Motorola Israel Project:

Authentication Center for SDP Federation

ADD

The Team:

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Reminder...

Network Authentication:

A client (supplicant) of one SDP wants to use infrastructure of local (reachable) SDP.

An authentication process is a precondition for establishing a connection between the client and the desired SDP.

One Authentication Center will receive all requests for AAA and handle it, including:

- Protocols conversion (*RADIUS - DIAMETER*).
- Routes authentication request to SDP that the user is subscribed to.

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Reminder...

SDP Authentication :

- Application needs to use specific services. The services are provided and available in several servers.

  In order to get the services, the application needs to authenticate with services servers.

- An authentication center will implement the authentication process and service request, using standard API (*Parlay & MD5*).

  The center will connect the application with the available and relevant services.

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Remainder

System Requirements

System Architecture

Main Classes and Relationships

User Interface

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Tasks List

System Requirements

- Establishment of Authentication Center.
- Management of the authentication process:
  1. User network authentication.
  2. Application authentication.
- Route authentication requests and response :
  1. Network requests.
  2. Service requests.
- Managing a repository for SDP and services records.

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System Requirements

- Authentication protocols conversion:
  RADIUS *to* *DIAMETER*
  DIAMETER *to* *RADIUS*
- Implementation of standard authentication protocols & obtain services: *EAP-MD5* & *Parlay*.
- GUI for a detailed visual trace of the system's states including graphic logger window.

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System Architecture

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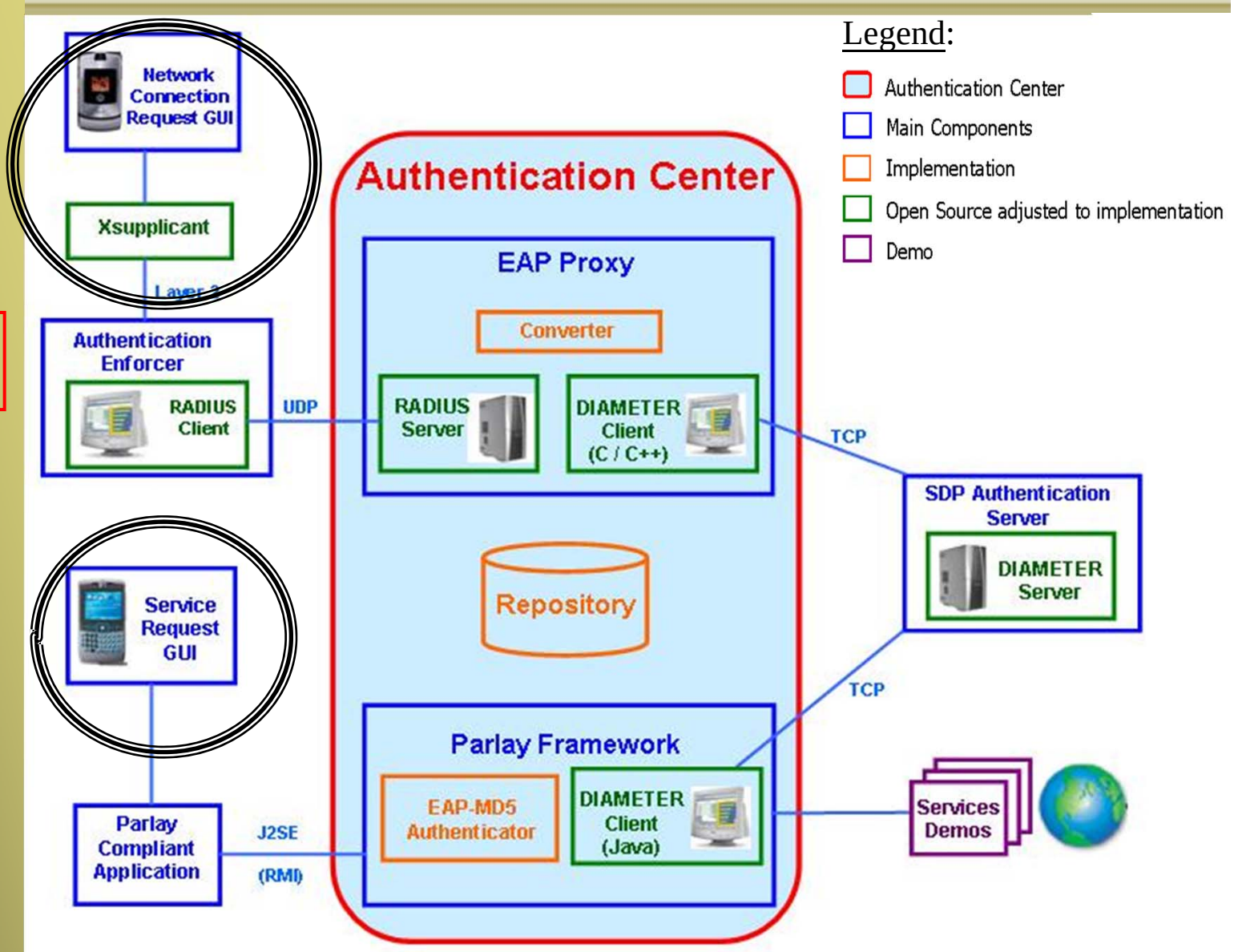
- Tasks List



