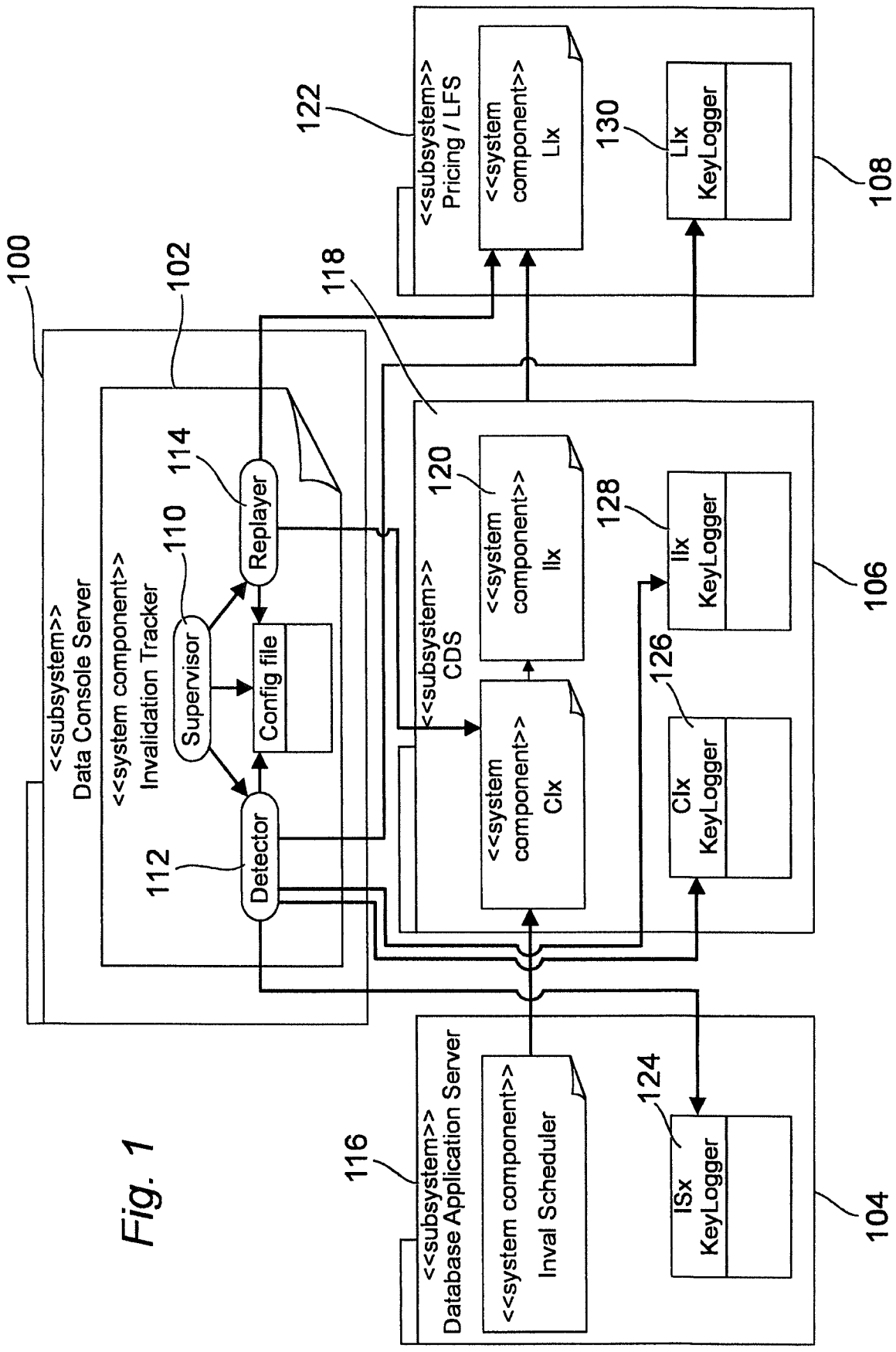

100
102
104
106
108
110
112
114
116
118
120
122
124
126
128
130
<<subsystem>>
Data Console Server
<<system component>>
Invalidation Tracker
Supervisor
Replayer
Detector
Config file
<<subsystem>>
Database Application Server
<<system component>>
Inval Scheduler
ISx
KeyLogger
<<subsystem>>
CDS
<<system component>>
Clx
Clx
KeyLogger
<<system component>>
Ilx
Ilx
KeyLogger
<<subsystem>>
Pricing / LFS
<<system component>>
Llx
Llx
KeyLogger

Fig. 1

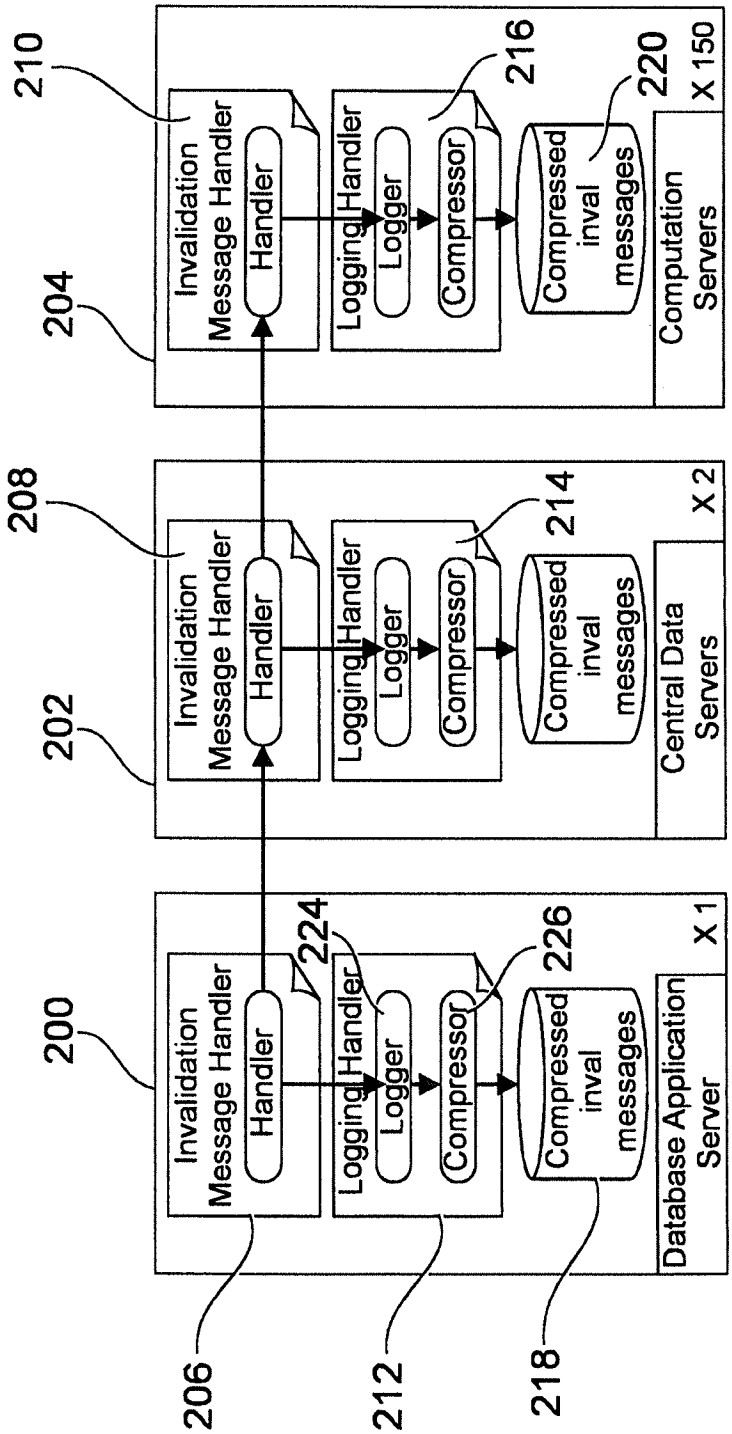

210
204
208
202
200
206
212
218
224
226
216
214
220
Invalidation Message Handler
Handler
Logging Handler
Logger
Compressor
Compressed inval messages
Computation Servers
X 150
Central Data Servers
X 2
Database Application Server
X 1

