What are the differences between message confidentiality and message integrity? Can you have confidentiality without integrity? Can you have integrity without confidentiality? Justify your answer.

Step 1:

Secrecy of messages Two or more hosts can securely communicate with each other via encryption. Untrusted hosts are unable to spy on (sniffer) the communication. Confidential communication takes place between reliable people. message reliability

Communication has not been tampered with or altered when it is said to be intelligible. The most popular method is to utilize a hash function, which combines all the message's bytes with a private key to create a message digest that is challenging to reverse.

Step 2:

An attacker who intercepts the cipher text encryption of the original plain-text message cannot decipher the original plain-text message, which is a characteristic of confidentiality. The ability of the recipient to determine whether a message was altered in transit (whether it was encrypted or not) is known as message integrity. Since they are distinct ideas, one can exist without the other. Even when the attacker cannot decipher the original plain text of an encrypted message during transmission, the message will lose message integrity if the mistake goes unnoticed. Similar to this, a message that is changed while it is being transmitted (and noticed) can have been sent in plain text and not be confidential.

Internet entities (routers, switches, DNS servers, Web servers, user end systems, and so on) often need to communicate securely. Give three specific example pairs of Internet entities that may want secure communication.

Step 1:

An entity that only does business online and doesn't have a physical address is an "Internet Entity."

Routing, switching, DNS, Web, user end systems, and other Internet organizations frequently require secure communication.

Step 2:

Three particular examples of Internet entity pairs are as follows:

require end users and email servers to exchange emails securely.

the use of online banking

online business transactions