

NUMBER PORTABILITY

ECE 525E – MOBILE & WIRELESS COMMUNICATION

Tuesday, 08 April 2025

WHAT IS NUMBER PORTABILITY?

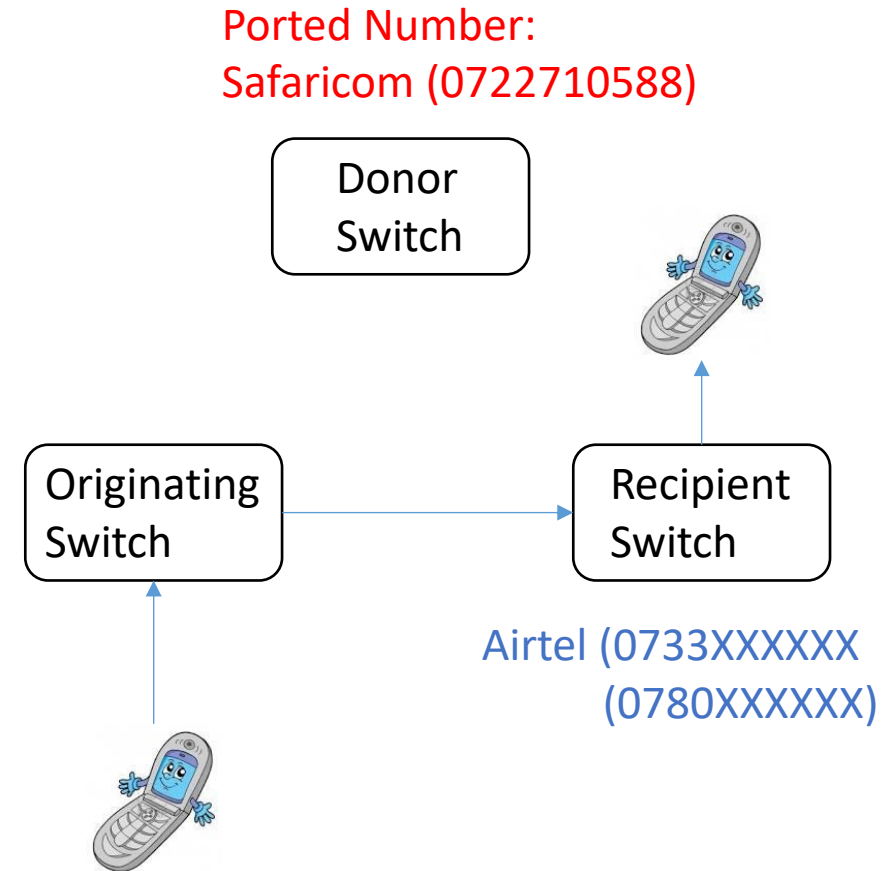
1. Number portability allows subscribers to keep their telephone number as they switch operators.
2. Number portability is an important mechanisms for enhancing competition among telecommunication operators and to improve customer service quality.
3. There are three types of number portability systems:
 - a) **Location portability:** A subscriber moves from one location with the same telephone number. This type of portability is implied in mobile cellular communication systems.
 - b) **Service portability:** A Subscriber keeps the same telephone number when changing services. Examples include changing from fixed telephone service to mobile service. Service portability may be restricted by the national numbering scheme.
 - c) **Operator portability:** A subscriber switches from one operator to another without changing his telephone number.

HISTORY OF NUMBER PORTABILITY

1. Number portability was introduced, as a concept, in United States of America in 1996.
2. Initially, it was operational for fixed line, but later matured to wireless/mobile number portability.
3. Today, US and Canada have one Centralized Number Portability Clearing House (NPC) for number portability within fixed and mobile (2G, 3G, 4G & 5G).
4. Kenya set up its number portability clearing house in **2011**.

NUMBER PORTABILITY TERMINOLOGY

1. Originally, a telephone number is assigned to a switch called a **donor switch**.
2. If the telephone number is moved from the original switch (**donor**) to another, then
 - (i) new switch is called the **recipient switch**, and
 - (ii) the moved number is called a **ported number**.
3. The **originating switch** initiates a call using a number that was ported.