Fig. 2

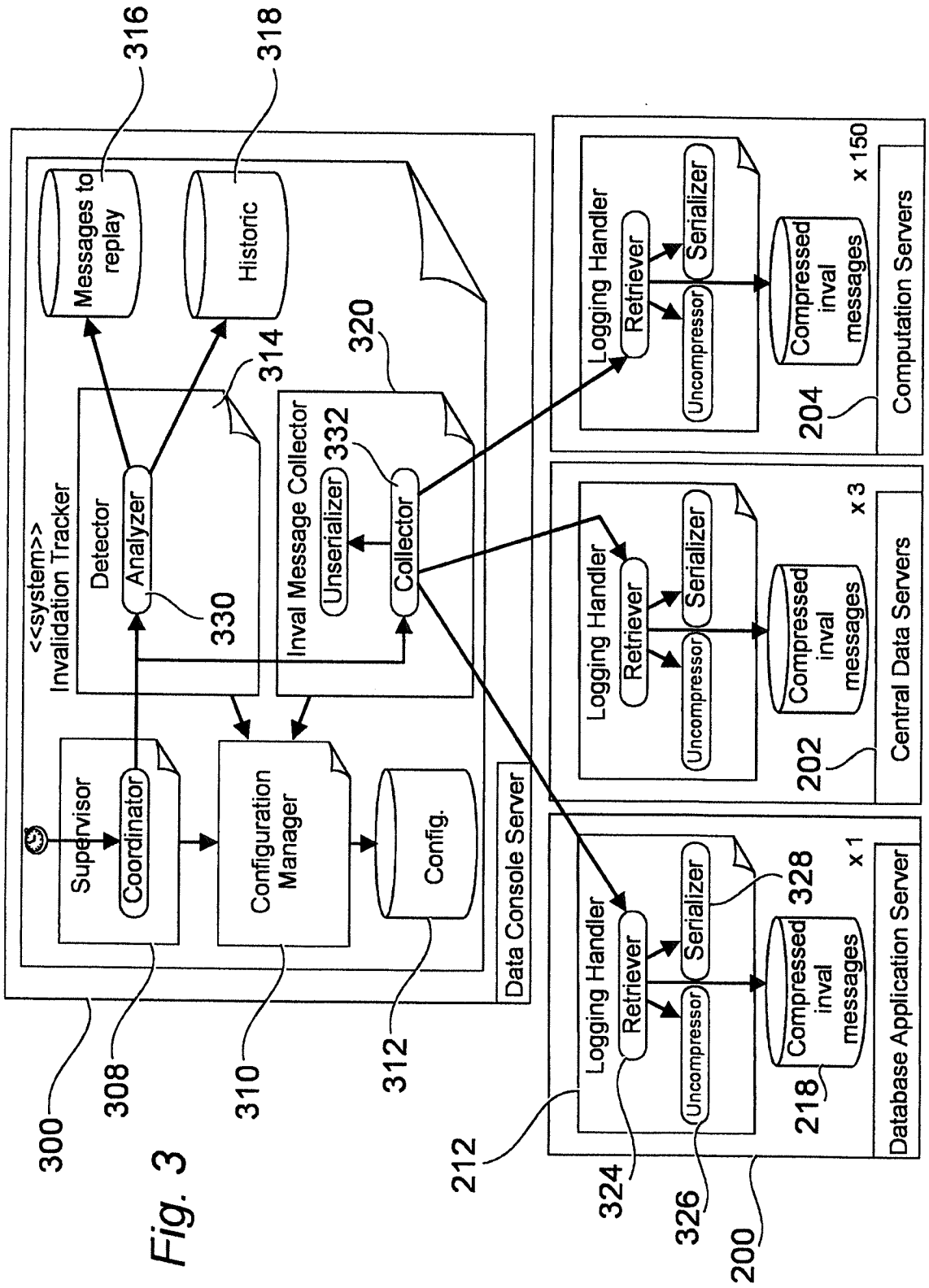

316
318
Messages to replay
Historic
<<system>>
Invalidation Tracker
Detector
Analyzer
314
330
Inval Message Collector
Unserializer
332
Collector
320
Supervisor
Coordinator
Configuration Manager
Config.
Data Console Server
300
308
310
312
Logging Handler
Retriever
Uncompressor
Serializer
Compressed inval messages
x 150
204
Computation Servers
Logging Handler
Retriever
Uncompressor
Serializer
Compressed inval messages
x 3
202
Central Data Servers
Logging Handler
Retriever
Uncompressor
Serializer
328
Compressed inval messages
x 1
218
Database Application Server
212
324
326
200

Fig. 3

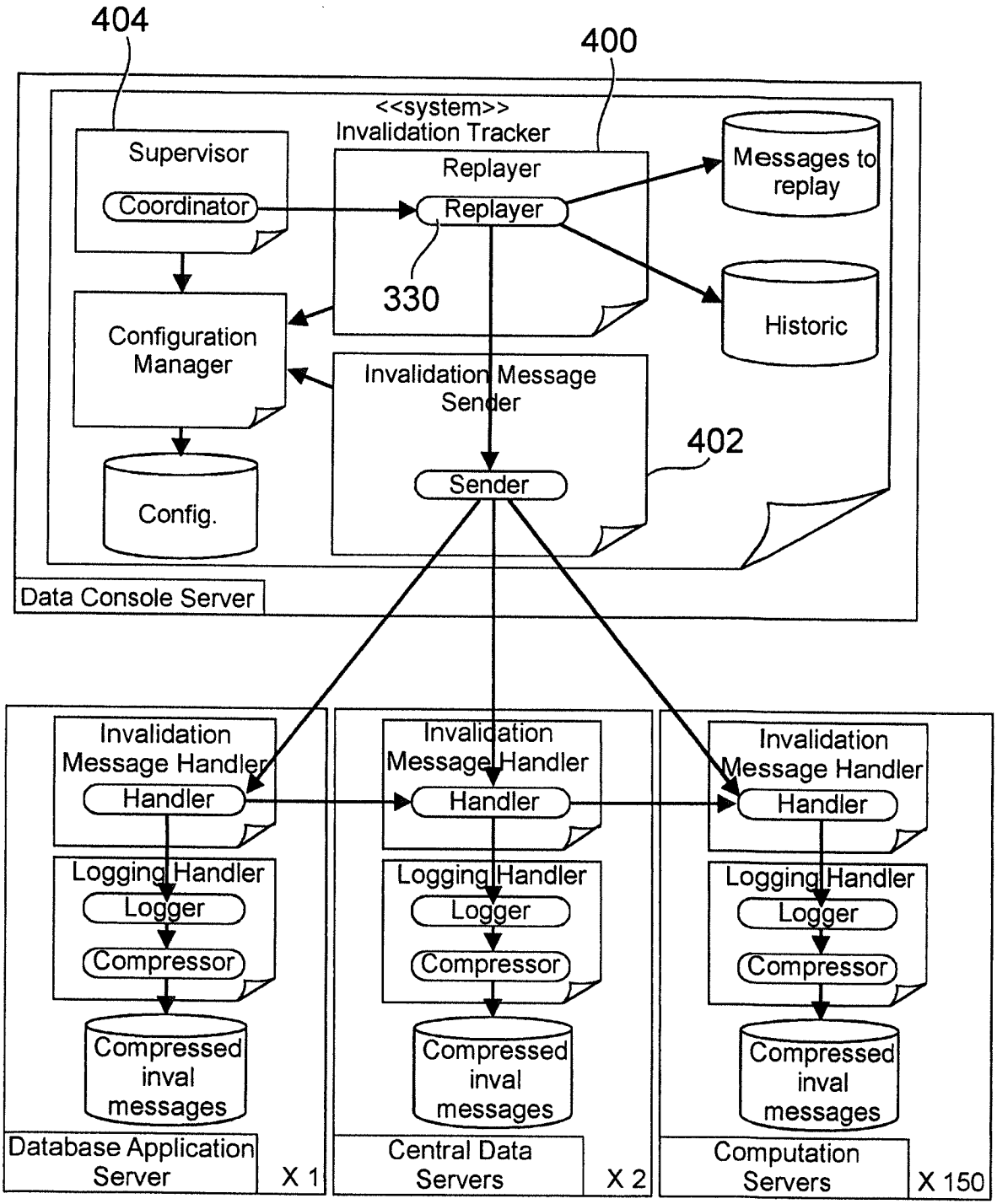

404
400
<<system>>
Invalidation Tracker
Supervisor
Coordinator
Replayer
Replayer
Messages to replay
330
Historic
Configuration Manager
Invalidation Message Sender
402
Sender
Config.
Data Console Server
Invalidation Message Handler
Handler
Logging Handler
Logger
Compressor
Compressed inval messages
Database Application Server
X 1
Central Data Servers
X 2
Computation Servers
X 150

