RIPE NCC Charging Scheme 1997

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1. Scope

This document defines the 1997 RIPE NCC charging scheme. It is based on "Alternative Models for RIPE NCC Revenue & Charging 1997" (ripe-143).

The RIPE NCC contributors at their 1996 meeting mandated the RIPE NCC to determine the charging scheme for 1997 given the following constraints:

- The scheme is to be based on charging model 1 as presented in ripe-143.
- The NCC will determine a minimum size category for each local registry based on an algorithm similar to the one proposed for charging model 3.
- The level of reserves proposed in ripe-143 should be reduced to approximately one year's salary cost, to be earned over two years.

Based on this mandate we have developed the charging scheme presented in section two below. Section three details further steps to implement the scheme. Section four provides details of the reasoning behind this scheme both for the record and those interested.

2. Charging Scheme

The charges for 1997 will be fixed annual charges to be paid in advance and based on the size category of a local registry. A minimum size category will be determined based on address space allocations to the registry on November 1st 1996. Registries can be assigned a size category higher than their minimum category upon request. The categories will be published. Local registries established during 1997 will be charged a sign-up fee and 25% of the yearly fee for each quarter; their initial minimum size category will be SMALL. The amount of the charges are as follows:

Charge	**1997**	1996
Yearly SMALL	**2200**	1500
Yearly MEDIUM	**3000**	4500
Yearly LARGE	**4000**	8500
Sign-Up	**1300**	2000

Discussion

The increase in the charge for small registries is due to the agreed principle that each registry will have to pay at least the average costs for registration services in order to prevent cross subsidies and improve stability. Given that principle the absolute increase is kept as low as possible. See ripe-143 for details.

The lowering of the sign-up fee is a direct consequence of lowering the level of reserves and thus the level of "plus" to be earned. If the sign-up fee was kept at ECU 2000 as originally proposed, almost all the "plus" which is required would be earned from it. Only a very small amount would need to be earned from the yearly charges. Consequently the differences in the yearly charges would be reduced to less than ECU 100 which practically eliminates the differentiation according to size category. While changing the sign-up fee is not formally within our mandate we feel that the consequence of eliminating differentiation by size is certainly not intended either. Thus we chose to exceed our mandate and change the sign-up fee such that the size differentiation is maintained. At the level of ECU 1300 the sign-up fee still covers the costs it is designed to cover and approximately half of the "plus" to be earned. We believe that at this level it still provides adequate discouragement for those not serious about performing local Internet registry services.

We developed an algorithm to determine the minimum size category for each registry based on the address space allocations the registry holds. It is a simplified version of the model 3 algorithm described in ripe-143. We consider this algorithm very fair, because the distribution it generates clearly suggests the three size categories. Also the total number of registries per category is not dramatically different from the current distribution. The following table compares the distribution of current size categories with that of the minimum size category determined from allocation data on October 1st 1996:

Category	**New Minimum**	Current
Enterprise	**4%**	4%
Small	**71%**	76%
Medium	**17%**	12%
Large	**8%**	8%

While the distributions themselves suggest that few changes are happening, the breakdown of changes below shows that 16% of all registries will have a minimum size category that is larger than their current one and 12% will have the possibility to change to a smaller category than they have currently chosen.

%	Current	New Minimum
62	SMALL	SMALL
13	SMALL	MEDIUM
7	MEDIUM	SMALL
4	LARGE	LARGE
4	ENTERPRISE	ENTERPRISE
3	LARGE	SMALL
2	SMALL	LARGE
2	MEDIUM	MEDIUM
2	MEDIUM	LARGE
2	LARGE	MEDIUM

Note: Due to rounding the percentages may not add up to exactly 100.

The minimum size category for each registry will be determined based on the address space allocations received by that registry before November 1st 1996. Up to this date the minimum size category for all registries based on current allocations can be found at `ftp://ftp.ripe.net/ripe/local-ir/category` and the allocation data this is based on can be found at `ftp://ftp.ripe.net/ripe/local-ir/allocs` All registries are encouraged to check this data and report any inconsistencies to `<billing@ripe.net>`.

Conclusion

We strongly believe that we have developed a charging scheme that will be regarded as fair, equitable and practical. The process of defining it has been an open one with proposals and discussions on record. We are confident that this scheme will provide adequate stability for the NCC. We certainly hope that the scheme will also be applicable for a longer period than just the coming year 1997.

We sincerely thank those who have provided us with advice and guidance. We especially thank the contributors who keep working hard to achieve consensus on matters concerning the NCC.

3. Steps to Implementation

3 Oct 96

1997 charging scheme published

Preliminary allocation listing per registry published.
Preliminary minimum size category listing published.

3-31 Oct

Registries can review preliminary data and request any corrections.

The NCC will verify allocation time lines of previous years.

1 Nov 96

Detailed billing procedures for 1997 published.

Complete allocation listing per registry published.
Complete minimum size category listing published.

15 Nov 96

Deadline for registries requesting to be moved to a larger category. If no response is received it will be assumed that a registry wishes to be in the minimum category allocated on 1 November 1996.

25-29 Nov 96

Invoices for services in 1997 sent out.

31 Dec 96

Deadline for receipt of payment of invoice for 1997 services.

1 Jan 97

New charging scheme in effect for new local registries.

All registries are kindly requested to note the time schedule.

