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Datasheet for the decision of 11 September 2012

Case Number: T 2255/08 - 3.5.05

Application Number: 02024284.8

Publication Number: 1337080

IPC: H04L12/66, H04L12/24, H04L12/28, H04L29/06

Language of the proceedings: EN

Title of invention:
Method of controlling the network devices

Applicant:
Hitachi, Ltd.

Headword:
Remote control of target devices/HITACHI

Relevant legal provisions:
EPC Art. 123(2)
EPC 1973 Art. 56

Keyword:
Added subject-matter - main and first auxiliary requests (yes)
Inventive step - second auxiliary request (no)

Decisions cited:

Catchword:

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Case Number: T 2255/08 - 3.5.05

D E C I S I O N
of the Technical Board of Appeal 3.5.05
of 11 September 2012

Appellant: (Applicant)	Hitachi, Ltd. 6 Kanda Surugadai 4-chome Chiyoda-ku, Tokyo 100-8010 (JAPON)
Representative:	Strehl Schübel-Hopf & Partner Maximilianstrasse 54 80538 München (ALLEMAGNE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted 20 June 2008 refusing European patent application No. 02024284.8 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chair: A. Ritzka
Members: K. Bengi-Akyuerek
G. Weiss

Summary of Facts and Submissions

I. The appeal is against the decision of the examining division, posted on 20 June 2008, refusing European patent application No. 02024284.8 on the ground of lack of inventive step (Article 56 EPC 1973), having regard to the disclosure of

D1: T. Saito et al.: "HOME GATEWAY ARCHITECTURE AND ITS IMPLEMENTATION", IEEE Transactions on Consumer Electronics, November 2000.

II. Notice of appeal was received on 26 August 2008. The appeal fee was paid on 27 August 2008. The statement setting out the grounds of appeal was received on 29 October 2008. The appellant requested that the decision of the examining division be set aside and that a patent be granted on the basis of a new set of claims (claims 1 to 7) submitted with the statement setting out the grounds of appeal. In addition, oral proceedings were requested as an auxiliary measure.

III. A summons to oral proceedings scheduled for 11 September 2012 was issued on 2 May 2012. In an annex to this summons pursuant to Article 15(1) RPBA, the board expressed its preliminary opinion on the appeal. In particular, objections were raised under Article 123(2) EPC and Article 52(1) EPC in combination with 56 EPC 1973 in view of D1 or

D2: T. Nakajima et al.: "A Virtual Overlay Network for Integrating Home Appliances", Proceedings of the 2002 Symposium on Applications and the Internet (SAINT'02), 28 January 2002.

IV. With a letter of reply dated 10 August 2012, the appellant filed amended claims according to a main request (claims 1 to 7), a first auxiliary request (claims 1 to 7), and a second auxiliary request (claims 1 to 7) and requested that a patent be granted on the basis of the main request or any of the auxiliary requests.

V. Oral proceedings were held as scheduled on 11 September 2012, during which corrected versions of the first and second auxiliary requests were filed. All the pending requests were admitted into the proceedings and discussed. The appellant finally requested that the decision under appeal be set aside and that a patent be granted on the basis of claims 1 to 7 filed as main request with letter dated 10 August 2012 or on the basis of claims 1 to 7 of the first or second auxiliary requests submitted at the oral proceedings on 11 September 2012. At the end of the oral proceedings, the decision of the board was announced.