Fig. 4

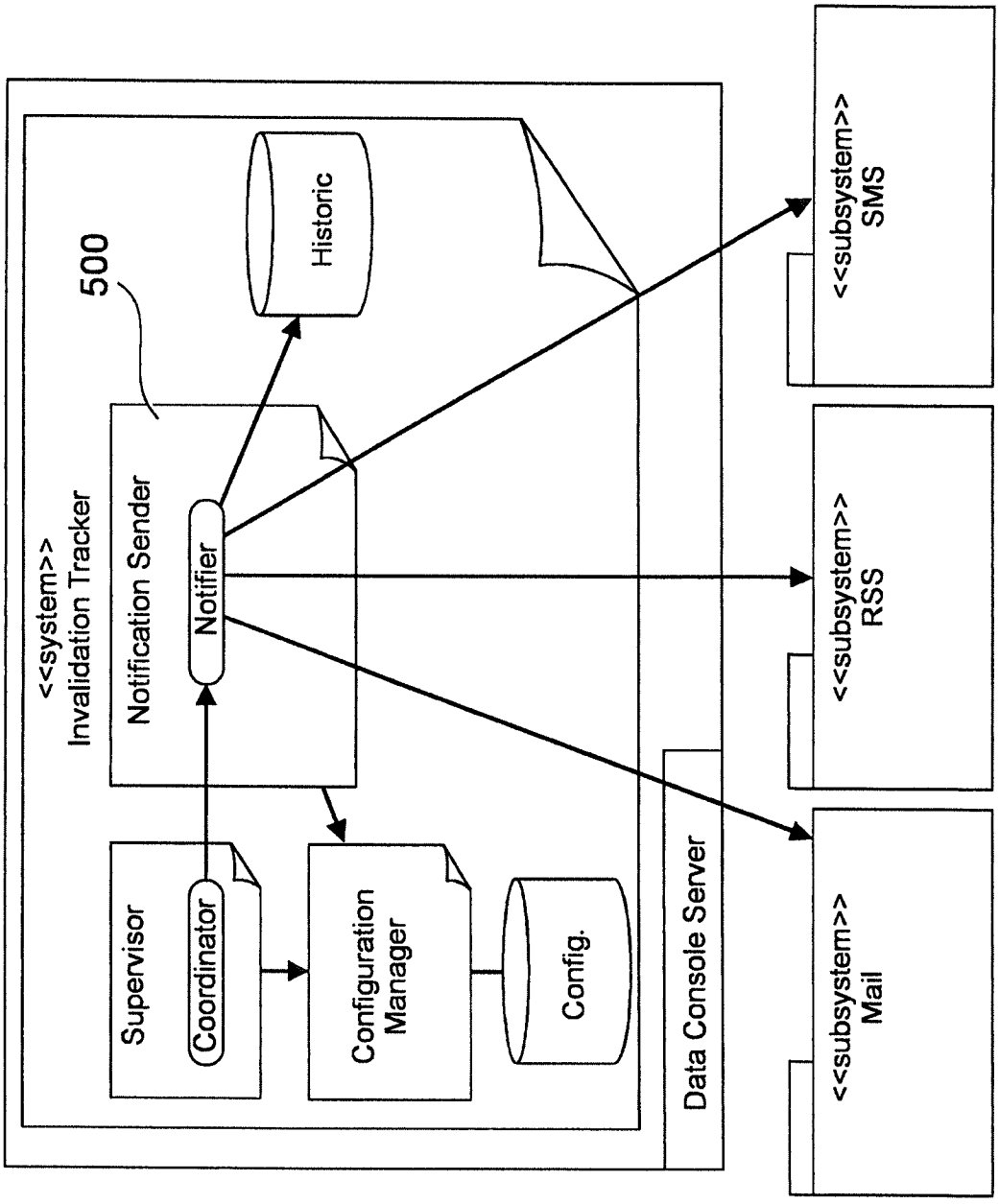

500
<<system>>
Invalidation Tracker
Notification Sender
Notifier
Historic
Supervisor
Coordinator
Configuration Manager
Config.
Data Console Server
<<subsystem>>
SMS
<<subsystem>>
RSS
<<subsystem>>
Mail

Fig. 5

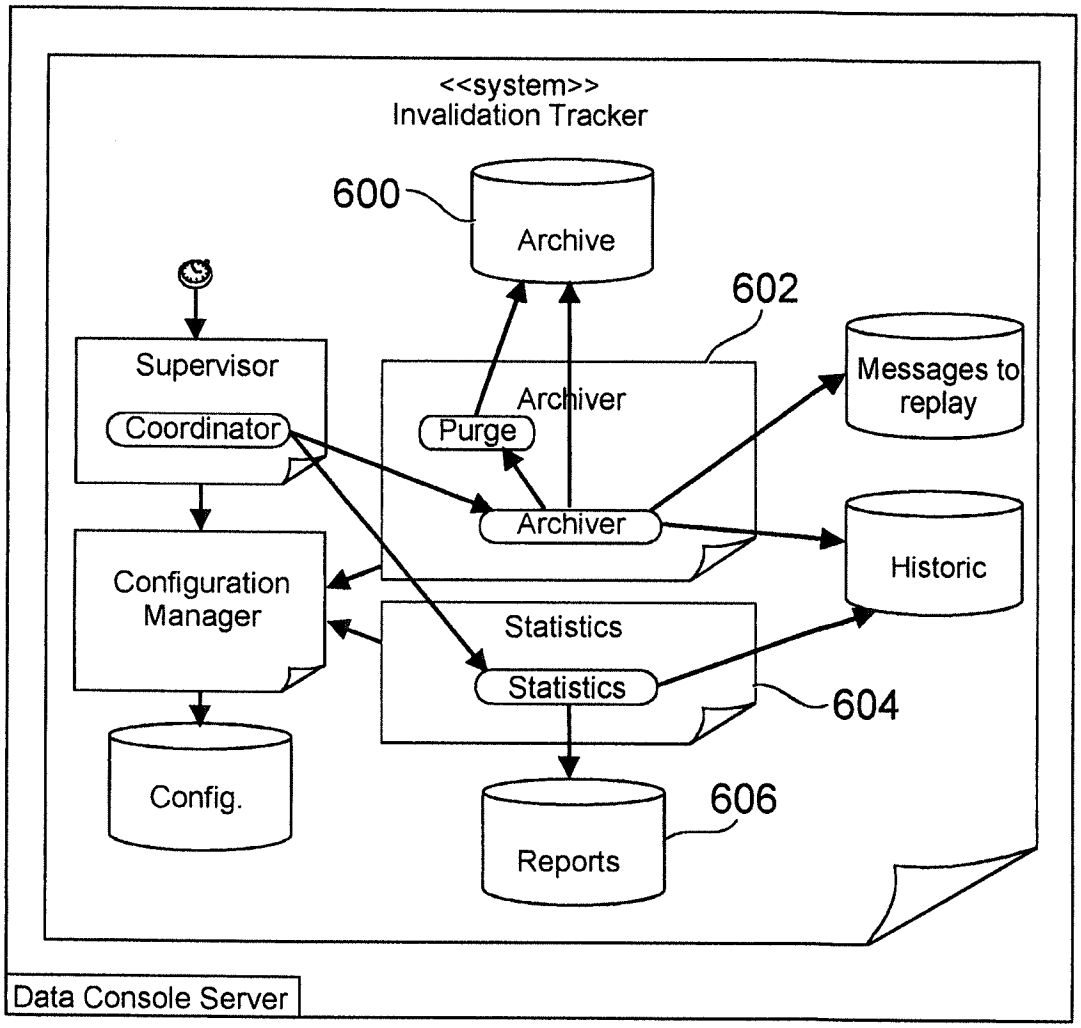

<<system>>
Invalidation Tracker
600
Archive
602
Supervisor
Coordinator
Archiver
Purge
Archiver
Messages to replay
Historic
Configuration Manager
Statistics
Statistics
604
Config.
606
Reports
Data Console Server

