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# United States Patent [19]

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**Lillich**

[45] Date of Patent: **Mar. 18, 1997**

[54] **METHOD AND APPARATUS FOR DETERMINING AT EXECUTION COMPATIBILITY AMONG CLIENT AND PROVIDER COMPONENTS WHERE PROVIDER VERSION LINKED WITH CLIENT MAY DIFFER FROM PROVIDER VERSION AVAILABLE AT EXECUTION**

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"a.out File Format," RS6000 Infoexplorer CD Rom. White Plains, N.Y., IBM Corporation, 1991. pp. 1-2.

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(List continued on next page.)

[73] Assignee: **Apple Computer, Inc.**, Cupertino, Calif.

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[21] Appl. No.: **483,621**

[57] **ABSTRACT**

[22] Filed: **Jun. 7, 1995**

The invention is a method and apparatus for verifying compatibility between components of a system which share a client-provider relationship. Briefly, according to the invention, a current version of a provider and a compatibility range are defined for each of a version of a client and a version of a provider. A version of a provider specifies an oldest implementation provider and an oldest definition provider. When a client is linked with a particular version of a provider it stores an identification for that provider, a current indicator for that version of the provider, called a definition provider, and the oldest implementation provider. At runtime, compatibility checks are performed between a client and available versions of the provider(s), called implementation providers, with which it has been linked. For each available version of each type of provider compatibility exists with the client in three situations. First, if the definition provider and the implementation provider are the same version of that provider, then the client and provider are compatible. Second, if the definition provider, i.e. the version of the provider linked with the client, is newer than the implementation provider, then if the version of the implementation provider is no older than the oldest implementation provider specified in the client, the two are compatible, otherwise they are incompatible. Third, if the definition provider is older than the implementation provider, then if the definition provider is no older than the oldest definition provider specified in the implementation provider, then the two are compatible.

### Related U.S. Application Data

[63] Continuation of Ser. No. 58,345, May 5, 1993, abandoned.

[51] Int. Cl.<sup>6</sup> ..... **G06F 11/00**

[52] U.S. Cl. .... **395/500**

[58] Field of Search ..... 395/500, 700

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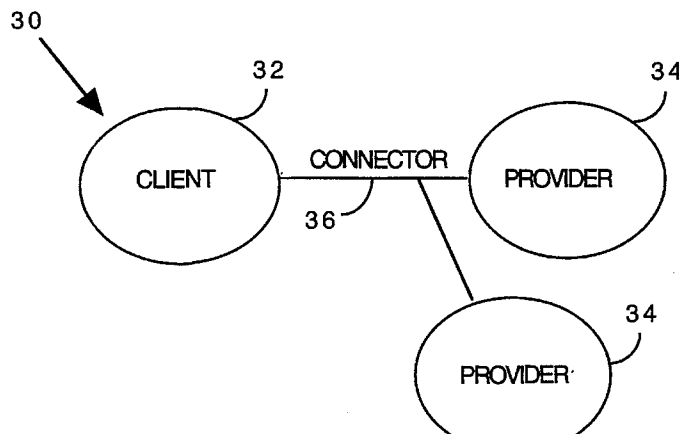
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**19 Claims, 13 Drawing Sheets**



**MICROSOFT CORP.  
EXHIBIT 1005**

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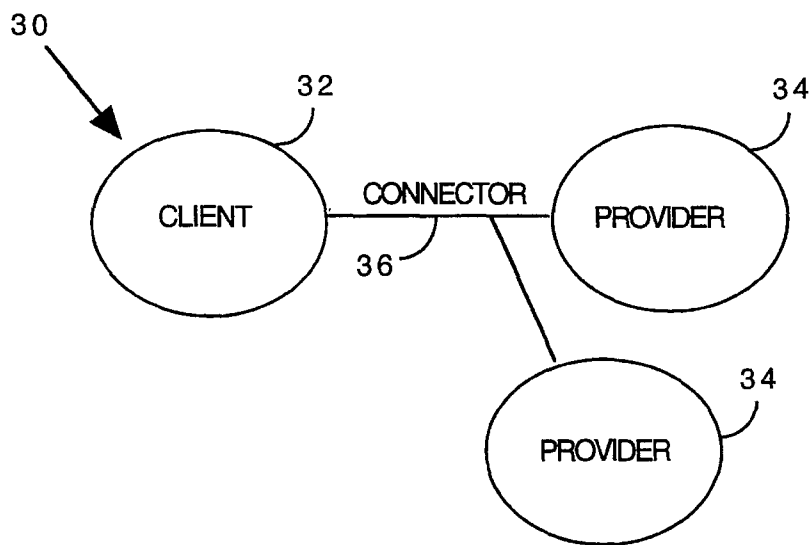


