IMS Message Office
A project in cooperation with

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About IMS

What is IMS?
- The IP Multimedia Subsystem
- A middleware to connect a number of different non-standardized services in a standardized way
- Developed by Ericsson

Three layers

Transport layer
Provides a abstraction of lower level protocols
- 3GPP
- IP
- ...
Core layer
Provides common services for applications
- Authentication
- Authorization
- Quality of Service
- Charging policy
- ...

Service/Application layer
Provides the actual services for operators and end users
- Subscriber database (HSS)
- Application Server (AS)
- Our instant messaging application (MAS)
- ...

IMS today
- IMS is being promoted at several different places in the world
- Development environment in Java named Sailfin
- Sailfin environment available from Ericsson through the IMS Innovation portal

Project goal
- Create an Erlang/OTP environment for IMS application development
- Implement an instant messaging server which will run in this environment
- Help promoting the IMS platform

Project goal
- Why an Erlang/OTP environment for IMS?
  - Give Erlang developers ability to use these skills on IMS
  - Erlang has some features that are important in the telecom world built-in into the language
Project goal

- Erlang features
  - Soft real time support
  - Concurrency
  - Distributed deployment
  - Code upgrade while running

Project goal

- How do we help the IMS project?
  - Evaluate the platform for Ericsson
  - Gives Erlang developers a way into the platform by providing an Erlang environment
  - Develop the first application on IMS in Erlang

Project organization

- SCRUM development model
  - Daily stand-up meetings
  - Product backlog
  - Sprint backlog
  - Sprint
  - Final backlog

- SCRUM master – maintains the sprint backlog
- Product owner – maintains the product backlog

Project organization

- AS application
  - 8 out of 13 members
  - SCRUM master: Christian

- MAS application
  - 5 out of 13 members
  - SCRUM master: Muneeb

IMS Message Office

- Application Server
- Messaging Application Server
- Integration Team
What is MAS?
- Hosted over the AS, provided by the “AS team”
- Processes user “instant messages” and other requests like register etc.
- Two modes of operation
  - Originating – Processes sender's requests/messages
  - Terminating – Processes messages at the receiver's end

Overall Architecture

Message Flow in MAS

Read SIP Message Module
- Receive the SIP Messages from the application server.
- Parse SIP Messages
- Pass raw and parsed SIP information to “Log Message” and “SIP Message Type Check” modules, in parallel.
Log Module

- Receive the parsed SIP Message information from the “Read SIP Message” module.
- Store the SIP data fields info in the Log MNESIA Database.

Email Copy Module

- Send request to “Check Configuration” module to detect user settings for “Email Copy.”
- If Email Copy has been enabled by the user, an email containing the Instant Message is sent to the user-defined email list.
**Message Flow in MAS**

- Check HSS to see if user is on-line or not
- If off-line, the instant message is stored in the Message store, marked “unread”. Auto-Reply is sent after checking its configuration in the configuration DB.
- The receiver is on-line, the message is delivered or forwarded to AS and the receiver gets the message; message is stored in the Message Store, marked “read”.

**Auto Reply Module**
- If the receiving user is off-line, send an auto reply to the sender after checking user-setting (regarding this functionality) with the configuration database.

**Presence Module**
- Check HSS to see if user is on-line or not
- If off-line, the instant message is stored in the Message store, marked “unread”. Auto-Reply is sent after checking its configuration in the configuration DB.
- The receiver is on-line, the message is delivered or forwarded to AS and the receiver gets the message; message is stored in the Message Store, marked “read”.
Message Flow in MAS

Delivery Receipt Module
- Delivery receipt to sender; whether the message is delivered or discarded
- Based on receiver's acknowledgment

Current Implementation

Originating MAS

Overall Architecture

Terminating MAS
MAS Vision

- Absent Receiving for users not online
- Delivery Receipt for messages delivered
- Maximal “user-settings” customization for logging, Email Copy, black/white lists etc. through the configuration database
- Group conversations using “Cloning”
- Receiver defined forwarding

Demonstration

Questions?

SIP – Session Initiation Protocol (RFC 3261)
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- User location
- Session Managing
- ...

SIP - Session Initiation Protocol (RFC 3261)