Fig. 6

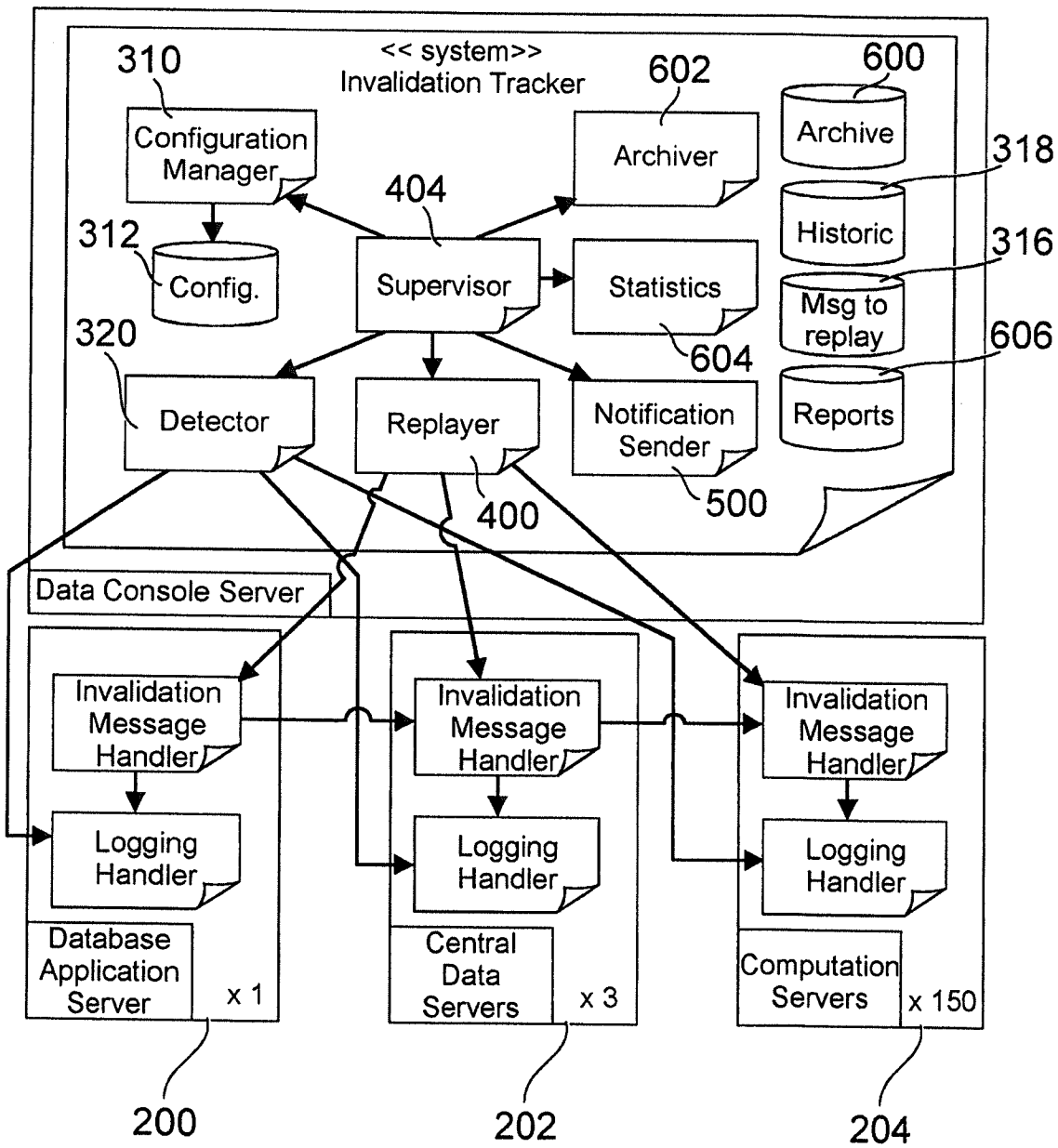

310
<< system>>
Invalidation Tracker
602
600
Configuration Manager
Archiver
Archive
318
404
Historic
312
316
Config.
Supervisor
Statistics
Msg to replay
320
606
604
Detector
Replayer
Notification Sender
Reports
500
400
Data Console Server
Invalidation Message Handler
Invalidation Message Handler
Invalidation Message Handler
Logging Handler
Logging Handler
Logging Handler
Database Application Server
x 1
Central Data Servers
x 3
Computation Servers
x 150
200
202
204

Fig. 7

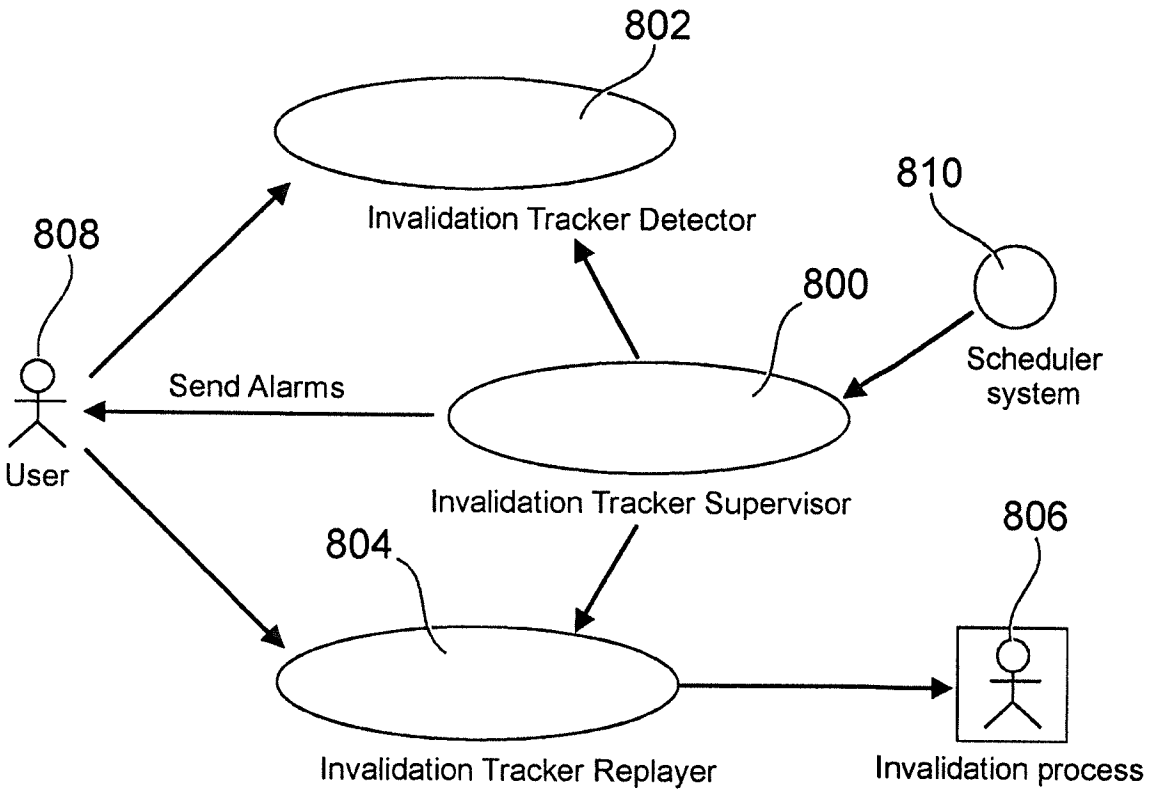

802
Invalidation Tracker Detector
810
808
800
Scheduler system
Send Alarms
User
Invalidation Tracker Supervisor
806
804
Invalidation Tracker Replayer
Invalidation process

