

ITU-T Study Group 3 Activities on cost modeling

September 1st 2014

Byoung Nam Lee

Table of Contents

- I. Introduction
- II. SG3 Mini-Workshop on Cost Model
- III. SG3 Ad-Hoc Group on Regional Cost Models (Q4/3)
- IV. Conclusion

I. Introduction

The Ad hoc group on Cost Models was established at the 2013 SG3RG-AO meeting (in Tokyo in April 2013) and the following high priority topics were identified: .

- Further study of data services
- Cost model for Domestically Regulated Data Services
- Implementation of interconnection cost calculation

The objective of this presentation is to provide the relevant information on the cost models that have been discussed in a the recent SG 3 meeting for the further study of SG3 RG-AO on Cost Models.

This information will be served as useful materials for SG3 RG-AO to study and develop the regional cost model.

II. SG3 Mini-Workshop on Cost Model (1/7)

During the SG3 May 2014 meeting, there was mini-workshop on cost model. The presentation is available here: <http://www.itu.int/en/ITU-T/studygroups/2013-2016/03/Pages/Mini-Workshops-201405.aspx>

Monday 26 May, Starting at 14h30

Mini-Workshop 1: Cost Models – Case Study : Roaming

- [Towards an ITU cost model for international mobile roaming for NRAs](#) (Simon Forge)
- [Roaming Costs : How to create a new virtuous circle](#) (Pascal Mayeux, Free Mobile)
- [The paraguayan experience in International Mobile Roaming](#) (Tito Lopez, Conatel, Paraguay)

- “Towards an ITU cost model and methodology for international mobile roaming for NRAs” (TD 51, PLEN/AO)

This document presents the cost model on IMR and guidelines for NRAs to collect data from MNOs.

II. SG3 Mini-Workshop on Cost Model (2/7)

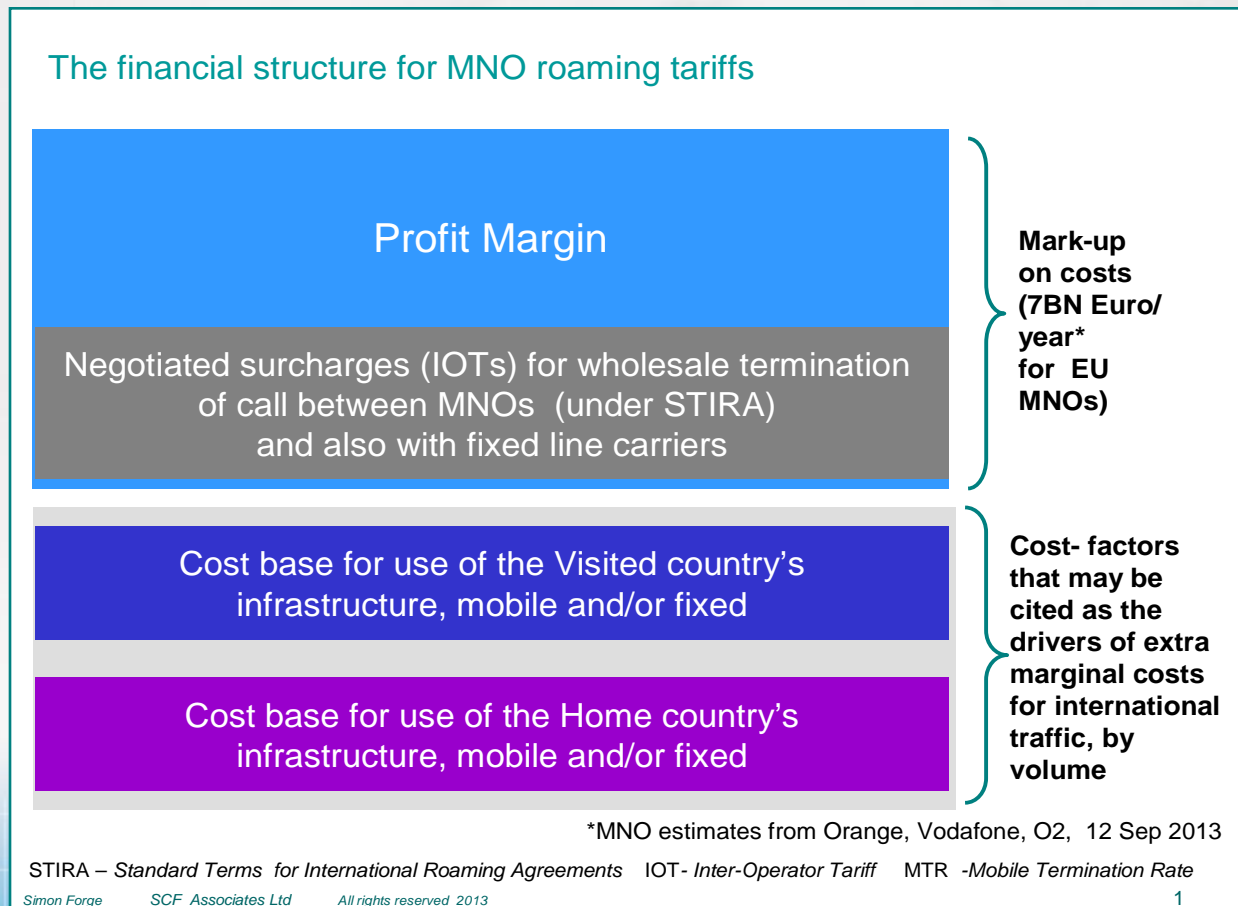
The cost model aimed at the assessment of the itemised costs added by roaming. That is, incremental cost of carrying additional calls for roaming in and out of the home and visited country, in terms of impacts on the MNO cost base in two areas;

