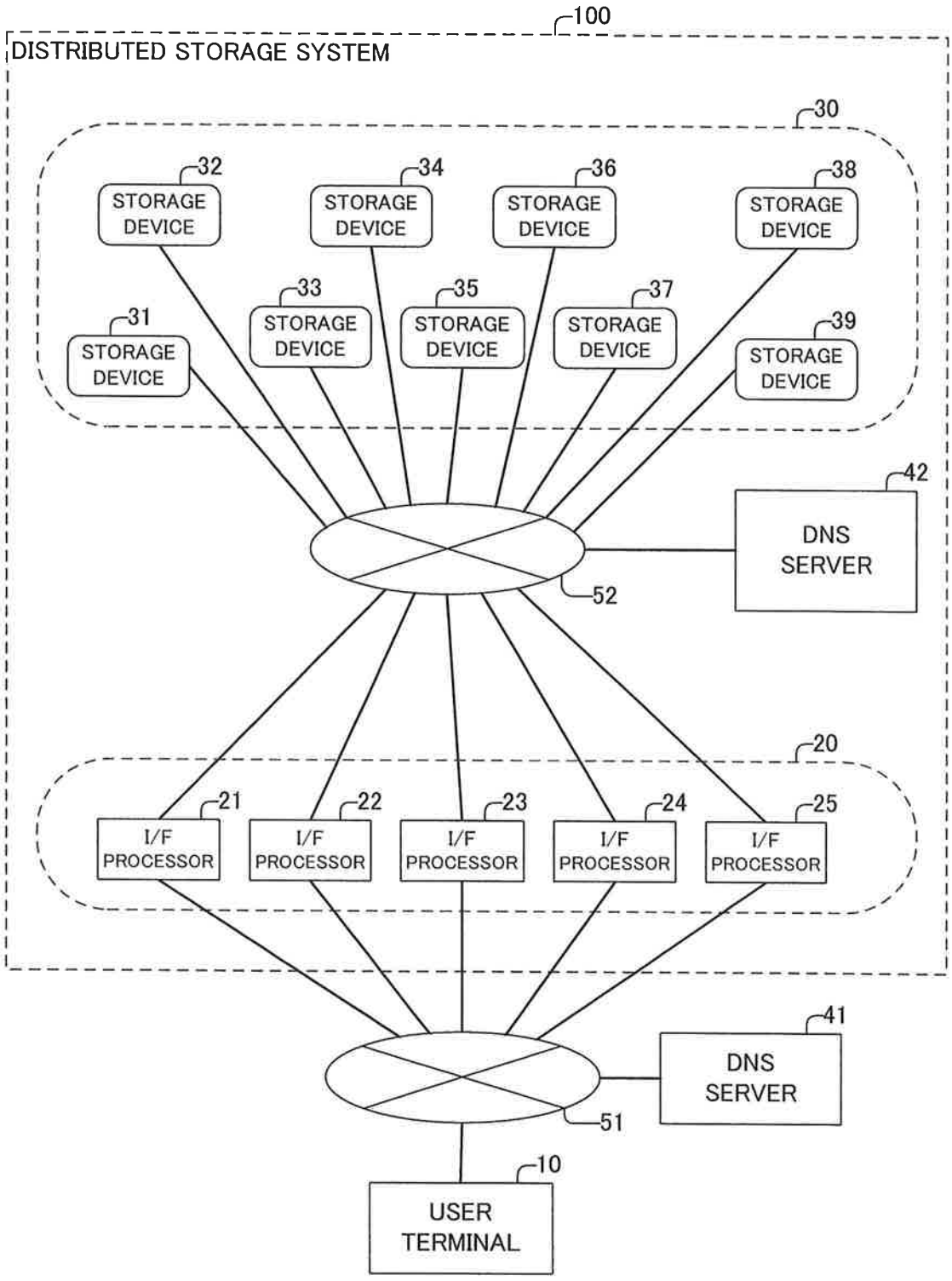

100
DISTRIBUTED STORAGE SYSTEM
30
32
STORAGE DEVICE
34
STORAGE DEVICE
36
STORAGE DEVICE
38
STORAGE DEVICE
33
STORAGE DEVICE
35
STORAGE DEVICE
37
STORAGE DEVICE
31
STORAGE DEVICE
39
STORAGE DEVICE
42
DNS SERVER
52
20
21
I/F PROCESSOR
22
I/F PROCESSOR
23
I/F PROCESSOR
24
I/F PROCESSOR
25
I/F PROCESSOR
41
DNS SERVER
51
10
USER TERMINAL