4. Detailed Reasoning of Charging Model

This section aims to describe the reasoning behind the choice of the charging model laid down in section 2. Since section 2 is intended as a stand alone description of the charging scheme itself some degree of repetition is inevitable in this section. It should be noted that the basis document upon which this reasoning is founded is ripe-143. To that end this section should be read in conjunction with ripe-143. The following three sub-sections will expound in turn on the determination of a registry's size, the revenue required for 1997, and the mechanics of the charging model.

4.1. Determination of Minimum Registry Size

To determine a registry's size, we have defined a measure N(reg) which produces a value in the range {0,1,2,...,100}. N(reg) is a simplification of the charging measure discussed in Appendix C of ripe-143, and is described briefly below.

Let k(reg,i) be the number of addresses allocated to the registry "reg" in year i.

Let w(i) = i - 1992.

Define use(reg) = sum(i in 1993 to 1996) k(reg,i) * w(i).

Let MAX = max{use(reg)} be the maximum use measured for all registries.

The normalised usage for a registry "reg" is then defined as:

$$N(reg) = (use(reg) * 100) / MAX$$

Based on this measure rounded to the nearest integer, we could clearly identify three distinct groups of registries. Those with:

$$\begin{array}{rl} N(reg) \le 4 & \text{(SMALL)} \\ 5 \le N(reg) \le 12 & \text{(MEDIUM)} \\ 12 < N(reg) & \text{(LARGE)} \end{array}$$

This algorith provides a distribution quite similar to the current distribution of size categories.

Note on Allocation Data

Because it was not foreseen that the time line data for allocations would need to be readily available for charging purposes this data is sometimes not directly available from the NCC allocation database.

In particular, suppose a local IR has been allocated something like 193.123.0/19 in March 1993 and then in April 1994 the remainder of 193.123/16, thus:

193.123.32/19
193.123.64/18
193.123.128/17

In some cases, these allocations have been "aggregated" in our allocation database which now shows a single allocation of 193.123/16 in April 1994.

This may result in a local IR getting a slightly higher value of N(reg) than they would otherwise have, and hence be assigned to the wrong size category.

Since we keep audit trails of changes to the database the data about the original allocations is available in most cases. It is just not readily accessible. Between now and 1 November 1996 we will correct this data as much as possible. Registries are encouraged to contact the RIPE NCC `<billing@ripe.net>` with any questions they may have regarding their allocations, as published in `ftp://ftp.ripe.net/ripe/local-ir/allocs`.

4.2. Revenue Required for 1997

RIPE NCC's required revenue for 1997 as explained in ripe-143 consists of two parts. Firstly enough revenue has to be generated to cover the operating costs for 1997, which amount to kECU 1984. Secondly profit after tax has to be earned in order to build up sufficient reserves to cover any RIPE NCC liabilities. At the 1996 annual NCC contributors meeting it was agreed that the size of these reserves should be equal to one years salary costs. The period of time over which these reserves should be built up was retained at two years. This leads to a profit before tax of kECU 494 needing to be earned in 1997.

Therefore in total 1984 + 494 = kECU 2478 of revenue has to be generated.

4.3. Charging Scheme Mechanics

Once the section 4.1 based computed frequency of large, medium, and small local registries are fed into the agreed charging model, (note this is charging model 1 from ripe-143), the charges for respective registries remain relatively unchanged. Large differences are seen however when charges are computed using the revised reserve levels.

If the sign up fee for new registries is kept at ECU 2000 the total amount of reserves generated by it remains constant. This amount is approximately equal to the needed reserves. Thus only a negligible fraction of needed reserves, ECU 5000, will have to be earned from co-ordination activities. It is the disproportionate splitting up of the reserves to be earned from co-ordination activities that gives the difference in charges for large, medium, and small registries. If now, the reserves generated by this activity are almost negligible then the disproportionate splitting of the said reserves has little effect. The outcome is that for all registries an almost identical charge is set. In effect a de facto flat fee for all registries, regardless of size, would be created. This would be in contradiction to the stratification of size, by means of charge, that currently occurs.

There is only one variable that can be altered to regain the differentiation in charges according to size. That variable is the level of reserves that have to be earned from co-ordination activities. If this variable is raised to bring back differentiation then the level of reserves earned from sign up fees must be correspondingly reduced. The only way that this can be reduced is by decreasing the sign up fee that new registries have to pay. Once this reasoning is accepted the only question remaining is what should the new sign up fee level be.

In deciding upon a new sign up fee two opposing aspects need to be weighed against each other. Firstly the fee should be lowered enough to bring about a fair and acceptable differentiation in charging with respect to size. Secondly the fee should not be so low as to negate the deterrent effect a high sign up fee has on non serious local registries starting up business. After considering both of these opposing factors we conclude that a sign up fee of ECU 1300 is the most reasonable option. This fee, although lower than the present level of ECU 2000, will still maintain a degree of deterrence. The differentiation in charges that it generates although not as great as that originally presented in ripe-143 is still marked.

An extra sideline benefit that this changed sign up fee would bring about is the extra financial stability that RIPE NCC would have if the number of new registries suddenly dipped. Under the present model all of our reserves would be earned from sign up fees, which may leave us financially vulnerable if the number of new registries was a lot less than forecast. If however the amended sign up fee was introduced then a half of our reserves would be earned from existing registries, meaning that at least half of the reserves would be guaranteed.