

5223 SEP 12
13 JUN 2012

DYNAMIC CENTRALIZED UNIT DETERMINATION IN A CREDIT CONTROL CHARGING SYSTEM

Abstract of the Invention

A charging system includes a rating engine, a session control module, and a charging unit determination module. The session control module receives a request for service units, associated with a charging session, from a client or service element, and obtains one or more input parameters from the request for service units. The charging unit determination module obtains account data associated with the request for service units, determines at least one charging session related parameter based on the one or more input parameters and/or the account data, and pass the at least one charging session related parameter to the rating engine. The rating engine grants service units based on the at least one charging session related parameter, and forwards an indication of the granted service units to the session control module for return to the client or service element.

We Claim:

1. A credit control server (130), comprising:
 - a rating engine (330);
 - a session control module (300) to:
 - receive a request for service units, associated with a charging session, from a client or service element that is providing a network service to an end user, and
 - obtain one or more input parameters from the request for service units and passing the one or more input parameters to a charging unit determination module (310), and
 - the charging unit determination module to:
 - obtain account data associated with the request for service units from an account balance management module,
 - determine, based on a dynamically configurable logic received via a user interface, a unit type based on the account data, and
 - pass the determined unit type to the rating engine,
 - where the rating engine is to:
 - rate credit and grant service units based on at least the determined unit type, and
 - forward an indication of the granted service units of the determined unit type to the session control module for return to the client or service element
- characterized by that:
- the charging unit determination module is further to determine the unit type based on the one or more input parameters.

2. The credit control server of claim 1, where the unit type comprises one of time, volume or money.
3. The credit control server of claim 1, where the one or more input parameters comprises at least one of a Serving General Packet Radio System (GPRS) Support Node (SGSN) address, a gateway GPRS support Node (GGSN) address, a mobile country code (MCC), or a mobile network code (MNC) (1010).
4. The credit control server of claim 1, where the account data includes an identifier of a campaign in which a user of the client or service element is participating (1320).
5. The credit control server of claim 1, where the charging unit determination module is to generate the unit type further based on a time of day associated with the request for service units, where the least one charging session related parameter includes a unit type associated with the request for service units (1420).
6. The credit control server of claim 1, where the dynamically configurable logic includes conditions (420) and modifiers (430) for generating the unit type.
7. The credit control server of claim 1, where the dynamically configurable logic includes Javascript, Python, or Perl programmable logic.
8. The credit control server of claim 6, where the dynamically configurable logic includes logical trees (400) and where the charging unit determination module is to:

branch, within the logical trees, using the account data and the one or more input parameters and based on the conditions, to execute the modifiers to determine the unit type.

9. The credit control server of claim 1, where the charging unit determination module is to: receive modifications to the dynamically configurable logic via the user interface.

10. A method implemented in a credit control server (130), comprising:
receiving (900) a request for service units, associated with a charging session, from a client or service element that is providing a network service to an end user and obtaining (905) one or more input parameters from the request for service units;

obtaining (810) account data associated with the request for service units;

determining (815), based on a dynamically configurable logic received via a user interface, a unit type based on and the account data ;

credit rating and granting service units (820, 915) based on at least the determined unit type; and

sending (935) an indication of the granted service units of the determined unit type to the client or service element

characterized by that determining (815) the unit type is further based on the one or more input parameters.

11. The method of claim 10, where the unit type comprises one of time, volume or money.

12. The method of claim 10, where the one or more input parameters comprises at least one of a Serving General Packet Radio System (GPRS) Support Node (SGSN) address, a gateway GPRS support Node (GGSN) address, a mobile country code (MCC), or a mobile network code (MNC) (110).

13. The method of claim 10, where the account data includes an identifier of a campaign in which a user of the client or service element is participating (1320).
14. The method of claim 10, where the determining a unit type is further based on a time of day associated with the request for service units, and where the least one charging session related parameter includes a unit type associated with the request for service units (1420).
15. The method of claim 10, where the dynamically configurable logic includes conditions (420) and modifiers (430) for generating the unit type.
16. The method of claim 10, where the dynamically configurable logic includes Javascript, Python, or Perl programmable logic.
17. The method of claim 15, where the dynamically configurable logic includes logical trees (400), and further comprising:
branching, within the logical trees, using the account data and the one or more input parameters and based on the conditions, to execute the modifiers to determine the unit type.
18. The method of claim 10, further comprising:
receiving modifications to the dynamically configurable logic via the user interface.

