Options for RIPE NCC Charging Scheme 2013

Background
In the beginning of 2012, the Executive Board received a report from a Charging Scheme Task Force (CS-TF) comprised of a variety of RIPE NCC members, RIPE NCC staff and members of the Executive Board to advise on the different aspects of the RIPE NCC Charging Scheme model. The CS-TF report included a list of issues and the recommendations on these issues. The CS-TF did not propose any specific model.

Following receipt of this report, the Executive Board in June 2012 discussed possible Charging Scheme models. In July 2012, a simplified model was presented to the membership (hereafter "Option B") that establishes three categories (Small, Regular, Large) and allows members to select the category in which the LIRs they hold should be placed and under which they are charged. The model includes a PI End User per assignment fee. Existing members would have their LIRs' initial categories set based on the current model ("Charging Scheme 2011").

Some members liked the general idea behind the model but overall there was not much outright support. Key points made against the model related to concerns over the self-determination aspect of the model, such as the belief that large LIRs will declare as Small LIRs, and that the proposed model would favour large LIRs. The discussion did not produce strong support for a specific alternative Charging Scheme model.

Based on these discussions, the Executive Board has decided to put three models forward to the membership reflecting the variety of opinions. In all three models, the members are charged fees based on the details of the LIRs that they hold.

The Executive Board also took note of the CS-TF recommendations on charging for legacy address space resources. The Board believes that because discussions regarding legacy space resources are continuing among the RIPE NCC membership, as well as the RIPE community, the RIPE NCC Charging Scheme should address charging for legacy address space resources only once these discussions have been resolved.
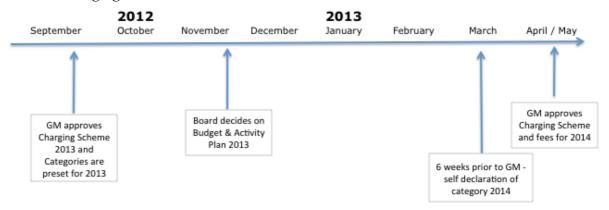
Expected 2013 revenue per model
In general, the average service fee for 2013 can be lowered as a result of the decrease in the average cost per LIR as well as the expected further membership growth. This decrease in average cost per LIR is caused by the fact that the membership growth exceeds the growth in expenses. Each of the models is calculated with a projected income of approximately EUR 20 million.

Charging Scheme Timeline
The CS-TF recommended that the Charging Scheme should be voted upon by the members at the first GM of the year rather than at the second one, as is currently the case.

If the Charging Scheme approved by members incorporates self-declaration of billing category (i.e. Charging Scheme Option B below), LIRs would have to declare the category six weeks before the first GM of the year. This would allow LIRs to know the fees they will pay for the next year well in advance. For 2013, LIRs would be placed in a billing category by the RIPE NCC based on their 2012 billing category.

Revised Charging Scheme Timeline

Models

The Executive Board proposes three different options for the members' consideration:

1. Option A – "One LIR, one Fee"; no categories, identical fees for all LIRs
2. Option B – As presented to the community in July 2012, with self-classification from 2014
3. Option C – Based on the current model (Charging Scheme 2011) but modified to include some recommendations from the CS-TF:
    o Amend the billing score algorithm to include IPv6
    o Remove the separate charge for AS Numbers

Charging Scheme 2013 - Option A
"One LIR, one fee"

Option A is a Charging Scheme model based on the principle that members should have equal fees for each LIR they hold. This model has no categories and no differences in fees between LIRs: one LIR, one fee.

Based on existing RIPE Policy, the separate charge of EUR 50 per Provider Independent address block will be continued. Contrary to previous years, AS Numbers are excluded from this separate charge.

Non-members that are currently charged fees for using specific services such as DNSMON and NRTM, as well as Direct Assignment Users, must also become members, paying the same standard fee per LIR as other members. Organisations that wish to support the RIPE NCC or particular activities would also become members.

The sign-up fee for new LIRs will be continued and will remain at EUR 2,000.