- a. Additional load on facilities and support infrastructure due to roaming traffic; this includes the infrastructure of at least two MNOs, and perhaps a third and/or a fixed line network operator (FNO), especially for long distance (LD) carriage.
- b. Additional load on the business processes to handle roaming – from reception of visiting subscribers to their exit, for both MNOs and for any other operator.

In addition, the roaming subscriber will be charged supplementary fees due to the wholesale agreements between MNOs for roaming, the inter-operator tariffs (IOTs), which increase the MNO mark-up and the subscriber charge for the call.

II. SG3 Mini-Workshop on Cost Model (3/7)

The overall cost structure for the roaming business model is illustrated below with the infrastructure's (incremental) costs over domestic operations plus the wholesale agreement charges



II. SG3 Mini-Workshop on Cost Model (4/7)

The model employs the Use Case approach to identify the cost elements in resources necessary for roaming, be they human resources, network elements and/or IT support systems, including the main MNO infrastructure elements such as data centers, call centers or network operations centers (NOCs).

There are four main use cases, or situations, for roaming in a visited country. The four main use cases for roaming may vary in their composition by:

- Pre-paid or post-paid billing
- Media – voice, or data, or SMS

This represents 24 possible use cases in all, varying by billing mode and limiting conditions.

II. SG3 Mini-Workshop on Cost Model (5/7)

For analysis of the International Mobile Roaming service cost structures –
Use Case 1- Roaming mobile call made within visited country

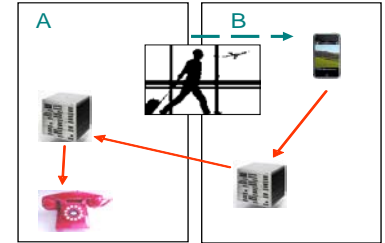
Call type	Cost elements	Use Case Illustration
<p>A traveller from Country A goes to Country B and makes a call to a subscriber in country B</p> <p>Roaming mobile call made within visited country to local subscriber</p>	<ul style="list-style-type: none"> •Mobile origination in country B •[National transit in country B] •Mobile termination in country B •Roaming specific costs (technical & operational) •Retail specific costs (technical & operational) 	

11

Use Case 2 Call from visited country back to home country

A traveller from country A goes to country B and makes a call back home to a subscriber in country B.

