Prosody S host media processing
Product deployment note

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Introduction

This document is intended to give you an understanding of 'host processing' or, more accurately, host media processing (HMP), as an alternative to the use of digital signal processing hardware. It will introduce Aculab's HMP product, Prosody S, and provide context that will allow you to determine whether it is suitable for your application and target markets.

A new way of doing things?

Many computer-based telephony applications, such as IVR or contact centre products, need to interact with the voice bearer channel (B channel) of a telephone call. Traditionally, this interaction has been performed using digital signal processors (DSPs) sited on a dedicated resource card plugged into one of the host computer's expansion slots.

This has the advantage of having a well-defined set of performance criteria and becomes highly scalable if the cards are well designed and minimise interactions with the host processor. The host is left alone to execute the application program. The only drawback of this approach has been a high entry cost for small-scale solutions.

For lower complexity, or smaller scale applications, it is now reasonable to have the host processor implement the algorithms, which were previously implemented on the resource card's DSPs, on the same server as the application. From the application developers' viewpoint though, very little has changed.

This concept of allowing the host computer to perform the voice processing functions has already gained acceptance in the field of speech technologies – by which we usually mean voice recognition, speaker verification, and text-to-speech. It is commonplace to have a computer telephony card pass echo-cancelled audio to a server that is performing speech recognition, or speaker verification and identification, on the host, or to accept rendered speech from a server performing text-to-speech. The difference now proposed is to have both the application and the voice processing running on the same PC.

Aculab's HMP product – Prosody S

There are many considerations to take into account when developing an application, which affect the selection of technology. Key criteria include: cost, support, functionality, flexibility and density.

Prosody S is Aculab's HMP offering, for Windows or Linux environments, further extending the ability of our Prosody portfolio to meet the different needs of a wide range of solution providers. Whether targeting small enterprises or large telcos, there is a suitable Prosody product. Aculab's consistent API works on Prosody S and existing hardware formats (PCI and PCIe), so your application can use either resource type.

The benefits to be derived from Prosody S

Experience

Prosody S leverages Aculab's award winning and proven media resource expertise. If you have developed your application on a Prosody media processing resource card, your experience readily allows the re-use of your investment.

Cost efficiencies

A software solution can lower your costs. For initial development, it will be cheaper to license a small number of channels, running via a NIC, rather than equipping each developer with a telephony capable (E1/T1) hardware platform. In fact, to assist initial evaluations, Aculab offers a free evaluation period of 45 days for up to 4 channels for Prosody S.

As Prosody S is software, the cost of deployment is significantly reduced – no stock holding of computer-based telephony cards presents the opportunity for quicker product roll out as your product 'takes off'.

Maintenance costs are reduced, training can be easier, and you no longer have to worry about interaction between hardware components.

Gains from technology advances

Using a software solution allows you to take advantage of the increasing power and falling costs of standard high volume consumer computer equipment.

Flexibility

You now have the option to license any number of channels for each installation to more closely match your needs, rather than bearing costs up front by installing 'over equipped' platforms. Customers have the choice of buying online from Aculab's secure website, or via an Account Manager.

Software only licensing mechanisms and a web-based customer self-service licensing portal provide options to easily select the number of channels to be used per target computer (without any individual functional constraints or separate fees) and create the appropriate licence key on a 24x7 basis.

A remote upgrade to the number of channels licensed on a platform is possible, ensuring flexibility and reducing on-site costs.

As host processors get more powerful, so new functionality is likely to be offered, functionality you can easily take advantage of.

Future proofing

Developing solutions for a pure IP environment relieves the need to support the many different protocols associated with the TDM world. Solutions need not be limited to IP environments – for example a SIP-based application, connected to a suitable gateway product, means applications can be deployed globally in both IP and TDM environments.

Prosody S has evolved over time as more varied end point devices became available in both fixed and mobile networks, using different codecs. Current voice codecs supported include

- G.711, G.723.1/1a, G.726, G.728, G.729AB, iLBC, AMR-NB, AMR-WB, GSM (FR, EFR and MS-GSM), G.722, G.722.1, Speex and Skype SiLK.

Further codecs are added as the demand arises to support current and future networks.

When to select Prosody S

- If your application requires play, record, DTMF detection, MOH, fax support or conferencing
- If you need to connect with a wide range of end point devices using different codecs
- If you are targeting a very cost sensitive market like small to medium sized enterprises, for example
- If you are developing your application for messaging or call handling applications, either terminating or switching and brokering calls

Applications

For the many communications applications that fit the above profiles, 'soft' resources are clearly appropriate. The following looks at two further areas, profiling the key feature and functionality requirements – and highlights how Prosody S can be utilised.

