BESCHWERDEKAMMERN BOARDS OF APPEAL OF CHAMBRES DE RECOURS
DES EUROPÄISCHEN THE EUROPEAN PATENT DE L'OFFICE EUROPEEN
PATENTAMTS OFFICE DES BREVETS

Internal distribution code:
(A) [ ] Publication in OJ
(B) [ ] To Chairmen and Members
(C) [ ] To Chairmen
(D) [X] No distribution

Datasheet for the decision
of 20 February 2013

Case Number:	T 1529/10 - 3.5.03
Application Number:	07010671.1
Publication Number:	1863316
IPC:	H04Q 9/00, G06F 9/54
Language of the proceedings:	EN

Title of invention:
Modular monitor service for smart item monitoring

Applicant:
SAP AG

Opponent:
-

Headword:
Modular monitor service/SAP

Relevant legal provisions:
EPC Art. 56

Keyword:
"Inventive step - yes"

Decisions cited:
-

Catchword:
-

C8425.D
EPA Form 3030   This datasheet is not part of the Decision.
                    It can be changed at any time and without notice.

Europäisches
Patentamt

European
Patent Office

Office européen
des brevets

Beschwerdekammern   Boards of Appeal   Chambres de recours

Case Number: T 1529/10 - 3.5.03

D E C I S I O N
of the Technical Board of Appeal 3.5.03
of 20 February 2013

Appellant: (Applicant)	SAP AG Dietmar-Hopp-Allee 16 D-69190 Walldorf (DE)
Representative:	Hössle Patentanwälte Partnerschaft Postfach 10 23 38 D-70019 Stuttgart (DE)
Decision under appeal:	Decision of the Examining Division of the European Patent Office posted 1 March 2010 refusing European patent application No. 07010671.1 pursuant to Article 97(2) EPC.

Composition of the Board:

Chairman: A. S. Clelland
Members: T. Snell
                 R. Moufang

Summary of Facts and Submissions

I.   This appeal is against the decision of the examining
       division refusing European patent application
       No. 07010671.1, with publication number EP 1863316 A,
       on the ground that the subject-matter of claim 1 of a
       main request and of first to third auxiliary requests
       did not involve an inventive step (Articles 52(1) and
       56 EPC) having regard to the disclosure of documents:

       D1: US 2006/0106581 A
       D3: Decasper et al: "Router Plugins - A Software
       Architecture for Next Generation Routers", Computer
       Communication Review, October 1998, pages 229-240.

II.   This decision also refers to the following documents
       cited in the European Search Report:

       D4: Graupner et al: "A Framework for Analyzing and
       Organizing Complex Systems", Proceedings of the Seventh
       International Conference on Engineering of Complex
       Computer Systems, 11-13 June, 2001, pages 155-165.

       D5: Bornhövd et al: "Integrating Automatic Data
       Acquisition with Business Processes - Experiences with
       SAP's Auto-ID Infrastructure", Proceedings of the 30th
       VLDB Conference, Toronto, Canada, 2004, pages 1-7.

       D6: Wiemann et al: "A Service and Device Monitoring
       Service for Smart Items Infrastructures", Proceedings
       of the Third International Conference on Wireless and
       Mobile Communications (ICWMC'O7), IEEE, 4 March 2007,
       pages 1-6.

C8425.D

III.   In the notice of appeal the appellant requested that
        the decision be set aside. In a subsequently filed
        statement of grounds, the appellant filed claims of a
        main and an auxiliary request, said to be the same as
        those currently on file.

        In a communication accompanying a summons to oral
        proceedings the board gave a preliminary opinion that
        claim 1 of the main and the auxiliary requests was not
        clear (Article 84 EPC). As regards inventive step, the
        board indicated that it did not regard the examining
        division's objection based on D1 and D3 as well-
        founded. However, it indicated that document D4
        appeared to be relevant.

