IP Multimedia Subsystem (IMS) is part of the 3G mobile network that allows deployment and blending of multimedia services for its users. This subsystem was specified as a standard by the standardization organizations such as the 3rd Generation Partnership Project (3GPP), Internet Engineering Task Force (IETF). These organizations also include the standard for the services as well as all other components that are part of the system. IMS is aimed to provide multimedia services to all generations of networks and devices. Service compositions allow the users to get the blended services to subscribe to with IMS. But all compositions do not always lead to desirable outcomes leading to feature interactions. The network operators use their monolithic or man-in-the-middle approach to handle these interaction issues which are often constrained and expensive. To address the issue of feature interaction, the 3GPP proposed to place an entity known as the Service Capabilities Interaction Manager (SCIM) between the S-CSCF and the Application Servers (ASes). With no specifications of this entity provided, many proposals for the specifications came from the research community and SCIM products are developed by the telecom vendors. Due to no standardization, these products are vastly different from one another and often expensive which has made many telecom operators reluctant to include it in their network. This thesis investigates the standards and research available on the topic of feature interaction along with the SCIM products to understand the advantages and limitations. The information from the investigations are then utilized to make proposals for both functional and non-functional requirements that a SCIM should hold. Furthermore, two existing SCIM products are evaluated using the requirement suggestions.
The proposal addresses orchestration of typical IMS services running on native SIP application servers as well as the incorporation of a variety of services residing in foreign domains. In particular, the possibility to include external Web Services in composite services the IMS domain is examined. In addition interaction between services deployed in a telco domain must be secure and transactionally reliable. In the current WS architecture [1], there are no built-in mechanisms to govern the security between collaborating WS applications. Enterprise level integration was a challenge and multiple implementations of common processes was standard as was multiple instances of the same data. Service interaction mechanisms include Messaging, RPC and REST. Service orchestration gives visibility into the processes and data flow involved but it's inflexible as you have to describe every interaction. Service choreography works by exchanging of the messages between different services and translates into decentralized service composition. In general I think this type of technology is orthogonal to the challenges of microservices interaction, and developers would be best placed to evaluate and choose their required interaction paradigm, and then map the technologies on to this (and not the other way around!). One final caution I would like to offer is that remote procedure calls must not be treated like local (in-process) calls. To build an IMS service interaction flow: Drag the Conditions icon to the canvas and draw a connecting line between Start and the icon. Drag the IM icons representing the following IMs to the canvas in the order in which they are listed. When you create an orchestration logic using the Orchestration Studio, Service Broker stores the orchestration logic in SM-LSS as a part of the subscriber’s profile. With Online Mediation Controller, subscriber profile data, including subscriber-specific orchestration logic, is stored in the Subscriber Store instead of SM-LSS. The Technology IP Multimedia Subsystem (IMS) IMS is a specification of an environment where eclectic types of services can be rapidly developed, deployed, and delivered with relative ease in a standardized fashion as compared to current vendor-based solutions. It is built for services and applications, providing operators the chance to manage rich multimedia services across both next-generation and traditional (with limited functionalities) networks. Service Orchestration is a process of services collaboration using predefined patterns and interactions between applications through identifying messages, branching logic and invocation sequences at the message and execution layers. Portable Custom Interaction (PCI) defines a standard way for technology-enhanced items (TEIs) or custom interaction types to be represented as part of the Question and Test Interoperability® (QTI®) and Accessible Portable Item Protocol® (APIP®) specifications. This document outlines a method that allows an author to define an almost unlimited variety of custom interaction types, while still keeping the item portable between different systems. This is achieved by making use of common web technologies combined with an agreement about how to communicate the results of a learner’s interaction with a QTI/APIP rendering engine. Early access to specification documents is one of the benefits of IMS membership.