IBM

Patent Study Summary

US Patent 5319542 King et al.

(Filed Sept. 1990 Issued June 1994)

ISP hosts searchable online catalogs for suppliers, enabling customer to download information on a selected item, generate a purchase order and send it to the supplier.

US Patent 4805134 Calo et al.

(Filed Jan. 1986 Issued Feb.1989)

Users are connected to a node with a database of pages with links to remote nodes. Users access the nodes via application programs thereat which execute transactions for the user.

Prodigy Patents - A Brief Overview

US Patent 5442771 Filepp et al.

(Priority July 1988 Issued Aug.1995)

US Patent 5758072 Filepp et al.

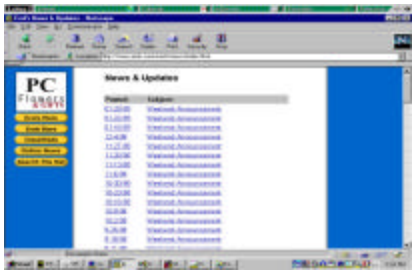
(Priority July 1988 Issued May 1998)

US Patent 5796967 Filepp et al.

(Priority July 1988 Issued Aug. 1998

Presented using Erols.com as an example

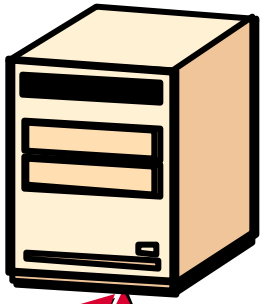
Host (Content) Server

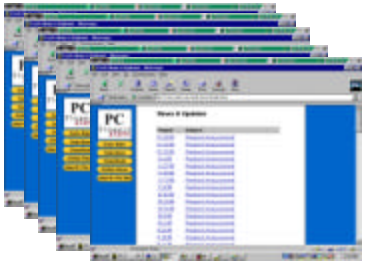


Host satisfies all user requests

Users

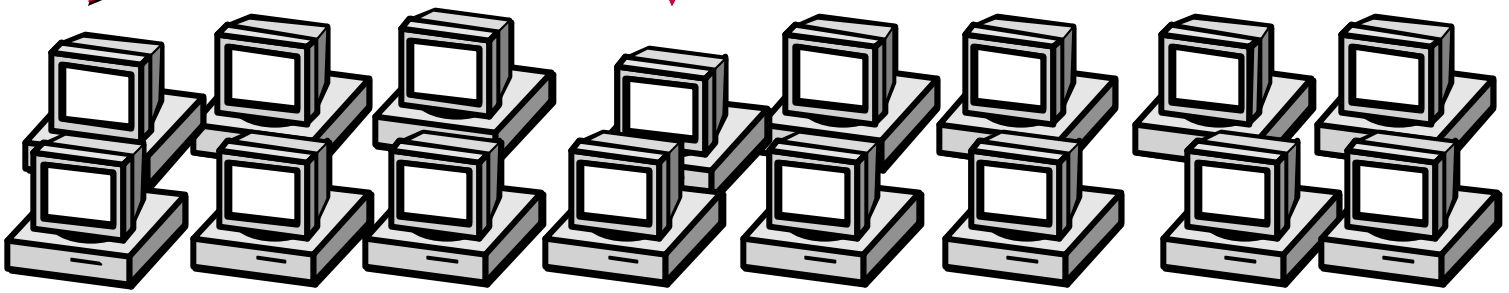
Host (Content) Server

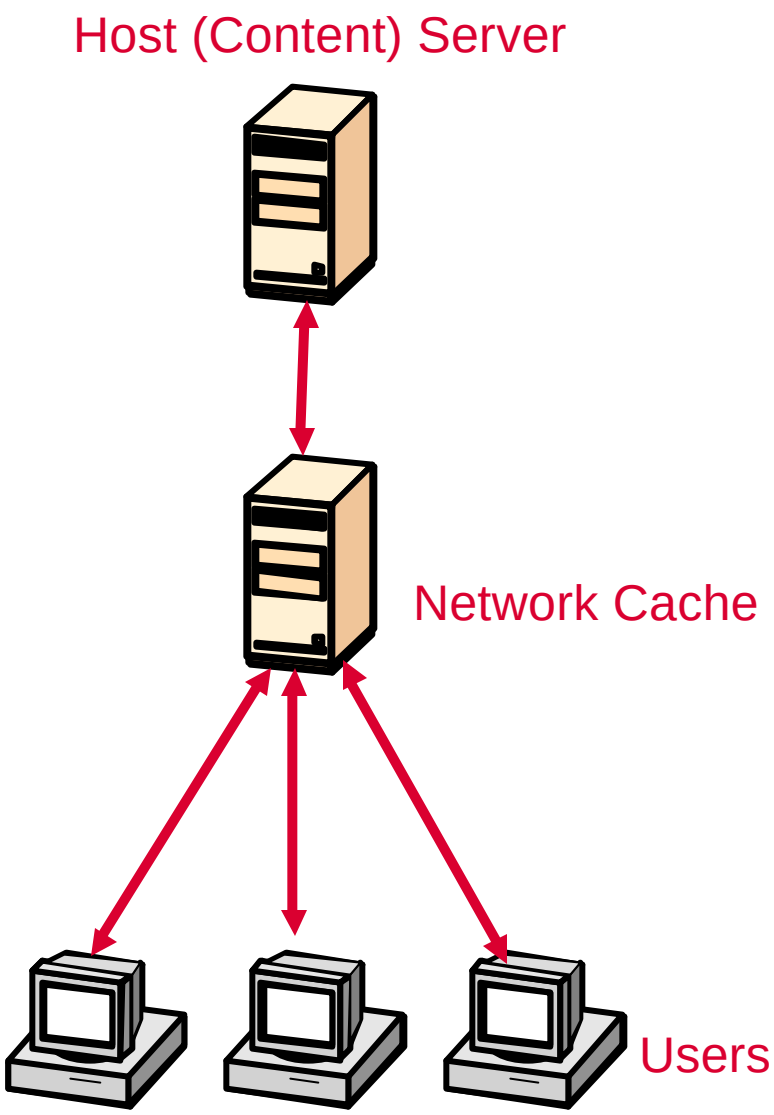


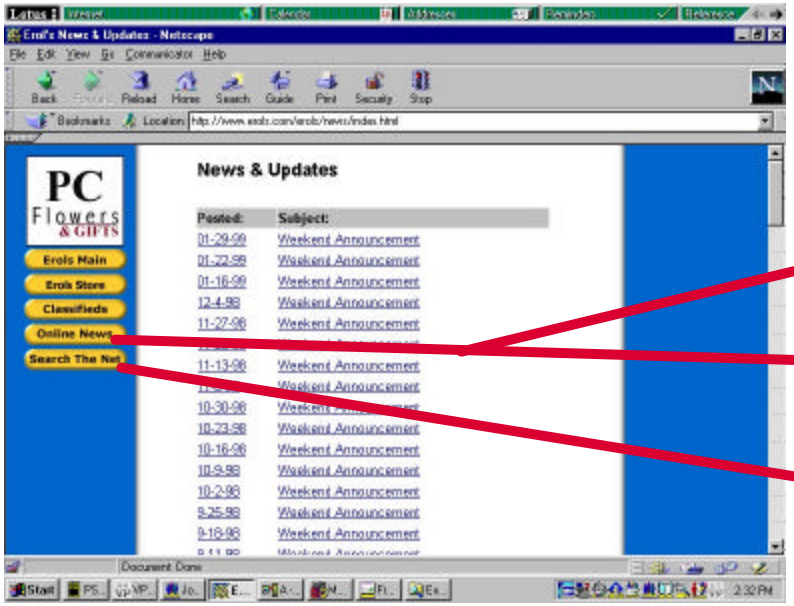


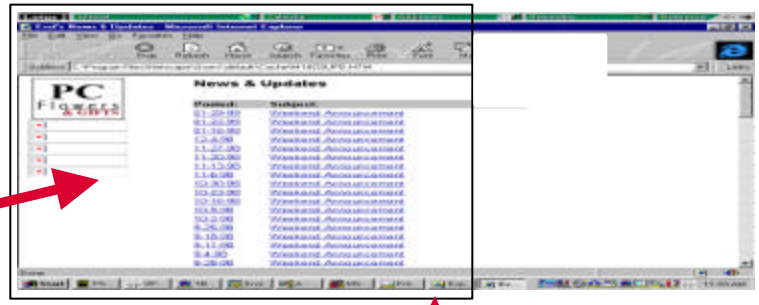
Host satisfies all user requests

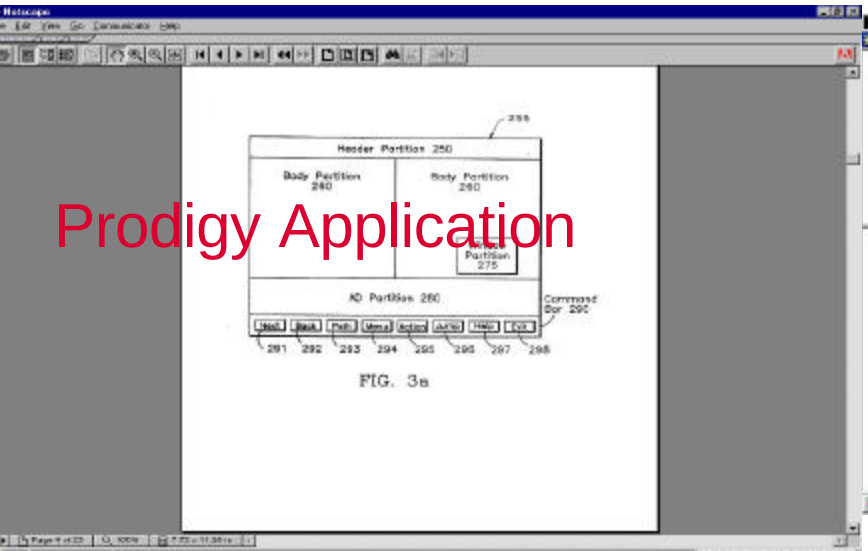
Users



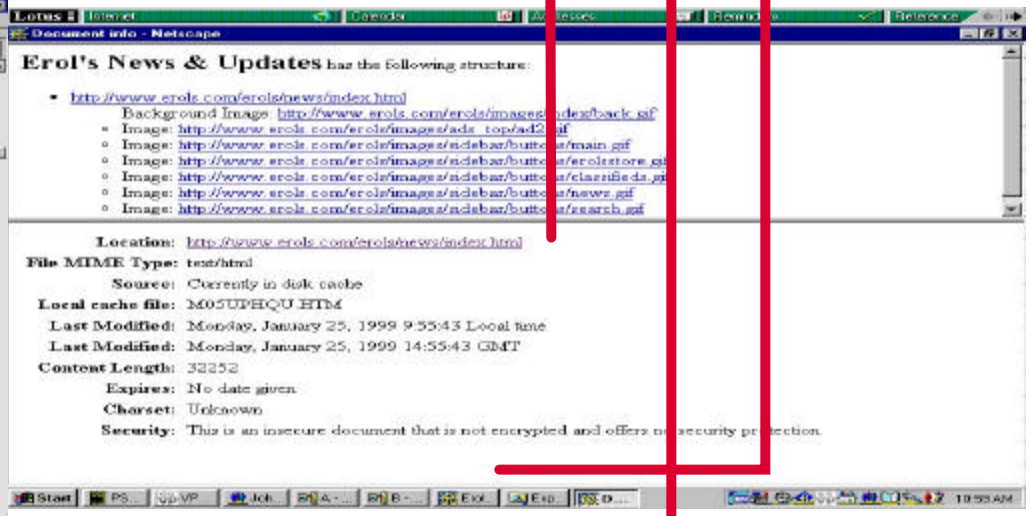

Host (Content) Server
Network Cache
Users



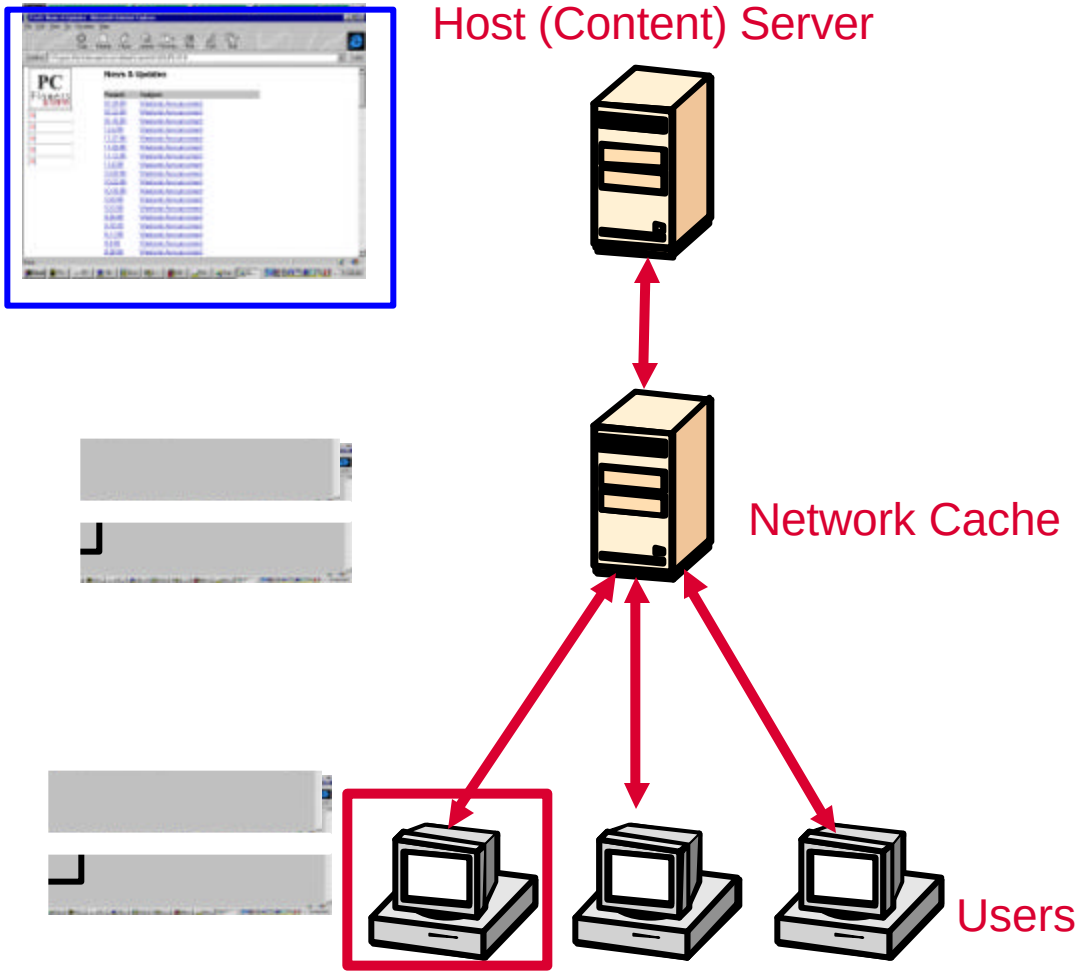




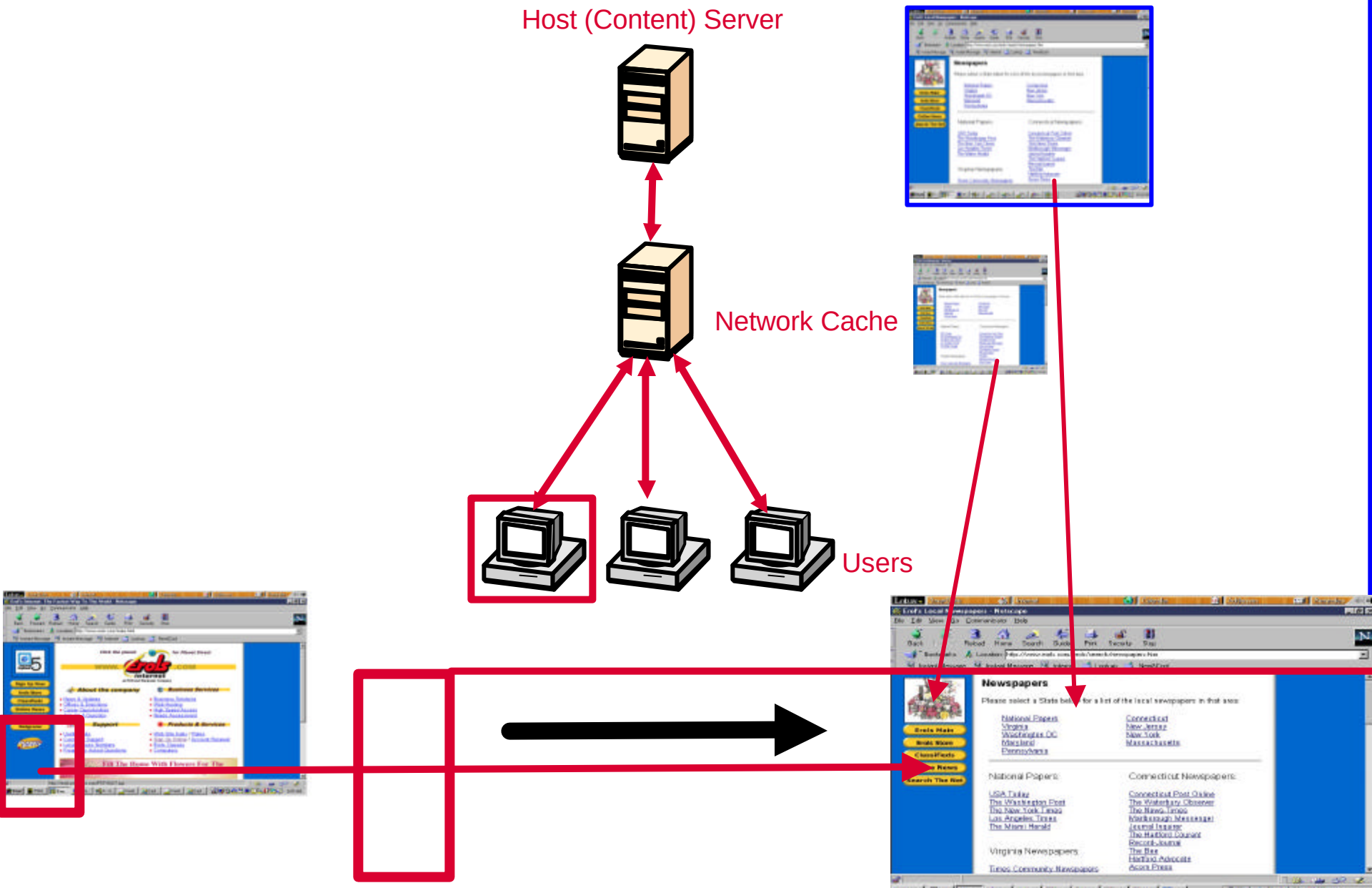
Prodigy Application



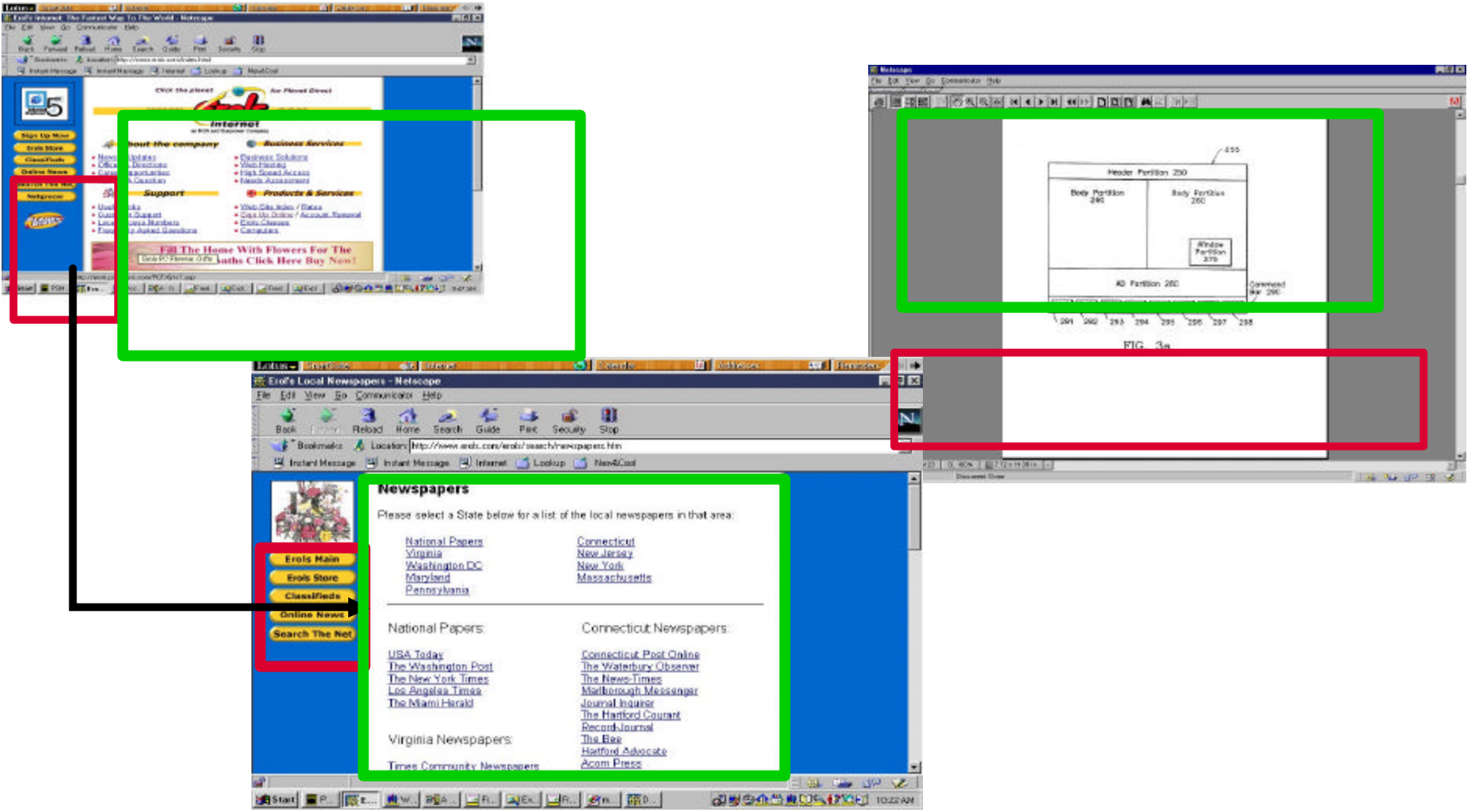
Storage Control Parameters for Application Elements



Prodigy Developments - US 5758072 Application Object Distribution in an On-line Service



Prodigy Developments - US 5976967 Presentation of Online Applications using a Command Partition



UNITED STATES PATENT
5,442,771
to FILEPP ET AL.

Issued: August 15, 1995
Filed: November 26, 1993
Priority: July 15, 1988

METHOD FOR STORING DATA IN AN INTERACTIVE COMPUTER NETWORK

OVERVIE W:

Data stores are created in an on-line computer network. Data in the network is associated with parameters controlling whether and how it may be stored. Storage is accomplished in accordance with the parameters.

Claim:

1. Method for storing data in a computer network, the network including a multiplicity of user reception systems at which respective users can request applications during user sessions, the application being generated from the data, the method comprising the steps of:

a. establishing data stores within the network from which data may be obtained for generating the applications during data usage sessions;

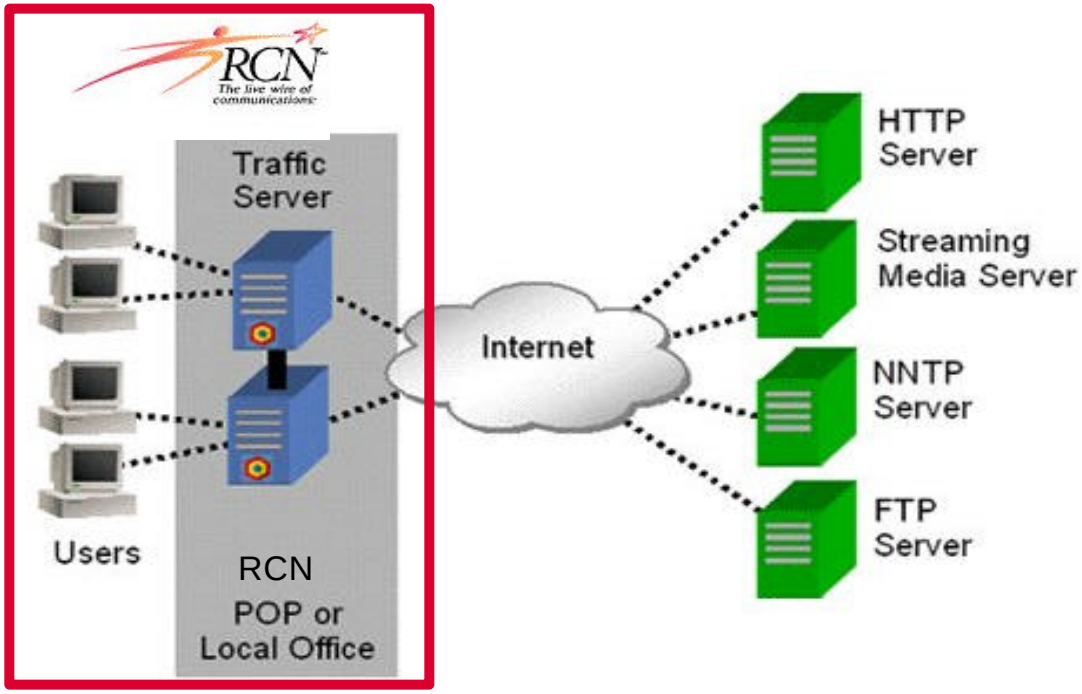
b. associating storage control parameters with the data to be stored, the control parameters dictating predetermined eligibility of the data for storage at the data stores;

c. supplying data to the respective stores for use in generating applications; and

d. retaining data at the stores based on at least the eligibility for storage dictated by the respective storage control parameters.

1. Method for storing data in a computer network, the network including a multiplicity of user reception systems at which respective users can request applications during user sessions, the application being generated from the data, the method comprising the steps of:

a. establishing data stores within the network from which data may be obtained for generating the applications during data usage sessions;

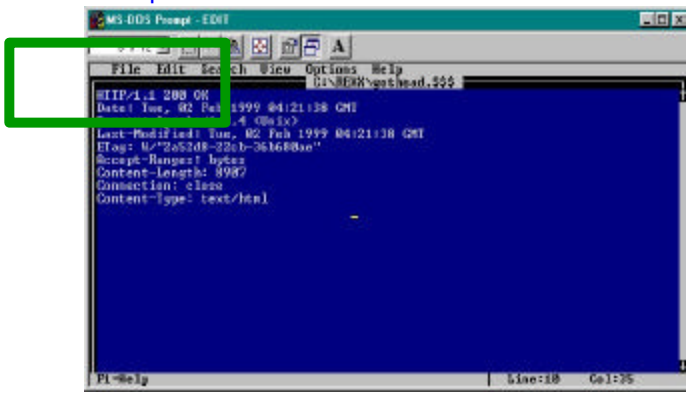


Inktomi Traffic Server Cache

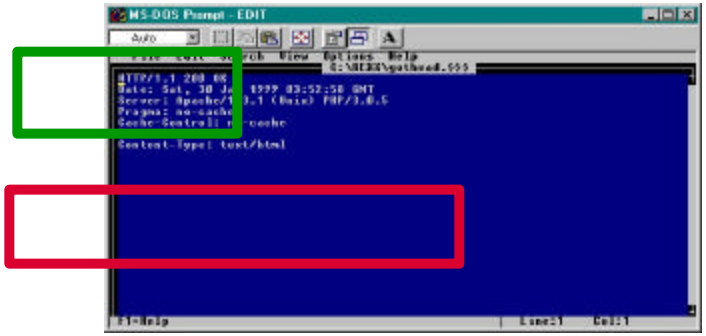
Background

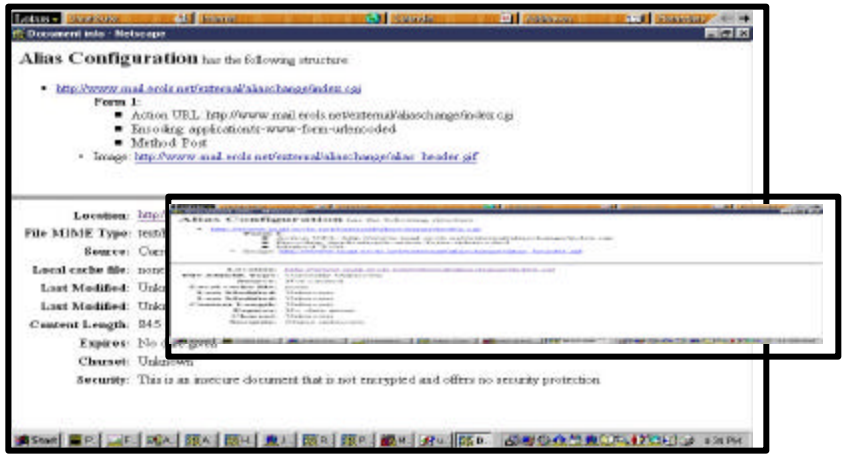
b. associating storage control parameters with the data to be stored, the control parameters dictating predetermined eligibility of the data for storage at the data stores;

http://www.erols.com



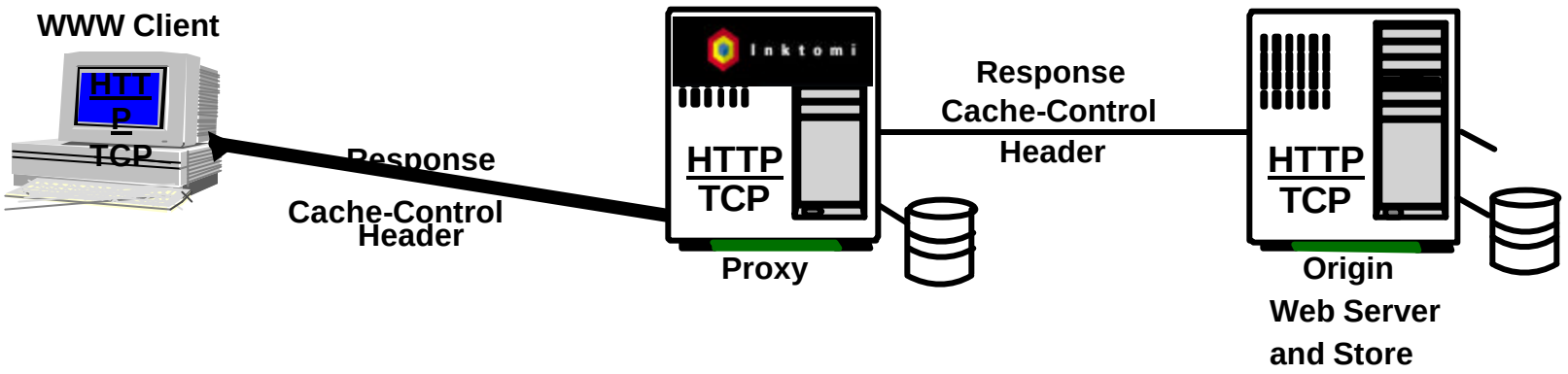
http://www.mail.erols.net/external/aliaschange/index.cgi





Background

b. associating storage control parameters with the data to be stored, the control parameters dictating predetermined eligibility of the data for storage at the data stores;

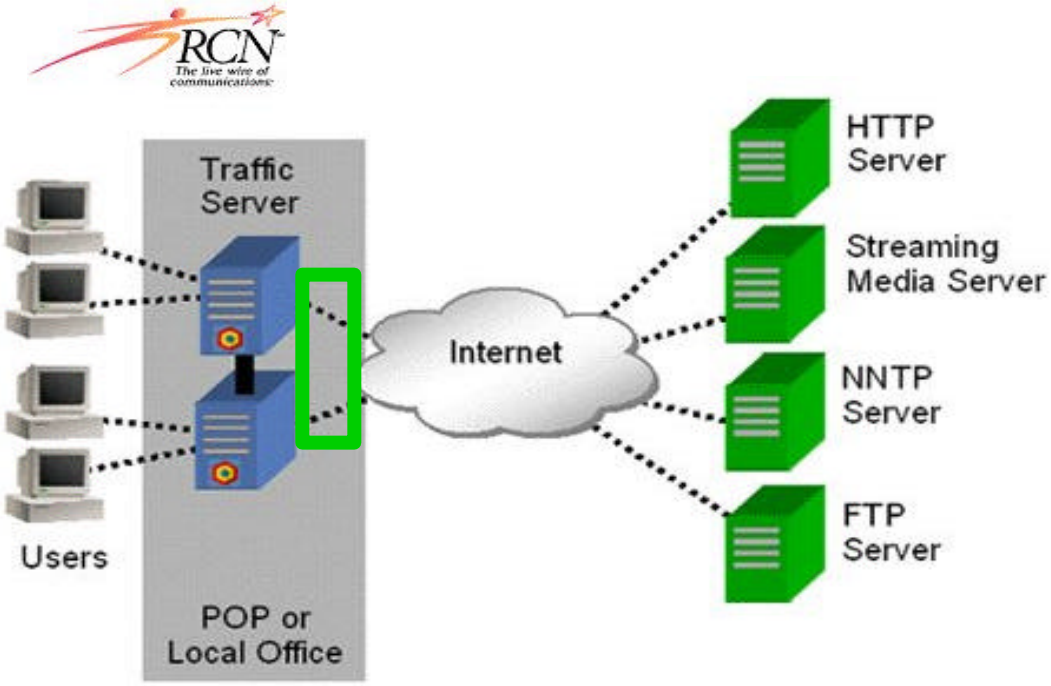


Response Cache-Control Headers in HTTP/1.1

The response Cache-Control Header is a signal to intermediate proxies and the client. These directives include:

- Private
- Public
- No-cache
- No-store
- No-transform
- Must-revalidate
- Proxy-revalidate
- Max-age

c. supplying data to the respective stores for use in generating applications; and



When deployed as a proxy-cache, Traffic Server fields end-user requests for information. If Traffic Server contains a requested document, it serves the document to the end user. If it does not have the document, it acts as a proxy and fetches the content from the origin server on the user's behalf. Traffic Server then saves a copy of the document in the cache in order to satisfy future requests for it.

http://www.inktomi.com/products/network/products/cclass_works.html

d. retaining data at the stores based on at least the eligibility for storage dictated by the respective storage control parameters.

W3C Working Group RFC 2626 HTTP 1.1 Standard

ftp://ftp.isi.edu/in-notes/rfc2616.txt

Fielding, et al. Standards Track [Page 107]

RFC 2616 HTTP/1.1 June 1999

14.9 Cache-Control

```
cache-request-directive =
      "no-cache"                    ; Section 14.9.1
    | "no-store"                    ; Section 14.9.2
    | "max-age" "=" delta-seconds   ; Section 14.9.3, 14.9.4
    | "max-stale" [ "=" delta-seconds ]   ; Section 14.9.3
    | "min-fresh" "=" delta-seconds       ; Section 14.9.3
    | "no-transform"                ; Section 14.9.5
    | "only-if-cached"              ; Section 14.9.4
    | cache-extension               ; Section 14.9.6
```

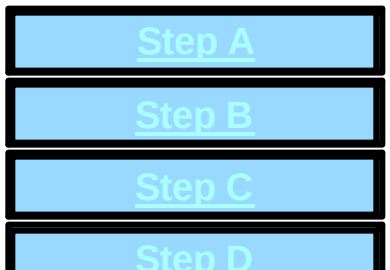
Traffic Server C-Class Specifications

Data Transport

HTTP versions 1.0 and 1.1 offer complete support for the most popular IP protocol

http://www.inktomi.com/products/network/products/cclass_tech.html

- ★Application Diagram
- ★Inktomi Caching
- ★Storage Candidacy
- ★RCN Web Content
- ★ Heuristic Cache Control
- ★Network Hierarchy



RCN Rebuttal Letter January, 2000

U.S. Patent 5,442,771

Claim 1 relates to a method for storing data in an interactive computer network. "Storage control parameters" are associated with the data to dictate storage strategy or the "predetermined eligibility of the data for storage at the data stores." As used in the application, the storage control parameters relate to the frequency of use of the data. For example, more frequently used data is kept closer to the end user. This is the "cache concentration" concept.

IBM has alleged that the '771 patent covers the Quick Web software used by RCN to cache web sites. At the outset, we note that the Quick Web software was used for a limited time and is no longer in use. However, RCN has recently purchased an Alteon Internet switch and Inktomi web caching software to implement a web caching function. We will thus discuss the '771 patent in the context of RCN's current web caching implementation.

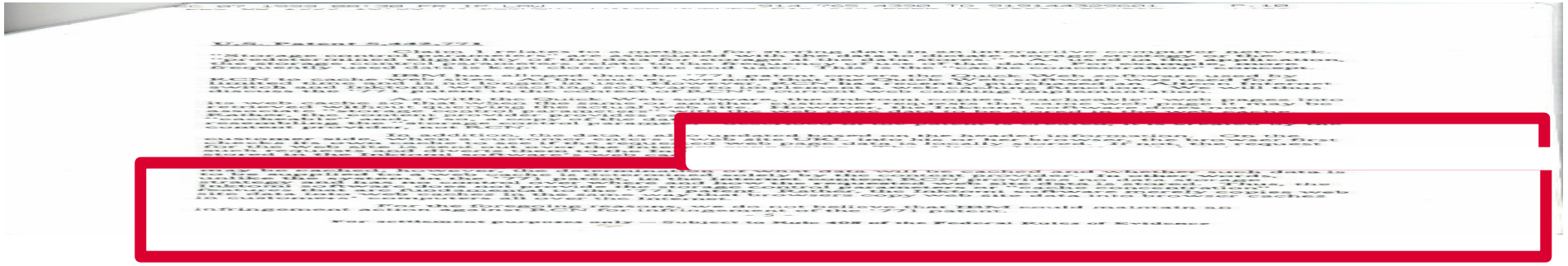
As with the Quick Web software, the Inktomi copies "cacheable" web pages into its web cache so that when the same or another customer requests the same web page it may be retrieved without querying the actual web site. However, the Inktomi software does not associate "storage control parameters" with the web page data to be stored in the web cache. Rather, the content provider provides cache control headers indicating whether the data is "cacheable" and, if so, a copy of the data is stored in the web cache. To the extent that anything resembling the "storage control parameter" described in the patent is created, it is created by the content provider, not RCN.

In addition, the data is also updated based on the header information. On the customer side, when a customer enters a web site URL into his or her browser, the browser first checks its own cache to see if the requested web page data is locally stored. If not, the request for the web site is sent out over the Internet connection. The Alteon Internet switch intercepts such requests and diverts them to the Inktomi cache to check if the requested web page data is stored in the Inktomi software's web cache. If so, the web page data is returned to the customer. If not, the actual web site is queried.

Accordingly, the Inktomi software provides a data store from which web pages may be cached; however, the determination of what data will be cached and whether such data is to be supplied to a web cache is determined solely by the content provider. In other words, unlike the system in the '771 patent, in the Internet context RCN provides no data storage strategy and has no control over where and how the requested web site data is stored. Thus, the Inktomi software does not provide the storage control parameters or "cache concentration" features that are fundamental to the '771 patent. Rather, the Inktomi software merely copies web site data into web caches in the same way that browsers copy web site data into browser caches in customers' computers all over the Internet.

For the foregoing reasons, we do not believe that IBM could maintain an infringement action against RCN for infringement of the '771 patent.

US 5,442,771 METHOD FOR STORING DATA
IN AN INTERACTIVE COMPUTER NETWORK



Netscape

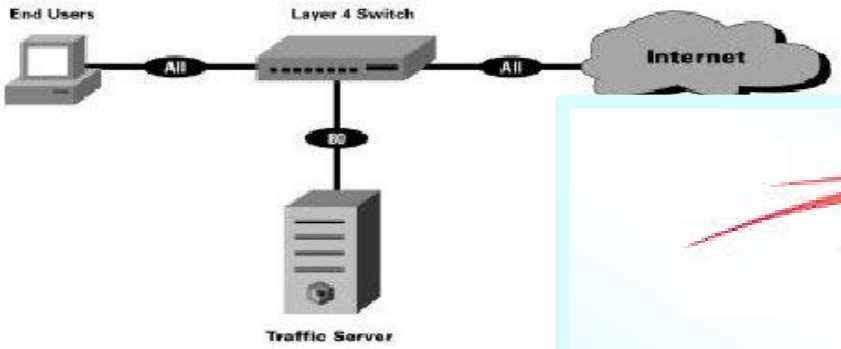
le Edit View Go Communicator Help

Back Forward Reload Home Search Netscape Print Security Shop Stop

Bookmarks Netsite: http://www.inktomi.com/products/network/tech_resources/tech/trans.pdf What's Related

Alteon WebSystems
Intelligent Webworking™

Layer 4-Aware Switch



switches can route requests for cacheable data (H
nding other requests to the Internet.

-aware (L4) switches are capable of redirect
addressing information. For example, HTTP

5 x 11 in

one

RCN
The live wire of communications

Transparent Proxy Caching using the Inktomi traffic Sever and the Alteon Layer 4 Switch

Step A

Step B

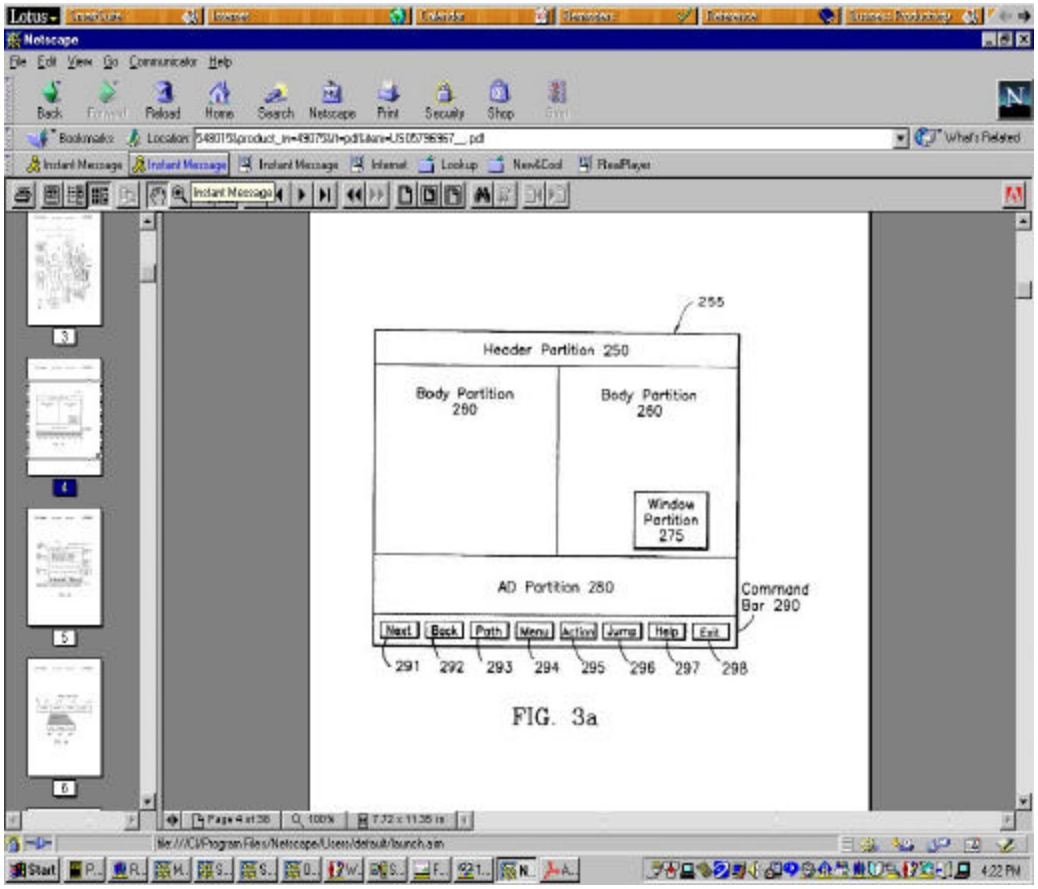
Step C

Step D

Inktomi

Background

US 5442771 Fig. 3a



Application with example partitions

Step A

Step B

Step C

Step D

Background

Sites	.COM	.NET	TOTALS
RCN	.com = 1014	.net = 1018	2,032
STARPOWER	.COM = 13	.NET = 326	339
EROLS	.COM = 275	.NET = 131	406
DNAI	.com = 133	.net = 1	134
BRAINSTORM	.COM = 28	.NET = 42	70
JUNIORNET	.COM= 43	.NET = 0	43
INTERPORT	.COM = 55	.NET = 485	540
ULTRANET	.COM = 535	.NET = 102	637
JAVANET	.COM = 137		137
ULTRA.net		.net = 1475	1,475
CTED.net		.net = 30	30
RCN-SBS.com	.com = 5		5
JAVANETPRESENTS.com	.com = 1		1
GLOBALTRADER.com	.com = 1		1
		Grand Total	5,850

Starpower Domains	Brainstorm Domains	DNAI Domains	Juniornet Domains
castrecordings.com	brainstorm-inc.com	dnaitest.com	junior.net
	Brainstormnetworks.net		junior-net.net
	dslxchange.net		jrnet.org
			cliksworld.net
			cliksclub.org
			junior-net.com
			Highlightsforchildren.com
			juniornetparent.com
			clik.org
			clikworld.com
			juniornet.org

Step A

Step B

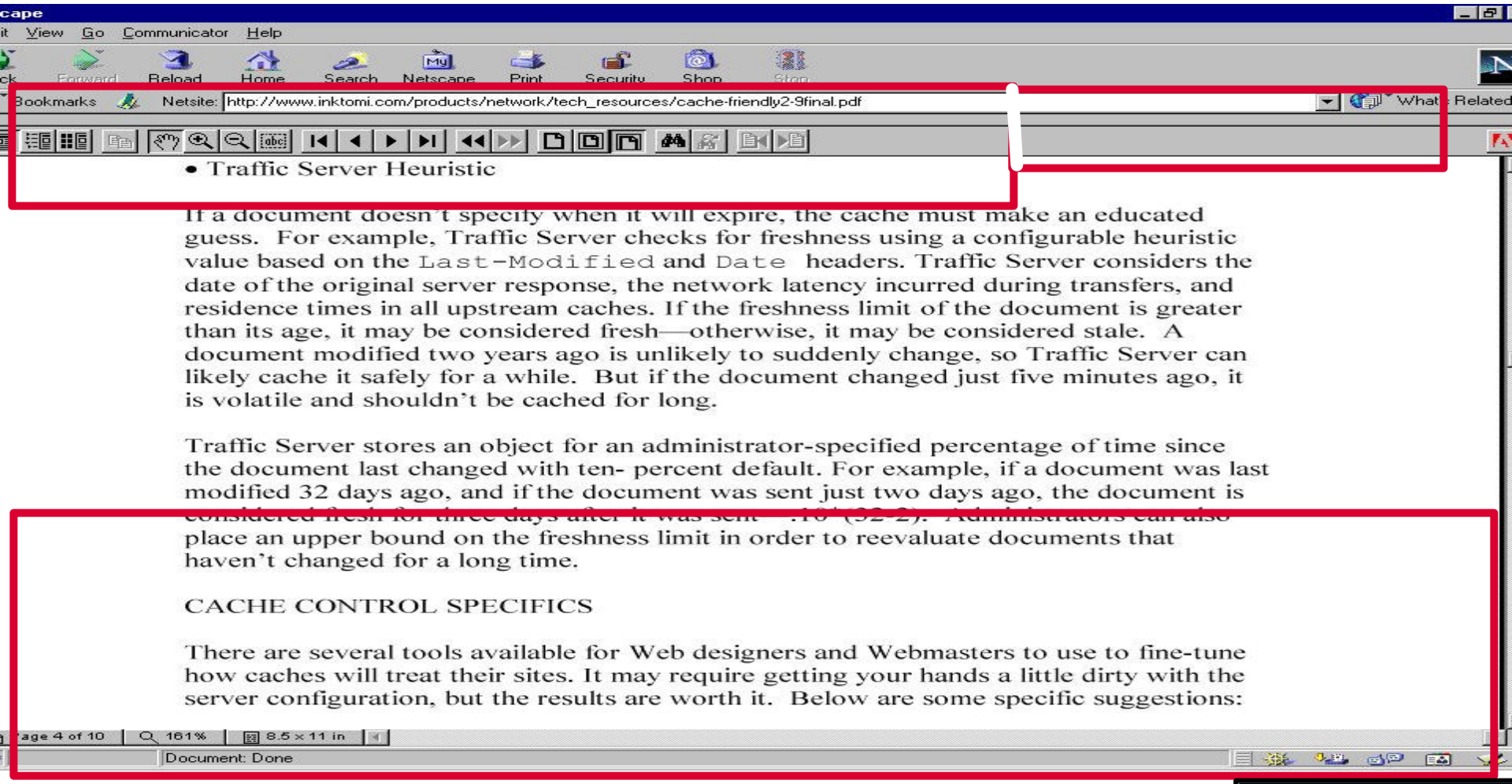
Step C

Step D

ckground

Developing Cache-Friendly Content - An Inktomi White Paper

http://www.inktomi.com/products/network/tech_resources/cache-friendly2-9final.pdf



Step A

Step B

Step C

Background

US 5442771 Col. 15, Line 40 et seq.

The storage control field, located in the header portion of an object, described more fully hereafter as the object **"storage candidacy",** indicates whether the object is **stageable, cacheable or trashable.**

Stageable objects must not be subject to frequent change or update.

Cacheable objects can be retained during the current user session, but cannot be retained between sessions. These objects usually have a moderate update frequency.

Trashable objects can be retained only while the user is in the context of the partitioned application in which the object was requested. Trashable objects usually have a very high update frequency.

In this arrangement, the storage candidacy value of the object is addressed to not only the question of storage preference but also object currency. Specifically, the storage candidacy value establishes the basis upon which the object will be maintained at RS 400 and also identifies the susceptibility of the object to becoming stale by dictating when the object will be version checked to determine currency.

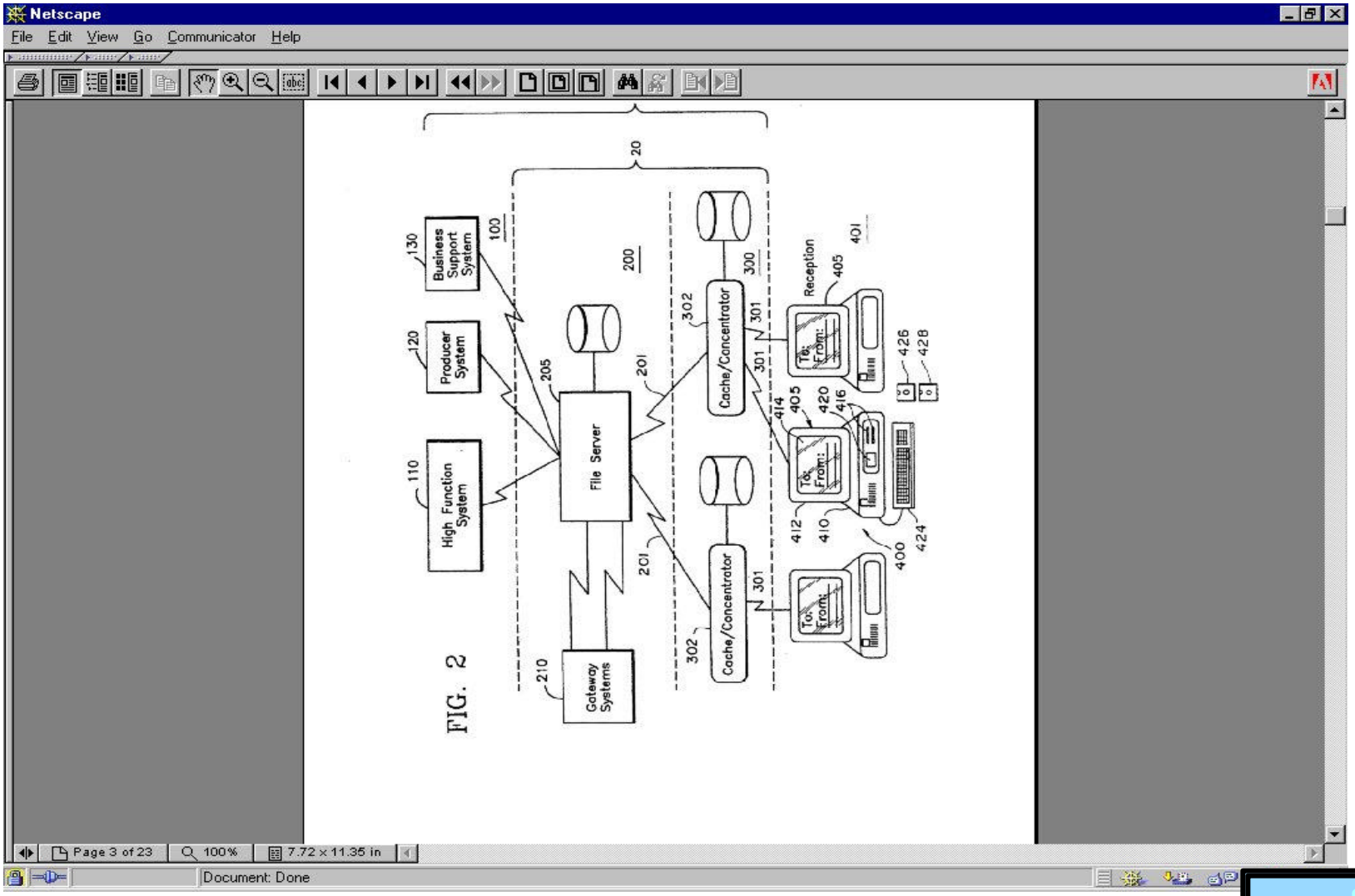
Background

Step A

Step B

Step C

US 5442771 Fig. 2



Background

Step A

Step B

Step C

IBM

Patent Study Summary