Dated this the 13th Day of June, 2012


MANISHA SINGH DAI
Agent for the Applicant [IN/PA-740]
LEX ORBIS IP PRACTICE

6223 DELAP 12
13 JUN 2012

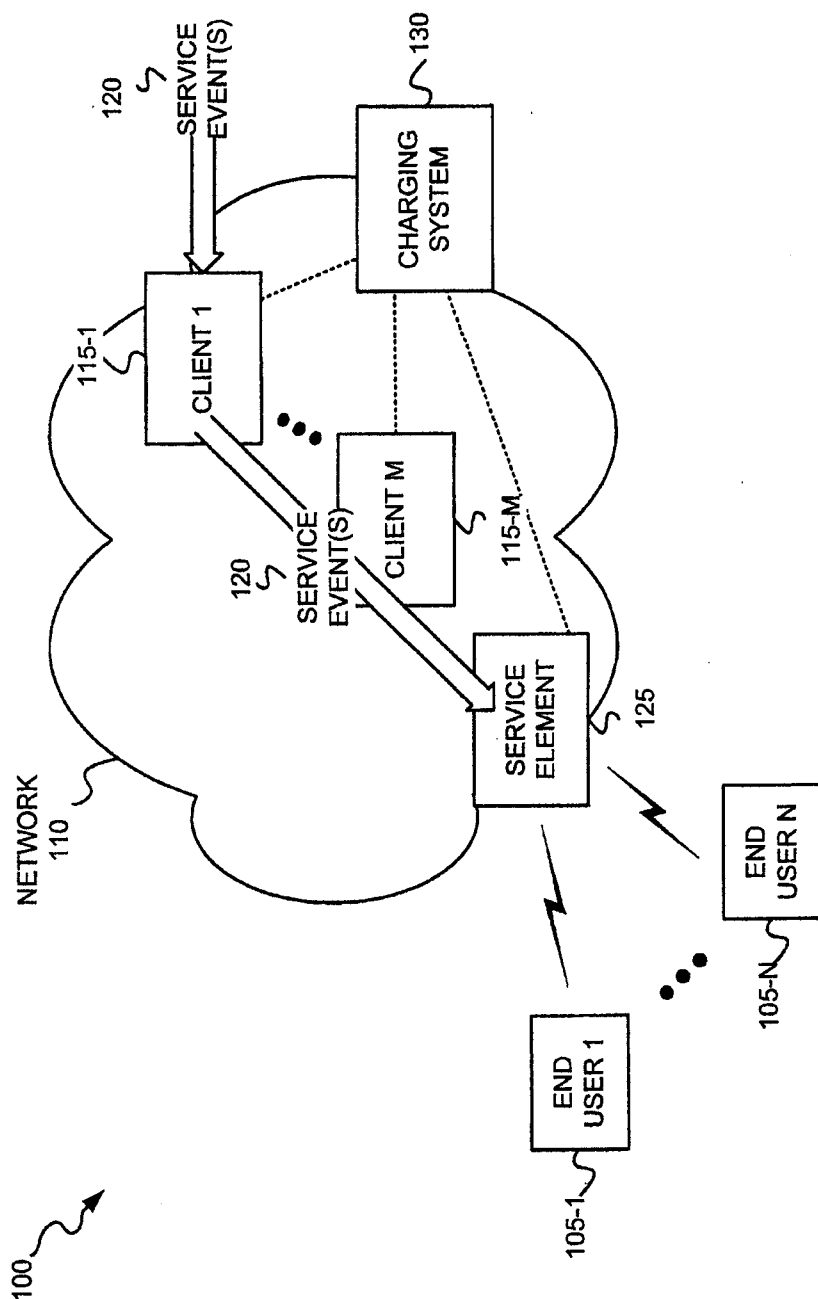


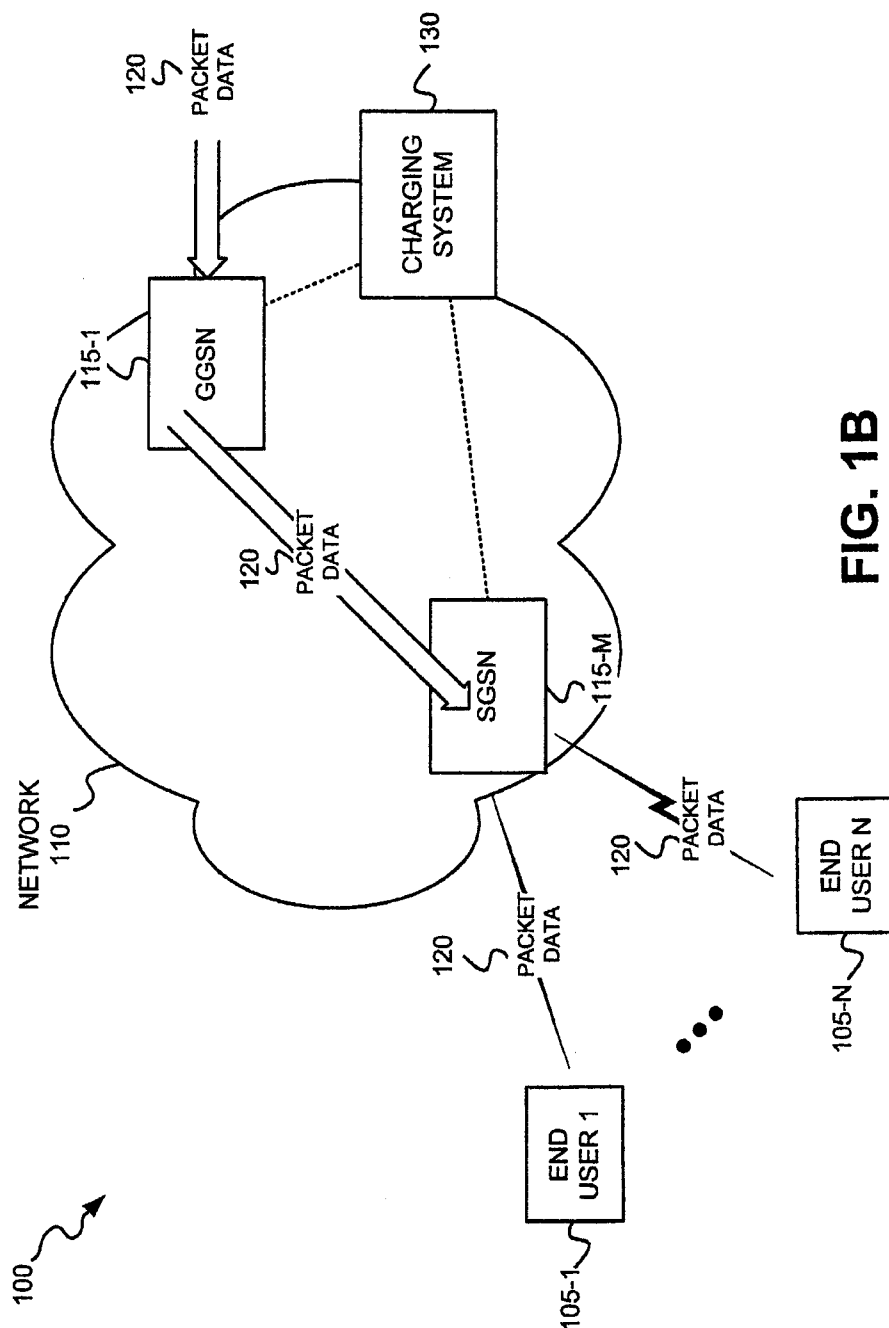
FIG. 1A

Manisha Singh Nair
MANISHA SINGH NAIR
Agent for the Applicant [IN/PA-740]
LEX ORBIS IP PRACTICE

2/16

2/16

6223 DE 12
13 JUN 2012



Manisha Singh Nair
MANISHA SINGH NAIR
Agent for the Applicant [IN/PA-740]
LEX ORBIS IP PRACTICE

