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## EuroBSDCon 2004

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EuroBSDCon 2004, the third installment of BSDCon in the Old World, opened with a full day of tutorials, which was followed by two days of presentations concluding with the Best Paper award.

Speakers were unfortunately not able to sit in on the tutorials, so instead of learning about “Debugging Kernel Problems” from Greg Lehey, “Using IPv6 on BSD: Concepts, Configuration and Operation” from Benedikt Stockebrand, “Hands-on CVS” from Albert Mietus, or “Content Management with TYPO3” from Martin Alker and Ursula Klinger, I took advantage of the free wireless network and spent most of the day preparing for my own talk.

Jordan Hubbard’s keynote speech, “\*BSD Is Dying—Anonymous Coward, Slashdot, ©1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004,” on Saturday morning marked the official start of the conference. As manager of BSD Technologies for Apple Computer Inc., Jordan doesn’t require much introduction in the BSD community. He stressed the fact that with Mac OS X being based on BSD, this family of operating systems has quickly become the biggest desktop UNIX variant. (Judging by the count of Apple

laptops among the audience, it seemed that Apple’s hardware also enjoyed some popularity among BSD hackers, though, of course, several people were running their favorite BSD in favor of Mac OS X.)

The 23 papers presented were divided into two tracks each day, forcing attendees to make often difficult decisions when choosing among two concurrently scheduled topics. It might be worth mentioning that NetBSD—often playing a smaller role than its cousins when it comes to media exposure—dominated the conference, with a total of 11 papers presented either by NetBSD developers or on NetBSD-related topics.

The first talk I attended was Antti Kantee’s presentation on “Using Application-Driven Checkpointing for Hot Spare High Availability,” in which he discussed a kernel interface for checkpointing processes, separating them into data and metadata, and making it an application’s responsibility to make sure that checkpoints are taken rather than relying on an outside process. This approach allows time-critical applications to provide high reliability on a software level much in the way that RAID provides redundancy and data security on the hardware level.

Having discussed “The Flaf Filesystem” with the paper’s author, Søren Jørvang, the night before, I decided to remain in track “A.” The “first load all files” file system presented in Søren’s paper uses an interesting approach: At mount time, all metadata for the file system is loaded into memory. This reduces the code size enormously, but, at the same time, provides modern features like crash robustness and high metadata performance by taking advantage of ever increasing memory size and disk bandwidth on today’s systems compared to average file system usage.

In the next session, Alistair Crooks (in the first of three talks) and Valeriy Ushakov discussed issues related to porting NetBSD to handheld devices. The geek appeal of seeing live demonstrations of an HP Jornada executing a boot-loader from within its native operating system, Windows CE, to boot into NetBSD is certainly non-negligible. Furthermore, this talk, consciously or not, prepared the audience for the following two talks in track “A”: As handheld computers have limited resources, getting third-party applications installed is not always easy, but the NetBSD Packages Collection may promise some remedy, as was shown in the first afternoon sessions.

Alistair Crooks’ second talk focused on the NetBSD Packages Collection and its strength as a portable framework, followed by Krister Walfridsson’s presentation on “Cross-Building Packages” from a powerful machine for another architecture. “A Portable Packaging System” provides a nice overview of the NetBSD Packages Collection, or “pkgsrc,” as it’s known by its users. In it, Alistair focused on the portability, and the problems encountered during the porting, of the framework, which allows system administrators of such different UNIX flavors as Darwin, Solaris, IRIX, and even Interix (to name a few) to manage over 5000 third-party applications.

As mentioned above, building large packages from source may take significant resources or time on certain platforms. The NetBSD operating system is fully cross-compileable, yet taking this approach in the third-party software management framework is challenging, to say the least. Krister Walfridsson has developed an approach to allow for just that, by intercepting the exec system calls and modifying “the commands in such a way that they do the corresponding operation for the target

architecture.” His presentation included a live demonstration of this remarkable system.

Track “B,” at the same time, saw a talk by Dirk Meyer on “Lightweight FreeBSD Package Cluster in a Jail,” a paper that was to win the Best Paper award of the conference. As I said, it was difficult choosing which talks to attend.

Martin Husemann, scheduled to present his paper “Fighting the Lemmings,” unfortunately could not attend EuroBSDCon due to illness. On short notice, Dirk Meyer filled in with a demonstration of “Making Life Easy with FreeBSD Filesystem Snapshots.” This much more practical session was welcome after the largely theoretical day.

Saturday concluded in Track “A” with Dru Lavigne’s presentation “But I Am Not a Developer... How Can I Contribute to Open Source?” Even though Dru struggled with some technical difficulties and could only project parts of her slides, this talk was very well received and won her the award for second-best paper. In it, Dru shared thoughts and insights from a much less technical point of view, which certainly was appreciated by the mostly developer-focused conference audience.

The next morning, talks started at 9:15 a.m. with Hubert Feyrer’s talk about “vulab,” a system Hubert developed to enable students to perform exercises as part of a course in system administration he teaches at the University of Regensburg. The system enables the instructor to define certain tasks, set time limits, and even check whether the task has been finished correctly. It seemed unfortunate that due to the early time slot (many people had stayed up late in the hotel bar), only a few people attended.

My own talk, “NetBSD/Desktop: Scalable Workstation Solutions,” in

the following time slot seemed to be well received, but I should let somebody else be the judge of this. Like the majority of the other talks, the paper and slides can now be downloaded from the conference Web site.

Following the coffee break, I attended Stucchi Massimiliano and Matteo Riondato’s “code walk-through and a case study” of the FreeSBIE system, a LiveCD based on FreeBSD. Stucchi and Matteo won the award for the third-best paper, based on the positive feedback that conference attendants showed for this very practical talk.

“The NetBSD Status Report” is a regular presentation at many conferences (such as USENIX, or more recently, at SUCON ’04) and provides a nice summary of where the NetBSD Project stands, where it’s headed, and what kinds of new features can be expected in future releases. Naturally, this status report, presented by Ignatios Souvatzis, focused on the upcoming 2.0 release and the release’s performance improvements. The NetBSD Project had also released their new logo the night before (incidentally also from EuroBSDCon), but due to the short notice this did not make its way into the status report. After all, Ignatios had to present yet another talk after the lunch break, “A Machine-Independent Port of the SR Language Runtime System to NetBSD.”

The conference talk program concluded with Alistair Crooks’ third (but who’s counting?) presentation, “The A-tree—A Simpler, More Efficient B-tree.” It turns out that Alistair used this talk as an excuse to reminisce about how times have changed since the ’70s. The relation here is that obviously times have changed since B-trees were discovered in 1970. Since systems nowadays have an abundance of memory and disk space compared to then, memory-to-memory copying has become much faster, allow-

ing a larger set of information to be held in memory at a time. (You will notice that this is basically the same assumption underlying Søren Jørvang’s flaf, as mentioned above, so maybe these guys are on to something here.) The conclusion of his paper is that this approach allows for search times equivalent to those in a B-tree, while insertion and deletion are much simpler.

The conference ended with the closing remarks and the presentation of the Best Paper awards. EuroBSDCon ended officially just in time, and it seemed everybody agreed that it was a big success.

Conference Web site:  
<http://2004.eurobsdcon.org>.