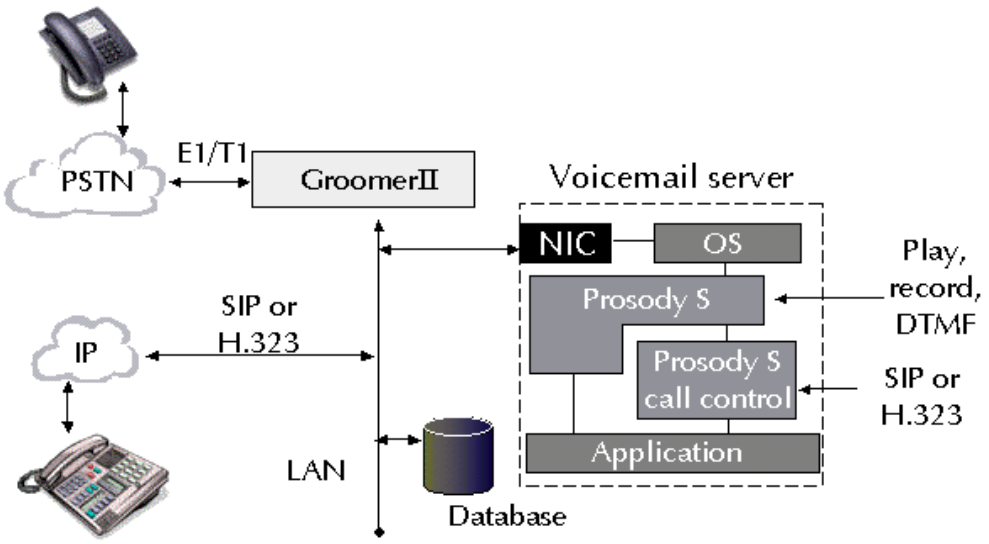
Terminating applications

These are where the computer telephony application is responsible for handling the call for its entire duration. An example of a terminating application is a voicemail platform.

Terminating applications usually use play, record and signal detecting resources. Automatic speech recognition can also fit in here for more advanced voice messaging solutions. As such, Prosody S is an ideal technology match.

In the scenario below, a call has come either directly from an IP device using SIP or H.323 or from the PSTN, through an IP/TDM gateway. The call is terminated on an IVR or voicemail server, for example, running Aculab's Prosody S software.

Termination model



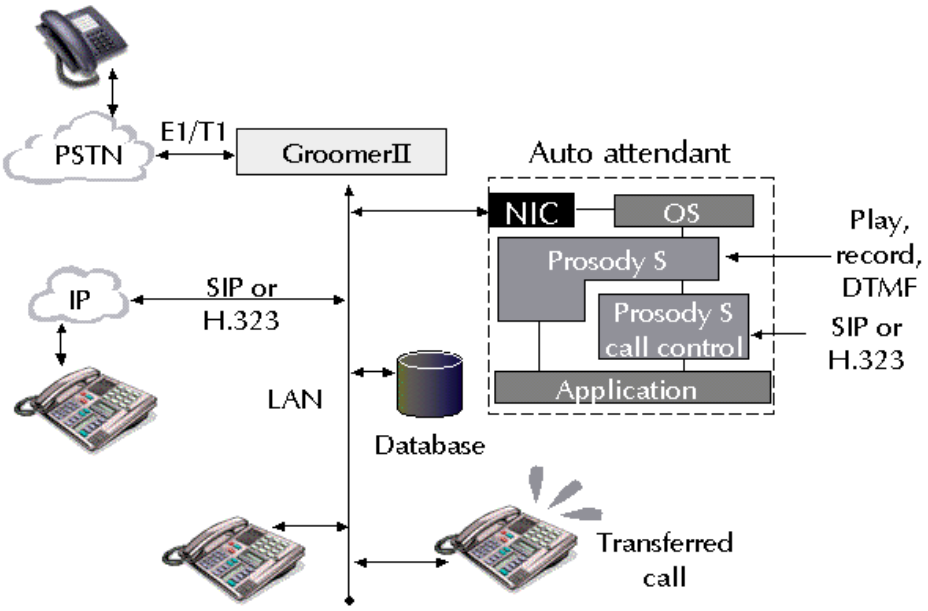
Transfer applications

These are where a computer-based telephony application is adding value to a portion of the call and then passing the call elsewhere. Multiple parties may then be joined in a conference, as required by the application. An example of a transfer application is an auto attendant.

Transfer applications usually act as a terminating application for the initial part of a call. The second phase of the call involves holding and transferring the call. The ability to play out music on hold to many parties using minimal Prosody S resource is a strong, and sometimes overlooked, feature.

In the scenario below, much as before, the call will either come from the PSTN through an IP/TDM gateway or directly from the IP network, and is terminated on a server running Aculab's Prosody S. The server qualifies the call and then under direction of the application, Prosody S transfers the call to its intended destination.

Transfer model



Conclusion

Prosody S is a key part of the Prosody portfolio, using the same APIs and providing a broad capability for voice and fax communications server needs. The product has evolved and improved since its introduction in 2003, and offers unrivalled development and deployment simplicity. If your product needs match those identified, Prosody S is for you – taking you to new markets with appropriately priced technology.