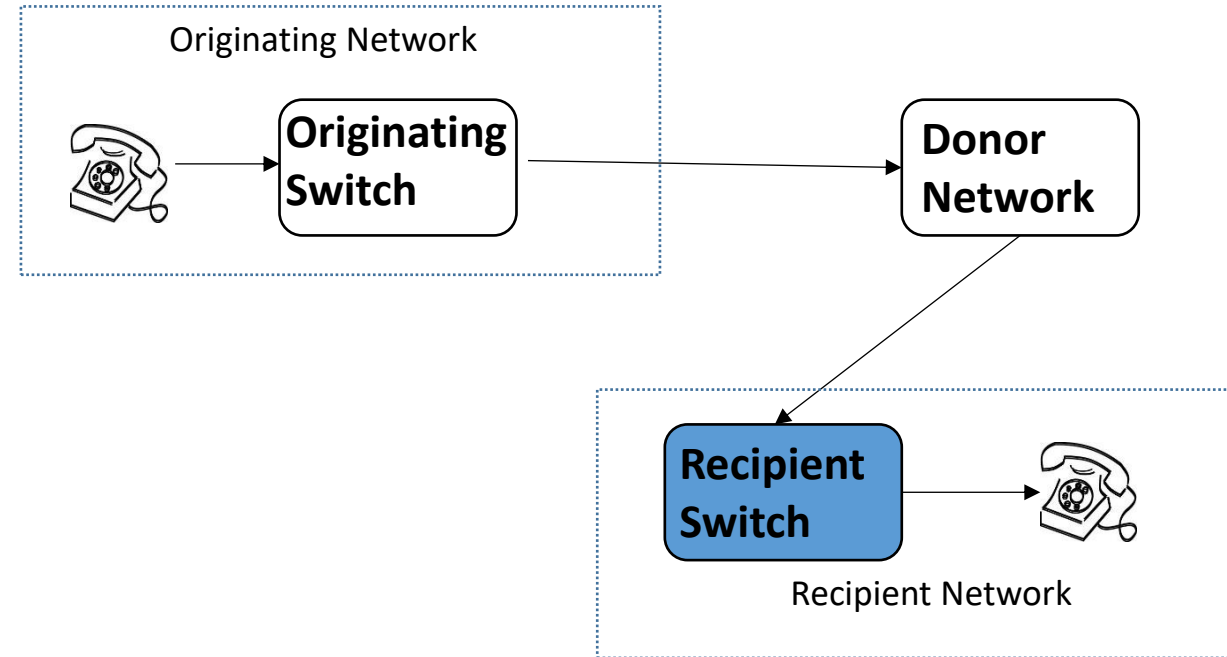
NUMBER PORTABILITY

1. Many countries have implemented number portability.
2. They include USA, Japan, Taiwan, UK , China and Australia.
3. There are four basic methods for supporting number portability:
 - (a) Call forwarding
 - (b) Call drop-back
 - (c) Query on release
 - (d) All call release

CALL-FORWARDING

The call-forwarding procedure uses the following steps:

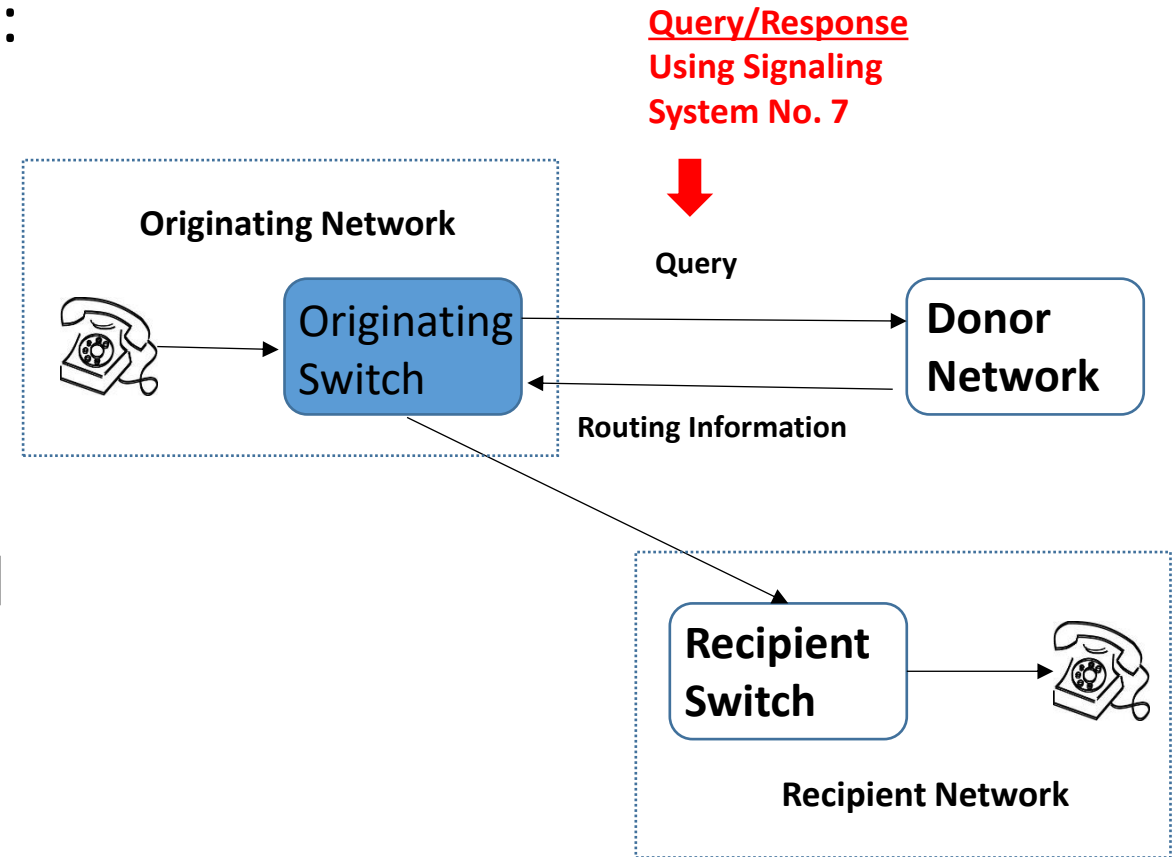
1. The **originating switch** routes the call to the **donor switch** after interpreting the called number (0722770588)
2. If the called number has been ported, then the **donor switch** forwards the call to the **recipient switch**.
3. If the number is not ported, then the call is handled in exactly the same way as a normal call.



CALL DROP-BACK SET-UP PROCEDURE

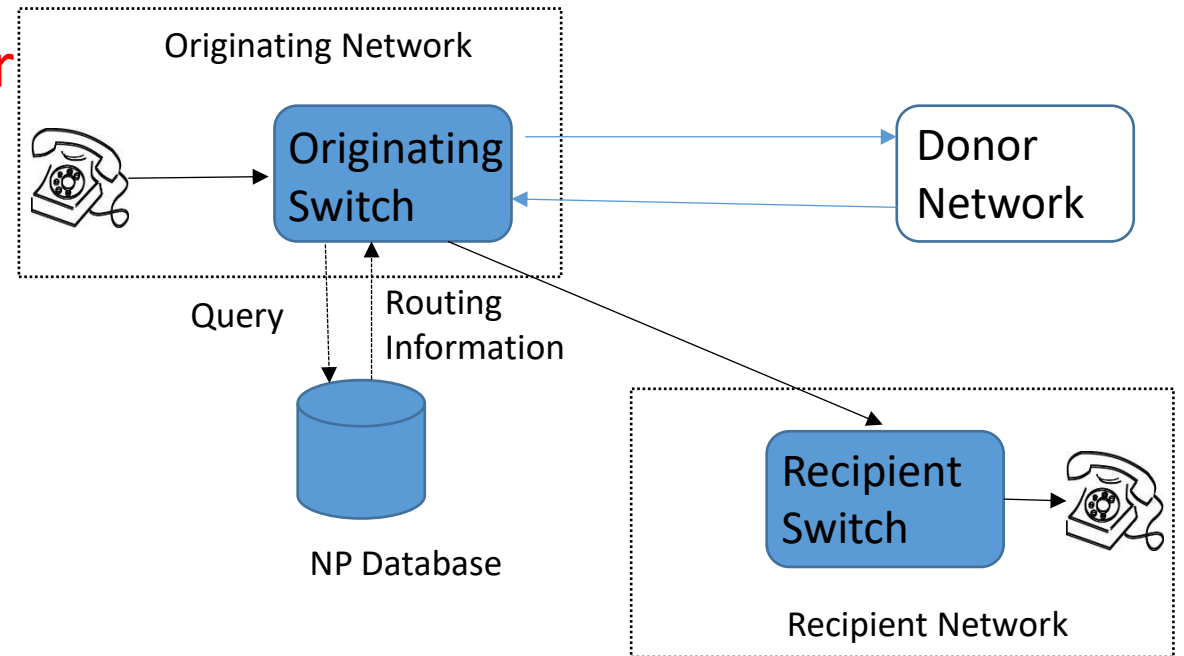
The call-drop-back procedure is as follows:

1. The **originating switch queries the donor switch to obtain the routing information** of the recipient switch.
2. The **Originating switch sets up a trunk to the recipient** based on the obtained routing information.



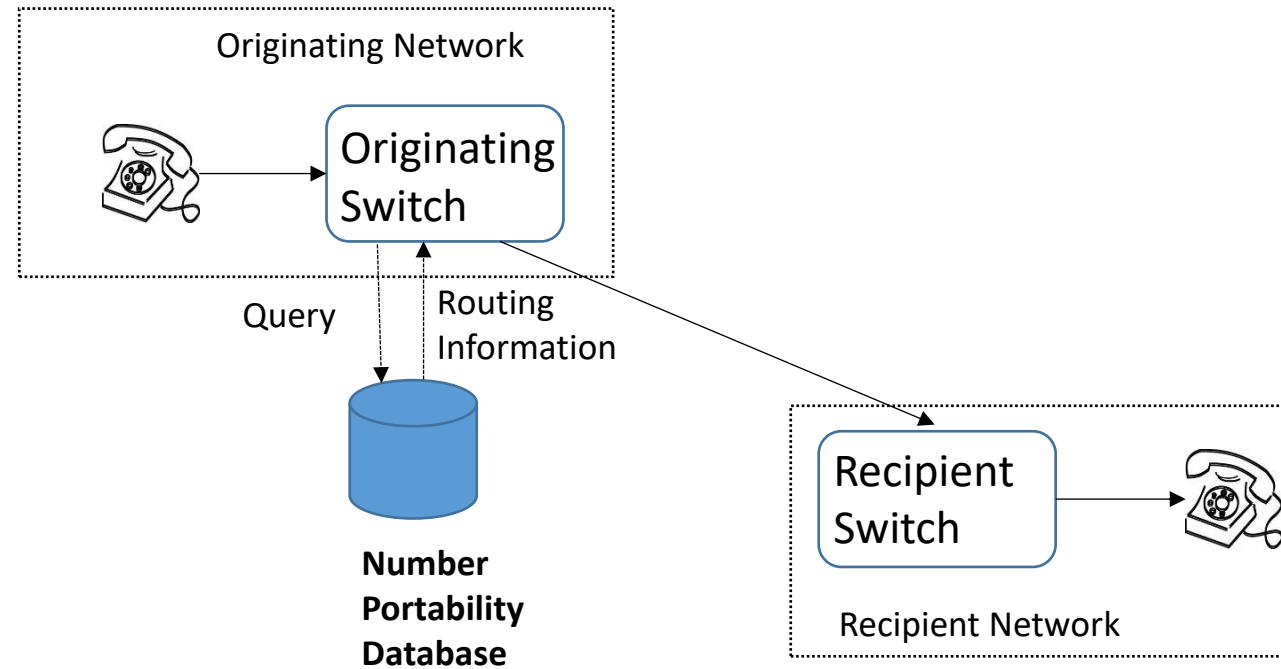
QUERY ON RELEASE PROCEDURE

1. The original switch contacts the donor switch using Signalling Systems No 7 (SS7).
2. If the dialled number is ported, the donor switch replies with SS7 release message, REL.
3. Upon receiving the REL message, the originating switch sends a query to the portability database to obtain the routing address of the recipient number.
4. Using the routing address, the originating switch sets up the trunk to the recipient switch.



ALL-QUERY PROCEDURE

1. The originating switch sends a SS7 query message to the number portability database. (Question: Where is this number currently based?)
2. If the number is ported, the number portability database responds with the routing information of the ported number.
3. The originating switch sets up a connection to the recipient switch based on the routing information.



