



EMirates Internet eXchange
(EMIX)

“www.emix.ae”

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Etisalat - AE

EMIX Mission to become the regional HUB providing all ISP's within reach, with the most reliable access to the Internet via Fiber Optic Cable at a competitive price



EMIX is the first Network Access Point (NAP), private or public, established (1998) in the GCC, Middle East and one of the first NAPs in the African and Asian region, built on multiples of STM-1 Fibre Optic Cables



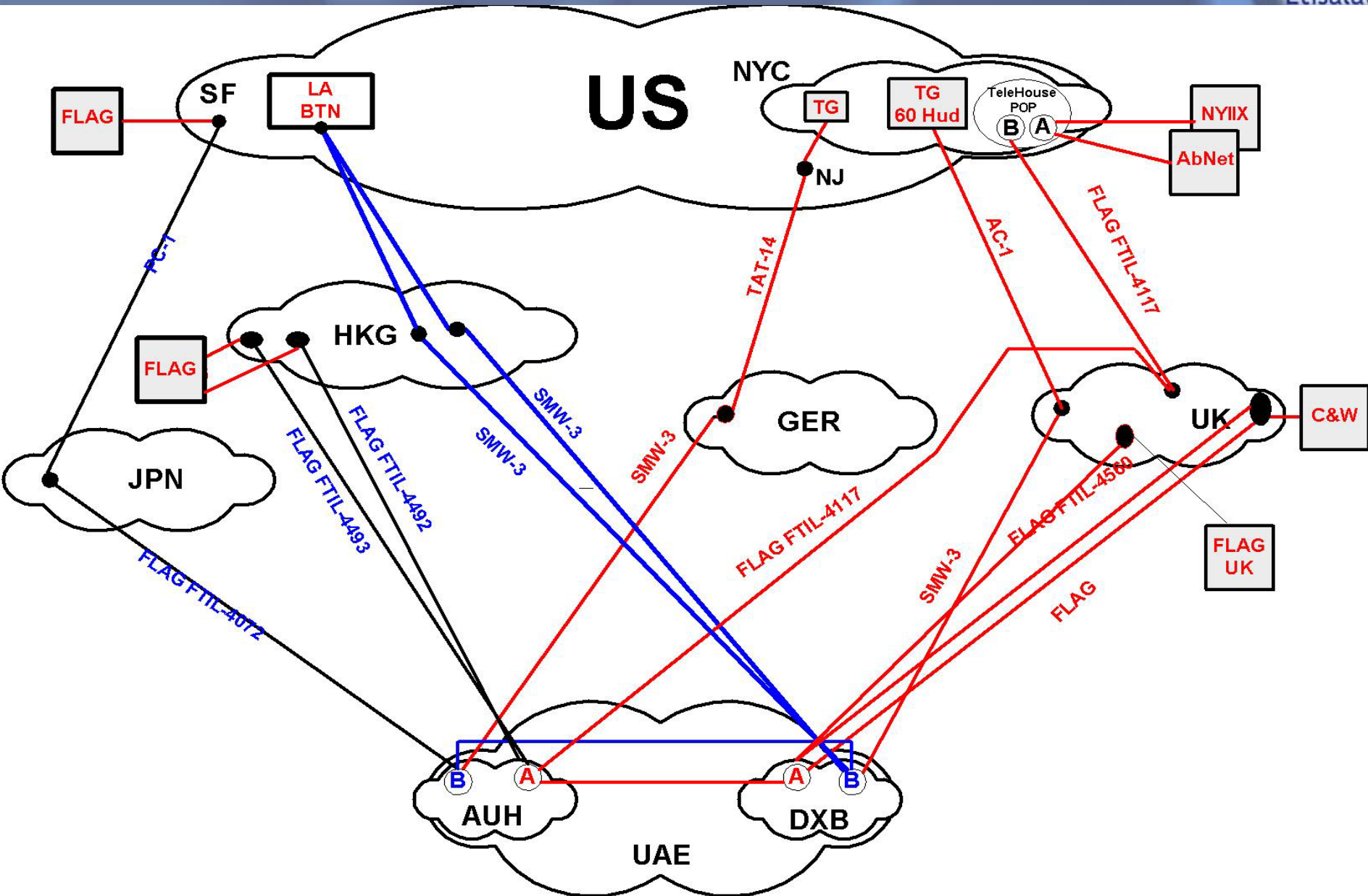
EMIX History

- Emirates Internet Exchange
 - Lunched in September, 1998
 - With the 1st submarine cable from the region to the USA for Internet Traffic
 - Started with an STM-1 Bandwidth from
 - DXB to NYC
 - The 2nd EMIX link was established in 1999, with an STM-1 bandwidth from:
 - AUH to SF

EMIX Today

- Currently EMIX is connected to the global Internet via 11 STM-1 links
- Using the two cable providers in the region Flag and SMW-3.
- Distributed between eastern side and western side of the world.

EXIX Links



EMIX Customers

- UAE
- Oman
- Sudan
- Somalia
- Tanzania (Zanzibar)
- Kuwait
- Jordan
- Djibouti
- Iran
- Iraq

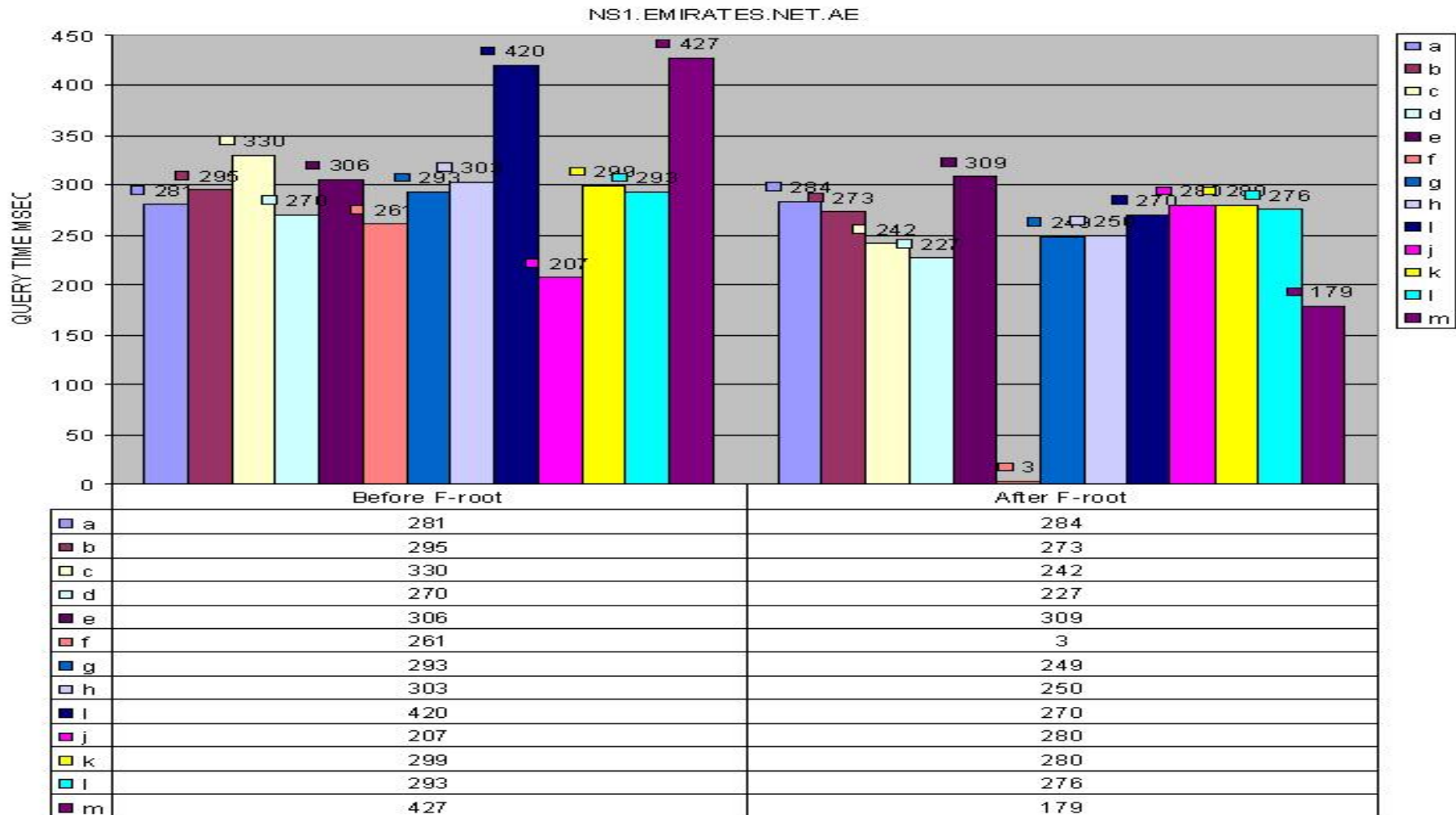
EMIX Regional Peering Connectivity

- Qatar
- Bahrain
- Kuwait
- India
- F-Root Name Server (ISC)
- Malaysia
- Singapore
- Taiwan
- Hong Kong
- Japan

