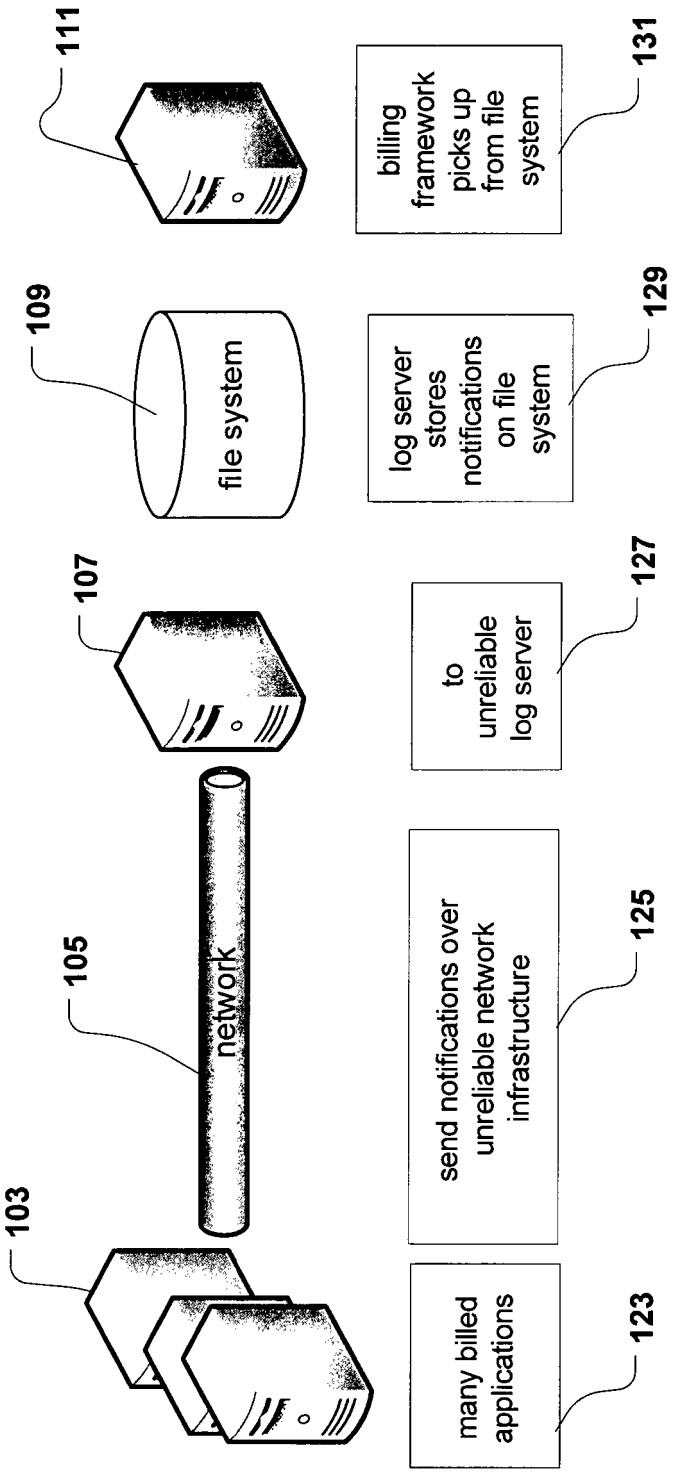


FIGURE 1
PRIOR ART

FIGURE 2

