

[54] APPARATUS AND METHOD FOR ELECTRONIC MAIL VIRUS DETECTION AND ELIMINATION

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[73] Assignee: Trend Micro Incorporated, Taiwan

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[21] Appl. No.: 625,800

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[22] Filed: Mar. 29, 1996

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Related U.S. Application Data

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[63] Continuation-in-part of Ser. No. 533,706, Sep. 26, 1995, Pat. No. 5,623,600.

Primary Examiner—Robert W. Beausoliel, Jr.

[51] Int. Cl. G06F 13/00; G07D 7/00; H04L 9/00

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[52] U.S. Cl. 395/187.01; 364/286.4; 395/200.06; 340/825.34; 380/49

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[58] Field of Search 395/183.14, 183.17, 395/183.18, 186, 187.01, 200.06; 380/4, 49; 364/269.4, 285.4, 286.4, 222.5; 340/825.34

[57] ABSTRACT

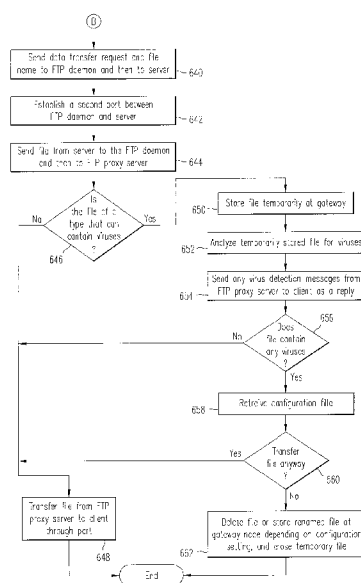
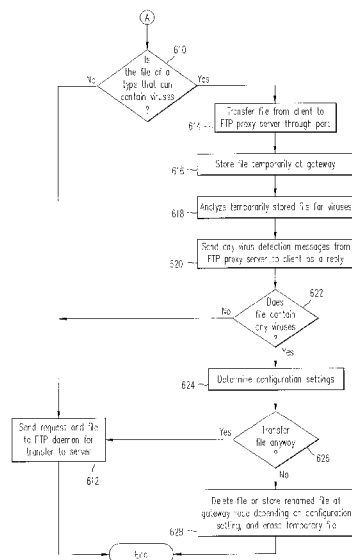
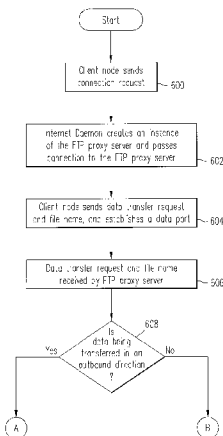
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The detection and elimination of viruses on a computer network is disclosed. An apparatus for detecting and eliminating viruses which may be introduced by messages sent through a postal node of a network electronic mail system includes polling and retrieval modules in communication with the postal node to determine the presence of unscanned messages and to download data associated with them to a node for treatment by a virus analysis and treatment module. A method for detecting and eliminating viruses introduced by an electronic mail system includes polling the postal node for unscanned messages, downloading the messages into a memory of a node, and performing virus detection and analysis at the node.

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42 Claims, 19 Drawing Sheets



