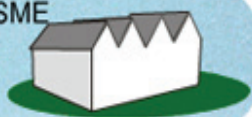


Residential



SME



Corporate



DATAFLEX

ISDN and SIP Interworking

The Session Initiation Protocol, or SIP, has become the de facto means of signalling within IP networks. Unlike legacy environments, where typically different protocols were deployed in the core and access networks (for example, SS7 call control or ISDN User Part in the core, and ISDN in the access network) for call handling and supervision, SIP can be deployed in all areas of the network from the enterprise to core network domains. It has also found favour in different kinds of network, covering both fixed and mobile access functions.

SIP has many differences from legacy signaling. At a fundamental level, it is designed to manage sessions, rather than calls. This is an important distinction. It makes no differentiation between different categories of session. Thus, a session could be equivalent to a standard voice call, but the term could equally be applied to a data session or a video call.

SIP is designed to gracefully manage multi-media communications. This means that it is very easy to establish and maintain multiple sessions of different media types.



ISDN has a different and complex heritage

ISDN was designed to enable multi-media communications as well, but the majority of deployments were simply for basic telephony services. ISDN provided an elegant but complex solution, as all of the information necessary for a particular class of call was encoded in the messages, with many parameters being required to specify the relevant information. The protocol also allowed for negotiation between end points and was designed to interwork with the signalling used in the core (typically ISUP – ISDN User Part, an SS7 call control protocol), meaning that two end points could establish the relevant level of service.



SIP, in contrast, is designed to be simple and uses a text-based method to convey information. SIP messages are readable, whereas ISDN messages require complicated decryption and decoding. There are many fewer messages and correspondingly fewer information elements – the specialised parameters that ISDN requires to convey information.



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Interworking is not a trivial, or fixed issue.

This means that interworking between SIP and ISDN can be complex. It's not just that the two represent contrasting paradigms between session and call management; it's also that the richness of ISDN can be problematic when conveying session information between network elements supporting the different protocols. For example, at a basic level, ISDN supports two different methods of call establishment. Enbloc calling means that all of the dialled digits (i.e. the destination number) are transmitted at the same time. Overlap dialling, extremely common in Europe, means that individual digits can be transmitted separately. This can have advantages, for example if a call is made outside the local area network, local switches can recognise from the initial information received that the call is destined for an area beyond its immediate control in a hierarchically organised network. Thus, dialling 00 as a prefix to indicate an international call means that local equipment can recognise that the call must be routed to an appropriate switch for onward forwarding, whereas dialling simply a local number without a trunk dialling code (such as 01305 in the UK) might mean that the call is routed locally.



In other words, convergence between the SIP and legacy world needs sophisticated equipment to perform appropriate mapping between the two protocols. By necessity, the mapping is likely to be incomplete, as totally different models need to be reconciled. To compound the problem, there may be localised or proprietary variants of ISDN to consider. SIP and ISDN interworking is not a static business – it needs equipment capable of interpreting different ISDN signalling information and making intelligent decisions to translate the signalling into appropriate SIP messages.

Seamless interworking solutions are essential to maximise market opportunity



This is a vital issue for communications service providers that wish to deploy services to legacy environments in which ISDN equipment is still active. In order to successfully and seamlessly deploy new services and to maintain legacy services, communications service providers must be confident that they are able to resolve interworking issues at the network edge, long before problems could arise. Dataflex takes an intelligent approach to this problem, providing sophisticated software within its range of Multi Service Access Gateways and Integrated Access Devices to confront this issue at the edge of the service provider domain, ensuring that legacy equipment can seamlessly connect to the core, without loss of control or features essential to either the network service or services enjoyed within the access domain.

Dataflex resolves interworking issues at the network edge – with no surprises

Dataflex has proven ISDN protocol stacks, with vast experience of interoperability with different ISDN devices. The SIP implementation is field proven with a wide range of different vendors. Intelligent interworking software ensures compatibility between the two domains, reconciling differences in ISDN implementation – and also SIP support – that are frequently (or infrequently - and surprisingly!) encountered.

With Dataflex, communications service providers can be confident that they can connect any legacy enterprise supporting ISDN equipment to their network, ensuring that they can address the widest possible set of actual and potential customers. Dataflex ensures that there are no limitations to the addressable market, maximising revenue potential and opportunity.

About Us

Founded in 2003, Dataflex supplies enterprise access solutions to communications service providers around the world, ensuring seamless network connectivity and smooth migration towards next generation services for their enterprise and SME customers.

Dataflex's access solutions enable the delivery of all classes of enterprise communications services, from voice to video to data, providing a single access point from the carrier network and bridging the gap to the enterprise. A single ViNE platform combines multiple features and capabilities, allowing each ViNE solution to service a variety of functions simultaneously.



Dataflex ViNE Solutions combine critical functions into a single, scalable range of Multi Service Access Gateway and Integrated Access products

Voice Gateway

Data Router

Firewall

QoS

Local Proxy

Ethernet

Session Border Control

NAT

xDSL

WLAN

Versatile Gateway Solutions for Service Providers

Dataflex's Multi Service Access Gateway solutions help communications service providers meet CAPEX goals by providing simplified deployment options and eliminating the need for dedicated PSTN gateways.

Dataflex's ViNE range also supports OPEX control goals through lightweight management requirements, such as auto-provisioning and self-installation, reducing the cost burden of managing customer connections.

Dataflex's customers include fixed, mobile, cable and VoIP operators, which all share a common goal: to deliver world-class services to their enterprise customers, both now and in the future.

Dataflex is the missing link that enables this to happen.

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