



SchilliX

Creating an OpenSolaris distro

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Who is Jörg Schilling?

- I am not a Sun employee but I have a long SunOS experience
 - January 1984 I worked at the first Sun in Europe
 - May 1985 I had my first Sun at home (a Sun 2/50)
 - August 1986 I designed a SCSI pass through driver
 - In 1990 I wrote a work filesystem for SunOS-4.0
- I am on OpenSource since the 1980s
 - 1982 I started the first OSS tar implementation (star)
 - 1984-1985 several smaller OSS applications started
 - December 1995 cdrecord started on Solaris



What is SchilliX?

- **SchilliX was the first OpenSolaris based platform**
- **SchilliX is an OpenSolaris based Life CD and distro**
- **SchilliX does not yet use Svr4 packages f. install**
- **SchilliX does currently include a simple GUI**
- **SchilliX does currently not allow to compile OpenSolaris as OpenSolaris is not yet complete enough**
- **SchilliX allows people to discover Solaris, to install Solaris on disk and to use it for development purposes**



The beginning of the project...

- **First ideas in December 2003 at Sun Network Conference in Berlin (discussions with Sun on a Solaris Life CD)**
 - **I asked Sun to start a Sun supported Life CD project**
 - **While discussing it, Sun did implement many things**
- **September 2004 OpenSolaris Summit in Santa Clara**
 - **Sun will not pay for such a project**
- **September 2004 the OpenSolaris Pilot started under NDA**
- **December 2004 CDDL draft published**
- **January 25th 2005 first buildable source in the Pilot**
 - **Fokus project SchilliX started with one payed student**



The beginning continued

- **March 2005 first pure OpenSolaris boots at Fokus**
- **Working on the missing parts (libm,)**
- **May 2005 first OpenSolaris CD boots**
- **June 14th 2005 Real OpenSolaris published by Sun**
- **June 17th 2005 SchilliX-0.1 published**



Problems: gaps in the sourcecode

- **Libm – the math library**
- **Libxml2 – needed by smf**
- **Libz – used by various programs**
- **Netscape Portable Runtime – used by PAM**
- **bzip2/gzip – nice to have and need for bootadm**
- **Make – needed for all who like to compile**
- **Ksh – needed by smf & inetd**
- **Parts of SMF – needed for sys identification at start**
- **NIC drivers – use Masayuki Murayama's drivers**



How the gaps were filled for SchilliX

- **Libm – We did port libm from FreeBSD**
- **Libxml2 – a generic OpenSource library**
- **Libz – a generic OpenSource library**
- **Netscape Portable runtime – still not 100% ready**
- **bzip2/gzip – generic OpenSource projects**
- **Make – use smake (Schily make)**
- **Ksh – use a copy of the /usr/xpg4/bin/sh binary**
- **SMF scripts – written from scratch**
- **NIC drivers – OpenSource for Solaris**



Problems that we had to deal with

- **Libm – more than one month of work to port the FreeBSD source**
- **Netscape Portable Runtime – still no automated makefiles to compile and install 64 bit AMD versions of the libs**
- **Ksh – It took a long time to find out why inetd did not work**
- **SMFscripts – need to find out how the rest of the framework expects things to work**
- **CD-ROM layout – how to do it at all**
- **CD-ROM – how to find / mount /usr from CD**



How SchilliX boots

- **SchilliX uses GRUB like Sun Solaris for x86**
- **GRUB loads a RAM-disk image and starts the kernel**
 - **The RAM-disk image may be UFS or ISO-9660+RR**
 - **ISO-9660+RR (readonly) is used for a normal boot**
 - **UFS is used for Sun install**
 - **SchilliX uses a UFS RAM-disk mounted rw**
- **Solaris loads all needed kernel modules to mount root using FS drivers from GRUB and dev drivers from BIOS**
- **SchilliX simply mounts UFS RAM-disk as root, this is done by the kernel**



SchilliX boot continued

- **SchilliX mounts /usr from CD if needed**
 - **If /.cdvolid exists, it contains the CD volume ID and a script tries to find the right device to mount from**
- **SchilliX remounts / read/write**
- **Auto-plumbing of all Network Devices is done**
- **Auto-DHCP on all network devices is started**
- **Normal multi-user startup is continued**



