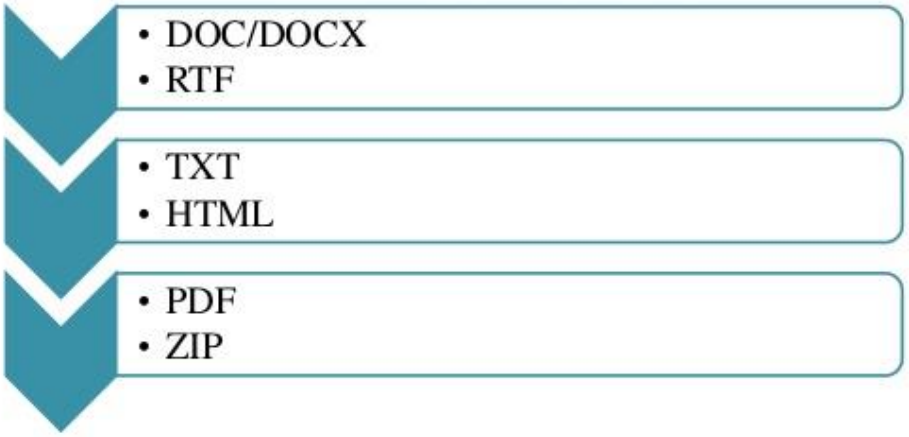
Text Format (Con't)

- Most of these formats represent rows of data on different lines of the file using different strategies to separated data values within each row. 'Fixed-width' formats place each data entry in a separate column and therefore limit the size of the data entries.
- 'Separated' formats use a special character or character sequence to separate entries. For instance, the comma separated value, the tab separated value formats and the space separated value formats use commas, tabs, and spaces respectively to separate the data fields.

Types of Text File Format



DOC/DOCX

- Microsoft's Word (word processing) software saves documents using the .doc filename extension
- These files contain special formatting codes that identify how the text with look (bold, italic, color, typeface, etc.) as well as how the page lays out (margins, indentation, pagination, etc.)
- This file format was superceded in Word 2007 with the .docx filename extension
- DOCX files incorporate XML (EXtensible Markup Language) coding rules that help integrate a document with Internet applications
- As a result, earlier versions of Word cannot read DOCX documents, but Microsoft does provide software that converts DOC documents into a DOCX format
- Word 2007 can read DOC documents and is able to save new documents in a DOC format when using the Save As option

RTF

- Stands for Rich Text Format
- RTF documents are designed to transfer documents between word processing software
- These files use .rtf filename extensions
- While the text formatting options are as "rich" as those used by Word, RTF files have limited page layout options
- For example, you cannot create columns, add page numbers, headers, or footers
- The WordPad word processor included with Windows defaults to creating RTF documents

TXT

- TXT documents only contain text
- Any computer can read a TXT file, but don't expect it to look pretty
- The Notepad text editor included with Windows defaults to creating TXT documents
- The individual characters in the document (letters, punctuation, newlines etc.) are each encoded into bytes using the ASCII encoding (or another character encoding such as UTF8 or iso8859-1, particularly if the document is not in English), and stored in a simple sequence
- This format only stores the text itself, with no information about formatting, fonts, page size, or anything like that
- It is portable across all computer systems and can be read and modified by a huge range of software applications
- The details of the format are freely available and standardized
- If the storage media are damaged, any undamaged sections can be recovered without problems

HTML

- Stands for HyperText Markup Language
- It use either .htm or .html filename extensions
- HTML files contain codes that browsers, like Internet Explorer or Safari, translate into Web pages
- The text, plus simple formatting, is stored in a simple encoding that is based on the plain text file format above, with plain text markup interspersed with the text
- This format is freely available and controlled by a public-interest standards body
- The document can be viewed in any web browser
- It can be edited in a text editor by someone who knows HTML, or in any number of "rich text" editors, word processors, HTML editors and so on

MULTIMEDIA COMMUNICATION SYSTEM

Multimedia communication deals with the transfer, protocols, services, and mechanisms of discrete media data (such as text and graphics) and continuous media data (like audio and video) in/over digital networks. Such a communication requires all involved components to be capable of handling a well-defined quality of service (QoS). The most important QoS parameters are used to request: (1) the required capacities of the involved resources, (2) compliance to end-to-end delay and jitter as timing restrictions, and (3) restriction of the loss characteristics. In this paper, we describe the necessary issues and study the ability of current networks and communication systems to support distributed multimedia applications. Further, we discuss upcoming approaches and systems that promise to provide the necessary mechanisms and consider which issues are missing for a complete multimedia communication infrastructure. LESS

Data Transmission – Parallel vs Serial

What is data transmission?