IV.   With a fax letter dated 14 December 2012 sent in
        response to the board's communication, the appellant
        filed a new main and an auxiliary request to replace
        the requests on file. Arguments were advanced with
        respect to document D4.

V.   On 23 January 2013, the day before the oral proceedings
        were scheduled to take place, the board sent a proposal
        by fax for amended independent claims 1 and 9 which it
        considered would be allowable. The rapporteur informed
        the representative by telephone that if the board's
        proposal were accepted, the oral proceedings would be
        cancelled and the board would likely issue a decision
        in writing to remit the case for further prosecution
        since the board had not examined the dependent claims
        or considered whether amendments were necessary to the
        description.

C8425.D

VI.   In a fax letter received on the same day, the appellant
       expressed agreement to the amendments proposed by the
       board and requested the grant of a patent on the basis
       of these independent claims. The appellant annexed a
       copy of the new claims to the letter. The board duly
       cancelled the oral proceedings.

VII.   The appellant accordingly requests that the decision
       under appeal be set aside and a patent granted on the
       basis of claims 1 and 9 received by fax letter on
       23 January 2013. Implicitly, the request also includes
       dependent claims 2-8 and 10-12 of the main request
       received by fax letter on 14 December 2012. Formally on
       file are also the main and auxiliary requests received
       by fax letter on 14 December 2012, which implicitly are
       subordinate to that received on 23 January 2013.

VIII. Claim 1 of the appellant's request reads as follows:

       "A system for monitoring smart item devices of at least
       one device network (102) by means of monitor services,
       the system (100) comprising:
       a service repository (124) configured to store a core
       monitor service (148), the core monitor service (148)
       being configured to implement fundamental monitoring
       functionalities that are used by all monitor services
       (132a - 132d), and a plurality of monitor service
       modules (150) configured to implement functionality
       that is particular to a given one of the monitor
       services (l32a - l32d), each of the monitor service
       modules including a system adaptor (134) and being
       implemented by means of a respective module manager
       (608) as a plug-in component that is added to the core
       monitor service on an as-needed basis and adapted to

communicate with the core monitor service via a common
interface which is shared by the plurality of monitor
service modules (150), such that the core monitor
service (148) is extendable according to application-
specific needs in that functionality related to
communicating, data storage or data preprocessing may
be added or replaced to form a respective modular
monitor service (600) without changing the core monitor
service (148), the modular monitor service (600)
representing one or more of the monitor services (132a
— 132d), wherein the common interface is implemented by
said system adaptors (134), each system adaptor
being a service mapped to a respective device by a
service mapper (120) and serving as a data source to
provide monitor data about the respective device as
well as about any service running on the respective
device, the system adaptors (134) implementing the
common interface for communicating with the core
monitor service (148) while implementing whatever other
interfaces are necessary for monitoring the respective
services and/or devices;
wherein said service mapper (120) is configured to
select devices as selected devices from among the smart
item devices of the device network, for installing
instances of the core monitor service (148) onto at
least two tiers (202, 204, 206, 208) of a hierarchical,
multi-tiered monitor architecture and further, once the
core monitor service is installed, for installing at
least one monitor service module (150) onto at least
one tier of the hierarchical, multi-tiered monitor
architecture, and the system further comprises
a system monitor (132) implemented according
to the hierarchical, multi-tiered monitor architecture
to provide a scalable, distributed monitoring service

and comprising the instances of the core monitor
service (148) and the at least one monitor service
module (150), the system monitor (132) configured, with
the instances of the core monitor service (148) and the
at least one monitor service module (150) in place, to
detect and collect monitor data of the device network
and propagate at least a portion of the monitor data
through the hierarchical, multi-tiered monitor
architecture from the device network (102)."