Fig. 8

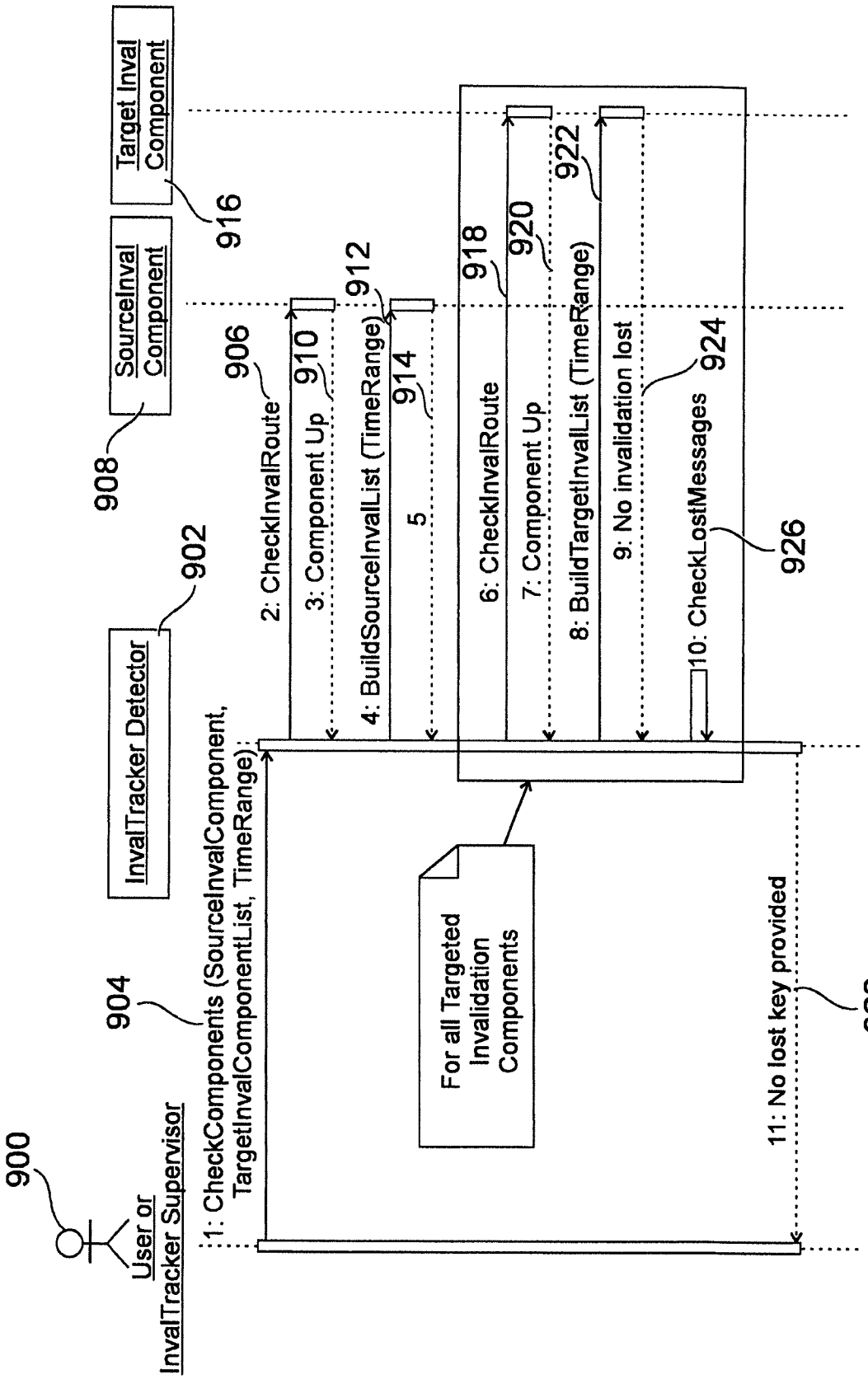

900
User or InvalTracker Supervisor
InvalTracker Detector
902
SourceInval Component
908
Target Inval Component
916
1: CheckComponents (SourceInvalComponent, TargetInvalComponentList, TimeRange);
904
2: CheckInvalRoute
906
3: Component Up
910
4: BuildSourceInvalList (TimeRange)
912
5
914
6: CheckInvalRoute
918
7: Component Up
920
8: BuildTargetInvalList (TimeRange)
922
9: No invalidation lost
10: CheckLostMessages
924
926
For all Targeted Invalidation Components
11: No lost key provided
928

Fig. 9

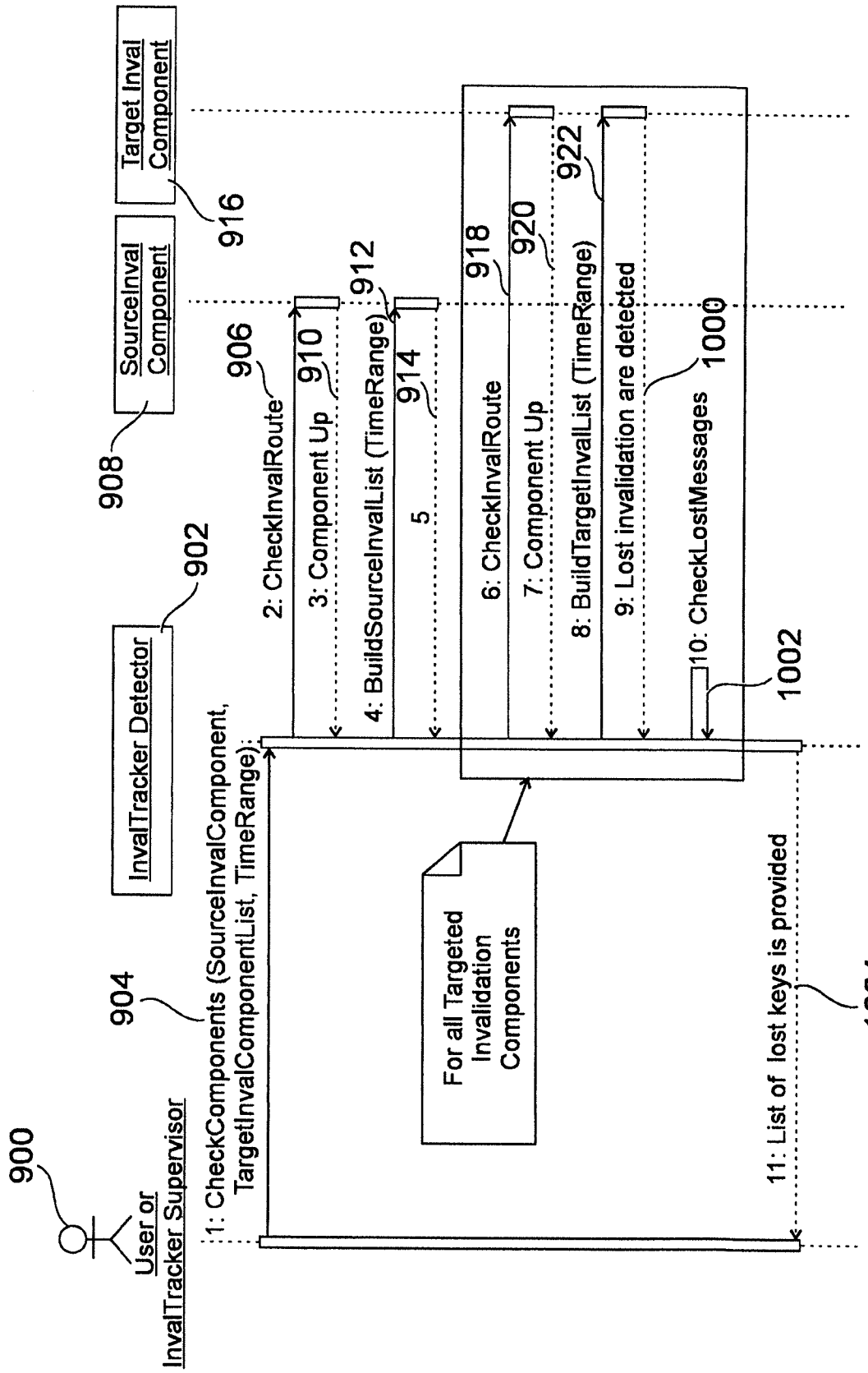

900
User or InvalTracker Supervisor
904
1: CheckComponents (SourceInvalComponent, TargetInvalComponentList, TimeRange);
InvalTracker Detector
902
908
SourceInval Component
916
Target Inval Component
906
2: CheckInvalRoute
910
3: Component Up
912
4: BuildSourceInvalList (TimeRange)
914
5
For all Targeted Invalidation Components
918
6: CheckInvalRoute
920
7: Component Up
922
8: BuildTargetInvalList (TimeRange)
9: Lost invalidation are detected
1000
10: CheckLostMessages
1002
11: List of lost keys is provided
1004