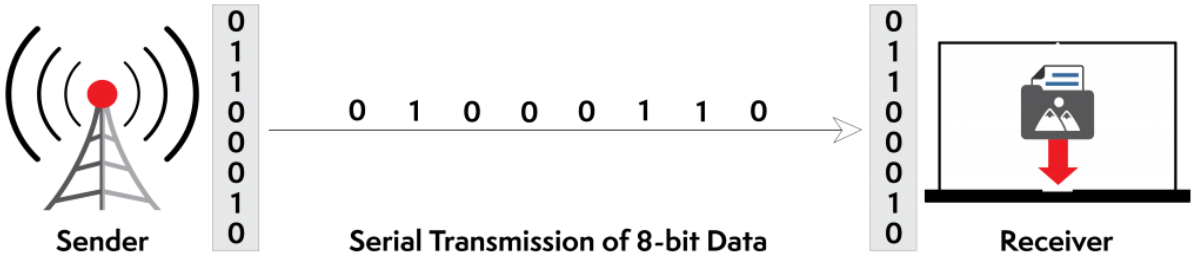
Data transmission refers to the process of transferring data between two or more digital devices. Data is transmitted from one device to another in analog or digital format. Basically, data transmission enables devices or components within devices to speak to each other.

How does data transmission work between digital devices?

Data is transferred in the form of bits between two or more digital devices. There are two methods used to transmit data between digital devices: serial transmission and parallel transmission. Serial data transmission sends data bits one after another over a single channel. Parallel data transmission sends multiple data bits at the same time over multiple channels.

What is serial transmission?

When data is sent or received using serial data transmission, the data bits are organized in a specific order, since they can only be sent one after another. The order of the data bits is important as it dictates how the transmission is organized when it is received. It is viewed as a reliable data transmission method because a data bit is only sent if the previous data bit has already been received.



Example of Serial Data Transmission

Serial transmission has two classifications: asynchronous and synchronous.

Asynchronous Serial Transmission
Data bits can be sent at any point in time. Stop bits and start bits are used between data bytes to synchronize the transmitter and receiver and to ensure that the data is transmitted correctly. The time between sending and receiving data bits is not constant, so gaps are used to provide time between transmissions.

The advantage of using the asynchronous method is that no synchronization is required between the transmitter and receiver devices. It is also a more cost effective method. A disadvantage is that data transmission can be slower, but this is not always the case.

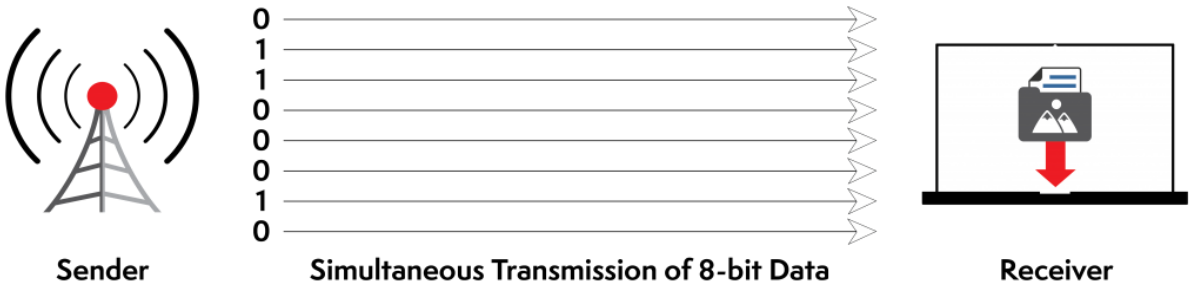
Synchronous Serial Transmission
Data bits are transmitted as a continuous stream in time with a master clock. The data transmitter and receiver both operate using a synchronized clock frequency; therefore, start bits, stop bits, and gaps are not used. This means that data moves faster and timing errors are less frequent because the transmitter and receiver time is synced. However, data accuracy is highly dependent on timing being synced correctly between devices. In comparison with asynchronous serial transmission, this method is usually more expensive.

