Sujet de MFE - Année académique 2009-2010

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Titre : « **Développement d'une librairie générique de décodage/encodage INAP en JAVA** «

Mots clés : VoIP ("Voice over IP"), NGIN(« Next Generation Intelligent Network »), IMS(« IP Multimedia Subsystem »), INAP("Intelligent Network Application Part"),SIP ("Session Initiation Protocol"), JAIN (« JAVA API's for Integrated Netwoks")

Contexte télécoms: le concept de IN (« Intelligent Network ») a été mis en œuvre dans les réseaux traditionnels PSTN, ISDN et GSM . Il supporte de nombreuses applications et services tels que VPN , « calling card », appels 0800,0900,…, portabilité des numéros, « prepaid » SIM,…A cet effet , des protocoles tels que INAP ou son équivalent en mobile CAP (« CAMEL Application Part ») ont été développés. La nouvelle architecture des réseaux fixes et mobiles dite de Next Generation s'appuie sur IP, sur l' IMS et sur des protocoles comme SIP. Dans la phase de migration qui va durer plusieurs années, il est nécessaire que des services et applications puissent être offerts aux utilisateurs indépendamment des réseaux d'accès et de leur architecture. Les serveurs d'applications doivent donc être capables de supporter une interface traditionnelle (INAP,CAP) mais aussi de fonctionner comme des serveurs SIP spécifiés dans l'IMS.

Description du projet : une description du projet et de l'environnement de développement au sein d'Alcatel-Lucent figure ci dessous.

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Master Thesis Proposal
2009/2010

The **Applications Software Group** develops innovative solutions for both service providers and enterprises. Service providers use the Group's solutions to create innovative and profitable products for consumers, such as digital home management and rich media applications that span mobile and connected devices. Through service providers as well as through direct channels, the Group enables enterprises to deploy applications to transform their customer service capabilities across multiple channels including internet, e-mail, phone and mobile. The common focus is developing software that enriches the personal communications experience for people.

INAP Decoding/Encoding Library

Context:
Alcatel-Lucent Namur R&D center develops a real-time application server for telecom operators. This application server has been developed for 15 years for addressing the Intelligent Network (IN). But during the last five years it has evolved toward Next Generation IN (NgGIN), the next generation of telecom application server for integrating legacy networks (Mobile, fix), IP Multimedia Subsystem (IMS) for 3G, and IP network such as WWW and IP TV.
Today Alcatel-Lucent makes evolve this application server toward JAVA and J2EE. The Real-Time core platform is now evolving toward JAVA API for Integrated Network (JAIN SLEE JSR 240)(Figure1) . As shown by figure 2, the JSLEE AS architecture allows to develop blended services from different protocols.

Proposition:
The aim of this thesis is to study the NgIN infrastructure, the JSLEE application server and the JAIN INAP (JSR0 35). The student will describe how developers can build a blended service with this technology. The practical part of the thesis will be the development of High level Service Building Block from the ASN.1 file of an INAP protocol. The idea is to automatically generate from the description of the ASN a set of Eclipse plug-in for encoding and decoding INAP operation using the Binary note framework.

Organization: The thesis is organized by the ULB in collaboration Alcatel-Lucent Application Software Group R&D center at Namur.
The student will be coached by the R&D Team responsible for developing the OSP AS, a real-time AS deployed over 250 operators and J2EE specialists from the CTO R&D division.
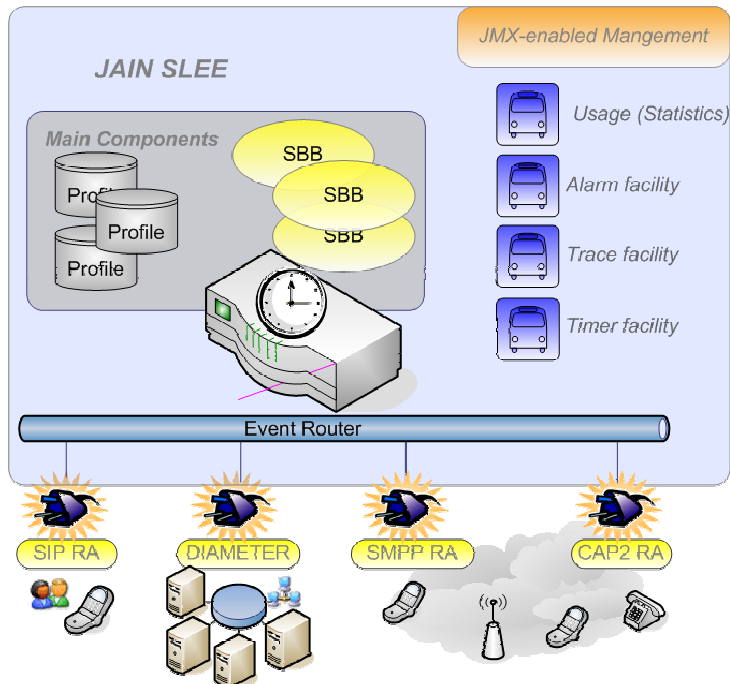
Figure 1 a simplified view of the JSR240 with the Resource adaptors allowing to integrate any networks and the Event router for delivering event to Service Building Blocks (SBB).
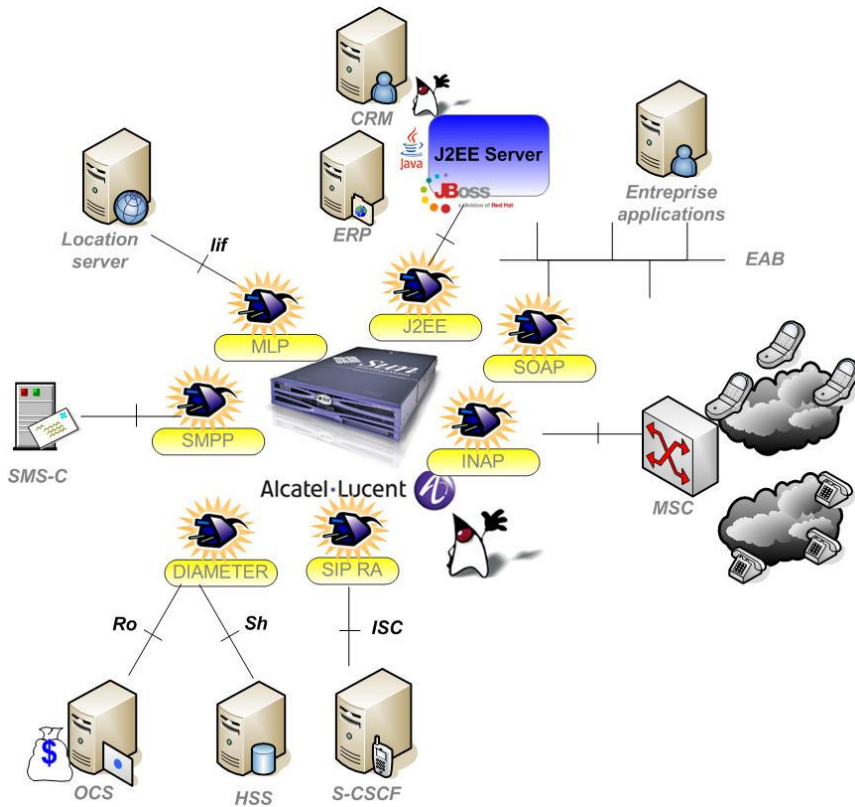

Figure 2 The JSLEE architecture allows to integrate any network and then provides a flexible way to develop blended services.