Fig. 10

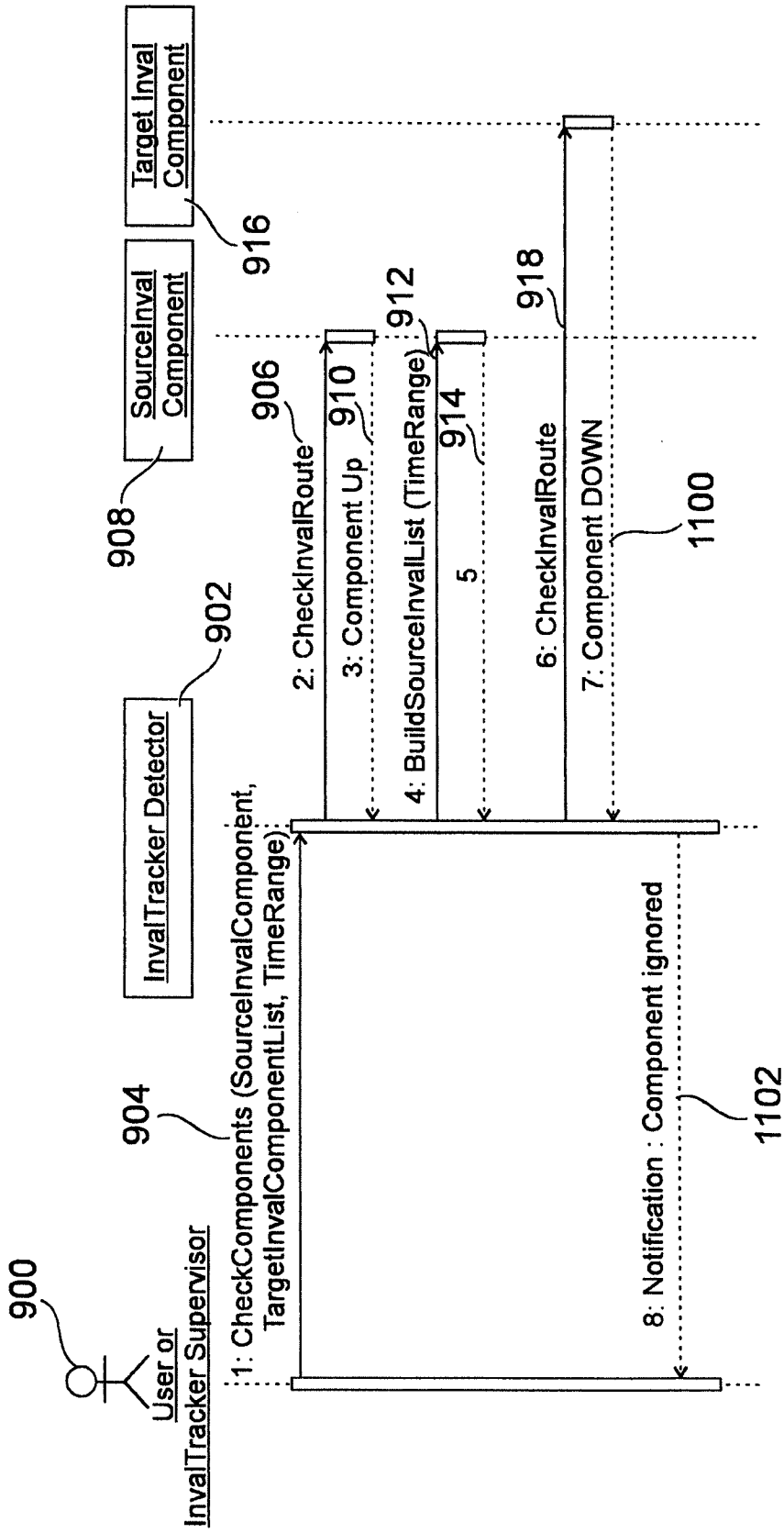

900
User or
InvalTracker Supervisor
904
1: CheckComponents (SourceInvalComponent,
TargetInvalComponentList, TimeRange);
InvalTracker Detector
902
908
SourceInval
Component
906
2: CheckInvalRoute
910
3: Component Up
912
4: BuildSourceInvalList (TimeRange)
914
5
916
Target Inval
Component
918
6: CheckInvalRoute
1100
7: Component DOWN
1102
8: Notification : Component ignored

Fig. 11

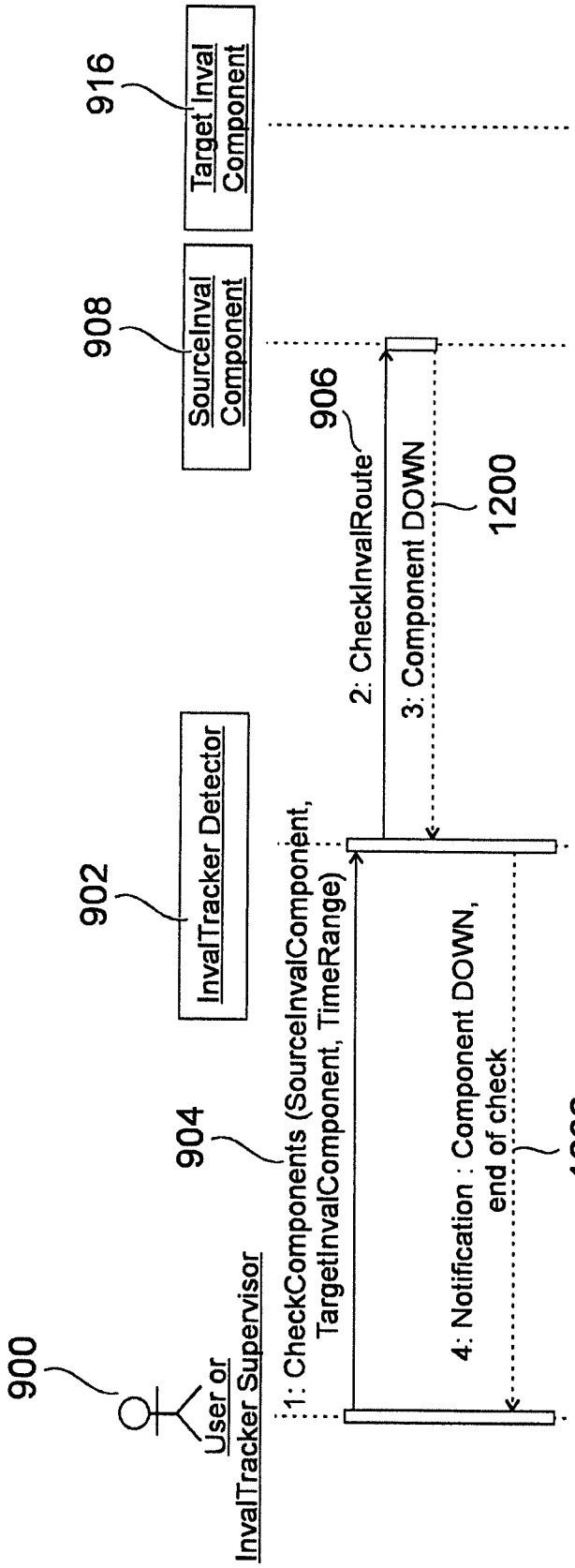

900
User or
InvalTracker Supervisor
902
InvalTracker Detector
904
1: CheckComponents (SourceInvalComponent, TargetInvalComponent, TimeRange)
906
2: CheckInvalRoute
908
SourceInval Component
916
Target Inval Component
1200
3: Component DOWN
1202
4: Notification : Component DOWN, end of check

Fig. 12

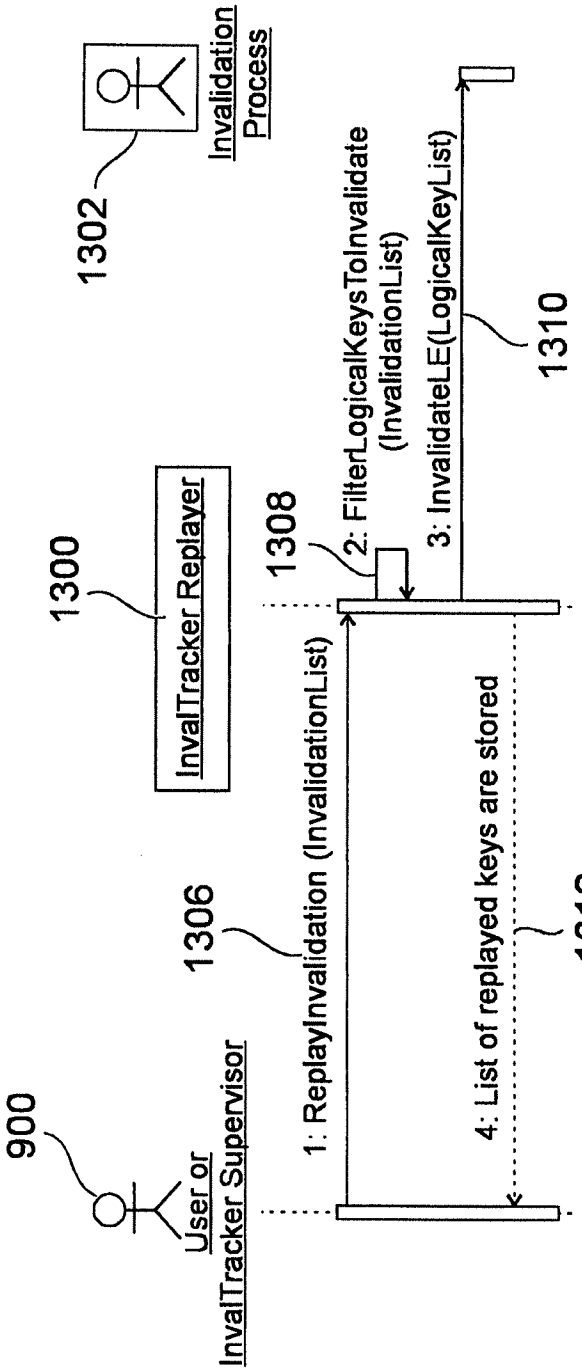

900
User or
InvalTracker Supervisor
1300
InvalTracker Replayer
1302
Invalidation
Process
1306
1: ReplayInvalidation (InvalidationList)
1308
2: FilterLogicalKeysToInvalidate
(InvalidationList)
3: InvalidateLE(LogicalKeyList)
1310
4: List of replayed keys are stored
1312

