

## CASE STUDY: Message Sequence Charts

### The Challenge:

*Cell Telecom were requested by a major Network Infrastructure provider to produce for their end customer, a comprehensive subset of the Use Cases as Message Sequence Charts; that would imply the total behaviour of the customers UK Softswitch based network in terms of the networks logical and physical standards components.*

*The Network is based on current standards specifications, in particular ITU-T and UK NICC specifications for SIP-I networking and TISpan specifications for AGW, BGW, TGW and MS control via the relevant H.248 standards for each node. All the related IETF RFCs were also applicable.*

*The produced call flows show the behaviour of the various interfaces for basic calls and the related to type network supplementary services.*

*The call flows include the following interfaces:*

- POTS / DSS1 / DASS2 / DPNSS access
- DSS1 / DASS2 / DPNSS signalling via IUA and DUA
- SIP-I Intra Operator network signalling
- SIP-I Inter Operator network signalling

*As well as providing access to the next Generation of voice protocols, the Softswitch was also required to provide access to legacy services for all UK subscribers and interface with all other UK operators.*

### How We Met the Challenge:

Cell Telecom provided an autonomous skilled team, to work directly with client's end customer, taking responsibility for producing and delivering the Network Use Case Descriptions to the end customer.

Cell Telecom took responsibility for ensuring that the end customer's requirements were fulfilled, from initial development through to system test; the charts were taken as the 'de facto standard' for Message sequences within the multi-vendor project.

The descriptions were provided as Call flows, structured as use cases with use case parts. Common use case parts were defined once only, allowing their re-use. Thereby, a structured set of call flows was produced with cross referencing.



## Cell Telecom's Telecom Network Development competence areas:

**Softswitch, VoIP networks, MSC, BSC, HLR, 3G/GSM, LBS, ISDN, IN, Centrex, 3GPP, ISUP, SIP, SS7, MAP, H.248, HP Mercury Quality Centre (MQC), TTCN, Eclipse, Perforce, ClearCase.**

Cell Telecom Ltd, Lees House, 21 Dyke Road, Brighton, East Sussex, BN1 3FE, UK  
Tel +44 (0)1273 - 772 306, Fax +44 (0)1273 - 728 057

[www.cell-telecom.com](http://www.cell-telecom.com)

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The call flows involved the following:

- Identification of the appropriate use case subset for the network
- Co-ordination with and specification of the Network elements
- Co-ordination with and design of internal network documents
- Continuous scope / review process with the end customer

The call flows detailed the following:

- The encapsulation of UK ISUP in SIP signalling : SIP-I
- The specific SIP signalling for SIP-I
- The handling of IN services
- The handling of pre-conditions in SIP-I
- The handling of the RTP media via the SDP in SIP-I
- The handling of the RTP media in the MS via H.248
- The handling of the RTP media in the MGWs via H.248
- The handling of POTS line signalling via AGW H.248 extensions
- The handling of the Source Based Routing (SBR database)
- The handling of Bandwidth Management

**Competencies deployed to this task:**

- 3G Specifications
- TISPAN Specifications
- ISUP, H.248, SIP, SIP-I
- Interaction with Legacy systems and OLOs
- Intrinsic knowledge of client's Softswitch solution
- Protocol interactions
- Network Services
- Bandwidth Management
- POTS/ISDN/IN/VPN etc.

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