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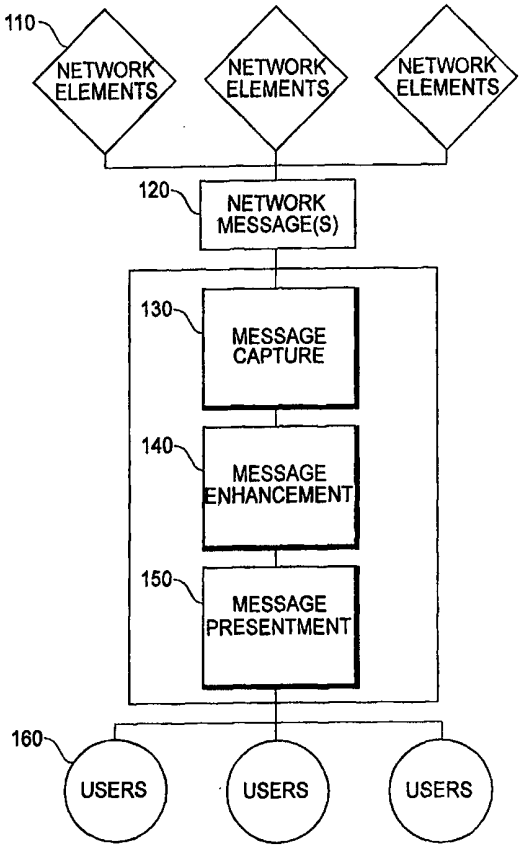
(54) Title: AN INTEGRATED SYSTEM FOR THE MANAGEMENT OF NETWORK USER MESSAGE INFORMATION ACROSS VARIOUS COMMUNICATION SYSTEMS

(57) Abstract

An integrated management system for the capture, processing, enhancement, and presentation of network message information can facilitate the virtually seamless retrieval, consolidation, and extension of network message information across various communication systems.



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AN INTEGRATED SYSTEM FOR THE MANAGEMENT OF NETWORK USER MESSAGE INFORMATION ACROSS VARIOUS COMMUNICATION SYSTEMS

Field of the Invention

The present invention relates generally to the capture, processing, enhancement, and presentation of network user message information. The invention facilitates a virtually seamless retrieval, consolidation, and extension of network message information across various communication systems. One preferred application can be an interactive system, which is accessible through a World Wide Web-based (Internet) interface, for obtaining and integrating otherwise unused (background) usage information about various network communications, including telephone calls (voice and facsimile) and E-mail exchanges, with billing and payment functionality.

Background of the Invention

Although systems exist that support the capturing and consolidation of network message information, such systems suffer certain drawbacks and deficiencies. For example, present systems are unable to consolidate and enhance the network message information from compatible and incompatible communication systems. Moreover, these systems lack the ability to present the network message information in a form easily understood by the user. By presenting network messages in a manner with little or no modification from their original forms, the resulting information remains difficult for the reader to understand and/or utilize.

At present, the vast majority of network usage information is never retrieved or is routinely discarded without review because it lacks associated information needed for accounting and/or billing purposes. In addition, the electronic presentation of billing statements to consumers typically amounts to nothing more than the non-interactive image of a paper invoice, following outdated, century-old accounting methods and collection procedures. To the extent such systems offer the option of

electronic bill payment, they provide few, if any, alternatives regarding how or when payment may be made.

The foregoing shows a need for an integrated management system that facilitates the virtually seamless retrieval, consolidation, and extension of network message information across various communication systems.

Summary of the Invention

An objective of the present invention is therefore the capture, processing, enhancement, and presentation of network user message information to facilitate the virtually seamless retrieval, consolidation, and extension of network message information across various communication systems.

Another objective of the present invention is an interface with individual users allowing access to, and manipulation of, the enhanced network message information in an interactive and highly flexible manner.

In accomplishing these and other objectives, the present invention provides a system that integrates different communication systems (service types) for the capture, processing, enhancement, and presentation of network user message information. The present invention enables the automated, background management of such tasks in a virtually seamless manner to provide the user with valuable processed information in an easily understood and readily usable form.

The present invention thus includes systems for managing network user message information, which comprise means for capturing a network message generated from a network element; means for processing the network message; means for storing in accessible memory the network message; means for adding value to the network message to produce an enhanced network message; and means for presenting the enhanced network message to a user.

The present invention thus also includes methods for managing network user message information, which comprise capture of a network message generated from a network element; processing the network message; storing into accessible memory the network message; adding value to the network message to produce an enhanced network message; and presenting the enhanced network message to a user.

Other objectives, features, and advantages of the present invention will become apparent from the following detailed description. The detailed description

and the specific examples, while indicating preferred embodiments of the invention, are provided by way of illustration only. Accordingly, the present invention also includes those various changes and modifications within the spirit and scope of the invention that may become apparent to those skilled in the art from this detailed description.

Brief Description of the Figures

Figure 1 depicts an overview of the flow of information in the capture, processing, enhancement, and presentation of network user message information, using the integrated management system according to the present invention.

Figure 2 highlights the Message Capture functionality indicated in the embodiment depicted in Figure 1.

Figure 3 highlights the Message Processing functionality indicated in the embodiment depicted in Figure 2.

Figure 4 highlights the Message Enhancement functionality indicated in the embodiment depicted in Figure 1.

Figure 5 highlights the Add Value functionality indicated in the embodiment depicted in Figure 4.

Figure 6 highlights the Message Presentment functionality indicated in the embodiment depicted in Figure 1.

Figure 7 highlights the Add Value Handler 510 functionality and depicts the flowchart of a software routine for attaching appropriate Add Value Component(s) 520 to Network Message(s) 120.

Detailed Description of the Preferred Embodiments

In one embodiment (Figure 1), the present invention may comprise: Network Element(s) 110; Network Messages 120 (which are generated from a Network Element(s) 110); Message Capture system 130; Message Enhancement system 140; Message Presentment system 150; and User(s) 160.

A Network Message 120 (or token) according to the present invention may be obtained and processed from a variety of private and public sources. A Network Message 120 may include telephone (voice and facsimile) transmission, Internet or intranet broadcasts, and other electronic data communication, and may originate from a caller, a sender, a requestor, an originator, or an addresser, or may be received by an

answerer, a recipient, a respondent, a target, or an addressee. In addition, a Network Message 120 could include network alarms, status messages, inbound usage records, outbound usage records, feature activations, monthly charges, special charges, payment records, and calling card charges.

Network alarms according to the present invention may include alarms generated by Network Element(s) 110 to provide status or to indicate a problem (such as a trunk line or feed is out of service). These alarms may also be routed to network monitoring systems used by a communication service provider for internal trouble management.

Status messages according to the present invention may include information generated by Network Element(s) 110 to validate that a particular component or other element is functioning, or to indicate a potential problem unrelated to connectivity.

Inbound usage records according to the present invention may include information generated by Network Element(s) 110 to track incoming communication from an external, or another internal source. Such information may have associated billing impact (for example, with 800/888 telephone services) or no billing impact.

Outbound usage records according to the present invention may include information generated by Network Element(s) 110 to track outgoing communication to an external, or another internal source. Such information may have associated billing impact (for example, a record of the address or telephone number and the duration of the communication).

Feature activation according the present invention may include the ability of a user to activate a feature, such as using *69 to retrieve the name and number of the last telephone call or the use of three way calling. In some cases, such information may have no billing impact (for example, with use of three way calling) because the charge comes from the calls resulting from the use of the line feature.

Monthly charges according to the present invention may include a monthly recurring charge (MRC) such as line charge (for example, a flat monthly rate for service access to a home).

Special charges according to the present invention may include a charge for the purchase of a product or service through the communication service (*e.g.*,

telemarketing or online shopping) for which the communication service provider bills the customer directly.

Payment records according to the present invention may include information from one or more of the following sources: lock-box providers such as a bank acting as payment processing center, credit card company for automatic payment, or electronic funds transfer record for pre-approved bank account withdrawals.

Calling card charges according to the present invention may include information from an appropriate Network Element(s) 110 (*e.g.*, calling card platform). In addition to the name of the city from where the call originated, calling card charges may include the complete originating number, or the full street address from where the call came. In a preferred embodiment, calling card charges may include information regarding pre-paid calling card usage.

A Network Message 120 may be captured from single or multiple communication service providers, including landline, wireless, or cellular transmissions representing telephone voice and facsimile calls, Internet or intranet broadcasts, and other electronic data communication. The established interfaces could receive network messages from alternative delivery methods such as tape, CD-ROM, tape cartridge, and electronic transmission.

The Message Capture system 130, Message Enhancement system 140, and Message Presentment system 150 can involve a programmed computer with the respective functionalities described *infra*, implemented in hardware or hardware and software; a logic circuit or other component of a programmed computer that performs the operations specifically identified *infra*, dictated by a computer program; or a computer memory encoded with executable instructions representing a computer program that can cause a computer to function in the particular fashion described *infra*.