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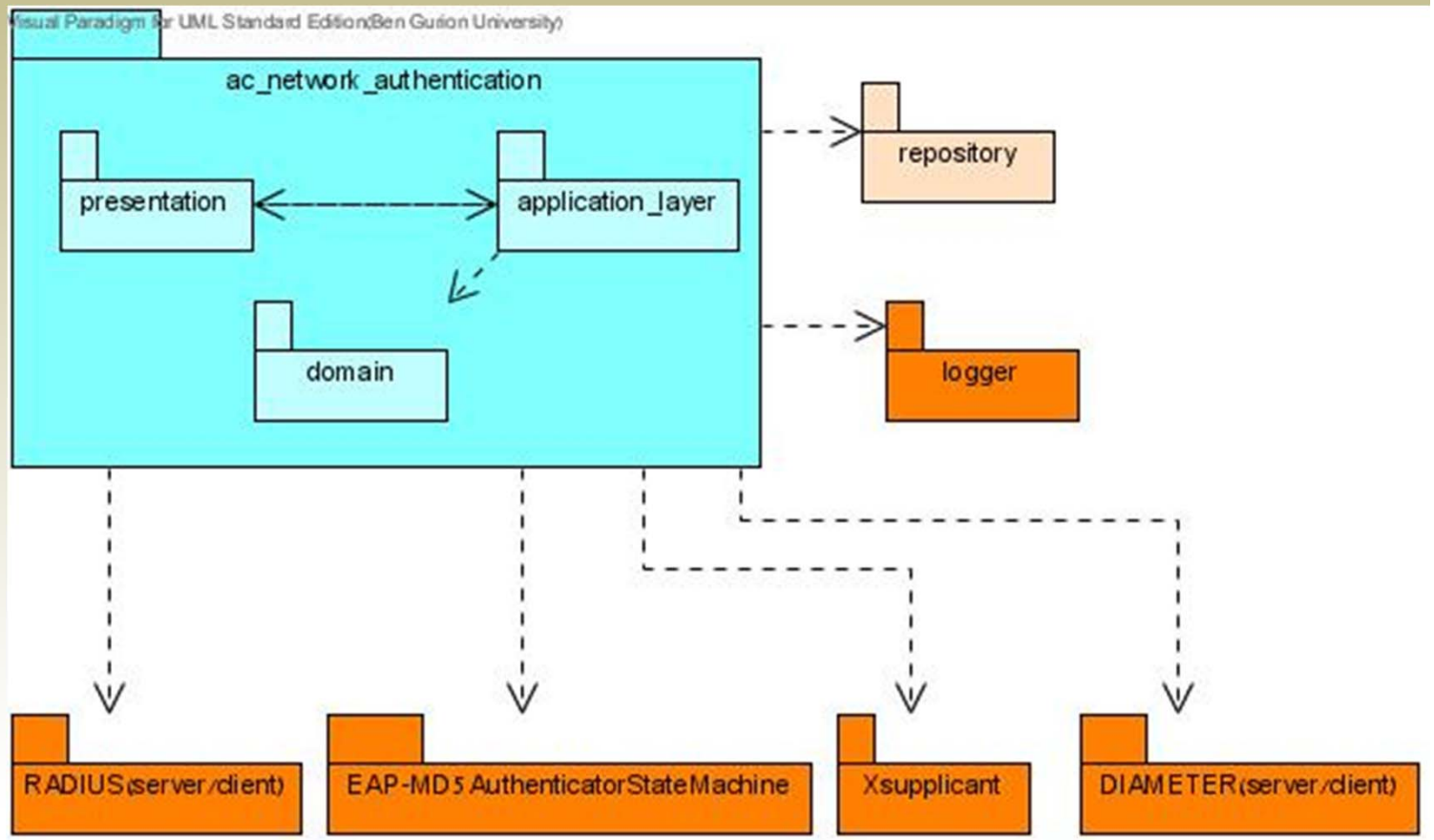
Main Classes and Relationships

Network Authentication - Package Diagram



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Main Classes and Relationships

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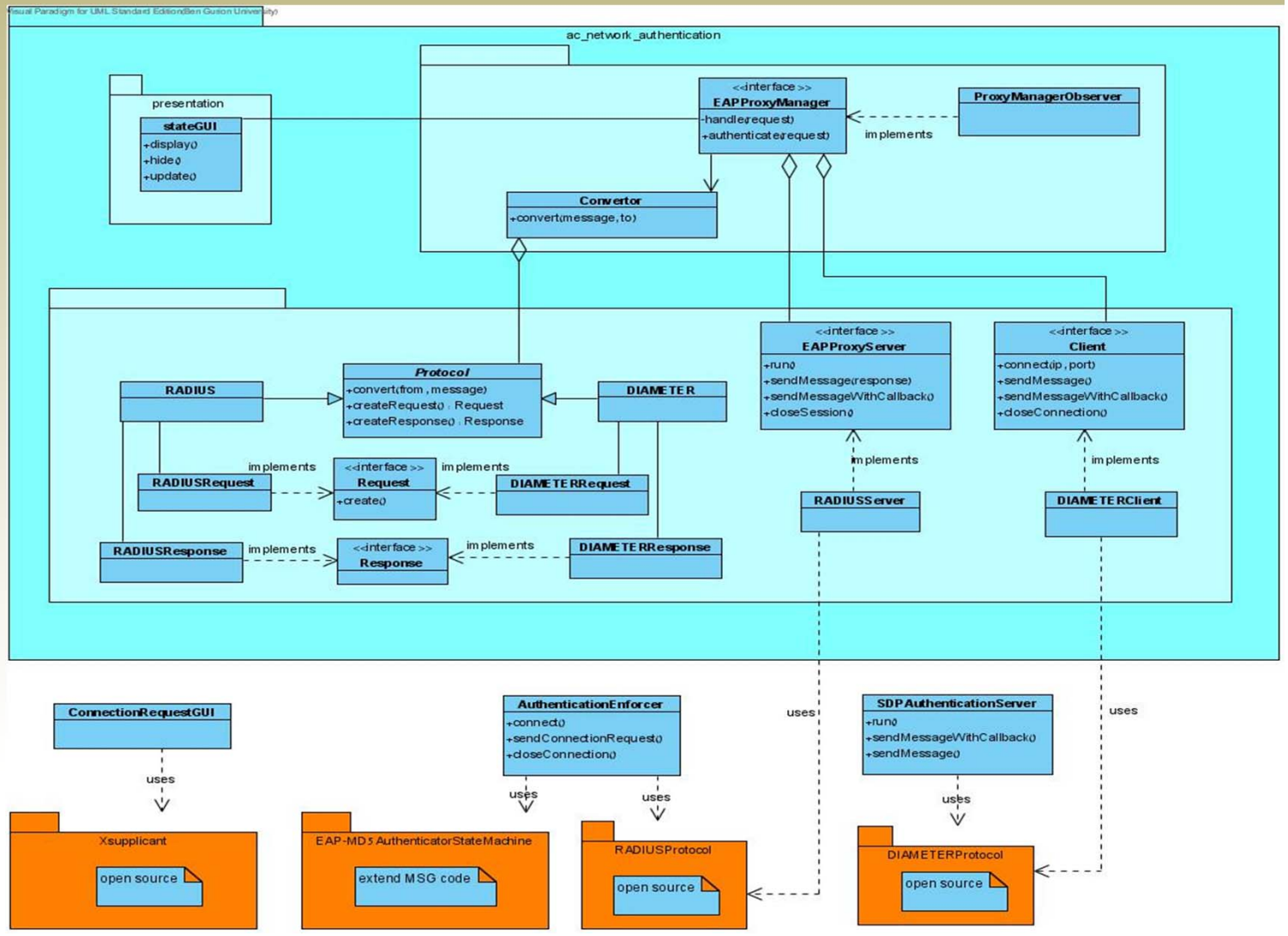
Network Authentication - Class Diagram



