ITU Kaleidoscope 2011
The fully networked human?
Innovations for future networks and services

SOA Driven Architectures for Service Creation Through Enablers in an IMS Testbed

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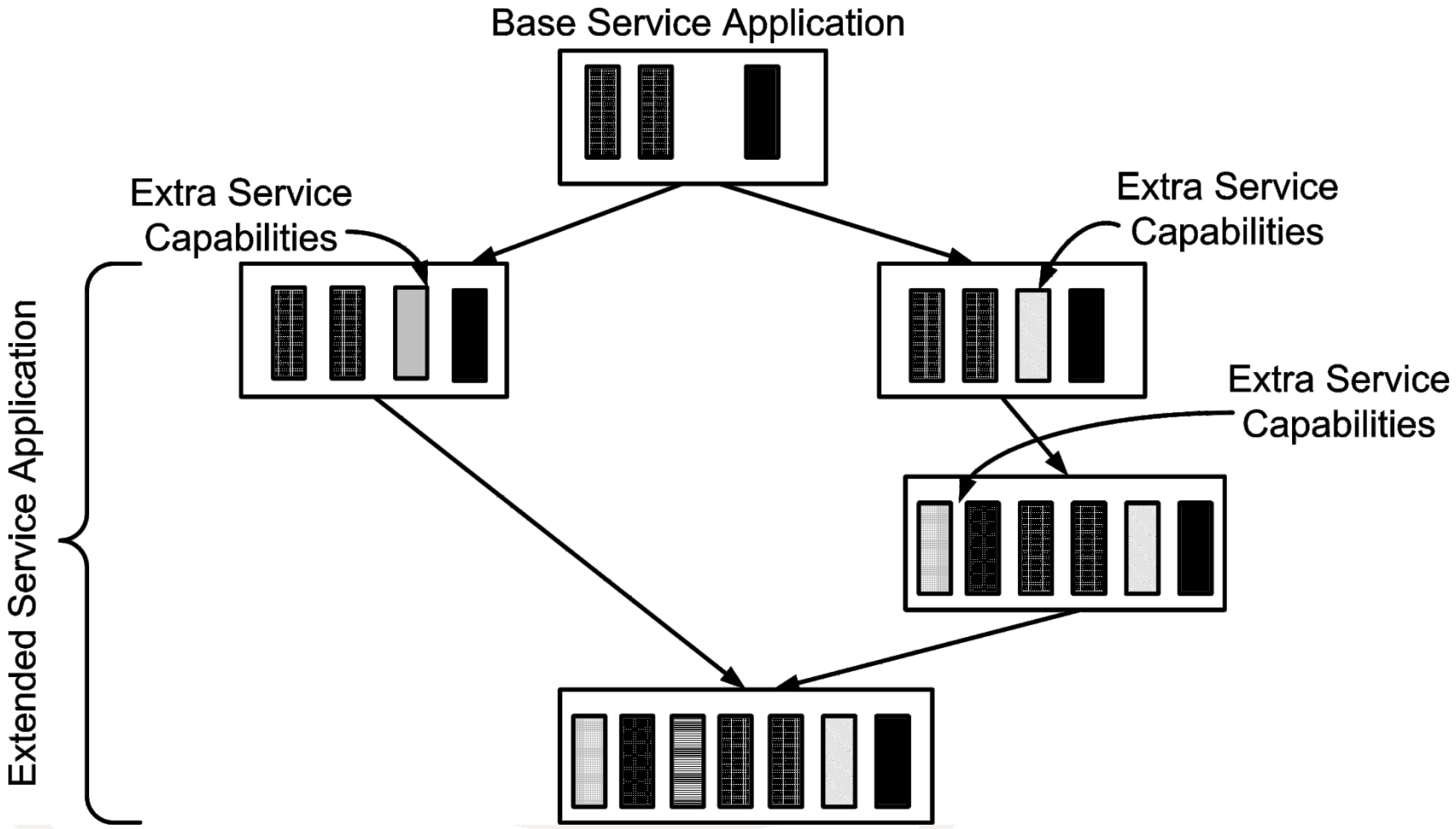
Outline

- Services and Service Capabilities
- SOA Development in Telecoms
- Extended IMS Service Layer (EISL)
- Implementing EISL
- Service Development in EISL
- A Case Study in EISL Development
- Conclusion

1. Services and Service Capabilities



Source: ETSI TR 181.004, 2006.