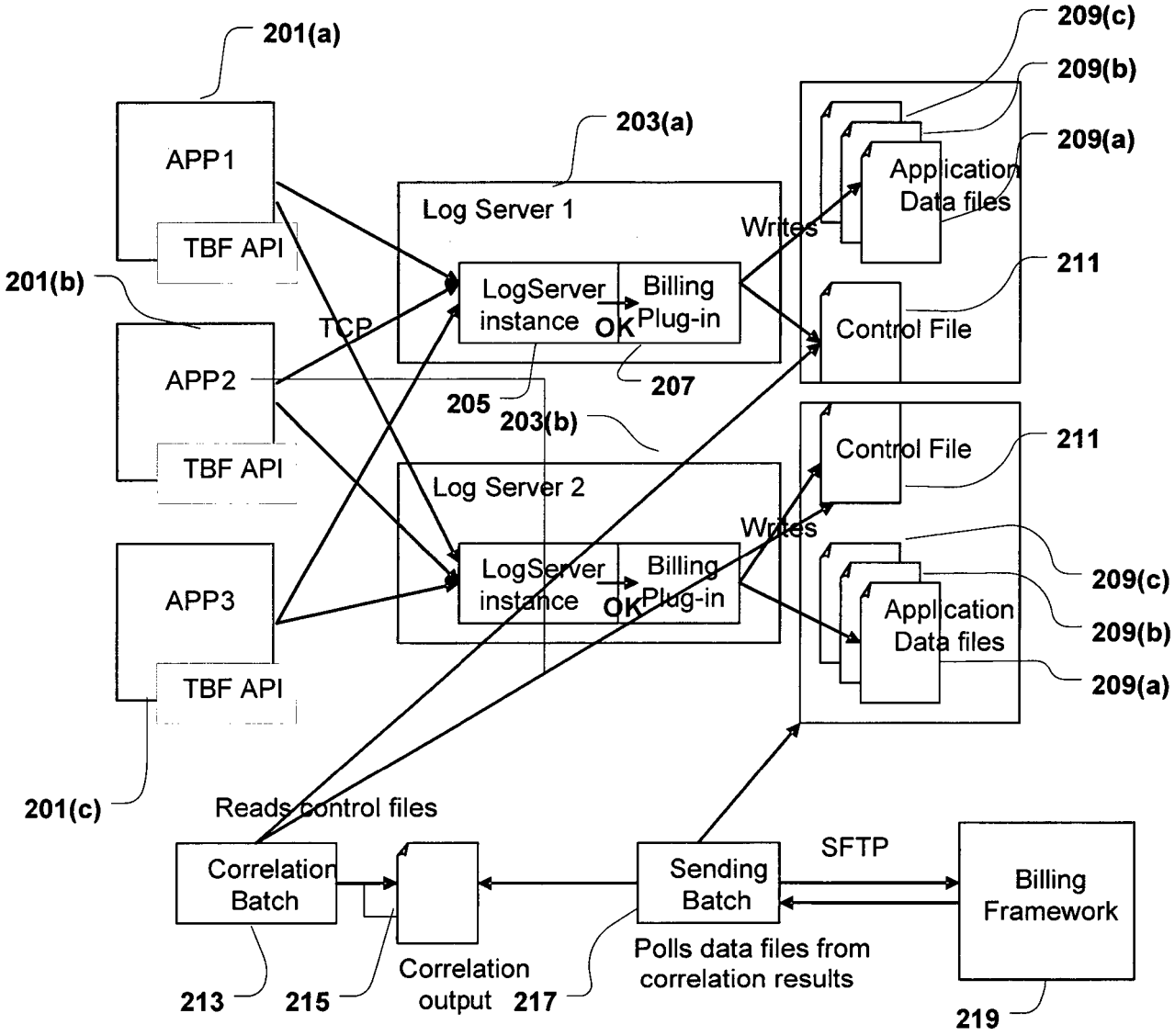
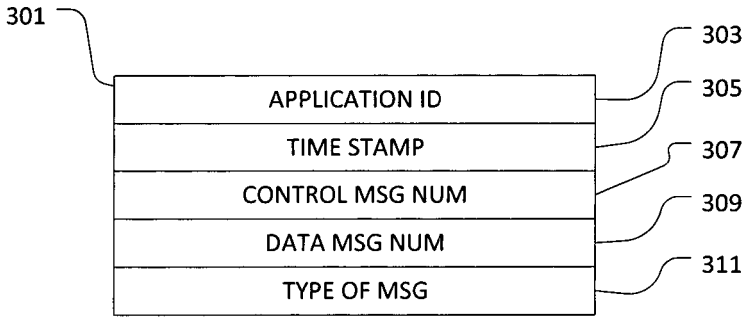