ORIGINAL

12
13 JUN 2012

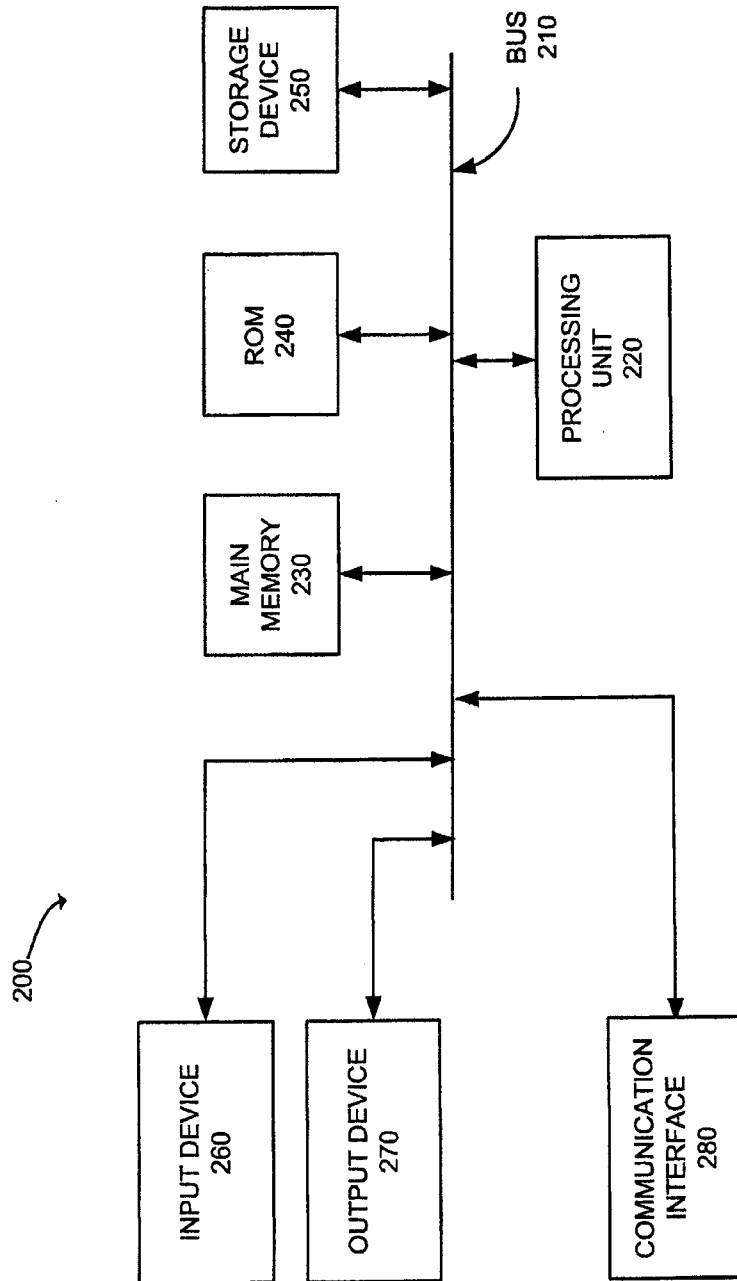


FIG. 2

Manisha Singh Nair
MANISHA SINGH NAIR
Agent for the Applicant [IN/PA-740]
LEX ORBIS IP PRACTICE

5223 DELNP 12

13 JUN 2012

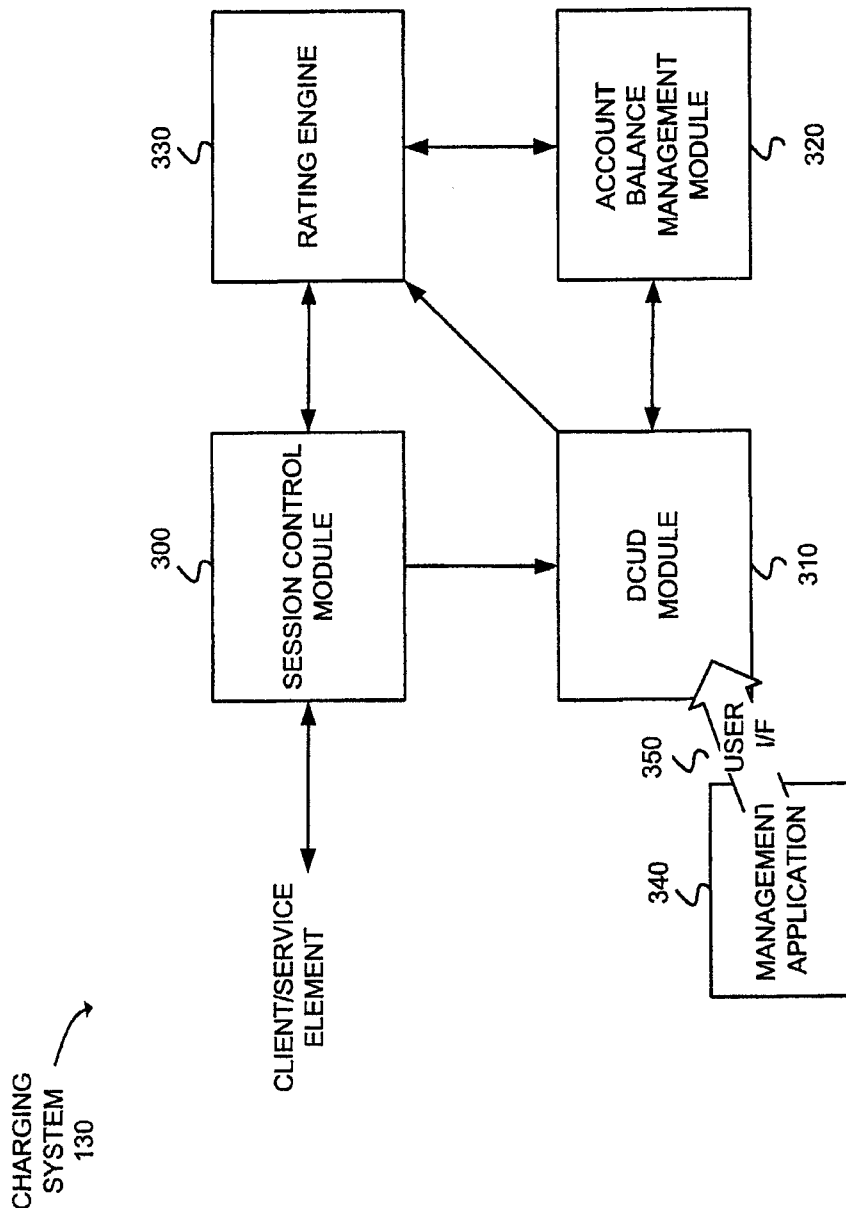


FIG. 3

Manisha Singh Nair
 MANISHA SINGH NAIR
 Agent for the Applicant [IN/PA-740]
 LEX ORBIS IP PRACTICE

