Client-server systems

Introduction

Client-server systems: description

- A “client” is a program that runs on the computer which you access in the first place (often your desktop PC or an online access computer).

- Each client provides an interface to each of the “services” (databases, online files, e-mail, …) that are made available by other systems, which are called “servers.”
### Client-server computing architecture

**Client computer**
- is often managed by a user of the server’s services, who is *not* a computer expert
- sends message(s) / requests to the server
- on which results are prepared and displayed

**Server computer**
- is often managed by a computer expert
- on which information and/or a service resides
- on which information is prepared for the client

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### Client-server systems

**Benefits and problems**
哪种好处提供了客户端-服务器架构对用户？

客户端-服务器系统：对系统用户的好处（部分1）

用户需要知道较少的数量用户界面，当一个以上服务器可以被相同的客户端同时访问，相比每个系统都有其自己的界面的情况。
Client-server systems: benefits for the user of the system (Part 2)

😊 When more than 1 client is available for a type of server, then the user can make a choice and work with the interface offered by that particular client software, which is well adapted to his/her situation, knowledge and experience.

Client-server systems: benefits for the distributor of data

😊 The distributor needs to be concerned less with the user interface; instead, his/her server only has to be compatible with the “important” client programs, that is, with one or several important client-server protocols.

😊 Due to the benefits for the user (sometimes = buyer), the number of users / consumers / buyers will grow.
Client-server systems

Examples

?? Question ??

Which client-server protocols do you know?
Client-server systems: examples in the Internet

- nfs
- telnet
- ftp
- gopher
- HTTP (WWW)
- Z39.50
- E-mail SMTP
- E-mail POP
- E-mail IMAP
- News NNTP

?? Question ??

Which client-server client programs do you know?
Client-server systems

Trends

Examples

• From few central server computers (mainframes for instance) with dumb terminals, to more server computers with a diversity of “thin” to “fat” client computers.

• From Internet client software dedicated to a particular server, to more applications of more generic client software. *(Example: incorporation of functions/servers in the WWW accessible with 1 big multipurpose, generic WWW client program.)*
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