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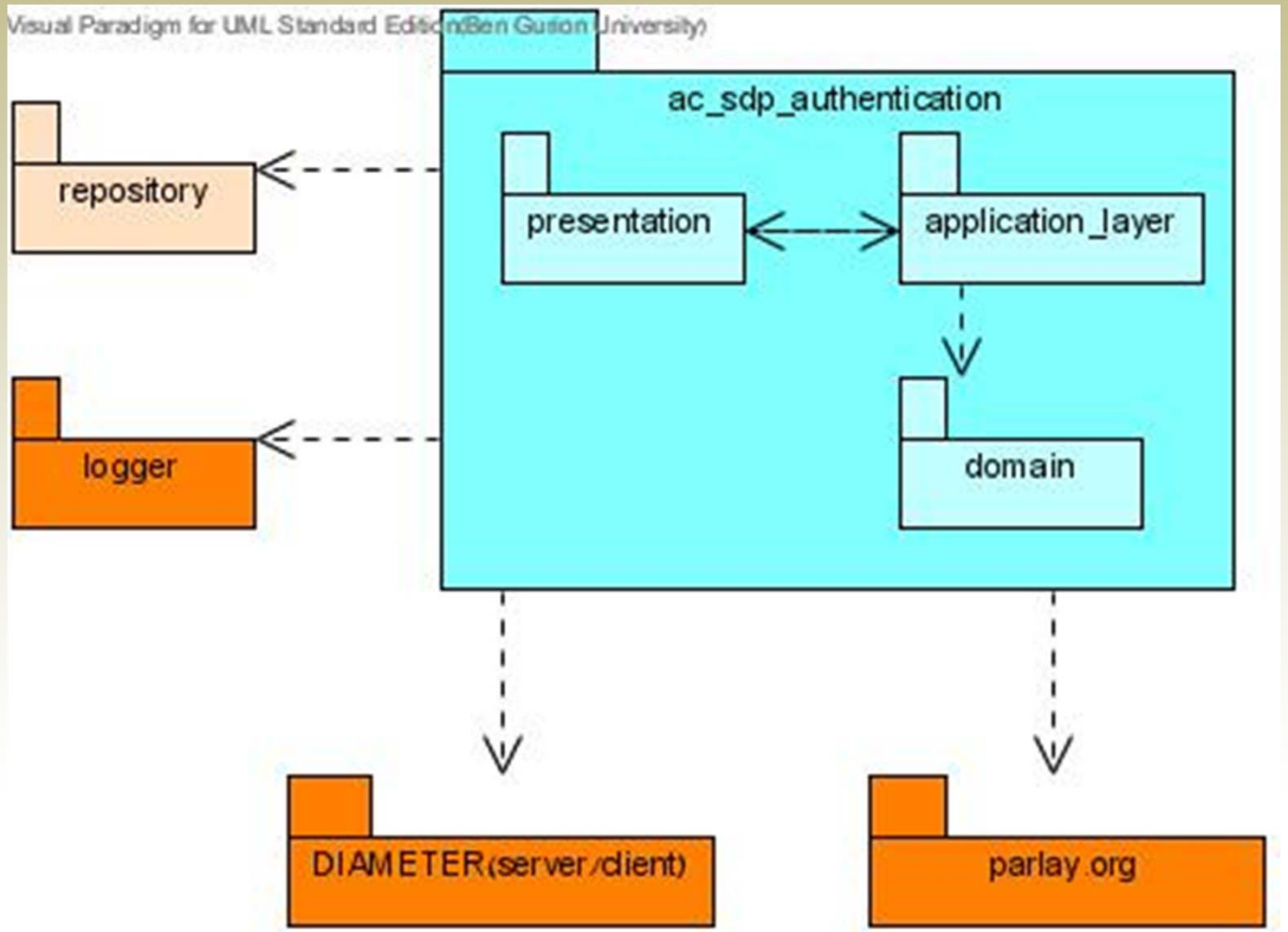
SDP Authentication - Package Diagram