Change matrix for categories

Overview of the changes in fee for existing LIRs:

Existing LIRs	No. of LIRs	Current fee	New fee	% Change
Extra Small	2,684	1,300	1,800	+38%
Small	4,066	1,800	1,800	-
Medium	1,457	2,550	1,800	-29%
Large	291	4,100	1,800	-56%
Extra Large	72	5,500	1,800	-67%

Charging Scheme 2013 - Option B
Majority of LIRs contribute the average per-LIR income

The model is based on the majority of LIRs contributing the average per-LIR fee based upon the budget for a given year. This amount, the "Regular" contribution, is determined by dividing the budgeted figure for the total income received from LIRs by the expected number of LIRs in that year.

Since it would be unfair to ask a "Regular" contribution from some LIRs, for instance those that hold less than an IPv4 /22, the model includes a category for "Small" LIRs. "Small" LIRs would pay half the fees of LIRs in the "Regular" category.

On the other hand, there are some LIRs who would be regarded as contributing less than their fair share to the RIPE NCC's operating expenses at the "Regular" level. Examples of this would include LIRs with substantial address space holdings, LIRs that derive more than the average benefit from the RIPE NCC and LIRs that are of a size that is clearly larger than "Regular". The model would establish a "Large" category and "Large" LIRs would contribute twice the amount of LIRs in the "Regular" category.

In future, members would be given an annual opportunity to determine the category for their LIRs for the coming year. However, for 2013, LIR categories will be set based on the existing categories (Extra Small becomes "Small"; Small and Medium become "Regular"; and Large and Extra Large become "Large").

Based on existing RIPE Policy, the separate charge of EUR 50 per Provider Independent address block will be continued. Contrary to previous years, AS Numbers are excluded from this separate charge.

Non-members that are currently charged fees for using specific services such as DNSMON and NRTM, as well as Direct Assignment Users, must become members. Organisations that wish to support the RIPE NCC or particular activities should become members.

The sign-up fee for new LIRs will be continued and will remain at EUR 2,000.

Existing LIRs	Expected number of LIRs	Current fee	New fee
Small	2,684	1,300 + EUR 50 per PI assignment	1,050 + EUR 50 per PI assignment
Regular	5,523	1,800 – 2,550 + EUR 50 per PI assignment	2,100 + EUR 50 per PI assignment
Large	363	4,100 – 5,500 + EUR 50 per PI assignment	4,200 + EUR 50 per PI assignment

Change matrix for categories

Overview of the changes in fee for existing LIRs:

Existing LIRs	No. of LIRs	Current fee	New fee	% Change
Extra Small	2,684	1,300	1,050	-19%
Small	4,066	1,800	2,100	+17%
Medium	1,457	2,550	2,100	-18%
Large	291	4,100	4,200	2%
Extra Large	72	5,500	4,200	-24%

Charging Scheme 2013 - Option C
Proposal based on existing Charging Scheme incorporating CS-TF recommendations

This option takes the current Charging Scheme model ("Charging Scheme 2011") and makes several modifications:

- Based on existing RIPE Policy, the separate charge of EUR 50 per Provider Independent address block will be continued. Contrary to previous years, AS Numbers are excluded from this separate charge.

- The billing score algorithm is adjusted; IPv6 is included for 2013 in the billing score algorithm.

- Non-members that are currently charged fees for using these specific services such as DNSMON and NRTM, as well as Direct Assignment Users, must become members. Organisations that wish to support the RIPE NCC or particular activities should become members.

The sign-up fee for new members will be continued and will remain at EUR 2,000.

RIPE NCC Annual Service Fees 2013

The service fees for 2013 are annual charges for the RIPE NCC membership. The service fee for 2013 will consist of an annual fee for the members' LIR billing category plus a set fee of EUR 50 for each Provider Independent assignment registered to the member on 30 September 2012. For the 2013 service fees, and for a comparison with the service fees since 2007, see the following table:

Annual service fee (in EUR)	2007	2008	2009	2010, 2011 and 2012	2013
Extra Small	1,300	1,300	1,300	1,300 + 50 per PI assignment	1,200 + 50 per PI assignment
Small	1,800	1,800	1,800	1,800 + 50 per PI assignment	1,650 + 50 per PI assignment
Medium	2,550	2,550	2,550	2,550 + 50 per PI assignment	2,450 + 50 per PI assignment
Large	4,100	4,100	4,100	4,100 + 50 per PI assignment	4,000 + 50 per PI assignment
Extra Large	5,500	5,500	5,500	5,500 + 50 per PI assignment	5,400 + 50 per PI assignment
Sign-up fee	2,000	2,000	2,000	2,000	2,000

