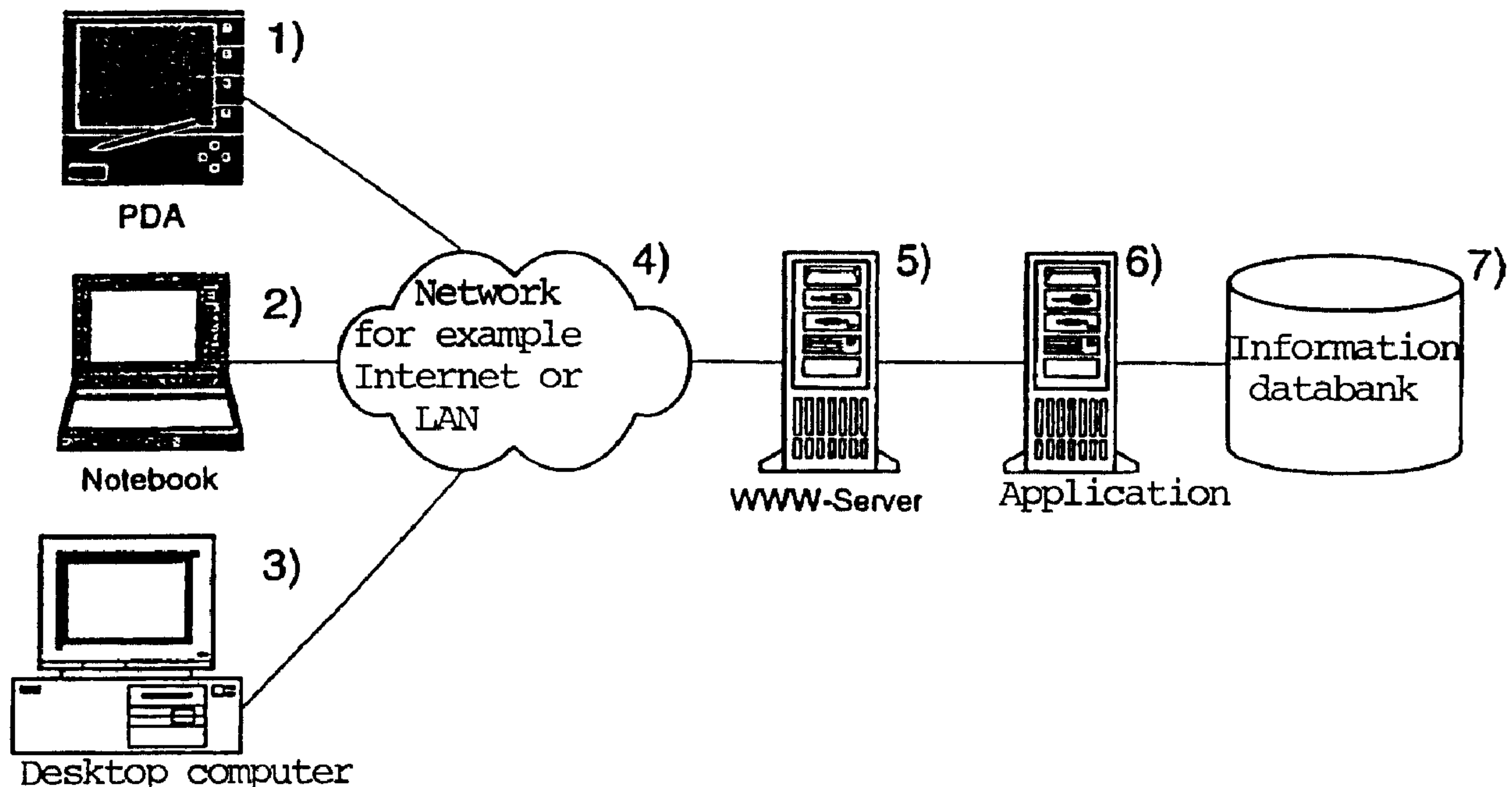




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(54) Titre : PROCEDE D'ADAPTATION AUTOMATIQUE DES DONNEES A TRANSFERER D'UN DISPOSITIF DE PREPARATION DES DONNEES A UN DISPOSITIF DE REQUETE DE DONNEES CONFORMEMENT AUX CAPACITES DU TERMINAL DEMANDEUR
(54) Title: PROCESS FOR THE AUTOMATIC ADAPTATION OF THE DATA TO BE TRANSFERRED FROM A DATA-PREPARING DEVICE TO A DATA-REQUESTING DEVICE, TO THE CAPABILITIES OF THIS TERMINAL



(57) Abrégé/Abstract:

The invention concerns a method for automatically adapting to the capabilities of a data transmitting terminal a device supplying data to said terminal requesting the data. Said method is characterized in that the data supplying device receives information concerning the capabilities of the device requesting data to send to the latter the data to be transmitted in accordance with the specified capabilities.