201(a)
APP1
TBF API
201(b)
APP2
TBF API
APP3
TBF API
201(c)
TCP
203(a)
Log Server 1
LogServer instance
OK
Billing Plug-in
205
207
203(b)
Log Server 2
LogServer instance
OK
Billing Plug-in
Writes
Writes
209(c)
209(b)
209(a)
Application Data files
211
Control File
Control File
211
209(c)
209(b)
209(a)
Application Data files
Reads control files
Correlation Batch
213
215
Correlation output
217
Sending Batch
Polls data files from correlation results
SFTP
Billing Framework
219

FIGURE 3



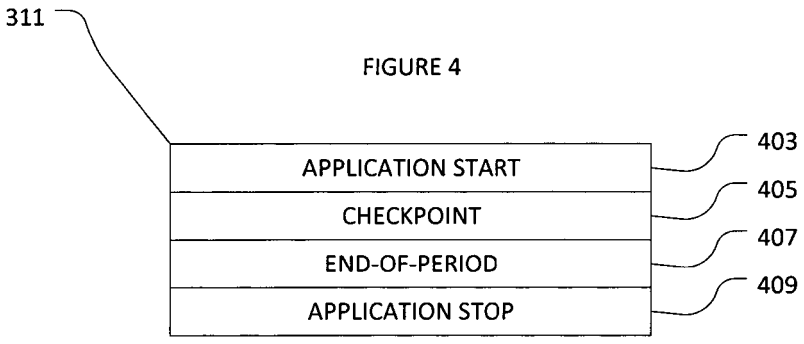


FIGURE 4

FIGURE 5

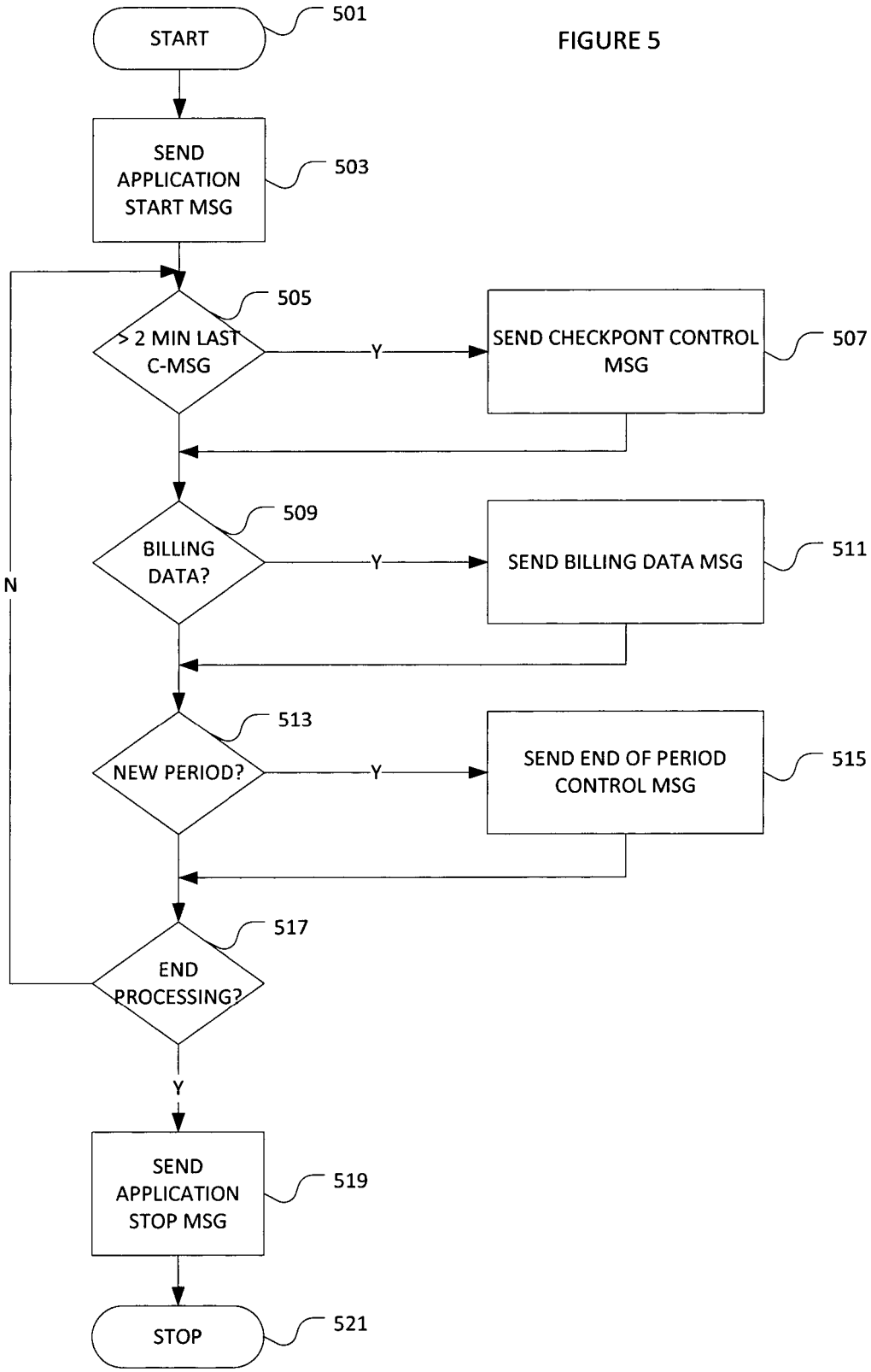

START
501
SEND APPLICATION START MSG
503
> 2 MIN LAST C-MSG
505
Y
SEND CHECKPONT CONTROL MSG
507
BILLING DATA?
509
Y
SEND BILLING DATA MSG
511
N
NEW PERIOD?
513
Y
SEND END OF PERIOD CONTROL MSG
515
END PROCESSING?
517
Y
SEND APPLICATION STOP MSG
519
STOP
521