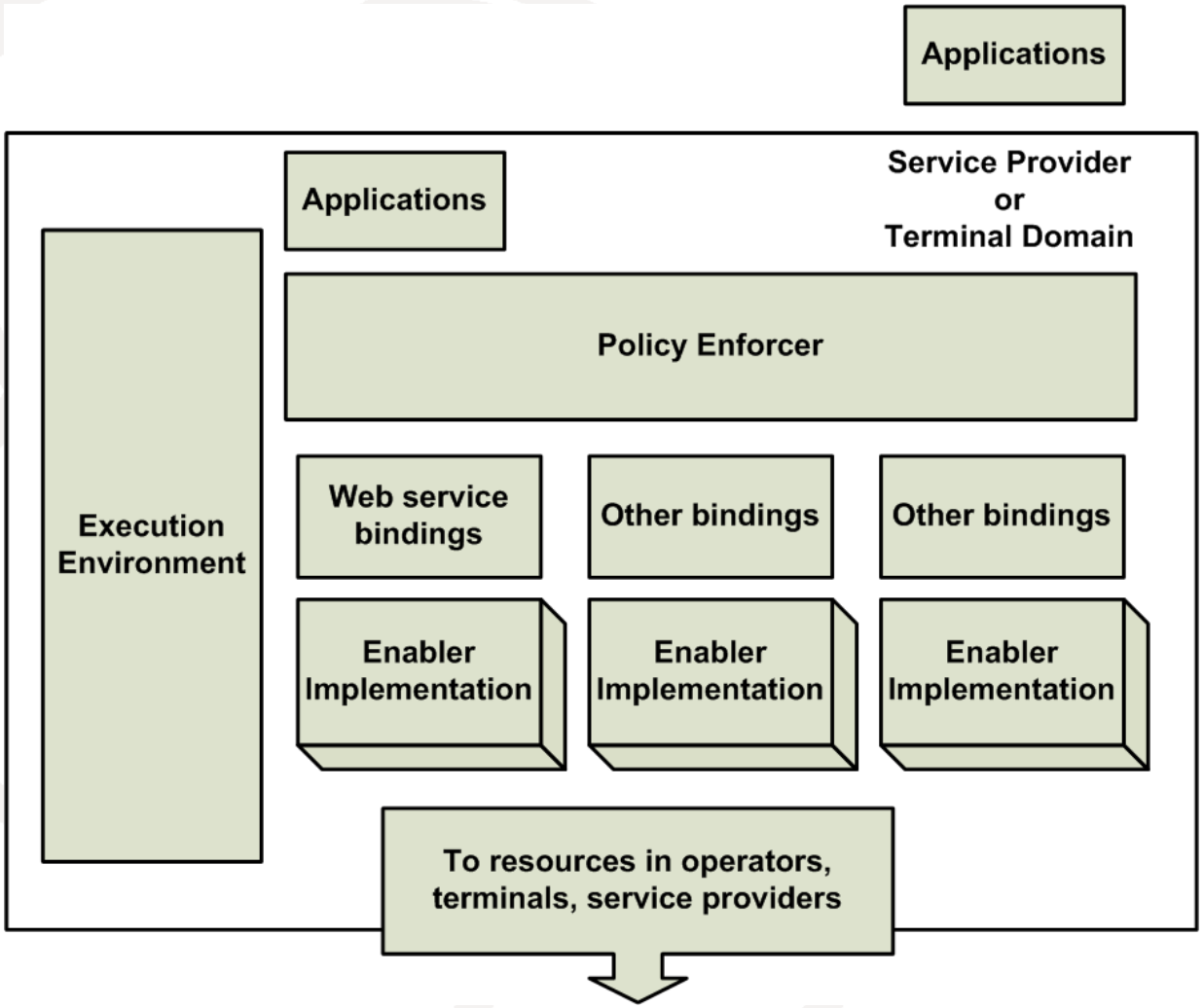
1. SOA Development in Telecoms

- Open Service Access
  - Provide access to telecommunication network functions via standard interface
  - Developed by Parlay group, now joint standardisation by 3GPP and ETSI)
  - Reliant on Parlay gateway (Service Capability Server, SCS)
  - Most development in web services