The Message Capture system 130 (Figure 2) may comprise: Message Collector 210; Message Processor 220; and Processed Message Data Store 230. The Message Collector 210 can obtain Network Messages 120 from multiple Network Elements 110. The Message Collector 210 can forward Network Messages 120 to Message Processor 220 for analysis and formatting. The Message Processor 220 can

store Network Messages 120 into Processed Message Data Store 230 for use by Message Enhancement system 140.

The Message Processor 220 (Figure 3) may comprise: Message Pre-Processor 310; Message Impact 330; and Dropped Message Data Store 340. The Message Processor 220 can interface with one or more External System(s) 320 and can store its results into Processed Message Data Store 230. The Message Pre-Processor 310 can receive messages from the Message Collector 210 and can determine if any external system would need to process the data. If so, Message Pre-Processor 310 can transmit Network Message 120 to the External System 320. The External System 320 can perform its tasks and can return the result to Message Impact 330. The Message Impact 330 can receive input from Message Pre-Processor 310 for those Network Messages 120 that might not require processing by External Systems 320. The Message Impact 330 can determine if Network Message 120 is of a type that is needed further. If so, Message Impact 330 can store the resulting Network Message 120 into Processed Message Data Store 230. If Message Impact 330 determines that Network Message 120 is not needed further, Network Message 120 may be stored in Dropped Message Data Store 340.

Message Enhancement system 140 (Figure 4) may comprise: Add Value system 410; Value Added Source 420; and Enhanced Message Data Store 430. In a preferred embodiment of the present invention, Network Message 120 may be enhanced by information contained in Value Added Source 420 via Add Value system 410. Value Added Source 420 may comprise Add Value Component(s) 520, which preferably includes information capable of enhancing Network Message 120. Add Value Component(s) 520 may include information not captured by present communications systems, or information captured but not reported to the customer by communications service providers, or more detailed information than that presently reported to the customer by communications service providers. In a preferred embodiment, Add Value Component(s) 520 may include information from incomplete as well as completed telephone calls or other electronic transmissions.

Add Value Component(s) 520 according to the present invention may include inbound and outbound usage records (*e.g.*, the name and addresses for each person a user calls (or is called by), time of call, date of call, originating location); detailed

information on monthly recurring charges (*e.g.*, location of line, identity of original requestor, install date and time, and identity of person accepting install); detailed information on non-monthly recurring charges, including special charges (*e.g.*, purchase description, identity of requestor, special requests noted, payment records, or log of payment steps); calling card charges, including prepaid calling card charges (*i.e.*, detailed origination location, origination number or electronic address, identity and address of caller); identification of numbers or addresses of individuals or entities never contacted previously; identification of an inbound or outbound call difficulty (such as a busy signal or dropped call) with the name and address of the person the user attempted to call (or the person attempting to call the user); routing of alarms from the network elements directly to the user (*e.g.*, network alarms or status messages); summarization of bandwidth utilization over a user defined time period; support for customer specific charge codes; and support for customer specific hierarchy.

Support for customer specific charge codes according to the present invention may include functionality to allow users to summarize charges to facilities charging other organization (internal or external) their appropriate porting of the bill. In a preferred embodiment, the system can allow the user to define either origination (*i.e.*, calls made from this office) or termination (*i.e.*, calls made to a specific phone number) information as belonging to a specific charge code. This allows for information to then be reported, summarized and researched based on the appropriate charge codes.

Support for customer specific hierarchy according to the present invention may include functionality to allow users to determine what charges (based on origination or termination information) get bundled. For example, all calls made from a particular office complex location or division can be charged to a certain organizational entity within the company structure. The system allows the user to define this structure without the need to involve the communication services provider.

In operation, the Message Enhancement system 140 can interface with Processed Message Data Store 230. The Add Value system 410 can obtain Network Messages 120 from Processed Message Data Store 230 and can determine if sources exist to add value. If so, Add Value system 410 can match Network Message 120

with information contained in Value Added Source 420 and can store Enhanced Network Message 440 into Enhanced Message Data Store 430. If no source exists to add value, Network Message 120 is stored in Enhanced Message Data Store 430 as an Enhanced Network Message 440.

In a preferred embodiment of the present invention, the Add Value system 410 (Figure 5) may comprise: Add Value Handler 510 and one or more Add Value Component(s) 520. Add Value system 410 can interface with Processed Message Data Store 230 and one or more Value Added Source(s) 420. The Add Value Handler 510 can obtain Network Message 120 from Processed Message Data Store 230. The Add Value Handler 510 can determine if a Value Added Source 420 exists by comparison to a database containing Enhancement Rule(s) 512.

If a Value Added Source 420 exists, then Network Message 120 can be passed to Add Value Component 520. Each Add Value Component 520 can follow its own rules to merge Network Message 120 with Value Added Source(s) 420. Once an Add Value Component 520 is performed or attached, Enhanced Network Message 440 can be returned to Add Value Handler 510. If Network Message 120 qualifies for more than one Add Value Component 520, Add Value Handler 510 can transmit Network Message 120 to each Add Value Component 520 for additional processing. The Add Value Handler 510 can store the resulting Enhanced Network Message 440 into Enhanced Message Data Store 430.

In operation, the Add Value Handler 510 can involve a programmed computer with the respective functionalities described below, implemented in hardware or hardware and software; a logic circuit or other component of a programmed computer that performs the operations specifically identified below, dictated by a computer program; or a computer memory encoded with executable instructions representing a computer program that can cause a computer to function in the particular fashion described below.

In a preferred embodiment of the present invention, the software routine associated with Add Value Handler 510 can be as follows. If an Enhancement Rule 512 exists for Network Massage 120, then it must be determined what type of value add should be applied. The first test is to see if the value is based on Summarization and Aggregation 513. If so, then Message History 421 is summarized and aggregated

with the message (521) and then passed to Create Enhanced Message 516. The Create Enhanced Message 516 formats the new record with the value add and stores it into the Enhanced Message Data Store 430.

If an Enhancement Rule 512 does not call for the value add to be based on Summarization and Aggregation 513, then it must be determined to if a value added source exists (515) by searching Source List 514. If so, then Value Rule 524 is read by Determine Value Rules 522 and used to determine the type of value added information, where the value added information is located, and how to merge the value added information with the message. The message and rule is forwarded to Merge Value Source with Message 523, where the actual rule is processed. The merging of information requires reading from External Value Added Source 422 and enhancing the message with the proper elements defined by the rule. The result is forwarded to Create Enhanced Message 516. The Create Enhanced Message 516 formats the new record with the value add and stores it into Enhanced Message Data Store 430.

If an Enhancement Rule 512 does not exist (511) and an external source for value added does not exist (515), then the message is forwarded directly Create Enhanced Message 516. The Create Enhanced Message 516 formats the record and stores it into Enhanced Message Data Store 430.

Message Presentment system 150 (Figure 6) may comprise: Message Presentment Server 610; Message Presentment Tool 620; and Web Server 630. Message Presentment system 150 can also interface with Enhanced Message Data Store 430 and Users 160. Based on a request from Users 160 through either Message Presentment Tool 620 or Web Server 630, the request can be routed to Message Presentment Server 610. The Message Presentment Server 610 can validate User 160 and then can retrieve appropriate Enhanced Network Messages 440 (Figure 5) from Enhanced Message Data Store 430. The Enhanced Network Messages 440 may then be forwarded to either Message Presentment Tool 620 or Web Server 630, depending on the origination source of the original request. Enhanced Network Messages 440 can then be presented to User 160 for analysis and reporting as desired. In addition, Message Presentment Server 610 can also allow User 160 to specify certain pre-processing to be performed without user interaction.

In another embodiment of the present invention, the value added (enhanced) network messages may be presented to the user in an easily understood, meaningful way. By providing layered or nested information, the system can allow a user to access through single or multiple entry points (*e.g.*, hypertext links) information with increasing or decreasing levels of detail.

In addition, these messages may be presented preferably to facilitate further utilization of such information readily (such as by allowing Web access or by providing a software tool to the user). The system functionality can include providing: secure Web enabled access to billing information; secure Web enabled payment processing; customer specific trending information; customer access to un-billed information; customer identified charge disputes; customer bill approval for credit card and debit card users (or printout of remittance slip for check payment customers); customer ability to prepare custom reports (content publishing); customer definable select and view criteria of billing data base on timeframes and categories (trending); customer ability to download detailed billing information for off-line analysis; and integration with customer or client contact information databases.

In operation, a request from User 160 preferably through either Message Presentment Tool 620 or Web Server 630 can be routed to Message Presentment Server 610. Capture, processing, enhancement, and presentation of network messages according to the present invention can occur in real-time or with whatever delay is desired. The present invention, in a preferred embodiment, can allow interactive billing data (payments and disputes) as well as access to unbilled data (usage that has been rated or logged but not yet billed), allowing customers to accrue expenses, validate invoices quicker, and create custom reports.