VI. Independent claim 1 of the main request reads as follows:

"A network device (140) comprising:
a first communication interface (210) for connecting to a first network (100);
a second communication interface (520) for connecting to a second network (143);
a network device control function part (510) for managing and controlling target devices (141, 142) connected to the second network (143);
a target service part (240) comprising a device control service part (241) and a device information provision service part (242); and

an information exchange protocol processing part (220) for generating and transmitting messages in the message format common to the first network (100), interpreting received messages generated in the message format common to the first network (100), and passing them to the target service part (240),

wherein

the network device control function part (510) is adapted to detect an increase or decrease in the number of target devices (141, 142) connected to the second network (143),

the device control service part (241) is adapted to create first applications (531, 532) for controlling the target devices (141, 142) cooperating with the network device control function part (510), after the network device control function part (510) has been detecting an increase in the number of target devices (141, 142) connected to the second network (143),

the first applications (531, 532) are adapted to convert a message including the name and parameter of a control function transmitted from the network controller (110) into a command format known in the target devices (141, 142), to transmit the converted message to the target devices in accordance with the access information or to convert a response from the target devices (141, 142) into a data format common in the first network (100), and to return the response to the network controller (110),

the device information provision service part (242) is adapted

to create, after the network device control function part (510) has been detecting an increase in the number of target devices (141, 142) connected to the second network (143), a second application (541, 542) for acquiring a device list information and a device function list information of the newly connected target

device cooperating with the network device control function part (510),

to obtain device information of the target devices (141, 142) from the second application (541, 542),

to generate access information which a network controller (110) connected to the first network (100) can access by a protocol common to the first network (100),

to generate, based on the device information and the access information, a device list information which includes the device name and target information indicating operable functions of the device, and device function list information which includes the names, types and parameters of control functions of the newly connected target device (141, 142),

to return a device list in response to a device list acquisition request from the network controller (110) by referring to said device list information,

to return a device function list in response to a device function list acquisition request from the network controller (110) by referring to said device function list information, and

to return names and parameters of device control functions in response to a device function name acquisition request from the network controller (110) by referring to the names, types and parameters in said device function list information."

Independent claim 1 of the first auxiliary request reads as follows:

"A network device (140) comprising:

a first communication interface (210) for connecting to a first network (100);

a second communication interface (520) for connecting to a second network (143), and having means for

managing and controlling target devices (141, 142) connected to the second network (143);

a target service part (240); and

an information exchange protocol processing part (220) for generating and transmitting messages in the message format common to the first network (100), interpreting received messages generated in the message format common to the first network (100), and passing them to the target service part (240),

wherein

the network device (140) is adapted to detect an increase or decrease in the number of target devices (141, 142) connected to the second network (143),

the target service part (240) comprises a device information provision service part (242) that is adapted to obtain device information of the target devices (141, 142), to generate access information which a network controller (110) connected to the first network (100) can access by a protocol common to the first network (100), and to provide the device information and the access information according to a demand from the network controller (110),

the target service part (240) comprises a device control service part (241) that is adapted to create first applications (531, 532) for controlling the target devices (141, 142), wherein the first applications are adapted to convert a message including the name and parameter of a control function transmitted from the network controller (110) into a command format known in the target devices (141, 142), to transmit the converted message to the target devices in accordance with the access information or to convert a response from the target devices (141, 142) into a data format common in the first network (100), and to return the response to the network controller (110),

the target service part (240) is adapted to create, after detecting an increase in the number of target devices (141, 142) connected to the second network (143), a second application (541, 542) for acquiring a device list information and a device function list information of the newly connected target device,

said device list information includes the device name and target information indicating operable functions of the device, and said device function list information includes the names, types and parameters of control functions of the newly connected target device (141, 142), and

the device information provision service part (242) is adapted to return a device list in response to a device list acquisition request from the network controller (110) by referring to said device list information, to return a device function list in response to a device function list acquisition request from the network controller (110) by referring to said device function list information, and to return names and parameters of device control functions in response to a device function name acquisition request from the network controller (110) by referring to the names, types and parameters in said device function list information."

Independent claim 1 of the second auxiliary request differs from claim 1 according to the first auxiliary request in that the steps performed by the "target service part (240)" are performed by the "network device (140)" and that the phrases "after detecting an increase in the number of target devices (141, 142) connected to the second network (143)" and "newly" are removed.

