

128K eNodeB Connections

The MME supports 128K eNodeB connections for VPC-DI and ASR5500-DPC2 platforms, previously only 64k eNodeB connections were supported.

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Feature Description

128K eNodeB Connection Support

The MME now supports 128K eNodeB connections for VPC-DI and ASR5500-DPC2 platforms; it has been enhanced from 64K eNodeB connections. A MME manager instance supports 4K eNodeBs, a minimum of 32 MME managers are required to support 128K eNodeB's. If the network has more than 32 MME managers, 128k eNodeB connections limit is not enforced. The support for 128K eNodeB connections is per chassis and not per MME service.

The maximum number of MME managers that can be configured per chassis for the VPC-DI platform has been enhanced from "24" to "48".

Distribution of Multiple SCTP Association - VLR

The SCTP associations of a VLR are now distributed across MME managers. Distribution of VLR SCTP associations across MME managers helps in achieving better load distribution at the MME managers.

There is no change for load balancing of SGs messages sent by MME across multiple SCTP associations of a VLR.

S1-SCTP Rate Limiting

The operator can now configure a rate limit for incoming S1 SCTP connections from the eNodeB. This prevents an overload at the MME in case there is a surge of S1 SCTP connections from the eNodeBs. New command keywords **s1-sctp rate limit** are introduced in the **task facility mmedemux** command, they can be used to specify the rate limit value of connections per second for the chassis. New MME Demux subsystem statistics are introduced to display the number of packets that are dropped due to the configured rate limit.

Resource Consideration

When eNodeBs are propagated to session managers (sessmgrs), their memory is retained. Over time, all sessmgrs may store information for every eNodeB, which causes memory usage to rise significantly.

Therefore, when planning the deployment, you should determine deployment limits based on the available memory in the sessmgr instead of considering the maximum theoretical limit. This approach defines the true operational capacity.

Configuring Rate Limit for S1 SCTP Connections from eNodeB

The **task facility mmedemux** command is updated to include option to configure a rate limit for incoming S1 SCTP connections in MME per chassis.

```
configure
    task facility mmedemux { mmemgr-startup-percentage  percent_value [
mmemgr-startup-wait-time wait_time ] | s1-sctp rate-limit value }
    default task facility mmedemux mmemgr-startup-percentage
mmemgr-startup-wait-time
    no task facility mmedemux { mmemgr-startup-percentage
mmemgr-startup-wait-time | s1-sctp rate-limit}
    exit
```

- By default rate limiting is not imposed on incoming SCTP connections at the MME. Configuring the rate limit is an optional configuration, to prevent overload of MME from surge/burst of S1 SCTP connections from eNodeBs.
- The keyword **s1-sctp** identifies the MME SCTP interface type.
- The keyword **rate-limit** is used to configure the rate limit for incoming S1 SCTP connections from eNodeB. The value of the rate limit that can be configured is an integer from 1 up to 65535. Once the rate of incoming S1 SCTP connections exceed the configured value, the SCTP cookie echo packets are dropped by the MME on exceeding the rate limit. The SCTP connection with eNodeB is eventually be established after retries/retransmission by the eNodeB. The statistics of the dropped S1 SCTP packets are collected and displayed as part of MME Demux subsystem statistics.

Example:

The following CLI command configures rate-limit of 100 S1 SCTP connections per second for a chassis:

task facility mmedemux s1-sctp rate-limit 100

Verifying the Configuration

The configuration of this feature can be verified using the following show commands. Execute the **show configuration** command to verify the configuration, the output displays the following parameters based on the configuration:

- **task facility mmedemux s1-sctp rate-limit** *value*

Monitoring and Troubleshooting

This section provides information on the show commands available to support this feature.

Show Command(s) and/or Outputs

The following parameter is added to the output generated by the **show session subsystem facility mmedemux all** command to display statistics for this feature.

- **Total number of S1 sctp packets dropped (rate-limit)** - This counter displays the number of SCTP packets dropped due to the configured rate limit for incoming S1 SCTP connections to the MME on a per chassis basis.