Management of network user message information according to the search or scanning and compilation or collation capabilities of the present invention can facilitate the optimization or relaxation of institutional business practices to accommodate particular system resource usage needs, loss prevention (fraud, conversion, theft, etc.), and marketing, billing, payment and collection efficiencies. Therefore, the present invention can positively impact the relationship, for example, between the communication service provider and the client, and the client and its customers. The potential benefits of the present invention to the communication

service provider may include creation of a competitive advantage through creation of a paperless invoicing environment, increased cash flow via electronic payment, offloading functionality not otherwise easily added to existing systems, and the creation of historical data warehouse of customer usage and billing information. The potential benefits of the present invention to the communication service client may include the ability to establish tighter links with clients, control of information reporting, reduction in cost and time via electronic payment, and the ability to monitor costs and usage to maximize productivity and reduce loss.

Without further elaboration, one skilled in the art with the preceding description can utilize the present invention to its fullest extent. The following examples are illustrative only, and not intended to limit the remainder of the disclosure in any way.

Example 1

In one embodiment of the present invention, customer service representative access to the integrated management system can include a secure environment. This protection may include an account login with password verification for multiple users, password expiration periods, and a system hierarchy for different security access authorization levels.

A customer service representative can establish an account through which the representative can add account information, select a user name and password, add credit card information on file, and add payment authorization codes for credit cards. A customer service representative can also change account information through which the representative can change a password if forgotten, change E-mail address information, change bill notification methods to E-mail recipients, and change credit cards on file.

Example 2

In another embodiment of the present invention, customer access to the integrated management system can include a secure environment. This protection may include interface with VeriSign Secure Server ID, an account login with password verification for multiple users, password expiration periods, display disclosure information if a first-time login or if user location information has changed, and a system hierarchy for different security access authorization levels.

A customer can access presented billing information and generate reports, dispute charges, make bill payments, seek billing adjustments, prepare billing analysis, view non-billable information, arrange for E-mail notification, specify a customer profile, handle multiple cycles, and obtain help.

Presented billing information functionality according to the management system of the present invention may include the selection of presentation options, such as: viewing bill summary information; viewing unbilled data (call detail records/usage only, and if no data exists, message appears); viewing billed data (monthly recurring, non-recurring, and call detail records/usage); providing the ability to display marketing messages to specific customers based on defined criteria; displaying call detail records/usage grouped by account codes with summaries of each account code; and providing a feedback form for marketing.

Presented billing information functionality according to the management system of the present invention may also include the selection of reporting options, such as: selecting by all locations or by individual service location: selecting records by product families (local, long distance, or Internet) or by charge types (monthly recurring charges, non-recurring charges, usage); sorting the call detail records/usage by every column (*i.e.*, subtotaling by date order, total count, total duration, total charge); selecting records by originating number, account code, date of the call, time of the call, originating location, called number, called location, type of call, rate period (peak, off-peak, can be different from market to market), duration of the call, amount of the call, or dispute.

In addition, presented billing information functionality may include the selection of printing options, such as: selecting specified number of pages to print using web browser print function.

Charge dispute functionality according to the management system of the present invention may include: allowing the customer to dispute monthly recurring and non recurring charges or call detail records/usage; allowing the customer to enter a reason for the dispute with drop-down text box of pre-defined reasons or other text box for free-form comments; sending notification of dispute to disputing customer's e-mail address and main account e-mail address; showing the total amounts of disputes and adjustments to be credited on the dispute page; sending one e-mail for all

the disputes on one account for message clarification; allowing the customer to view all disputed charges since last bill; providing tunable threshold based on the total amount of the disputes versus the overall invoice; or displaying "Thank you" message with buttons: Continue to Dispute, View Data, View All Disputes.

Bill payment functionality according to the management system of the present invention may include an E-commerce server and a corresponding user interface, which can: provide the customer the ability to approve invoice for payment; provide the customer the ability to enter payment method (check, credit card, credit card on file), check number, amount paid, credit card number, card type, expiration date, amount paid or credit card on file; provide the customer the ability to accept and verify payment with authorization code (only credit card has authorization code); hide credit card information from screen display (including encryption of data that is stored in database); allow new credit card/expiration date to overwrite old data; provide customers the ability to print remittance form for lockbox processing on the remittance form; add bar code information to remittance form; allow split payment by multiple credit cards with percent allocated among cards and against separate account codes, charge codes, or service locations; allow customers automatically to pay bill by electronic funds transaction or credit card; allow split payments by charge code; provide batch file for processing; generate a paper report for financial department; generate payment confirmation number (which is a randomly generated number); allow multiple authorization codes; or allow multiple payments to appear individually on bill summary.

Billing adjustment functionality according to the management system of the present invention may include allowing a customer to view adjustments to be credited on next bill on the dispute page.

Bill analysis functionality according to the management system of the present invention may include: providing customers the ability to select and view bill trends using graphical images; providing customers the capability to select one record or multiple usage records to identify name and address of the selected outbound calls; providing the customer the capability to select "Download" to download billing data for current plus 3 previous months; providing customers the capability to select one record or multiple call detail records/usage to identify name and address of the

selected inbound calls using a button bar; providing a desktop software tool that the customer can use to perform their analysis in an off-line mode; providing an ad-hoc report writer to generate dynamic, interactive reports; providing the capability for customer to create custom reports using scanning-type tool for criteria; provide actual utilization of Internet services, inbound page hits, average, maximum, and mean response rate; or providing switch ID information.

Viewing non-billable information functionality according to the management system of the present invention may include providing the ability for customers to view non-billable information such as terminating local usage, attempted calls, or incomplete calls.

E-mail notification functionality according to the management system of the present invention may include: allowing monthly notification when the new billing information is available; providing dispute notification, disputed customer's E-mail address, and main account E-mail address in batch file; sending customer profile changes and disputes to customer service department and disputes exchange E-mail addresses via batch overnight E-mail process.

Customer profile functionality according to the management system of the present invention may include: providing customer account interface; allowing customer to add/change main E-mail address; allowing customer to change billing address; checking address against address verification and zip code databases; allowing customer to change contact phone number; allowing customer to select bill notification method and E-mail addresses; allowing customer to add/change credit card information on file; allowing new credit card/expiration date to overwrite old data; allowing customer to change passwords.

Multiple billing cycle functionality according to the management system of the present invention may include allowing multiple bill cycles and providing the ability to change bill cycle within the same month.

Help functionality according to the management system of the present invention may include online help and end user documentation or training tutorial.

Example 3

In another embodiment of the present invention, system administrator access to the integrated management system can include a secure environment. In addition,

administration functionality according to the management system of the present invention could allow a system administrator to: initiate maintenance procedures; view audit information with a Web-based application; access basis system usage statistics; manage selected system lookups and meta-data; store and audit in database all logins (fails and successes), payments, disputes; incorporate mechanisms that will log and send E-mail-based alerts resulting from key system events.

What Is Claimed Is:

1. A system for managing network user message information comprising:

means for capturing a network message generated from a network element;

means for adding value to said network message to produce an enhanced network message; and

means for presenting said enhanced network message to a user.

2. The system of claim 1, wherein said network user information is managed by one or more computer processors.

3. The system of claim 1, wherein said network messages are generated from multiple said network elements.

4. The system of claim 1, wherein said network comprises multiple communication service providers.

5. The system of claim 1, wherein said network comprises compatible networks.

6. The system of claim 1, wherein said network comprises incompatible networks.

7. The system of claim 1, wherein said network comprises a single communication service provider.

8. The system of claim 1, wherein said network element is derived from a source, and wherein said source is selected from the group consisting of: a public source; a private source; an electronic communication; a telephone data transmission; an Internet transmission; an intranet broadcast; and an extranet broadcast.

9. The system of claim 1, wherein said network element is derived from a source, and wherein said source comprises a telephone voice transmission.

10. The system of claim 1, wherein said network element is derived from a source, and wherein said source comprises an Internet broadcast.

11. The system of claim 1, wherein said network element originates from an initiator, and wherein said initiator is selected from the group consisting of: a sender; a requestor; an originator; and an addressor.

12. The system of claim 1, wherein said network element originates from an initiator, and wherein said initiator comprises a caller.

13. The system of claim 1, wherein said network element is transmitted to a receiver, and wherein said receiver is selected from the group consisting of: a recipient; a respondent; a target; and an addressee.

14. The system of claim 1, wherein said network element is transmitted to a receiver, and wherein said receiver comprises a party.

15. The system of claim 1, wherein retrieving said network message is selected from the group consisting of: a tape; a CD-ROM; and a tape cartridge.

16. The system of claim 1, wherein retrieving said network message comprises an electronic transmission.

17. The system of claim 1, wherein said network message is selected from the group consisting of: an alarm; a status message; and a feature activation.

18. The system of claim 1, wherein said network comprises an inbound usage record.

19. The system of claim 1, wherein said network comprises an outbound usage record.

20. The system of claim 1, wherein said network comprises a monthly charge.

21. The system of claim 1, wherein said network comprises a special charge.

22. The system of claim 1, wherein said network comprises a payment record.

23. The system of claim 1, wherein said network comprises a credit card charge.

24. The system of claim 1, wherein said managing network information can occur in real time.

25. The system of claim 1, wherein said managing network information can be delayed.

26. The system of claim 25, wherein a user defines said delay period.

27. The system of claim 1, further comprising providing interactive communications between said user and said managing network.