Reasons for the Decision

1. Admissibility of the appeal

The notice of appeal and the statement setting out the grounds of appeal were submitted in due time and in the formal and substantive conditions required. The appeal fee was also paid in due time. The appeal is therefore admissible.

2. Main Request

This request was filed in response to the objections raised in the board's communication under Article 15(1) RPBA and was therefore admitted into the proceedings under Article 13(1) RPBA.

The claim set of this request differs from the set of claims on which the appealed decision was based *inter alia* in that claim 1 as amended further specifies that

(a) the network device comprises a network device control function part being adapted to detect an increase or decrease in the number of target devices connected to the second network (emphasis added),

(b) a device control service part of the target service part is adapted to create the first applications and cooperates with the network device control function part (emphasis added),

(c) a device information provision service part of the target service part is adapted to create the second application for acquiring the respective device information of the newly connected target device and cooperates with the network device control function part (emphasis added);

(d) the first applications, as the second application,

are likewise created after the network device control function part has been detecting an increase in the number of target devices connected to the second network (emphasis added).

2.1 Article 123(2) EPC

In the board's judgment, claim 1 of this request does not comply with the provision of Article 123(2) EPC for the following reasons:

2.1.1 Concerning feature (a), the application as filed teaches that the network device (i.e. "target GW device 140") rather than the network device control function part (i.e. "network 2 middleware 510") detects an increase or decrease in target devices connected to the second network by *using* the network device control function part (cf. page 10, line 14 and page 11, lines 14-16).

2.1.2 Concerning feature (b), the application as filed teaches that the network device (i.e. "target GW device 140") rather than the device control service part (i.e. "device control service 241") creates the first applications (i.e. "device 2 control 531"; "device 3 control 532") and cooperates with the network device control function part (cf. page 11, lines 16-20 in conjunction with Fig. 5).

2.1.3 Concerning feature (c), the application as filed teaches that the network device (i.e. "target GW device 140") rather than the device information provision service part (i.e. "device information provision service 242") creates the second application (i.e. "device 2 information 541"; "device 3 information 542") and cooperates with the network device control function

part. Furthermore, acquisition of the respective device information is not limited to *newly* connected target devices since this information retrieval ought to be applied to any "devices under the control of the gateway", regardless of whether they are newly or previously connected devices, according to the original application (cf. page 11, lines 14-23).

2.1.4 Concerning feature (d), the application as filed does not provide any information whatsoever on the temporal sequence of the steps performed by the network device, i.e. whether the creation of the first and second applications takes place *before* or *after* the increase detection.

2.1.5 In view of the above, claim 1 contains subject-matter which extends beyond the content of the application as filed.

2.1.6 The appellant argued that the feature of creating first and second applications after having detected an increase in the number of connected target devices was supported not only by the passage of page 11, lines 14-23 but also by the additional disclosures of page 7, lines 21 to 24 and page 13, lines 15-25, according to which the network controller transmits a message to the target device *upon* detecting the target device.

However, the board holds that the additionally cited disclosures are related to embodiments which do not use any network device (i.e. "target gateway device 140") in contrast to claim 1, which is primarily based on the embodiment in which a target gateway device interconnects the network controller with the target devices to be controlled (cf. page 11, lines 14-23 in

conjunction with Fig. 5 of the application as filed).

2.2 In conclusion, this request is not allowable under Article 123(2) EPC.

3. First Auxiliary Request

This request was submitted during the oral proceedings merely as a corrected version of the former first auxiliary request filed in response to the objections raised in the board's communication under Article 15(1) RPBA and was therefore admitted into the proceedings under Article 13(1) RPBA.

The claim set of this request basically corresponds to the claim set underlying the appealed decision, with the difference that claim 1 specifies that

(e) the target service part is adapted to create, after detecting an increase in the number of target devices connected to the second network, a second application for acquiring the respective device information of the newly connected target device.