IX.   Claim 9 of the appellant's request reads as follows:

"A method comprising:
providing instances of a core monitor service (148,
148a, 148b, 148c, 148d) configured to implement
fundamental monitoring functionalities that are used by
all monitor services (132a — 132d), onto at least two
tiers (202, 204, 206, 208) of a hierarchical, multi-
tiered monitor architecture associated with at least
one device network (102), the core monitor service
being stored in a service repository and the instances
of the core monitor service being installed by
selecting by means of a service mapper devices as
selected devices from among smart item devices of the
device network; and
providing, once the core monitor service is installed,
on at least one of the plurality of tiers at least one
monitor service module (150, 150a, 150b, l5Oc) stored
in the service repository, including a system
adaptor (134) and implemented by means of a respective
module manager (608) as a plug-in component that is
added to the core monitor service on an as-needed basis
and communicates with the core monitor service via a
common interface which is shared by a plurality of

monitor service modules (150), such that the core
monitor service (148) is extendable according to
application-specific needs in that functionality
related to communicating, data storage or data
processing may be added or replaced to form a
respective modular monitor service (600) without
changing the core monitor service (148), the modular
monitor service (600) representing one or more of the
monitor services (132a - 132d), wherein the common
interface is implemented by system adaptors (134), each
system adaptor being a service mapped to a respective
device by a service mapper (120) and serving as data
source to provide monitor data about the respective
device as well as about any service running on the
respective device, the system adaptors (134)
implementing the common interface for communicating
with the core monitor service (148) while implementing
whatever other interfaces are necessary for monitoring
the respective services and/or devices, so that, with
the instances of the core monitor service and the at
least one monitor service module in place, monitor data
of the device network may be detected and collected and
at least a portion of the monitor data may be
propagated through the hierarchical, multi-tiered
monitor architecture from the device network."

X.   In view of the board's decision, it is not necessary to
         reproduce the text of the claims of the main and
         auxiliary requests received on 14 December 2012.

C8425.D

Reasons for the Decision

1.   *Amendments (Article 123(2) EPC)*

        Claim 1 is mainly based on claims 1 and 2 as originally
        filed together with subject-matter from paragraphs
        [0014], [0088] - [0090], and [0123] of the description
        as filed (referring to the published application). As
        regards the amendments made during the appeal
        proceedings: The feature that fundamental monitoring
        functionalities are used by all monitor services is
        disclosed in paragraph [0089] of the description. The
        feature "functionality ... particular to a given one of
        the monitor services" is also based on paragraph
        [0089]; the omission here of the term "more" from the
        expression "more particular" is a clarification which
        nevertheless, in the board's view, merely reflects the
        meaning that the skilled person would have understood
        from the original phrase. The feature that each of the
        service modules includes a system adapter, whereby
        common interface is implemented by the system adapter,
        is disclosed in paragraph [0123].

        Claim 9 is a method claim corresponding to claim 1, ie
        is based on the same parts of the application as filed.

        Claims 1 and 9 therefore comply with Article 123(2)
        EPC.

2.   *Clarity (Article 84 EPC)*

        The board finds that, following amendment, claims 1 and
        9 are adequately clear within the meaning of Article 84
        EPC.

C8425.D

3.   *Inventive step (Articles 52(1) and 56 EPC)*

3.1   The present invention relates to a system for
        monitoring smart item devices, for example of a network
        comprising RFID (radio frequency ID) tags. The system
        includes a service repository for storing "monitor
        services", which the board understands as software
        modules for installation in the "smart item" processing
        devices making up the monitoring system, and a service
        mapper for installing the monitor services to selected
        devices of the network. The monitoring network is
        arranged as a multi-tiered hierarchical architecture.
        The monitor services are made up of a core monitor
        service implementing fundamental monitoring
        functionalities used by all monitor services, and so-
        called "monitor service modules" which implement
        functionality particular to a given monitor
        service/device. The monitor service modules are
        configured as plug-in components to be added to the
        core service on an as-needed basis.

