



Tech Info Library

System 7: Chooser NBP Lookups

Article Created: 21 October 1992

* RESTRICTED: Apple Internal and Support Providers Only *
Not For General Public Release

TOPIC -----

I understand that there is a new algorithm for the way NBP lookups are performed from a System 7 Chooser. With a non-System 7 computer, the Chooser produced a lookup every 1.47 seconds if an item was selected. What is the new algorithm and decay cycle for the System 7 Chooser?

DISCUSSION -----

The action of the Chooser is directly related to the values associated with the device type. Each Chooser device file (RDEV) has a GNRL resource attached to it which specifies what the NBP LkUp characteristics will be for the device. There are two parameters associated with the GNRL resource:

- One defines the number of retries per NBP request
- The second defines the retry time between each LkUp in the current request.

The following example uses an AppleShare file server as the device being queried. The GNRL resource -4096 is defined as 0705.

As an example, if a user clicked on the AppleShare icon to see all of the AppleShare servers, the Chooser would:

- 1) Flood the network with NBP lookUp requests.
Initially the Chooser sends ten back-to-back NBP lookUp requests. Each NBP lookUp is defined to have 5 retries with 7/8th of a second between packets.

```
NBP ID 1
Send NBP LookUp (1)
wait 7/8th sec.
Send NBP LookUp (2)
wait 7/8th sec.
Send NBP LookUp (3)
```

```
wait 7/8th sec.  
Send NBP LookUp (4)  
wait 7/8th sec.  
Send NBP LookUp (5)  
wait 7/8th sec.
```

```
NBP ID 2  
Send NBP LookUp (1)  
wait 7/8th sec.  
Send NBP LookUp (2)  
wait 7/8th sec.  
Send NBP LookUp (3)  
wait 7/8th sec.  
Send NBP LookUp (4)  
wait 7/8th sec.  
Send NBP LookUp (5)  
wait 7/8th sec.
```

```
NBP ID 3
```

```
...
```

```
NBP ID 4
```

```
...
```

```
NBP ID 5
```

```
...
```

The retry interval (7/8th second) as well as the number of retries (5) can be changed by modifying the GNRL resource of the RDEV representing the device. The retry time is specified in 1/8th of a second increments. The GNRL resource is documented in Inside Mac Vol. 4 page 216.

2) Start exponential back off algorithm.

The Chooser then starts an exponential back off algorithm which approximately doubles the amount of time between successive blocks of NBP LkUp/BrRq requests, down to about one call every 270 seconds (4.5 minutes). As long as the Chooser is open, NBP LkUp/BrRq packets are constantly being generated by the Chooser.

```
wait 4 sec.  
NBP ID 6  
Send NBP LookUp (1)  
wait 7/8th sec.  
Send NBP LookUp (2)  
wait 7/8th sec.  
Send NBP LookUp (3)  
wait 7/8th sec.  
Send NBP LookUp (4)  
wait 7/8th sec.  
Send NBP LookUp (5)  
wait 7/8th sec.
```

```
wait 12.5 sec.  
NBP ID 7
```

Send NBP LookUp (1)
wait 7/8th sec.
Send NBP LookUp (2)
wait 7/8th sec.
Send NBP LookUp (3)
wait 7/8th sec.
Send NBP LookUp (4)
wait 7/8th sec.
Send NBP LookUp (5)
wait 7/8th sec.

wait 29.5 sec.
NBP ID 8
Send NBP LookUp (1)
wait 7/8th sec.
Send NBP LookUp (2)
wait 7/8th sec.
Send NBP LookUp (3)
wait 7/8th sec.
Send NBP LookUp (4)
wait 7/8th sec.
Send NBP LookUp (5)
wait 7/8th sec.

wait 64 sec.
NBP ID 9
Send NBP LookUp (1)
wait 7/8th sec.
Send NBP LookUp (2)
wait 7/8th sec.
Send NBP LookUp (3)
wait 7/8th sec.
Send NBP LookUp (4)
wait 7/8th sec.
Send NBP LookUp (5)
wait 7/8th sec.

wait 132 sec.
NBP ID 10
Send NBP LookUp (1)
wait 7/8th sec.
Send NBP LookUp (2)
wait 7/8th sec.
Send NBP LookUp (3)
wait 7/8th sec.
Send NBP LookUp (4)
wait 7/8th sec.
Send NBP LookUp (5)
wait 7/8th sec.

wait 268 sec.
NBP ID 11
Send NBP LookUp (1)

wait 7/8th sec.
Send NBP LookUp (2)
wait 7/8th sec.
Send NBP LookUp (3)
wait 7/8th sec.
Send NBP LookUp (4)
wait 7/8th sec.
Send NBP LookUp (5)
wait 7/8th sec.

If a remote device responds to at least 2 of the 5 requests, it's displayed in the Chooser device list.
Copyright 1992, Apple Computer, Inc.

Keywords: sys7

=====

This information is from the Apple Technical Information Library.

19960215 11:05:19.00

Tech Info Library Article Number: 10865