ABC SBC: Integrating Applications with Border Control

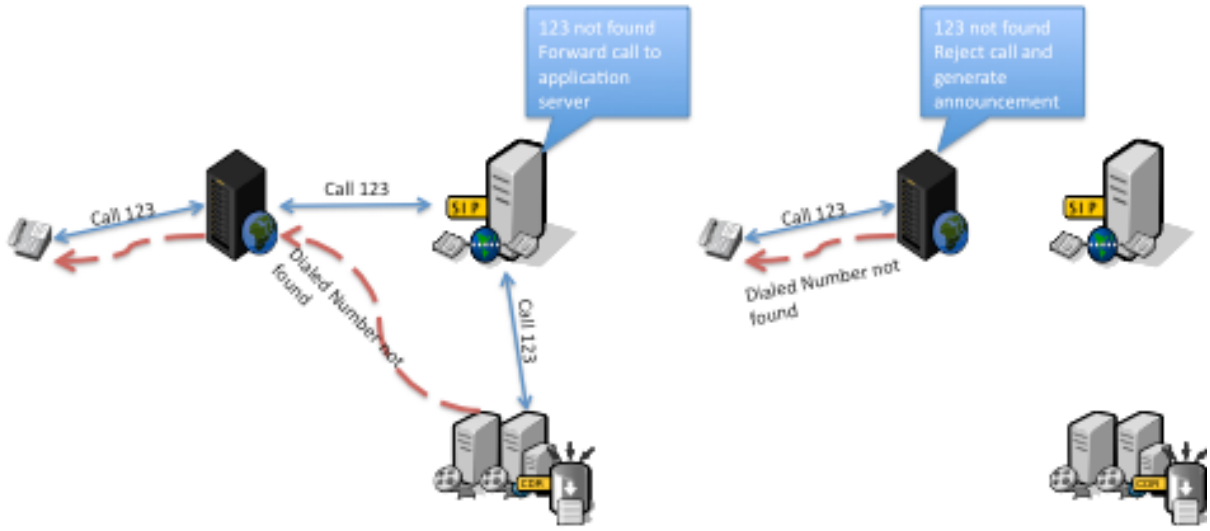
FRAFOS GmbH

1. Integrating Application Logic and Session Control

SIP responses include numerical and textual indication of the meaning of the response. For example, a SIP server receiving a call for a user that is not served by this particular server would generate a response message that includes “404 Not Found”.

Such numerical and textual information are often sufficient to inform the caller about the reason for the call failure. However, an announcement such as “Dialed Number not allocated” is much more informative and user friendly.

An application server usually provides such announcements. A SIP server that cannot serve a call forwards the INVITE request to an application server. The application server generates the appropriate announcement.



Announcement generation with application servers

Announcement generation with the ABC SBC

The ABC SBC integrates a flexible and powerful application platform. Through open interfaces and a flexible configuration language it is possible to integrate applications such as announcements, recording, conferencing and IVR into the SBC’s call processing logic.

The integration of application execution logic with the ABC SBC helps operators to offload standard and repetitive scenarios from the application servers to the network borders. This reduces the loads on the application servers, optimizes the call flows and reduces the response time. For example instead of routing a call to an application server in order to generate an announcement indicating that a dialed number is unknown, the ABC SBC can generate such an announcement directly once recognizing that the called number is not served by the service provider.

Some of the possible application scenarios that are supported by the ABC SBC are:

- **Announcements**: The ABC SBC can be configured to generate certain announcements under certain conditions. This can include for example cases like:
    - If the provider does not serve a callee then the ABC SBC can generate an announcement like: “Dialed number unknown”.
    - If the billing system indicates that a user’s pre-paid balance is below a certain threshold then the ABC SBC can warn the user with an announcement like: “Your call will be terminated in 30 seconds. Please recharge your balance”.
    - Under network overload the ABC SBC can reject incoming calls with an announcement indicating: “Network overloaded. Please try at a later point of time”.
- **IVR**: The ABC SBC supports an easy and flexible configuration of interactive voice response (IVR) menus. This feature can be especially interesting when using the ABC SBC as part of the charging system. When the balance of a prepaid subscriber falls below a certain threshold, the ABC SBC can warn the user with an announcement like: “Your call will be terminated in 30 seconds. Do you want to recharge your balance? Please press 1 for Yes and 2 for No”. Using DTMF tones, the subscriber can accept or reject. In case the subscriber decides to recharge his balance, the caller gets connected with an application server that provides credit card processing for example.
- **Recording**: Service providers often need to record the content exchanged in the context of certain services. This is often the case for services such as call centers and

emergency services and is done for quality control purposes for example. One option for realizing the recording feature is to implement it in each application requiring it. The other option is to implement it in a central node that can deal with signaling and media. The ABC SBC provides service providers with such a central node. The ABC SBC can be configured to replicate calls coming from certain sources or going to certain destinations. The replicated content can be either saved locally or sent to a recording application. The same concept is also used for enabling lawful interception.

These are some of the possible applications that can be supported by the ABC SBC. The flexibility of the ABC SBC platform enables FRAFOS to customize the logic of the applications integrated with the ABC SBC to meet the exact needs of our customers.

2. Technical Specifications

Supported Platforms **Linux**	**High Availability** **Active/Hot Standby redundancy model**
WebRTC Features Javascript SIP over WebSocket NAT traversal using ICE, TURN, STUN JsSIP support	**QoS Control** Bandwidth limitation and management Call admission control per peering partner/trunk
Media Services Routing audio codec including G.711 and OPUS. Routing of video codec including VP8 Dynamic jitter control NAT/NAPT on media RTP inactivity monitoring Codec filtering	**Call Routing** Call blocking and filtering Embedded routing engine Load balancing Peer monitoring and availability detection Alternative routing on failure Table based routing for LCA
Media Applications Call recording Announcement services Software based transcoding (G711u/a, G726, OPUS, iLBC, L16, G722, Speex; on request: G729a, G729a/b, AMR)	**SIP** Registration pass-through Registration caching and offload SIP header manipulation SIP Back2Back UA
Management Capabilities GUI based configuration and monitoring Secure embedded web-based GUI SSH access SNMP V2 status and logs Local logging of alarms, events and statistics REST and XML RPC based open interfaces	**Protocol Support** UDP, TCP WebSocket Translation between transport protocols Per source/destination transport layer mediation SNMP, NTP, SSHDNS RTP, RTCP, SRTP TLS, DTLS, SDES
Virtualization Amazon cloud Virtualization software OVM, KVM ..	**Hardware** Hardware independent

3. About FRAFOS

FRAFOS GmbH is a manufacturer of VoIP solutions with offices in Berlin and Prague. FRAFOS was incorporated as privately held company in May 2010, in Berlin, Germany.

The history of FRAFOS team and technology goes back to the late nineties. As researchers at the prestigious German public R&D institute Fraunhofer FOKUS, the FRAFOS founders were the among the first to work the SIP and RTP standards and to develop open source solutions that paved the way for the VoIP revolution.

FRAFOS offers SIP session management and security solutions of the latest generation that come either as a standalone solution or as a cloud ready implementation. The flagship product of FRAFOS, the ABC SBC, offers open interfaces and built in multimedia applications such as recording and announcements. The ABC SBC enables the operators to simplify their service infrastructure and prepares them for future challenges.