Vdex-40 Load Factors, System Capacity & Architecture

Call capacity of an embedded Asterisk-based telephone system is highly dependant upon not only hardware architecture but also configuration and concurrent resource activity. For example, performance under load will vary dependant upon such factors as (but not limited to):

- if the RTP payload (audio) is routed through the PBX or routed directly between the SIP endpoints in a call;
- if the test is exercising concurrent or accumulative call set-up;
- if other services are such as IVR and voicemail and concurrently in use;
- if the PBX is performing transcoding services

Vdex model 40 is engineered to support offices with approximately up to 36 + users. We say "+" as Vdex-40 can service more extensions but like any PBX the key factor is how many extensions are concurrently expected to be in use. For example, in a call center one may expect most extensions to be in concurrent use. In an office one may expect perhaps 30% of extensions to be used concurrently.

Vdex-40 has been tested to support approximately twice (70) the number of users/extensions specified above (36) making simultaneous SIP calls to another like number (70) of SIP extensions. This is irrespective of whether RTP payload is either routed through the PBX or routed directly between SIP end points. Further tests with a variety of other load factors operating concurrently, such as (but not limited to) IVR activity, shows Vdex supporting the stated capacity of 36 while also supporting other resources such as IVRs sufficient to support inbuilt FXO ports.

Vdex-40 is the first Asterisk-based Appliance in the world to maximise voice quality by implementing multiple ARM processors dedicated to the separate processing of voice and data, Vdex's architecture also includes as standard, additional digital signal processor(s) for the compression of voice and cancellation of line echo on the FXO ports. Vdex is a fully embedded platform using flash memory to replace spinning hard disk drives, and with no fan requirement the potential for mechanical failure is further minimised.

Notes:

- Echo cancellation for inbuilt FXO ports is provided in DSP hardware and does not effect above performance figures.
- Voice codec operation is performed in DSP hardware and does not effect performance figures.
- Transcoding between (different) inbuilt hardware-based voice codecs will effect performance but not diminish from the above stated operation.
- A total of 16 hardware-based complex voice codecs (refer to codec specification in data sheet for product model) may be simultaneously in operation within Vdex-40. This factor should not be confused with those codecs which run outside Vdex. For example, those within handsets, gateways and other SIP endpoints and which are not to be included in (but are additional to) the stated Vdex-40 total of 16.
- Vdex architecture implements dual ARM processors and a Mindspeed DSP.