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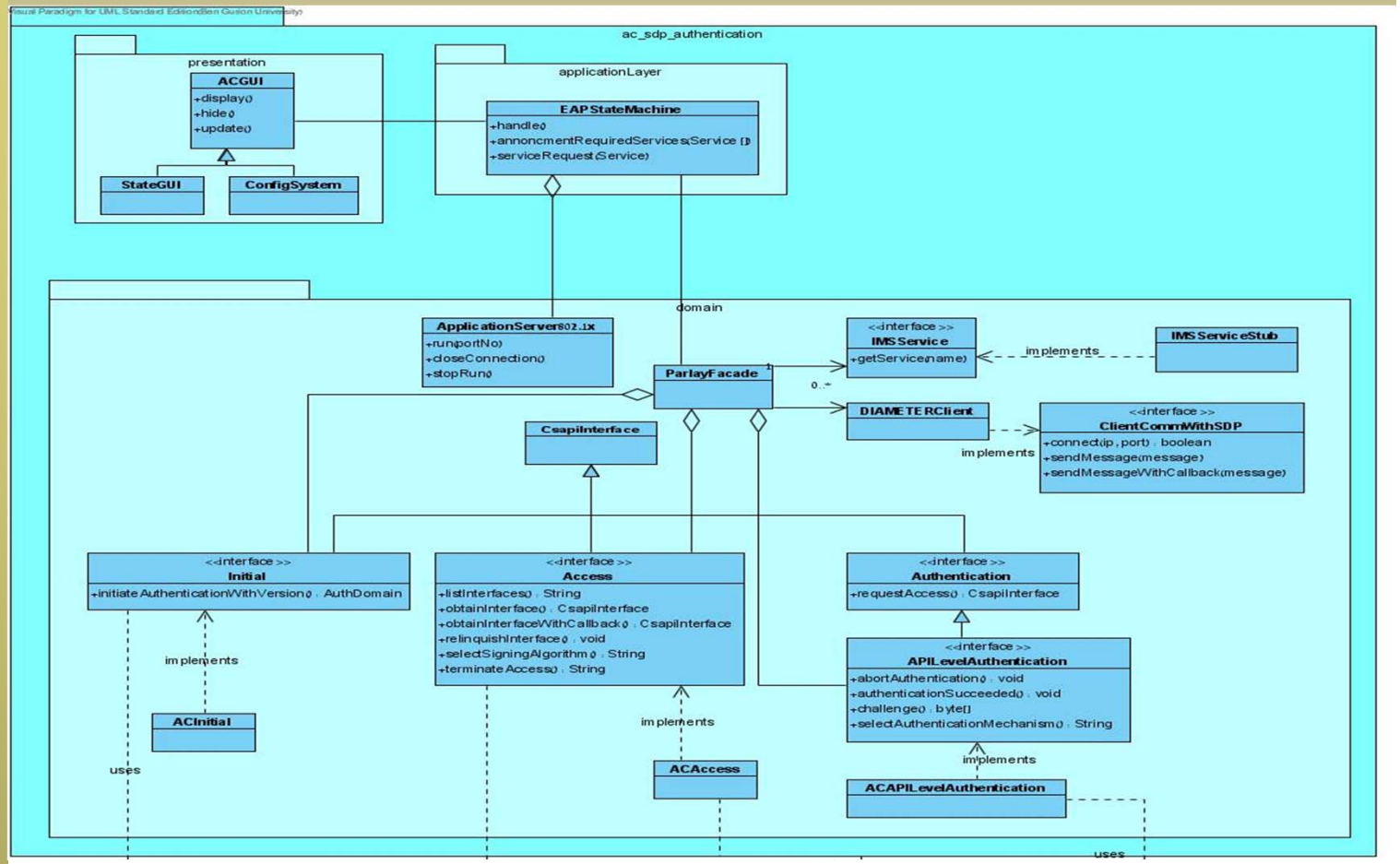
Main Classes and Relationships

SDP Authentication - Class Diagram



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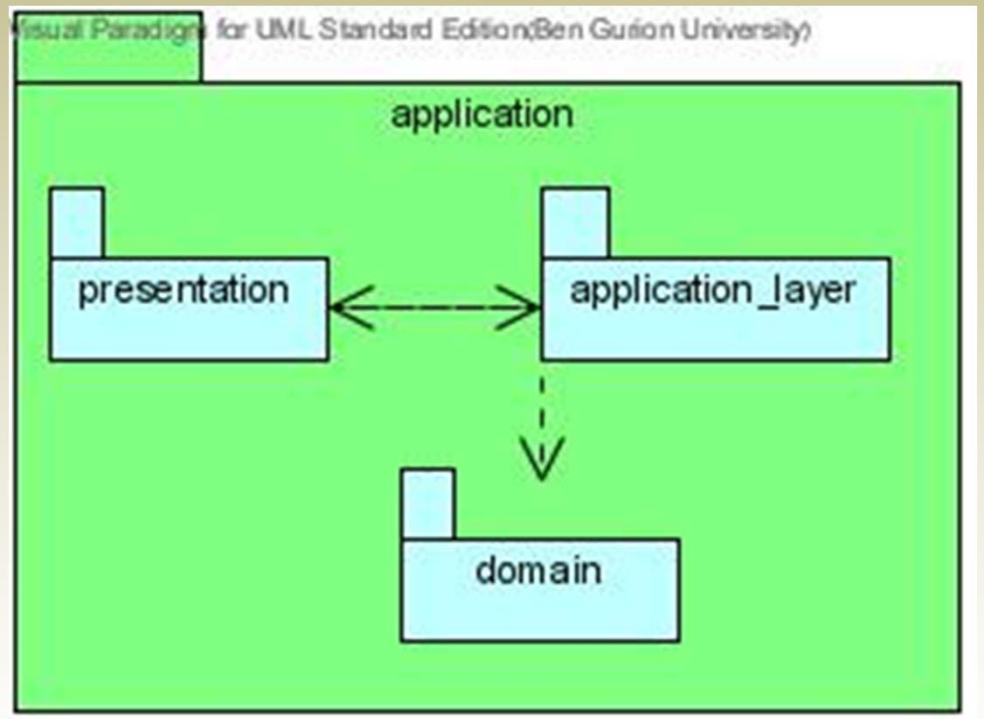
Main Classes and Relationships