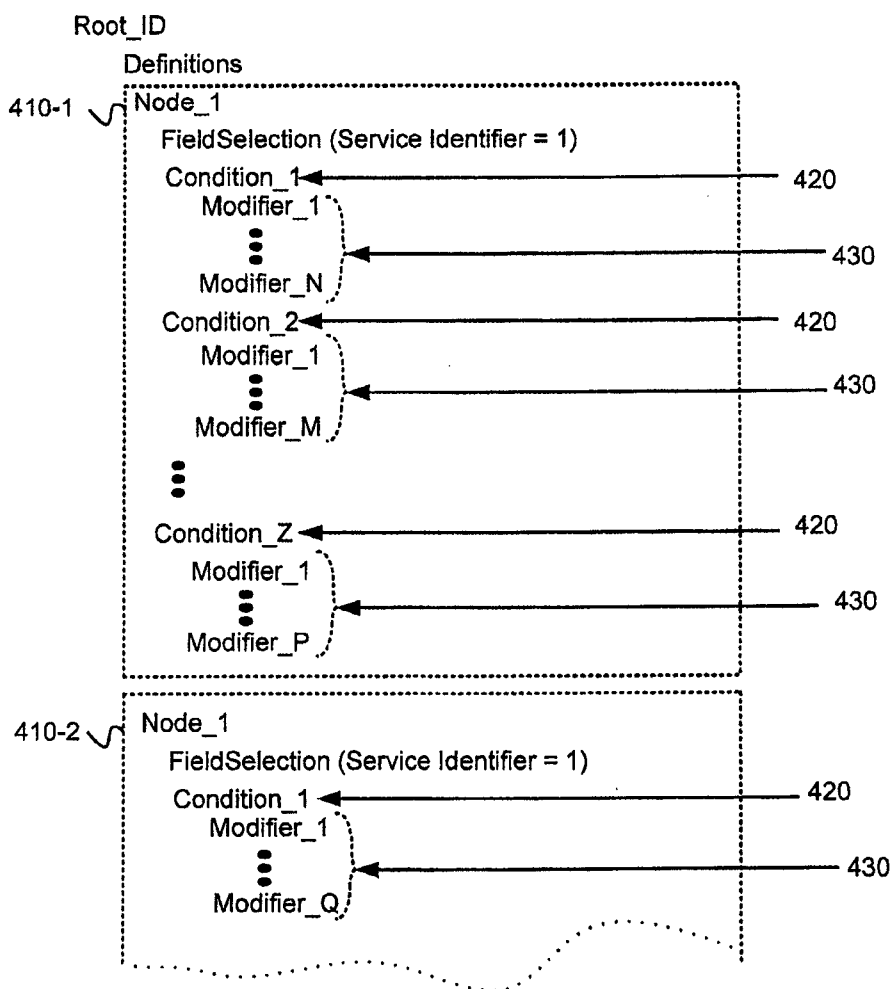
5223 DEAP 12
13 JUN 2012LOGIC
400

FIG. 4

Manisha Singh Nair
MANISHA SINGH NAIR
Agent for the Applicant [IN/PA-740]
LEX ORBIS IP PRACTICE

622312
13 JUN 2012

350

500

510

520

FIG. 5

Node_1

FieldSelection (Service Identifier = 1)

Condition_1

Modifier_1

...

Modifier_N

Condition_2

Modifier_1

...

Condition_Z

Modifier_1

...

Modifier_P

Name

Rate

Type of unit

Price

3.0 /min

1 second

Active accumulator

0.0

Manish Singh Dair
MANISHA SINGH NAIR
Agent for the Applicant [IN/PA-740]
LEX ORBIS IP PRACTICE

7/16

2013 SEP 12

18 JUN 2012

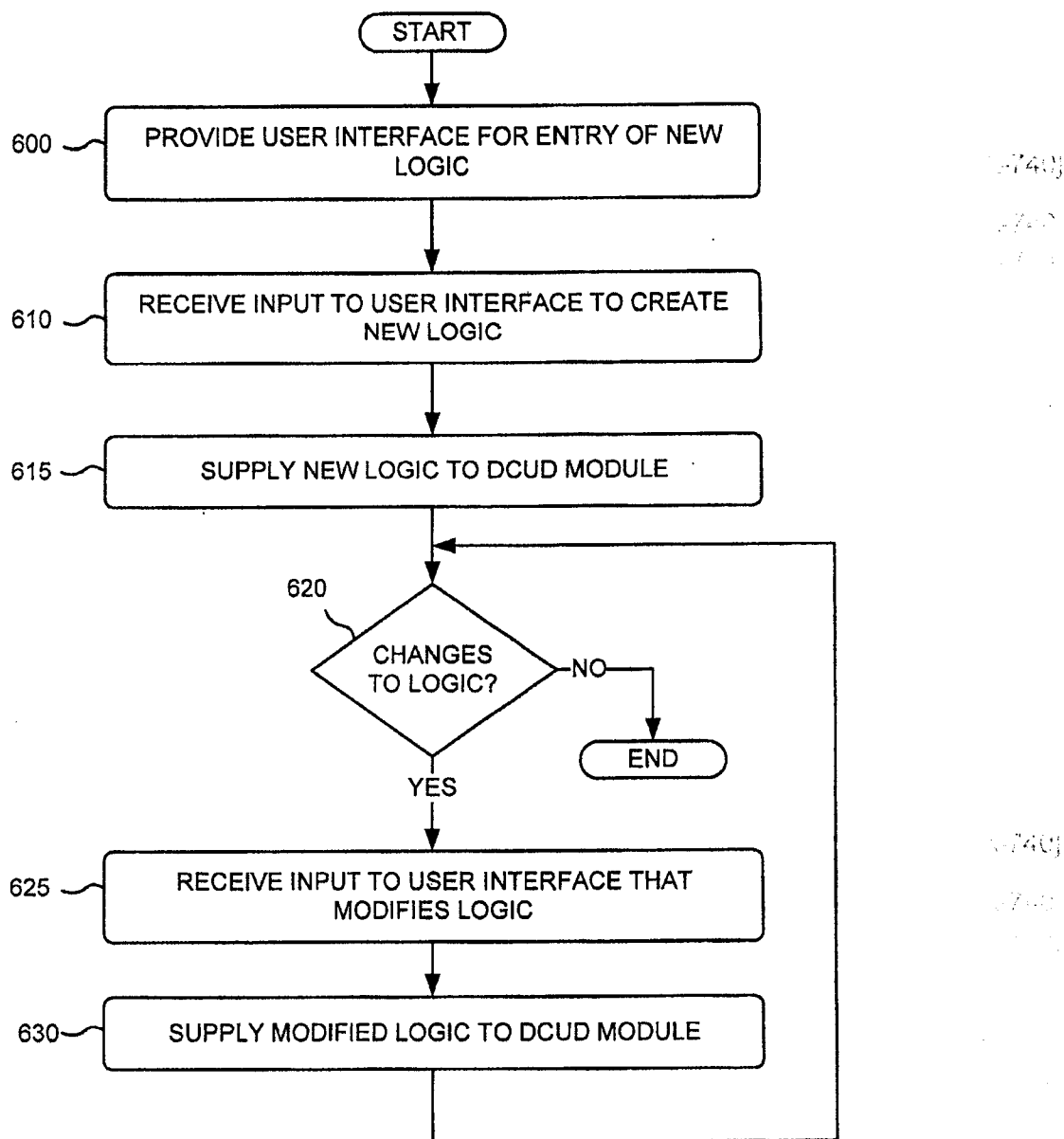


FIG. 6

Manisha Singh Nair
MANISHA SINGH NAIR
Agent for the Applicant [IN/PA-740]
LEX ORBIS IP PRACTICE