FIG. 1

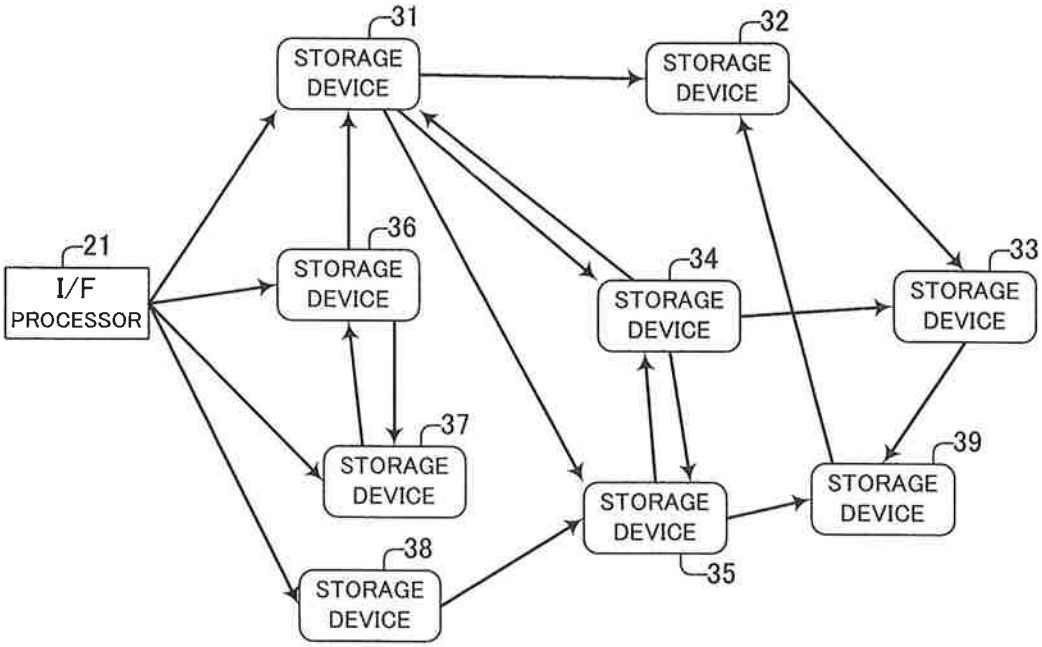
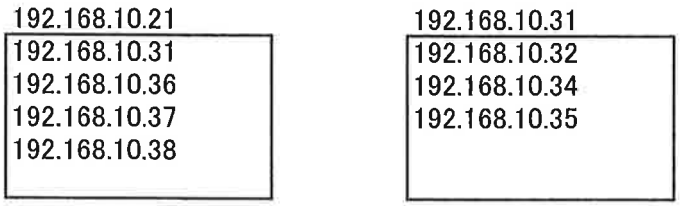

21
I/F
PROCESSOR
31
STORAGE DEVICE
32
STORAGE DEVICE
33
STORAGE DEVICE
34
STORAGE DEVICE
35
36
STORAGE DEVICE
37
STORAGE DEVICE
38
STORAGE DEVICE
39
STORAGE DEVICE

FIG. 2


192.168.10.21
192.168.10.31
192.168.10.36
192.168.10.37
192.168.10.38
192.168.10.31
192.168.10.32
192.168.10.34
192.168.10.35

(a) (b)

