vEPC is a mobile-core network system that supports the LTE standard. Empowered by NEC's carrier-grade virtualization platform and software-defined networking (SDN) technology, vEPC optimizes mobile operators' total cost of ownership (TCO) and service quality.
### Specifications

**Interface**

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GTPv1</td>
<td>MME (Mobility Management Entity)</td>
</tr>
<tr>
<td>S3, S10, S11</td>
<td>GTPv2 (GPRS Tunneling Protocol version 2)</td>
</tr>
<tr>
<td>S1-MME</td>
<td>S1 Application Protocol</td>
</tr>
<tr>
<td>S6a</td>
<td>Diameter</td>
</tr>
<tr>
<td>SGs</td>
<td>SGs Application Part</td>
</tr>
</tbody>
</table>

**Functions**

- Mobility management
  - UE location management, multiple-TA, ISR
  - Handover control between eNodeBs, 2G/3G<->LTE
  - Roaming support

- eUTRAN connectivity
  - Supports LTE base-stations (eNodeB)

- Authentication and security functions
  - Subscriber authentication
  - NAS security (integrity check and ciphering)

- Connection management
  - Data connection/transmission control
  - Multiple PDN access

- Voice call support (CS fallback)

- 3GPP QoS management

### S/P-GW (Serving / PDN Gateway)

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GTPv1</td>
<td>MME (Mobility Management Entity)</td>
</tr>
<tr>
<td>S1-U, S4, S5, S8, S11</td>
<td>GTPv2 (GPRS Tunneling Protocol version 2)</td>
</tr>
<tr>
<td>S2, S5, S8</td>
<td>PMIPv6</td>
</tr>
<tr>
<td>Gx, Gxc, Gy</td>
<td>Diameter</td>
</tr>
<tr>
<td>SGi</td>
<td>IP address allocation</td>
</tr>
</tbody>
</table>

**Functions**

- eUTRAN connectivity
  - Supports LTE base-stations (eNodeB)

- Connection management
  - Data connection/transmission control
  - Multiple PDN access
  - Idle-mode support (paging invocation)
  - Packet routing and forwarding

- Mobility management
  - Handover control between eNodeBs, 2G/3G<->LTE
  - Roaming support

- 3GPP PCC-based QoS management

- Deep packet inspection

### HSS (Home Subscriber Server)

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S6a</td>
<td>Diameter</td>
</tr>
</tbody>
</table>

**Functions**

- Subscriber profile management
- Subscriber location management
- Subscriber authentication data generation
- Geo-redundancy

### PCRF (Policy and Charging Rules Function)

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gx, Sy</td>
<td>Diameter</td>
</tr>
</tbody>
</table>

**Functions**

- Policy management
  - Flow-based control
  - Bandwidth limitation
  - Date/time schedule control
  - Connection/application gating
  - Redirection
  - Priority control
  - Data volume management

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**Abbreviations**

- Products and brand names are trademarks or registered trademarks of their respective companies.
- Specifications and equipment are subject to change without any notice.

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