NUMBER PORTABILITY - CLASS EXERCISE

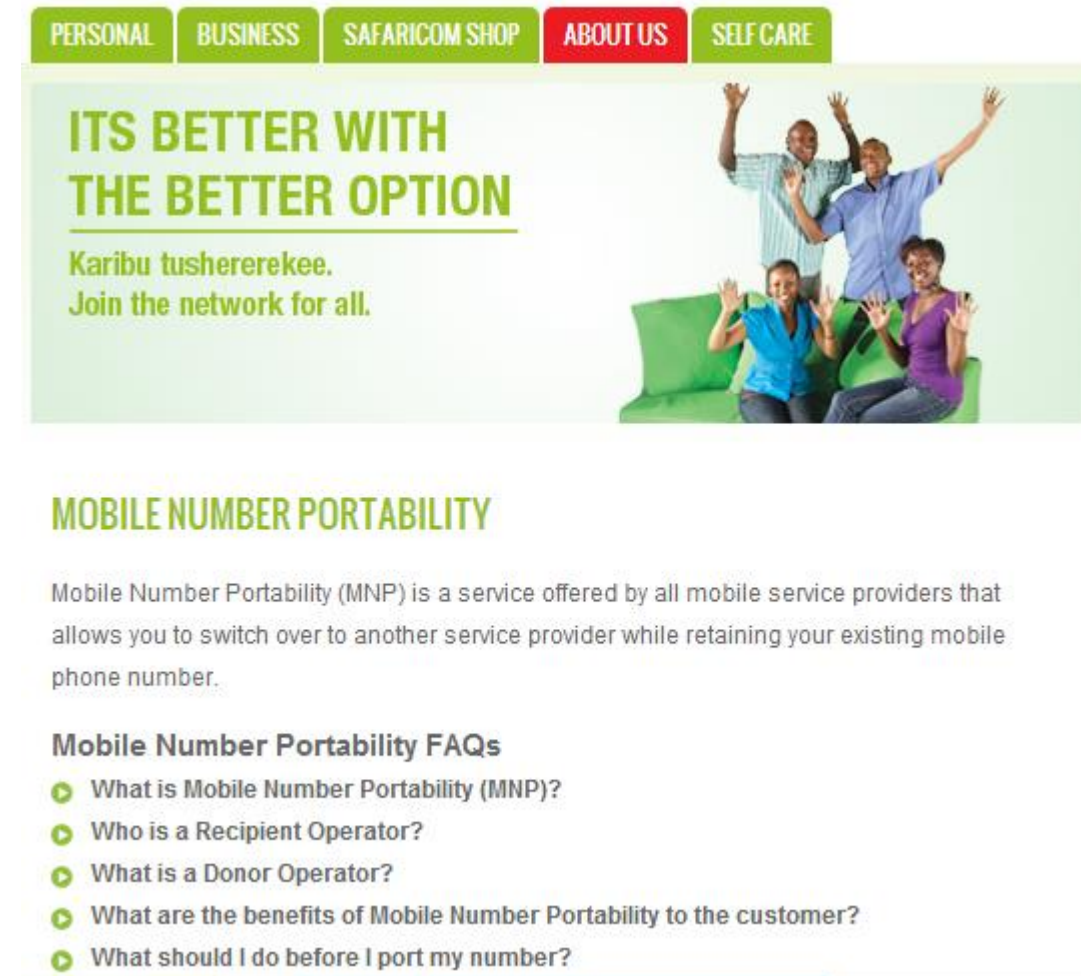
1. Access the website:

<http://www.safaricom.co.ke/about-us/about-safaricom/mobile-number-portability>

2. You will obtain the screen shown on the right.

3. Answer the following questions:

- a) Who is a 'donor operator'?
- b) Who is a 'recipient operator'?
- c) Where does one make requests for safaricom number porting?
- d) What is a 'cool-off period' for number porting?
- e) How long is the porting window?
- f) How can one find out if the number he is calling has been ported?
- g) Where is the regulatory clearing house for number portability in Kenya?



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MOBILE NUMBER PORTABILITY

Mobile Number Portability (MNP) is a service offered by all mobile service providers that allows you to switch over to another service provider while retaining your existing mobile phone number.

Mobile Number Portability FAQs

- What is Mobile Number Portability (MNP)?
- Who is a Recipient Operator?
- What is a Donor Operator?
- What are the benefits of Mobile Number Portability to the customer?
- What should I do before I port my number?