Application - Package Diagram



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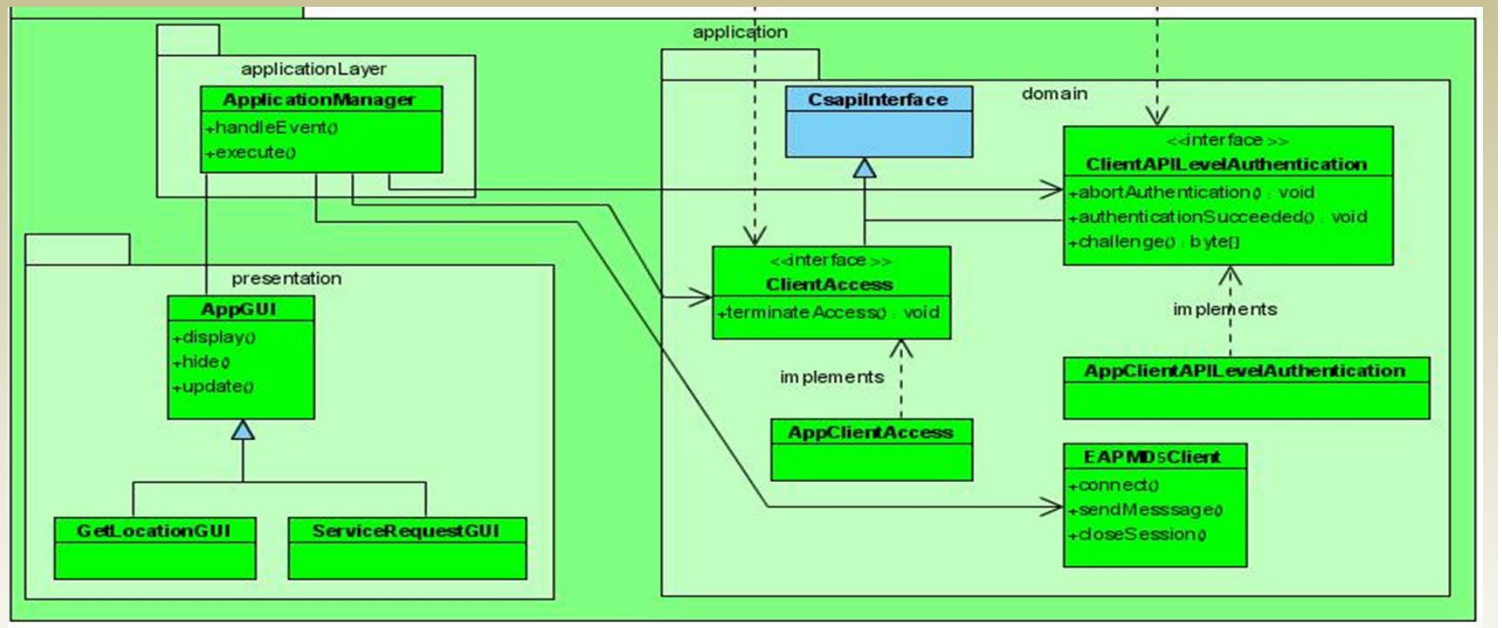
Main Classes and Relationships

Application - Class Diagram



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Repository
ERD (Entity-Relation Diagrams)

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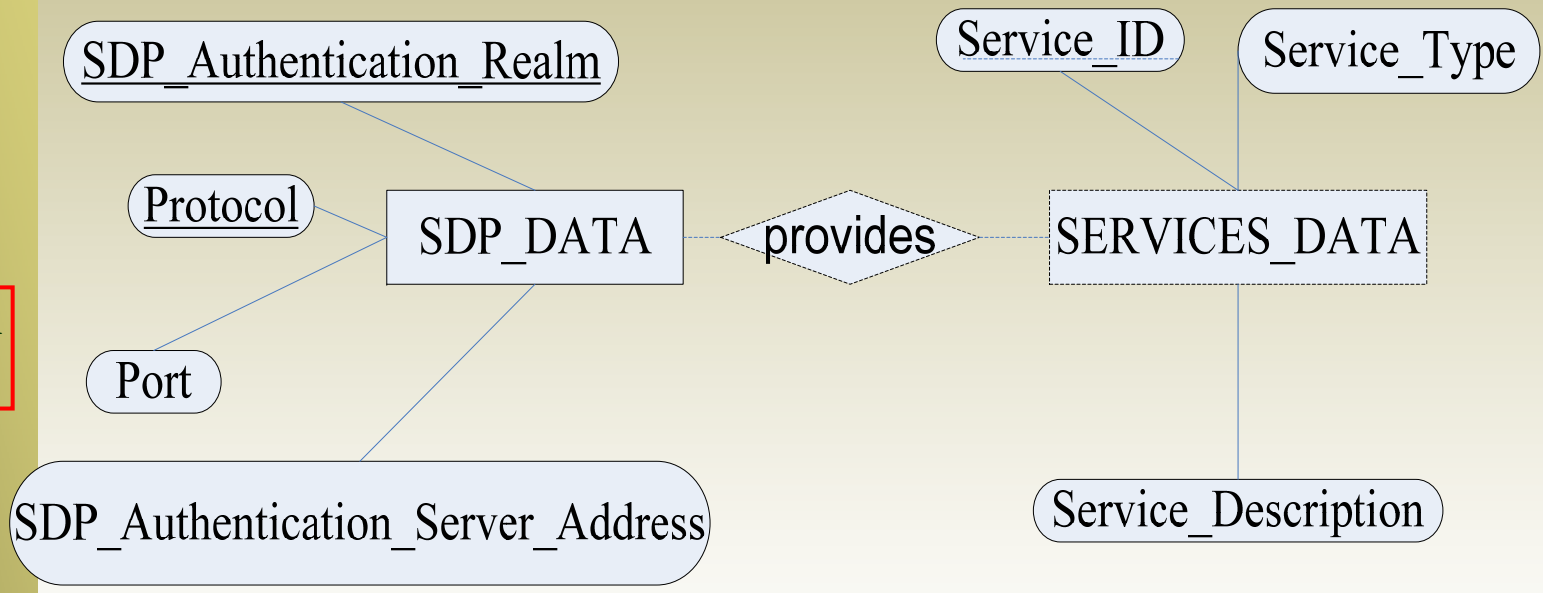