2. SOA Development in Telecoms

- OMA Service Environment (OMA SE)
  - Open Mobile Alliance is the largest developer of specifications for mobile services
  - Developed over 100 specifications for enablers such as presence, messaging..
  - Single architecture for multiple enablers
  - Utilises policy enforcer and bindings to enabler implementations

3. SOA Development in Telecoms

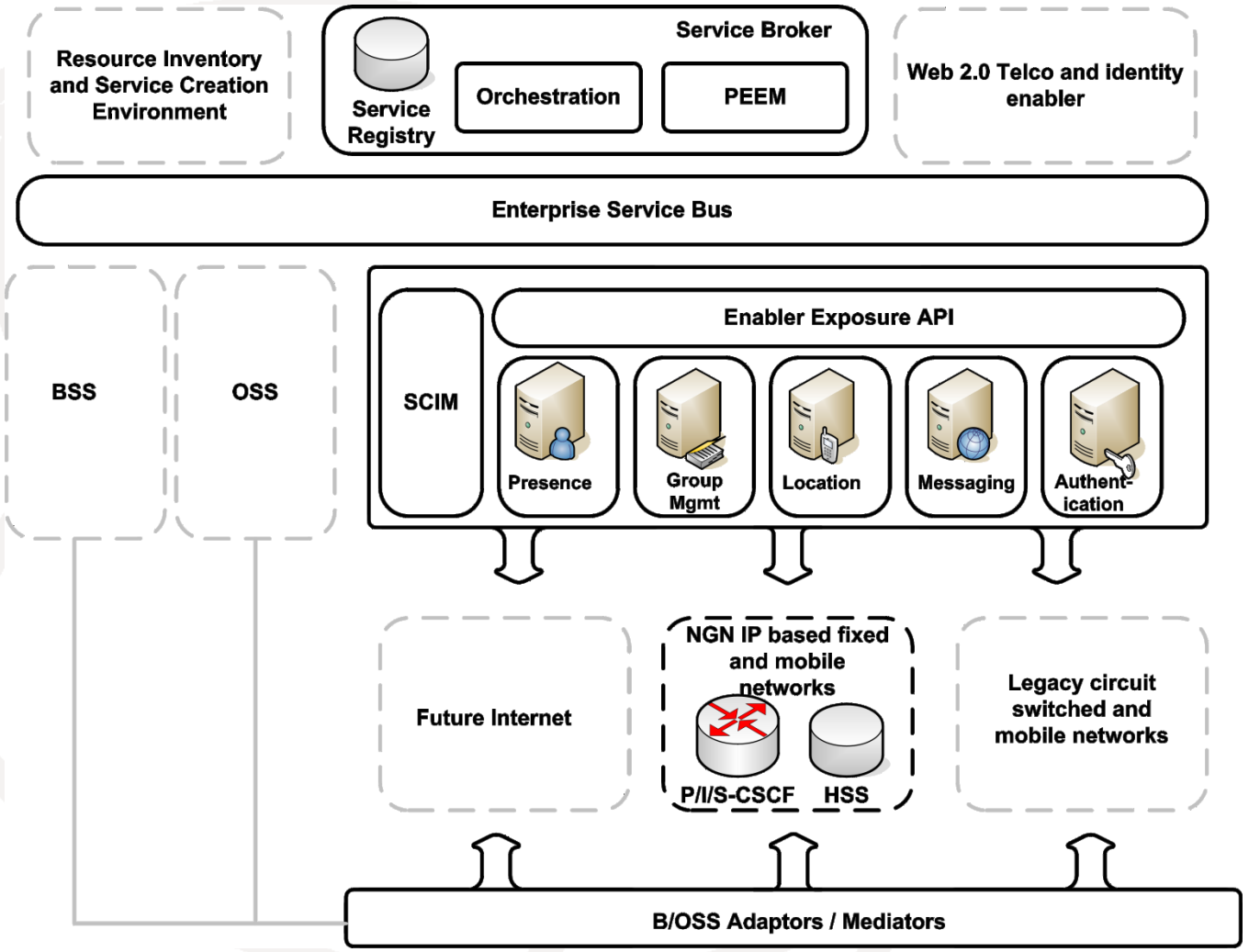


Source: OMA Service Environment v1.0.5, OMA. 2009.

4. SOA Development in Telecoms

- SOA Telco Playground
  - Open source Parlay testbed for industry and academia
  - APIs for service creation in IMS
  - Brings together OMA enablers, policies, enabler exposure and open APIs

5. SOA Development in Telecoms



Source: N Blum, T Magedanz, F Schreiner, S Wahle, 2010.

