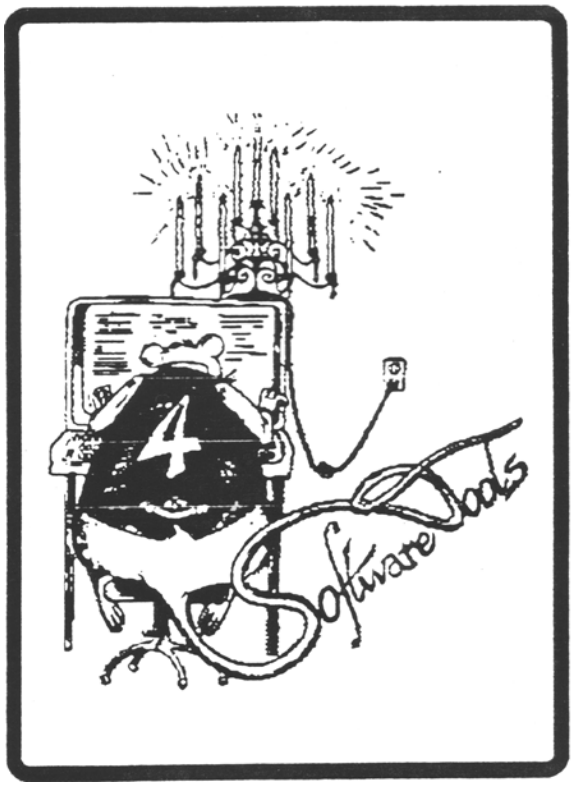
Software Tools Users Group (STUG)

By Deborah Scherrer

In the mid-1970s, three computer scientists at the Lawrence Berkeley National Laboratory popularized a suite of software tools that many computing professionals considered revolutionary and maybe even subversive.



"Before the general availability of Unix, the Software Tools project popularized a new version of operating system software, offering a bridge to portability and power for those beleaguered by limited proprietary operating systems. With its extraordinary focus on building clean, portable, reusable code shared amongst multiple applications and runnable on virtually any operating system, the Software Tools movement established the tradition of empowering users to define, develop, control, and freely distribute their computing environment."[1]

The 3 researchers were Deborah Scherrer, Dennis Hall, and Joe Sventek. Their work eventually generated ports of the software to over 50 operating systems and a users group of more than 2000.

On January 24, 1996, Scherrer's, Hall's, and Sventek's work was recognized with a USENIX Lifetime Achievement Award ("The Flame")[2], one of their profession's most prestigious honors. This award was presented "to honor profound intellectual achievement and unparalled service to the community". (In 1993 Scherrer had also been honored with a "UNIX Academic Driver" award presented by Bell Labs, for "Outstanding Contributions to the UNIX community" that included the Software Tools movement as well as contributions to USENIX.)

At the USENIX conference in 1996, Steve Johnson (r), then President of USENIX, presents the "Lifetime Achievement Award (The Flame)" to Joe Sventek (l), Deborah Scherrer (2nd from left), and Dennis Hall (2nd from right) "to honor profound intellectual achievement and unparalled service to the community" because of their Software Tools Project.

[1] As stated on the USENIX Lifetime Achievement Award

[2] https://www.usenix.org/about/awards/flame

History

In 1976, Brian Kernighan (then of Bells Labs) and P. J. Plauger produced an innocent little book on programming: *Software Tool*s. Many still consider it the best book on programming ever written. *Software Tools* provided examples of well-written applications generally only available with Unix. But it wasn't about Unix, it was about philosophy and style, in a period when Fortran ruled. The late Dennis Ritchie once commented[3] that "The tool-using approach is powerful and intellectually economical, but it takes imagination to use. Kernighan, Plauger, and the LBNL team had the imagination!

Kernighan's and Plauger's examples showed not only how to write good code (via a C-like Fortran preprocessor) but how to emulate a Unix environment on one's local operating system, often not an easy task. The example software in the book was available from the publisher, Addison-Wesley, on magnetic tape.

