### IMS Routing of Initial SIP INVITE

#### INVITE

```
INVITE CALLED-IP SIP/2.0,
P-Asserted-Identity: <caller@hims1.net>,
Call-ID: <caller@hims1.net>,
Via: <Term S-CSCF> <Term I-CSCF> <Orig S-CSCF> <Orig P-CSCF> 
<Calling-UE>,
Route: <Term P-CSCF>,
Contact: <Calling UE IP> :Port,
SDP: <Caller Supported Codec List>
```

The public URI in the SIP INVITE is replaced with the called subscriber’s registered IP address and port number. The message is routed to the P-CSCF IP address that was recorded at the time of registration. The Via and Record-Route headers are updated.

The terminating P-CSCF requests the Policy Decision Function (PDF) to generate a media authorization token. The token will be included in the INVITE sent to the terminating UE.

The P-CSCF updates the Via and Route-Record headers and forwards the request to the Called UE. Note that the secure port is included in the Via address specification. The message also includes the media authorization token. This token will have to be passed to the GGSN in the PDP context activation request.

#### PDP Context Activation and Audio/Video Path Setup

The Caller now sends a PRACK to inform the called subscriber about the selected Codec.

```
PRACK
SDP: <Selected Codec>,
```

### IMS Routing of First Response to the SIP Invite

#### 183 Session Progress

```
183 Session Progress
Via: <Term S-CSCF> <Term I-CSCF> <Orig S-CSCF> <Orig P-CSCF> 
<Calling-UE>,
Record-Route: <Term S-CSCF> <Orig S-CSCF> <Orig P-CSCF>,
Contact: <Calling UE IP> :Port,
SDP: <Codecs supported by Caller and Called>
```

The UE replies indicating that the session is in progress. The contact address is set to its own IP address. The Via and the Record-Route headers are copied from the received INVITE.

The P-CSCF removes its own Via header entry and addresses the message to the top via header (Term S-CSCF in this case). The P-CSCF also removes the secure port from the Record-Route.

```
PRACK
SDP: <Selected Codec>,
```

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Call-ID: <caller@hims1.net>,
Via: <Term S-CSCF> <Term I-CSCF> <Orig S-CSCF> <Orig P-CSCF> 
<Calling-UE>,
Route: <Term P-CSCF>,
Record-Route: <Term S-CSCF> <Orig S-CSCF> <Orig P-CSCF>,
Contact: <Calling UE IP> :Port,
SDP: <Caller Supported Codec List>
```

Obtain a media authorization token from the PDF
### Term P-CSCF Interfaces (Caller and Called are IMS Subscribers)

<table>
<thead>
<tr>
<th>Calling UE</th>
<th>IMS Network</th>
<th>Called UE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caller User Equipment</td>
<td>Visited IMS 1</td>
<td>Home IMS 1</td>
</tr>
<tr>
<td>Caller</td>
<td>Orig P-CSCF</td>
<td>Orig S-CSCF</td>
</tr>
</tbody>
</table>

1. **Caller**
   - Orig P-CSCF
   - Orig S-CSCF
   - Term I-CSCF
   - Term S-CSCF
   - Term P-CSCF

2. **Called**
   - Home IMS 1
   - Home IMS 2

---

The message also indicates that currently the resources needed for meeting the quality of service requirements of the session are not available.

The called subscriber acknowledges the PRACK. The message also indicates that quality of service for the session is not met for the called subscriber.

Since the caller PDP context has been activated, notify the called end that the caller can now meet the quality of service in the send and receive direction.

The caller replies back to the called user. Note that the Local QoS is still set to none as the called PDP context activation has not been completed.

Inform the caller that the called subscriber is being rung. This serves as an implicit indication to the caller that the QoS at the called side has also been met.

The caller acknowledges the ringing message.

The called subscriber acknowledges the PRACK.

Notify the caller that the call has been answered.

The caller acknowledges the "200 OK" message. The call is now ready to enter conversation mode.