An Introduction to IMS Application Servers

by Carlos Ruiz Díaz
What is an Application Server (AS)?

1. a component that provides services to the end user
2. the natural way of adding new functionality to an IMS core
3. a SIP end point, most of the time
How does an AS behave?

1. User Agent (both originating and terminating)
2. SIP Proxy
3. SIP redirect server
4. SIP B2BUA
Examples of Application Servers

1. Presence
2. Conference bridges
3. Text to Speech Apps
4. Billing apps
5. IVRs
6. etc.
Where do I plug my AS?
Where do I plug my AS?
Application Server triggering

User Profile

```xml
<IMSSubscription>
  <PrivateID>carlosrd123py@ims.voiceblue.com</PrivateID>
  <ServiceProfile>
    <PublicID>
      <Identity>sip:caruizdiaz@ims.voiceblue.com</Identity>
    </PublicID>
    <InitialFilterCriteria>
      <Priority>0</Priority>
      <TriggerPoint>
        <Condition>
          <Expression>
            <Negated>0</Negated>
            <Method>INVITE</Method>
          </Expression>
        </Condition>
      </TriggerPoint>
      <ApplicationServer>
        <ServerName>sip:conferenceAS.ims.voiceblue.com</ServerName>
      </ApplicationServer>
    </InitialFilterCriteria>
  </ServiceProfile>
</IMSSubscription>
```
Basic IMS call flow

1. **User Calling**
   - **P-CSCF: Integrity Checks**
     - **Everything Ok?**
       - Yes: **Forward to S-CSCF**
       - No: **Fail**
     - **Read Initial Filter Criteria**

2. **Did I match a rule?**
   - Yes: **Send to AS**
   - No: **Contact callee**

3. **Find callee using Location Service**
   - **Found Anything?**
     - Yes: Continue
     - No: Back to **User Calling**
How can I configure one? (in summary)

Set up...

1. ... the Initial Filter Criteria
2. ... the AS definition
3. ... the Trigger Point
### Real-world configuration example

<table>
<thead>
<tr>
<th>mmtel</th>
<th>VideoConf</th>
</tr>
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<tbody>
<tr>
<td>Application Server</td>
<td>mmtel</td>
</tr>
<tr>
<td>Trigger Point</td>
<td>mmtel</td>
</tr>
<tr>
<td>Profile Part Indicator</td>
<td>Any</td>
</tr>
<tr>
<td>Video Conference</td>
<td>VideoConference</td>
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<tr>
<td>Application Server</td>
<td>VideoConference</td>
</tr>
<tr>
<td>Trigger Point</td>
<td>videoconf</td>
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<tr>
<td>Profile Part Indicator</td>
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</table>

#### VideoConference

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>SIP FQDN</td>
<td>sip:conference.caruzdiaz.com:5070</td>
</tr>
<tr>
<td>Diameter FQDN</td>
<td>conference.caruzdiaz.com</td>
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<tr>
<td>Default Handling</td>
<td>Session - Continued</td>
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<tr>
<td>Repository Data Size Limit</td>
<td>1024</td>
</tr>
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</table>

#### Service-Point-Triggers

<table>
<thead>
<tr>
<th>Request-URI</th>
<th>=</th>
<th>sip:conf</th>
</tr>
</thead>
</table>
What can I use to build an AS?

Some options out there

- JSSIP
- Asterisk
- FreeSWITCH
- Mobicents
Creation of an AS with the following characteristics:

- Serve as a conference room
- Accept Audio/Video Calls
- Support TCP/TLS/UDP/WS transports
- Support most common audio/video codecs
How we did it?

1. We searched for an open-source conference server
2. We filtered options
3. We put Kamailio in front of it to make it work better
And the result was this...
In conclusion

1. Application Servers are extremely useful
2. They are fairly easy to build
3. You don't have to be an IMS expert to do it
4. You probably know already how to build one :-)}
Thank you!

Questions?

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