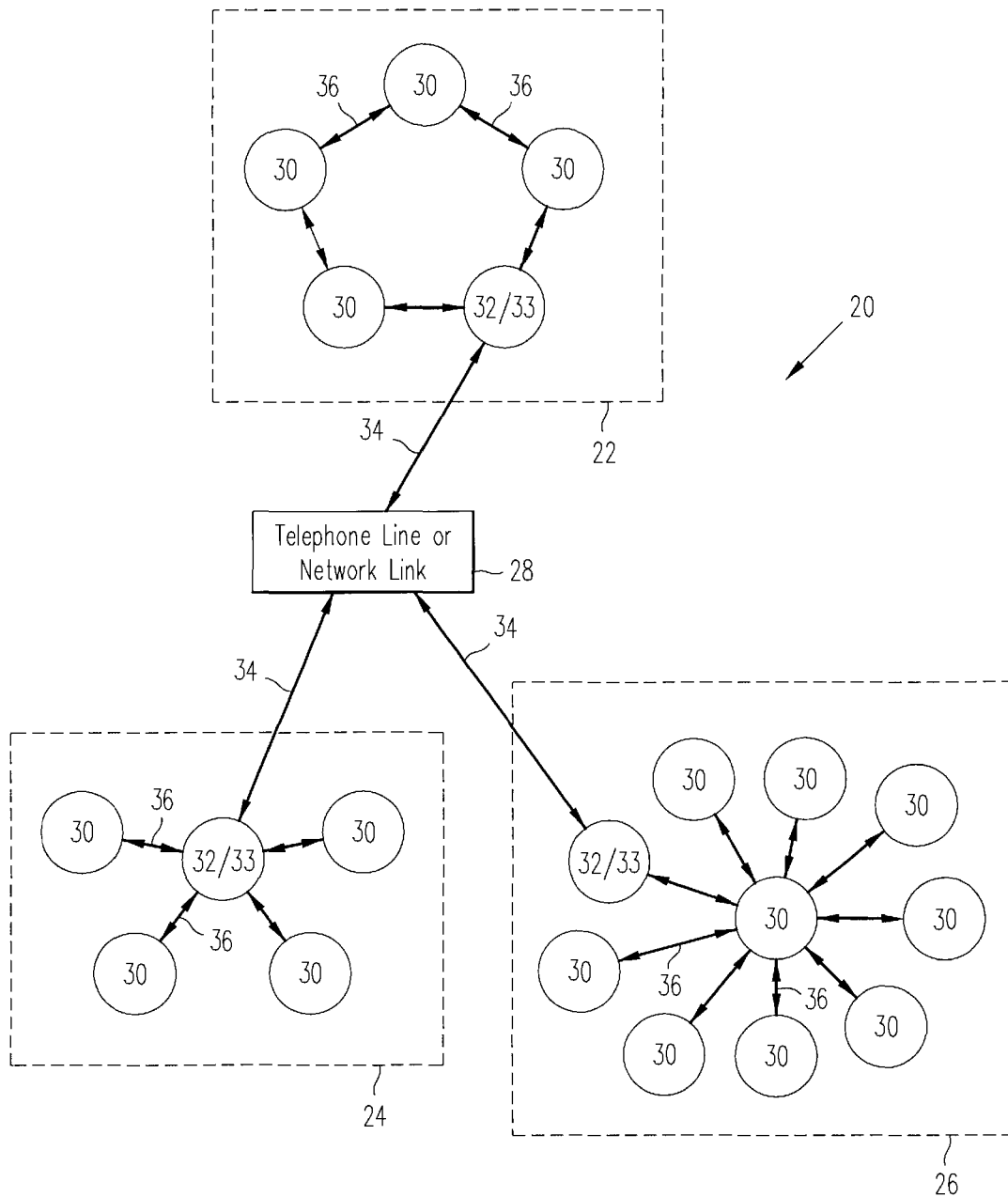