3.1 Article 123(2) EPC

The board finds that claim 1 of this request does not comply with the provision of Article 123(2) EPC either, the reasons being as follows:

3.1.1 Feature (e) is not originally disclosed since the application as filed teaches that the network device (i.e. "target GW device 140") rather than the target service part (i.e. "target service 240") creates the second application (i.e. "device 2 information 541"; "device 3 information 542") without providing any details on the temporal sequence of the creation and

detection steps and without disclosing that the respective device information of the *newly* connected target devices is acquired (cf. page 11, lines 14-23).

Hence, claim 1 contains subject-matter which extends beyond the content of the application as filed.

3.2 In conclusion, this request is not allowable either under Article 123(2) EPC.

4. Second Auxiliary Request

This request was submitted during the oral proceedings merely as a corrected version of the former second auxiliary request filed in response to the objections raised in the board's communication under Article 15(1) RPBA and was therefore admitted into the proceedings under Article 13(1) RPBA.

The claim set of this request differs from the claim set of the first auxiliary request in that claim 1 as amended further specifies that the network device is adapted to create the first and second application and that the condition "after detecting an increase in the number of target devices connected to the second network" and the word "newly" are removed.

4.1 Article 123(2) EPC

Owing to the amendments made, the board is satisfied that the objections raised in points 2.1 and 3.1 above are overcome. Therefore, this request complies with the provision of Article 123(2) EPC.

4.2 Article 52(1) EPC: Novelty and inventive step

The board judges that claim 1 of this request does not meet the requirements of Articles 52(1) EPC and 56 EPC 1973 for the following reasons:

4.2.1 The Board concurs with the examining division and the appellant in considering D1 as the closest prior art.

4.2.2 Like the present invention, D1 is related to the remote control of target devices and discloses, with regard to the terminology of claim 1, a network device (*viz.* "home gateway") being connected to a first network (*viz.* "Internet") and a second network (*viz.* "IEEE1394 network" or "X10 network"; see Figs. 4 and 6). The home gateway manages and controls target devices (*viz.* "home appliances") connected to the second network by detecting a change in the number of connected devices (see e.g. section IV.B., item (1), second paragraph: "... There is also a plug-and-play capability ... which enables pop-up (and disappearance of) the appropriate appliance panel when the appliance is connected to the home network or turned on.") and providing specific device information as well as access information to a network controller (*viz.* "user client") requesting remote control of the target devices (see e.g. section IV.B., item (1), first paragraph: "... Presenting all kinds of appliances on one screen helps the user to control them easily ..." in conjunction with Fig. 5).

The home gateway of D1 also performs protocol and message format conversions (see e.g. sections III.A.6 and III.A.8). D1 further teaches that the home gateway device comprises applications (*viz.* "servlets") for collecting available instances, services, and contents of connected home appliances (see e.g. section III.A.3)

which are supposed to be presented to the user client via a graphical user interface displaying the available appliances along with their control functions (see section IV.B., item (1), second paragraph: "... There are several appliance panels on the control window, and several control buttons on each appliance panel ..." in conjunction with Fig. 5). As a consequence, the data presented are to be read onto the terms "device list information" and "device function list information" recited in claim 1.

4.2.3 Hence, the difference between the subject-matter of claim 1 and the disclosure of D1 is seen to be that the network device is further adapted to return device list information, device function list information, and the names and parameters of device control functions in response to a corresponding device list acquisition request, device function list acquisition request, and a device function name acquisition request, respectively, from the network controller.

4.2.4 In view of the above, the subject-matter of claim 1 is new over the cited prior art (Article 54 EPC 1973).

4.2.5 The technical effect resulting from this distinguishing feature is considered to consist in the retrieval of target device information by the remote user on demand.

4.2.6 The objective problem to be solved by claim 1 is therefore regarded as being to enable the retrieval of control information on target devices by the remote user in a more user-controlled way.