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User Interface

1. Initiate System and Configuration GUI

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Username : For example – admin

Password :

Client Port :

Server Port :

Logger Location :

Repository Location :

Logger Window :

For example: - User “admin” logged-in .
- User “admin” initiate the system at 31-1-2007, 12:45:22 .

Timer :

For example:

- Init System: 31-1-2007 12:45:22

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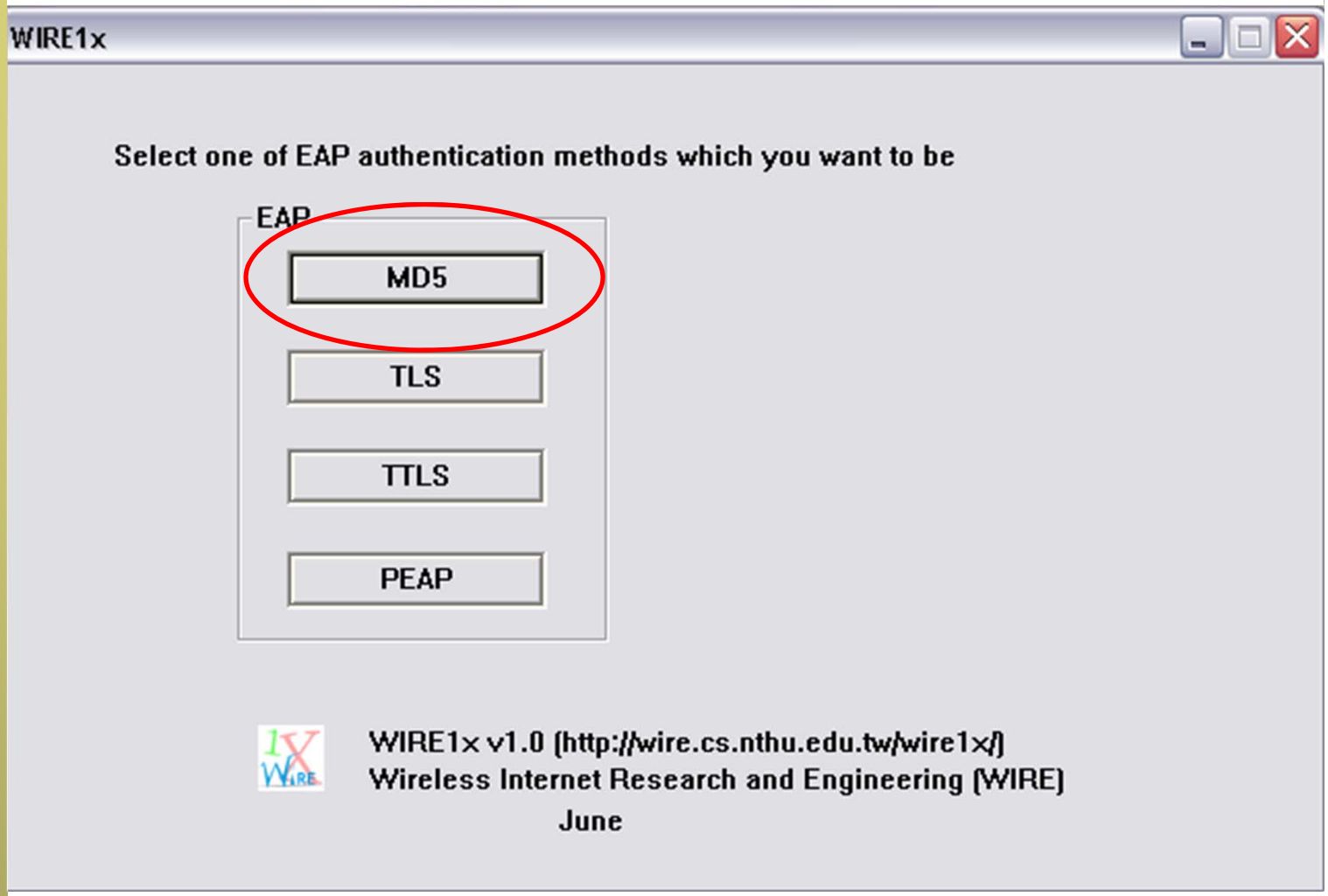
User Interface