When is serial transmission used to send data?

Serial transmission is normally used for long-distance data transfer. It is also used in cases where the amount of data being sent is relatively small. It ensures that data integrity is maintained as it transmits the data bits in a specific order, one after another. In this way, data bits are received in-sync with one another.

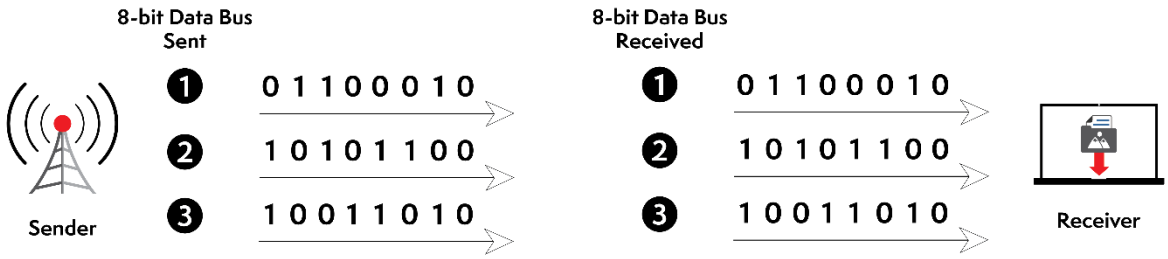
What is parallel transmission?

When data is sent using parallel data transmission, multiple data bits are transmitted over multiple channels at the same time. This means that data can be sent much faster than using serial transmission methods.

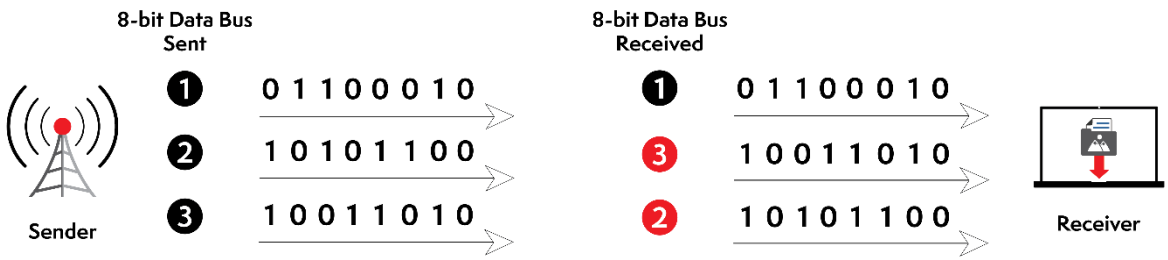


Example of Parallel Data Transmission

Given that multiple bits are sent over multiple channels at the same time, the order in which a bit string is received can depend on various conditions, such as proximity to the data source, user location, and bandwidth availability. Two examples of parallel interfaces can be seen below. In the first parallel interface, the data is sent and received in the correct order. In the second parallel interface, the data is sent in the correct order, but some bits were received faster than others.



Example of Parallel Transmission – Data Received Correctly



Example of Parallel Transmission – Data Received Incorrectly

Advantages and Disadvantages of Using Parallel Data Transmission

The main advantages of parallel transmission over serial transmission are:

- it is easier to program;
- and data is sent faster.

Although parallel transmission can transfer data faster, it requires more transmission channels than serial transmission. This means that data bits can be out of sync, depending on transfer distance and how fast each bit loads. A simple of example of where this can be seen is with a voice over IP (VOIP) call when distortion or interference is noticeable. It can also be seen when there is skipping or interference on a video stream.

When is parallel transmission used to send data?

Parallel transmission is used when:

- a large amount of data is being sent;
- the data being sent is time-sensitive;
- and the data needs to be sent quickly.