

Exercise 04: Taxonomy (Slide 10, p. 09)

Question: *In the taxonomy below, relate the four types of communication models to specific techniques, systems, or examples:*

		Temporal	
		Coupled	Uncoupled
Referential	Coupled	(a) Direct	(b) Mailbox
	Uncoupled	(c) Meeting oriented	(d) Generative Communication

This taxonomy is about coordination between processes

- Referential: Explicit reference in communication (e.g. communication may only arise, if one process knows the identity of another process):
 - o Coupled: Processes know each other; there are clearly specified sender/receivers.
 - o Uncoupled: Groups of or completely unknown receivers.
- Temporal: Time course:
 - o Coupled: Messages are sent and read immediately
 - o Uncoupled: Sent messages are read later

Examples

- a) Direct: Telephone; TCP-Protocol; Chat-Systems; RPC; RMI/Transient Message Passing;
- b) Mailbox: e-mail, SMS, Persistent message passing
- c) Meeting oriented: TIB/Rendezvous, Publish/Subscribe Systems, event & subject-based, "ad-hoc" communication
- d) Generative Communication: Jini/Linda; tuple spaces; persistent DSM (Distributed Shared Memory); associative; JavaSpaces

What is a web server? What is the purpose of the Hypertext Transfer Protocol HTTP? Discuss the basic idea of CGI.

Book p. 545-565; Slides p. 171-176

Web server (slides p. 171)

A web server is a program which answers incoming HTTP messages with the documents which have been requested.

HTTP (Hypertext Transfer Protocol)

HTTP is a generic client-server protocol which is used for many document-based transfers over the Internet. It is not specific to any application and is able to manage document transfers in both directions (from and to server/client). It is most commonly used for transferring websites, but it is also possible to build entire applications upon the HTTP. Although the HTTP is a stateless protocol, it can simulate a state-full protocol by using Cookies which is absolutely necessary for modern web applications. All together HTTP is used to make use of certain services of a server from a client.

HTTP operations

Operation	Description
Head	Request to return the header of a document
Get	Request to return a document to the client
Put	Request to store a document
Post	Provide data that are to be added to a document (collection)
Delete	Request to delete a document

Figure 12-11. Operations supported by HTTP.

CGI (slides p. 176)

CGI is one of the first extensions of the HTML base architecture and is used to support simple user interactions. It defines a standardized method how a web server can use a program for getting a HTML document to reply to the users HTTP request. CGI applications commonly work on a local database. The important achievement of CGI is, that the user replies (HTML documents) are generated dynamically.