FIGURE 6

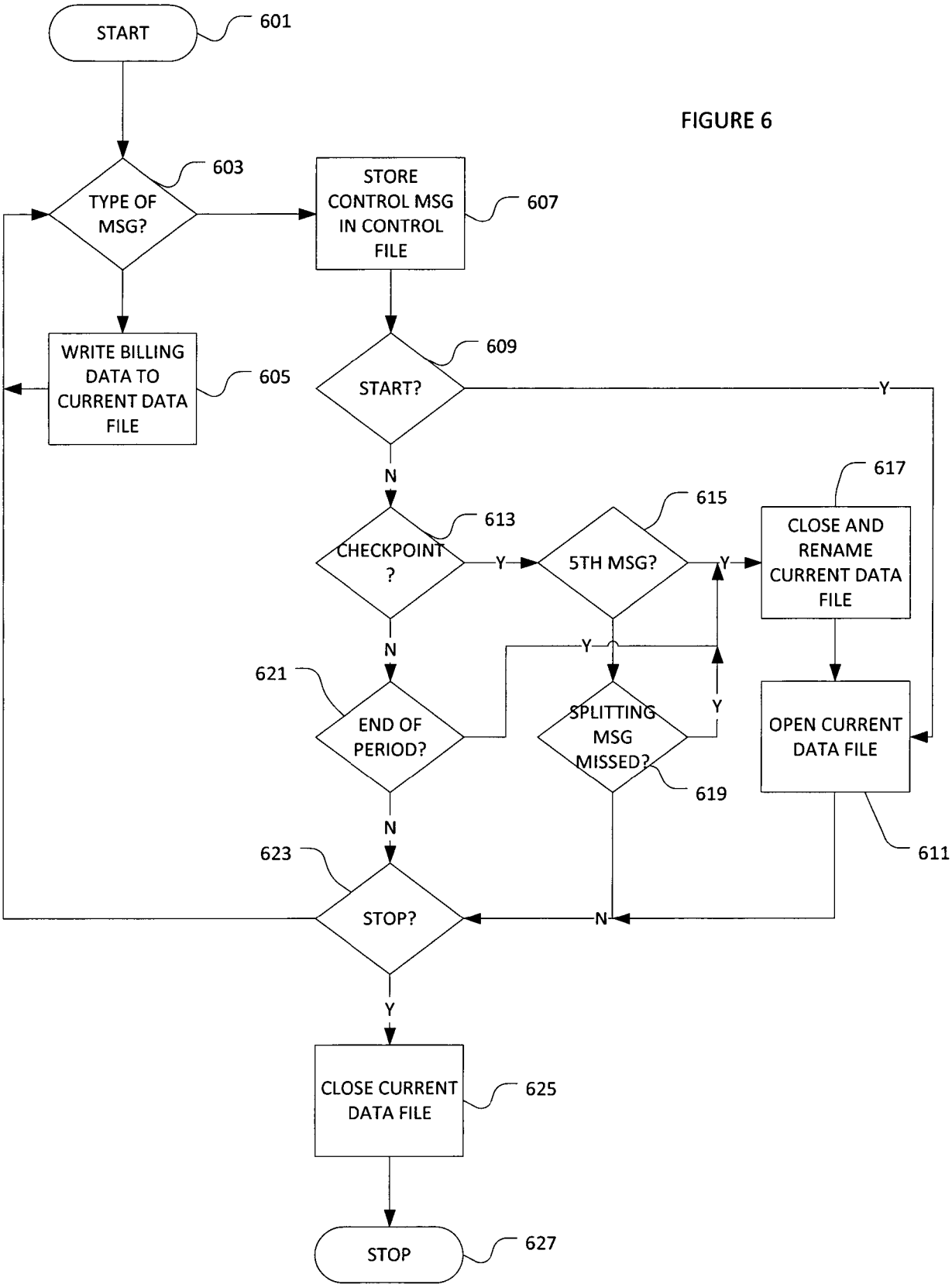

START
601
TYPE OF MSG?
603
STORE CONTROL MSG IN CONTROL FILE
607
WRITE BILLING DATA TO CURRENT DATA FILE
605
START?
609
Y
N
CHECKPOINT ?
613
Y
5TH MSG?
615
Y
CLOSE AND RENAME CURRENT DATA FILE
617
N
Y
621
END OF PERIOD?
SPLITTING MSG MISSED?
619
Y
OPEN CURRENT DATA FILE
611
N
623
STOP?
N
Y
CLOSE CURRENT DATA FILE
625
STOP
627