TRANSLATION

[COVER PAGE]

- 54 - Method for automatically adapting to the capabilities of a data-transmitting terminal a device supplying data to said terminal requesting the data.
- 57 - Abstract: The invention concerns a method for automatically adapting to the capabilities of a data transmitting terminal a device supplying data to said terminal requesting the data. Said method is characterized in that the data supplying device receives information concerning the capabilities of the device requesting data to send to the latter the data to be transmitted in accordance with the specified capabilities.

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Process for the automatic adaptation of the data to be transferred from a data-preparing device to a data-requesting device, to the capabilities of this terminal.

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The invention relates to a process for the automatic adaptation of the data to be transferred to a data-requesting device, to the capabilities of this terminal.

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In today's data communication networks there exist terminals with different displays, input apparatuses and computer performances. Displays differ above all in the color depth, resolution, and size. Input apparatuses can be, for example, keyboards or contact-sensitive surfaces. When data
15 are transferred from a data-preparing device to a terminal, it is important, for as short as possible a transfer time of the data, that the data volume to be transferred at a given band width be as small as possible. Since, however, it is not known to the sending device what properties the end terminal
20 possesses, the data and therewith the data volume are not adapted to the properties of the end terminal. To an end terminal with a display with a low resolution and black-and-white representation there are sent, for example, the same data as to an end terminal with a high resolution and a
25 plurality of representable colors.

This leads to the result that data are transferred which cannot be processed in the end terminal by reason of the latter's capabilities. Resources of the transfer media, of the
30 sending devices, and of the receiving end terminal are wasted.

In WO-A-98 37698 an adaptable data transfer system is disclosed, in which a data-preparing server is provided which, either by software or suitable hardware, executes an algorithm
35 for the generation and storage of a plurality of hierarchically ranked video data streams, in which it is covered, which multimedia characteristics a data-requesting device has, and on the basis of this information there is

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transmitted a special selection of the available video-data stream to the data-requesting device.

WO-A-98 43177 teaches a system for the dynamic recording
5 of data transmitting between computers. A so-called proxy-server is provided, which comprises devices for the dynamic adaptation of data transmitted from a network server to a network client, in which system the adaptation occurs in dependence on a selection criterion delivered from the network
10 client. The selection criterion can be, for example, the hardware configuration of the network client.

The problem of the present invention lies, therefore, in giving a process for the automatic adaptation of the data to
15 be transferred from a data-preparing device to a data-requesting device, to the capabilities of the data-requesting device, which process can react very flexibly to the capabilities of the data-requesting device.

20 In one aspect, the present invention provides a process for the automatic adaptation of the data to be transferred from a data-preparing device to a data-requesting device to the capabilities of this latter device, in which the data-preparing device receives information data about the
25 capabilities of the data-requesting device, and the information data contain statements in regard to the display format workable by the display of the data-requesting device, and the data to be transferred are transmitted in correspondence to the predetermined capabilities of the data-
30 requesting device, wherein a list of usable display formats is transmitted to the data-preparing device, and the latter, then, according to availability, selects the best-suited display format.

35 According to the invention, in the data transmission a reduction of the resource expenditure becomes possible by the

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means that the data-preparing device receives information data about the capabilities of the receiving terminal, in order to transmit the data to be transferred in correspondence to the pre-determined capabilities.

5

The advantage of this process for the operator of the data preparing device lies, inter alia, in the lower needed computing performance of the sending device and therefore in lower acquisition and maintenance costs. According to the transmission technique, the operator's transmission costs are reduced.

The advantages of this process for the user of the data-requesting device lie, inter alia, in the shorter data transmission time and in the lower transmission costs. Since according to this process the sending device can also adapt the data to the display of the receiving device, the user can also receive a representation of the data adapted to the display. For example, textual information data which otherwise are contained in graphics can, with end terminals with pure text representation, be sent as text to the end terminal and there brought into display.

An embodiment of the invention will now be described by way of example only with reference to the accompanying drawing wherein:

Fig. 1 shows somewhat schematically one embodiment of apparatus useable for carrying out a process in accordance with the invention.

From the drawing and its description, there are yielded further features and advantages of the invention.

In Fig. 1 a scenario is described in which a process is used for the automatic adaptation of the data to be

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transferred from a data-preparing device to a data-requesting device, to the capabilities of this end terminal.