Deborah Scherrer, then a computer science researcher at Lawrence Berkeley National Lab, was immediately intrigued with the book. The Lab had been using CDC 6600 and 7600 machines, programmed in Fortran on a hapless and complicated operating system. Scherrer immediately saw how their environment could be dramatically improved with the Tools. She ran to her manager, Dennis Hall, who was equally enthusiastic. They immediately got the tape from Addison-Wesley. Scherrer started programming while Hall went off to find funding. Soon they had the entire collection of tools running on their archaic CDC machines -- by developing the operating system interfaces specified by Kernighan and Plauger. Later Joe Sventek joined the team by implementing the tools package on the newly emerging DEC VAX technology. This implementation became incredibly popular and was used at hundreds of sites.

Hall, Scherrer, and Sventek knew how powerful the tools environment could be. Eventually they expanded the initial set of a few dozen tools from the book into an entire Virtual Operating System (VOS), providing an almost complete set of the Unix tools, a Unix-like programming library, and by designing an operating system interface that could be implemented on top of virtually any system. They put their VOS on tape, with complete instructions for implementation ("The Cookbook"), and distributed it virtually world-wide. Their paper "A Virtual Operating System" appeared in *Communications of the ACM* in September 1980.[4]

Scherrer, in the meantime, had developed a friendship with Kernighan. So when people contacted him, he knew about the LBNL project and pointed people to them. With hundreds of tapes being distributed, and referrals from Kernighan, the community eventually developed into the Software Tools Users Group (STUG), closely associated with USENIX. At the USENIX conference in 1979 in Toronto, STUG held its first meeting. Then another one in Boulder, CO.

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[3] Personal comment to Peter Salus, then Executive Director of USENIX

[4] Dennis E. Hall, Deborah K. Scherrer, and Joseph S. Sventek, LBL, "A Virtual Operating System", Communications of the ACM, Sept 1980, Volume 23 #9

The group waxed quickly, had many more conferences, and eventually numbered about 2000 members.

By the late-1980s, Unix was becoming more available, Microsoft had taken over the PC market, and the need for the tools environment started to subside. The immensely successful STUG group decided to discontinue its newsletters and conferences, choosing to donate the group's financial legacy to endow a yearly USENIX "STUG Award". The STUG Award "recognizes significant contributions to the community that reflect the spirit and character demonstrated by those who came together in the Software Tools Users Group. Recipients of the annual STUG Award conspicuously exhibit a contribution to the reusable code base to all and/or the provision of a significant enabling technology to users in a widely available form."[5]

Other Major Contributors

The Softwawre Tools project was the result of efforts from hundreds of people at many, many sites. The USENIX Lifetime Achievement Award certificate acknowledges the names of many, but certainly not all, major contributors to the Software Tools project.

MAJOR CONTRIBUTORS

Allen Akin	Walt Donovan	Steven Jones	Ken Poulton
Brian Anderson	Larry Dwyer	George Kapus	Philip H.Scherrer
Gene Autrey-Hunley	H. W. Egdorf	Rick Kiessig	Toshiaki Saisho
Wil Baden	Philip H. Enslow, Jr.	Todd Kushner	Jerome Silbert
Theresa Breckon Bixby	Desmond FitzGerald	Craig Leres	C. R. Snow
Michael Bourke	Perry B. Flinn	Clyde Lightfoot	David Stoffel
Walter E. Brown	Dan Forsyth	Dave Martin	Nancy Deerinck Travis
Tonia Cantrell	Chris Fraser	William Meine	Gary Trujillo
Shirley Cassinelli	Major Vinton W. Goff	Robert Munn	Dave Turner
Tom J. Chappell	Mars Gralia	Greg O'Brien	Bob Upshaw
Barbara Chase	Neil Groundwater	Michael D. O'Dell	James Ward &
Thomas B. Clarkson	Teus Hagen	George Pajari	Colleagues at
Douglas Comer	Todd Hammond	Vern Paxson	Apollo Computers
Phil Davidson	David R. Hanson	Christian M. Petersen	Jack Waugh
Bruce Dawson	Paul Howson	David M. Phillips	Wally Wedel
Charlie Dolan	Margaret Hug	James Poole	Dale Wolfe
Ben Domenico	Van Jacobson	Jeffrey A. Poskanzer	Joseph S. D. Yao

And the many others who wrote software, engineered ports,
and otherwise contributed to and participated in the Software Tools movement.

[5] https://www.usenix.org/about/stug

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