28. The system of claim 27, wherein said providing interactive communication comprises billing data.

29. The system of claim 27, wherein said providing interactive communication comprises payments.

30. The system of claim 27, wherein said providing interactive communication comprises disputes.

31. The system of claim 1, further comprising providing said user ability to access unbilled data.

32. The system of claim 1, further comprising providing said user ability to access non-billed data.

33. The system of claim 1, further comprising providing said user ability to accrue expenses.

34. The system of claim 1, further comprising providing said user ability to validate an invoice.

35. The system of claim 1, further comprising providing said user ability to create custom reports.

36. The system of claim 1, wherein said capturing comprises:

processing said network message; and

storing said network message as a processed network message.

37. The system of claim 36, wherein said capturing is performed by one or more computer processors.

38. The system of claim 36, wherein said processing comprises verifying a client exists for said network message.

39. The system of claim 38, wherein said verifying comprises accessing one or more external systems.

40. The system of claim 38, wherein said network message is stored for later processing when no client exists for said network message.

41. The system of claim 36, wherein said processing comprises verifying said network message has not been previously processed.

42. The system of claim 41, wherein said verifying comprises storing said network message in a dropped network message data base when said collected network message has been previously processed.

43. The system of claim 1, wherein said adding value further comprises applying an enhancement rule.

44. The system of claim 43, wherein said applying an enhancement rule is performed by one or more computer processors.

45. The system of claim 43, wherein said applying an enhancement rule comprises:

accessing a message history that corresponds to said network message;

aggregating said message history with said network message; and

summarizing said message history with said network message.

46. The system of claim 43, wherein said applying an enhancement rule comprises:

accessing value added component that corresponds to said network message;

accessing value added component rule that corresponds to said value added component; and

performing said value added component rule.

47. The system of claim 46, wherein said value added component rule comprises type of value added information.

48. The system of claim 46, wherein said value added component rule comprises location of value added information.

49. The system of claim 46, wherein said value added component rule comprises how to merge value added information with said process network message.

50. The system of claim 46, wherein said performing comprises:

determining value added information type;

locating said value added information; and

merging said value added information with said network message.

51. The system of claim 50, wherein said merging said value added information with said network message comprises reading an external value added source.

52. The system of claim 1, wherein said adding value is selected from the group consisting of: treating said processed network message as an enhanced network message; accessing multiple added value components; and adding an added value component to said processed network message.

53. The system of claim 52, wherein said added value component is selected from the group consisting of: information capable of enhancing said network messages; information not captured by present communications systems; information from incomplete electronic transmissions; information from completed electronic transmissions; identification of numbers of individuals never contacted previously; identification of numbers of entities never contacted previously; identification of addresses of individuals never contacted previously; identification of addresses of entities never contacted previously; identification of inbound call difficulty; identification of outbound call difficulty; routing of alarms from the network element directly to the user; summarization of bandwidth utilization over a user defined time period; support for customer specific charge codes; and support for customer specific hierarchy.

54. The system of claim 52, wherein said added value component comprises information captured, but not reported to the customer by communication service providers.

55. The system of claim 52, wherein said added value component comprises more detailed information than that presently reported to the customer by communications service providers.

56. The system of claim 52, wherein said added value component comprises information from incomplete telephone calls.

57. The system of claim 52, wherein said added value component comprises information from completed telephone calls.

58. The system of claim 52, wherein said added value component comprises inbound usage record.

59. The system of claim 52, wherein said added value component comprises outbound usage records.

60. The system of claim 52, wherein said added value component comprises detailed information on monthly recurring charges.

61. The system of claim 52, wherein said added value component comprises detailed information on non-monthly recurring charges.

62. The system of claim 52, wherein said added value component comprises calling card charge.

63. The system of claim 53, wherein said inbound usage record is selected from the group consisting of: identity for each person user is called by; address for each person user is called by; time of call; date of call; and originating location.

64. The system of claim 53, wherein said outbound usage record is selected from the group consisting of: identity for person user calls; address for each person user calls; time of call; date of call; and originating location.

65. The system of claim 53, wherein said detailed information on monthly recurring charges is selected from the group consisting of: location of line; identity of original requestor; install date; and install time.

66. The system of claim 53, wherein said detailed information on non-monthly recurring charges comprise special charges.

67. The system of claim 66, wherein said special charges is selected from the group consisting of: purchase description; identity of requestor; special requests noted; payment records; and log of payment steps.

68. The system of claim 53, wherein said calling card charge comprises prepaid calling card charges.

69. The system of claim 68, wherein said pre-paid calling card charge is selected from the group consisting of: detailed origination location; origination number; electronic address; identity of caller; and address of caller.

70. The system of claim 53, wherein said inbound call difficulty is selected from the group consisting of: a busy signal; a dropped call; the identity of the individual attempting to call user; and the identity of the entity attempting to call user.

71. The system of claim 53, wherein said outbound call difficulty is selected from the group consisting of: a busy signal; a dropped call; the identity of the individual user attempted to call; and the identity of the entity user attempted to call.

72. The system of claim 1, wherein said presenting comprises:

receiving a user request for presentation of information comprising said enhanced network message;

determining which enhanced network message satisfies said request;

retrieving said enhanced network message; and

forwarding said enhanced network message to said user.

73. The system of claim 72, wherein said presenting said enhanced network message to a user is managed by one or more computer processors.

74. The system of claim 72, wherein said receiving a user request for presentation of said enhanced network message is selected from the group consisting of: receiving said request from said user via a web server; receiving said request from said user via a message presentment tool; and validating whether user has sufficient rights to obtain said enhanced network message.

75. The system of claim 72, wherein said receiving a user request contains a request for pre-processing, further comprising pre-processing said retrieved enhanced network messages in accordance with said user request for pre-processing.

76. The system of claim 72, wherein said forwarding said enhanced network message to said user is selected from the group consisting of: returning said enhanced network message to said user via a web server; and forwarding said enhanced network message to said user via a message presentment tool.

77. The system of claim 1, wherein said presenting said enhanced network message to said user further is selected from the group consisting of: providing software tools to said user; providing customer specific trending information; providing customer access to un-billed information; providing customer bill approval for debit card users; providing customer definable select and view criteria of billing data base on timeframes; providing customer definable select and view criteria of billing data base on categories; and providing integration with customer or client contact information databases.

78. The system of claim 1, wherein said presenting said enhanced network message to said user further comprises presenting the information in a nested format

to allow said user to access said presented information through single or multiple entry points with varying degrees of detail.

79. The system of claim 1, wherein said presenting said enhanced network message to said user further comprises providing web access.

80. The system of claim 1, wherein said presenting said enhanced network message to said user further comprises providing secure Web enabled access to billing information.

81. The system of claim 1, wherein said presenting said enhanced network message to said user further comprises providing secure Web enabled payment processing.

82. The system of claim 1, wherein said presenting said enhanced network message to said user further comprises providing customer identified charge disputes.

83. The system of claim 1, wherein said presenting said enhanced network message to said user further comprises providing customer bill approval for credit card users.

84. The system of claim 1, wherein said presenting said enhanced network message to said user further comprises providing printout of remittance slip for check payment customers.

85. The system of claim 1, wherein said presenting said enhanced network message to said user further comprises customer ability to prepare custom reports.

86. The system of claim 1, wherein said presenting said enhanced network message to said user further comprises customer ability to prepare content publishing.

87. The system of claim 1, wherein said presenting said enhanced network message to said user further comprises providing customer ability to download detailed billing information for off-line analysis.

88. A method for managing network user message information comprising:

capturing a network message generated from a network element;

adding value to said network message to produce an enhanced network message; and

presenting said enhanced network message to a user.

89. The method of claim 88, wherein said network user information is managed by one or more computer processors.

90. The method of claim 88, wherein said network messages are generated from multiple said network elements.

91. The method of claim 88, wherein said network comprises multiple communication service providers.

92. The method of claim 88, wherein said network comprises compatible networks.

93. The method of claim 88, wherein said network comprises incompatible networks.

94. The method of claim 88, wherein said network comprises a single communication service provider.

95. The method of claim 88, wherein said network element is derived from a source, and wherein said source is selected from the group consisting of: a public sources; a private sources; an electronic communication; a telephone data

transmission; an Internet transmission; an intranet broadcast; and an extranet broadcast.

96. The method of claim 88, wherein said network element is derived from a source, and wherein said source comprises a telephone voice transmission.

97. The method of claim 88, wherein said network element is derived from a source, and wherein said source comprises an Internet broadcast.

98. The method of claim 88, wherein said network element is derived from an initiator, and wherein said initiator is selected from the group consisting of: a sender; a requestor; an originator; and an addressor.

99. The method of claim 88, wherein said network element is derived from an initiator, and wherein said initiator comprises a caller.

