

IT CENTER for the UNIVERSITIES of PORTUGAL



CASE STUDY

ASTERISK

OVERVIEW

The goal was to utilize Portugal's great capacity for interconnection via the Internet to reduce by at least 20%, the communication costs in the Portuguese system of public higher education. They did so by spreading web-centric Voice over IP solutions throughout Portugal's 48 colleges, universities, and Polytechnical institutions. In a strategy laid out by Portugal's Foundation for National Scientific Computation (FCCN); Digium Select Partner, ITCenter joined Wavecom to implement a Digium telephony venture that is one of the biggest open source VoIP missions in the world.

FCCN, who manages and develops the national network of communications in high-speed data and scientific systems of higher education (RCTS), mandated this highly complex assignment be accomplished in three distinct phases, the first of which required completion of 33 schools in three months; eight in the second stage; and seven in the third stage, with completion within a two-year window.

The results are in on this highly sophisticated and far-reaching project. Overall communication costs for higher education throughout Portugal decreased from €4 million to €3.3 million during the period between the first half of 2009 and the first half of 2010, totaling an annual reduction of €1.7 million. Mission accomplished!

Digium's Portuguese Partner ITCenter Contributes to the Development of the Biggest Open Source VoIP Mission in the World Reducing Telephony Costs by €1.7 Million

CHALLENGES

The FCCN technical team was technically aware of Asterisk's capability and its stability. Wavecom working with ITCenter, both whom are located in the Aveiro district of Portugal, took the lead in developing a highly competitive VoIP solution that would decisively reduce communication costs, with the prospect for replicating the application in other scenarios, both nationally and internationally.

Ruben Sousa, founding partner and Chief Technology Officer (CTO) of ITCenter, has worked with Asterisk-based solutions since 2004. Staffed with two Digium Certified Asterisk Professionals (dCAP) of which Sousa is one, his firm prioritizes the use of the open source models like Asterisk because their company experience shows open

source technology ensures greater reliability, quality, freedom of use, and a faster return on investment than 'closed' or proprietary models.

"We were excited about working on such a large public tender and selected Asterisk as the solution based on our existing know-how and experience in developing successful systems used to support other VoIP projects," Sousa says. "We want to share the success of this endeavor and use the FCCN/RCTS job as an example so other government entities, including those in the United States, can see what can be done in terms of highly advanced communications that decrease overall costs."

There were two challenges facing the implementation of Asterisk. "First and most important for me was that the public higher education system had a high performance gigabit network in place, but they were not using it for telephony," Sousa explains, which brings about challenge number two. "They were running telecommunications off a traditional Legacy PBX telephone system utilizing two hundred-twenty PBXs, some for which were not in the best of conditions."

PBXs act like a central office switchboard and can handle a number of telephone lines coming into or going out of a single location, eliminating the need for individual phone numbers but replacing them with phone extensions. PBXs have become increasingly more sophisticated over the years. Quite capable of facilitating both voice lines and data lines, according to Sousa, "These Legacy PBXs didn't have any VoIP capability, but we all knew Asterisk could solve the problem. Wavecom and ITCenter, working with FCCN's IT staff, made it work."

Furthermore, the team quickly learned they would have to adapt in many cases, where the Legacy equipment wasn't in the best of shape. They were also going to have to install servers in some unconventional places.

SOLUTION

Asterisk is an open source PBX, the world's most flexible and widely-used communications platform, providing features that are highly competitive with or exceed the power of proprietary telephone systems. Because it is an open source concept, Asterisk software is free and runs on relatively inexpensive Linux servers, turning an ordinary computer into a communications server.

Digium offers an IP PBX system in the form of Switchvox whose intuitive IP PBX Switchboard interface offers advanced features at a lower cost than other manufacturers. The Wavecom/ITCenter team however, saw a way for FCCN to maintain their existing Legacy hardware and give them IP capability by taking their analog audio signals and converting them into digital form for transmission.

Wavecom S.A., a communication engineering company specializing in wireless links unlicensed band in Portugal, and ITCenter used Asterisk and OpenSER to develop a compatible system. OpenSER is a free and widely used Session Initiation Protocol (SIP) proxy server, call router, and user agent registration server used in VoIP and instant messaging applications. "We added a VoIP system that intercepted the calls between the plain old telephone service (POTS) Legacy PBX and the Public Switched Telephone Network (PSTN), so incoming calls are automatically routed by the internet, transparently, at zero cost with zero impact to the user," Sousa explains.

RESULTS

Utilizing a technical team of ten technicians who hold a variety of certifications in the technologies on which open source IP solutions are based, the Wavecom/ITCenter effort offers fully tested and highly successful expertise to every project. Technicians worked tirelessly over a two-year period to transform completely, Portugal's higher education system into the most advanced telephony system in Portugal while at the same time, meeting all the financial expectations and economic savings objectives laid out by FCCN.

According to Sousa, because Asterisk is open source software, it has constant room for improvement and upgrade; however, at this time, the task is complete and the system is stable. Because of its web-based intuitive interface, it was very user-friendly for the staff and administrators.

All funding for the project came from the FCCN, who donated all the systems and machines to the universities and public higher education schools. "The universities are pleased to have such a powerful web-centric communication system, with little need for training, and no need to reconfigure their existing PBXs," Sousa says.

The implementation provides centralized management and billing of both the legacy and new system, while supporting an infrastructure that processes approximately 7 million monthly calls. Furthermore, ITCenter's technical support team currently maintains the entire VoIP infrastructure for all 48 universities on a 24/7 basis.

HONORED

Designed to recognize developers, customers and Digium Partners for outstanding achievements that improve business processes, overcome technology challenges, and enhance a company's bottom line, ITCenter was awarded the 2010 Digium Innovation Award. It is the highest recognition worldwide in VoIP, based on open source technologies.

"Many of the nominees for the Innovation Awards blew us away with their ability to solve real business problems and to create entirely new voice solutions using Asterisk," says Mark Spencer, Asterisk creator and Digium's CTO. By interconnecting 48 public institutions of higher education nationwide using Asterisk; and providing them with a solution that accomplished their goals for reducing telecommunication costs without any change to its existing phone systems, ITCenter met all the criteria for the prestigious award.

"Once again the great experience and skills of ITCenter were recognized. We believe that through innovative products, we will obtain success in the market of information technologies, which is extremely competitive. Winning this award demonstrates the commitment of all our team in meeting the challenges of increasingly demanding customers," concludes Sousa.

Digium's vision is a world based upon open communications.

Our mission is to transform the way businesses acquire and operate their communications systems through the application of open source software.



The Asterisk Company

Digium Headquarters

445 Jan Davis Drive NW
Huntsville, AL 35806 - USA

Phone: +1 256-428-6000

Fax: +1 256-864-0464

www.digium.com

