



MKS Toolkit Case Study

Pfaltzgraff Pottery & Michael Anthony Jewelers

MKS has worked with a CAD/CAM engineering consultant to develop customer technology solutions for two leading manufacturing companies.

Steve Antonucci is an experienced UNIX user who knows first hand the experience of surviving in a DOS-only environment. In both his current position as head of Tangent Technologies and his previous position with a software development company, Steve was forced to develop on the PC, unable to use familiar and powerful UNIX commands.

About two years ago, Steve began looking for a solution to help his own development process and to help him provide his manufacturing-based clients with the specialized computer-aided software they required. Through a friend, he heard about MKS Toolkit for Developers (formerly MKS Toolkit), and found the solution he needed—complete portability between PC and UNIX.

Steve works with his manufacturing-based clients to create unique computer-aided software that guides and runs machinery on the shop floor. Over the past year, he has written approximately 20,000-25,000 lines of code for his clients—and much of it with the MKS Toolkit.

Many of these manufacturing clients have a mix of technology. Both Pfaltzgraff and Michael Anthony Jewelers have a mix of mainframe, UNIX, and PC technology. Primarily, these companies are using the Toolkit (or programs created using the Toolkit) to translate information contained on a UNIX or mainframe server to the machinery on their shop floors (generally PC driven). The alternative to the Toolkit would be for these companies to invest in UNIX technology for the shop floor.

Pfaltzgraff, an international pottery manufacturer based in Pennsylvania, came to Steve with a requirement that extremely large files from their WorkNC software be custom post-processed so that shop floor machinery could understand the information. Previously, Pfaltzgraff engineers were spending hours out of each week hand-editing programs to interpret and extract the information for the machines.

Using the MKS Toolkit, Steve created a series of programs using interconnected shell and `awk` routines which process user generated data (NC toolpaths) and access customer database files, extract specific information required and insert this reformatted data back into large ASCII files (post-processed NC toolpath data). This process, which used to take hours, is now fully automated and in the future could be driven from a PC running MKS Toolkit on the Pfaltzgraff shop floor. A user interface was also developed for the process so that a technician merely needs to type the word “post” to carry out the entire activity. Probably one of the most valuable commands available in the MKS Toolkit for manufacturing customers is the `awk` command. `Awk`'s powerful programming capabilities offer these manufacturing clients control over their huge databases of information, giving them the ability to manipulate this information into a useable form, and with great accuracy (to eight or ten decimal points is common).

Michael Anthony Jewelers, one of the world's largest jewelry manufacturers, also has benefited from a software solution created using the MKS Toolkit. Michael Anthony wanted to fully automate its manufacturing process, which relied upon Alias (Computer Aided Design) software and WorkNC (Computer Aided Manufacturing) software running on UNIX. Using the Toolkit on his laptop, Steve was able to access the WorkNC base files and mimic the WorkNC UNIX environment to simulate as many as 40 processes. The client is very pleased with the outcome.

According to Steve, one of the most critical issues he faces as a consultant and CAD/CAM specialist is to have the ability to process complex numeric data and format the resulting data to exact specifications. Many times, the files being processed contain many mega-bytes of data. MKS Toolkit has proven itself to be 100 percent reliable. It affords him the



ability to do complex code development, on the road, using his relatively inexpensive laptop PC while assuring the code will be compatible to the UNIX Korn, C, or bash shell environments. He finds this to be a crucial and competitive advantage for the needs of both his customers and himself.

Without the MKS Toolkit, these manufacturing companies could not have achieved the solution they needed as easily or inexpensively. Most often, there would be no solution at all. These companies deal with mixed technology environments on a daily basis, where data from a UNIX server or mainframe is funneled to the shop floor. The reality of this kind of a technology mix for most manufacturers is that there is a great deal of back and forth communication between the UNIX administrators and shop floor personnel. An engineer may for instance, change some component of the software and then discover it has a detrimental effect on the shop floor.

Using software developed with MKS Toolkit, and Toolkits installed on shop floor PCs, any manufacturer with a backroom UNIX box and PCs on the factory floor can now have direct control over their information, and put that control in the hands of the people on the front lines of production.

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