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# United States Patent [19]

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Brown et al.

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- [54] **SYSTEM AND METHOD FOR CONTROLLING ACCESS TO DATA ENTITIES IN A COMPUTER NETWORK** 5,367,621 11/1994 Cohen et al. .  
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[75] Inventors: **Ross M. Brown, Bellvue; Richard G. Greenberg, Redmond, both of Wash.**

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[73] Assignee: **Microsoft Corporation, Redmond, Wash.**

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- [51] Int. Cl.<sup>6</sup> ..... **G06F 17/00**
- [52] U.S. Cl. .... **709/225**
- [58] Field of Search ..... 395/200.55, 200.56, 395/200.47, 200.48, 200.49, 186, 187.01, 188.01; 380/23, 24, 25; 709/225

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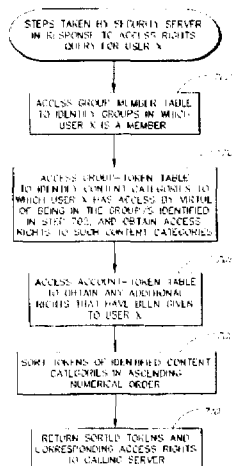
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### [57] ABSTRACT

Access rights of users of a computer network with respect to data entities are specified by a relational database stored on one or more security servers. Application servers on the network that provide user access to the data entities generate queries to the relational database in order to obtain access rights lists of specific users. An access rights cache on each application server caches the access rights lists of the users that are connected to the respective application server, so that user access rights to specific data entities can rapidly be determined. Each user-specific access rights list includes a series of category identifiers plus a series of access rights values. The category identifiers specify categories of data entities to which the user has access, and the access rights values specify privilege levels of the users with respect to the corresponding data entity categories. The privilege levels are converted into specific access capabilities by application programs running on the application servers.

**66 Claims, 10 Drawing Sheets**



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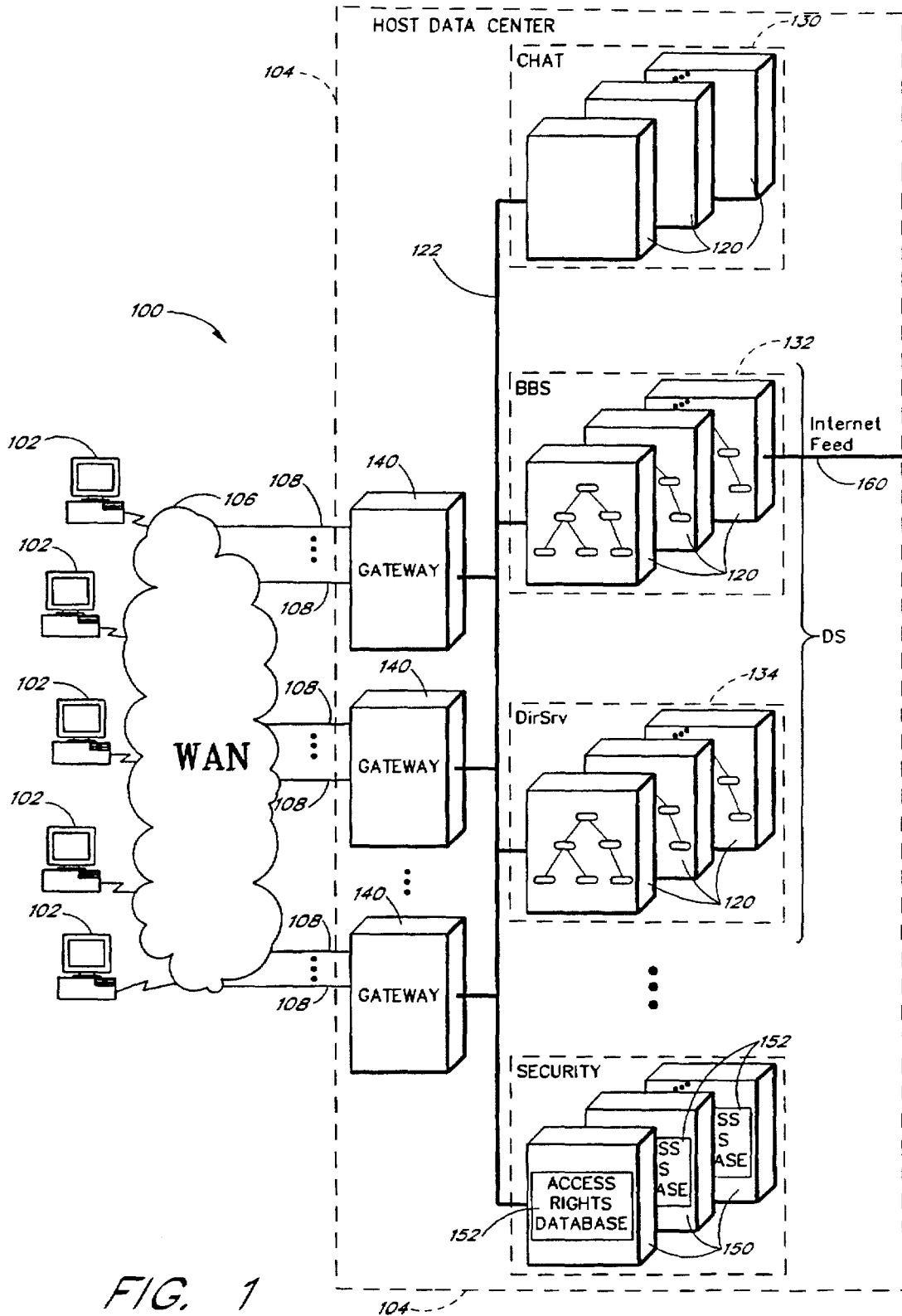


