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Datasheet for the decision
of 10 April 2013

Case Number:	T 1204/08 - 3.5.01
Application Number:	01935510.6
Publication Number:	1356394
IPC:	G06F 17/30
Language of the proceedings:	EN

Title of invention:
Distributed dynamic web page caching system

Applicant:
divine technology ventures

Headword:
Distributed caching / DIVINE TECHNOLOGY VENTURES

Relevant legal provisions:
EPC Art. 123(2)

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

Keyword:
"Admissibility of amendment - no (main request)"
"Inventive step - no (auxiliary request)"

Decisions cited:
-

Catchword:
-

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                  It can be changed at any time and without notice.
C9414.D

Case Number: T 1204/08 - 3.5.01

D E C I S I O N
of the Technical Board of Appeal 3.5.01
of 10 April 2013

Appellant:
(Applicant)

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Decision under appeal:

**Decision of the Examining Division of the
European Patent Office posted 28 January 2008
refusing European patent application
No. 01935510.6 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman: S. Wibergh
Members: K. Bumes
                A. Pignatelli

Summary of facts and submissions

I.   The appeal is against the decision of the examining
        division to refuse European patent application No.
        01935510.6 entitled "*Distributed dynamic web page
        caching system*", published as

                A2: WO-A2-01/088762 (22 November 2001).

II.   Reasons for the refusal decision were set out by the
        examining division in a communication dated 30 August
        2007: lack of clarity (Article 84 EPC 1973),
        inadmissible amendment (Article 123(2) EPC 1973), and
        lack of inventive step (Article 56 EPC 1973) over

                D1: Pei Cao et al., "*Active Cache: Caching Dynamic
                Contents on the Web*", Proceedings of the
                International Conference on Distributed System
                Platform and Open Distributed Processing (1998),
                pages 373 to 388, XP002200148.

        D1 was considered to represent the most relevant prior
        art from which claim 1 only differed by specifying a
        second server taking over work from a failing first
        server.

III.   The appellant submitted an amended set of claims 1 to
        12 (hereinafter referred to as "main request") with the
        statement of grounds of appeal dated 4 June 2008.

        Claim 1 according to the main request reads:

        "1.   Computer-implemented method of generating a
        dynamic web page (10), comprising:
                - receiving a request (122) for a web page (10)
        from a client (54) at a first satellite server (58);
                - determining (124) whether page members reside in

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a first local cache memory (94) in a first satellite
server (58), wherein said page members comprise a page
template (12) and page component tags of the web page
(10);

    - in response to the determining (124),
downloading (130) the page members into the first local
cache memory (94) in the first satellite server (58)
and a second local cache memory (94) in a second
satellite server (60) from a server (52) if the page
members do not reside in the first local cache memory
(94) in the first satellite server (58);

    - assembling (126) the web page (10) from the page
members residing in the first local cache memory (94)
in the first satellite server (58);

    - delivering (128) the web page (10) to the client
(54);

characterized by

    - utilizing the second satellite server (60), if
the first satellite server (58) goes down, to assemble
(126) the web page (10) from the page members residing
in the second local cache memory (94) in the second
satellite server (60) and deliver (128) the web page
(10) to the client (54), wherein there is no
synchronization required between the first satellite
server (58) and the second satellite server (60)."

IV.   The Board summoned the appellant to oral proceedings
scheduled for 10 April 2013. In an annex to the summons,
the Board voiced doubts about the original basis of the
claimed method and about the presence of an inventive
step in the claimed method.

V.   In response to the summons, the appellant filed an
        amended set of claims 1 to 8 as an auxiliary request
        ("auxiliary request 1", 13 March 2013).

        Claim 1 according to the auxiliary request reads:

        "1. A computer-implemented method of generating a
        dynamic web page (10), comprising:
            receiving a request (122) for a web page (10) from
        a client (54) at a first satellite server (58);
            determining (124) whether page members reside in a
        first local cache memory (94) in the first satellite
        server (58), wherein said page members comprise a page
        template (12) and page component tags of the web page
        (10);
            in response to the determining (124), downloading
        (130) the page members into the first local cache
        memory (94) in the first satellite server (58) from a
        server (52) if the page members do not reside in the
        first local cache memory (94) in the first satellite
        server (58);
            assembling (126) the web page (10) from the page
        members residing in the first local cache memory (94)
        in the first satellite server (58);
            delivering (128) the web page (10) to the client
        (54);
            characterized by
            utilizing a second satellite server (60), if the
        first satellite server (58) goes down, to download any
        page members which do not reside in a second local
        cache memory (94) in the second satellite server (60),
        and to assemble (126) the web page (10) from the page
        members residing in the second local cache memory (94)

in the second satellite server (60) and deliver (128)
the web page (10) to the client (54);

wherein the first satellite server (58) and the
second satellite server (60) store (136) the downloaded
page members in the first local cache memory (94) and
the second local cache memory (94), respectively, such
that a further request finds the required information
needed to assemble (126) the requested web page (10) in
the satellite server (58, 60) cache memories (94), such
that in steady state a replicated cache is maintained
wherein all the cache components are residing in the
satellite server (58, 60) cache memories (94) with no
synchronization between the first satellite server (58)
and the second satellite server (60)."

VI. Oral proceedings took place on the appointed date
(10 April 2013). The appellant confirmed its requests
that the decision under appeal be set aside and that a
patent be granted on the basis of either the main
request filed with the statement of grounds of appeal
on 4 June 2008 or the auxiliary request filed with
letter dated 13 March 2013.

VII. The appellant's argumentation is summarised as follows.

(a) Regarding the original basis of the operation of a
second satellite server according to amended
claim 1 (main request, auxiliary request), the
appellant refers to two passages in the
description (A2, page 2, lines 24 to 27; page 6,
lines 5 to 10): the second satellite server
performs the "necessary work" of a failing first
satellite server. This implies that the second
satellite server downloads components of a

requested web page from a central web server if the components are not yet present in the cache memory of the second satellite server. In a steady state reached after numerous (e.g. a million) requests, the cache memory of the second satellite server replicates (on a statistical basis) the content of the first satellite server although the satellite servers have not been synchronised.

(b)   The appellant considers the claimed concept as inventive since D1 deals with a single proxy server (= satellite server) and requires the proxy server to request an entire web page from the central server even when only components of the web page are missing in the proxy cache. Handling dynamic content was a young technical field at the priority date of the application, and the examining division used inadmissible hindsight by formulating the objective technical problem such as to include pointers to the solution ("*to decrease the unavailability of a dynamic web page generating service in case of a server failure*"). D1 does not deal with a failure of its proxy server. Thus, the objective problem faced by the skilled person was to make a fast access to (dynamic) web content more reliable. On that general basis, the skilled person had no incentive to consider an independent (non-synchronised) second satellite server for downloading components of a web page.

Reasons for the decision

The application

1.   The application, filed as international application
        PCT/US01/15621 on 15 May 2001 (claiming a US priority
        of 16 May 2000), is directed at a method for generating
        a dynamic web page (A2, original claim 1). Dynamic
        components of a web page are typically assembled at the
        time a client requests them from a server, whereas
        static components remain unchanged over a period of
        time (A2, page 3, lines 15 to 22).

        Web content is initially stored in a web server (A2,
        Figure 2, reference numeral 52), and copies may be
        stored in cache memories of "satellite servers" (A2,
        page 5, paragraph 1; Figure 3).

        When a client requests a web page, a process (A2,
        Figure 4, reference numeral 120) residing on the
        computer network (A2, page 3, lines 7/8) determines
        whether the static and dynamic page components
        ("template"; "tags") are present in the cache memory of
        the satellite server. If this is the case, the
        satellite server assembles the web page and delivers it
        to the requesting client. If components of the
        requested web page are not present in the satellite
        server cache, the process obtains the components from
        the web server. Thereafter, a second page access can
        find the required information in the satellite server's
        cache memory (A2, paragraph bridging pages 5/6).

        Continuous operation of satellite servers in the
        network results in a steady state in which their cache

memories largely replicate each other's content even
without synchronising the ("independent") satellite
servers. Thus, if a satellite server fails, another
satellite server may perform the necessary work to
render the requested web page (A2, page 2, lines 24 to
27; page 6, lines 5 to 10). "Rendering" a web page
refers to the act of assembling its components and
delivering the page to the client (A2, e.g. page 1,
lines 24 to 26; page 4, lines 28 to 31).

