Ordering Up Innovation in Open-Source Software Development

by Lisa E. Boyes

When Canadian Computer Technology (CCT) wanted to develop and test a new application and components in telephony, the company called on George Brown College’s Professor Khalid Danok and offered an opportunity for four of his students in the post-graduate Wireless Networking Program to team up with the innovation engineering team at CCT.

The Ontario Centres of Excellence (OCE) Connections program also responded to the call, providing $3,500 in funding to enable the students to work directly with the industry partner on the design project. George Brown’s Office of Applied Research and Innovation extended the project’s complexity and components through seed funding, and CCT provided engineering resources for knowledge transfer and guidance to the students.

“This is the first time students in this program have had this particular opportunity,” says Danok, adding that it has been an ideal match with the students’ curriculum in the Voice over Internet Protocol (VoIP) course. The program requires students to complete an industry-based project in the final semester of the one-year program.

“CCT’s research and design team determined that a fully automated Pizza interactive voice response (IVR) ordering system would be a good prototype and case study in the development of a new stand-alone VoIP application,” says Sheref El Sabawy, Chief Technical Officer at CCT and the technical lead on the project. “The project also had to marry the VoIP technology with web and database technologies.”

The goal was to connect the caller in real time to a server that would access a secure customer and product database, respond back to the caller by automated voice to complete the order, and communicate to the driver’s mobility device to complete the delivery. CCT supported the development of students’ wireless networking skills and provided the VoIP engineering knowledge to help students develop their skills on VoIP and achieve integration.

This technology may sound like standard operating procedure today, but the multiple technical components of the project are what gave it the edge for George Brown students and CCT. The team opted to use the open-source Asterisk® platform. Using an open-source platform in this type of application, and linking it to Cisco hardware gave the project reliability, service provider level expertise, and yet the flexibility of programming/customization and innovation. The students entered scripting language into
Asterisk® using the free software Hypertext Preprocessing (PHP), over Cisco CallManager hardware and software.

George Brown College is designated as a Cisco Regional Academy for Wireless Networking and Security and, as such, has top lab facilities for development. The student team and CCT engineers were able to troubleshoot and test the design components and their software and hardware compatibility in the George Brown lab and at CCT facilities.

When the students demonstrated the initial phase of development to OCE, the organization was impressed. Final presentation with all components, including ordering via the internet, will be made to CCT in spring, 2009. CCT will then consider whether to commercialize specific components and features that have been built off the open-source platform.

“For our students to dig into an open-source system with a project at this level,” Danok concludes, “is a unique opportunity,” both in terms of the students’ training and the potential benefit to industry.

“We were happy to host George Brown students and add them to our engineering force” says Sabawy. “We managed to build a mixed team to expose students to leading-edge technologies and make use of students networking skills and ambitions. We are happy with the outcome of this co-operation with George Brown. Definitely we will be looking for George Brown to join us on more projects in the future.”