Creating a SchilliX install CD

- This is an example only, if you are interested, please ask me for help via e-mail
- Get <ftp://ftp.berlios.de/pub/schillix/README-kit>
- Get <ftp://ftp.berlios.de/pub/schillix/schillix-0.3-base-kit.tar.gz>
- Get <ftp://ftp.berlios.de/pub/schillix/b27.tar.bz2>
- Get <ftp://ftp.berlios.de/pub/schillix/gcc-3.4.3-csl-20050525.i386.tar.bz2>
- Get <ftp://ftp.berlios.de/pub/schillix/devpro-libm-bins-20051024.i386.tar.bz2>
- Get <ftp://ftp.berlios.de/pub/schillix/devpro-make-sccs-binaries.i386.tar.bz2>
- Get <ftp://ftp.berlios.de/pub/schillix/pkgutils.i386.tar.bz2>
- Unpack everything according to README-kit



Creating SchilliX install CD cont.

- Call `./makeiso-all SchilliX-0.3 27`
- The result (after ~ 10 Minutes) is a SchilliX CD image



The current state of SchilliX

- **Schillix currently auto-boots to multi user command line**
- **A SchilliX „kit“ allows to you create your own SchilliX**
- **Svr4 pkg database but not installed from Svr4 packages**
- **Call „startx“ to run X**
- **No automated installer**
- **No Sun Studio**
- **But GCC**
- **Not yet able to compile OpenSolaris sources**
- **Able to compile nearly all OpenSource projects from the wild**



Compatibility with SolarisExpress and others

- **SchilliX tries to be as compatible with Sun Solaris as possible. As Sun Solaris uses a lot of non-OSS software this is not always possible**
- **Libm now 100% compatible, Sun did OSS libm**
- **Make now 100% compatible, Sun did OSS make**
- **Blastwave packages depend on packages not present on SchilliX**
- **Blastwave packages would install if dummy packages were created**



Schillix highlights

- **All Schily tools on board:**
 - **Star** **standard tar program**
 - **Cdrecord** **CD/DVD recording**
 - **Pxupgrade** **Plextor Firmware upgrader**
 - **Ved** **easy to learn screen editor**
 - **Smake** **Highly portable make**
 - **....** **a lot of other „Schily“ tools**



SchilliX currently...

- **OpenSolaris is not yet „selfhosting“ (compile on itself)**
 - We are theoretical able to compile OpenSolaris on SchilliX
 - OpenSolaris is still missing some important files
- **We are halfway done with Svr4 pkg support**
- **After we have a Svr4 pkg based database and X on board we will be able to install all Blastwave packages**
- **We will in future cooperate with MarTUX a currently sparc based OpenSolaris distribution which is also from Berlin**



The future of SchilliX

- **We need to allow to compile OpenSolaris on SchilliX**
- **Converting Schillix to be based Svr4 packages, currently using archives created with star to compile the CD**
- **With a Svr4 pkg based Schillix and dummy Svr4 pkg's for some missing parts, we will be able to install all Blastwave packages**
- **In future SchilliX will support Sparc and PPC**



Do you like to help SchilliX?

- **Fraunhofer-FOKUS sponsored project ended March 2006**
- **SchilliX needs help:**
 - **Help with X and the GUI (any kind of help)**
 - **Help with converting the tar based kit to Svr4 packages**
 - **Help with maintaining the web pages**
 - **Are you interested to help with one of the issues?**
 - **Do you have a new idea where you may help?**

Rolf Dietze · Tatjana Heuser
Jörg Schilling



X . systems . press



Dietze
Heuser
Schilling



X . systems . press

OpenSolaris für Anwender, Administratoren und Rechenzentren

Von den ersten Schritten bis zum
produktiven Betrieb auf Sparc, PC und
PowerPC basierten Plattformen

Das Buch beschreibt im Wesentlichen Sun OpenSolaris und, deutlich unterschieden hiervon, OpenSolaris. Es ist damit von Nutzen im Bereich der klassischen Sun Solaris Anwender als auch der OpenSource-Gemeinde. Der erfahrene Administrator erhält mit dem Buch eine Übersicht über das neue OpenSolaris, RunBooks zur Integration in den RZ-Betrieb und Checklisten zur Qualitätssicherung seines Anlagenbetriebs. Gleichzeitig ist das Buch ein kompaktes Nachschlagewerk für selten benutzte Features des Betriebssystems. Die detaillierte Beschreibung von Systeminternals und Abhängigkeiten von einzelnen Bestandteilen des OpenSolaris-Betriebssystems erlauben in Fehlersituationen – geleitet durch diverse Tipps und Übersichten – eine Analyse von Fehlersituationen und die Wiederherstellung des Betriebs.



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SCHILLIX



Спасибо - Thanks



Frau

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