EMIX is peering with most of the participants
in NYIIX in NYC

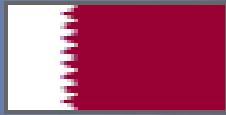
Peering with F-Root Name Server in EMIX-DXB

- Operational Since November 2003.



13-ROOT SERVERS

- GCC connectivity before peering and after.



Trace route to Qtel (Before peering)

tr www.qtel.com.qa

Translating "www.qtel.com.qa"...domain server (194.170.1.99) [OK]

Type escape sequence to abort.

Tracing the route to www1.qtel.com.qa (212.77.203.180)

```

1 dxb-emix-rb.ge130.emix.ae (195.229.31.66) [AS 8961] 4 msec 0 msec 0 msec
2 62.216.145.13 [AS 15412] 432 msec 432 msec 432 msec
3 gige4-1-116.ipcolo2.SanFrancisco1.Level3.net (166.90.133.165) [AS 3356] 276 msec 276 msec 276 msec
4 209.244.14.217 [AS 3356] 276 msec 276 msec 280 msec
5 so-4-1-0.mp1.SanFrancisco1.Level3.net (209.247.10.229) [AS 3356] 276 msec 280 msec 276 msec
6 so-1-0-0.mp1.SanJose1.level3.net (209.247.9.118) [AS 3356] 280 msec 280 msec 276 msec
7 so-7-0-0.gar1.SanJose1.Level3.net (64.159.1.74) [AS 3356] 280 msec 276 msec 280 msec
8 so-6-0-0.edge1.SanJose1.level3.net (209.244.3.138) [AS 3356] 276 msec 276 msec 280 msec
9 65.59.88.202 [AS 3356] 288 msec 284 msec 288 msec
10 if-2-0.core2.SanJose.Teleglobe.net (64.86.82.197) [AS 6453] 288 msec 284 msec 288 msec
11 if-7-0.core2.PaloAlto.Teleglobe.net (64.86.84.133) [AS 6453] 288 msec 292 msec 292 msec
12 if-10-0.core3.PaloAlto.Teleglobe.net (207.45.220.5) [AS 6453] 288 msec 288 msec 288 msec
13 if-4-0.core2.Newark.teleglobe.net (64.86.138.126) [AS 6453] 352 msec 352 msec 352 msec
14 if-7-0.core1.Newark.Teleglobe.net (207.45.222.161) [AS 6453] 352 msec 352 msec 352 msec
15 if-0-0-0.bb1.Cairo.Teleglobe.net (64.86.84.174) [AS 6453] 496 msec 496 msec 492 msec
16 64.86.7.46 [AS 6453] 572 msec 576 msec 604 msec
17 212.77.192.35 [AS 8781] 576 msec 576 msec 576 msec <---- QTEL AS
18 212.77.200.106 [AS 8781] 616 msec 620 msec 592 msec

```



Trace route to Qtel (After peering)

```
tr www.qtel.com.qa
```

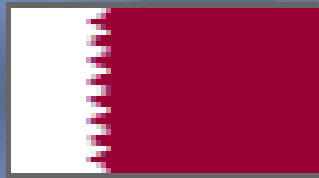
Type escape sequence to abort.

Tracing the route to www1.qtel.com.qa (212.77.203.180)

```
1 195.229.28.26 [AS 8961] 12 msec 20 msec 20 msec
```

```
2 212.77.192.35 [AS 8781] 24 msec 96 msec 128 msec
```

```
3 212.77.200.106 [AS 8781] 48 msec 36 msec 36 msec
```



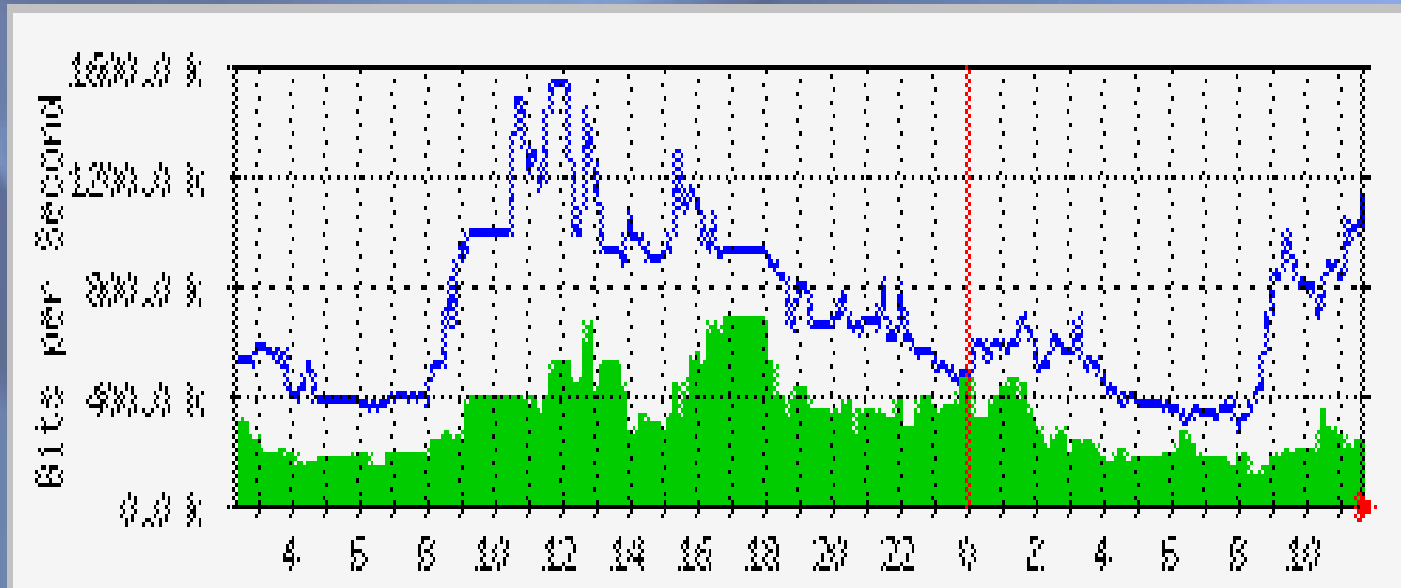
Before peering the delay = 620 msec

After peering the delay = 40 msec

620/40=15.5 times faster !!!

