US006728548B1

(12) **United States Patent**
Willhoff

(10) **Patent No.: US 6,728,548 B1**
(45) **Date of Patent: Apr. 27, 2004**

(54) **METHOD AND APPARATUS PROVIDING TELESERVICE SEGMENTATION AND REASSEMBLY**

(75) Inventor: **Steven J Willhoff**, Richardson, TX (US)

(73) Assignee: **Nokia Corporation**, Espoo (FI)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 654 days.

(21) Appl. No.: **09/614,777**

(22) Filed: **Jul. 12, 2000**

Related U.S. Application Data

(63) Continuation of application No. 08/746,088, filed on Nov. 6, 1996, now Pat. No. 6,097,961.

(51) **Int. Cl.**[7] **H04Q 7/20**
(52) **U.S. Cl.** **455/466**; 455/414.1
(58) **Field of Search** 455/466, 414.1, 455/422.1; 370/473

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,050,166 A	*	9/1991	Cantoni et al.	370/473
5,396,653 A		3/1995	Kivari et al.	455/88
5,430,740 A		7/1995	Kivari et al.	371/37.1
5,604,921 A		2/1997	Alanara	455/45
5,606,548 A		2/1997	Vayrynen et al.	370/252
5,655,215 A		8/1997	Diachina et al.	455/466 X
5,719,918 A	*	2/1998	Serbetciouglu et al.	455/466 X
5,822,700 A		10/1998	Hult et al.	455/466
5,878,036 A		3/1999	Spartz et al.	455/466 X
6,141,550 A	*	10/2000	Ayabe et al.	455/466 X

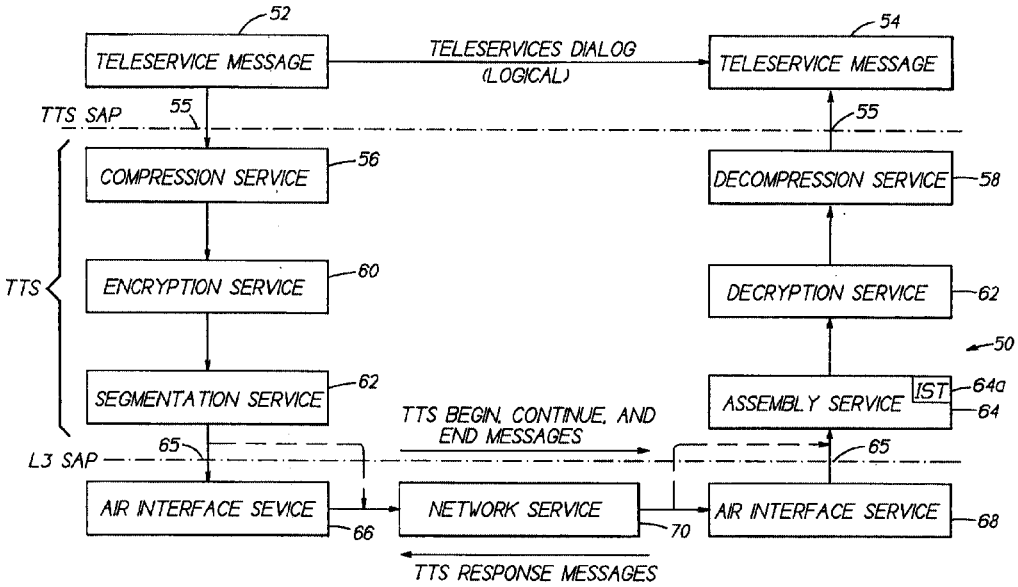
OTHER PUBLICATIONS

IS–136.1 Revision A Published Version Mar. 21, 1996, pps. 10–12, 187, 226, 227, 230, 290, 324, 329.

* cited by examiner

Primary Examiner—Nay Maung
Assistant Examiner—Philip J. Sobutka
(74) *Attorney, Agent, or Firm*—Harrington & Smith, LLP

(57) **ABSTRACT**

A method is disclosed for operating a user terminal, such as a cellular radiotelephone, of a type that is bidirectionally coupled to a network through an RF interface. The method includes a first step of storing at least one message in a memory accessible by the mobile station. A second step transmits a Teleservice origination (e.g., a SMS origination) request from the mobile station to the network using a reverse digital control channel. The request specifies that a reverse digital traffic channel be assigned to the mobile station. A next step, executed in response to being assigned to a reverse digital traffic channel, transmits the at least one stored message to a SMS center that is coupled to the network, the at least one stored message being transmitted over the assigned reverse digital traffic channel. In a preferred embodiment of this invention the SMS origination request is transmitted using a random access channel, the step of transmitting the at least one stored message includes a step of bypassing a voice coder and a data modem within the mobile station, and the step of transmitting the at least one stored message is accomplished in an ARQ mode of operation. Also disclosed is a method to deliver Teleservice messages in a wireless communications system that are not constrained by any message length limitations imposed by the air interface or network layers supporting the wireless service.

36 Claims, 5 Drawing Sheets