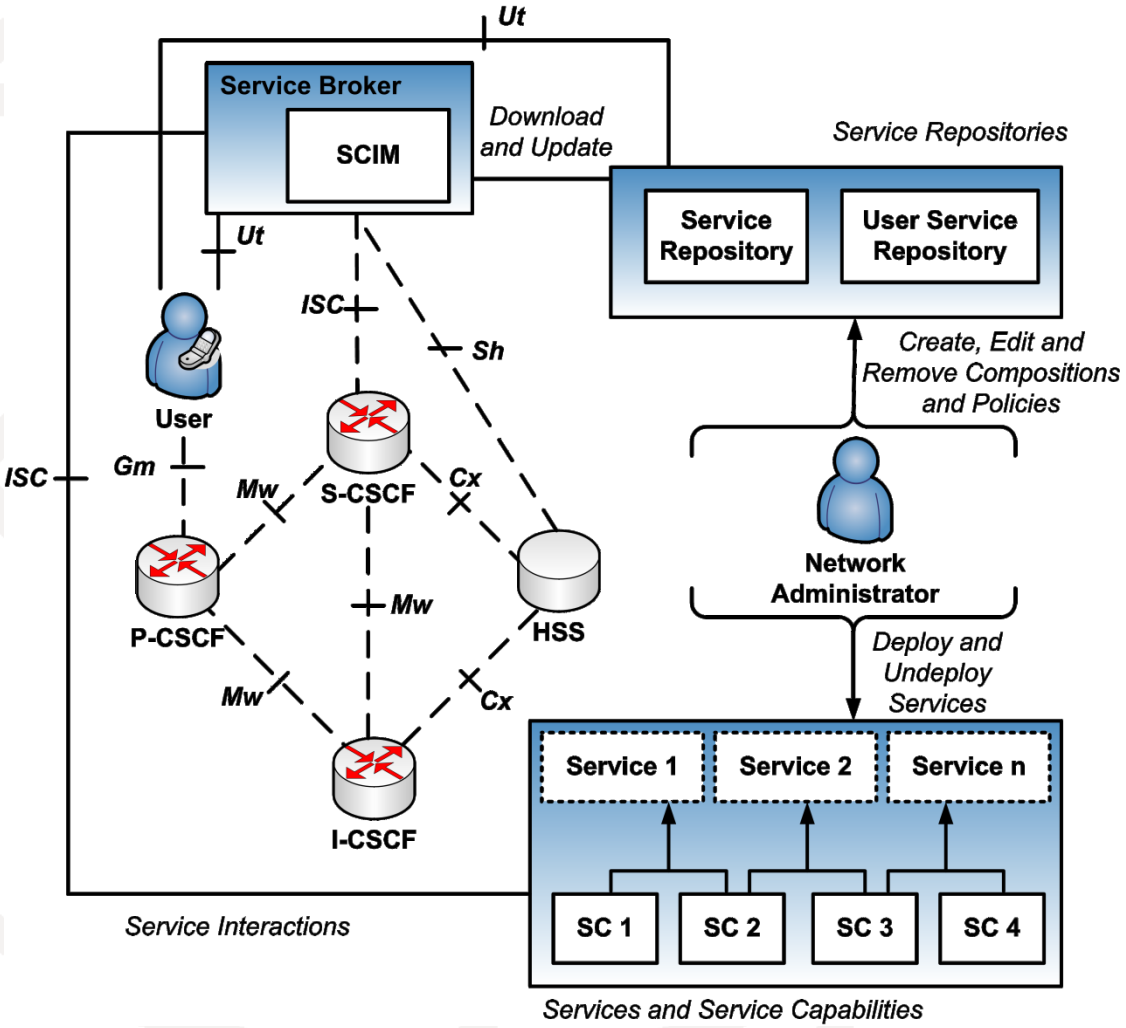
1. Discussion

- IMS/telecom developers need to "enablerise" their networks/testbeds
- Web services have long history, but there are alternatives
  - JAIN - Java APIs for Intelligent Networks
  - JAIN SLEE –Service Logic and Execution Environment
  - Mobicents – prominent SLEE implementation

1. Extended IMS Service Layer (EISL)

- Extended view of standard IMS service layer
- Consists of:
  - Network personnel
  - Service broker
    - Service Capability Interaction Manager
  - Data Repositories
    - Service Repository
    - User Service Repository
  - Third party application servers

2. Extended IMS Service Layer (EISL)



Source: M. Tsietsi, A Structural and Functional Specification for a SCIM for IMS, PhD Thesis. August 2011.

