Fine−Tuning the LLC2 Timers for Better Performance

Document ID: 12229

Introduction

When using local acknowledgment for Remote Source−Route Bridging (RSRB), the default values for Logical Link Control 2 (LLC2) timers will not provide good performance. The LLC2 timers need to be changed, based on the application used. No single set of timer values will satisfy every application. For example, Systems Network Architecture (SNA) applications will require one set of values, and NetBIOS applications require a different set of values.

This document provides information on adjusting the LLC2 timers.

Before You Begin

Conventions

For more information on document conventions, see the Cisco Technical Tips Conventions.

Prerequisites

There are no specific prerequisites for this document.

Components Used

This document is not restricted to specific software and hardware versions.

The information presented in this document was created from devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If you are working in a live network, ensure that you understand the potential impact of any command before using it.

Information

SNA and NetBIOS will be the most frequent users for RSRB and local ack. Since all LLC2 parameters are specified on the physical interface, you cannot specify different values to be used for SNA and Netbios.

There are two LLC2 parameters that need to be fine tuned for good performance:

1. `ack−delay−time timer` − the amount of time in milliseconds that the router will wait before

acknowledging frames (default is 100 ms).
2. `ack-max` − the number of frames the router will accept before sending an acknowledgement (default is 3).

For NetBIOS applications, the application requires an acknowledgment after every frame. If the default ack−max value is used, LLC2 will wait for either three frames to come in before acknowledging or wait for the ack−delay timer to expire before acknowledging. In this case, setting ack−max to 1 will immediately acknowledge the frame without waiting for the timer to kick in, thereby allowing the applications to send in more frames.

For SNA applications, the application typically sends a whole window of frames and waits for a group acknowledgment. In this case, setting the ack−delay timer to a low value (between 50 and 100 milliseconds) will let the entire set of frames be processed before triggering a response. Setting the ack−max value to 1, in this case, will acknowledge every frame. This is not desirable.

Adjustment of these LLC2 values will provide better RSRB performance when using local ack. Some users (for example, Motorola) fine tune their timers in existing production networks, and therefore experience better performance using local ack with RSRB than using RSRB without it.

Related Information

- **IBM / SNA and Token Ring Technical Support**
- **Technical Support − Cisco Systems**

Updated: Sep 09, 2005 Document ID: 12229