

managing author on document A and at the same time a contributing author on document B.

[0030] The assignment of roles to individuals is a major difference between the present invention and typical word processors, for example, Microsoft® Word. In typical word processing software there are no defined roles, and hence any individual can control the contents of the document. Without a central controlling author, the collaboration process may become chaotic and difficult to manage. Hence roles provide an ordered collaboration process.

[0031] FIG. 1 shows a schematic block diagram of a document collaboration system. The Server side 110 includes the managing author's computer 114 which is coupled to a first server computer (not shown) executing the Manager Application 116. In one aspect the managing author's computer 114 and the first server computer are the same. In an alternative aspect the managing author's computer 114 and the first server computer are different computers. The first server computer is connected to a second server computer (not shown). The Document Management System (DMS) 118 executes on the second server computer. In yet another aspect the DMS runs on the first server computer and there is no second server computer. The DMS 118, stores the evolving document 126, which includes the original document and proposed changes accepted by the managing author, and an eXtended Document Format (XDF) 128 file, that includes revisions and proposed changes to the revisions. In a further aspect the local file system is used instead of DMS 118 and the evolving document 126 and XDF are stored in the local file system. Client side 112 includes one or more contributing author's computers, for example, contributing author I's computer 130 to contributing author N's computer 140.

[0032] In FIG. 1, the managing author's computer 114 accesses the manager application 116 to first select an original document, e.g., a Microsoft® Word Document, which is stored in the DMS 118 as the evolving document 126. Then the manager application 116 produces one or more replicas of the original document. Each replica is put in an Enhanced Document Format (EDF) file, e.g., 120 and 124. The manager application 116 then sends, e.g., by email, an EDF file 120 to a contributor application 142 running on contributing author's computer 140. Another EDF file 124 may be sent, e.g., by email, to another contributor application 132 running on the contributing author's computer 130. The contributing authors edit their respective replicas and return, e.g., by email, the proposed changes via response document format (RDF) files, e.g., 134 and 144, to the manager application 116. The manager application 116 extracts the proposed changes to the original document and displays them to the managing author 114. The managing author 114 selects none, some, or all of the proposed changes to the original document, and these are incorporated into the evolving document 126, i.e., the original document is modified with the accepted changes.

[0033] According to a preferred embodiment of the present invention, internal contributing authors have access to the same database as the managing author, and the XDF file is replaced with separate revision and response files that are stored and maintained in the DMS or a separate object store, e.g., a Collaboration Server database.

[0034] FIG. 2 is simplified block diagram of the document collaboration system of one embodiment of the present

invention. FIG. 2 is similar to FIG. 1 in that the managing author 114 through a manager application 214 selects the evolving document 126, that begins as the original document, in the DMS 118 for review by external clients 212, e.g., contributing author 130 to contributing author 140. These external clients 212 are computers which are, for example, outside the firewall or not part of the company's intranet (where an intranet is a secure, private network not accessible by the public and where the private network may include a local area network, a wide area network, a virtual private network, or combinations thereof). The external clients 212 do not have access to the DMS 118 that the managing author 114 is using. The manager application 214 creates a replica of the evolving document 126 for each contributing author and sends the replicas using an EDF, e.g., EDF 120 and 124, to contributor applications 142 and 132, respectively. The contributing authors edit their replicas and send their proposed changes via RDF files 134 and 144, respectively, back to the manager application 214. The managing author 114 then accepts or rejects the proposed changes from the contributing authors. The accepted changes modify the original document contents in the evolving document 126. If the managing author 114 wants further review of the modified evolving document 126, i.e., a second revision, then this second revision is replicated and the replicas are sent (via new EDFs) to the contributing authors for another review. The various revisions, e.g., 220-1, 220-2, and 220-3, of the original document, along with their corresponding responses, e.g., for revision 220-1 corresponding responses 222-1 and 222-2, are stored in the DMS 118. These revision and response files have replaced the XDF file 128 of FIG. 1.

[0035] Pursuant to one embodiment of the present invention, the ability of contributing author(s) to edit the EDF replica(s) may be restricted by the managing author by selecting one or more of the editing privileges. The default is full editing rights. Exemplary options of editing privileges include: protected (no copy out or print), where the contributing author(s), can only copy out of or paste into the replica, items in the replica itself, cannot print the replica, and cannot save the replica in other than EDF format; lock text (comment only), where the contributing author(s) cannot edit the replica(s) (they may only add comments); and set expiration date and time, where the contents of the EDF are not readable, i.e., the file cannot be opened, after a certain date and/or time. Preferably, contributing authors are informed of their restrictive editing privileges in the body text of the e-mail they receive.

[0036] In one embodiment of the present invention restrictive editing rights for the EDF files may be applied to one or more sections of the document with the remaining sections having full editing rights. For example, a contributing author may be allowed to only edit one clause in a contract or to comment upon only two paragraphs in a document.

[0037] FIG. 2 unlike FIG. 1 includes one or more internal contributing authors, e.g., contributing author 216 connected to contributor application 218. These internal contributing authors have access to the same DMS 118 as the managing author 114. Typically the internal contributing authors and the managing author are on the same intranet or virtual private network (VPN). In one embodiment of the present invention there are two executable files (i.e., software applications), a first executable file for the manager and internal