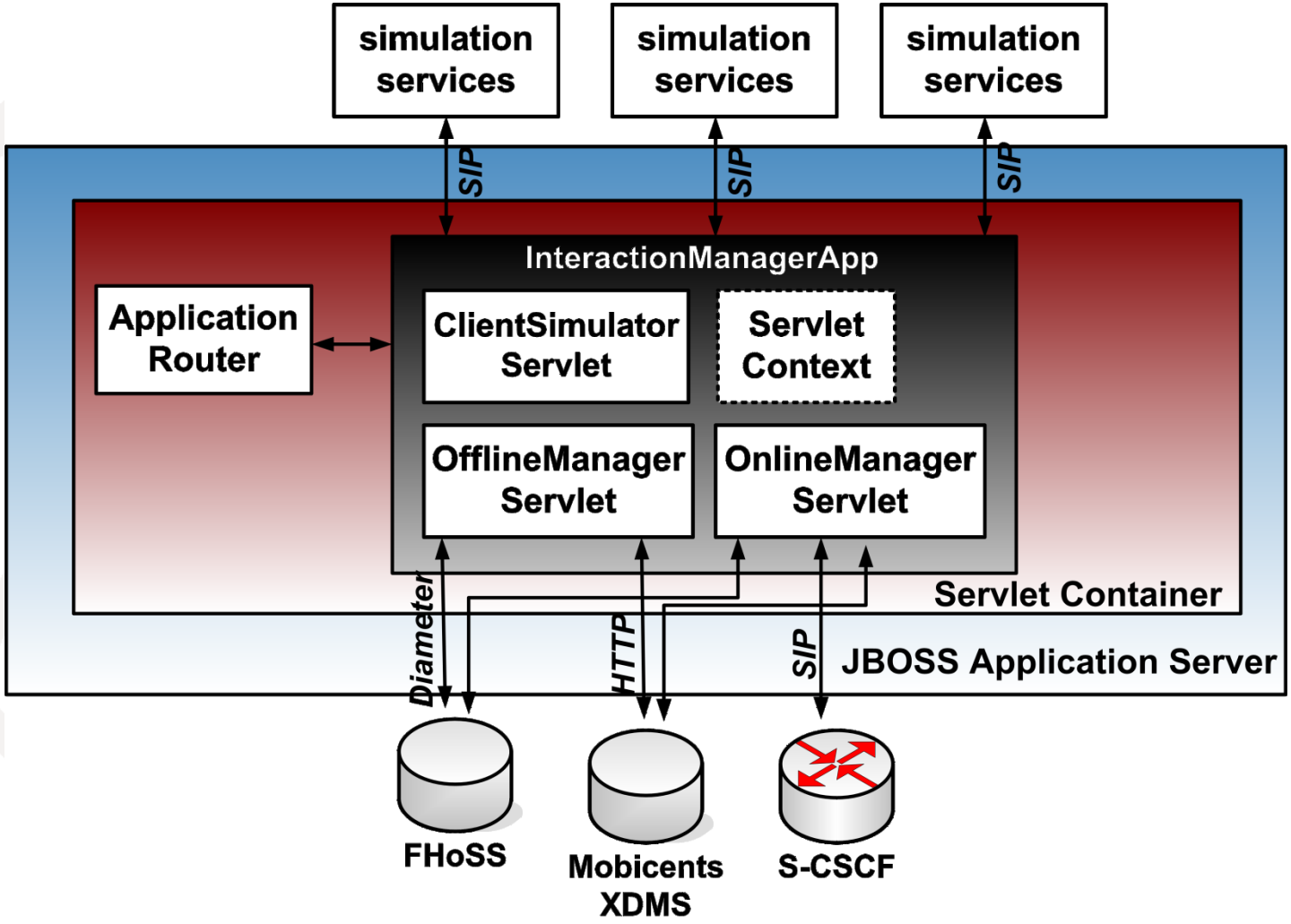
1. Implementing EISL

- Emphasis on open standards and open source implementation
- Components:
  - Open IMS Core and JSLEE Mobicents
    - Open IMS Core (SVN checkout)
    - Mobicents SIP Presence Service
      - SIP Presence and XDMS (IETF/OMA presence)
      - ETSI/3GPP simservs appusage (TS 24.173)
      - IETF/OMA common policy (RFC 4745, OMA-TS-XDM_Core)
    - Mobicents SIP Servlet Container (JSR 289)

2. Implementing EISL

```
<?xml version="1.0" encoding="UTF-8"?>
<simservs xmlns="http://uri.etsi.org/ngn/params/xml/simservs/xcap"
xmlns:cp="urn:ietf:params:xml:ns:common-policy"
xmlns:ocp="urn:oma:xml:xdm:common-policy">
  <originating-identity-presentation-restriction   active="true" priority="1">
    <default-behaviour>presentation-not-restricted</default-behaviour>
  </originating-identity-presentation-restriction>
  <outgoing-communication-barring active="true" priority="2">
    <cp:ruleset>
      <cp:rule id="rule66">
        <cp:conditions>
          <cp:identity>
            <cp:one id="sip:mallory@open-ims.test"/>
          </cp:identity>
        </cp:conditions>
        <cp:actions>
          <cp:allow>false</cp:allow>
        </cp:actions>
      </cp:rule>
    </cp:ruleset>
  </outgoing-communication-barring>
</simservs>
```