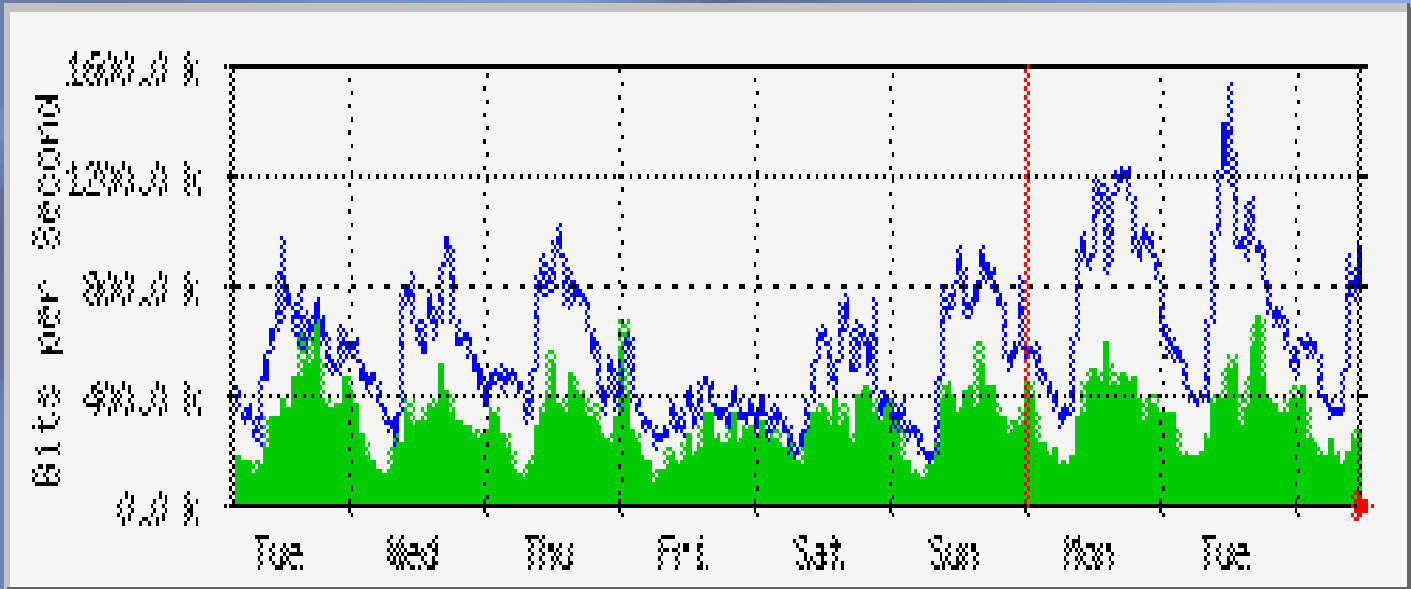


Daily Utilization



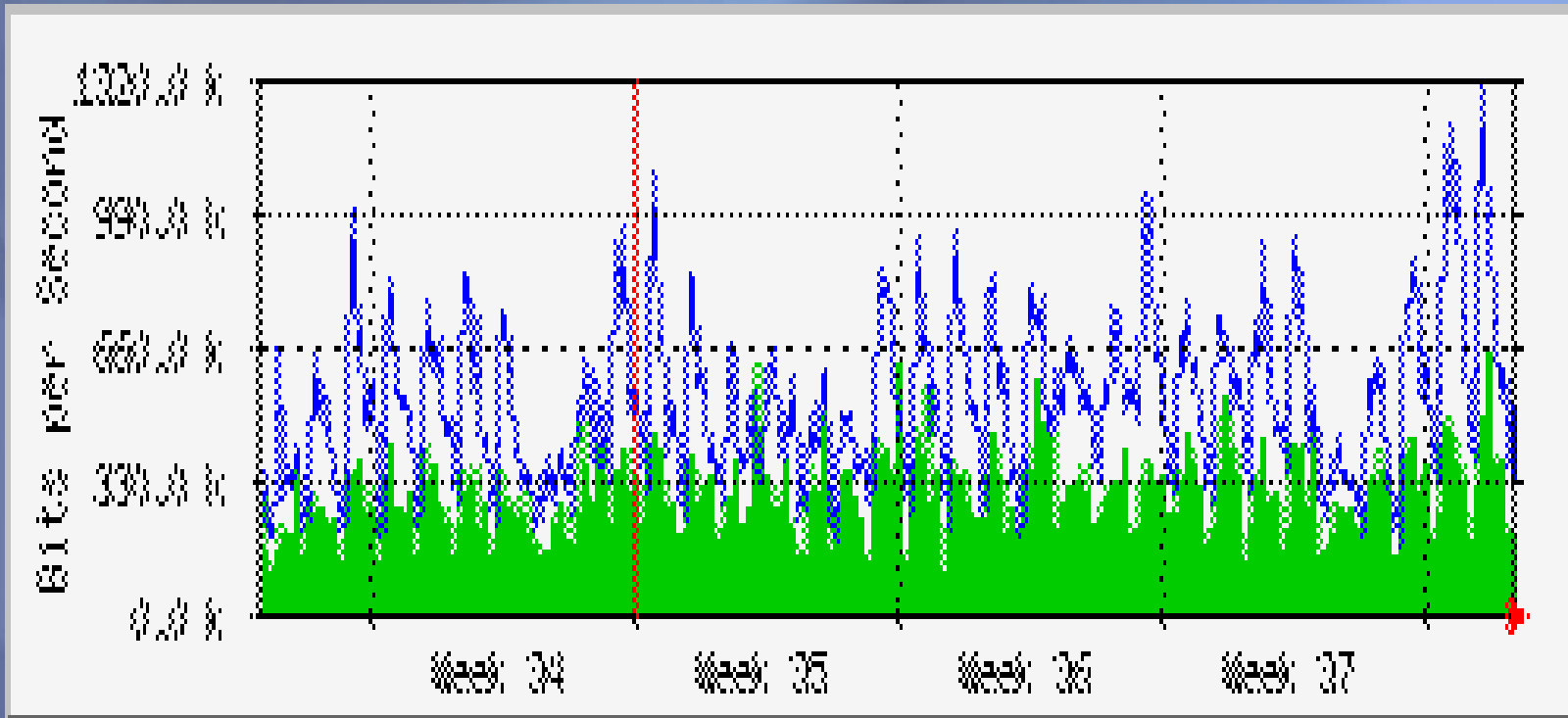


Weekly Utilization





Monthly Utilization





Trace route to KUIX (Before peering)

Tracing route to 82.145.192.1 over a maximum of 30 hops

```

1  <1 ms  <1 ms  <1 ms  213.42.1.195
2  <1 ms  <1 ms  <1 ms  213.42.1.114
3  <1 ms  <1 ms  <1 ms  dxb-emix-ra.ge6303.emix.ae
[195.229.31.99]
4  378 ms  378 ms  378 ms  pos2-2.cr01.lax01.pccwbtn.net
[63.218.25.5]
5  375 ms  375 ms  374 ms  pos5-0.cr02.nyc02.pccwbtn.net
[63.216.4.37]
6  534 ms  520 ms  570 ms  voicecom.ser4-0.cr02.nyc02.pccwbtn.net
[63.216.4.134]
7  703 ms  687 ms  703 ms  82.145.192.1

```

Trace complete. :-)



Trace route to KUIX (After peering)

```
tracert 82.145.192.1
```

Tracing route to 82.145.192.1 over a maximum of 30 hops

```

1  <1 ms  <1 ms  <1 ms  213.42.1.195
2  <1 ms  <1 ms  <1 ms  213.42.1.114
3  <1 ms  <1 ms  <1 ms  dxb-emix-ra.ge6303.emix.ae
[195.229.31.99]
4  <1 ms  <1 ms  <1 ms  195.229.31.106
5  15 ms  15 ms  15 ms  195.229.28.38
6  14 ms  14 ms  14 ms  82.145.192.1

```

Trace complete. :-)



