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We've all heard the old adage, "If you want something done right, do it yourself." While that has generally proven true over the years, there are notable exceptions.

Like a Massachusetts company that is at the forefront of the movement to Carrier Ethernet.

The company was building a system for managing Carrier Ethernet networks, the kind that any of the large telecommunications companies would develop. Carrier Ethernet refers to the extensions to Ethernet necessary to enable telecommunications network providers -- "common carriers" in industry terms -- to provide Ethernet services to customers and to utilize Ethernet technology in their networks.

Of course, as development of the system was underway, there was an accompanying requirement to test the system in order to ensure reliable performance. The company needed to utilize real-time networks to run the new system through its paces, but creating an actual Carrier Ethernet on which to do the testing would be prohibitively expensive. Consequently, there was a need to cost-effectively simulate a network that would allow accurate testing without a significant capital investment in switches and other ancillary equipment.

Unfortunately, this was an instance where the "do-it-yourself" approach would not be the best avenue to follow.

"Company management was savvy enough to understand that you simply can't do everything in-house," said Harry Silverstone, a senior software development manager at MapleWorks, an "onshore" software outsourcing company with their R&D center in Gatineau, Canada and account management offices in Boston. "They were aware that it's preferable to use an outsourcer for certain types of projects, particularly an outsourcer with specialized knowledge of the area in question."

"Essentially, the company saw this as a major project outside of their core business. Management wanted to keep the team focused on developing their core, 'bread-and-butter' product."

MapleWorks was certainly qualified from a technological perspective: the company focuses exclusively on software development outsourcing for network communications, from network management to telecom products to voice, data and video convergence. What's more, with MapleWorks' engineering team relatively close by, its client could have near-immediate, contact with the technical personnel involved in the project, a critical difference between MapleWorks and offshore outsourcers located halfway around the globe.

Further, MapleWorks' development center in the Ottawa Tech Region provides the company with access to a deep pool of best-in-class engineering talent, as that city is home to 82,000 experienced technology workers and the campuses for RIM, Nortel Networks, Alcatel-Lucent, IBM, and Mitel. Many of the cost savings from onshore outsourcing projects are operational in nature.

Lower cost is an important consideration in an onshore outsourcing scenario. MapleWorks develops commercialized products at 35 to 50 percent less than U.S.-based resources.

MapleWorks' vast experience, however, was the true deal clincher, owing to its networking experience in the telecom market.

"We came to MapleWorks because of its networking experience in the telecom market," said the vice president of engineering at the client company. "And they already knew several large vendors building the type of Carrier Ethernet networks that our system was going to be managing, including some of the exact switches. It was a natural fit."

MapleWorks kicked off the project in October 2007, starting with a small software development team. MapleWorks' methodology is simple yet effective: determine what the project needs are and what the resources should be, then devise a plan to implement those needs through the design effort. That plan is subsequently turned into an actual implementation, which is verified and delivered to the customer. The company also offers a proprietary design methodology, MapleWorks OnTrack, which it has been using and honing with measurable success since its inception in 2004.

The management of the network is focused on two technologies: provider backbone bridging (PBB), and provider backbone transport (PBT). While PBT is the proprietary precursor to PBB, companies are increasingly turning to PBB because it is quicker to implement, as well as less costly, and is an ideal solution for simplifying aggregation and network management in metropolitan area networks. MapleWorks created a PBB network incorporating nodes from four telco leaders: Nortel, Cisco, Hammerhead and Anda. In essence, MapleWorks was able to replicate a network that might have been deployed by AT&T or Sprint.

MapleWorks started off replicating and simulating one particular switch. From there, the company has expanded its task to the point that it can now replicate

several different brands of switches. In fact, MapleWorks can operate a network of up to 250 nodes on a single PC server or more.

“Actually, we can reach about 500 nodes when the network calls for it, but typically we’re building networks from the teens to a couple hundred,” said Silverstone. “Not only have we successfully replicated the network, we can also connect to an actual network. We can then extend it for test purposes, making it a kind of ‘hybrid’ network.”

The simulated network created by MapleWorks is validating the carrier Ethernet management system, ensuring that this system can reliably configure, manage and monitor the nodes. The simulated network also transports Carrier Ethernet traffic, which enables further interaction testing as well as interoperability testing with real hardware-based nodes.

“We can also pass traffic through the network and create traffic patterns to see if the management system can monitor them,” said the engineering vice president. “The behavior can be further analyzed under change as links and connections can be brought up and down.”

The management system is run on its own internal server. From this server, the company provides Ethernet connections that connect to another server at MapleWorks; the software is replicable on local servers as well. The client’s developers can also run a smaller version of the test network -- a four- to five-node network -- on a desktop; this makes the network scalable and practical for any single developer to utilize.

The client is building its management system on an agile development process; they build certain portions of the product, and as they’re building these portions, they’re verifying and continuing to add and improve the product. Thus, the testing is being performed in a continuous, concurrent, and ongoing process, both validating that no components are failing, as well as testing the new features being added. It is continually a work in progress for both sides -- evolving and growing constantly.

Based on the success of its simulated test network, the client contracted MapleWorks to perform development work on the actual system. Consequently, MapleWorks now has teams involved on both the network simulation side and the product development side. According to Silverstone, this has helped MapleWorks gain a better perspective on how everything works together, while enabling the company to perform its work at an accelerated pace.

None of this should suggest that there were no bumps along the road; in a project of this scope, it’s virtually impossible not to have some glitches. But the engineering vice president contends that his company’s choice of an onshore outsourcer was a sound one.

“The outsourcing made sense from a number of angles,” he explained. “Not only did MapleWorks provide the technical expertise and level of skill necessary for the project, there was consistency in the work methods and the people involved. And as far as the onshore aspect was concerned, the proximity of our companies to each other made it easy to work closely together.

“We have definitely saved money by using them,” he added. “If the arrangement worked, which it did, we would come out ahead; if it didn’t, then the expenditure would be minimal. In fact, they’ve helped us identify system problems that we would not have found until a much later date -- probably at a much higher cost to remedy.”

The positive feedback on the project has led to two additional assignments from the client related to the management system. Plus, Silverstone anticipates continued expansion of the network simulation as the product is enhanced and updated. It’s no wonder: the do-it-yourself philosophy is great for home improvement projects. But in the world of network communications, the client, like most companies, has much better things to do.

Written and submitted by [MapleWorks](#).