100. The method of claim 88, wherein said network element is transmitted to a receiver, and wherein said receiver is selected from the group consisting of: a recipient; a respondent; a target; and an addressee.

101. The method of claim 88, wherein said network element is transmitted to a receiver, and wherein said receiver comprises a party.

102. The method of claim 88, wherein retrieving said network message is selected from the group consisting of: a tape; a CD-ROM; and a tape cartridge.

103. The method of claim 88, wherein retrieving said network message comprises an electronic transmission.

104. The method of claim 88, wherein said network message is selected from the group consisting of: an alarm; a status message; and a feature activation.

105. The method of claim 88, wherein said network message comprises an inbound usage record.

106. The method of claim 88, wherein said network message comprises an outbound usage record.

107. The method of claim 88, wherein said network message comprises a monthly charge.

108. The method of claim 88, wherein said network message comprises a special charge.

109. The method of claim 88, wherein said network message comprises a payment record.

110. The method of claim 88, wherein said network message comprises a credit card charge.

111. The method of claim 88, wherein said managing network information can occur in real time.

112. The method of claim 88, wherein said managing network information can be delayed.

113. The method of claim 112, wherein a user defines said delay period.

114. The method of claim 88, further comprising providing interactive communications between said user and said managing network.

115. The method of claim 114, wherein said providing interactive communication comprises billing data.

116. The method of claim 114, wherein said providing interactive communication comprises payments.

117.. The method of claim 114, wherein said providing interactive communication comprises disputes.

118. The method of claim 88, further comprising providing said user ability to access unbilled data.

119. The method of claim 88, further comprising providing said user ability to access non-billed data.

120. The method of claim 88, further comprising providing said user ability to accrue expenses.

121. The method of claim 88, further comprising providing said user ability to validate invoice.

122. The method of claim 88, further comprising providing said user ability to create custom reports.

123. The method of claim 88, wherein said capturing comprises:

processing said network message; and

storing said network message as a processed network message.

124. The method of claim 123, wherein said capturing is performed by one or more computer processors.

125. The method of claim 123, wherein said processing comprises verifying a client exists for said network message.

126. The method of claim 125, wherein said verifying comprises accessing one or more external systems.

127. The method of claim 125, wherein said network message is stored for later processing when no client exists for said network message.

128. The method of claim 123, wherein said processing comprises verifying said network message has not been previously processed.

129. The method of claim 128, wherein said verifying comprises storing said network message in a dropped network message data base when said collected network message has been previously processed.

130. The method of claim 88, wherein said adding value further comprises applying an enhancement rule.

131. The method of claim 130, wherein said applying an enhancement rule is performed by one or more computer processors.

132. The method of claim 130, wherein said applying an enhancement rule comprises:

accessing a message history that corresponds to said network message;

aggregating said message history with said network message; and

summarizing said message history with said network message.

133. The method of claim 130, wherein said applying an enhancement rule comprises:

accessing value added component that corresponds to said network message;

accessing value added component rule that corresponds to said value added component; and

performing said value added component rule.

134. The method of claim 133, wherein said value added component rule comprises type of value added information.

135. The method of claim 133, wherein said value added component rule comprises location of value added information.

136. The method of claim 133, wherein said value added component rule comprises how to merge value added information with said process network message.

137. The method of claim 133, wherein said performing comprises:

determining value added information type;

locating said value added information; and

merging said value added information with said network message.

138. The method of claim 137, wherein said merging said value added information with said network message comprises reading an external value added source.

139. The method of claim 88, wherein said adding value is selected from the group consisting of: treating said processed network message as an enhanced network message; accessing multiple added value components; and adding an added value component to said processed network message.

140. The method of claim 139, wherein said added value component is selected from the group consisting of: information capable of enhancing said network messages; information not captured by present communications systems; information from incomplete electronic transmissions; information from completed electronic transmissions; identification of numbers of individuals never contacted previously; identification of numbers of entities never contacted previously; identification of addresses of individuals never contacted previously; identification of addresses of entities never contacted previously; identification of inbound call difficulty; identification of outbound call difficulty; routing of alarms from the network element

directly to the user; summarization of bandwidth utilization over a user defined time period; support for customer specific charge codes; and support for customer specific hierarchy.

141. The method of claim 139, wherein said added value component comprises information captured but not reported to the customer by communication service providers.

142. The method of claim 139, wherein said added value component comprises more detailed information than that presently reported to the customer by communications service providers.

143. The method of claim 139, wherein said added value component comprises information from incomplete telephone calls.

144. The method of claim 139, wherein said added value component comprises information from completed telephone calls.

145. The method of claim 139, wherein said added value component comprises inbound usage record.

146. The method of claim 139, wherein said added value component comprises outbound usage records.

147. The method of claim 139, wherein said added value component comprises detailed information on monthly recurring charges.

148. The method of claim 139, wherein said added value component comprises detailed information on non-monthly recurring charges.

149. The method of claim 139, wherein said added value component comprises calling card charge.

150. The method of claim 140, wherein said inbound usage record is selected from the group consisting of: identity for each person user is called by; address for each person user is called by; time of call; date of call; and originating location.

151. The method of claim 140, wherein said outbound usage record is selected from the group consisting of: identity for each person user calls; address for each person user calls; time of call; date of call; and originating location.

152. The method of claim 140, wherein said detailed information on monthly recurring charges is selected from the group consisting of: location of line; identity of original requestor; install date; and install time.

153. The method of claim 140, wherein said detailed information on non-monthly recurring charges comprise special charges.

154. The method of claim 153, wherein said special charges is selected from the group consisting of: purchase description; identity of requestor; special requests noted; payment records; and log of payment steps.

155. The method of claim 140, wherein said calling card charge comprises prepaid calling card charges.

156. The method of claim 155, wherein said pre-paid calling card charge is selected from the group consisting of: detailed origination location; origination number; electronic address; identity of caller; and address of caller.

157. The method of claim 140, wherein said inbound call difficulty is selected from the group consisting of: a busy signal; a dropped call; the identity of the individual attempting to call user; and the identity of the entity attempting to call user.

158. The method of claim 140, wherein said outbound call difficulty is selected from the group consisting of: a busy signal; a dropped call; the identity of the individual user attempted to call; and the identity of the entity user attempted to call.

159. The method of claim 88, wherein said presenting comprises:

receiving a user request for presentation of information comprising said enhanced network message;

determining which enhanced network message satisfies said request;

retrieving said enhanced network message; and

forwarding said enhanced network message to said user.

160. The method of claim 159, wherein said presenting said enhanced network message to a user is managed by one or more computer processors.

161. The method of claim 159, wherein said receiving a user request for presentation of said enhanced network message is selected from the group consisting of: receiving said request from said user via a web server; receiving said request from said user via a message presentment tool; and validating whether user has sufficient rights to obtain said enhanced network message.

162. The method of claim 159, wherein said receiving a user request contains a request for pre-processing, further comprising pre-processing said retrieved enhanced network messages in accordance with said user request for pre-processing.

163. The method of claim 159, wherein said forwarding said enhanced network message to said user is selected from the group consisting of: returning said enhanced network message to said user via a web server; and forwarding said enhanced network message to said user via a message presentment tool.

164. The method of claim 88, wherein said presenting said enhanced network message to said user further is selected from the group consisting of: providing software tools to said user; providing customer specific trending information;

providing customer access to un-billed information; providing customer bill approval for debit card users; providing customer definable select and view criteria of billing data base on timeframes; providing customer definable select and view criteria of billing data base on categories; and providing integration with customer or client contact information databases.

165. The method of claim 88, wherein said presenting said enhanced network message to said user further comprises presenting the information in a nested format to allow said user to access said presented information through single or multiple entry points with varying degrees of detail.

166. The method of claim 88, wherein said presenting said enhanced network message to said user further comprises providing web access.

167. The method of claim 88, wherein said presenting said enhanced network message to said user further comprises providing secure Web enabled access to billing information.

168. The method of claim 88, wherein said presenting said enhanced network message to said user further comprises providing secure Web enabled payment processing.

169. The method of claim 88, wherein said presenting said enhanced network message to said user further comprises providing customer identified charge disputes.

170. The method of claim 88, wherein said presenting said enhanced network message to said user further comprises providing customer bill approval for credit card users.

171. The method of claim 88, wherein said presenting said enhanced network message to said user further comprises providing printout of remittance slip for check payment customers.

172. The method of claim 88, wherein said presenting said enhanced network message to said user further comprises customer ability to prepare custom reports.

173. The method of claim 88, wherein said presenting said enhanced network message to said user further comprises customer ability to prepare content publishing.

174. The method of claim 88, wherein said presenting said enhanced network message to said user further comprises providing customer ability to download detailed billing information for off-line analysis.

175. A computer readable medium containing instructions for controlling a computer system to perform a method, wherein the computer system manages network user message information , the method comprising:

capturing a network message generated from a network element;

adding value to said network message to produce an enhanced network message; and

presenting said enhanced network message to a user.

176. The computer readable medium of claim 175, wherein said capturing comprises:

processing said network message; and

storing said network message as a processed network message.