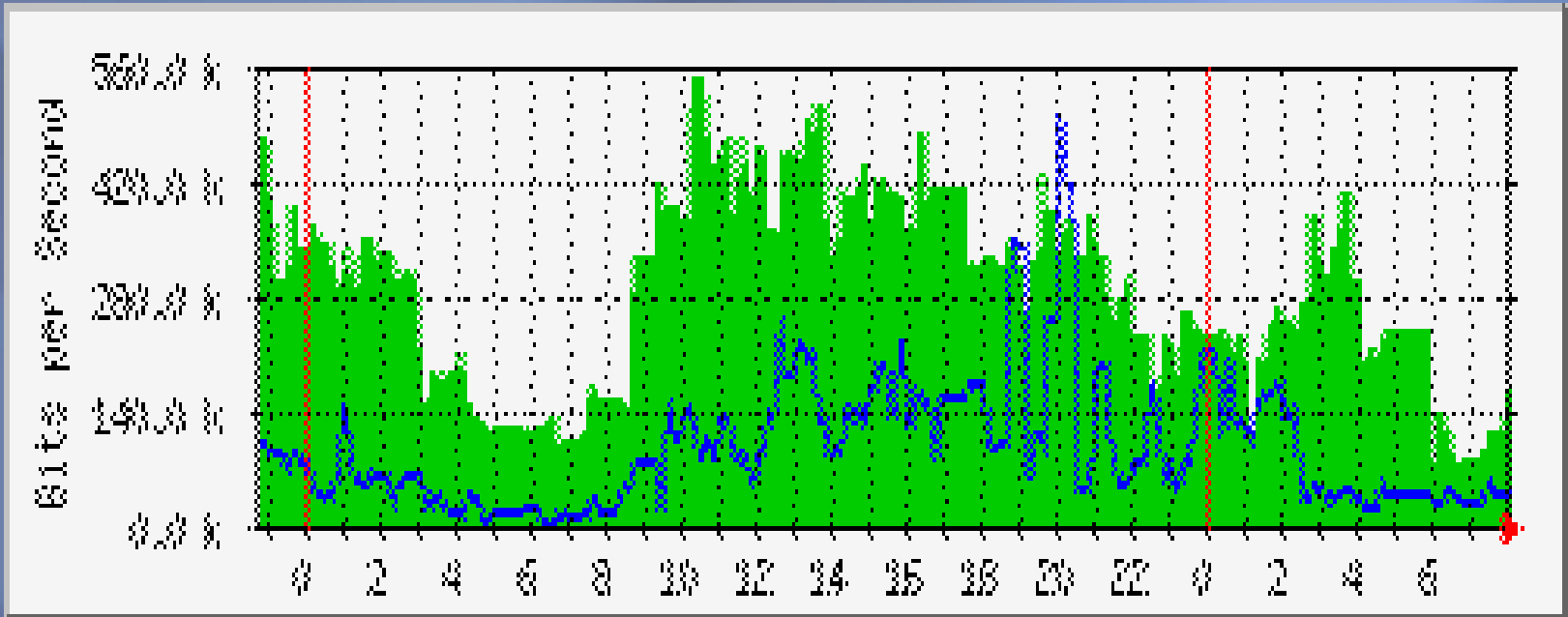
Before peering the delay = 700 msec

After peering the delay = 14 msec

700/14=50 times faster !!!