FIG. 1

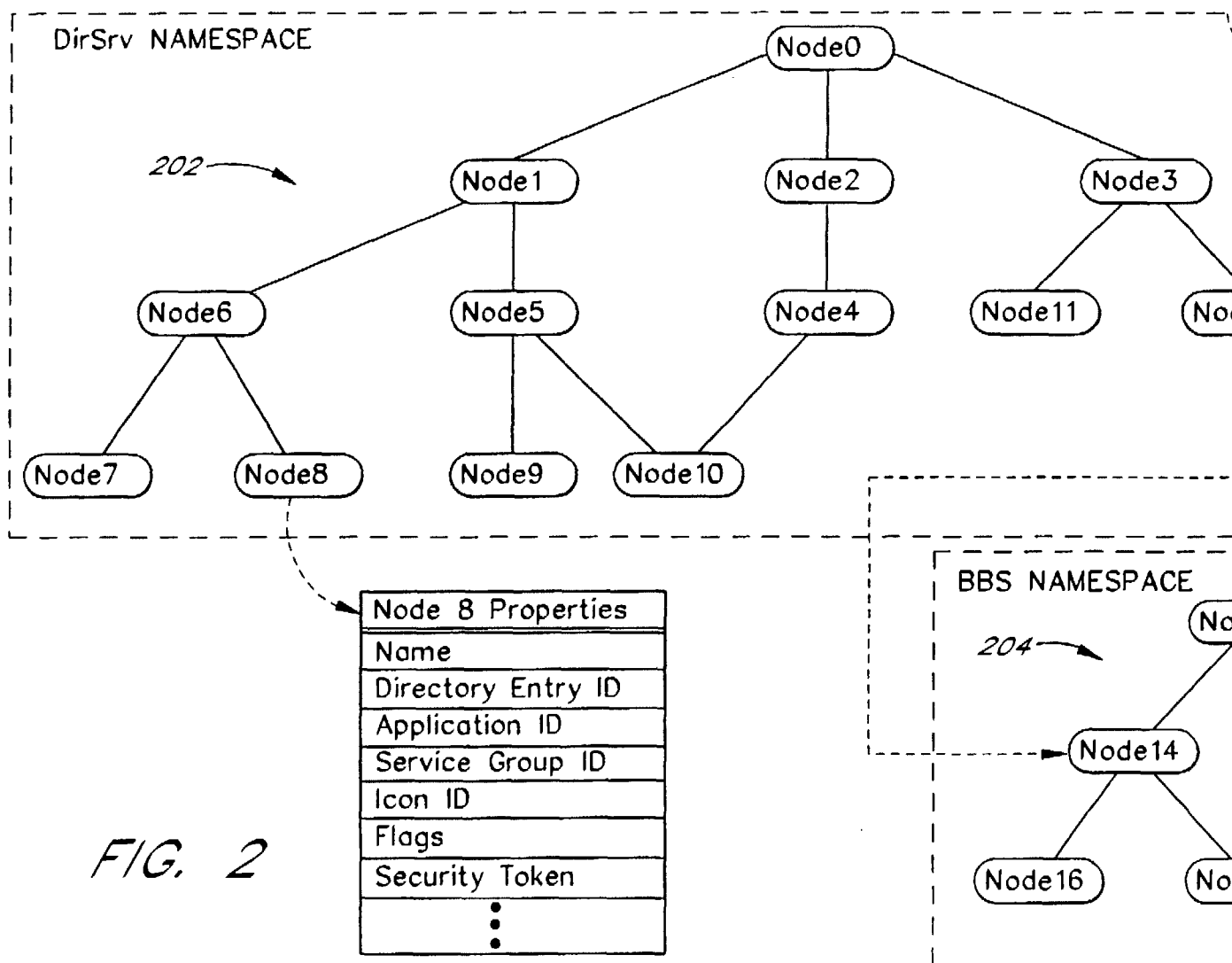


FIG. 2

Access Control Matrix 300

	Node 0	Node 1	• • •	Node i
User 1	XXXX	XXXX		XXXX
User 2	XXXX	XXXX		XXXX
• • •				
User N	XXXX	XXXX		XXXX

FIG. 3A

FIG. 3

User Privilege Level

Bit 0	Viewer
Bit 1	Observer
Bit 2	User
Bit 3	Host
Bit 4	Sysop Manager
Bit 5	Sysop
Bit 6	SuperSysop
Bits 7-15	(Reserved For Future Definition)

FIG. 3B

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