3.2   The examining division considered that document D1
        represents the closest prior art. The board agrees.

        Document D1, like the present invention, discloses a
        system for monitoring RFID tags. As in the present
        invention, the monitoring network is arranged as a
        multi-tiered hierarchical architecture. One layer is
        formed by a device controller which carries out "core
        functions" (cf. paragraph [0098]. These are listed as:
        filters, enrichers, aggregators, writers, buffers, and
        senders (cf. paragraph [0091]). These functions are

carried out by one or more data processors in the
device controller.

3.3   The examining division identified three differences
       over D1, namely (cf. the impugned decision, section 2.1
       of the reasons):

              "(i) the system comprises a service repository
              configured to store the core monitor service
              as a template and that
              (ii) the service repository additionally
              stores a plurality of monitor service modules,
              each of the monitor service modules being
              implemented by means of a respective module
              manager as a plug-in component that is added
              to the core monitor service on an as-needed
              basis and communicates with the core monitor
              service via a common interface which is shared
              by the plurality of monitor service modules,
              such that the core monitor service is
              extendable according to application-specific
              needs in that functionality related to
              communicating, data storage or data
              preprocessing may be added or replaced to a
              respective module monitor service without
              changing the core monitor device,
              the system monitor comprises both the core
              monitor service and the at least one monitor
              service module, and that
              (iii) the system further comprises a system
              mapper configured to select devices as
              selected devices from among the smart item
              devices of the device network, for deploying
              instances of the core monitor service onto at

least two tiers of the hierarchical, multi-
tiered monitor architecture and further once
the core monitor service is installed, for
deploying at least one monitor service module
onto at least one tier of the hierarchical,
multi-tiered monitor architecture."

The examining division then identified three separate
technical problems to be solved, and argued that each
problem had an obvious solution based on the common
knowledge of the skilled person. Document D3 was
mentioned to support this view in connection with
distinguishing feature (ii). The examining division
also commented that although features (i) to (iii) were
analysed separately they did in fact interact, but that
combining them did not provide any further or
surprising technical effect. The examining division
concluded that the claimed subject-matter as a whole
did not involve an inventive step.

3.4   The examining division has clearly made use of a
        "partial problems" approach (see eg the Guidelines
        G-VII, section 5.2, last paragraph, and sections 6 and
        7). In accordance with the Guidelines and Board of
        Appeal case law (cf. Case Law of the Boards of Appeal,
        6th Edition 2010, Part D, section 8.2.2), such an
        approach is appropriate where the distinguishing
        features concerned are not functionally interdependent,
        ie do not mutually influence each other to achieve a
        technical success over and above the sum of their
        respective individual effects. The board has to
        consider whether this is a reasonable approach in the
        present case.

3.5   In the board's view, the overall problem to be solved
        starting out from D1 is how to efficiently and flexibly
        program a large, scalable, multi-tiered monitoring
        network. This is achieved, in accordance with the
        distinguishing features (i) to (iii), by having a
        single core module used by all devices and a plurality
        of additional, plug-in modules particular to certain
        devices, all centrally stored in a service repository
        and installed onto the various devices of the various
        tiers of the multi-tiered network using a service
        mapper. Each of these aspects is an interrelated part
        of an overall concept for efficiently managing the
        network. The combination of these features cannot
        therefore, in the board's view, be fairly viewed as a
        mere aggregation of three unrelated features solving
        separate problems. For this reason, the board finds the
        examining division's line of reasoning based on partial
        problems to be inappropriate.

3.6   The board therefore has to judge whether the
        combination of features of claim 1 involves an
        inventive step.

3.7   In order to arrive at the combination of features of
        claim 1, the skilled person starting out from the
        system of document D1 has to perform a number of steps
        to incorporate the features (i), (ii) and (iii). There
        is no evidence on file that these features in
        combination belonged to the common knowledge of the
        skilled person in this field. Furthermore, the
        examining division ignored aspects of features (ii) and
        (iii) when assessing inventive step, namely that a
        plurality of monitor service modules share a common
        interface with the core monitor service, and that

instances of the core monitor service are installed on
at least two tiers of the multi-tiered architecture.
Claim 1 as amended during these appeal proceedings
further defines a system adaptor in each of the monitor
service modules for implementing the common interface.
The board takes the view that the skilled person,
purely on the basis of alleged common knowledge, would
not take the large number of steps required to arrive
at the claimed subject-matter without the benefit of
hindsight.