Call type
 International call back to home country from visited country



- Cost elements**
- Mobile origination in country B
 - International transit
 - Mobile or fixed termination in country A
 - Roaming specific costs (technical & operational)
 - Retail specific costs (technical & operational)

Simon Forge SCF Associates Ltd All rights reserved 2013

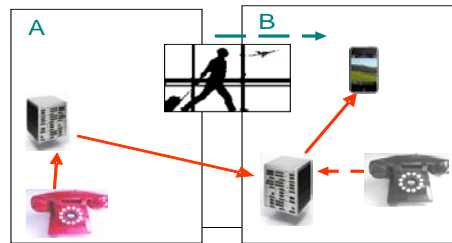
12

Use Case 3 Receiving a call in a visited country (from home or visited country)

A traveller from country A goes to country B and receives a call - from either of the countries A or B – so may be a local or international call

Call type

Incoming call while roaming that originates from home country, or, from inside the visited country, and may come from a mobile or a fixed line phone



- Cost elements**
- Mobile termination in country B
 - Possible International transit
 - Roaming specific costs (technical & operational)
 - Retail specific costs (technical & operational)

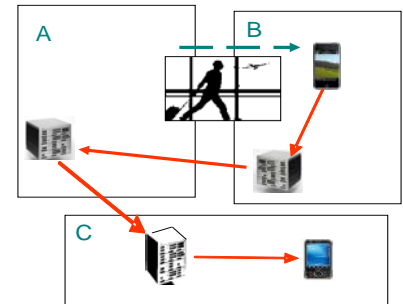
Simon Forge SCF Associates Ltd All rights reserved 2013

13

Use Case 4 - Call to a third country while roaming

A Traveller from country A goes to country B and makes a call to a subscriber in country C.

Note that country C may or may not be in a region where international roaming prices are regulated.



Call type
 Call from inside a visited country to a third country

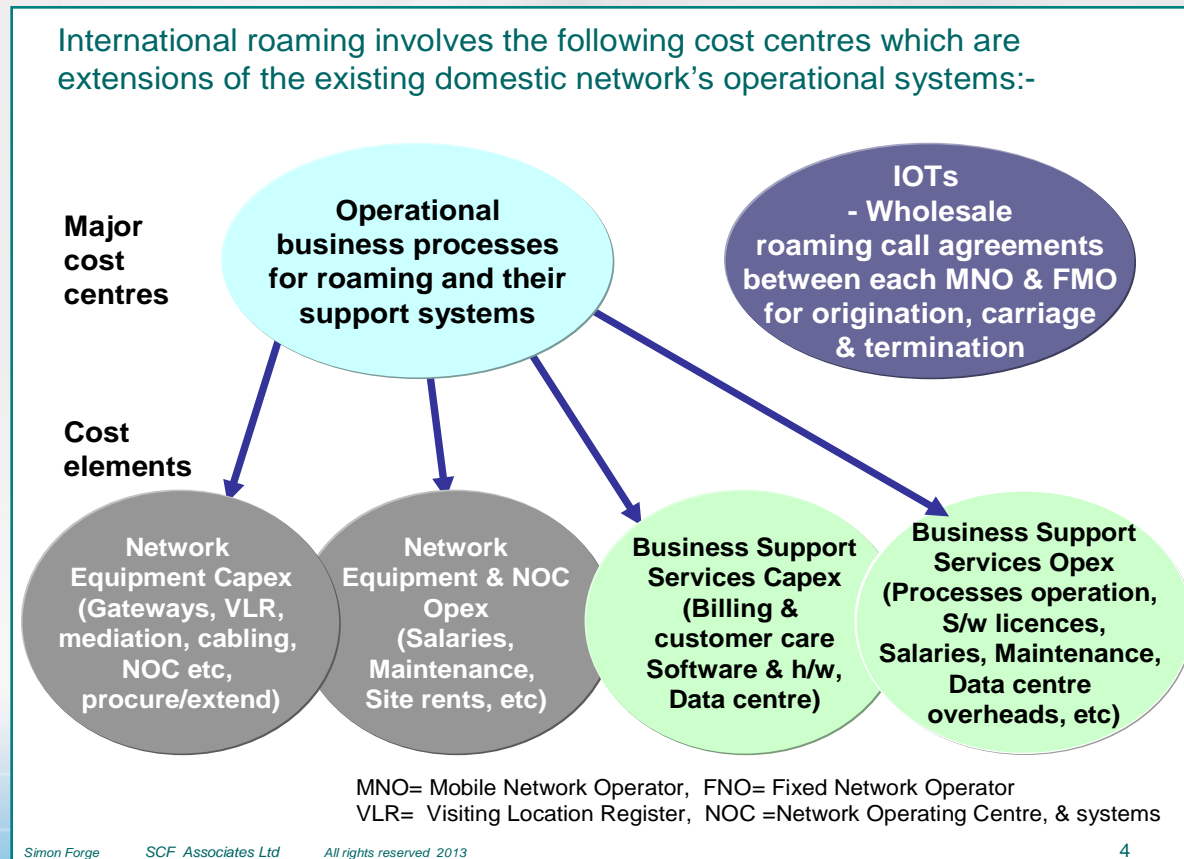
- Cost elements**
- Mobile origination in country B
 - International transit
 - Mobile origination in country A
 - International transit
 - Mobile or fixed termination in country C
 - Roaming specific costs (technical & operational)
 - Retail specific costs (technical & operational)

