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/*  
 * $Id: capde.c,v 1.1.2.1 2007/09/06 22:37:16 mcranston Exp $  
 *  
 * encapsulation/de-capsulation functions  
 *  
 * Copyright ?2000-2003 Atheros Communications, Inc., All Rights Reserved.  
 */
```

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/*  
 This module implements the encapsulation/de-capsulation functions.
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Based on the WECA Interoperability test requirement only two Ethernet protocols are supported:

AppleTalk ARP - assigned number 80F3
Novell IPX - assigned number 8137

they are the members of the Selective Translation Table

The implementation is based on ANSI/IEEE Std 802.1H and RFC1042

The frame translation and forwarding flows are:

from DSM to WM:

a) Ethernet MAC frames -
check the protocol type field in the MAC against the Selective Translation Table

1) protocol type is not in the table: the received Ethernet MAC is replaced by its RFC1042 representation

2) protocol type is in the table: the received Ethernet MAC is replaced by its Bridge-Tunnel Encapsulation representation

b) Frames with ISO/IEC 8802.3 MAC -
replaced by the appropriate outgoing MAC below the LLC

The translation from Ethernet to Bridge-Tunnel Encapsulation Protocol

a) the source and Destination addresses of the Ethernet MAC are used to create a MAC header appropriate for the LAN type

b) The LLC header is formatted as an Unnumbered Information Unit (UI) command with the SNAP/SAP values for the DSAP and SSAP fields. The protocol identifier is formatted using the Bridge-Tunnel Ethernet OUI as octets 0, 1, and 2 and the Ethernet protocol type as octets 3 and 4; the protocol identifier forms a part of the LLC data within the ISO/IEC 8802 MAC frame

c) The MAC data is copied to the LLC data field beyond the protocol identifier data. Should the copied MAC data exceed the maximum size of the ISO/IEC 8802 MAC frame, the frame is discarded by the bridge

d) The FCS is recalculated

The translation from Ethernet to RFC1042 Encapsulation Protocol

a) the source and Destination addresses of the Ethernet MAC are used to create a MAC header appropriate for the LAN type

b) The LLC header is formatted as an Unnumbered Information Unit (UI) command with the SNAP/SAP values for the DSAP and SSAP fields. The protocol identifier is formatted using the RFC1042 OUI as octets 0, 1, and 2 and the Ethernet protocol type as octets 3 and 4; the protocol identifier forms a part of the LLC data within the ISO/IEC 8802 MAC frame

c) The MAC data is copied to the LLC data field beyond the protocol identifier data. Should the copied MAC data exceed the maximum size of the ISO/IEC 8802 MAC frame, the frame is discarded by the bridge

d) The FCS is recalculated

From WM to DSM:

a) LLC is Bridge-Tunnel Encapsulation protocol -
The Bridge-Tunnel MAC and LLC is replaced by the Ethernet MAC frame

b) LLC is RFC1042 protocol -
The protocol identifier in the SNAP header is checked against the Selective Translation Table

1) protocol identifier is not in the table: the RFC1042 MAC and LLC is replaced by its Ethernet MAC representation

2) protocol identifier is in the table: the received MAC is replaced by the the ISO/IEC8802-3 MAC below the LLC

c) Other LLC -

The received MAC is replaced by the ISO/IEC 8802-3 MAC below the LLC

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*/
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