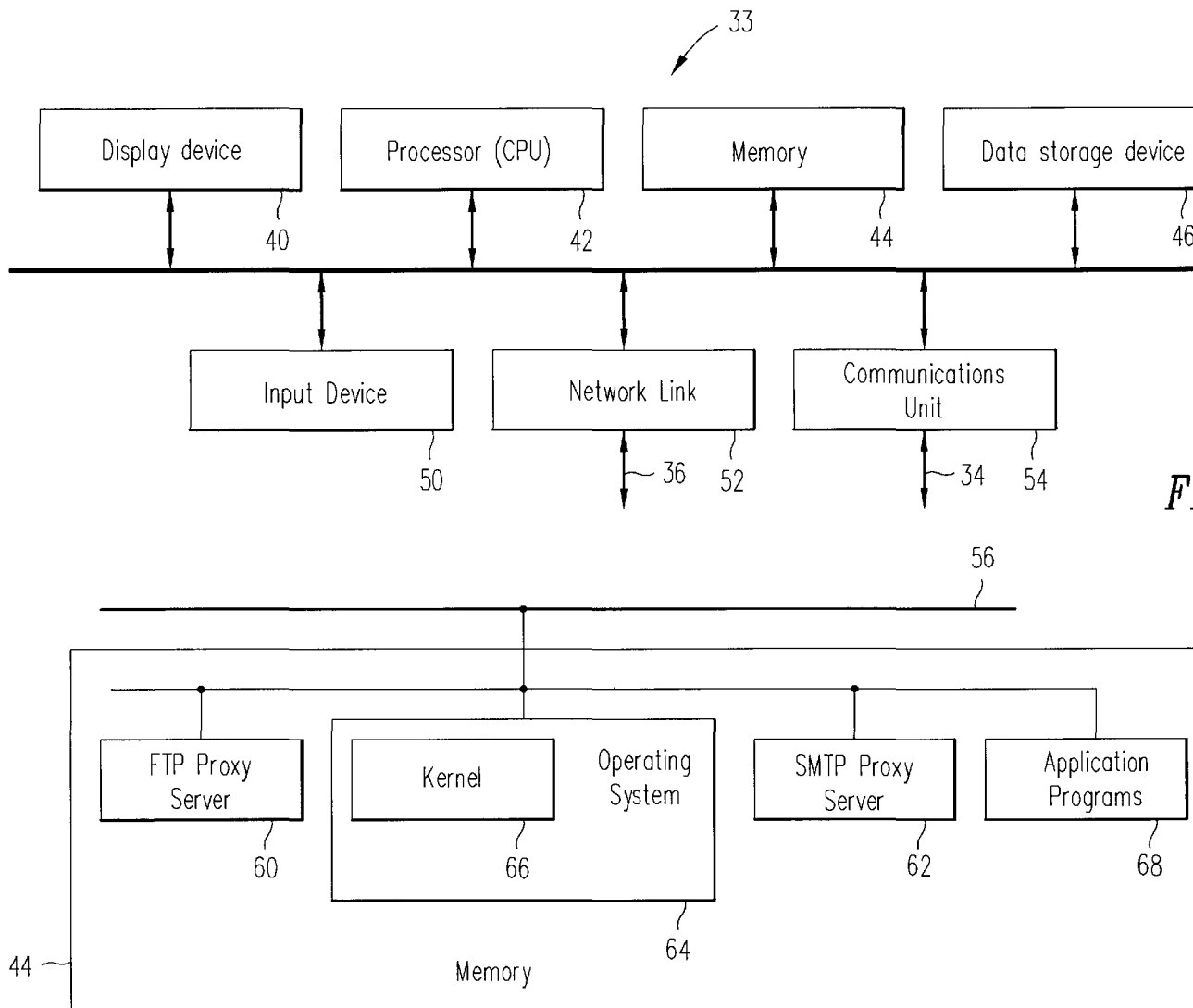