5223 IN 12

11 JUN 2012

700



Root_ID

Definitions

UnitType based on roaming position

FieldSelection (Service Identifier = 0)

Roaming

FieldSelection (SGSN-Address IP mask = 192.0.0.0)

SetField (UnitType = "Seconds")

SetField (RequestedUnits = 120)

Not roaming

SetField (UnitType = "Bytes")

SetField (RequestedUnits = 1000000)

FIG. 7

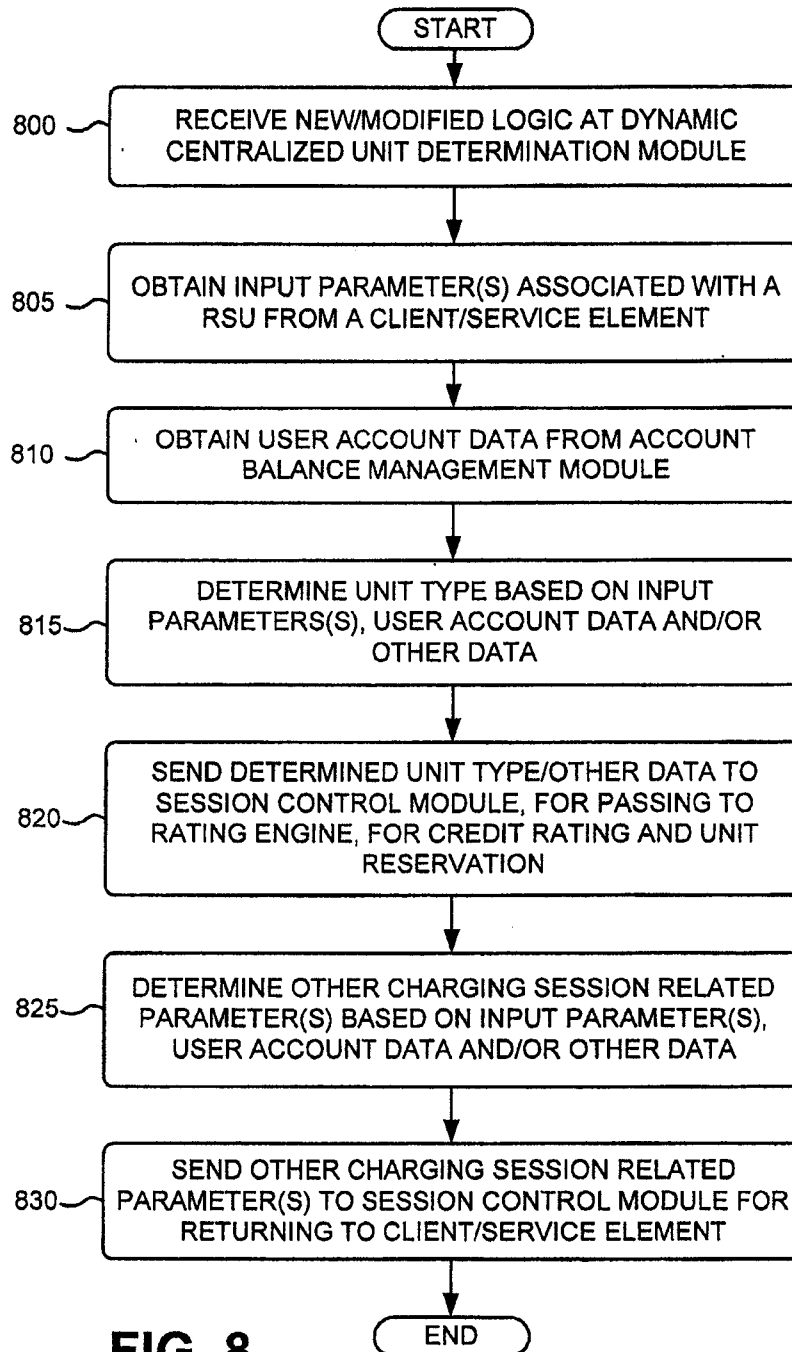
Manisha Singh Dair
MANISHA SINGH DAIR

Agent for the Applicant [IN/PA-740]
LEX ORBIS IP PRACTICE [IN/PA-740]

9/16

522312

JUN 2012



Manisha Singh Nair
MANISHA SINGH NAIR
Agent for the Applicant [IN/PA-740]
LEX ORBIS IP PRACTICE