3.8   Concerning the remaining documents on file, the board
        comments as follows:

3.8.1   Re D3: The examining division combined D1 with document
        D3, which discloses a modular architecture using plug-
        in modules. However, this document comes from a
        different field, namely routers for packet switching
        networks. Hence the board finds it unlikely that the
        skilled person would combine these documents.

3.8.2   Re D4: Document D4 discloses a hierarchical network
        structure having some apparent similarities to the
        claimed solution. In this respect, D4 refers to a
        repository for storing prior and current model
        descriptions of hardware, software etc (cf. page 160,
        right-hand col., section 4.1). The network also
        includes monitoring sensors for feeding information
        into the network model (cf. Fig. 7 and page 161, line 4
        ff.). It also includes a mapping matrix "containing a
        solution of services assigned to servicing stations"
        (cf. page 162, left-hand col., lines 43-45). However,
        these "services" do not refer to those running on the
        infrastructure of the monitoring network itself, but to

network applications which are to be optimally
configured using a "Generic Optimization Framework" (cf.
page 162, section 4.3). Apparently, data obtained from
the monitoring network, eg load readings (cf. page 160,
right-hand col., section 4.2, lines 2-4), is used to
optimise the mapping matrix (cf. page 162, left-hand
col., lines 33-37). The mapping matrix of D4 is
therefore the result of an optimisation process based
on monitoring data, and not directly comparable to the
mapper of the present invention. In addition, there is
no suggestion in D4 that monitoring services should be
arranged to have a core module used by all services
together with particular plug-in modules. Therefore D4
would not lead the skilled person to the subject-matter
of claim 1 without the exercise of inventive skill.

3.8.3   Re D5: Document D5 is a publication by the applicant
which is similar to D1. It adds that "Centralized
administration tools to ... configure, deploy ... and
upgrade remote devices is a prerequisite for the
deployment of large, highly distributed Auto-ID
solutions". However there are no details which would
lead the skilled person to the features of the present
invention.

3.8.4   Re D6: Document D6 is a publication by the applicant
disclosing many features of the present invention.
However, it was published between the priority date and
the filing date of the present application. In the view
of the board, at least independent claims 1 and 9 are
entitled to the claimed priority (cf. claims 1 and 2
and paragraphs [0014], [00105] - [00107] and [00140] of
the priority application US 11/444,279 (31 May 2006)).
Hence D6 is not prior art within the meaning of

Article 54(2) EPC and therefore not relevant to
inventive step.

3.9   The board accordingly concludes that the subject-matter
        of claim 1 involves an inventive step having regard to
        the prior art on file (Articles 52(1) and 56 EPC).

3.10   These comments apply, mutatis mutandis, to independent
        claim 9.

4.   *Main and auxiliary requests received on 14 December
        2012*

        The appellant has not formally withdrawn these
        requests. However, in view of the board's decision,
        there is no reason to consider these requests, since
        they are implicitly subordinate to the request received
        on 23 January 2013.

5.   *Conclusion*

        The board concludes that independent claims 1 and 9
        meet the requirements of the EPC, having regard to the
        prior art at the board's disposal. The board has
        however not examined the dependent claims or considered
        whether amendments are required to the description. For
        this reason, the case is remitted to the examining
        division for further prosecution.

Order

For these reasons it is decided that:

1.   The decision under appeal is set aside.

2.   The case is remitted to the department of first
        instance for further prosecution on the basis of
        claims 1 and 9 received on 23 January 2013 and
        dependent claims 2-8 and 10-12 of the main request
        received on 14 December 2012.

The Registrar: The Chairman:

G. Rauh   A. S. Clelland