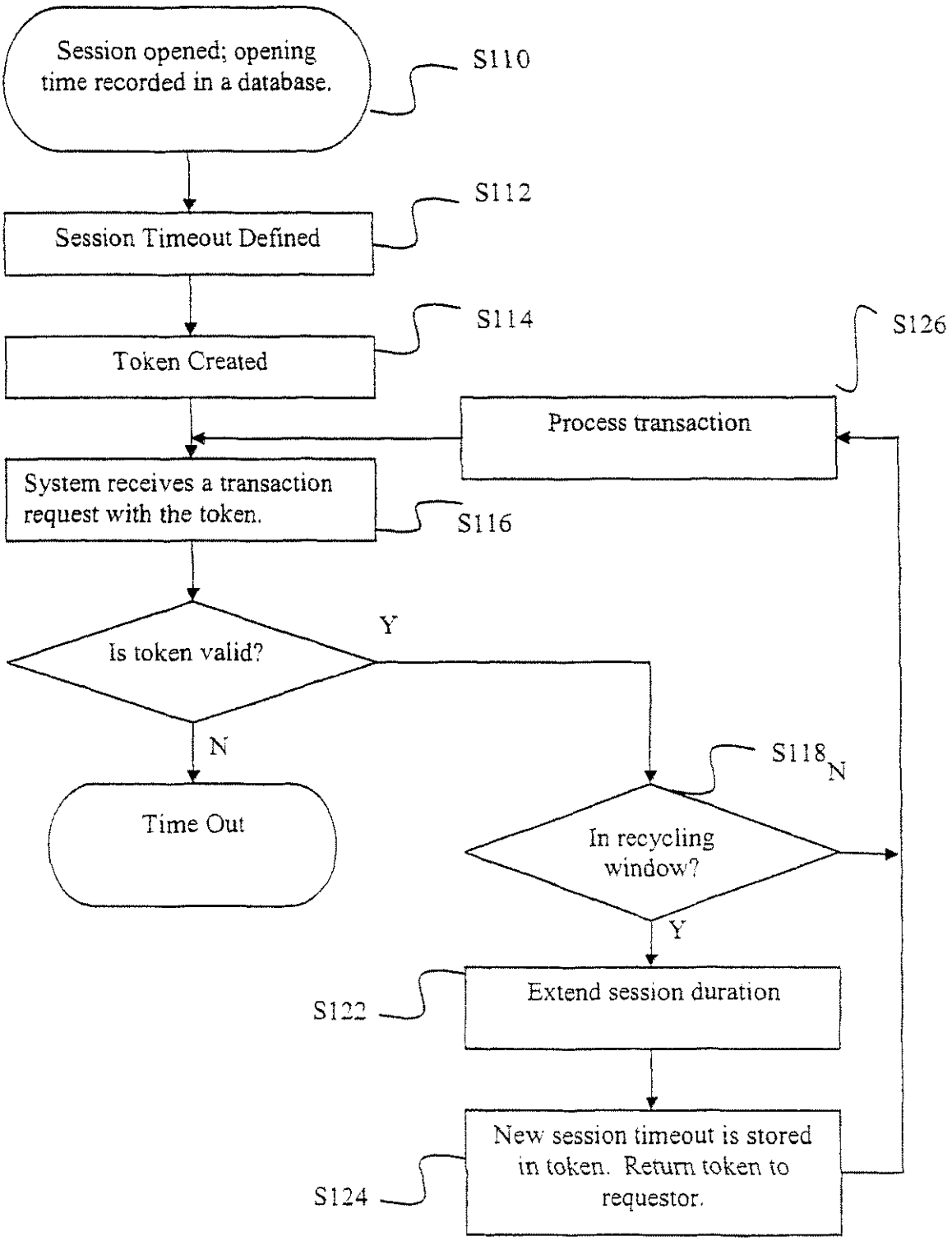

Session opened; opening time recorded in a database.
S110
Session Timeout Defined
S112
Token Created
S114
Process transaction
S126
System receives a transaction request with the token.
S116
Is token valid?
Y
N
Time Out
S118
N
In recycling window?
Y
S122
Extend session duration
New session timeout is stored in token. Return token to requestor.
S124