FIGURE 7

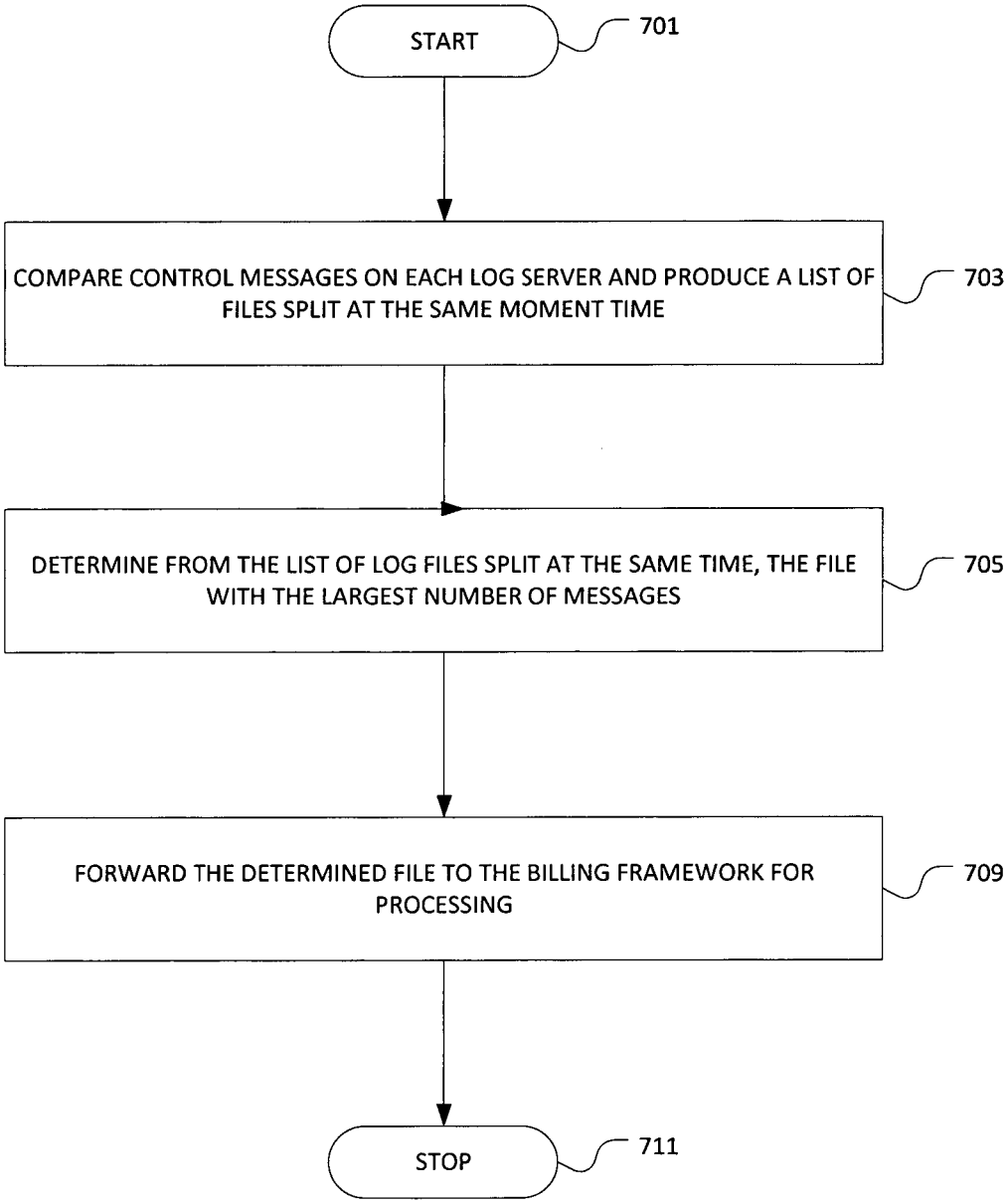