FIG. 3

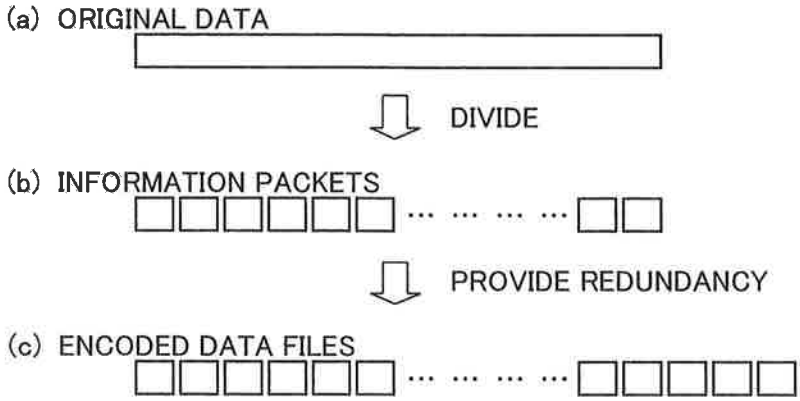

(a) ORIGINAL DATA
DIVIDE
(b) INFORMATION PACKETS
PROVIDE REDUNDANCY
(c) ENCODED DATA FILES

FIG. 4

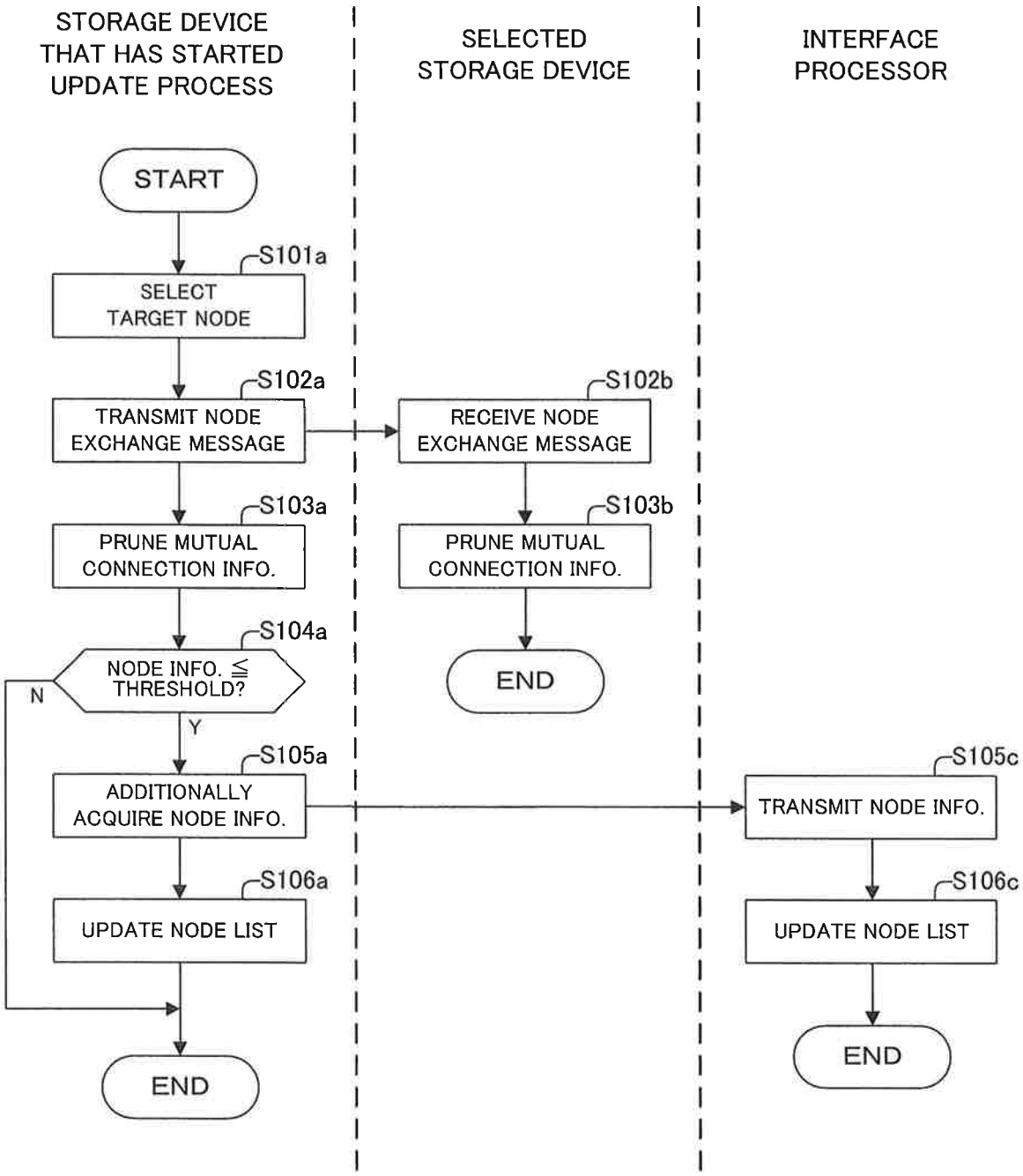

STORAGE DEVICE THAT HAS STARTED UPDATE PROCESS
SELECTED STORAGE DEVICE
INTERFACE PROCESSOR
START
S101a
SELECT TARGET NODE
S102a
TRANSMIT NODE EXCHANGE MESSAGE
S102b
RECEIVE NODE EXCHANGE MESSAGE
S103a
PRUNE MUTUAL CONNECTION INFO.
S103b
PRUNE MUTUAL CONNECTION INFO.
S104a
NODE INFO. ≦ THRESHOLD?