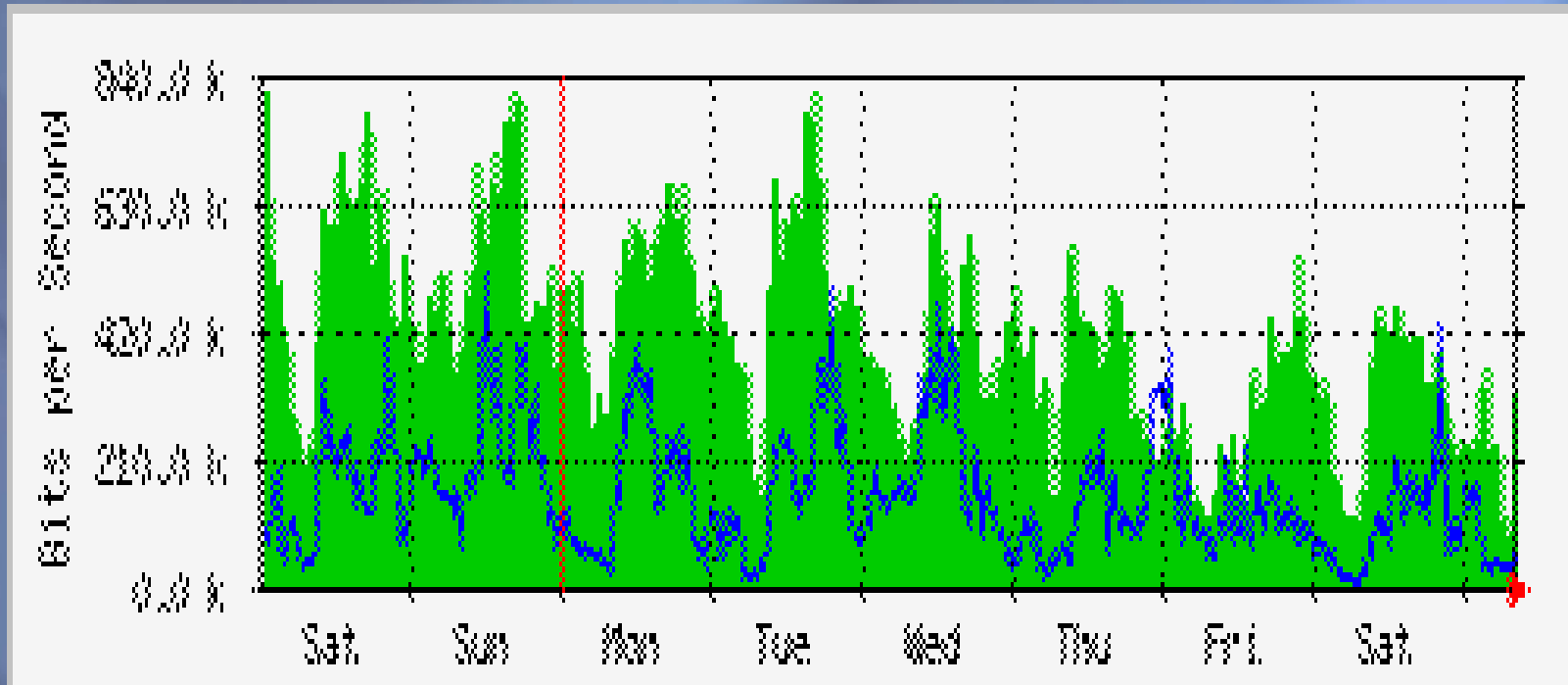


Daily Utilization



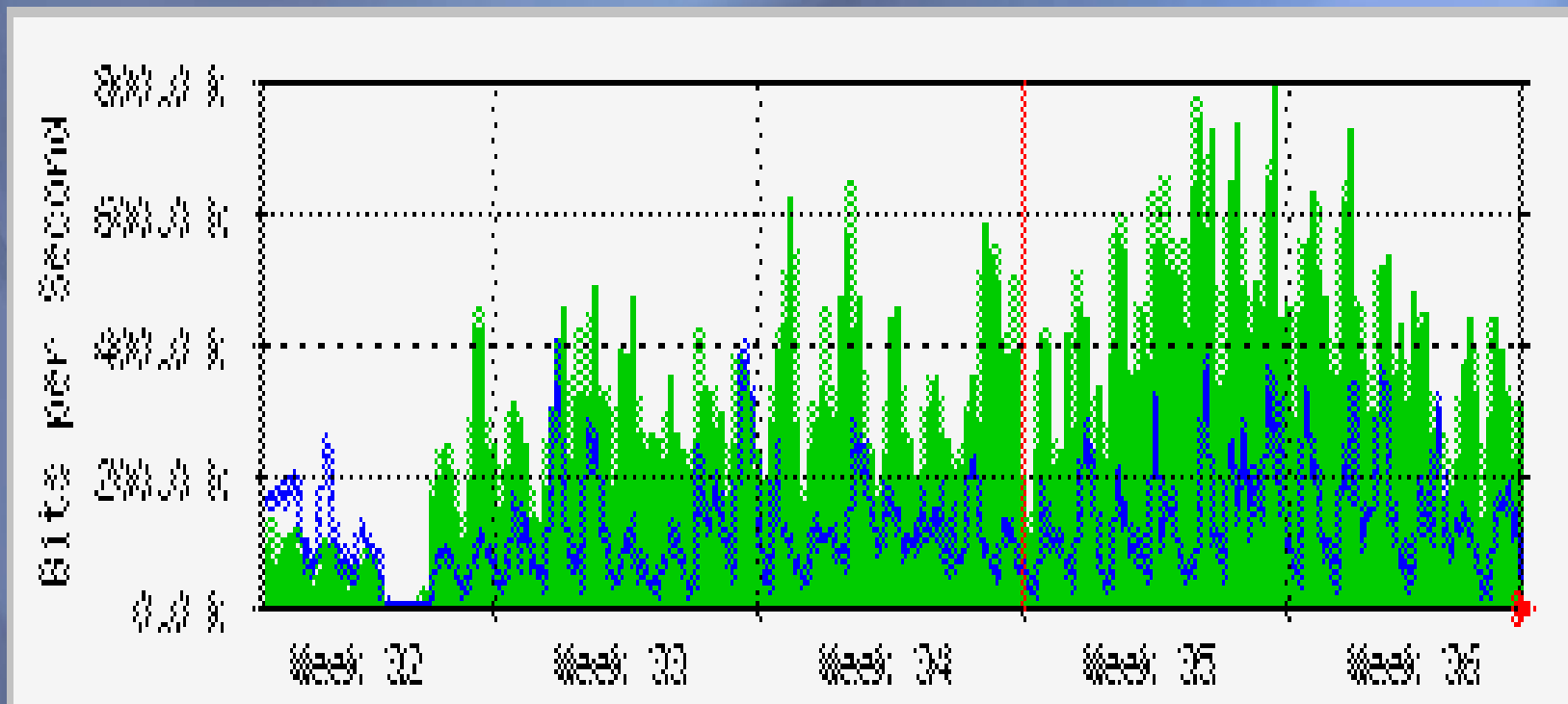


Weekly Utilization





Monthly Utilization





Trace route to Batelco.(Before peering)

```
tr www.batelco.com.bh
```

```
Translating "www.batelco.com.bh"...domain server (194.170.1.99) [OK]
```

```
Type escape sequence to abort.
```

```
Tracing the route to www.batelco.com.bh (193.188.112.40)
```

```
 1 dxb-emix-rb.ge130.emix.ae (195.229.31.66) [AS 8961] 0 msec 0 msec 0 msec
 2 iar1-so-3-2-0.Thameside.cw.net (166.63.214.65) [AS 3561] 144 msec 140 msec 140 msec
 3 aar1-loopback.Thameside.cw.net (166.63.210.24) [AS 3561] 144 msec 140 msec 144
msec
 4 batelco.Thameside.cw.net (166.63.217.198) [AS 3561] 352 msec 452 msec 296 msec
 5 217.17.233.196 [AS 5416] 340 msec 340 msec 340 msec
```



Trace route to Batelco.(After peering)

```
tr www.batelco.com.bh
```

```
Translating "www.batelco.com.bh"...domain server (194.170.1.99) [OK]
```

```
Type escape sequence to abort.
```

```
Tracing the route to www.batelco.com.bh (193.188.112.40)
```

```
1 195.229.28.30 [AS 8961] 28 msec 68 msec 56 msec
```

```
2 217.17.233.204 [AS 5416] 44 msec 24 msec 24 msec
```

```
3 www.batelco.com.bh (193.188.112.40) [AS 5416] 12 msec 32 msec 56 msec
```



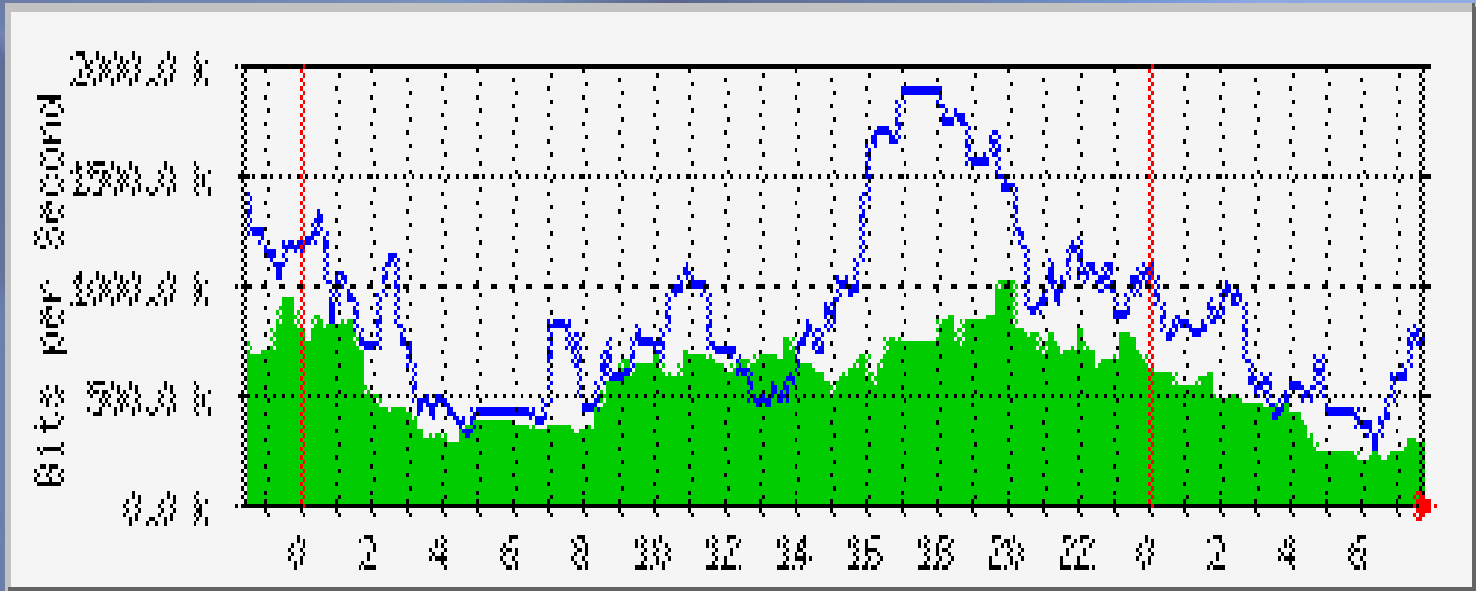

Before peering the delay = 340 msec

After peering the delay = 24 msec

340/24 = 14 times faster !!!

