Aculab's Distributed TCAP API Helps Globitel Deliver

The Jordan Mobile Telephone Services Company Ltd. (Fastlink) is the largest telecommunications network operator and service provider in the country and one of the leading GSM operators in the region. Fastlink has been a consistent leader in providing cutting-edge, innovative products and services, and when it wanted to provide subscribers with the latest offering, it turned to trusted vendor, and "Connected with Aculab" partner, Globitel.

Throughout the past 10 years, Globitel has used its unparalleled experience in state-of-the-art technologies to provide its clients with the most reliable and efficient telecom solutions possible. Globitel's high-calibre team provides products that help to maximise clients' revenue, increase their operational efficiency, and improve their customers' satisfaction.

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The technology and the task

Unstructured supplementary service data (USSD) is a GSM capability which allows mobile handsets to communicate, over the GSM signalling channels, with network-based applications. Its inherent simplicity, session support and high availability features make it the ideal mechanism for subscribers to access network-based real time applications, at home or abroad.

Globitel were asked to produce a USSD gateway with specific requirements for redundancy and performance. A dual, redundant signalling platform was mandatory, in support of a GSM-MAP gateway application, to interface to the national GSM network.

Fastlink required a full range of valuable, revenue generating services to be available. Examples of the kind of applications that were demanded include: balance enquiries; pre-paid topups; call-back; stock quotes; news, weather and sports information; humour, romance and horoscopes; songs and movies; and interactive games.

An essential feature of the specified gateway was the ability to operate in a dual, redundant mode, yet cost-effectively present multiple signalling links as a single point code to the SS7-based, GSM network. This requirement in turn meant that the underlying SCCP/TCAP architecture, for transport of message dialogues to and from the GSM-MAP application, had to be distributable across the redundant nodes forming the USSD gateway.

Development times were also important as Globitel's customer wanted to roll out the new service platform within an aggressive timescale.

> " *Aculab has been a long time partner of Globitel, providing reliable products, advanced features, and excellent support services. We needed such a reliable partner in a highly critical project such as this one.* "

- Sharif Nabulsi, CEO at Globitel

The solution for network operators

The resultant USSD gateway solution is a cost-effective and user-friendly tool. The service is activated by dialing a simple code (*111#), which allows subscribers to enter the USSD portal and quickly access the wide menu of services in both Arabic and English.

The gateway enables Fastlink and other network operators to provide mobile subscribers with easy-to use, content-rich and interactive services. The solution was based on an open and easy to operate multi-application and multi-provider platform. This allows network operators to integrate with content providers to implement and deploy a wide range of existing and new mobile services across their SS7 and IP networks.

Globitel designed and developed its USSD gateway with a flexible interface, allowing operators to easily define menu structures for applications and content from multiple providers. Of course, the strict standards and recommendations of the GSM Association were followed in the implementation of the platform.

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Globitel used signalling hardware and SS7 software from Aculab to interface the USSD gateway with the core network through the MTP3/SCCP/TCAP signalling layers of the SS7 protocol stack. Using Aculab's dual MTP3 feature, Globitel was able to install two redundant USSD gateways sharing the same SS7 point code; meeting a basic requirement of Fastlink.

Naturally, to achieve the desired reliability, Aculab's dual resilient MTP3 allows a 'twin' configuration, with signalling links shared between cards in separate chassis, appearing as a single network node. The TCAP application was implemented in each chassis, distributed across a dual, redundant network. This provided Globitel with excellent scalability and application resilience, because the system is protected from problems occurring with links to either instance of the TCAP application.

> " *We are very pleased that Globitel used Aculab for its USSD gateway development. With our redundant and distributable SS7 stack being readily available to users of our cards, it means tremendous value and delivers both performance and peace of mind to solution providers like Globitel.* "

- Ian Colville, SS7 Product Manager at Aculab

Aculab's SS7 protocol software allows users to directly connect switching, media processing and signalling platforms to a carrier's network. The availability of the TCAP and SCCP allows multiple, network-based application subsystems to be addressed explicitly, enabling advanced access database query services and global title translation. The product presents a standard TCAP API to developers to support both TCAP structured and unstructured dialogues, as required by Globitel's USSD gateway. The software supports an unrestricted number of TCAP hosts and up to 128 signalling links.
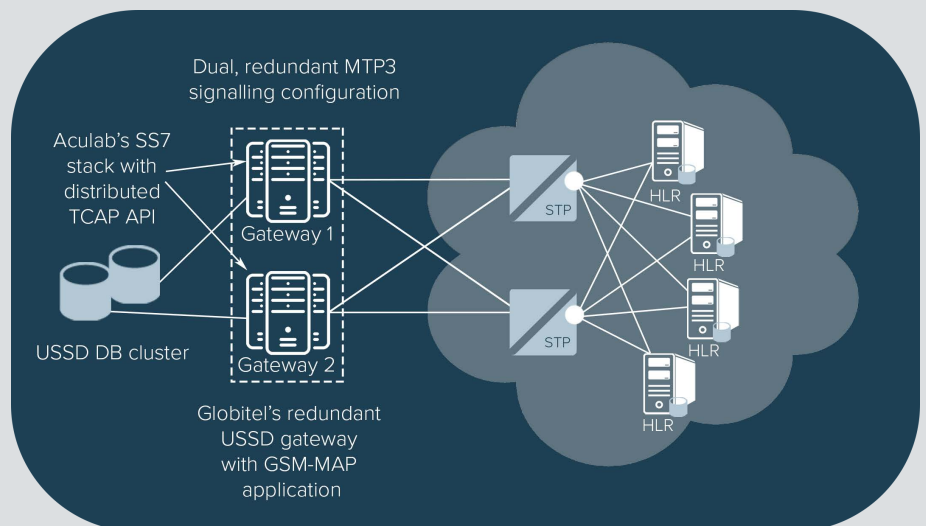
Beneficially, Aculab's TCAP API includes ASN.1 codec 'helper' functions, which obviated the need for Globitel to license an expensive, 3rd party compiler or API. Not only did this serve to reduce costs, but Globitel were also very quickly able to develop their GSM-MAP application, focusing on the transactions between the mobile application part in the USSD gateway and the core network–based home location registers (HLRs) as shown in figure 1. Crucially, the project was delivered in a timely manner and implemented to the full satisfaction of their client.

TCAP dialogues carry GSM-MAP queries/responses to and from the HLR configuration in the core GSM network, load sharing over the dual, redundant signalling architecture, which has been cost-effectively implemented using Aculab's cards and SS7 software.

About Aculab

Aculab provides deployment proven telephony products to the global communications market

Whether you need telephony resources on a board, on a host server processor or from a cloud-based platform, Aculab ensures that you have the choice. We are an innovative, market leading company that places product quality and support right at the top of our agenda. With over 35 years of experience in helping to drive our customers' success, our technology is used to deliver multimodal voice, data and fax solutions for use within IP, PSTN and mobile networks — with performance levels that are second to none.

For more information

To learn more about Aculab Cloud and Aculab's

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