N
Y
END
S105a
ADDITIONALLY ACQUIRE NODE INFO.
S105c
TRANSMIT NODE INFO.
S106a
UPDATE NODE LIST
S106c
UPDATE NODE LIST
END
END

FIG. 5

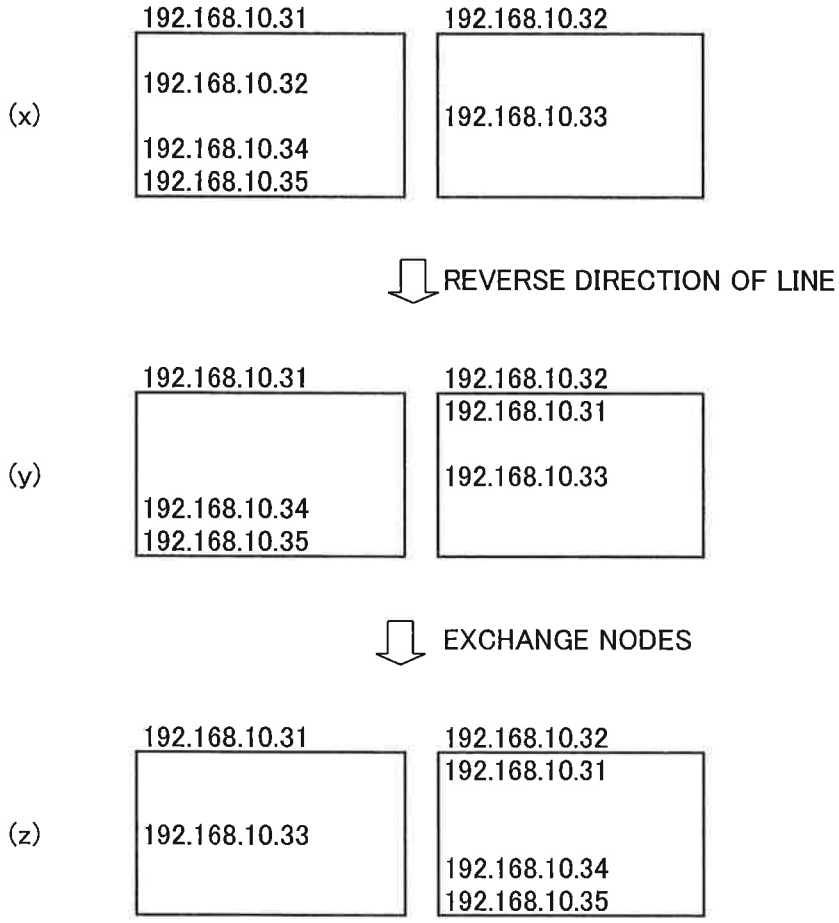

(x)
192.168.10.31
192.168.10.32
192.168.10.34
192.168.10.35
192.168.10.32
192.168.10.33
REVERSE DIRECTION OF LINE
(y)
192.168.10.31
192.168.10.34
192.168.10.35
192.168.10.32
192.168.10.31
192.168.10.33
EXCHANGE NODES
(z)
192.168.10.31
192.168.10.33
192.168.10.32
192.168.10.31
192.168.10.34
192.168.10.35