Fig. 1

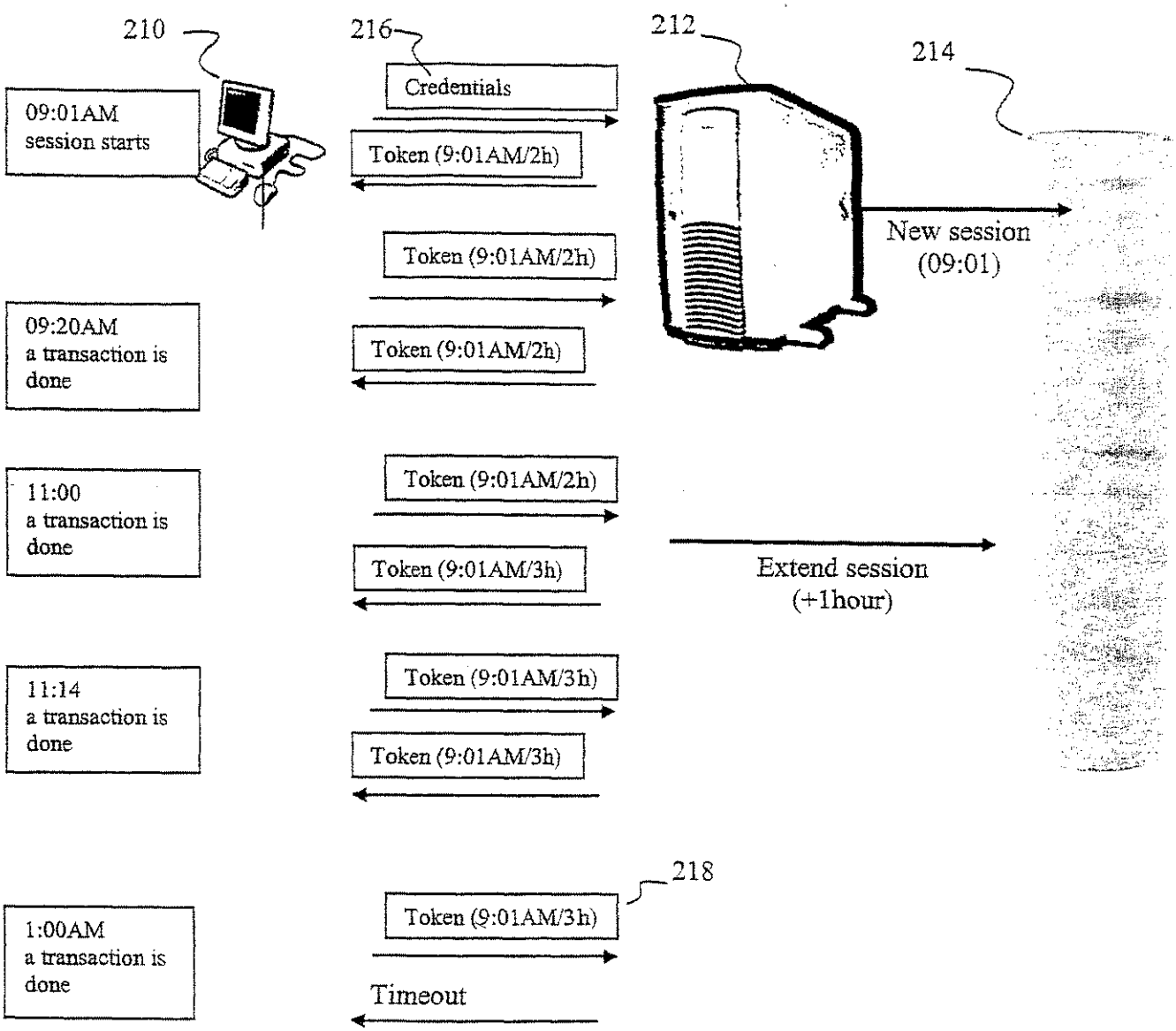

210
216
212
214
09:01AM
session starts
Credentials
Token (9:01AM/2h)
Token (9:01AM/2h)
New session
(09:01)
09:20AM
a transaction is
done
Token (9:01AM/2h)
11:00
a transaction is
done
Token (9:01AM/2h)
Token (9:01AM/3h)
Extend session
(+1hour)
11:14
a transaction is
done
Token (9:01AM/3h)
Token (9:01AM/3h)
218
1:00AM
a transaction is
done
Token (9:01AM/3h)
Timeout