Simon Forge SCF Associates Ltd All rights reserved 2013

14

II. SG3 Mini-Workshop on Cost Model (6/7)

A further principle, as we are focused on the differences in costs due to roaming over domestic tariffs, is to understand the incremental cost for each part of the business process due to the fact that it is employed for roaming.



II. SG3 Mini-Workshop on Cost Model (7/7)

Recommendations D-98, D99 and D.140 underpin the MNO cost-model position

Hopefully the cost model presented here should help to go further in the direction of roaming accountability and transparency, following the path set by ITU-T in its Recommendation D.98.

Recommendation D.99 discusses the question of an indicative rate for international mobile termination and provides some suggestions for consideration by national regulatory authorities, based on using the fixed termination rate as an initial basis for negotiations. It is also possible to move forward on such indicative rates if we take into consideration another Recommendation in the domain of international call termination accounting, Recommendation D.140

A combination of D.98, extending from transparency for subscribers and employing its suggestions on the use of price caps, would follow the principles from D.99 and D.140 into cost-based mobile pricing. This could form the basis for further ITU-T Recommendations which are strongly market-related. A cost-based analysis of roaming tariffs would provide the platform for pragmatic and realistic inputs to national regulators considering the impacts of roaming

III. SG3 Ad-Hoc Group on Regional Cost Models (1/4)

During the SG3 May 2014 meeting, there was a meeting of Ad-Hoc Group on Regional Cost Models (Q4/3). At the meeting, China presented a contribution (“Experience On Broadband Cost Measurement and Further Consideration”, C28) on broadband cost measurement and proposed to create an email reflector to share information on broadband cost models.

The meeting agreed to establish the Broadband Cost Measurement eMail Group. The objective of this email (correspondence) group is to discuss and exchange the methods and models related to broadband network cost measurement which may be used to assess if broadband prices are cost-oriented.

The main task for this group is to identify the different broadband cost models among members within the email group to determine the model used most often and to submit a report regarding the latest progress of the above objects depending on the input of the email group members.

The ToR of this group can be found in Annex A to TD 36(PLN/AO).

III. SG3 Ad-Hoc Group on Regional Cost Models (2/4)

At the meeting, other regional groups' activities on their regional cost models were presented.

In SG3 RG-AFR, a working group was created to review and revise the D.600R in February 2013. The mandate of the group was as follows;

- 1) Gather cost models and their underlying basic principles from within the Africa region.
- 2) Analyse the advantages and drawbacks of the different models.
- 3) Update Recommendation D.600R within a given time-frame.

At its 2014 February meeting, the group identified LRIC/CMILT bottom-up cost model is a forward-looking cost model used by several operators and regulators in the Africa region, mainly in the western part. The group also presented the advantages and drawbacks of LRIC/CMILT bottom-up cost model.

III. SG3 Ad-Hoc Group on Regional Cost Models (3/4)

The group proposed the guideline for the revision of Recommendation D.600R and construction of cost models in the Member States of the Africa region as follows;

- Construction and use of a forward-looking cost model of the pure LRIC type.
- Construction of the model to take account solely of those costs that are necessary to provision of the service (e.g. interconnection).
- In constructing the model, account should be taken of:
 - technological advances;
 - quality of service;
 - profitability of the service (return on capital invested);
 - efficiency of the operator (production of best quality at optimum cost);
 - service provision of the required capacity;
 - service provision as a package offering.