FIG. 6

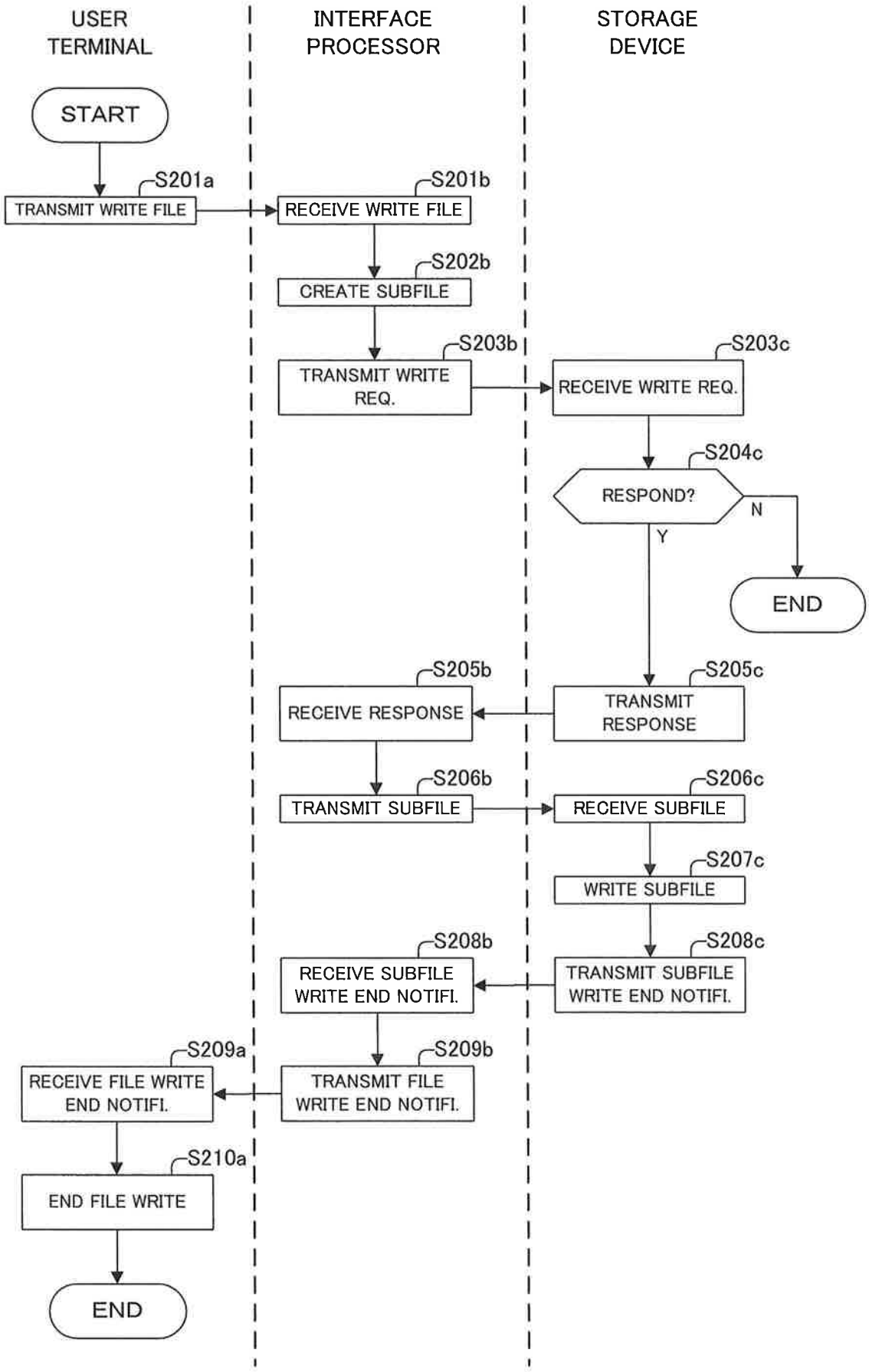

USER TERMINAL
INTERFACE PROCESSOR
STORAGE DEVICE
START
S201a
TRANSMIT WRITE FILE
S201b
RECEIVE WRITE FILE
S202b
CREATE SUBFILE
S203b
TRANSMIT WRITE REQ.
S203c
RECEIVE WRITE REQ.
S204c
RESPOND?
N
Y
END
S205b
RECEIVE RESPONSE
S205c
TRANSMIT RESPONSE
S206b
TRANSMIT SUBFILE
S206c
RECEIVE SUBFILE
S207c
WRITE SUBFILE
S208b
RECEIVE SUBFILE WRITE END NOTIFI.
S208c
TRANSMIT SUBFILE WRITE END NOTIFI.
S209a
RECEIVE FILE WRITE END NOTIFI.
S209b
TRANSMIT FILE WRITE END NOTIFI.
S210a
END FILE WRITE
END

