

PATENT AND TRADEMARK OFFICE

UNITED STATES PATENT APPLICATION

of

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for

*A NETWORK-BASED SYSTEM
ENABLING IMAGE COMMUNICATIONS*

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2 The present invention relates generally to a method for image communications,
3 and more particularly, to a method and system for communicating images across a
4 network among users with disparate end systems running potentially dissimilar image
5 protocols and formats.

6 BACKGROUND OF THE INVENTION

7 The problem of image file format compatibility has been an issue since the
8 beginning of computer-based processing of even the most basic graphics. Each
9 computer and software vendor developed a different approach to representation of
10 graphics and images, often suited to a particular application area. For example,
11 vendors of word processing systems each developed their own approach for the
12 representation of pictorial information that could be incorporated in files generated by
13 their platforms.

14 As end users began to network microcomputers, first over departmental local
15 area networks, and then over wider area networks, the problem of file format
16 compatibility began to grow. Today, with the widespread introduction of image,
17 multimedia, and video systems, file format compatibility is a major issue in system
18 development and operation.

19 A number of solutions to this problem have been introduced or proposed. At
20 the applications level, file import and file export functions have been added which
21 accommodate a few formats that are different from the active format of the

1 application platform itself. The second solution has been the introduction of software
2 which does nothing but convert one file format to another. A third solution is to
3 convert all files to an intermediary format, which then can be used as the "universal
4 language" among dissimilar systems, and then converted to a different native file
5 format at a receiving end-user.

6 These approaches have proved useful in and of themselves for a number of
7 situations, but as imaging applications become more prevalent, image processing
8 software continues to evolve, image communications becomes more feasible over a
9 wider range of system applications, and concomitantly as the need for and use of
10 image communications increases, it becomes ever more difficult and costly for users
11 to maintain updated premises software. Further, the requirement of converting
12 between a multitude of formats and protocols serves as an impediment to widespread
13 access and use of image communications.

14 SUMMARY OF THE INVENTION

15 The present invention overcomes the above, and other, limitations by
16 providing a system which enables a multitude of dissimilar end-system devices,
17 appliances, and platforms to interchange image information. In an embodiment of the
18 present invention, a network-based image processing system includes a network-based
19 data base which holds profiles of the end users. The profiles typically include the
20 capabilities of the end systems of the subscribing end users for storing, processing,
21 and displaying images, preferably including the acceptable and preferred image

1 protocols, compression methods, and image formats for each user. A communication
2 of an originating image from a calling party to a called party is diverted to the
3 network-based image processing system. The network-based image processing system
4 ascertains whether the originating image file format and protocol matches the called
5 party preferred file format and protocol, which is stored in the data base. If there is
6 no match, the processing system appropriately converts the originating image file to
7 the format and protocol of the called party. The image file is then communicated to
8 the called party. A handshake-like exchange may be used to enable image
9 communications of parties that are not subscribers and do not have profiles in the
10 database. In a further embodiment, the network-based nodal image processing system
11 provides for file return to the called party. The method and system of the present
12 invention may be applied in systems ranging from local premises-based
13 communications to wide area communications on either private or public networks.

14 **BRIEF DESCRIPTION OF THE DRAWINGS**

15 The invention will be described in greater detail below by way of reference to
16 the accompanying drawings, wherein:

17 FIG. 1A shows a generic configuration of an image communication system in
18 accordance with practicing the present invention;

19 FIG. 1B is an operational flow chart of an exemplary process for image
20 communications, in accordance with the present invention;

1
2 accordance with practicing the present invention; and

3 FIG. 3A, FIG. 3B, FIG. 4A, FIG. 4B, FIG. 5, and FIG. 6 illustrate different
4 information flow sequences in accordance with practicing the present invention for the
5 system depicted in FIG. 2.

6 **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT**

7 Figure 1A diagrams a generic system configuration in accordance with
8 practicing the present invention, and is not limited to any particular network, but may
9 represent for example, a private/premises-based network, or a public network such as
10 a public switched telecommunications network (PSTN). As shown in FIG. 1A, a
11 network-based image communications processing system 10 includes an image
12 processing node 12, a database 14, and an image conversion server 16. Preferably,
13 the database 14 maintains information for image service subscribers. As understood
14 by one skilled in the art, such a system may be implemented as either a one-node or a
15 multi-node distributed architecture, scalable as required, and may be either network-
16 based or premises-based, or a hybrid combination of these. In a multi-node
17 distributed architecture, preferably a plurality of image processing nodes 12, each
18 which supports the image communications protocol, would access a centralized
19 database 14, while a separate image conversion server 16 preferably would be located
20 at each node and be accessible to other nodes via a gateway or bridge. If the network
21 were to represent the AT&T interexchange network, for example, in addition to other

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