5223 DEMP 12

13 JUN 2012

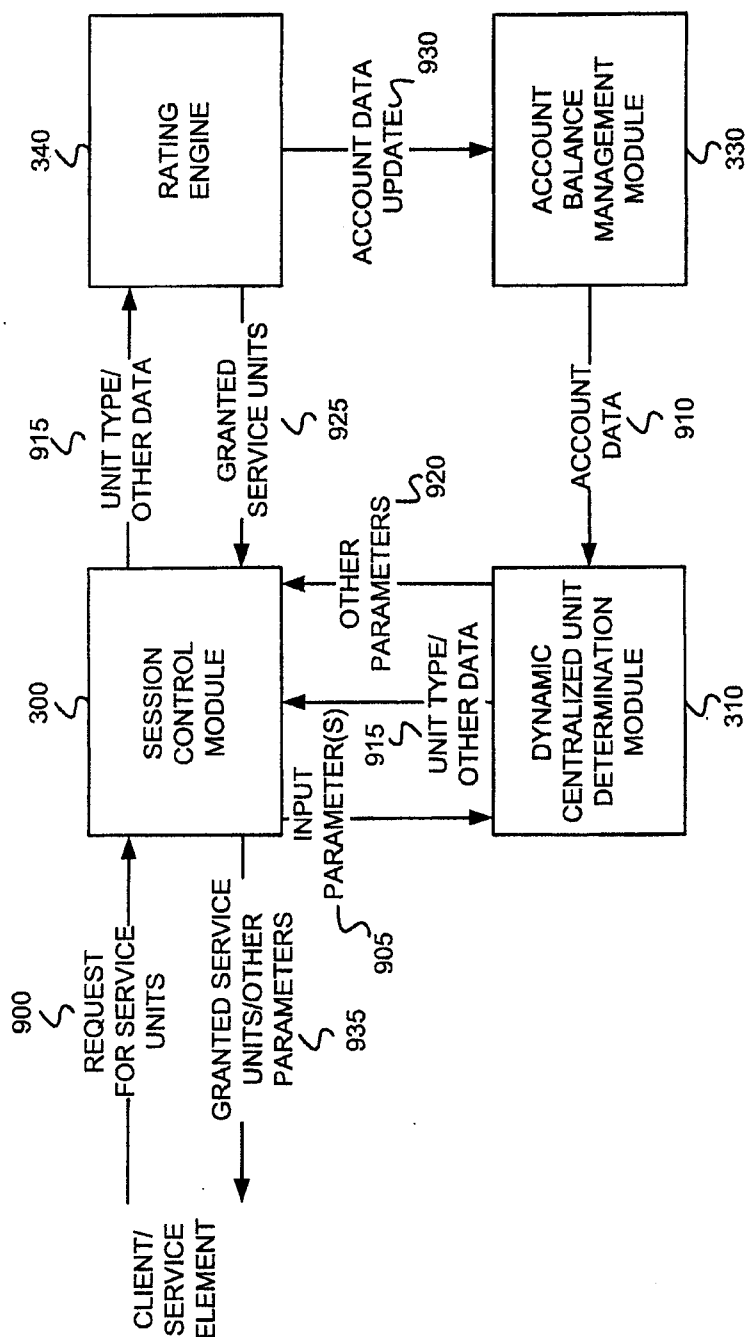


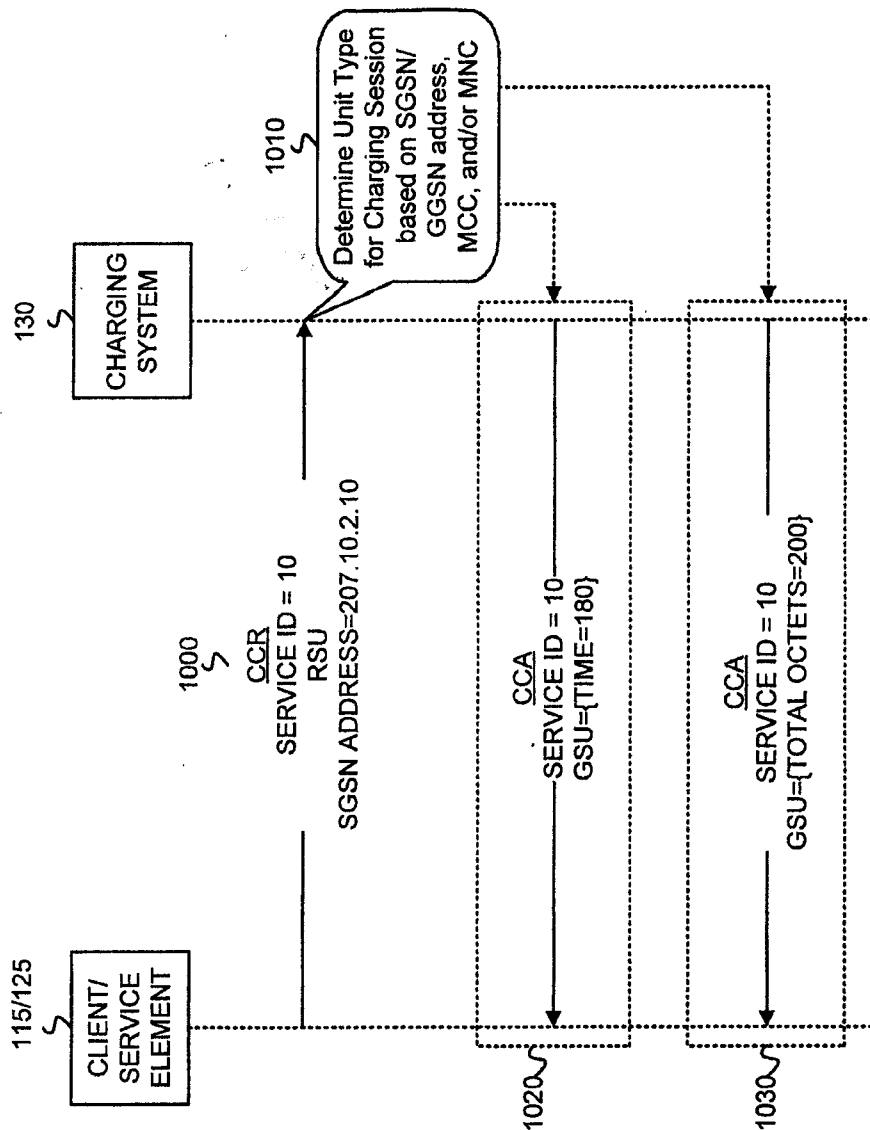
FIG. 9

MANISHA SINGH NAIR
Agent for the Applicant [IN/PA-740]
LEX ORBIS IP PRACTICE

11/16

223 SEP 12

↑ 7 2012



Manisha Singh Dair
 MANISHA SINGH DAIR
 Agent for the Applicant [IN/PA-740]
 LEX ORBIS IP PRACTICE