FIG. 1

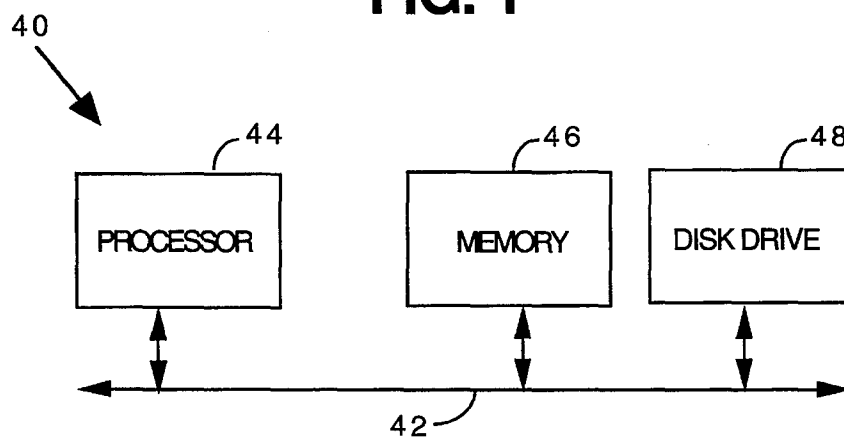


FIG. 2

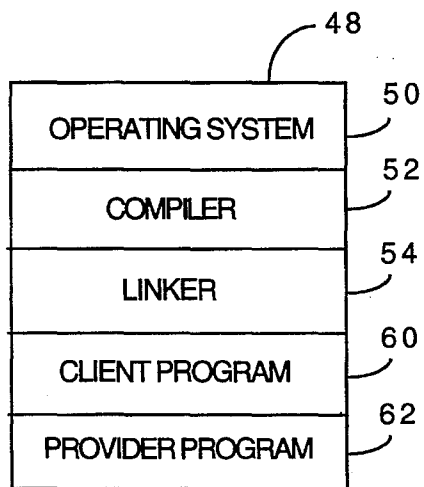


FIG. 3

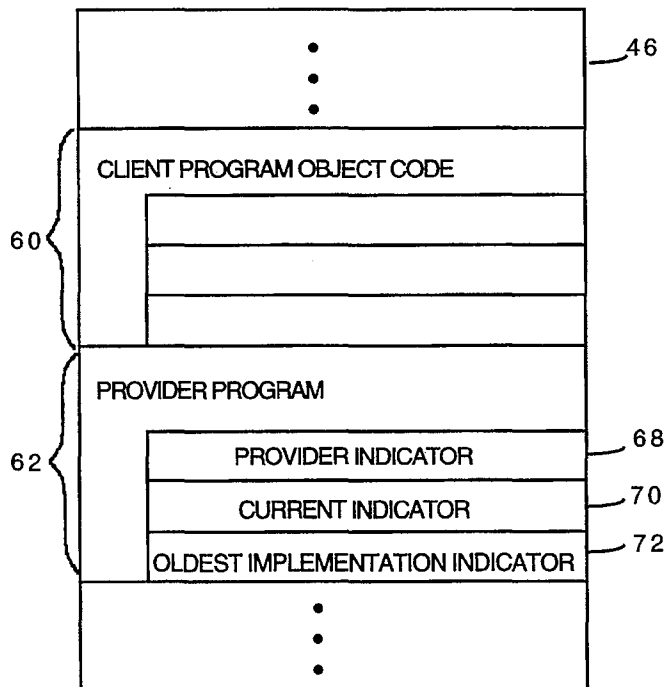


FIG. 4A