3. Implementing EISL

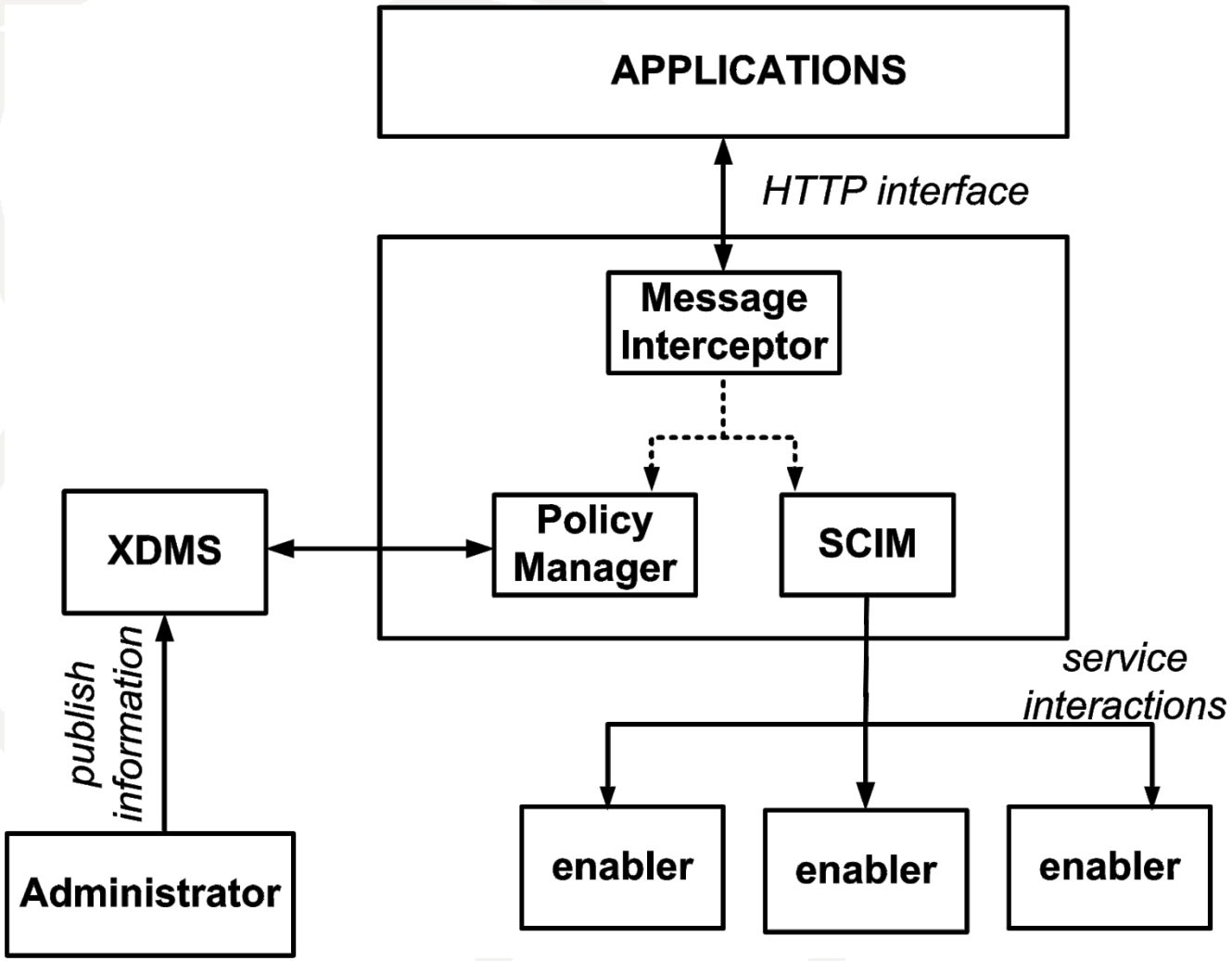


Source: M. Tsietsi, A Structural and Functional Specification for a SCIM for IMS, PhD Thesis. August 2011.

1. Service Development in EISL

- Interfacing with the SCIM:
  - SIP ✗
  - HTTP ✓
- Choose an API that is well understood and widely used
- Converged Servlet container can do both SIP/HTTP