177. The computer readable medium of claim 175, wherein said adding value further comprises applying an enhancement rule.

178. The computer readable medium of claim 175, wherein said presenting comprises:

receiving a user request for presentation of information comprising said enhanced network message;

determining which enhanced network message satisfies said request;

retrieving said enhanced network message; and

forwarding said enhanced network message to said user.

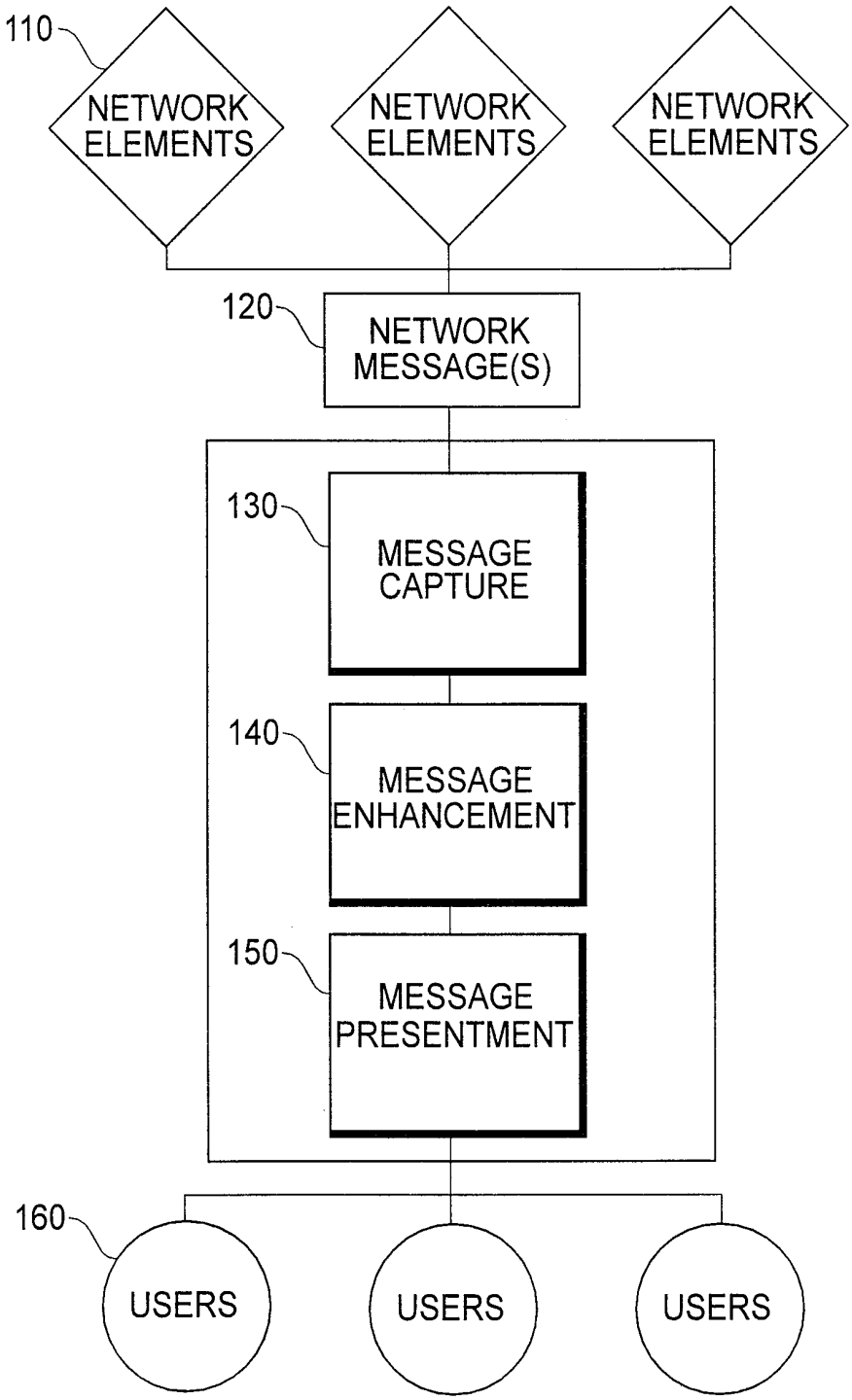
110
NETWORK ELEMENTS
NETWORK ELEMENTS
NETWORK ELEMENTS
120
NETWORK MESSAGE(S)
130
MESSAGE CAPTURE
140
MESSAGE ENHANCEMENT
150
MESSAGE PRESENTMENT
160
USERS
USERS
USERS

FIG. 1

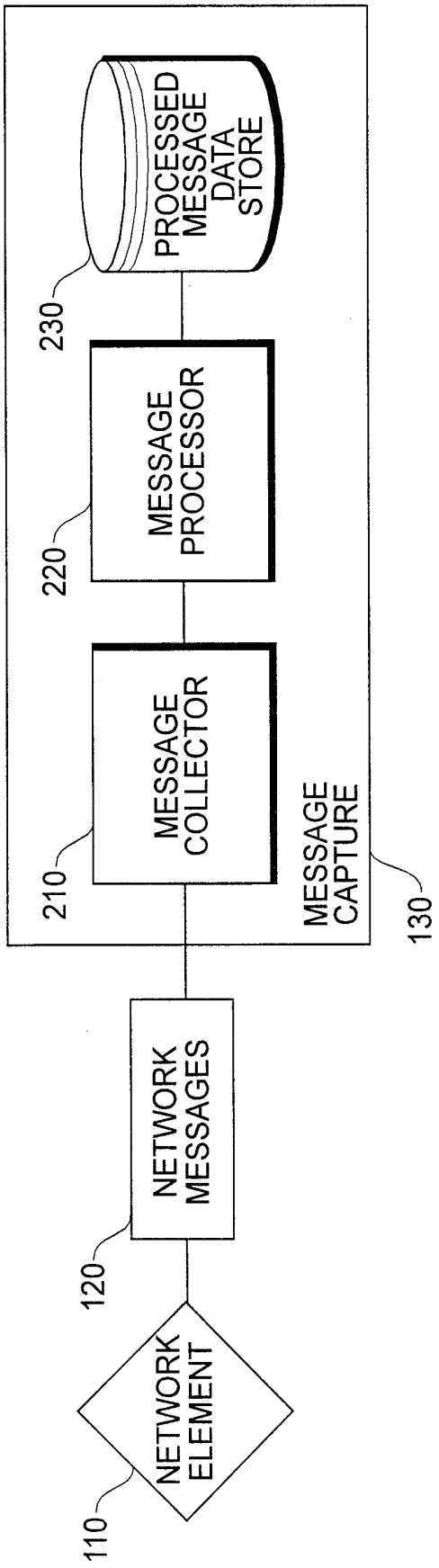
NETWORK ELEMENT
110
NETWORK MESSAGES
120
MESSAGE CAPTURE
130
MESSAGE COLLECTOR
210
MESSAGE PROCESSOR
220
PROCESSED MESSAGE DATA STORE
230

