Network Working Group
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NIC 14415

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NCP Survey

1 This RFC is the first in a series which will request information on implementation of host to host protocol. We would appreciate a reply to this RFC from all sites within two weeks. One convenient way to reply is to make a copy of this RFC at the NIC and insert the replies at the appropriate spots. The results of this survey will be published. Please send replies to nic ident CSK or to

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2 This particular RFC will deal with implementations of Network Control Programs (NCPs). Future RFCs will deal with . implementations of Telnet, RJE, etc.

3 In order to ask questions about NCPs and get meaningful replies, I will here describe what I consider to be my concept of an NCP.

3a An NCP is that part of the system which performs the tasks necessary for host to host protocol as specified by document NIC 7104 (protocols notebook).

3b NCPs contain the following parts (though not necessarily as separate pieces):

3b1 Code which handles connection establishment including maintenance of the rendezvous table (table of open and pending connections).

3b2 Code which handles transmission over open connections including buffer management and the sending of allocate and giveback commands.

3b3 Code which handles the actual movement of messages in and out of the Imp (sometimes called the Imp handler and sometimes in a separate cpu).

3b4 Other code including measurements, initialization, etc.

4. Please answer the following questions. It is probably appropriate to give this survey to the coder of the NCP or other knowledgeable person. Write na (not applicable) where it is appropriate. Circle the number of the appropriate choice when a choice is required. Thank you.

5 General Information

5a Host Name: ----

5b Site Number: ----

5c Your name ----

5d Main cpu is a ---- (360/75, PDP-10, B6700, etc.)

5e Operating system in main cpu is ---- (tenex, os/360, etc.)

5f Is documentation available on your NCP?

5f1 user level (how to use NCP)

5f2 system level (implementation)

5f3 Is the documentation available at the NIC?

6 Imp interface

6a built:

6a1 in house

6a2 contracted to ----

6b full or half duplex?

6c maximum bandwidth is ---- baud in each direction

7 Coding of NCP

7a ncp was written:

7a1 in house

7a1a written in ---- man-months

7a1b Name of person who wrote NCP ----

7a1c debugged in ---- man-weeks

7a1d machine hours used in development and debugging of NCP ----

7a2 contracted to ----

7a2a contractor took ---- man-months

7a3 supplied another site without modification by this site (specify site where NCP obtained from ------).

7a4 supplied from another site but modified by this site for different system or for other reasons (specify site where NCP obtained from ------)

7a4a modifications took ---- man-weeks

7b NCP is maintained:

7b1 in house (person's name ----)

7b2 by another site (specify site ----)

7c Size of NCP code:

7c1 Total size of all NCP code (not tables or buffers) as described above

7c1a ---- words of ---- bits per word

7c2 size of code which initializes NCP (on system up or after NCP or NET crash)

7c2a ---- words of ---- bits per word

7c3 size of code which handles opening and closing of connections

7c3a ---- words of ---- bits per word

7c4 size of code which moves data from user process to Imp handler or from Imp handler to user process

7c4a ---- words of ---- bits per word

7c5 size of Imp handler code

7c5a ---- words of ---- bits per word

7c6 size of other code (explain what it is)

7c6a ---- words of ---- bits per word

7d Size of NCP tables:

7d1 size of tables indexed by open connection (i.e. tables for control of open connections)

7d1a ---- entries or ---- words per entry of ---- bits per word

7d2 size of tables indexed by link (i.e. tables for link management and for quick association of an input message with a process)

7d2a ---- entries of ---- words per entry of ---- bits per word

7d3 size of other tables (explain)

7d3a ---- entries of ---- words per entry of ---- bits per word

8 Host-Imp communications

8a Imp handling is performed in

8a1 main cpu

8a2 additional processor (specify machine ----)

8b Imp handling is performed at:

8b1 interrupt level by resident code

8b2 scheduled process with resident code

8b3 scheduled process with swappable code

8c Number and size of buffers for the Imp handler (on input, number of buffers for messages before cpu will stop taking bits from imp. On output, number of buffers which may be queued before user processes will be blocked waiting for a free buffer)

8c1 ---- output buffers for sending to net of ---- words of ---- bits per word

8c2 ---- input buffers for receiving from net of ---- words of ---- bits per word

9 NCP-Imp handler communications

9a NCP communicates with Imp handler by

9a1 putting message on queue for handler and waking (unblocking) handler (i.e. shared memory approach)

9a2 some other mechanism (explain)

10 NCP-User communication

10a Mechanism:

10a1 special mechanism for network (i.e. different than files) using:

10a1a shared resident memory

10a1b shared non-resident (swappable memory or file)

10a1c other (explain)

10a2 similar to file io but network assigned rather than file (i.e. transparent to user process coding)

10b Bytes sizes allowed (circle all)

10b1 1 bit

10b2 7 bit

10b3 8 bit

10b4 9 bit

10b5 16 bit

10b6 18 bit

10b7 24 bit

10b8 32 bit

10b9 36 bit

10b10 other (explain)

11 Buffer space allocations

11a initial allocation when connection (receive) is opened

11a1 ---- messages and ---- bits

11b factors which will change this allocation

11b1 up

11b2 down

11c conditions which would cause a giveback command to be sent

12 Protocol facilities

12a Errors

12a1 Do you send error commands when you detect protocol errors?

12a2 Do you log it (or take some other action) when you recieve error commands?

12b Queuing

12b1 do you allow queuing of connections (i.e. when an rts or str is received for which no request is pending, do you refuse it (send back a cls) or queue it? also do you queue when two or more requests match the same socket?)

12b1a yes always

12b1b no always

12b1c yes for listens

12b1d other (explain)

12c Are there hooks (code) in the NCP for:

12c1 NCP measurement

12c2 Network measurement

12c3 MSP and other protocol experiments

12c4 Do any of these hooks allow a user process to send a message with a given leader or look at all messages which arrive with a given leader?

13 Time outs

13a How long will the NCP hold a request for connection (INIT or LISTEN) from a user process before timing out if not matched by an RTS or STR from the net ----

13b How long will the NCP hold an STR or RTS recieved from the net before timing out and sending a CLS ----

13c How long will the NCP wait after sending a reset or echo command before declaring the host dead (assuming you got a RFNM at least) ----

13d Any other timeouts? (explain)

14 Have you made any measurements on the effect of network use on your system?

14a effect of local users using telnet to go out to net

14b effect of foreign users using your system via net

14c bandwidth you have been able to achieve

15 Are any changes planned or in progress in the design or coding of your NCP? (explain)

16 Other Comments

16a Please feel free to add other comments on your NCP which you feel would be of interest to the network community.

[This RFC was put into machine readable form for entry]
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