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**Thirty second MEVA Technical Management Group Meeting (MEVA/TMG/32)**  
Havana, Cuba, 10 to 12 May 2017

**Agenda Item 3: Operation and Performance of the MEVA III Network**  
**3.4 MEVA III monitoring and reporting**

**STATISTICS STUDY FOR THE VOICE SWITCHED LINES AND RECOMMENDATIONS**

(Presented by Cuba)

| <b>EXECUTIVE SUMMARY</b>  |   |
|---|---|
| Switched voice lines performance and suggestions to improve it. |   |
| <b>Action:</b>  | Included in Section 3.  |
| <i>Strategic Objectives:</i>                                    | <ul style="list-style-type: none"><li>• Safety</li><li>• Air Navigation Capacity and Efficiency</li><li>• Security &amp; Facilitation</li></ul> |
| <i>References</i>   | <ul style="list-style-type: none"><li>• MEVA web page monthly reports</li></ul>   |

**1. Introduction**

1.1 During the MEVAIII network operation the performance of the switched voice network has proven to be an effective and non-expensive way to communicate if the agreed requirements are met.

1.2 In October 2015 the number of switched was increased from 5 to 6 lines to meet the blocking of 5% contracted.

1.3 To keep the service at the limit contracted is necessary to watch how the net are working through the statistics.

**2. Discussion**

2.1 For the year 2016 we have the following data:

| 2016      | Bandwidth available | Peak Day | Busy Hour | Calls  | Average Call Duration | Erlang | Blocking % |
|-----------|---------------------|----------|-----------|--------|-----------------------|--------|------------|
| January   | 18                  | 2        | 17        | 172    | 89,53                 | 4,28   | 13,8       |
| February  | 18                  | 27       | 18        | 140    | 65,396                | 2,54   | 3          |
| March     | 19                  | 3        | 18        | 152    | 66,72                 | 2,82   | 4,3        |
| April     | 22                  | 10       | 18        | 134    | 61,92                 | 2,3    | 2,1        |
| May       | 22                  | 30       | 21        | 144    | 52,68                 | 2,11   | 1,5        |
| June      | 17                  | 18       | 19        | 157    | 69,52                 | 3,03   | 5,2        |
| July      | 18                  | 17       | 18        | 141    | 67,84                 | 2,66   | 3,5        |
| August    | 19                  | 21       | 17        | 144    | 68,08                 | 2,72   | 3,8        |
| September | 17                  | 2        | 16        | 134    | 54,17                 | 2,02   | 1,3        |
| October   | 22                  | 2        | 21        | 121    | 60,26                 | 2,03   | 1,3        |
| November  | 18                  | 19       | 17        | 168    | 77,14                 | 3,6    | 8,9        |
| December  | 8                   | 9        | 21        | 146    | 55,12                 | 2,24   | 1,9        |
| Average   | 18,17               |          | 18,42     | 146,08 | 65,698                | 2,67   | 4,48       |

2.2 As we may see the peak average calls and duration are 146,08 calls and 65,7 seconds which gives 2,67 Erlangs and 4,48 block % probability. This is near the 2,95 Erlangs and 5% blocking %. On the other hand we have 2 month June and November over the blocking % service limit and December is not consistent with the other months and has just 8 % of bandwidth available.

2.3 If we see the 2017 tendency is to be worst:

| 2017     |      |    |   |     |      |      |      |
|----------|------|----|---|-----|------|------|------|
| january  | 15   | 22 | 8 | 169 | 74,1 | 3,48 | 8,1  |
| february | 16   | 19 | 5 | 143 | 76,1 | 3,02 | 5,3  |
| average  | 15,5 |    |   | 156 | 75,1 | 3,25 | 7,14 |

2.4 As you can see we can conclude that we need to increase at least one more line. Let's see what happens if we put another line in the voice switching system: The worst month was November 2016, 168 calls and 77.14 seconds call duration average at the peak hour. This is 3,6 Erlangs. The blocking formula is:

$$P_b = B(A, m) = \frac{\frac{A^m}{m!}}{\sum_{i=0}^m \frac{A^i}{i!}}$$

Where:

P<sub>b</sub> block probability

m number of trunks or links

A = traffic Erlangs

The result is for 7 lines 4,38 % for this worse case, this is under 5%.

**3. Conclusion**

3.1 Increasing one more line in the MEVAIII switching system will be enough to have a service under 5% blocking calls. This is 25,2 K band width more allocation for this service

**4. Suggested Action**

4.1 Increase one more trunk (22,5K) for the switching trunks MEVA III.