

Realizing Domestic SMS Interconnectivity and Expanded SMS Functionality

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On the 13th of July, 2011, the five mobile terminal operators in Japan commenced services that allow connection between operators for SMS services with Third-Generation (3G) mobile terminals.

NTT DOCOMO adopted an SMS reception method that uses “home routing.” Home routing is technology that transmits SMS data to the service area in which the SMS recipient is actually located. And this transmission should be performed only via the network managed by the operator to which the SMS recipient is subscribed.

By adopting home routing, the service policies of the operator to which the SMS recipient is subscribed can be applied.

For example, when a user of another operator sends an SMS addressed to a DOCOMO roaming out^{*1} user via the sender’s subscribed SMS center, in some cases, DOCOMO mobile terminals are unable to recognize some of the character codes used in the SMS body. This is because if home routing is not performed, the SMS transmission route does not go via the DOCOMO network, and the SMS body is delivered to the recipient as it is (**Figure 1**). In this case, the recipient may find that the mobile terminal displays blanks or garbled characters, depending on the terminal specifications.

Conversely, when home routing is performed, the message is always transmitted via the DOCOMO network, and character code conversion and error response processing etc. can be performed for the SMS in accordance with DOCOMO service policies (**Figure 2**).

Furthermore, NTT DOCOMO has developed functions to improve convenience in consideration of the increased SMS usage expected with the commencement of SMS interconnectivity in Japan. In this article, we describe SMS anti-spam functions, and support for the 2in1 service from among the functions provided by NTT DOCOMO.

1) SMS Anti-spam Functions

It is anticipated that the commencement of domestic SMS interconnectivity will bring an increase in SMS traffic. Accordingly, we have expanded the SMS anti-spam functions to make SMS usage even more secure for this increasing number of SMS users. In addition to the SMS batch refusal, non-identifiable SMS refusal and international SMS refusal functions, we have added functions to refuse SMS sent from other domestic operators, refuse individual numbers, and receive from individual numbers. SMS refusal settings can be confirmed and changed with voice guidance,

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*1 **roaming out:** Enables incoming and outgoing calls via a communications network managed by an overseas operator with which the user has a roaming subscription.

*2 **USSD:** Technology standardized by the GSM for sending and receiving messages between mobile terminals and servers.

*3 **Web customer control:** Functions that enable individual user settings related to service provision to be adjusted or registered via a web interface.