4.2.7 The skilled person, starting from the teaching of D1, would understand that the respective information items of the connected home appliances are automatically

provided by the home gateway device to the remote user via a plug-and-play functionality in D1 (see section II.5 and section IV.B., item (1), second paragraph), i.e. without any user intervention in the information provision process. In this context, the skilled person in the field of communication networks would know that there are, in principle, two basic data delivery approaches in typical client/server communication systems, namely, server-induced (i.e. push-based) and client-induced (i.e. pull-based) data transfers and that D1 happens to rely on a push-based delivery of target device information to the remote user.

When confronted with the above objective problem, the skilled person would look for feasible ways of ensuring that the remote user has indeed more control over the type of information to be retrieved for the subsequent remote control of the target devices. Based on his common general knowledge, he would be aware that a pull-based information delivery is more suitable for tailoring the information delivery to the user needs than push-based delivery as in D1.

Consequently, the skilled person would ensure that the respective device information items presented on the appliance panels in D1 (see Fig. 5) are transmitted only on demand, i.e. upon user requests, rather than being server-induced. In other words, he would attempt to modify the system of D1 in such a manner that the type or granularity of the information displayed about the connected home appliances would be controlled by the client side instead of being automatically controlled by the server side. As a result, he would apply a request-based plug-and-play implementation. Such a request-based implementation is commonly known from the standardised UPnP (Universal Plug-and-Play)

protocol as evidenced, for example, by D2 (see e.g. section 5, third paragraph: "... UPnP allows a device to ... announce its presence and its capabilities upon request ..."). Based on this kind of implementation, the skilled person would therefore readily adapt the system of D1 in such a way that the remote user would only obtain the respective target device data from the gateway device which the user is actually interested in via individual requests and would thereby arrive at the solution provided by claim 1 in an obvious manner.

4.2.8 In view of the above, the subject-matter of claim 1 of this request does not involve an inventive step having regard to D1.

4.2.9 In this regard, the appellant argued that the objective problem to be solved by claim 1 was to avoid superfluous transmissions and thus network congestions in the remote control system under consideration.

The board holds, however, that such a problem may not be solved by the aforementioned distinguishing feature (cf. point 4.2.3 above) since the transmission of various requests for obtaining distinct device information items typically does not decrease but rather increases the bandwidth consumption in general client/server communications. This is all the more so when considering Internet-based communications between the claimed network controller and the network device, owing to the fact that sending various requests on demand would inevitably result in establishing a separate TCP connection for each HTTP request. This would in turn be highly detrimental to the overall bandwidth efficiency of the respective system, contrary to the assumption made by the appellant.

4.2.10 Moreover, according to the appellant, the distinguishing feature would allow an iterative retrieval of device information via a step-by-step approach rather than by automatically receiving the device information in one step as taught in D1.

The board notes, in this regard, that a step-by-step approach with respect to the information retrieval is not conclusively derivable from the distinguishing feature since there is no ordering or temporal sequence for the individual requests according to the wording of claim 1. Even if such a correlation were reflected in claim 1, it would still not solve the objective problem as formulated by the appellant and would not contribute to an inventive step, since such an ordering of individual requests would merely depend on the user's convenience and needs rather than on technical constraints or purposes.

4.2.11 The appellant also submitted that D1 failed to disclose or suggest the necessity of providing the target device information of interest to the user by the gateway device since there were other possibilities for the remote control in D1 to be realised, namely, by using a universal control plane at the user's web browser with a standard set-up for any device type or obtaining the relevant device-related information through the client computer itself, via a CD-ROM or the Internet, rather than via the gateway device.

The board cannot follow this line of argument as it is clearly mentioned in D1 that the required appliance control applications may be dynamically downloaded rather than being pre-installed (see section III.B., first paragraph) and that any plug-and-play function to be applied for the gateway is supposed to avoid the

user's manual configuration set-up (see section II.5), which corroborates the fact that the remote user is not expected to have any a priori information on the target devices to be controlled.

4.3 In conclusion, this request is not allowable under Article 56 EPC 1973.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chair:

K. Götz A. Ritzka

Decision electronically authenticated