

EXHIBIT F



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

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(54) **DISTRIBUTED COMPUTING SYSTEM HAVING AUTONOMIC DEPLOYMENT OF VIRTUAL MACHINE DISK IMAGES**

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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 1339 days.

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(65) **Prior Publication Data**

(Continued)

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Related U.S. Application Data

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(51) **Int. Cl.**
G06F 12/00 (2006.01)
G06F 17/30 (2006.01)

(57) **ABSTRACT**

One or more control nodes provide for the efficient and automated allocation and management of computing functions and resources within the distributed computing system. The distributed computing system includes a software image repository storing: (i) one or more image instances of a virtual machine manager that is executable on the application nodes, wherein when executed on the applications nodes, the image instances of the virtual machine manager provide one or more virtual machines, and (ii) one or more image instances of one or more software applications that are executable on the virtual machines. The distributed computing system also includes a control node that comprises an automation infrastructure to provide autonomic deployment of the image instances of the virtual machine manager on the application nodes and to provide autonomic deployment of the image instances of the software applications on the virtual machines.

(52) **U.S. Cl.**
USPC **707/828**; 707/831; 718/1

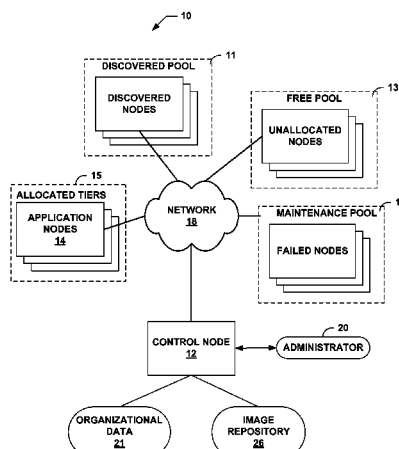
(58) **Field of Classification Search**
None
See application file for complete search history.

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26 Claims, 29 Drawing Sheets



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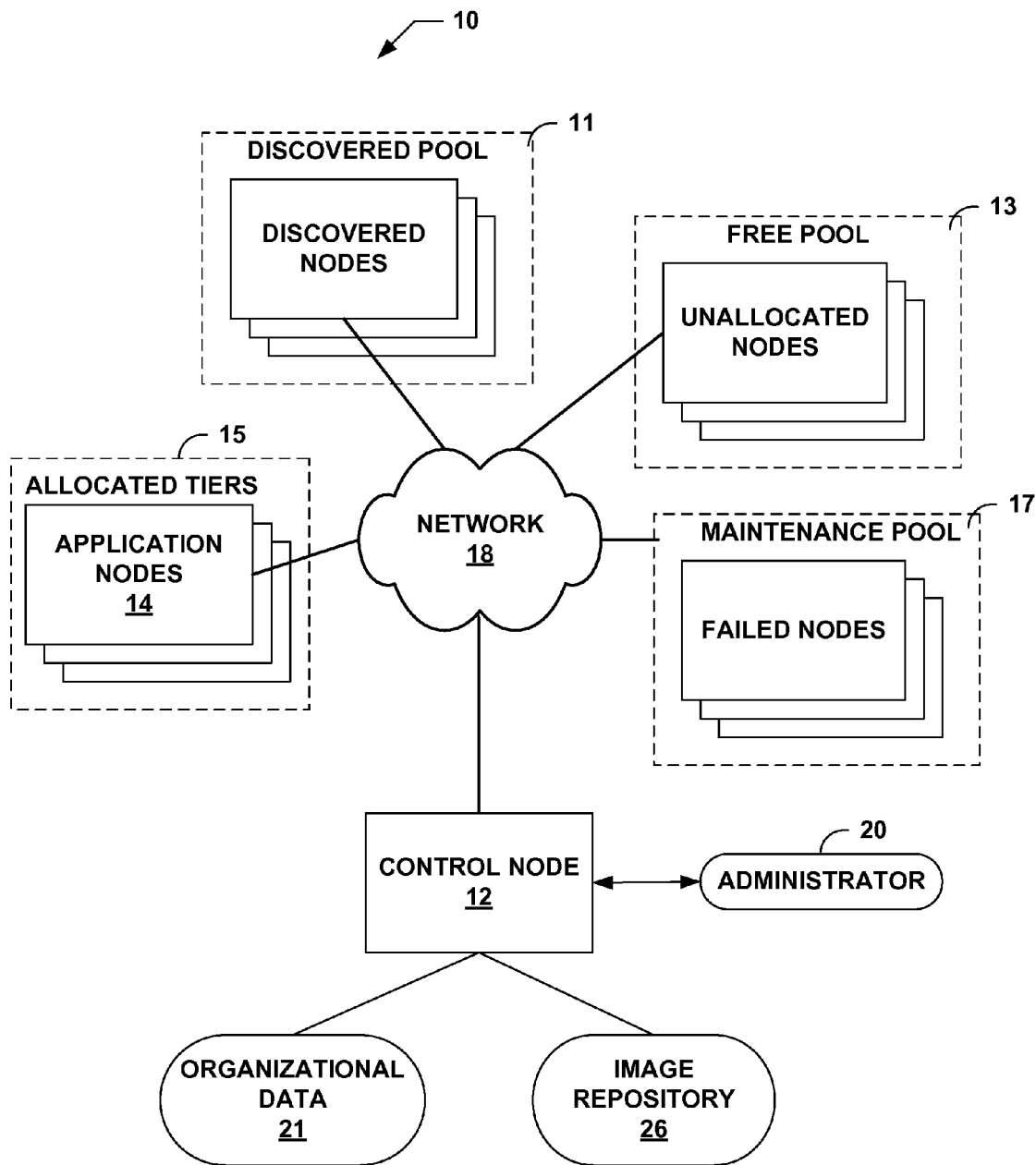


