Generic Name Search

Page application

Thu, May 4, 2006

The NAME page application supports the use of generic name searches that target either a single node or a multicast group of nodes. A discussion of its design was included in an earlier note, *New Uses of Multicast*. This note updates that description.

Five types of generic name searches are supported by the system code, as follows:

Type	*id*	*length*	*Search*
Anlg	0	6	Analog names in the Analog Descriptor Table (ADESC)
LApp	1	4	Entries in Local Application Table (LATBL)
File	2	8	File names in the CODES table
DStr	3	8	Names in Data Stream Name Table (DSTRM)
Page	4	4	Page application names in Page Pointer Table (PAGEP)

Listype 55 is used for generic name searches. Its 12-byte ident format is:

Field	*Size*	*Meaning*
node	2	node number if unicast request, zero if multicast
type	2	type code (*id* in table above), set sign bit for non matching option
name	8	name to be searched, with short names blank-filled

The NAME page application builds a Classic protocol request message using this listype, and it processes all replies that ensue, listing the results on the display and via a serial port. Here is the display layout:

```
P NAME SEARCHES   05/03/06 1042
NODE<    >      DT=       N=
ANLG<      >  LAPP<    > L<    >
FILE<        >  DSTR<        >
PAGE<    >
NODE:INDX  NODE:INDX  NODE:INDX
```

The target NODE number is entered as a single node number, such as 0x0509, or as a multicast node number, such as 0x09F9, which reaches all nodes. The Classic request message is built and delivered to Classic UDP port# 6800. All replies are returned promptly. Care may be required not to miss any of these nearly simultaneous replies. (A 68K-based IRM running NAME can receive all such replies reliably, but there currently seems to be a limit for a vxWorks PowerPC-based requester running NAME.)

Five separate fields allow entry of the various name types, and a "click" in any of these fields initiates the name search. (A click elsewhere does nothing.) Two varieties of each search are possible, matches and non matches. Use the "<" before the name field to indicate a search for matches, or a "–" to indicate non matches. For a non matching search, the reply from a front end will show its node number with an index value of 0xFFFF.

The L field is used for the serial output target node that produces the (sorted) listing that shows all the replies. (A generous 4-cycle deadline is used before the listing is output.)

The DT field shows the elapsed time in milliseconds from sending the request message to the last reply received. The N field counts the number of replies received.

Up to 27 replies are displayed (in time order of arrival) on the screen, in 3 columns of 9 lines.

For the special case of `LApp` searches, the underlying generic name search system support allows for multiple matching replies, as there can be multiple instances of local applications. For such matches, there is no indication whether the entry is active; *i.e.*, has its enable bit set. Matches only mean that the `LATBL` entry contains the matching name in the appropriate field.

For the case of `Page` searches, one can have multiple page application instances, each assigned to a distinct display page; however, support for returning such multiple matches is *not* included. If a node returns a reply for a match of a `PAGEP` entry, it only means there is at least one match. The `PAGEP` entry number given is the first (or only) one.

The 900 lines of page application source code compile into about 6K bytes. Using multicast addressing, the replies from as many as 165 nodes seem dramatically instantaneous.