By means of three different apparatuses 1, 2 and 3, a
5 user requests information from a WWW-server 5. In each end terminal there is installed a WWW-browser for this.

In the end terminal 1, in this case the data-receiving device, there is a Personal Digital Assistant (PDA). The
10 display of the PDA has a resolution of 160 x 160 pixels, in a black-and-white representation with pure text representation possibility. The end terminal 2 is a Notebook with a display with the resolution of 640 x 480 pixels, which can represent 256 colors and graphics.

15

The display of the desktop computer 3 has a resolution of 1600 x 1200 pixels, which can represent about 16 million colors and graphics.

20 Example 1:

The user, over a user interface such as, for example, a keyboard, enters the address <http://www.info.com/> of the WWW-server 5 (data-preparing device) into the WWW-browser, to
25 request the information data belonging to this address from the server 5. The WWW-browser establishes a connection to the WWW-server 5, and communicates to the WWW-server by which address information data are requested.

30 According to the invention there are further conveyed to the WWW-server 5 information data as to which capabilities the end terminal 1 possesses. To these capabilities there belong, inter alia, the resolution of the display and the number of representable colors. In the present case the end terminal 1
35 will instruct the WWW-server 5 that it should communicate the information data with a resolution of 160 x 160 pixels in

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black-and-white and in pure text representation. The standard resolutions and color depths can be correspondingly coded for this, for example with 2-place numbers so that, for example, only one byte suffices for the transmission of the
5 information.

The WWW-server 5 reports/communicates the address and capabilities of the utilization (device) 6. The utilization (device) 6 requests from the information data bank 7 the
10 information data belonging to the address <http://www.info.com/> and formats these in correspondence to the capabilities of the end terminal 1. Since the end terminal 1 can represent only text, the application (device) generates only textual information in black-and-white representation. Graphics are
15 not generated or cannot be read from the information data bank. The application (device) 6 delivers the data to the server 5 which sends these to the WWW-browser in 1. The WWW-browser interprets the formatting and makes the information data available in the display of the end terminal 1.

20

Example 2:

The user uses, in contrast to example 1, a notebook 2. As described in example 1, the WWW-server 5 obtains the
25 information data about the capabilities of the end terminal 2 and forwards these data to the utilization (device) 6. Since the end terminal can represent graphics with a maximum of 256 colors, the utilization (device) 6 generates or conveys from the information data bank 7, graphics with a maximal color
30 depth of 256 colors, which insofar as possible do not exceed 640 x 480 pixels. For the coloration of text information data, there are chosen only colors from a given color pallet with 256 colors standing for selection. The utilization (device) 6 delivers the data to the server 5, which sends these to the
35 WWW-browser in the end terminal 2. The WWW-browser interprets the formatting and represents the information data in the

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display of the notebook 2. In comparison to example 1, because of the color information data and of the graphics, a larger data volume must be transmitted between the WWW-server and the end terminal. However, the size and color depth (256 colors) are utilized.

Example 3:

In contrast to examples 1 and 2, the user uses a desktop computer 3. Since, as in examples 1 and 2, the capabilities of the end terminal 3 are known by the utilization (device) 6, the utilization (device) 6 generates or conveys from the information data bank 7 graphics with a maximal color depth of 16 million colors, which insofar as possible do not exceed 1600 x 1200 pixels. For the coloration of text information data, there are chosen colors from a color pallet with 16 million colors standing for selection. The utilization (device) 6 delivers the data to the server 5, which sends these to the WWW-browser in the end terminal 3. The WWW-browser interprets the formatting and represents the information data in the display of the desktop computer 3. In comparison to examples 1 and 2, because of the color and graphics information data, a greater data volume must be transmitted between the WWW-server and the end terminal. The size and color depth (16 million colors) of the display, however, are utilized.

Obviously the invention also comprises end terminals that can process several different display formats. In this case, for example, a list of usable display formats can be communicated to the data-preparing device. The latter then, and according to availability, selects the best-suited display format.

Further, the invention is not restricted to a utilization in the internet, but is usable for every type of data transfer

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in arbitrary data networks, thus, for example, also in the data transfer between subscribers of the digital mobile radio network.

Claims

1. Process for the automatic adaptation of the data to be transferred from a data-preparing device to a data-requesting
5 device to the capabilities of this latter device, in which the data-preparing device receives information data about the capabilities of the data-requesting device, and the information data contain information in regard to the display formats processable by the display of the data-requesting
10 device, and the data to be transferred are transmitted in correspondence to the pre-determined capabilities of the data-requesting device, wherein a list of usable display formats is transmitted to the data-preparing device, and the latter, then, according to availability of display formats, selects
15 the best-suited display format.