FIG. 1

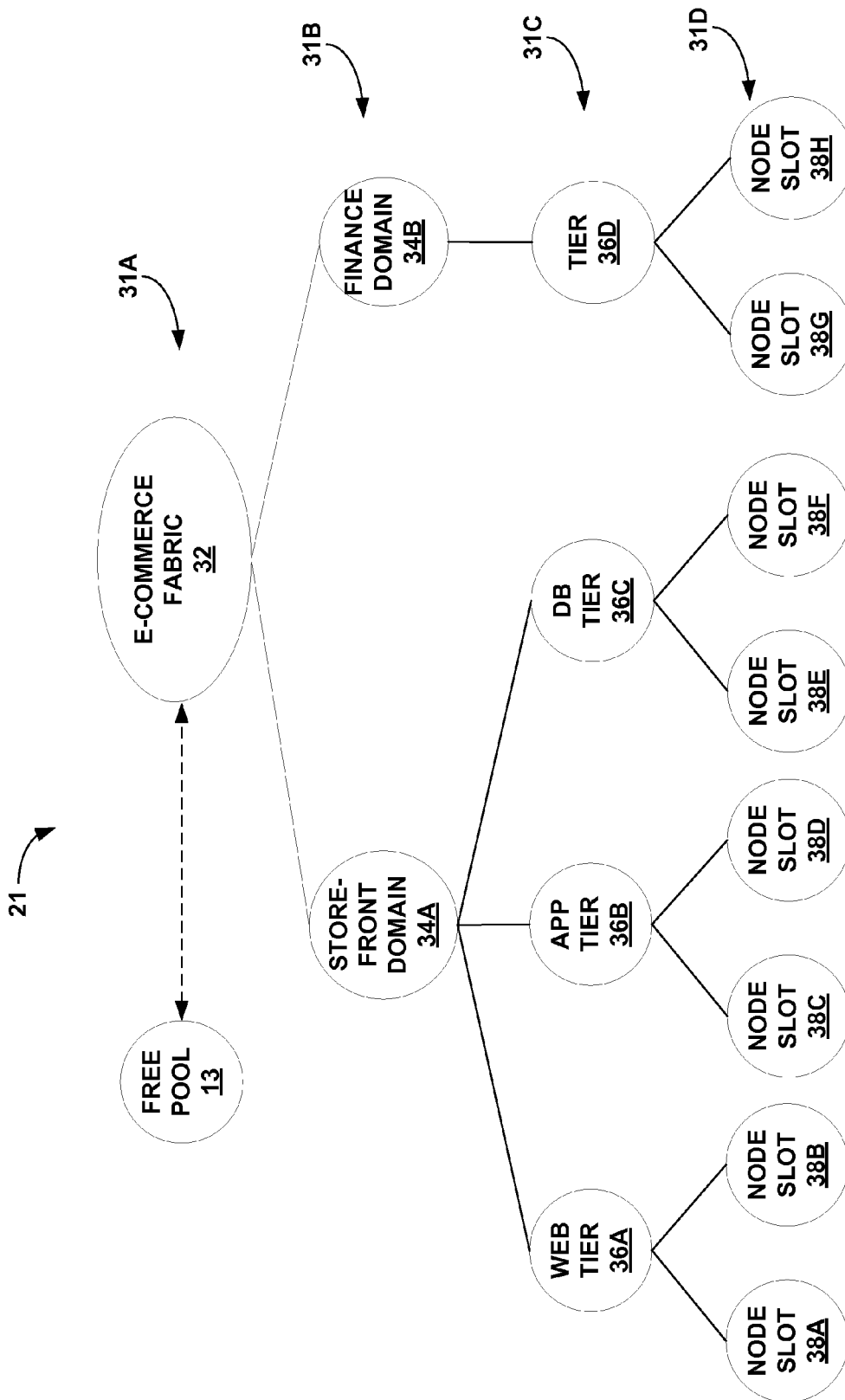


FIG. 2

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