Fig. 2

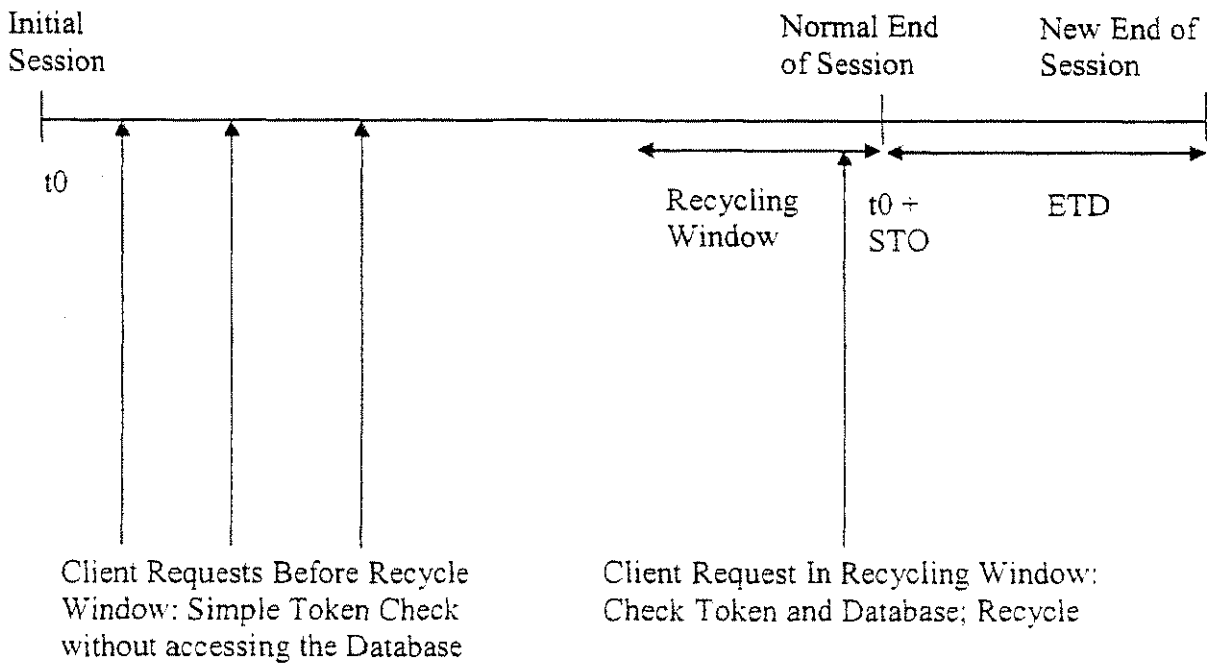

Initial Session
Normal End of Session
New End of Session
t0
Recycling Window
t0 + STO
ETD
Client Requests Before Recycle Window: Simple Token Check without accessing the Database
Client Request In Recycling Window: Check Token and Database; Recycle

Fig. 3

STS: Session Time Stamp-When the session was created

STO: Session Time Out duration- The length of the session

ETD: Extra Time Duration-The amount of time that can be added to the session during the recycling time

RCW: ReCycling Window-The length of time at the end of a session in which an extension may be granted.