Main Request

*Article 123(2) EPC --- Amendment beyond content of the
application as filed*

2.   The Board accepts the appellant's argument that the
        content replication in the cache memories of the
        satellite servers results statistically from each
        satellite server handling a large number of overlapping
        user requests for web pages.

3.   However, the method according to amended claim 1
        modifies the operation of the satellite servers: upon
        receipt of a request at the first satellite server,
        page members determined not to be resident in its cache
        memory are downloaded into the cache memory of not only
        the first satellite server, but also of a second
        satellite server.

        This mode of operation, which updates the cache
        memories of both satellite servers essentially
        simultaneously ("in response to the determining") with
        respect to each requested web page, is not disclosed by
        the application as filed and effectively contrasts with

its teaching that no synchronisation between the
independent satellite servers is required (A2, page 2,
lines 26/27; page 6, lines 8 to 10).

4.   Therefore, claim 1 as amended according to the main
        request extends beyond the content of the application
        as filed and, thus, does not meet the requirements of
        Article 123(2) EPC.

Auxiliary Request

*Article 123(2) EPC --- Amendment within content of the
application as filed*

5.   Claim 1 of the auxiliary request does not specify a
        download into the cache memories of both the first and
        second satellite servers and, thus, removes that matter
        added by the main request.

6.   The auxiliary request specifies a different aspect: if
        the first satellite server goes down, page members not
        resident in the cache memory of the second satellite
        server are downloaded (from a central web server).

        The application as filed is silent on what the second
        satellite server does when content not resident in its
        cache memory has been requested by a user while the
        first satellite server is down. The original
        description only deals with content resident in the
        cache memory of the second satellite server which in
        the steady state replicates the cache content of the
        first satellite server. On that basis, the second
        satellite server is immediately able to perform the

work necessary to render the requested web page (A2, page 6, lines 5 to 10).

7.   However, the skilled reader arguably realises that the "necessary work" of the second satellite server to render a requested web page (A2, page 6, lines 6 to 8) must include a download of any missing page member.

       Therefore, the Board considers that claim 1 according to the auxiliary request does not extend the teaching of the application.

       Article 56 EPC 1973 --- Inventive step

8.   The Board agrees with the examining division that D1 describes the closest prior art.

       D1 deals with caching dynamic contents on the Web (title) and focuses on the use of a "cache applet", i.e. a server-supplied code that is attached with a Universal Resource Locator (URL). When caching a document, a proxy (i.e. a satellite server) also fetches the corresponding cache applet. When a user request hits on the cached copy and the proxy would like to service the request, the proxy must invoke the cache applet which then decides what the proxy will send back to the user, either giving the proxy a new document (from the server) to send to the user, or allowing the proxy to use the cached copy, or instructing the proxy to send the request to the server. Cache applets allow servers to benefit from proxy caching without losing the capability to track user accesses and to tailor the content presentation (D1, page 374, paragraphs 2 and 3).

9.   D1 is not concerned with (satellite) server failures
       and related back-up measures. However, computer failure
       is a common phenomenon which always has to be
       considered by the skilled person.

10.   A simple and well-known concept for backing up a first
       computer consists in using a redundant second computer.
       The disclosure of the present application --- using a
       second satellite server's cache memory when a first
       satellite server has gone down --- reflects that
       concept which is particularly suggested by a network
       (Internet, with which D1 is concerned) having
       distributed nodes and plural tiers of servers
       effectively backing up each other.

       The skilled person is aware of the redundant
       availability of information on a plurality of
       intermediate Internet servers. Web pages requested by
       millions of users in various geographic regions are
       serviced by various satellite servers which necessarily
       end up hosting (caching) overlapping volumes of data.

       Therefore, requesting information from a second
       satellite server is an obvious alternative to
       requesting information from a failed first satellite
       server.

11.   The appellant has argued that in D1 the proxy server
       must request an entire web page from the central server
       even if only components of the web page are missing in
       the proxy cache. This drawback, however, has already
       been overcome in the prior art - as acknowledged by the
       appellant (see point VII(b) above) - by the

introduction of static and dynamic web page components. Their use in the system described in D1 would have been obvious in order to obtain the advantages they were known to have.

12.   On the implementation level, the application does not suggest any inventive technical contribution, either. It rather leaves the implementation to the skilled reader.

13.   For these reasons claim 1 does not involve an inventive step.

Order

For these reasons, it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

T. Buschek   S. Wibergh