FIG. 2

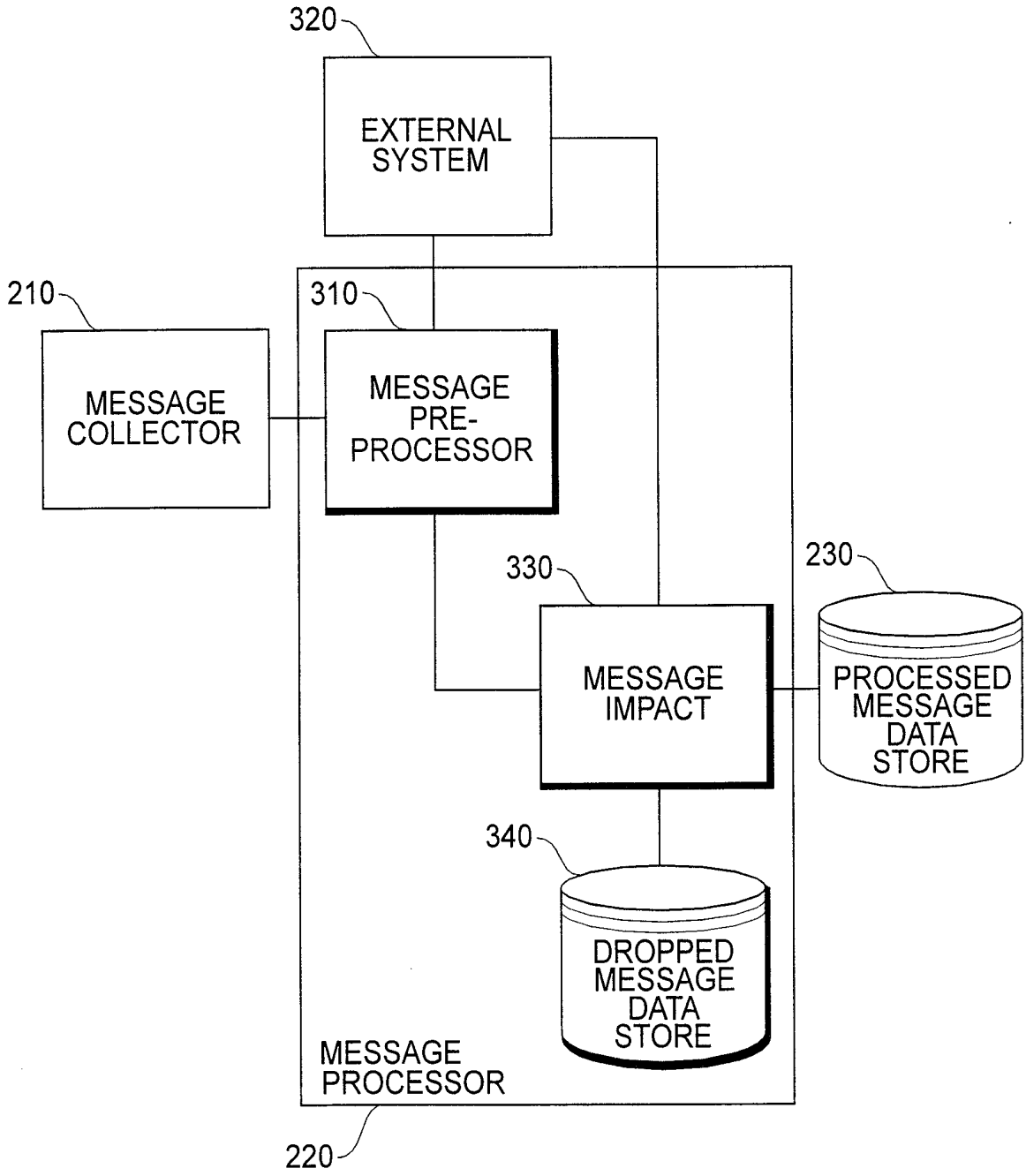
320
EXTERNAL SYSTEM
210
MESSAGE COLLECTOR
310
MESSAGE PRE-PROCESSOR
330
MESSAGE IMPACT
230
PROCESSED MESSAGE DATA STORE
340
DROPPED MESSAGE DATA STORE
MESSAGE PROCESSOR
220

FIG. 3

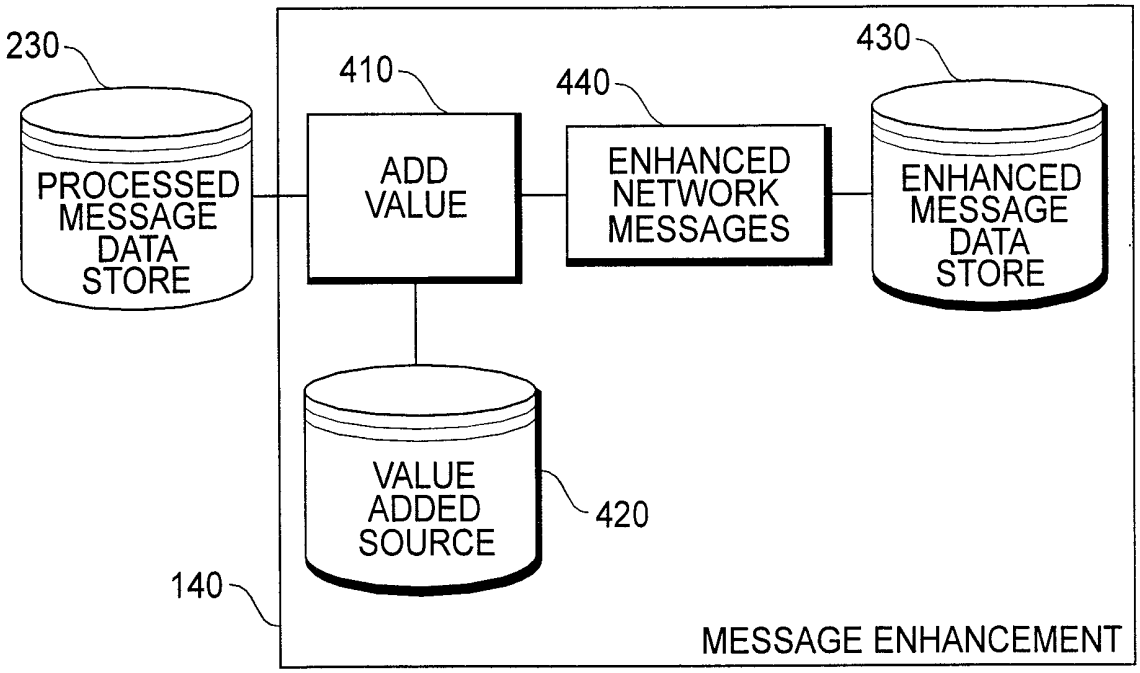
230
PROCESSED MESSAGE DATA STORE
410
ADD VALUE
440
ENHANCED NETWORK MESSAGES
430
ENHANCED MESSAGE DATA STORE
VALUE ADDED SOURCE
420
140
MESSAGE ENHANCEMENT

FIG. 4

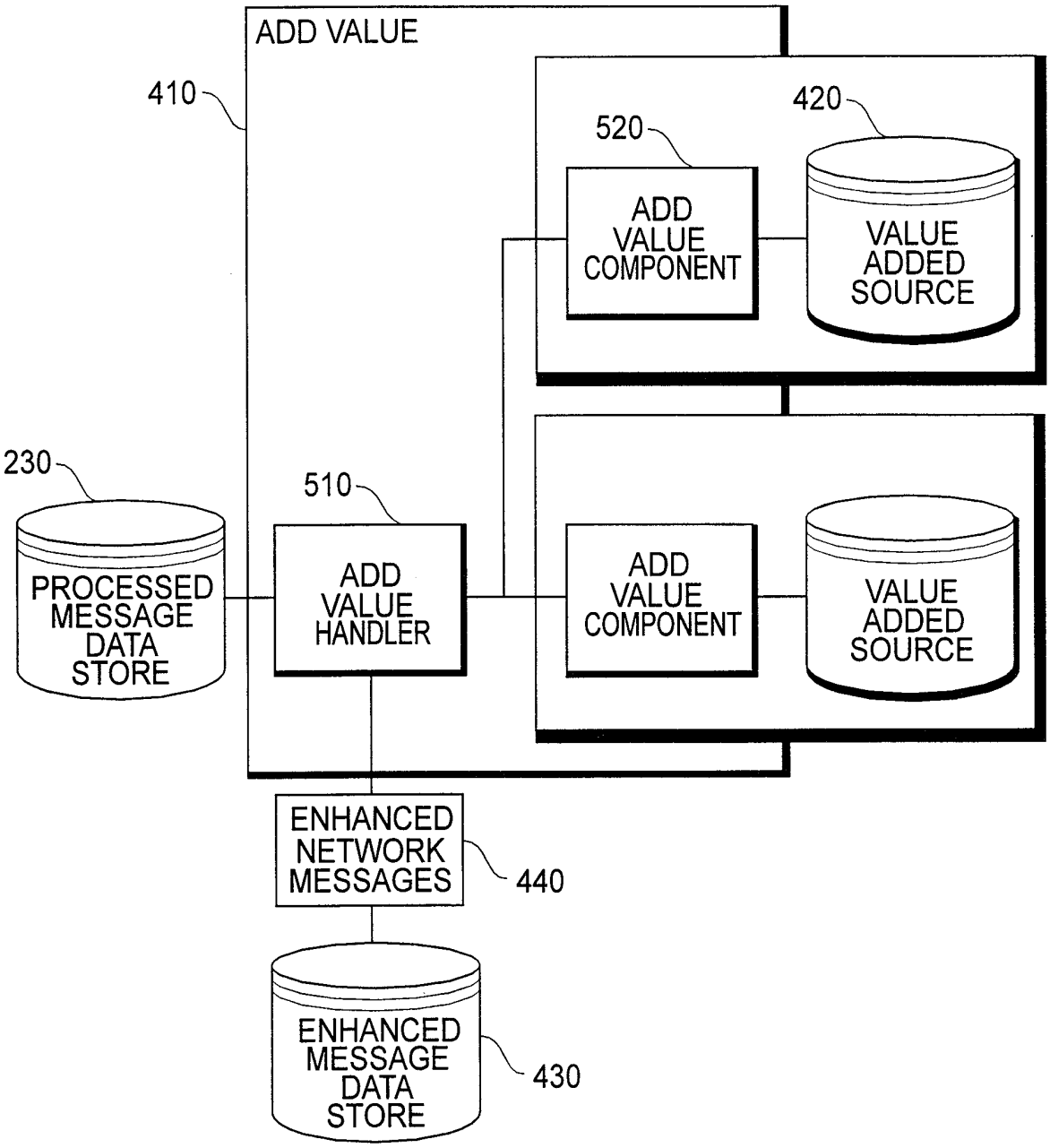
ADD VALUE
410
420
520
ADD VALUE COMPONENT
VALUE ADDED SOURCE
230
510
PROCESSED MESSAGE DATA STORE
ADD VALUE HANDLER
ADD VALUE COMPONENT
VALUE ADDED SOURCE
ENHANCED NETWORK MESSAGES
440
ENHANCED MESSAGE DATA STORE
430