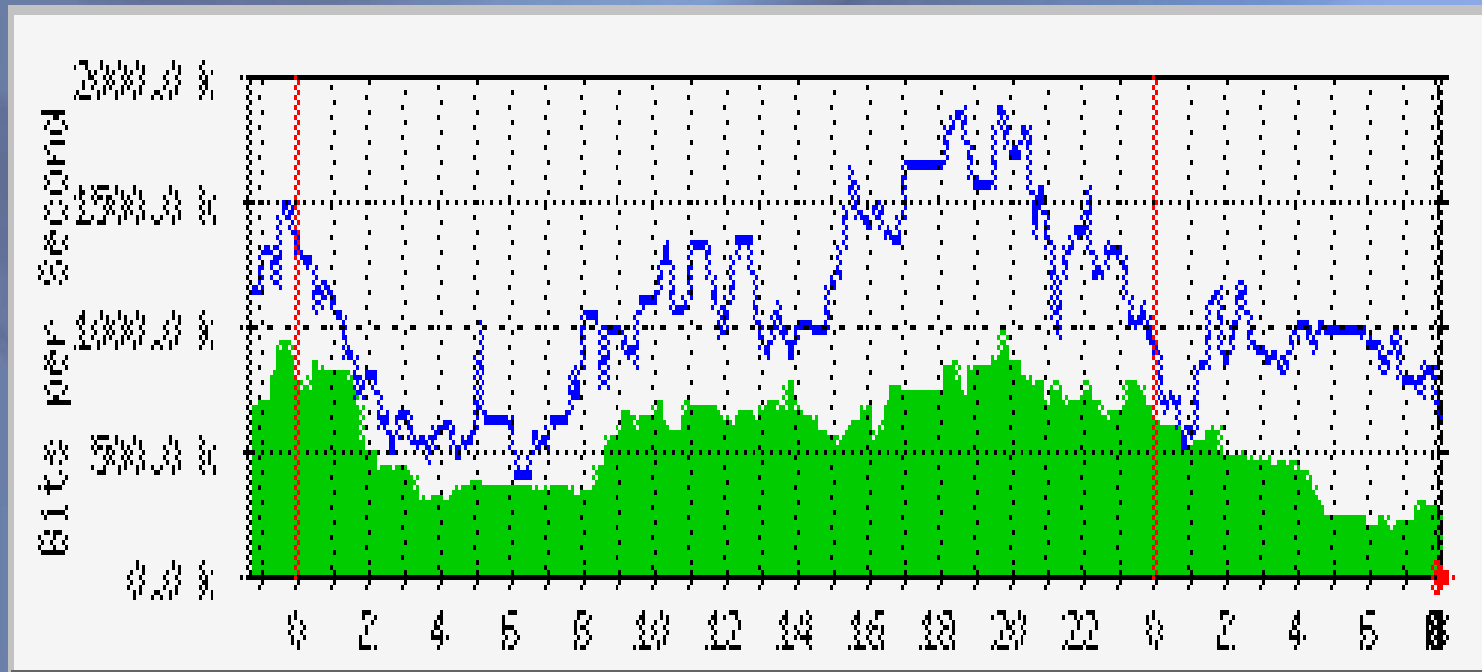


Daily Utilization for the 1st E1 link



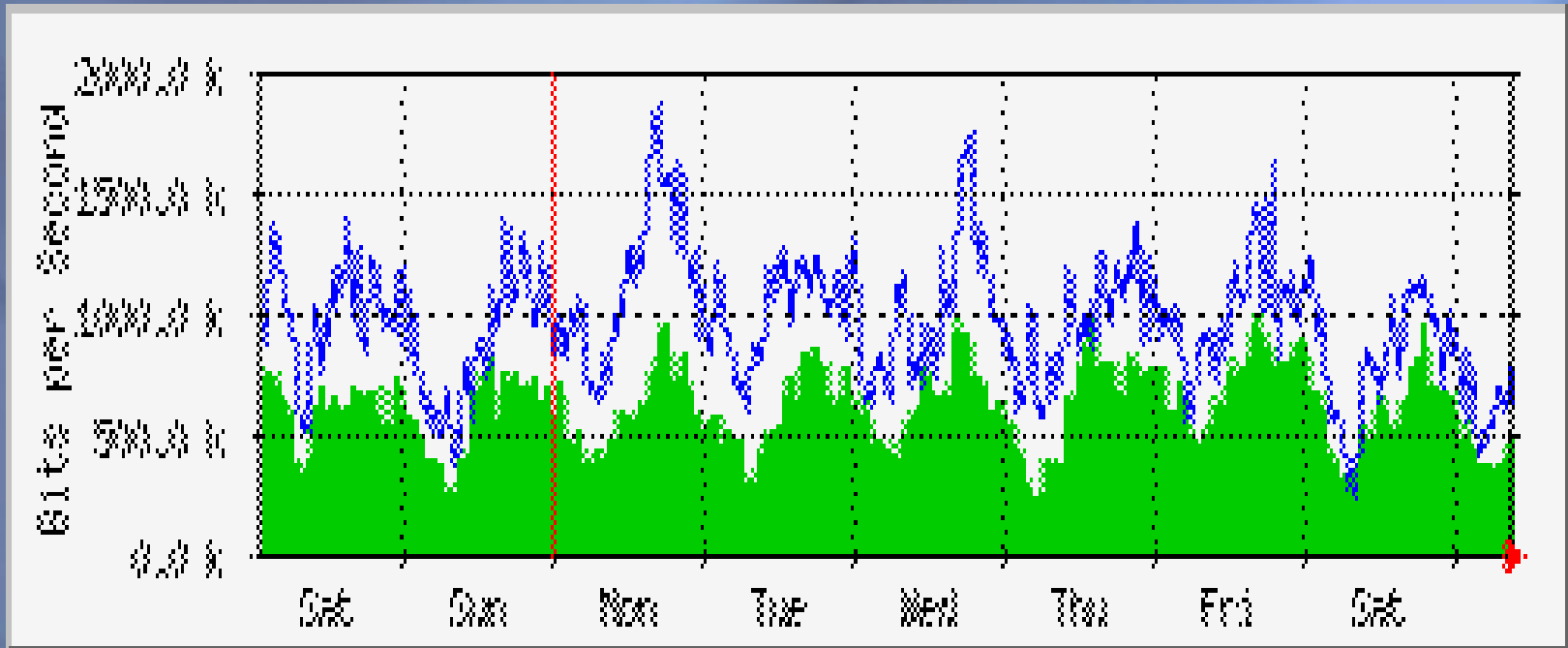


Daily Utilization for the 2nd E1 link



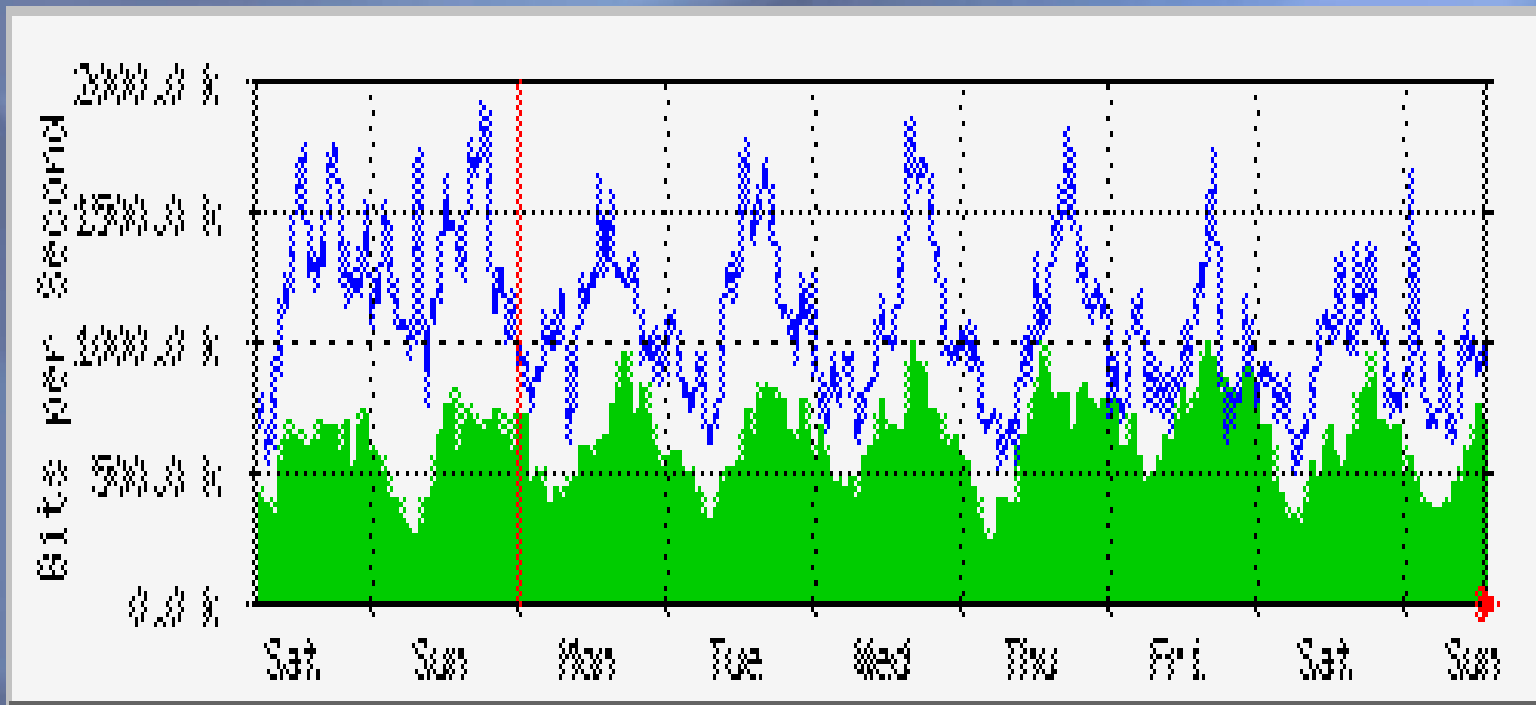


Weekly Utilization for the 1st E1 link