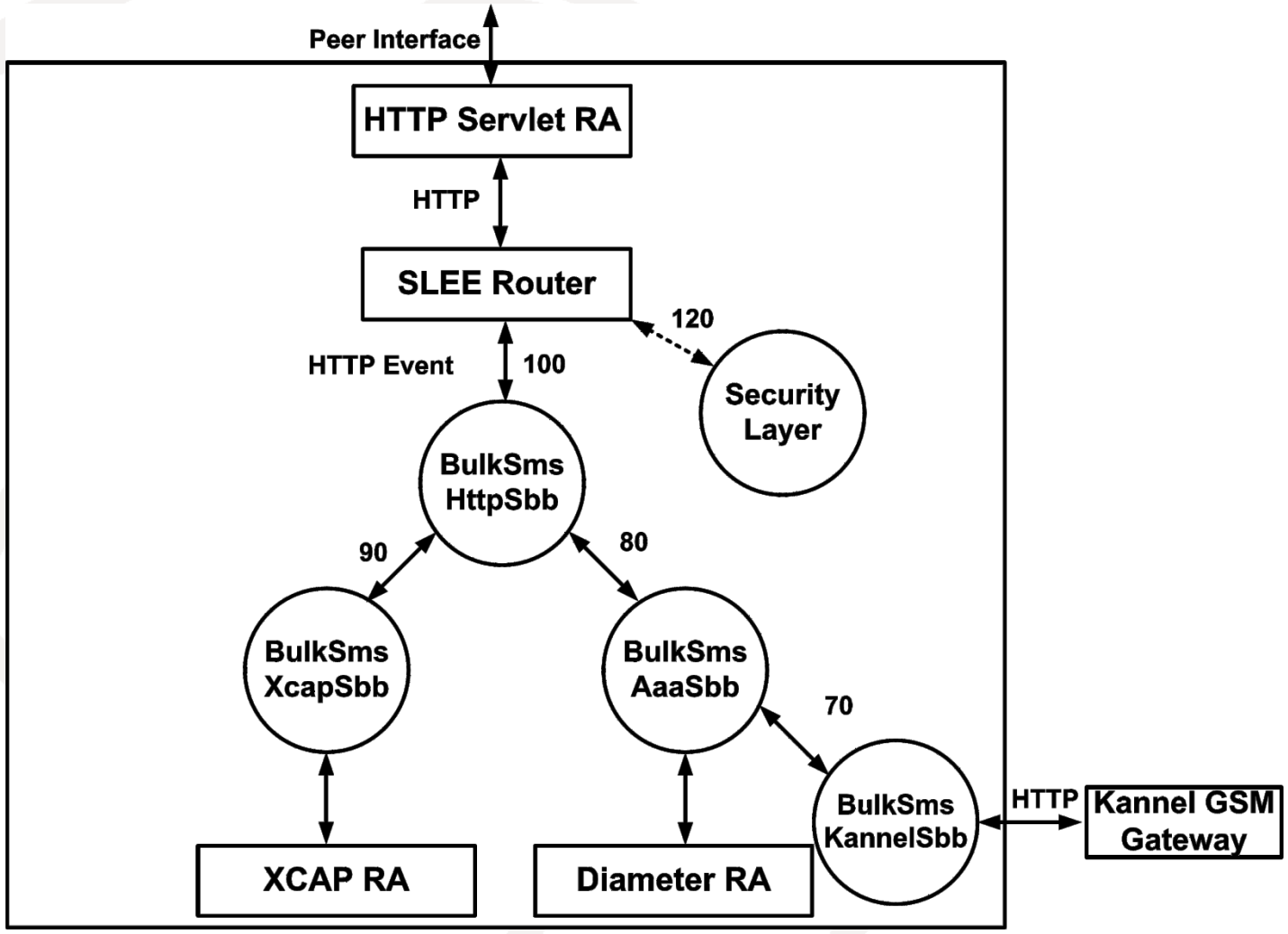
2. Service Development in EISL



1. Case Study in EISL Development

- Exposes an API to service developers
- Comprises of:
  - SMS Enabler
  - Resource List Enabler
  - Policy filter

2. Case Study in EISL Development



3. Case Study in EISL Development

- Create contact list

http://ip:port/server/username=usr&password=pass&type=document&op=add

- Add contact to a group list

http://ip:port/server/username=usr&password=pass&type=contact&op=add&group=Close%20Friends

- Send sms to contact

http://ip:port/server/username=usr&password=pass&type=sms&to=+27786346926&group=Close%20Friends&report=true

Conclusion

- EISL marries new paradigm in service creation with exposing capabilities in telco networks
- Service broker (SCIM) is central to this and must be multi-protocol
- Rapid service development is aided by using well known protocols (HTTP)