Fig. 13

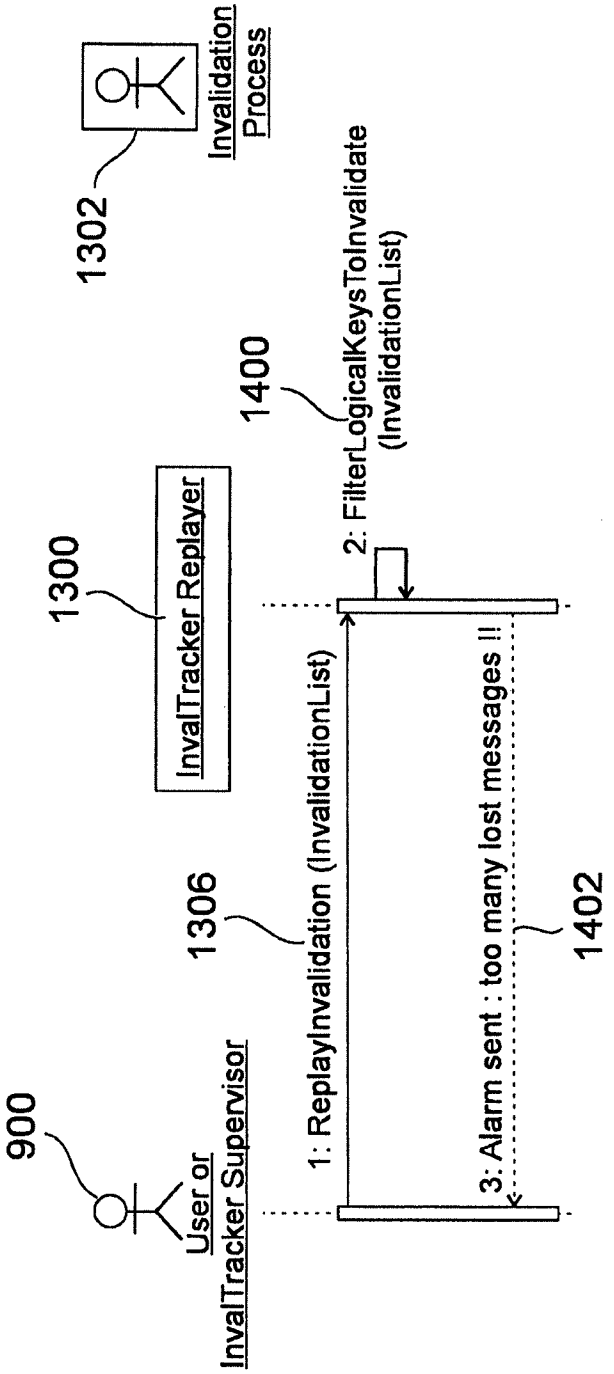

900
User or
InvalTracker Supervisor
1306
1: ReplayInvalidation (InvalidationList)
1300
InvalTracker Replayer
1400
2: FilterLogicalKeysToInvalidate
(InvalidationList)
1302
Invalidation
Process
3: Alarm sent : too many lost messages !!
1402

Fig. 14

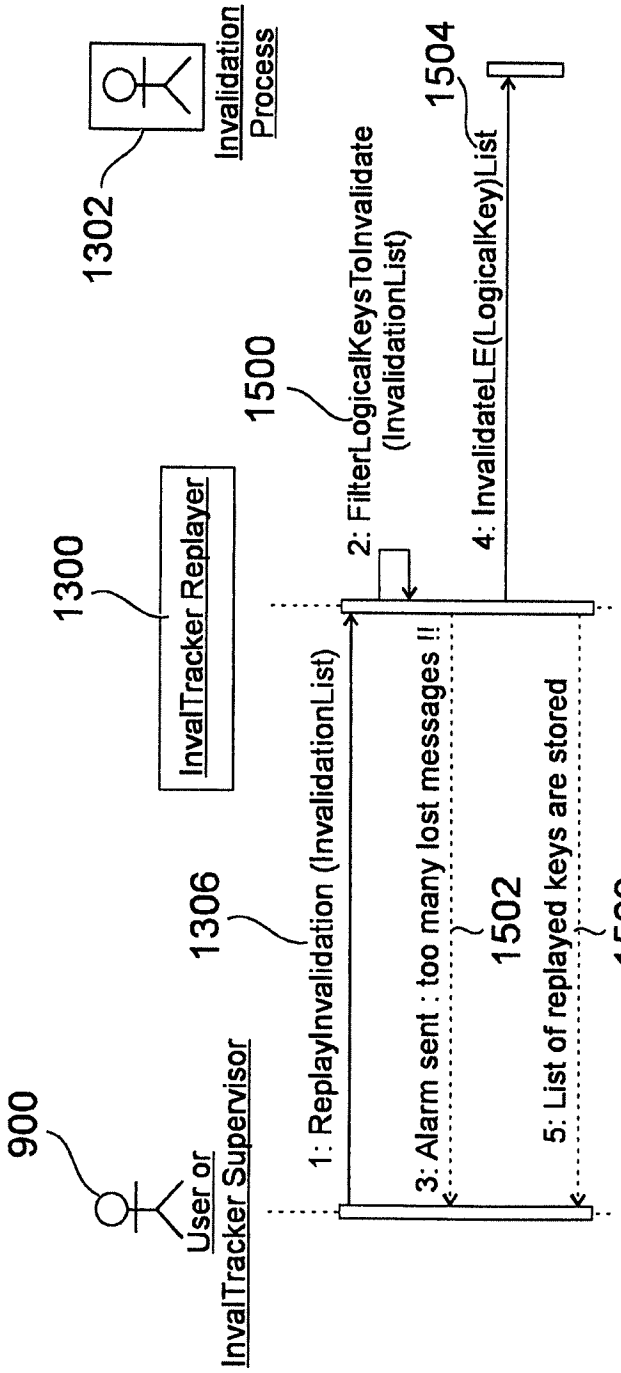

900
User or
InvalTracker Supervisor
1306
1: ReplayInvalidation (InvalidationList)
1300
InvalTracker Replayer
1500
2: FilterLogicalKeysToInvalidate
(InvalidationList)
1504
4: InvalidateLE(LogicalKey)List
1302
Invalidation
Process
1502
3: Alarm sent : too many lost messages !!
1506
5: List of replayed keys are stored

Fig. 15

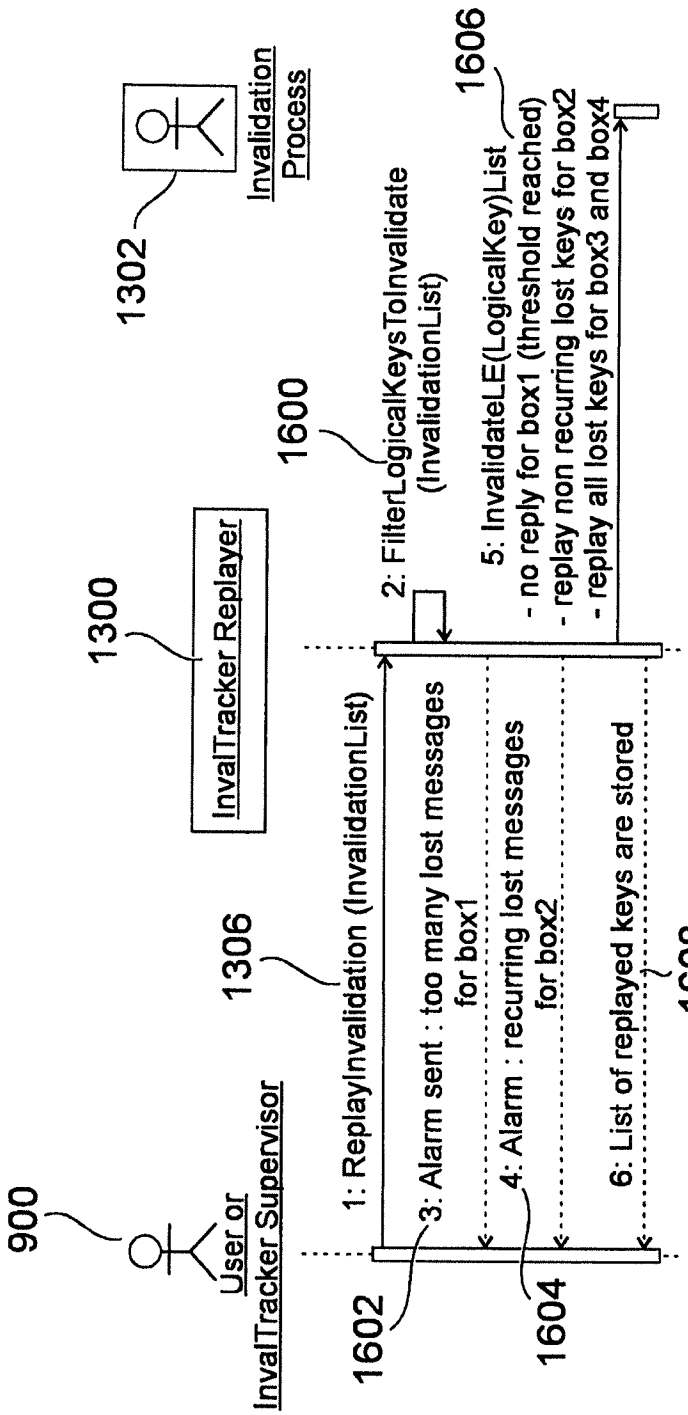

900
User or
InvalTracker Supervisor
1300
InvalTracker Replayer
1302
Invalidation
Process
1306
1: ReplayInvalidation (InvalidationList)
1600
2: FilterLogicalKeysToInvalidate
(InvalidationList)
1602
3: Alarm sent : too many lost messages
for box1
1604
4: Alarm : recurring lost messages
for box2
1606
5: InvalidateLE(LogicalKey)List
- no reply for box1 (threshold reached)
- replay non recurring lost keys for box2
- replay all lost keys for box3 and box4
1608
6: List of replayed keys are stored