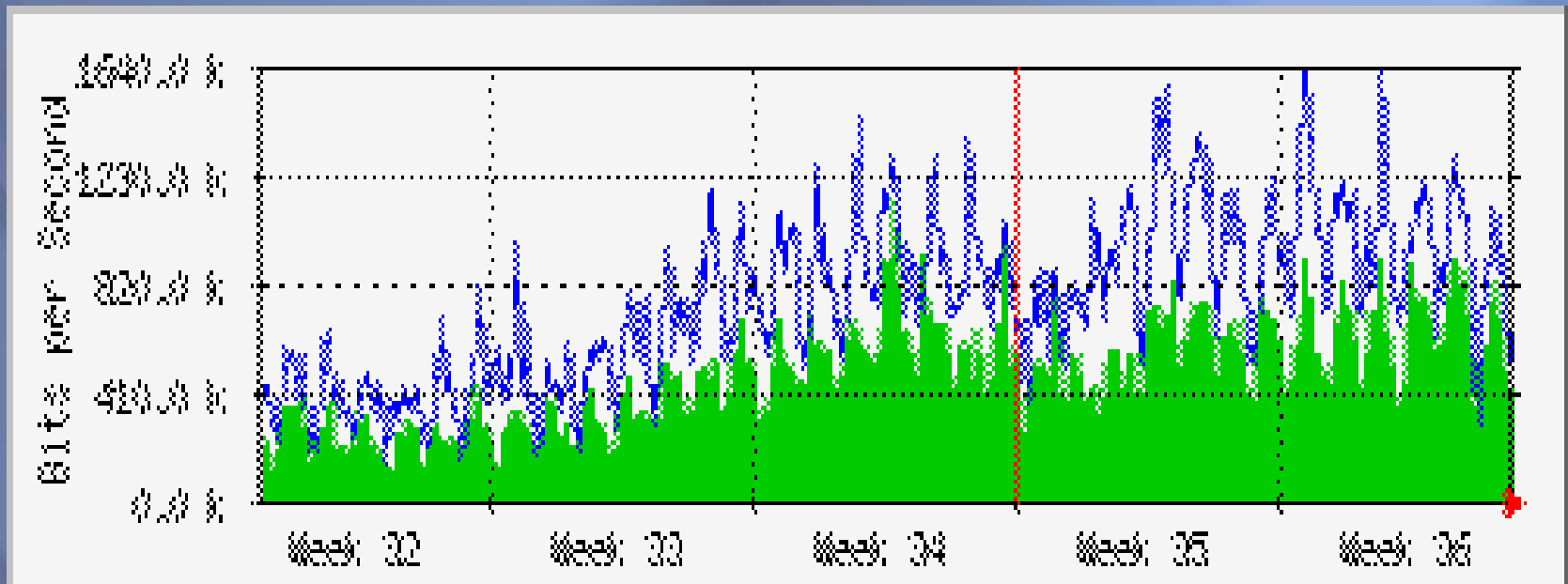


Weekly Utilization for the 2nd E1 link



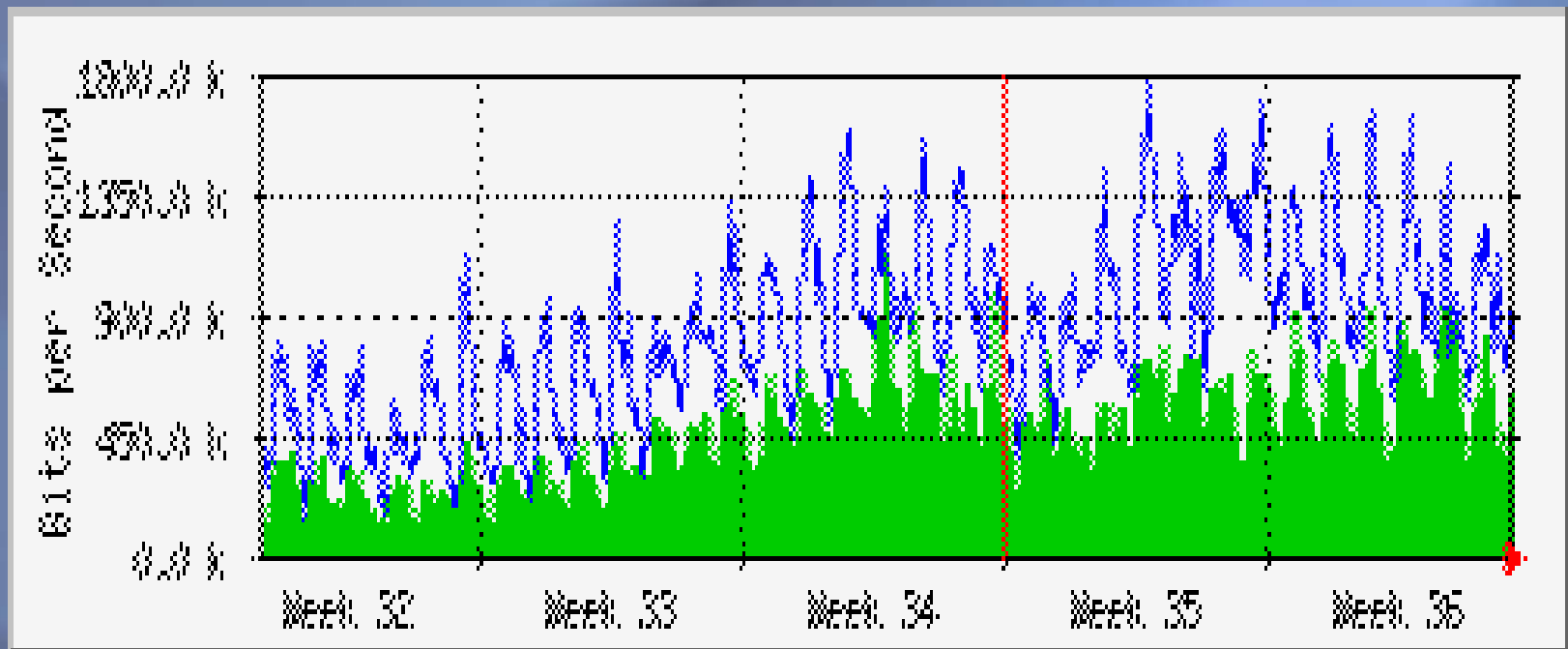


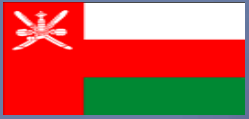
Monthly Utilization for the 1st E1 link





Monthly Utilization for the 2nd E1 link





Trace route to Omantel (Customer)