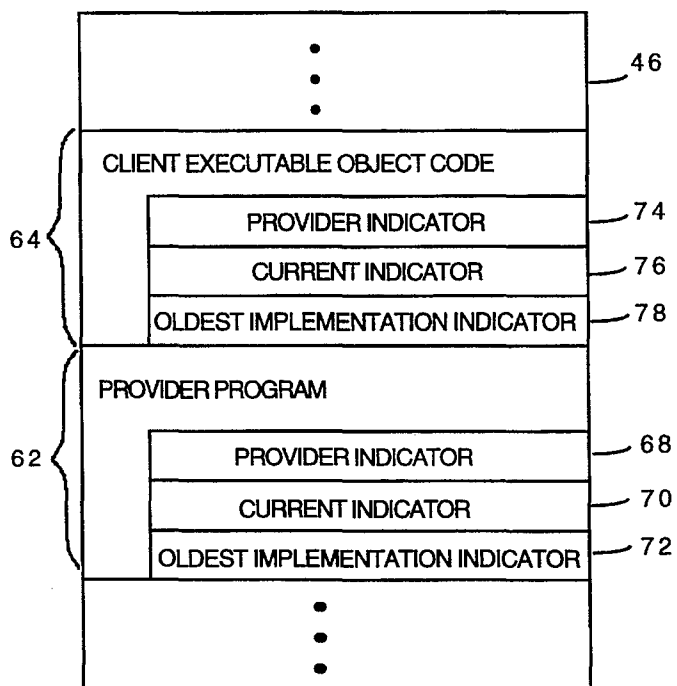
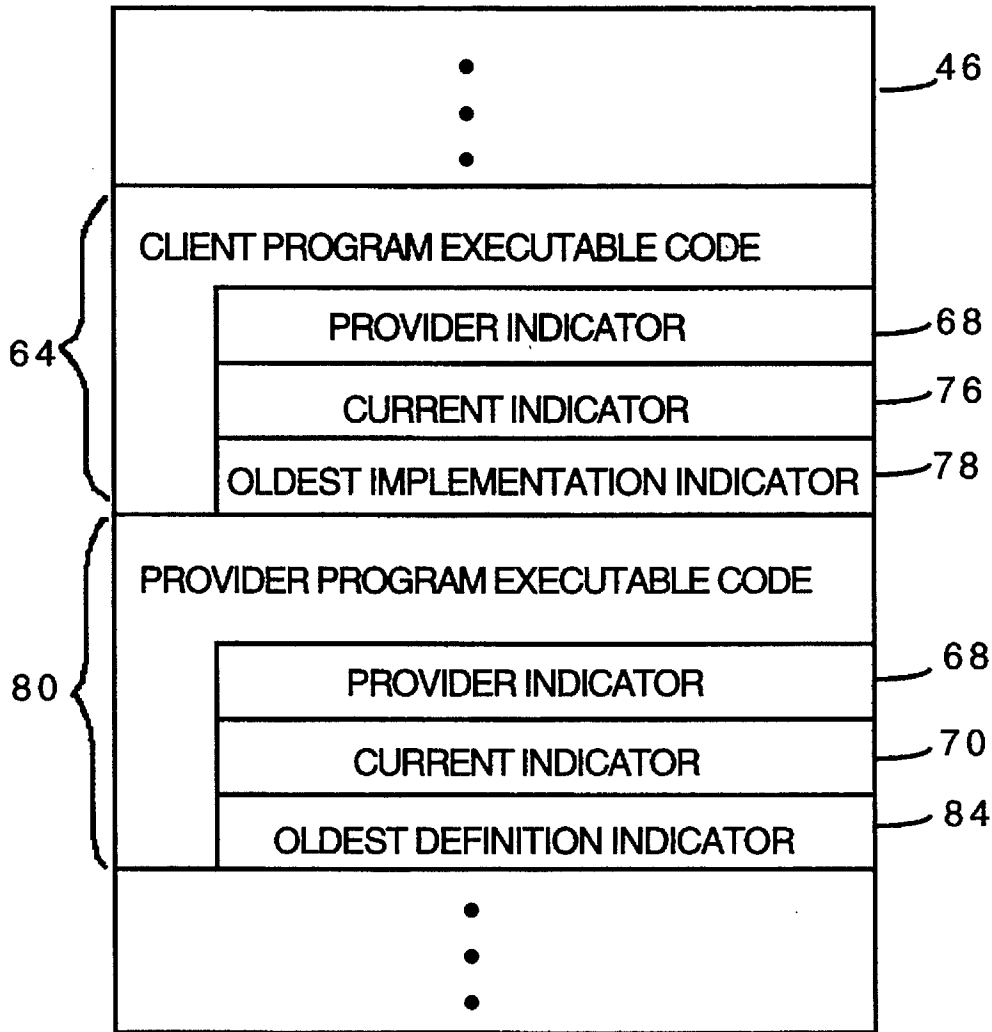


FIG. 4B



**FIG. 5**

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