2. Xsupplicant – "WIRE1x"



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User Interface

3. Xsupplicant – "WIRE1x_MD5"

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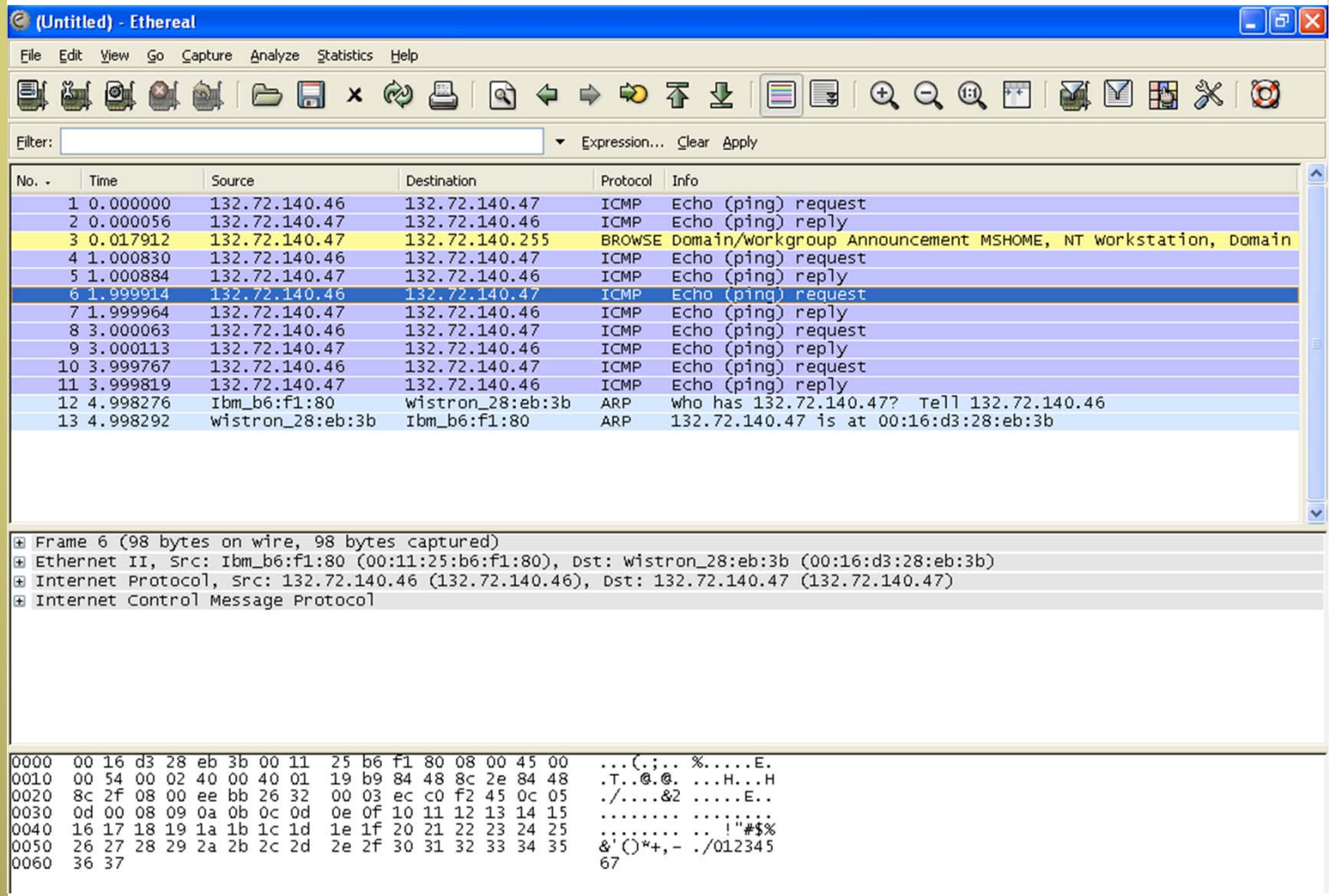
User Interface

4. Sniffer – "Ethereal"



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User Interface

5. Service Request GUI

Application ID :

Password :

Choose the desired service name :

- ☑ User Location
- ☐ Access Mailbox
- ☐ Account Management
- ☑ Call Control

Authentication Details:

For example:

- Application Name:
  "Get Restaurants"

-Requested Service:
  "User Location"
  "Call Control"

Logger Window :

For example: - Send authentication request.
- Returned answer = Accept

Timer :

For example:

- Request time
  15:48:32

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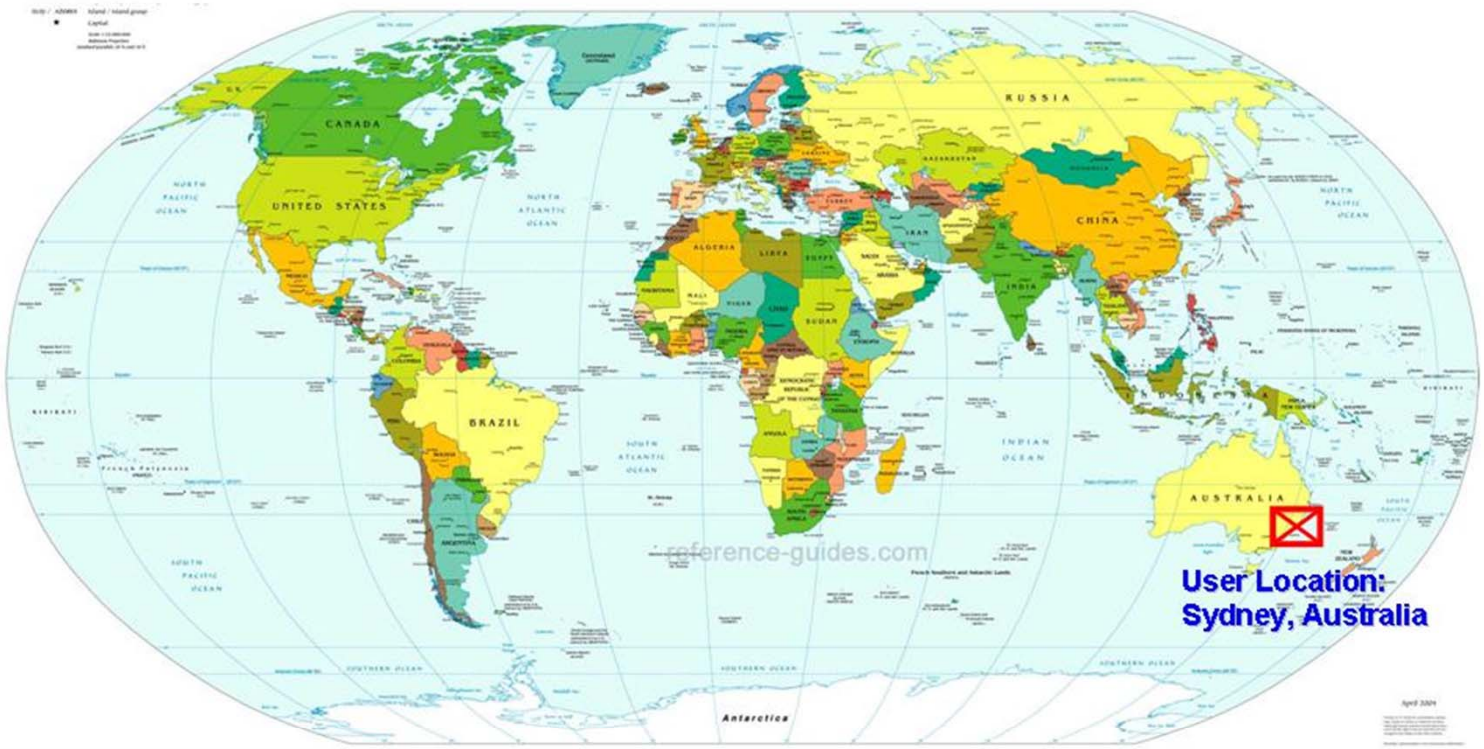
User Interface