III. SG3 Ad-Hoc Group on Regional Cost Models (4/4)

At the SG3 RG-LAC meetings, a working group was created to review and revise the D.400R in March 2013.

At its 2014 March meeting, the group decided to request BDT to ensure that the study on regulatory accounting, auditing and cost models which it is currently carrying out includes guidelines and methodologies that can be applied by the regulatory authorities of the region for defining cost models.

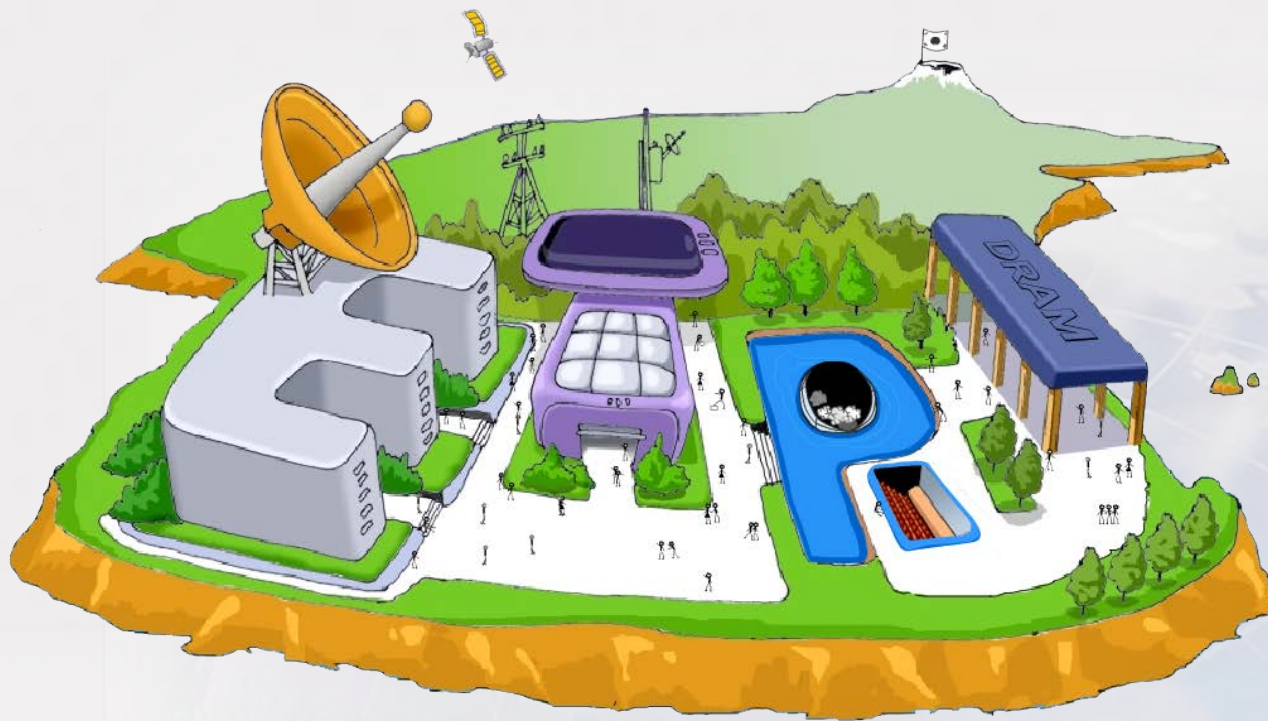
The group also requested TSB to ensure that the questionnaire on cost models submitted by this ad hoc group to the meeting held in Mexico in 2013 is circulated again, with an improved distribution network, and can be downloaded, reviewed and completed by the regulatory authorities in order that the expected results can be obtained.

In addition, BDT has been asked for information on trends as regards regulation of wholesale and retail service prices in the region over the last four years, from the tariff policies survey.

IV. Conclusion

It is proposed that the SG3RG–AO review the documents introduced in this presentation and share the idea and implications for the issues identified during the meeting.

As an output to the SG3RG–AO meeting, contributions should be developed for submission to the SG3 meeting in Geneva. The cost model for mobile roaming as presented at the SG3 meeting in May could also be published as a technical report in order to encourage its study in the regions.



Thank you for your attention !