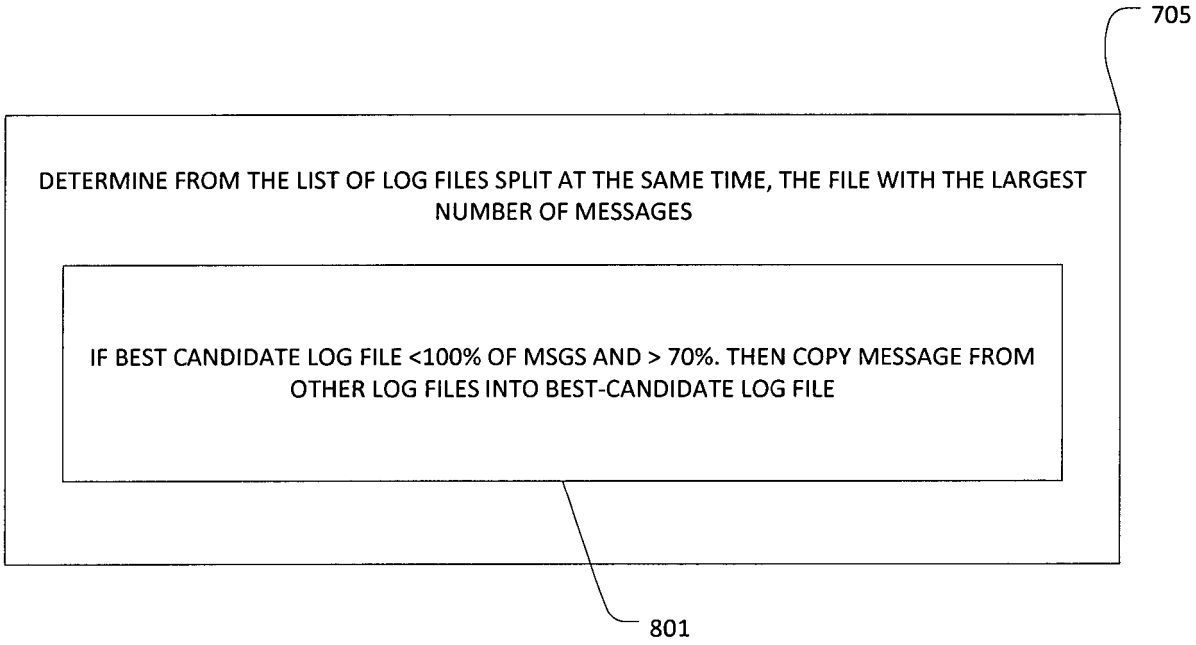