FIG. 7

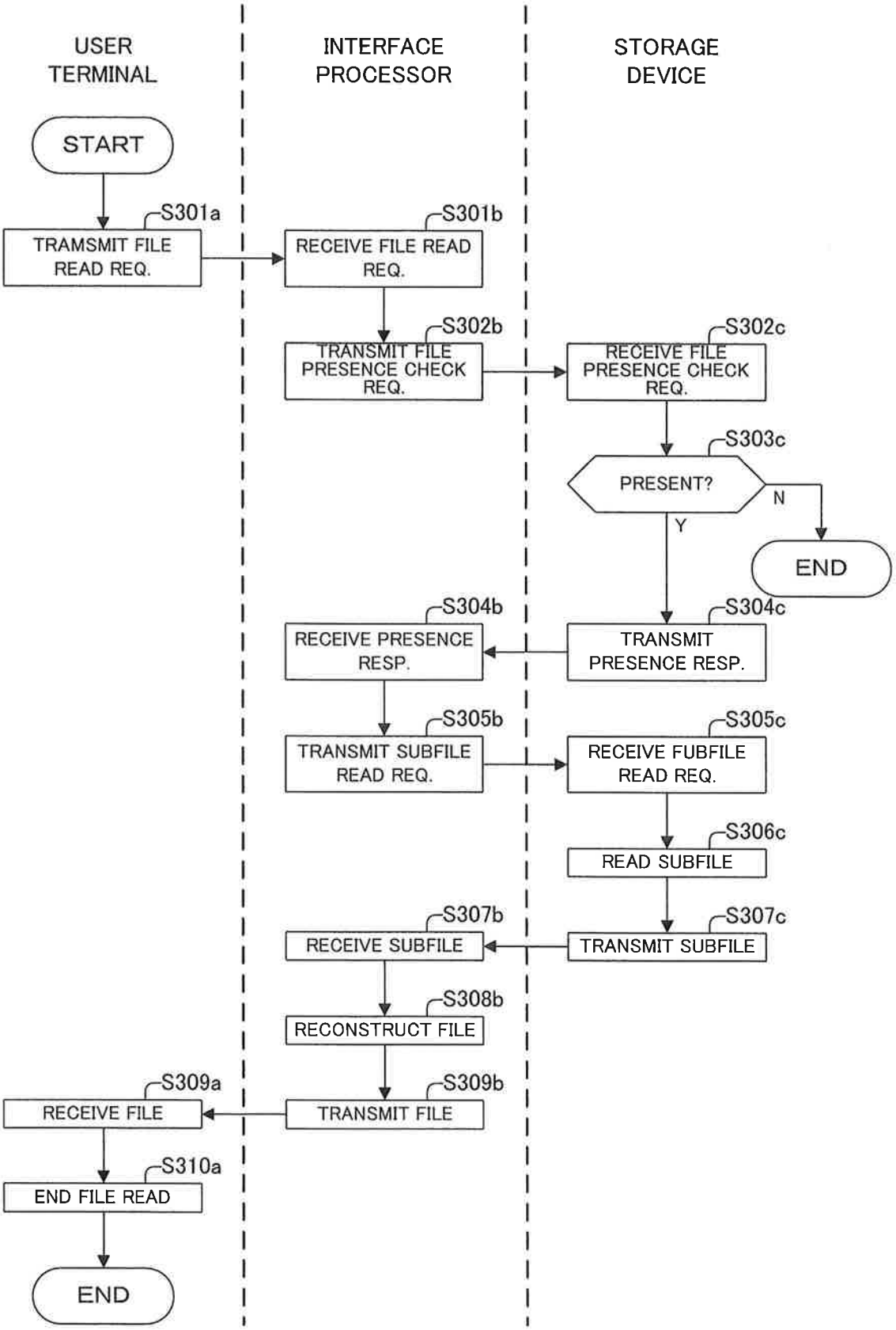

USER TERMINAL
INTERFACE PROCESSOR
STORAGE DEVICE
START
S301a
TRAMSMIT FILE READ REQ.
S301b
RECEIVE FILE READ REQ.
S302b
TRANSMIT FILE PRESENCE CHECK REQ.
S302c
RECEIVE FILE PRESENCE CHECK REQ.
S303c
PRESENT?
N
Y
END
S304b
RECEIVE PRESENCE RESP.
S304c
TRANSMIT PRESENCE RESP.
S305b
TRANSMIT SUBFILE READ REQ.
S305c
RECEIVE FUBFILE READ REQ.
S306c
READ SUBFILE
S307b
RECEIVE SUBFILE
S307c
TRANSMIT SUBFILE
S308b
RECONSTRUCT FILE
S309a
RECEIVE FILE
S309b
TRANSMIT FILE
S310a
END FILE READ
END

