Status Report on the KA9Q Internet Protocol Package for the Apple Macintosh

by

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Introduction

This article describes the current status of the implementation of the KA9Q Internet Protocol Package which we performed upon the Apple Macintosh family of personal computers. The unique Macintosh user interface and its proper utilization by the KA9Q software has been our major objective in the three years since we have started this project and has proved to be quite a challenge. We hope that the users of our implementation have been pleased with the results to date. As of today, there are at least 300 copies of the package out in the world which we have distributed ourselves. We are certain that there are many more copies out there which we don't know about. This is a good deal more than we expected to see three years ago. After all, the Macintosh is not the personal computer that is most linked with amateur packet radio due to its cost when compared to IBM PC's and its clones.

NET

Our work on the NET version of the KA9Q package has been described in some detail in previous articles last year. The first [1] appeared in the 8th CNC proceedings and the second [2] in 73 Magazine. We will not repeat any of that description here and refer any interested parties to those articles. The version described in those articles (Version 2.0) was released to the public at the Dayton Hamvention earlier this year. Those interested in the availability of that version refer to the notice at the end of this article.

This version is based upon the last version of NET released by Bdale Garbee N3EUA known as Version 890421.1. It also includes several features and facilities from NOS. For example, the Routing Information Protocol (RIP) which appears in the current version of NOS was included in the 2.0 Macintosh release in order to allow NOS and Macintosh stations to interoperate and share routing information in those areas of the world where both packages are in service in the same geographical area.

For those of you into the Macintosh graphical user interface (GUI), you will notice that although there is support for multiple session windows, the windows do not support the familiar 'scroll bar'. The lack of proper scroll bar support comes as a

result of our decision to stick with the THINK C stdio library. This library comes with the compiler and is really just there to provide standard C stdio library functions. No attempt was made by the THINK programmers to provide an environment that would allow the development of standard Macintosh applications with scrollable windows. At best you could say their goal was to provide a way to port UNIX applications to the Macintosh fairly quickly. To fully implement scrollable windows would have meant abandoning stdio and rewriting the entire **KA9Q** package from scratch in order to restructure the code into a form which would have allowed us to build a standard Macintosh application where all the event-loop logic would have been in the application and not stdio. As were we trying to adhere to Bdale's goal of having all of the various ports of the **KA9Q** package have a common distribution mechanism, all of our mods were done as IF **DEF's**. Abandoning the stdio approach would have meant that we couldn't have conformed with Bdale's approach and would have meant that we would have had to do a great deal more work to get a port out the door with the features we wanted. We therefore decided to go with the stdio approach and no scrollable windows.

The mail application **(BM)** has been converted to THINK C version 4.0. NET however, continues to be based upon THINK C 3.0. We attempted to convert NET to 4.0, but found that the THINK people had left out a number of functions which we had used in version 1.0 of our package. Close study of the new environment showed that if we indeed wanted to convert to 4.0 then we would have to reimplement those missing routines on top of the new stdio. We decided to put off such an effort until we were ready to use the new object oriented class library features introduced in THINK C 4.0

We would like to point out that we found a number of errors in the THINK C 3.0 stdio library. These errors only effect the operation of NET. We have developed a new version of the library called stdio.n which we will provided upon request to those of you who wish to produce a working version of the application from the source.

We plan to put out a maintenance release for version 2.0 sometime during the fourth quarter of this year. This release will include all of the bug fixes which we have made during the course of the year. It will also include some minor feature enhancements, such as new options on some of the commands such as the IP and AX25 Heard commands. It will be available as noted below.

NOS

At this time, we have no plans to do a port of NOS to the Macintosh. The main reason for this decision being that we don't feel that the size of the effort required to do so will justify the returns. We know that this may disappoint a number of you out there, but bear with us as we do have what we feel are good reasons.

NOS as it stands now is fairly machine independent. Karn has spent a good deal of time and trouble to make it so. It is a much better platform to build upon then NET ever was. In order to see how easy it would be to port it to the Macintosh, we did a port in early '89. It took about two weeks of off and on work to get it up, and we encountered no major problems along the way. The biggest piece of work was to remove Karn's new multitasking logic and adapt the code to coexist with MultiFinder. However, this left us with the same problem that we had with NET, no scrollable windows!! We made the decision at this point that any further efforts on our part with NOS would mean that we would have to bite the bullet and do the major restructuring of the code that we had put off with our NET port. This would have been our plan until we remembered the other article we wrote for the 8th CNC [3] which had to do with the need for applications to drive further development in amateur packet radio. Porting NOS as we wanted to do it would have meant doing all of that work and then ending up exactly where we were before, with no applications (make that no Macintosh applications!). Hence our decision to put our efforts into the approach outlined below rather then doing a port of NOS to the Macintosh.

Anyone who is interested in porting NOS to the Macintosh can use our NET work as a point of departure. With a bit of additional effort you should be able to get a version of NOS up which has the same user interface (no scrollable windows) as did NET. We would be happy to provide assistance to anyone so inclined.

The Future

Our present goal is to provide a way to run Macintosh applications over a TCP/IP network in much the same fashion as is done now with AppleTalk. Our view is that what people who use the Macintosh want is to be able to run applications and access data as they normally do. If we can develop an environment which can do that over packet radio, then we will be a lot closer to making those amateurs who use the Macintosh for packet radio work that much happier (ourselves included!).

We are presently working on code which builds upon the AppleTalk Manager in the Macintosh Toolbox which sends and receives AppleTalk (AT) packets over packet radio. We plan to support both raw AppleTalk packets over the air and AT packets encapsulated in IP packets. We hope to report on that work at the 10th CNC next year.

Acknowledgements

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Package Availability

The object code package **is** available for a $5 donation (source code for an additional $5) from Doug Thorn N6OYU, (c/o Tetherless **Access** Ltd., 1405 Graywood Dr., San **Jose, CA** 95129-4778) to cover the costs of the diskette and mailing. The package may also be downloaded via the Internet using 'anonymous ftp' from apple.com, in the directory 'pub/ham-radio' or from the N6OYU landline BBS at (408)253-1309.

References

[1] Hendricks, Dewayne WA8DZP and Thorn, Doug N6OYU. "KA9Q Internet Protocol Package on the Apple Macintosh". <u>Proceedings of the 8th ARRL Computer Networking Conference.</u> Newington CT: ARRL, 1989, pp. 83-91.
[2] Thorn, Doug and Hendricks, Dewayne. "TCP/IP for the Macintosh". <u>73 Amateur Radio.</u> October, 1989, pp. 68.
[3] Taylor, Robert KA6NAN and Hendricks, Dewayne WA8DZP. "Application Software for Packet Radio".<u>Proceedings of the 8th ARRL Computer Networking Conference.</u> Newington CT: ARRL, 1989, pp. 210-215.