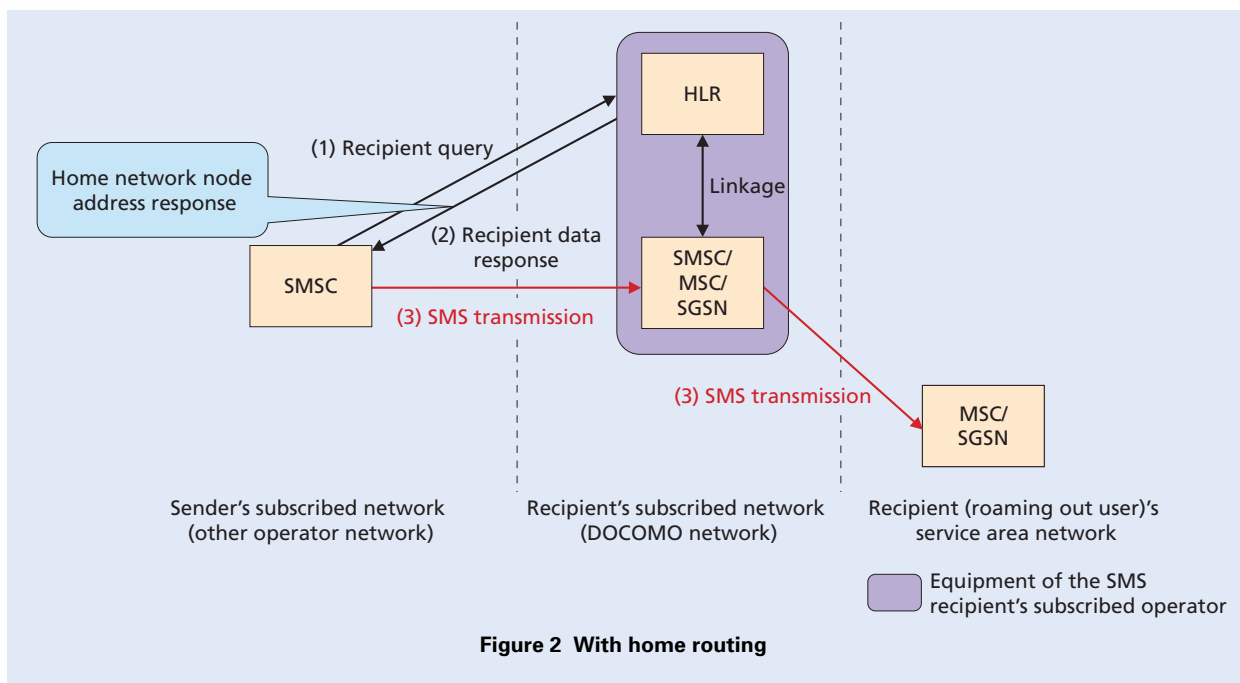
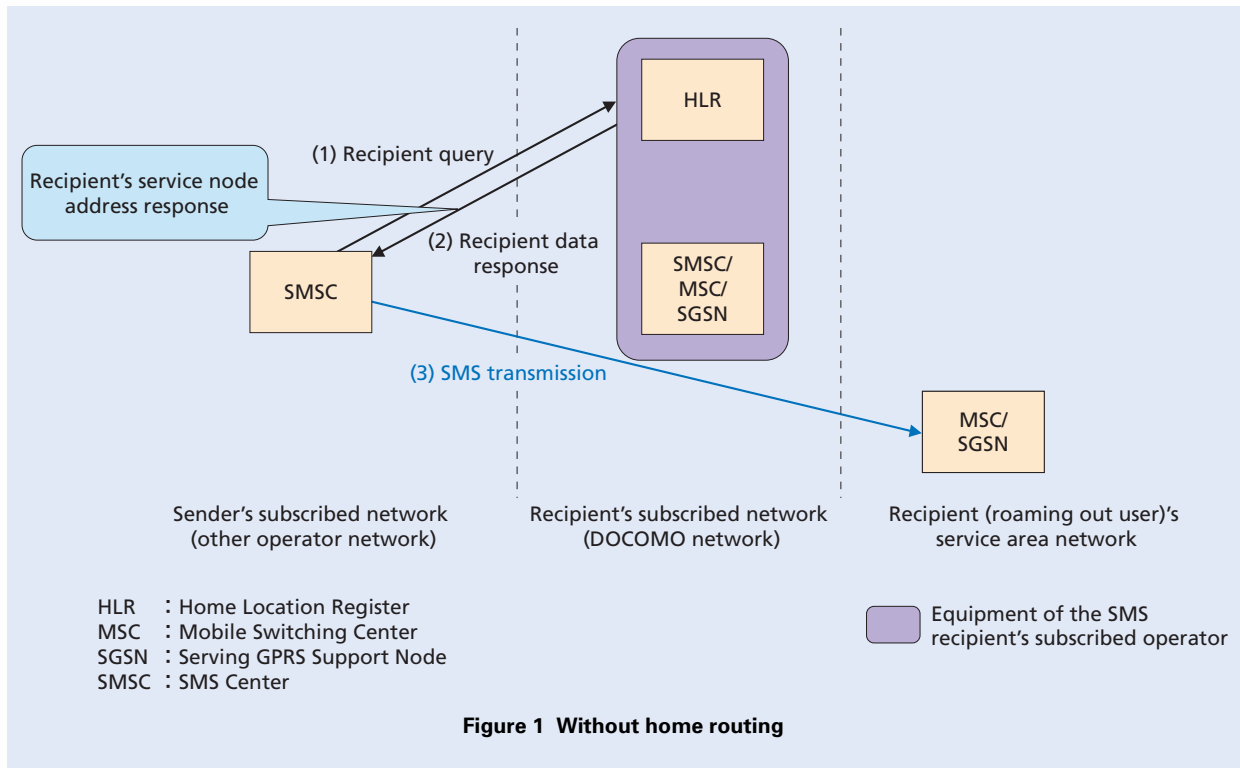
Unstructured Supplementary Service Data (USSD)^{*2} or Web customer control^{*3}.

With domestic interconnectivity, since an SMS from another operator must pass through the DOCOMO network once (“home routing” mentioned above), even when the SMS recipient is roaming out, the SMS anti-spam functions that we have

added realize SMS refusal determination processing that is independent of the service area in which the recipient is located.

2) 2in1 Service Support

As one of the company’s services, NTT DOCOMO offers a 2in1 service that enables two telephone numbers to be set for a single mobile terminal.



Because these two numbers are identified as A or B in the mobile terminal, when receiving with the B number, a service code indicating the B number is assigned to the SMS header by the exchange. For this reason, if home routing was not performed for an SMS from another operator, it was not possible to add the above service code.

With domestic interconnectivity, it is now possible to receive an SMS with the B number when the SMS is sent via the DOCOMO network using the home routing system mentioned above, because the above service code can be assigned.

In this article, we have described an overview of the expanded functions designed to improve convenience for SMS services in conjunction with the commencement of SMS interconnectivity between domestic mobile terminal operators. As a method of sending and receiving text messages using only phone numbers, we believe that SMS is a handy communication service, however, particular needs will arise with SMS in the future. We will continue to strive to improve convenience in response to SMS usage patterns.