tracert www.omantel.net.om

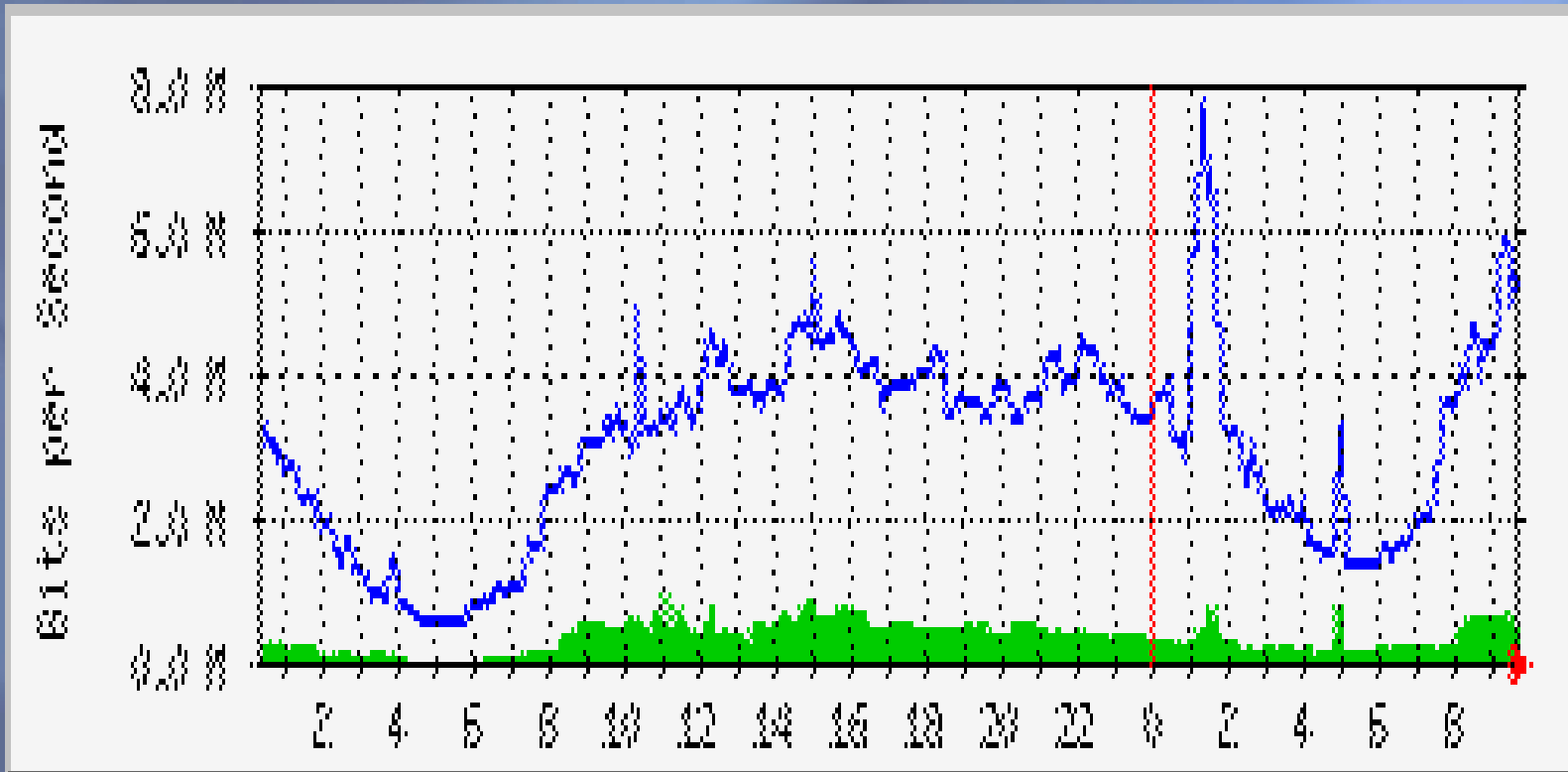
Tracing route to om22.omantel.net.om [212.72.23.44]
over a maximum of 30 hops:

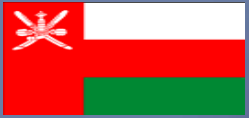
| | | | | |
|---|-------|-------|-------|---|
| 1 | <1 ms | <1 ms | <1 ms | 213.42.1.195 |
| 2 | <1 ms | <1 ms | <1 ms | 213.42.1.130 |
| 3 | <1 ms | <1 ms | <1 ms | dxb-emix-ra.ge6303.emix.ae [195.229.31.99] |
| 4 | <1 ms | <1 ms | <1 ms | dxb-a.emix.net.ae [195.229.31.94] |
| 5 | <1 ms | <1 ms | <1 ms | 195.229.31.105 |
| 6 | 19 ms | 11 ms | 11 ms | 195.229.29.38 |
| 7 | 7 ms | 19 ms | 7 ms | 212.72.16.3 |
| 8 | 8 ms | 7 ms | 8 ms | 62.231.254.130 |
| 9 | 7 ms | 7 ms | 7 ms | 212.72.23.44 |

Trace complete.

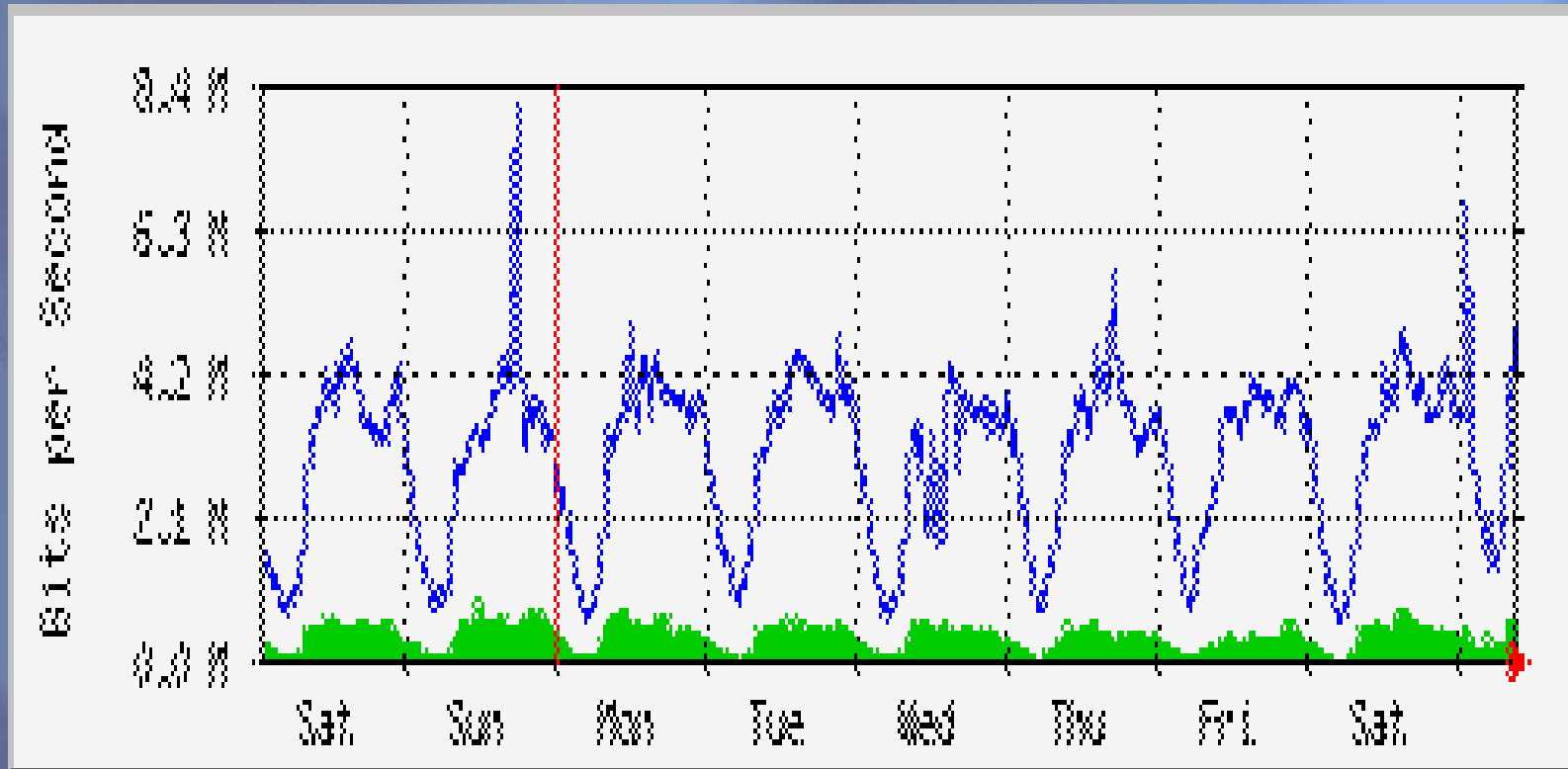


Daily Utilization





Weekly Utilization





Monthly Utilization

