 145.67 locations, 145.01 locations and critical medical locations.