

**FIELD SERVICE BULLETIN**

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**System:** Symmetricom network time servers that used the NET+ARM12 microprocessor are versions of the NTS-150, NTS-200, and TimeVault.

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|---------------------------------|-----------------------------|
| <b><u>Product Identity:</u></b> | <b><u>Product Code:</u></b> |
| NTS-150                         | NTS-150                     |
| NTS-200                         | NTS-200                     |
| TimeVault                       | 6000-100                    |

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## **Symmetricom Network Time Server Ethernet Microprocessor Characteristics**

### **Scenario**

Network time servers monitor UDP traffic in the form of NTP requests, broadcasts, SNMP requests, etc. When the time server is attached to an extremely busy network, such as an ISP backbone, or networks with high levels of constant broadcast traffic, the server begins to buffer requests as it processes others. Typically traffic is not constant and the buffers are quickly emptied. However, since the buffers are not limitless in size it's possible to fill the buffer if the packets exceed the servers ability to process them. This is not a bug in the server as much as network traffic can grow to a point it can exceed the design of the server.

### **Problem**

Some Symmetricom models use the Net+ARM12 Ethernet microprocessor. When these servers experience very high levels of broadcast and/or direct addressed traffic there is a statistical chance the Ethernet receive unit of the microprocessor will latch up and stop receiving packets. The condition is triggered when all available buffers fill at once in the Ethernet receiver ring buffer and the hardware enters into an overflow condition. When the time server experiences this repeatedly, the overflow latch-up eventually occurs. However, if traffic conditions are such that the packets are removed from the ring buffer and processed before completely filling, the unit never enters the overflow condition and the time server works indefinitely.

### **Diagnosis**

The problem is exhibited when all of the functions of the time server work except functions through the Ethernet port (i.e. NTP, HTTP, Telnet, FTP, etc). Power cycling the unit will solve the problem for a period of time depending on the level of network traffic.

### **Workaround or Upgrade**

The workaround is to rate limit the number of packets entering the time server. The unit will handle its rated NTP loading, but what is critical is to limit the rate of other packets entering the server, especially the number of broadcast packets on the network. This can be done by using external hardware to isolate traffic destined to the time server. Routers and level two switches are excellent ways of accomplishing this task. Configuring the network and time server this way will have minimal impact, if any, in synchronizing the network.

The upgrade available is a replacement of the Net+ARM12 with a Net+ARM40 microprocessor. The newer processor resets if an Ethernet receiver overflow condition occurs and will continue to work under very heavy loading conditions with no noticeable change in service. This upgrade requires returning the server to Symmetricom. Units under warranty will be upgraded at no charge except for shipping costs to Symmetricom. For units out of warranty there is a nominal charge to cover cost. Time servers are available for loan to minimize any disruption in service. Contact Symmetricom Service for details at 1-408-428-7907 or [TechSupport.ttm@symmetricom.com](mailto:TechSupport.ttm@symmetricom.com).

**Models Affected**

Symmetricom network time servers that used the NET+ARM12 microprocessor are versions of the NTS-150, NTS-200, and TimeVault. Call Symmetricom for details on identifying the microprocessor in your time server.