Example of a Token before recycling

STS	STO	ETD	RCW
T_0	8	2	1

410

Example of a Token after recycling

STS	STO	ETD	RCW
T_0	10	2	1

412

Fig. 4

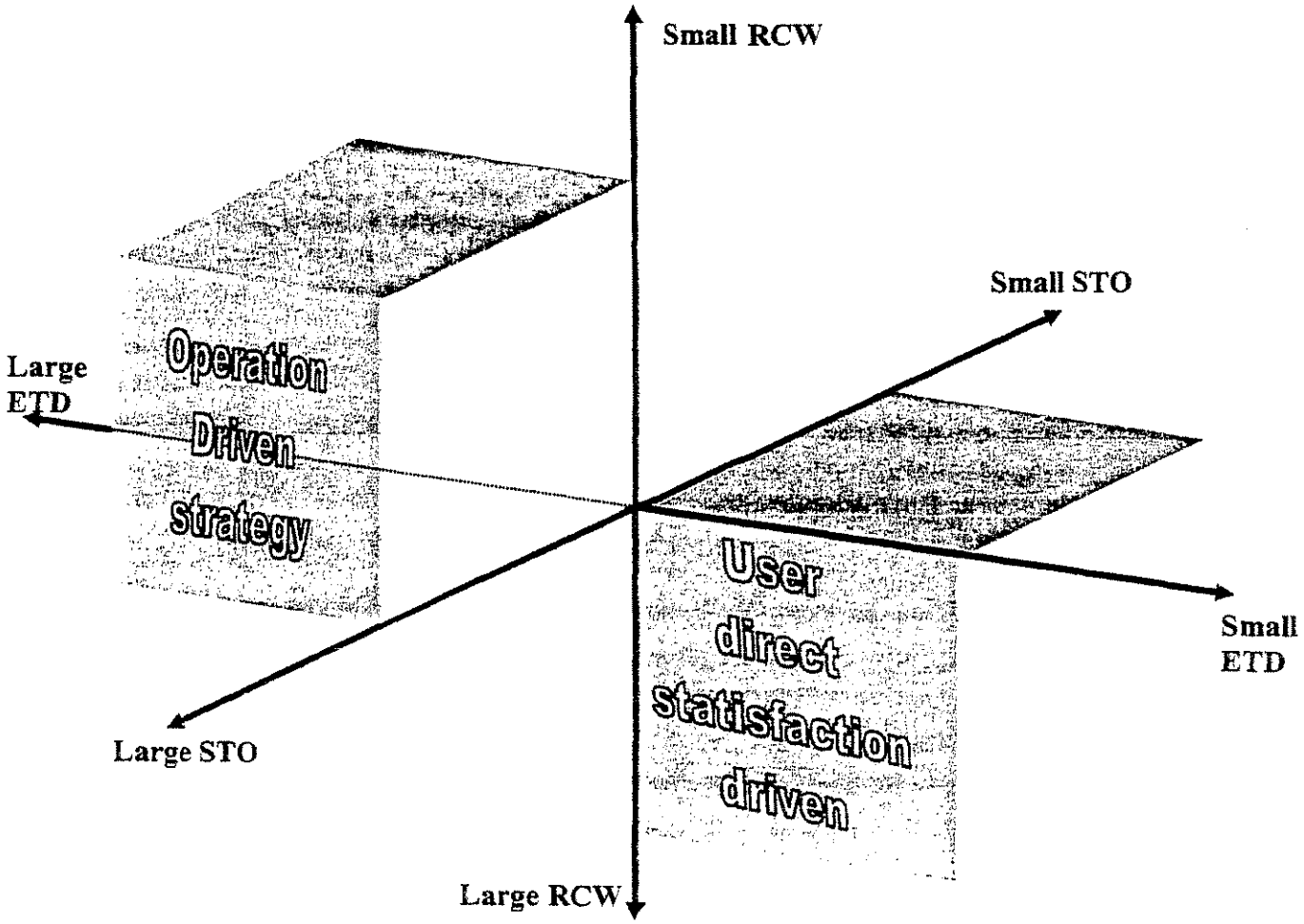

Small RCW
Small STO
Large
ETD
Operation
Driven
Strategy
Small
ETD
User
direct
Statisfaction
driven
Large STO
Large RCW

Fig. 5