Fig. 16

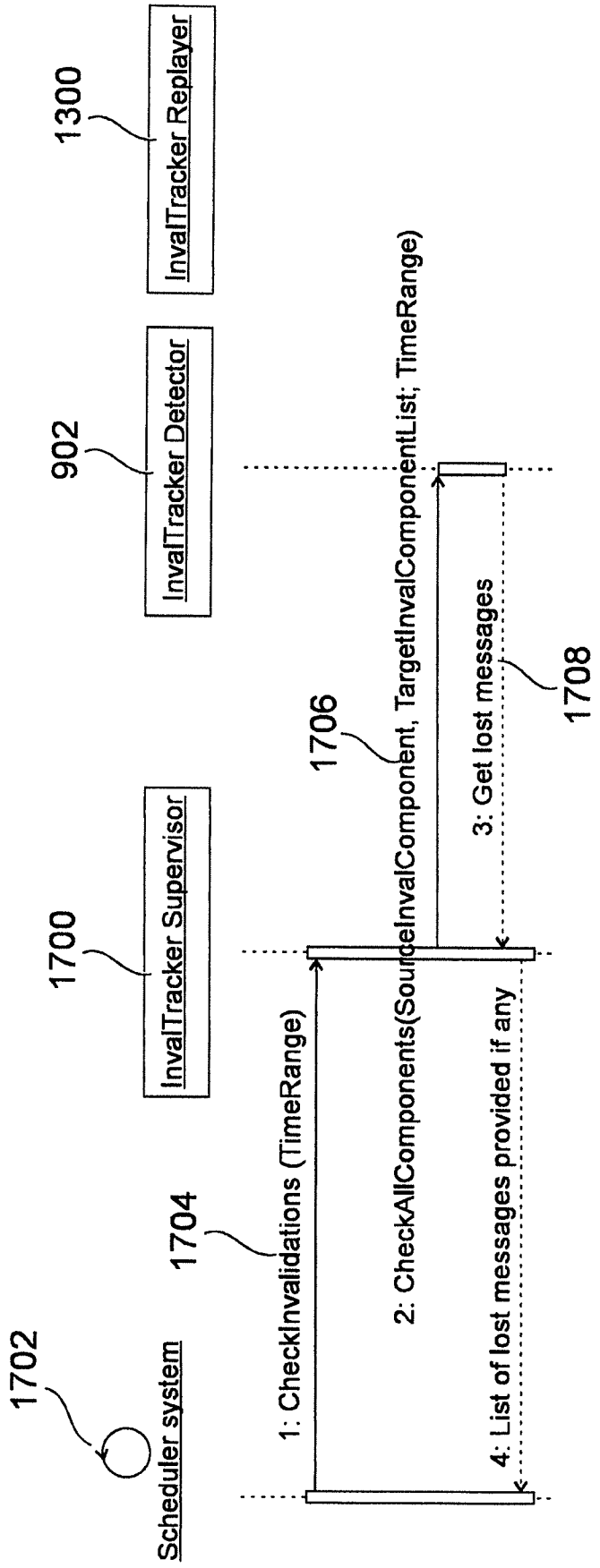

1300
InvalTracker Replayer
902
InvalTracker Detector
1700
InvalTracker Supervisor
1706
1708
1704
1702
Scheduler system
1: CheckInvalidations (TimeRange)
2: CheckAllComponents(SourceInvalComponent, TargetInvalComponentList; TimeRange)
3: Get lost messages
4: List of lost messages provided if any

Fig. 17

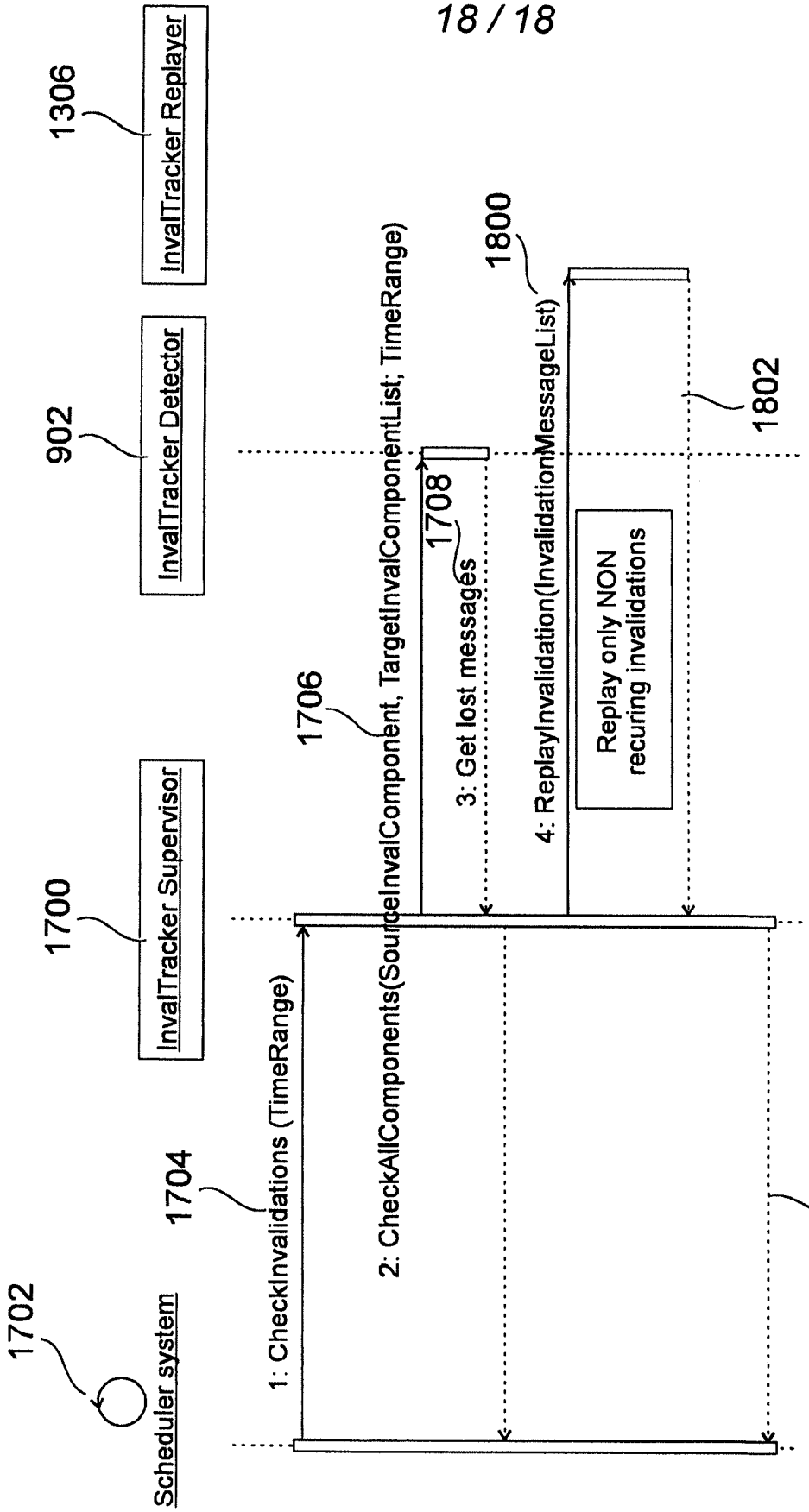

1306
InvalTracker Replayer
902
InvalTracker Detector
1700
InvalTracker Supervisor
1702
Scheduler system
1704
1: CheckInvalidations (TimeRange)
1706
2: CheckAllComponents(SourceInvalComponent, TargetInvalComponentList; TimeRange)
1708
3: Get lost messages
1800
4: ReplayInvalidation(InvalidationMessageList)
Replay only NON recuring invalidations
1802
1804

Fig. 18