

IBeX OS - An Engineering Perspective

IBeX OS is the IBeX Operating System (OS) and is the difference between IBeX and any other phone system that is based on Asterisk.

IBeX OS is based on Debian Linux (Lenny) but this version of Debian Linux has been completely customized to handle telephony operations. This means a careful crafting of the Linux operating system to choose the pieces that will provide the optimal platform for VoIP operations. Our very choice of the Debian Linux distribution was based on the overall philosophy of Debian. We needed a core operating system that would not be subject to whims of the general market and has an unparalleled reputation for stability and capability.

Once the OS was designed our team then added Asterisk to the OS. We didn't just dump Asterisk into the OS and go we examined every aspect of Asterisk and then crafted the system into modules that structure Asterisk into maintainable and testable "packages" that can be updated via the Internet to meet the changing needs of customers and to allow for a seamless upgrade path as new versions of Asterisk are released. These packages were then structured into a three tiered release model that allows for extensive testing of each update and feature improvements before they are released to live systems. We test dozens of iterations and variations on packages before they even leave our Alpha release queue and move into the structured beta queue.

When we were finally happy our highly customized version of Asterisk joined the core operating system as a fully integrated component not a software package running on top of a generic operating system.

The next piece of the IBeX OS is the proprietary interface and add-on modules that make IBeX different from other versions of Asterisk on a disk. Our team has added thousands of lines of code encompassing dozens of modules, everything from a simple and efficient interface to new features and modules to merge with the Asterisk system.

When it came time to choose hardware for IBeX our team took the same approach as we did with the software. Rather than find the cheapest white box we could and shove a supported telephony card into it, we searched the market to find a vendor to meet the needs of each of the hardware segments that IBeX was targeted at. Three of our hardware lines (Edge, Advantage & Enterprise) are produced by the Xorcom a well recognized vendor in the Asterisk market. Xorcom brought to IBeX the distinct attention to detail that we wanted in a hardware vendor. For our carrier grade system (Envoy) we have looked to Sun and their NEBs certified hardware to provide a system that is welcome in any telecom environment and provides performance (3200 DSO's) on a level where most people don't think Asterisk can work.

Throughout this entire process there are several underlying design principals.

- The first of these is stability, we have a long history of deploying VoIP and telecom switches and the need for extremely reliable communications systems is ingrained in the core of our design for IBeX. One of our first installations in 2004 is still running on the very same version of code we released at that time long before our Internet upgrade options and this site has never been down while the power was on. At the time this was considered beta code for us and it is still running without issue six years later. In the carrier market more than one of our customers have lost their class 4 switches while they were still routing calls over IBeX.

- Performance - Everything about IBeX is designed and engineered around processing calls. We don't use fancy databases, processor intensive interfaces or have Linux daemons or kernel modules that are not specifically required for IBeX. All Operating system components and support software have been chosen to allow for maximum call processing capability. We process calls! and we like to think we process more calls without issue than any other Asterisk based system in the market.

The bottom line is that IBeX is not Asterisk in the sense that we are used to seeing Asterisk. IBeX takes the dream and takes it the next level. Providing a cohesive system integrating operating system, Asterisk, proprietary code and intelligent design to create a truly open carrier grade VoIP system.

As part of our ongoing efforts and to highlight the concept of the IBeX OS we will be releasing an ISO version of IBeX by late Q1 or early Q2 of 2010. This will bring the IBeX OS to a large majority of the white box hardware and open the door for other vendors that want to take advantage of IBeX OS on their hardware platforms.

We will also be creating a "free" version of IBeX OS that will allow all to use IBeX for either non-commercial or testing applications.