

- Message encrypted
- Message in plaintext: Exposed

FIGURE 7-21 Link Encryption.

Courtesy of Pfteeger & Rfleeger:
 "Security in Computing"

Chapter 7 Security in Networks

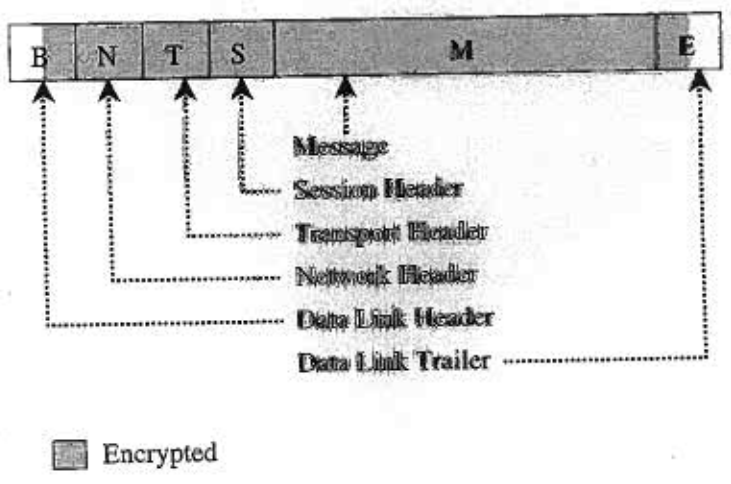
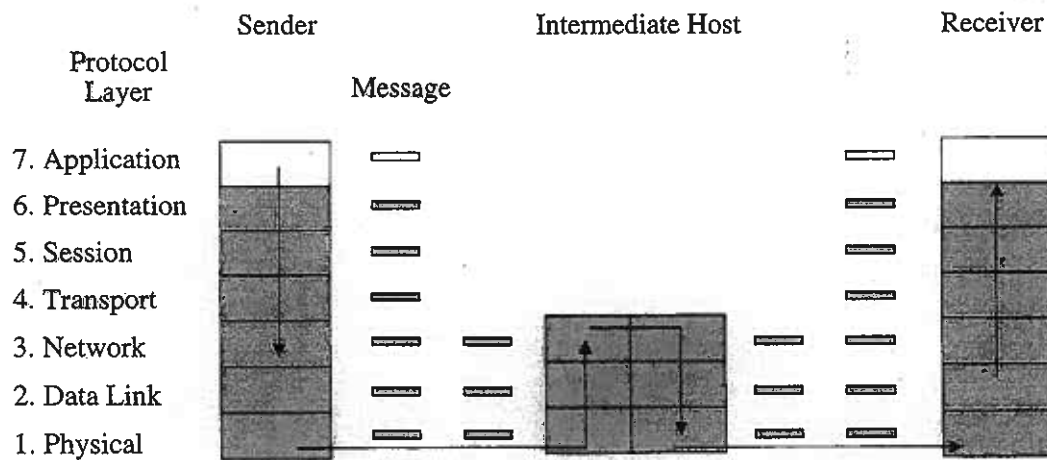


FIGURE 7-22 Message Under Link Encryption.

Section 7.3 Network Security Controls



- Message encrypted
- Message in plaintext: Exposed

FIGURE 7-23 End-to-End Encryption.

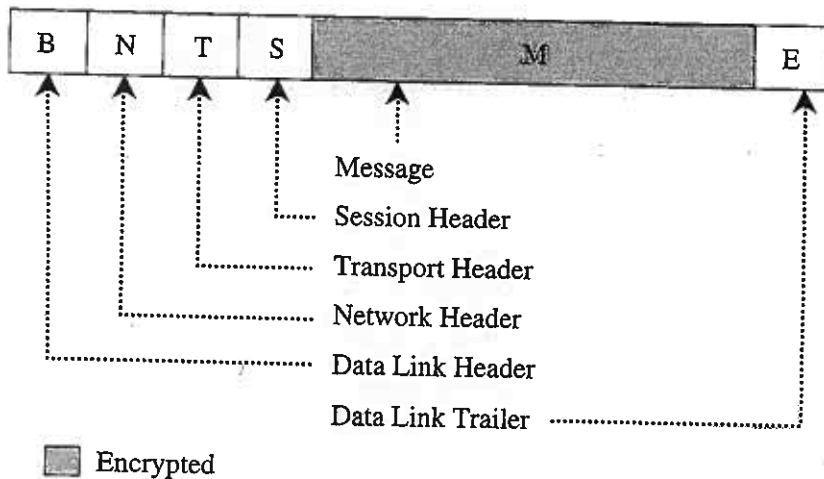


FIGURE 7-24 End-to-End Encrypted Message.

Section 7.3 Network Security Controls

TABLE 7-5 Comparison of Link and End-to-End Encryption.

Link Encryption	End-to-End Encryption
Security within hosts	
Data exposed in sending host	Data encrypted in sending host
Data exposed in intermediate nodes	Data encrypted in intermediate nodes
Role of user	
Applied by sending host	Applied by sending process
Invisible to user	User applies encryption
Host maintains encryption	User must find algorithm
One facility for all users	User selects encryption
Typically done in hardware	Either software or hardware implementation
All or no data encrypted	User chooses to encrypt or not, for each data item
Implementation concerns	
Requires one key per host pair	Requires one key per user pair
Provides node authentication	Provides user authentication