FIG. 8

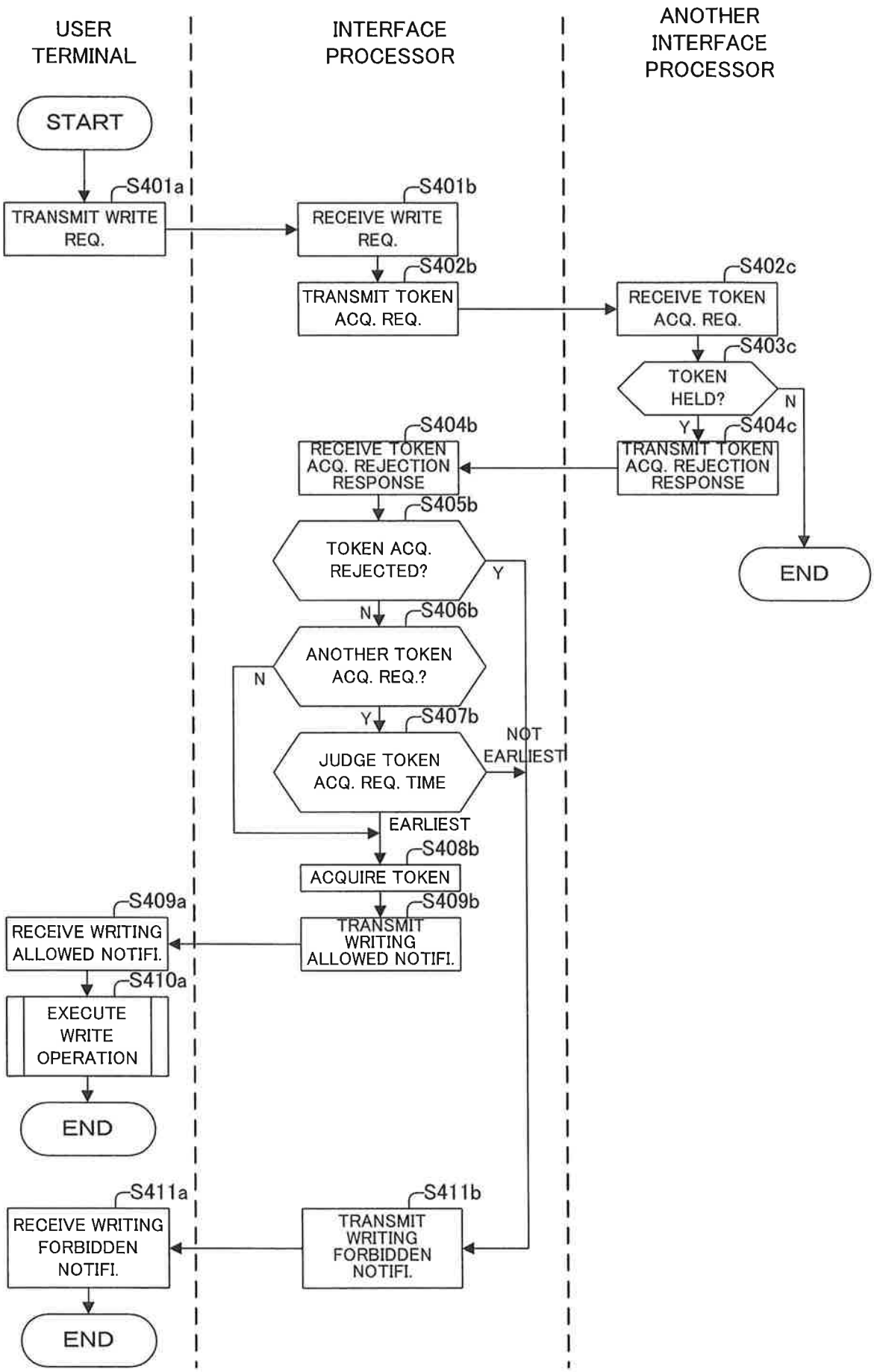

USER TERMINAL
INTERFACE PROCESSOR
ANOTHER INTERFACE PROCESSOR
START
S401a
TRANSMIT WRITE REQ.
S401b
RECEIVE WRITE REQ.
S402b
TRANSMIT TOKEN ACQ. REQ.
S402c
RECEIVE TOKEN ACQ. REQ.
S403c
TOKEN HELD?
N
Y
S404c
TRANSMIT TOKEN ACQ. REJECTION RESPONSE
S404b
RECEIVE TOKEN ACQ. REJECTION RESPONSE
END
S405b
TOKEN ACQ. REJECTED?
Y
N
S406b
ANOTHER TOKEN ACQ. REQ.?
N
Y
S407b
JUDGE TOKEN ACQ. REQ. TIME
NOT EARLIEST
EARLIEST