6. A form that shows an example of using a service



Logger Window :

For example: - Application "Get Weather Forecast " authenticated.
- Application activated service "User Location"
- Service answer: "Sydney, Australia"

Timer :

For example:

- Answer time: 12:45:22

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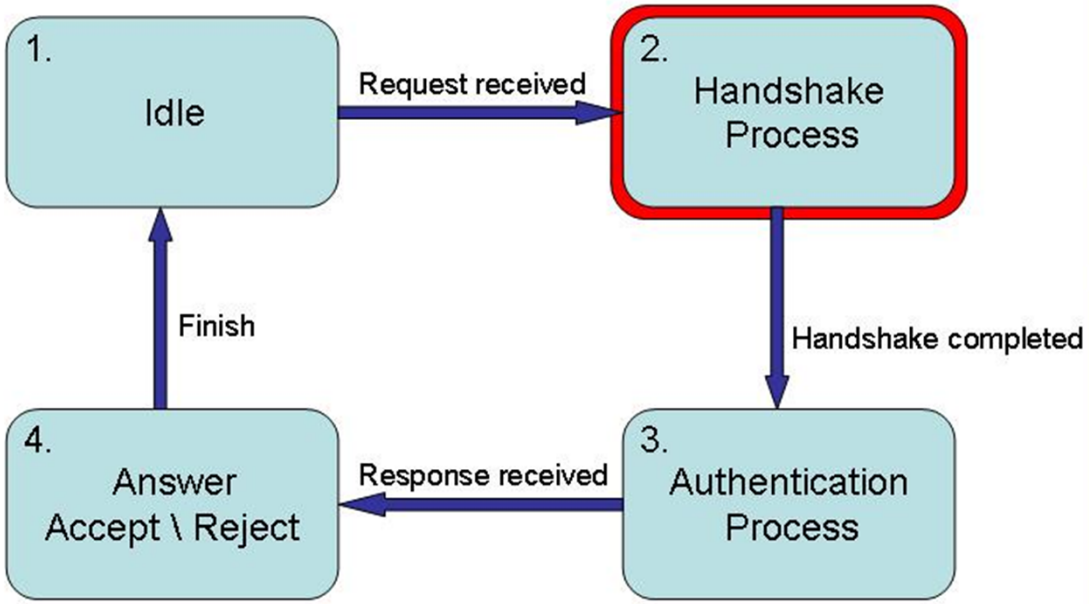
User Interface

7. Authentication process GUI



Authentication Details:

For example:

- Application Name: "Get Restaurants"

-Requested Service: "User Location"

Logger Window :

For example: - Challenge transmitted.
- SDP data received from repository.

Timer :

For example:

- Start Handshake 15:48:32

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Tests

Main Scenarios Testing:

- Test Protocols Conversion
- Test Route Message
- Test Network Authentication Process
- Test SDP Authentication Process

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Tests

Non-Functional Testing:

- Reliability Testing
- Safety Testing
- Platform Constrains Testing

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Tasks List

- Software installations, setup and configurations.
- EAP-MD5 authenticator State-Machine – Proxy (network authentication).
- Authentication Protocols Converter.
- DIAMETER server stub (prototype only).
- GUI.

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Remainder

System Requirements

System Architecture

Main Classes and Relationships

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Tests

Tasks List

Tasks List

- Building Authentication Repository.
- Implementing Parlay interfaces.
- 802.1x EAP State-Machine (SDP authentication).
- IMS services stub.

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Remainder

System Requirements

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Tasks List

Tasks List

- Prototype establishment.
- Testing plan document.
- User manual.
- Unit-tests.
- Integration & Integration tests.

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Prototype

Network Authentication:

- Authentication process –
  part of EAP-MD5 state machine & GUI
- SDP Authentication server stub –
  (DIAMETER server)
- Protocols conversion *(RADIUS* ⟷ *DIAMETER)*
- Xsupplicant (access request & GUI)
- Sniffer

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Prototype

SDP Authentication :

- Authentication process –
  part of state machine & GUI
- SDP authentication server stub –
  (DIAMETER server)
- Parlay interfaces implementation (partial)
- Application (service request & GUI)
- Service stub
- RMI communication (server & client)

Authentication Center for SDP Federation

Thank You !