START
701
COMPARE CONTROL MESSAGES ON EACH LOG SERVER AND PRODUCE A LIST OF FILES SPLIT AT THE SAME MOMENT TIME
703
DETERMINE FROM THE LIST OF LOG FILES SPLIT AT THE SAME TIME, THE FILE WITH THE LARGEST NUMBER OF MESSAGES
705
FORWARD THE DETERMINED FILE TO THE BILLING FRAMEWORK FOR PROCESSING
709
STOP
711

FIGURE 8


705
DETERMINE FROM THE LIST OF LOG FILES SPLIT AT THE SAME TIME, THE FILE WITH THE LARGEST NUMBER OF MESSAGES
IF BEST CANDIDATE LOG FILE <100% OF MSGS AND > 70%. THEN COPY MESSAGE FROM OTHER LOG FILES INTO BEST-CANDIDATE LOG FILE
801

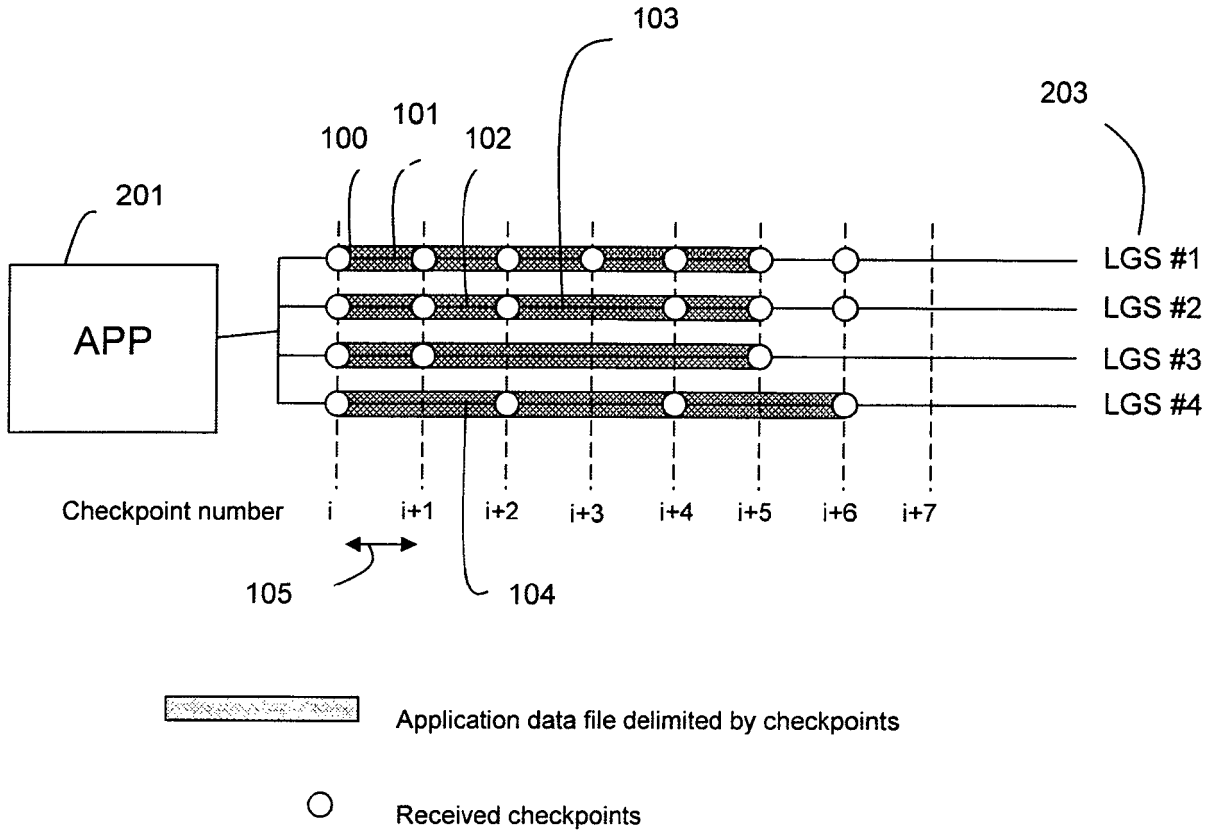

103
203
101
100
102
201
APP
LGS #1
LGS #2
LGS #3
LGS #4
Checkpoint number
i
i+1
i+2
i+3
i+4
i+5
i+6
i+7
105
104
Application data file delimited by checkpoints
Received checkpoints

FIGURE 9

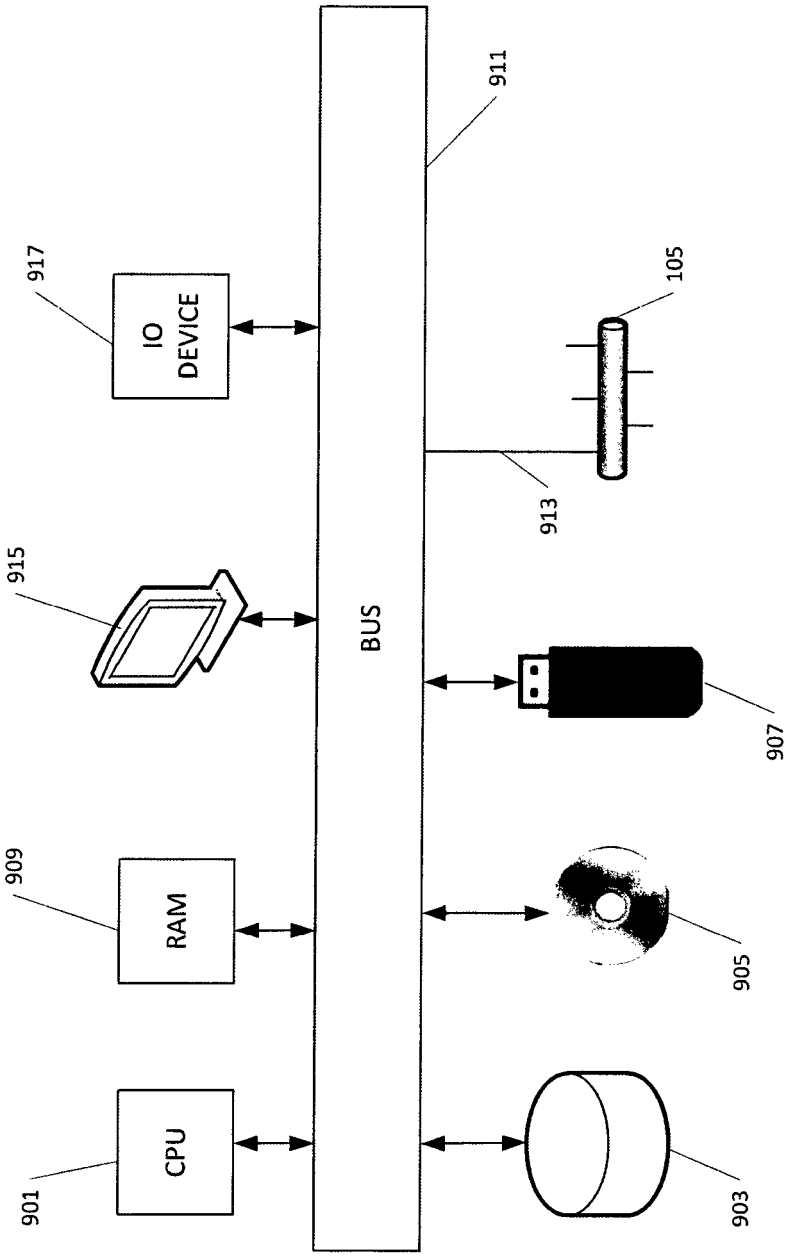



FIGURE 10