



❖ Stream Oriented Communication

Stream :

A (continuous) data stream is a connection-oriented communication facility that supports isochronous data transmission.

Some common stream characteristics

Streams are unidirectional

There is generally a single source, and one or more sinks. Often, either the sink and/or source is a wrapper around hardware (e.g., camera, CD device, TV monitor)

Simple stream: a single flow of data, e.g., audio or video

Complex stream: multiple data flows, e.g., stereo audio or combination audio/video

Support for Continuous Media:

Support for the exchange of time-dependent information is often formulated as support for continuous media.

A medium refers to the means by which information is conveyed. These means include storage and transmission media, presentation media such as a monitor, and so on.

An important type of medium is the way that information is represented.

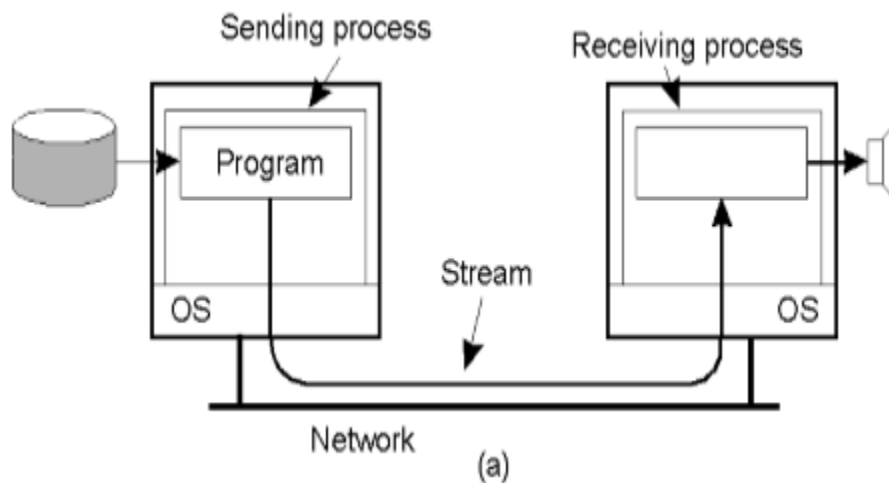
Data Stream:

To capture the exchange of time-dependent information, distributed systems generally provide support for data streams.



A data stream is nothing but a sequence of data units. Data streams can be applied to discrete as well as continuous media.

For example, UNIX pipes or TCPIP connections are typical examples of (byte-oriented) discrete data streams. Playing an audio file typically requires setting up a continuous data stream between the file and the audio device.



Streams and Quality of Service:

Timing (and other nonfunctional) requirements are generally expressed as Quality of Service (QoS) requirements.

These requirements describe what is needed from the underlying distributed system and network to ensure that, for example, the temporal relationships in a stream can be preserved.

QoS for continuous data streams mainly concerns timeliness, volume, and reliability.

From an application's perspective, in many cases it boils down to specifying a few important properties :



- The required bit rate at which data should be transported.
- The maximum delay until a session has been set up (i.e., when an application can start sending data).
- The maximum end-to-end delay (i.e., how long it will take until a data unit makes it to a recipient).
- The maximum delay variance, or jitter.
- The maximum round-trip delay.

Enforcing QOS

There are various network-level tools, such as differentiated services by which certain packets can be prioritized. Also Use buffers to reduce jitter:

