US007380205B2

(12) **United States Patent**
Bezrukov et al.

(10) **Patent No.: US 7,380,205 B2**
(45) **Date of Patent: May 27, 2008**

(54) **MAINTENANCE OF XML DOCUMENTS**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 376 days.

(21) Appl. No.: **10/695,375**

(22) Filed: **Oct. 28, 2003**

(65) **Prior Publication Data**

US 2005/0091581 A1 Apr. 28, 2005

(51) **Int. Cl.**
G06F 17/00 (2006.01)

(52) **U.S. Cl.** ..... **715/234**; 715/255; 707/102; 707/103 R

(58) **Field of Classification Search** ..... 715/513, 715/530, 234, 255; 707/102, 103 R, 103 Y, 707/103 Z, 200
See application file for complete search history.

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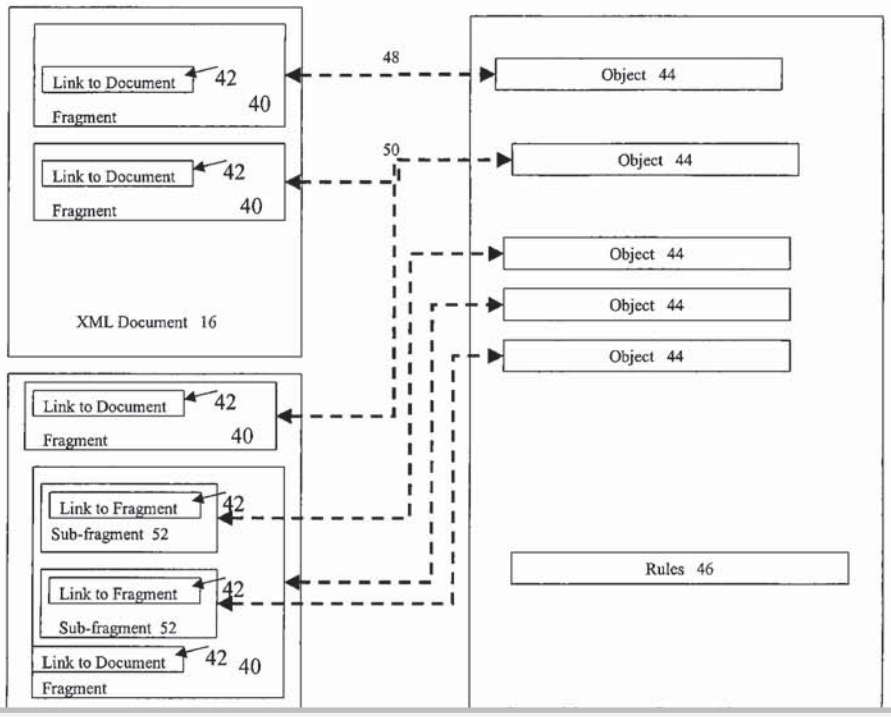
(57) **ABSTRACT**

A system and a method of maintaining extensible markup language (XML) document includes splitting an XML document into fragments according to rules stored in a configuration file, binding each of the fragments to an object in a content management system, and providing a reference between the XML document and the fragments.

36 Claims, 3 Drawing Sheets



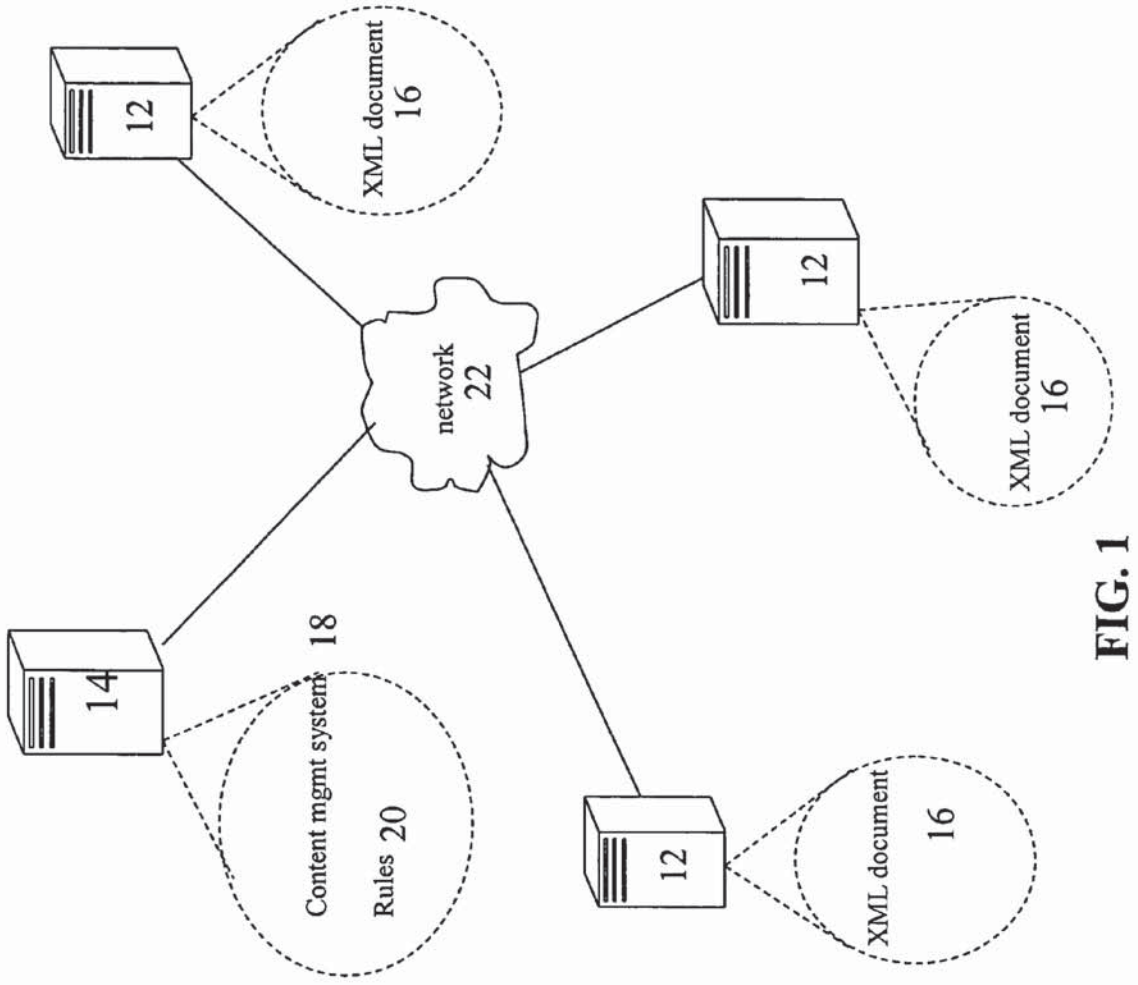


FIG. 1

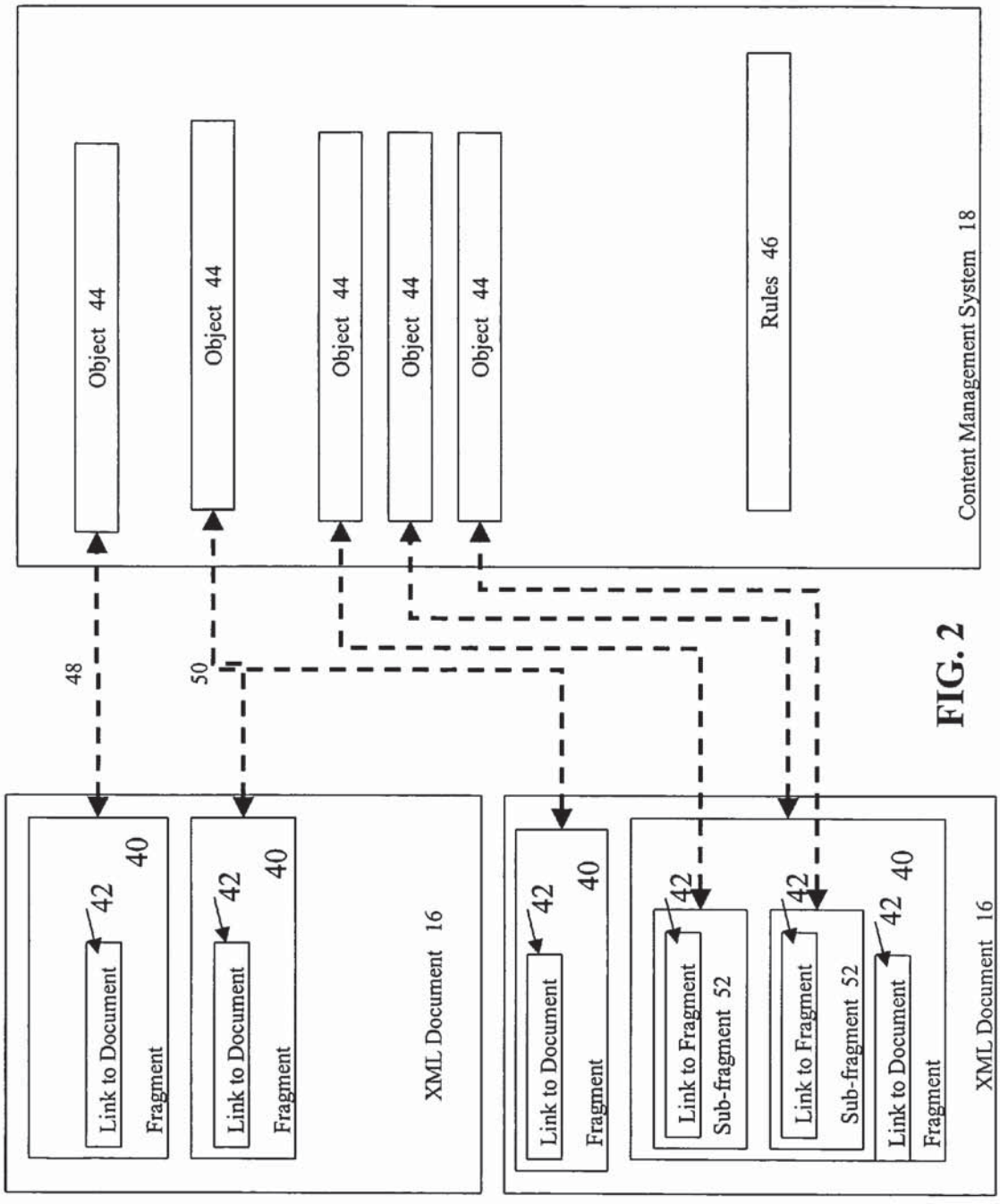


FIG. 2

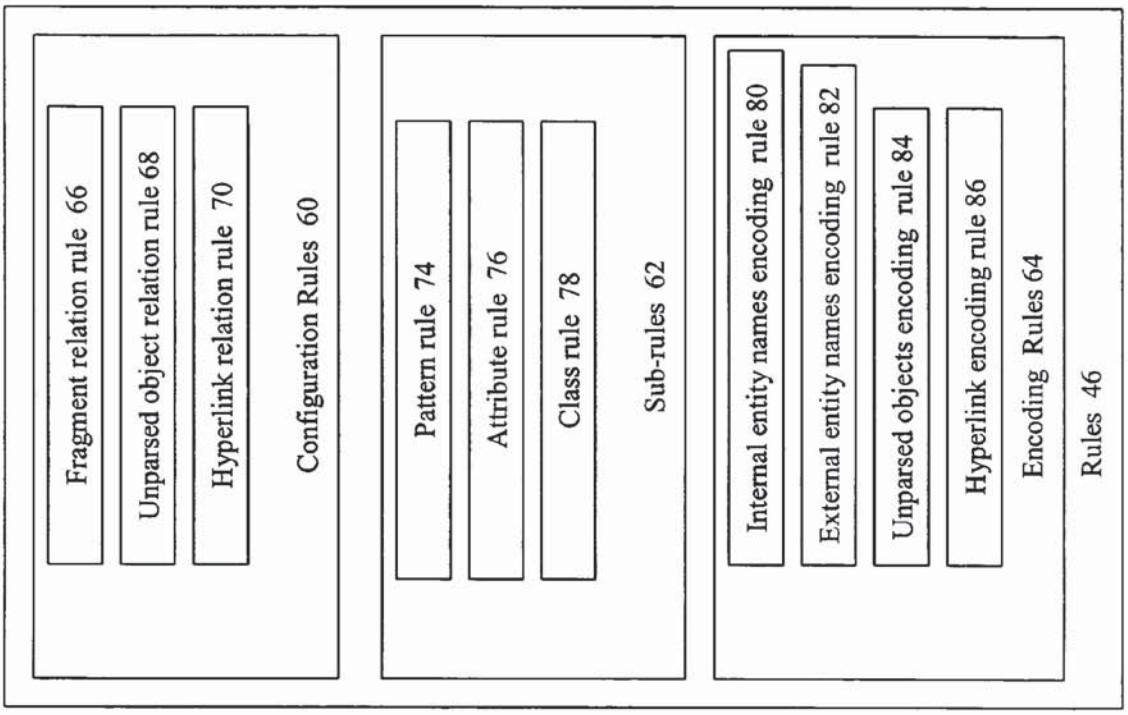


FIG. 3

MAINTENANCE OF XML DOCUMENTS

TECHNICAL FIELD

This invention relates to maintenance of XML documents.

BACKGROUND

XML (Extensible Markup Language) is a flexible way to generate common information formats and share both the format and the data on the World Wide Web, intranets, and elsewhere. XML is similar to hypertext markup language (HTML). Both XML and HTML include markup symbols to describe a file or page's contents. HTML describes the content in terms of how the content is displayed while XML describes the content in terms of what data is being described. Thus, an XML file can be processed purely as data by a program. Alternately, the XML file can be displayed or stored.

SUMMARY

In one aspect, the invention features a system and a method of maintaining extensible markup language (XML) document. The method includes having rules in a configuration file, splitting an XML document into fragments according to the rules, binding each of the fragments to an object in a content management system, and providing a reference between the XML document and the fragments.

Embodiments may include one or more of the following. The method can include storing the content associated with a fragment in the content management system. The method can include associating the content with a particular object in the content management system. The method can include replacing the content associated with each fragment with a link to the object in the content management system. The method can include associating multiple fragments with a particular object in the content management system. The method can include detecting an outgoing reference to an object attribute and ensuring the reference is unique.

In another aspect, the system and method can include setting the rules according to an application. The rules can also include sub-rules, encoding rules and/or a fragment rules. Fragment relation rules remove a fragment from the XML document and replace the fragment with a reference. The rules a can also include configuration rules, and the configuration rules can include an unparsed object rule that extracts a string associated with an unparsed object and replaces the string with a reference and/or a hyperlink rule that replaces a link to another object attribute with a reference. The sub-rules can include a pattern rule that extracts textual content from a fragment, a class rule that provides a class name to an object, an attribute rule that assigns each object with an attribute type. The attribute type can include a logical object (LOIO) or a physical object (PHIO). Encoding rules can include internal entity encoding rules, external name encoding rules, unparsed object encoding rules, and/or hyperlink encoding rules.

In another aspect, the fragment can include a sub-fragment. The method can include binding the sub-fragment to an object in a content management system, and providing a reference between the fragment and the sub-fragment.

In another aspect, the invention features a computer program product, tangibly embodied in an information carrier, for executing instructions on a processor, the computer program product being operable to cause a machine to split in a configuration file, bind each of the fragments to an object in a content management system, and provide a reference between the XML document and the fragments.

Embodiments may include one or more of the following. The computer program product can be configured to cause the machine to store the content associated with a fragment in the content management system. The computer program product can be configured to cause the machine to associate the content with a particular object in the content management system. The computer program product can be configured to cause the machine to replace the content associated with each fragment with a link to the object in the content management system. The computer program product can be configured to cause the machine to associate multiple fragments with a particular object in the content management system. The computer program product can be configured to bind the sub-fragment to an object in a content management system and provide a reference between the fragment and the sub-fragment.

In another aspect, the invention features a system including a means for splitting an XML document into fragments according to rules stored in a configuration file, a means for binding each of the fragments to an object in a content management system, and a means for providing a reference between the XML document and the fragments.

Embodiments may include one or more of the following. The system can include a means for storing the content associated with a fragment in the content management system. The system can include a means for associating the content with a particular object in the content management system. The system can include a means for replacing the content associated with each fragment with a link to the object in the content management system. The system can include a means for associating multiple fragments with a particular object in the content management system. The system can include a means for binding a sub-fragment to an object in a content management system and a means for providing a reference between the fragment and the sub-fragment.

In another aspect, the invention features a method including the steps of splitting an XML document into fragments according to rules stored in a configuration file, binding each of the fragments to an object in a content management system, and providing a reference between the XML document and the fragments.

Embodiments may include one or more of the following. The method can also include a step of storing the content associated with a fragment in the content management system. The method can also include a step of associating the content with a particular object in the content management system. The method can also include a step of replacing the content associated with each fragment with a link to the object in the content management system. The method can also include a step of associating multiple fragments with a particular object in the content management system. The method can also include a step of binding a sub-fragment to an object in a content management system and a step of providing a reference between the fragment and the sub-fragment.

One or more aspects of the invention may provide one or more of the following advantages.

The content management system splits an XML document into fragments according to rules. This fragmentation allows the reuse of fragments in other XML documents. Reuse of content can reduce generation and/or maintenance cost of the XML document since content does not have to be

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