S408b
ACQUIRE TOKEN
S409a
RECEIVE WRITING ALLOWED NOTIFI.
S409b
TRANSMIT WRITING ALLOWED NOTIFI.
S410a
EXECUTE WRITE OPERATION
END
S411a
RECEIVE WRITING FORBIDDEN NOTIFI.
S411b
TRANSMIT WRITING FORBIDDEN NOTIFI.
END

FIG. 9

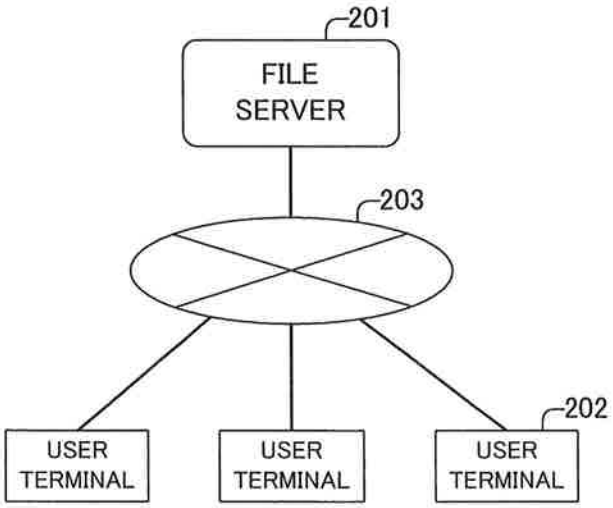

201
FILE
SERVER
203
202
USER
TERMINAL
USER
TERMINAL
USER
TERMINAL

FIG. 10

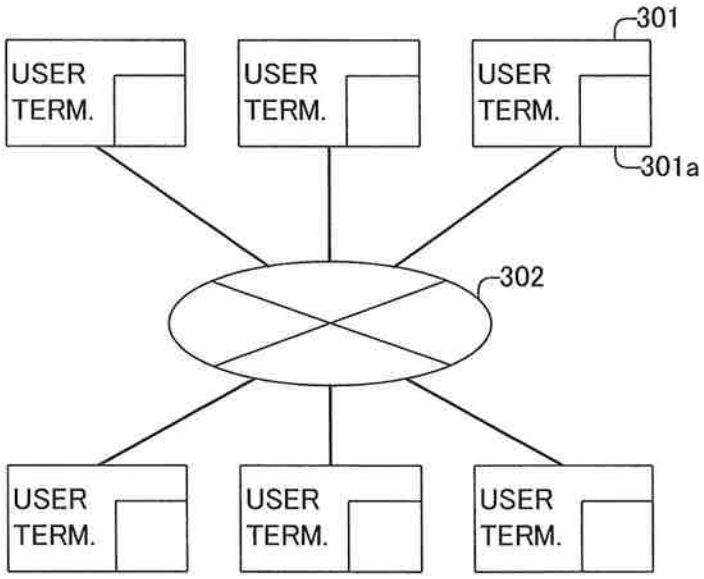

301
USER
TERM.
USER
TERM.
USER
TERM.
301a
302
USER
TERM.
USER
TERM.
USER
TERM.

FIG. 11