ORIGINAL

12/16

Total No. of Sheets : 16

Sheet No. 12 of 16

5223 DEEP 12

13 JUN 2012

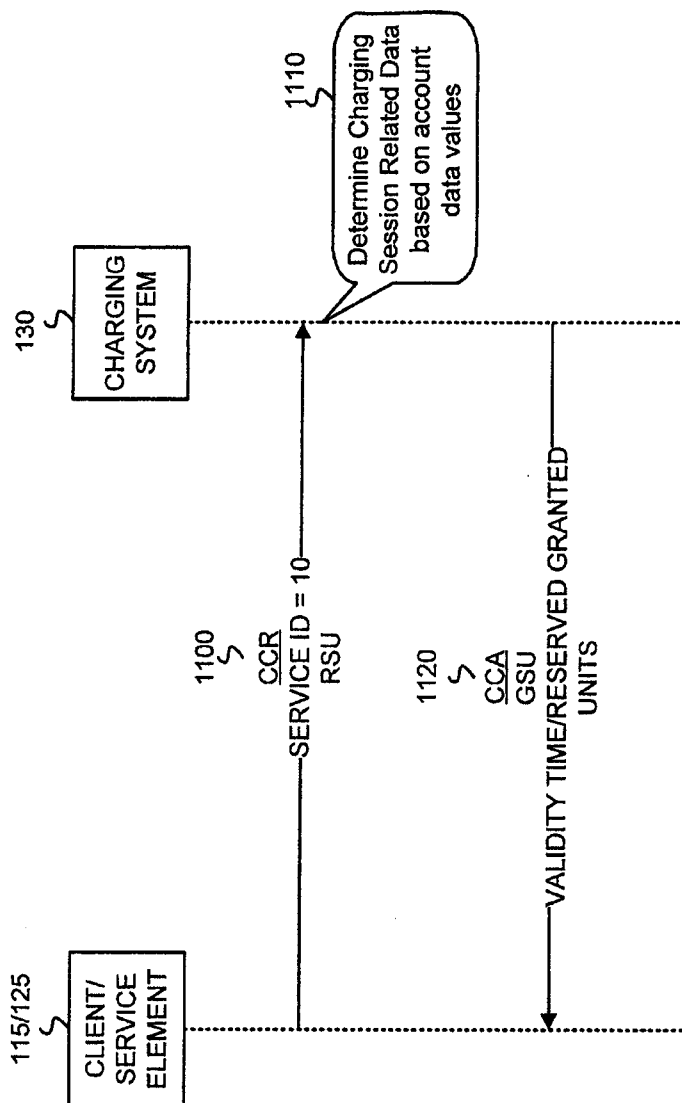


FIG. 11

Manisha Singh Nair

MANISHA SINGH NAIR

Agent for the Applicant [IN/PA-740]
LEX ORBIS IP PRACTICE

5223 12
13 JUN 2012

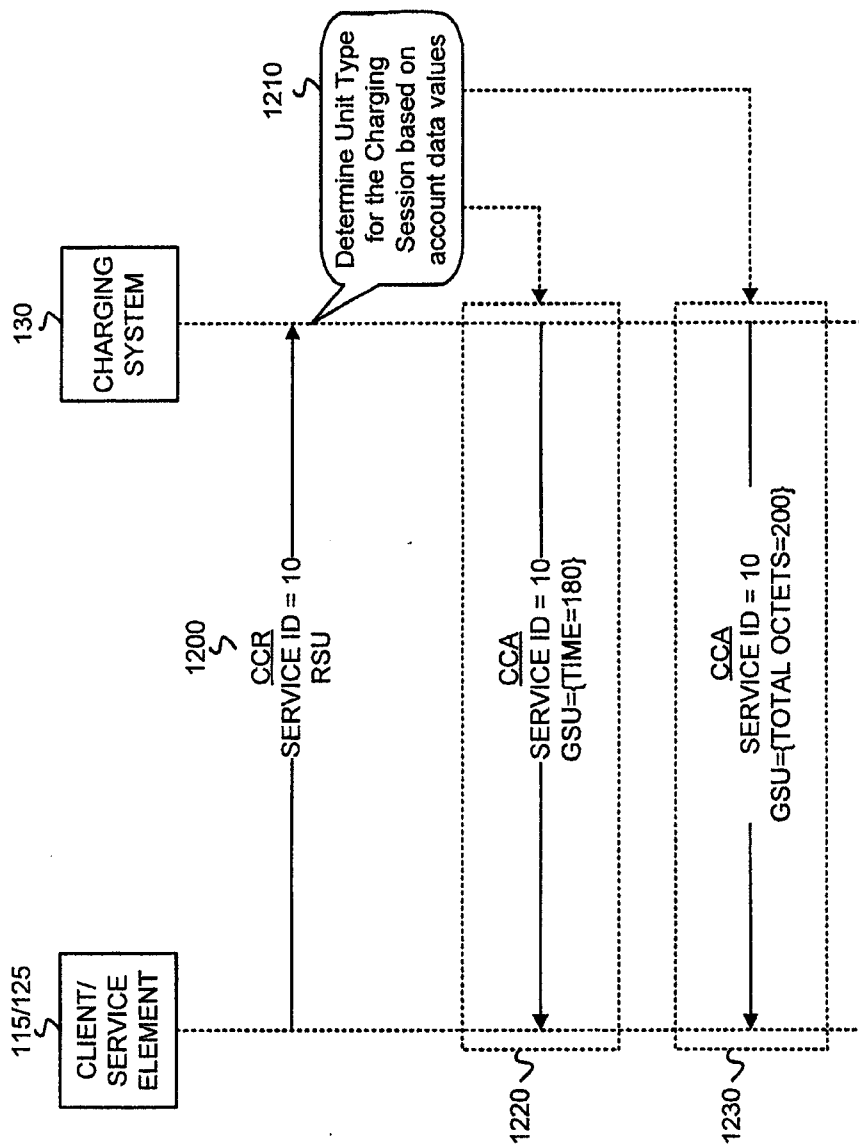


FIG. 12

Manisha Singh Nair
MANISHA SINGH NAIR
Agent for the Applicant [IN/PA-740]
LEX ORBIS IP PRACTICE

14/16

ORIGINAL

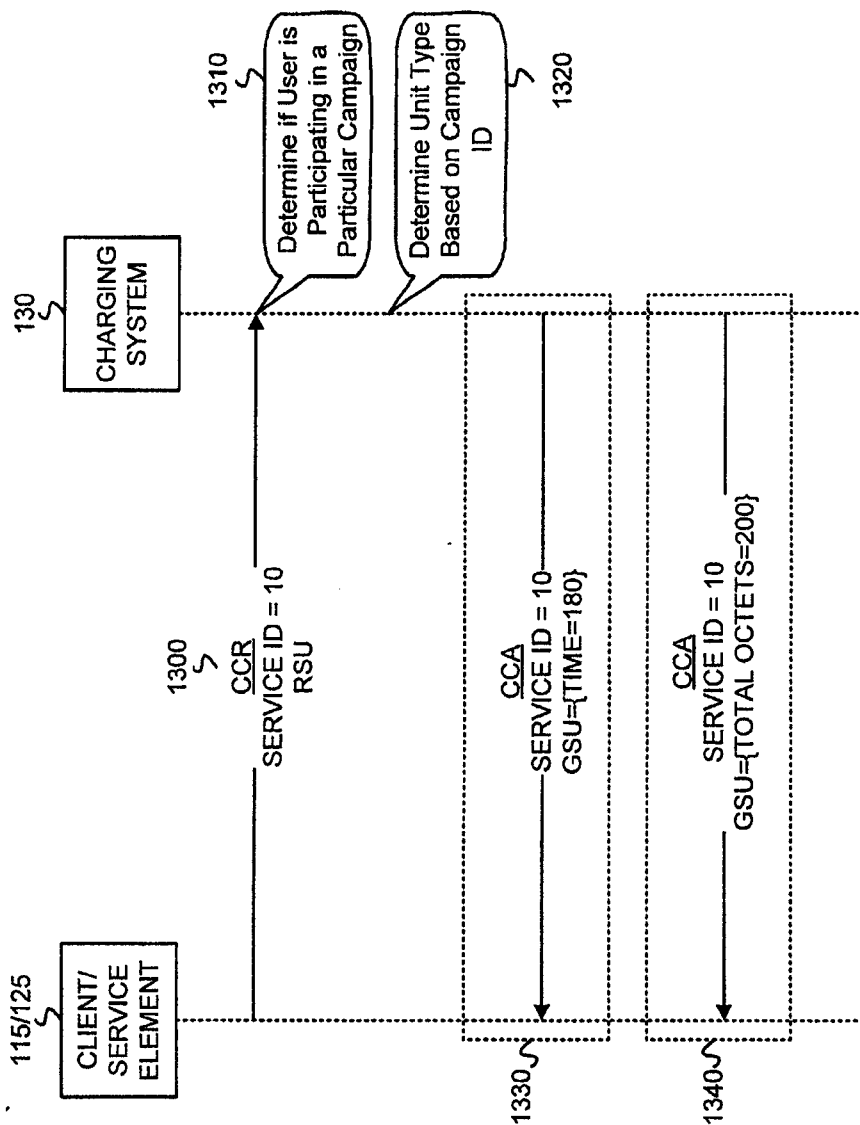
5223 EN 12
13 JUN 2012

FIG. 13

Manisha Singh Nair
 MANISHA SINGH NAIR
 Agent for the Applicant [IN/PA-740]
 LEX ORBIS IP PRACTICE