FIG. 5

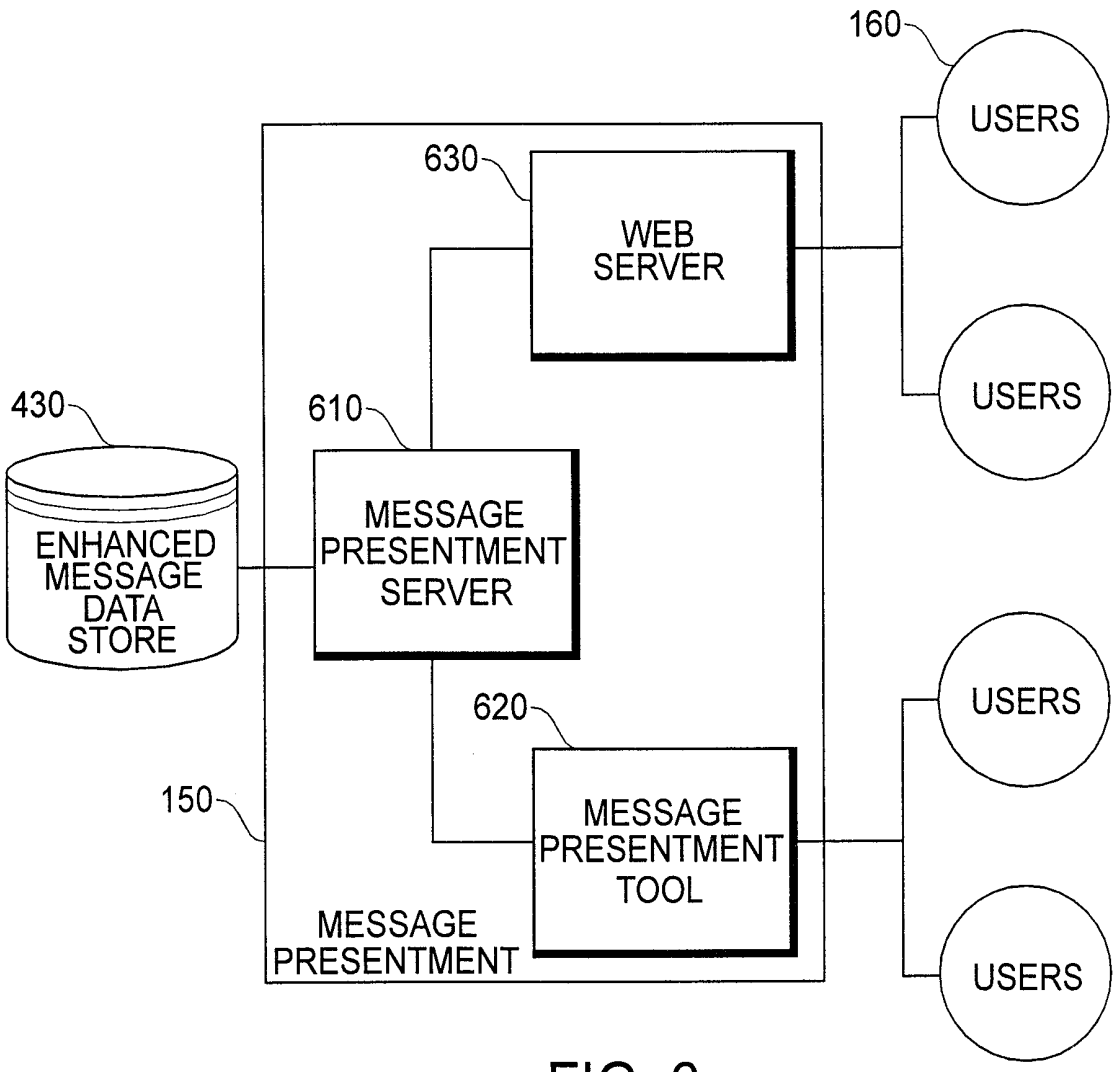
160
USERS
630
WEB SERVER
USERS
430
610
ENHANCED MESSAGE DATA STORE
MESSAGE PRESENTMENT SERVER
USERS
620
150
MESSAGE PRESENTMENT TOOL
MESSAGE PRESENTMENT
USERS

FIG. 6

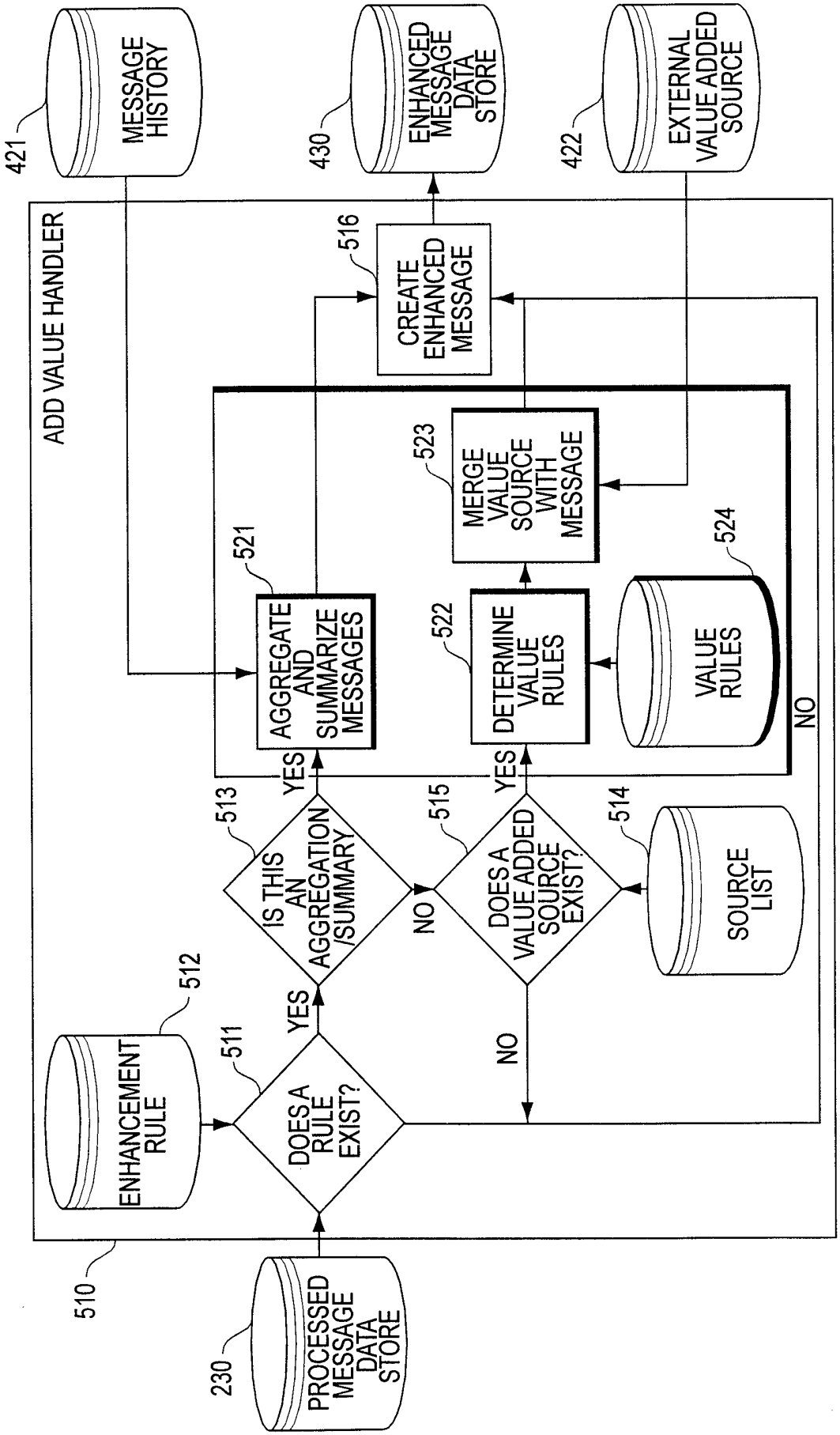
MESSAGE HISTORY
421
ENHANCED MESSAGE DATA STORE
430
EXTERNAL VALUE ADDED SOURCE
422
ADD VALUE HANDLER
CREATE ENHANCED MESSAGE
516
MERGE VALUE SOURCE WITH MESSAGE
523
AGGREGATE AND SUMMARIZE MESSAGES
521
DETERMINE VALUE RULES
522
VALUE RULES
524
IS THIS AN AGGREGATION /SUMMARY
513
DOES A VALUE ADDED SOURCE EXIST?
515
SOURCE LIST
514
ENHANCEMENT RULE
512
DOES A RULE EXIST?
511
PROCESSED MESSAGE DATA STORE
230
510
YES
NO
YES
NO
YES
NO

FIG. 7