2. Process according to claim 1, wherein the information data are transmitted from the data-requesting device to the data-preparing device.

20

3. Process according to claim 1 or 2, wherein the information data are transmitted to the data-preparing device over a device engaged between the data-requesting device and the data-preparing device.

25

4. Process according to any one of claims 1 to 3, wherein the requested data are stored in a central data bank of the data-preparing device and, on call, are formatted by a formatting device into the pre-determined data format and
30 transmitted to the data-requesting device.

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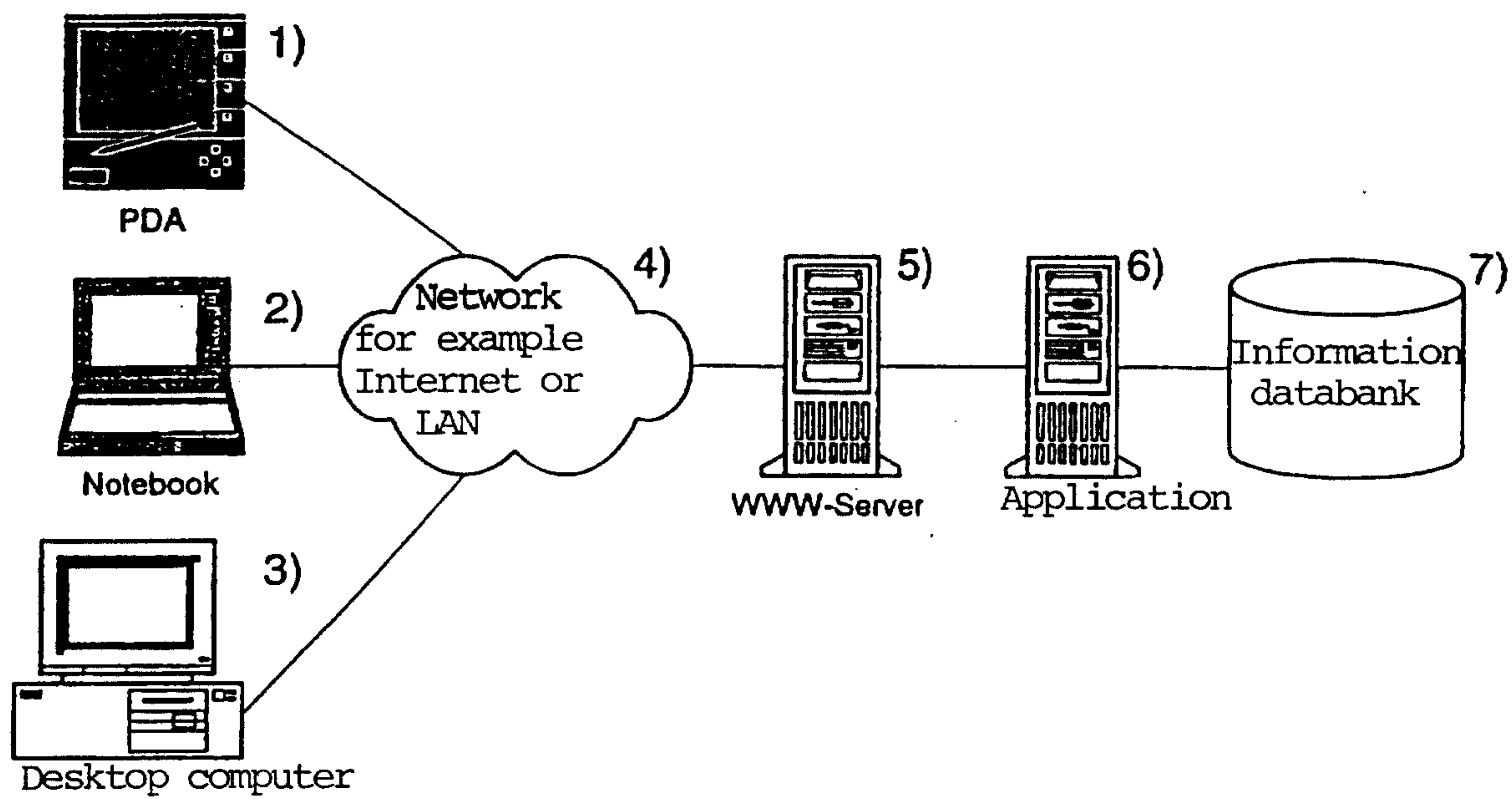


FIG. 1