ORIGINAL

5223 DELNP 12

17 JUN 2012

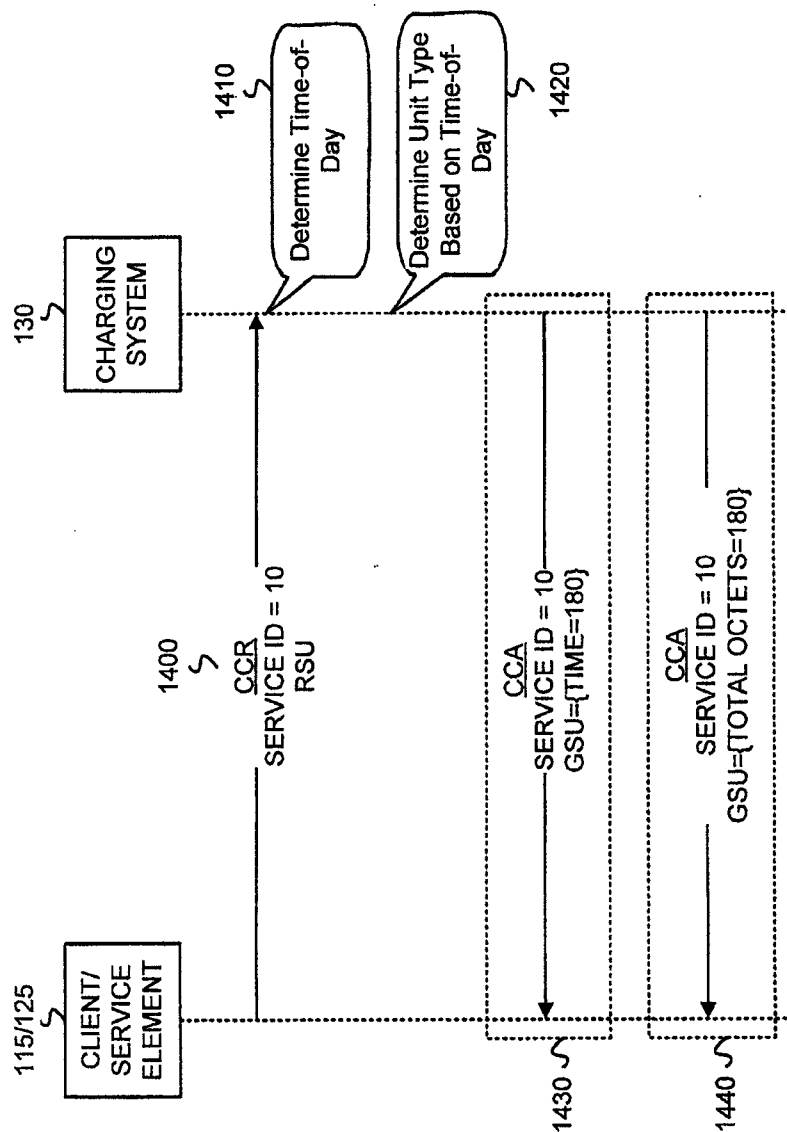


FIG. 14

Manisha Singh Nair
MANISHA SINGH NAIR
Agent for the Applicant [IN/PA-740]
LEX ORBIS IP PRACTICE

5223 ~~DEP~~ 12
13 JUN 2012

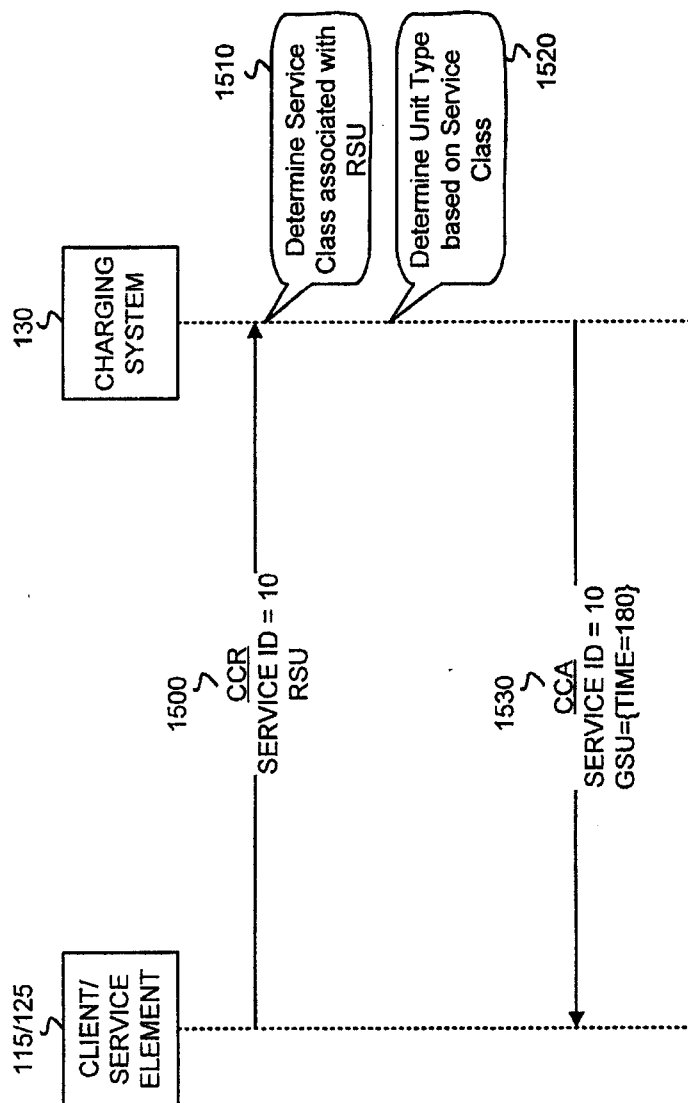


FIG. 15

Manisha Singh Nair

MANISHA SINGH NAIR
Agent for the Applicant [IN/PA-740]
LEX ORBIS IP PRACTICE