Asterisk Solution Is A Good Call For Delivering Reliable Phone Service To Residence Halls At Sam Houston University

When it comes to dorm life, students can count on late night pizzas, messy roommates and cramming for final exams. At beautiful and historic Sam Houston State University (SHSU), the Computer Systems Support Services group also wanted to make sure on campus residents could also count on reliable phone service. When an aging telephony solution became too expensive and complex to support, SHSU implemented Asterisk, the industry's first open source PBX software. In addition to slashing telecommunications expenses by more than half, the university is able to provide carrier-grade phone service with unified messaging capabilities to students living on campus in the residence halls.

Sam Houston State University's beautiful 272-acre main campus is nestled 70 miles from downtown Houston amid forests, lakes and ranch lands in the small city of Huntsville. On campus, 32 residence halls and apartments house more than 3,500 students. Technology is a big part of student life and every room is equipped with a high speed Internet connection.

Old System Puts Reliability On Hold

With an aging telephone system and the infrastructure in place for modern communications, the campus' Computer Systems Support engineers knew it was time to look at replacing their legacy Nortel Meridian phones with a VoIP solution. Expensive to support and complex to maintain, the Nortel Meridian solution was no longer meeting the needs of students. In addition to spending thousands of dollars each year to support the system, reliability was a concern. A diesel generator needed to be at the ready in case of power outages and although it did not happen often, a previous power failure left residents without service for two days.

"Our challenge is to deliver reliable phone service to residents who live on campus," said Aaron Daniel, senior voice analyst at SHSU. "You cannot run a technical system for tens of years without upgrading the parts. It was just too expensive to support, no longer reliable and while we experimented with a proprietary system, the licensing fees alone were prohibitively expensive. We needed a solution that would deliver phone service 24/7 and the ability for students to call emergency services when needed."

Enter Asterisk, created by Digium, the industry's first open source PBX. A complete PBX in software, Asterisk runs on Linux, BSD and MacOSX and provides all of the features you would expect from a PBX – and more. Asterisk does voice over IP in many protocols, and can interoperate with almost all standards-based telephony equipment using relatively inexpensive hardware. Providing voicemail services with Directory, Call Conferencing, Interactive Voice Response and Call Queuing, Asterisk also has support for three-way calling caller ID services, ADSI, SIP and H.323, as both client and gateway.

Asterisk Sprints To the Head of The Class

Prior to implementing Asterisk, SHSU installed a proprietary system and while they liked the additional functionality a VoIP solution delivers, they quickly realized licensing fees were cost prohibitive.

"Another issue with a closed-source proprietary solution is it places us at the mercy of software developers to fix a bug or make changes if we require a specific functionality," said Daniel. "With Asterisk, our team of programmers can write a code to address our needs and troubleshooting is easier. Because we developed the system from the ground up, we know exactly what's in it and where problems exist."

Implemented early last summer, Asterisk functions are spread across six Dell servers, dispersed to different locations, offering redundancy and full phone saturation – even if one location goes down. Two of the servers act as redundant PSTN gateways (and are outfitted with four-port T1 cards from Digium); two more servers handle call processing; and

one provides voicemail. One of the biggest benefits of choosing Asterisk is the huge cost savings.

"We are replacing a five million dollar phone system with the five Asterisk servers, costing us less than $250,000 for the entire server side system," said Daniel. "We also purchased four Digium echo channel T1 cards which are significantly less expensive than other voice modules we looked at. Plus, we've saved in licensing fees and other hardware costs such as a discount on our Cisco IP phones."

Daniel notes that the learning curve was challenging – mostly due to the necessity of learning Linux at the same time – but was able to get his system up and running within a month. For others considering the same implementation path, he recommends doing a lot of testing and when in doubt, reach out to the Asterisk and open source communities for support.

"When I needed help, I started with the mailing lists and found it easy to find someone who knows the answer to challenges I was facing," he added. "I also would reach out to Digium Support Services where the people are knowledgeable, good at responding to inquiries and helpful in rapidly resolving issues."

Students Reap Rewards Of Extended Functionality

1,600 residents at three campus residence halls, Raven Village, Sam Houston Village and Bearkat Village, are able to take advantage of the power of Asterisk over Cisco VoIP phones. Within five years, Daniel estimates the entire Nortel system will be replaced. Making a big difference for students is the unified messaging and advanced feature options offered through the system.

"Before, students never had access to features such as call forwarding and voicemail to email," said Daniel. "We're now delivering power user capabilities to our population."

For the computer services team, the system also offers complete roaming capabilities, meaning they can troubleshoot and access the system from anywhere with an Internet connection through a Web interface.

"The proprietary system we used was on its own network so it couldn't be accessed from anywhere off campus," said Daniel. "With Asterisk, it allows more openness and remote access type of functionality. We can also communicate over interexchange channels, so we are no longer incurring long distance charges."

Moving forward, the plan is to integrate Asterisk with other technology systems on campus and the computer services group is hard at work coding hypertext PHP programs to do future integrations. Right now, SHSU's Jabber chat server is integrated and current plans include integrating student registration and payment systems.

Daniel notes that making the switch to an Asterisk solution has slashed telephony costs by more than half and notes that future plans of swapping out existing Nortel handsets with SIP-based Cisco phones will offer another cost savings by just being able to shut down electrical and cooling resources required to keep their old PBX running.

"Since we began testing and implementing Asterisk, we haven't looked back," said Daniel. "I love it – it makes it easier for us to manage the system and we are able to meet our goal of delivering reliable service to our student population."