# RTP PACKET HEADER

RTP contains a fixed header and an application-specific variable-length header field. shows the RTP header format. The RTP header fields are:

- Version (V), a 2-bit field indicating the protocol version.
- Padding (P), a 1-bit field that indicates the existence of a padding field at the end of the payload. Padding is required in applications that require the payload to be a multiple of some length.
- Extension (X), a 1-bit field indicating the use of an extension header for RTP.
- Contributing source count (CSC), a 4-bit field that indicates the number of contributing source identifiers.
- Marker (M), a 1-bit field indicating boundaries in a stream of data traffic. For video applications, this field can be used to indicate the end of a frame.
- Payload type, A 7-bit field specifying the type of RTP payload. This field also contains information on the use of compression or encryption.
- Sequence number, a 16-bit field that a sender uses to identify a particular packet within a sequence of packets. This field is used to detect packet loss and for packet reordering.
- Timestamp, a 32-bit field enabling the receiver to recover timing information. This field indicates the timestamp when the first byte of data in the payload was generated.
- Synchronization source identifier, a randomly generated field used to identify the RTP source in an RTP session.
- Contributing source identifier, an optional field in the header to indicate the contributing sources for the data.

Figure 7.7. Packet format for the real-time transport protocol
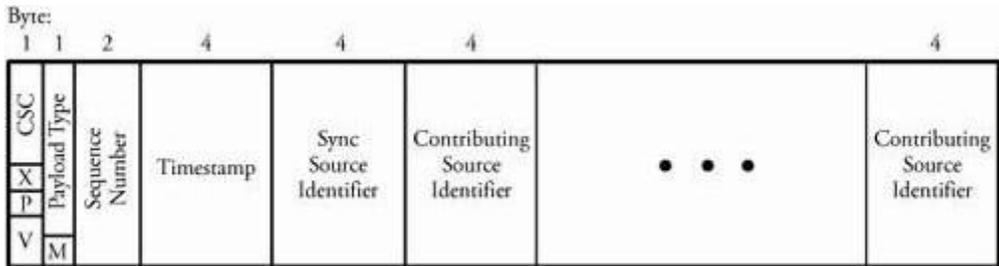
Overall, the main segment of an RTP header includes 12 bytes and is appended to a packet being prepared for multimedia application.

. Real-Time Control Protocol (RTCP)

The Real-Time Transport Protocol (RTCP) also runs on top of UDP. RTCP performs several functions, using multicasting to provide feedback about the data quality to all session members. The session multicast members can thus get an estimate of the performance of other members in the current active session. Senders can send reports about data rates and the quality of data transmission. Receivers can send information about packet-loss rate, jitter variations, and any other problems they might encounter. Feedback from a receiver can also enable a sender to diagnose a fault. A sender can isolate a problem to a single RTP entity or a global problem by looking at the reports from all receivers.

RTCP performs source identification. RTCP packets contain some information to identify the source of the control packet. The rate of RTCP packets must also be kept to less than 5 percent of the total session traffic. Thus, this protocol carries out "rate control" of RTCP packets. At the same time, all session

members must be able to evaluate the performance of all other session members. As the number of active members in a session increases, the transmission rates of the control packets must be reduced. RTCP is also responsible for session control and can provide some session-control information, if necessary.