FIG. 1
(Prior Art)



OSI Layer	Protocol Implementation			
Application <u>406</u>	File Transfer <u>423</u>	Electronic Mail <u>424</u>	Terminal Emulation <u>425</u>	Network Management
	FTP Proxy Server <u>421</u>	SMTP Proxy Server <u>422</u>		
Presentation <u>405</u>	File Transfer Protocol (FTP) <u>417</u>	Simple Mail Transfer Protocol (SMTP) <u>418</u>	TELNET Protocol <u>419</u>	Simple Network Management Protocol (SNMP)
Session <u>404</u>				
Transport <u>403</u>	Transmission Control Protocol (TCP) <u>415</u>		User Datagram Protocol (UDP)	
Network <u>402</u>	Address Resolution <u>412</u>	Internet Protocol (IP) <u>413</u>	Internet Control Message Protocol	
Data Link <u>401</u>	Network Interface Cards: Ethernet, StarLAN token Ring			
Physical <u>400</u>	Transmission media: twisted pair, coax or fiber optics			

FIG. 4

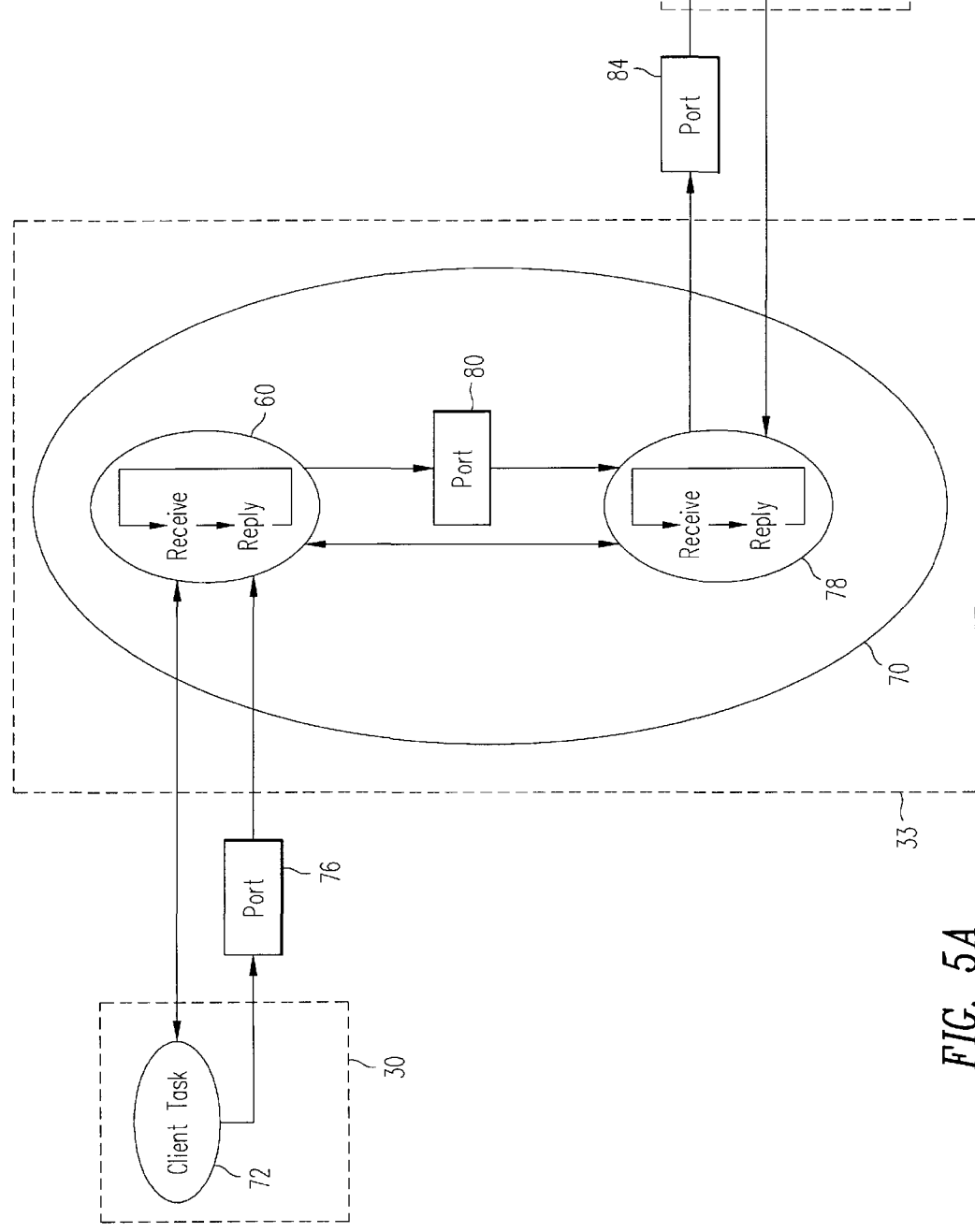


FIG. 5A

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