Each LIR receives a score according to the Billing Score Algorithm (see Appendix).
All LIRs are ranked in ascending order. LIRs with the same score get identical rankings. The billing categories are defined using the following cumulative boundaries:

- Up to 20% of LIRs will make up the Extra Small billing category
- Up to 75% of LIRs will make up the Extra Small and Small billing categories

- Up to 95% of LIRs will make up the Medium billing category and all smaller billing categories
- Up to 99% of LIRs will make up the Large billing category and all smaller billing categories
- The remaining LIRs will make up the Extra Large billing category

Percentage of Total LIRs per Billing Category

Billing Category	2009	2010	2011	August 2012	Target 2013
Extra Small	27%	31%	31%	28%	20 %
Small	50%	48%	48%	50%	55 %
Medium	18%	17%	17%	18%	20 %
Large	4%	3%	3%	3%	4 %
Extra large	1%	1%	1%	1%	1 %

Note: The percentages for 2013 may deviate slightly. If a set of LIRs with the same score falls across the boundary between two billing categories, they will be part of the higher billing category.

The billing score algorithm will be run after the members at the General Meeting have approved the Charging Scheme 2013. The billing scores and the number of Provider Independent Assignments for LIRs will be determined based on data from 30 September 2012. Every LIR will be notified of their billing score, their billing category and their service fee by email.

The billing category for each LIR can be seen by selecting the relevant LIR from the full list of LIRs by country, which is available at:
http://www.ripe.net/membership/indices/

Change Matrix - Expected Changes of LIRs Between the Billing Categories for 2013
The Change Matrix indicates the percentage of LIRs currently in a certain billing category that is expected to move to a different billing category for 2013. Since all new registries start as Extra Small, the migration from Extra Small to other categories is higher than the migration between other categories.

For example: The matrix shows that for 2013:
- 39% of the LIRs currently in the Extra Small billing category will move to the Small category
- 1% of the LIRs currently in the Extra Small billing category will move to the Medium category
- 0.1% of the LIRs currently in the Extra Small billing category will move to the Large category
- 0.1% of the LIRs currently in the Extra Small billing category will move to the Extra Large category
- The other 60% of the LIRs will remain in the Extra Small billing category

BILLING CATEGORY	Change to Extra Small	Change to Small	Change to Medium	Change to Large	Change to Extra Large	2013 TOTAL CHANGE
Extra Small		39%	1%	0.1%	0.1%	**40%**
Small	0.2%		6%	-	-	**6%**
Medium	0.2%	0.1%		4%	-	**4%**
Large	0.3%	-	-		4%	**4%**
Extra Large	-	-	-	-		**-**

Note: In the table above, "-" indicates that no registries are expected to move to a particular category.

Appendix: Billing Score Algorithm

An LIR's billing category is set based on the LIR's billing algorithm score. This score is based on Internet resource allocations made over time at the LIR's request. The scoring system takes into account all:

- IPv4 allocations
- IPv6 allocations

For the purpose of this scoring algorithm, an allocation of IPv4 /21 is equivalent ($\triangleq$) to one IPv6 /32 allocation. The following table shows how scoring units are determined based on resource usage. To establish scoring units based on larger or smaller resource usage, the same ratio applies.

IPv4 Allocation	IPv6 Allocation	Scoring Unit
/ 22 $\triangleq$	/ 33 $\triangleq$	0.5
/ 21 $\triangleq$	/ 32 $\triangleq$	1
/ 20 $\triangleq$	/ 31 $\triangleq$	2
/ 19 $\triangleq$	/ 30 $\triangleq$	4

The total score per LIR is the sum of all allocation scores for that LIR.

Using this matching system, the following algorithm is run to determine the total score per LIR:

$$S\,(reg) = \sum_{i=1}^{N} a_i * t_i$$

a_i = Scoring unit

t_i = Time function of allocation i (year of allocation - 1992)

N = Number of allocations

In simplified terms:

- Score = Scoring unit that an allocation is worth
- Time Score = Time function of an allocation (year of allocation - 1992)
- Score X Time Score = Allocation score

The total score per LIR is the sum of all allocation scores for that LIR with a time factor applied to give more weight to recent allocations. Thus, the relative weight of a given allocation decreases over time.