

# DKUUG-Nyt

Nr. 87 — Oktober 1996

## The New Face Of Open Systems

Spændende DKUUG-seminar

## Storhed står for fald

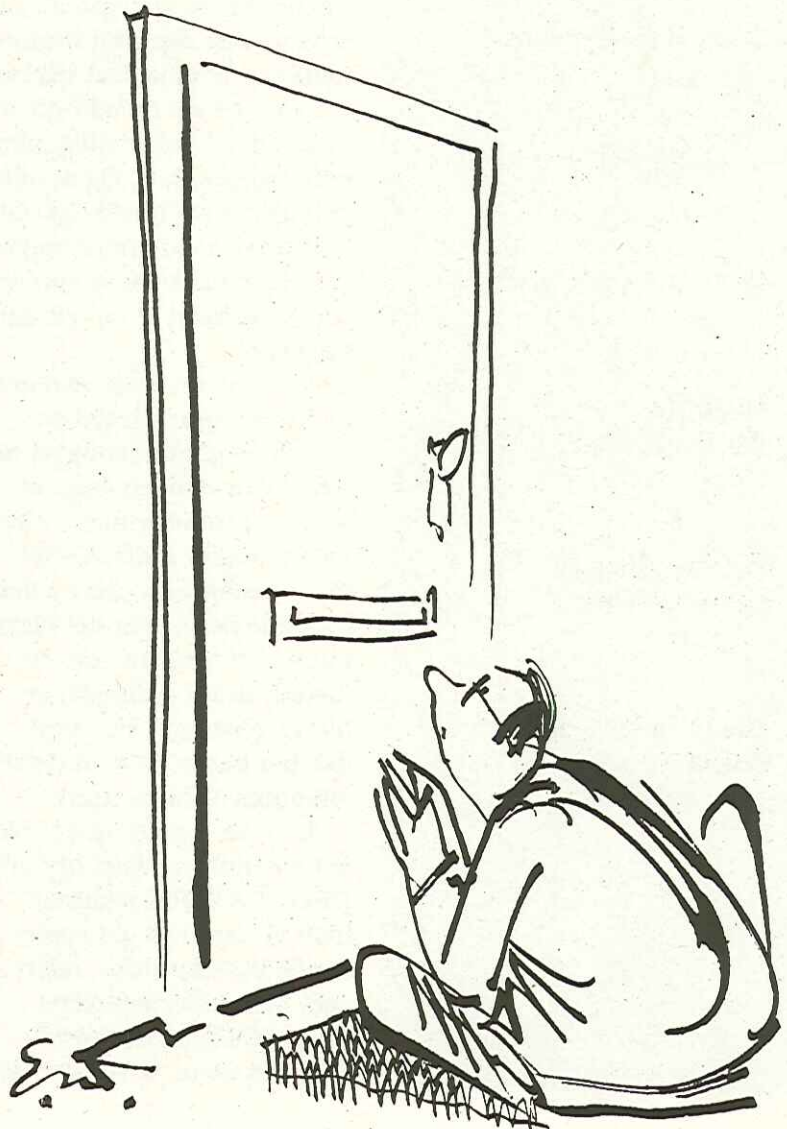
Den gamle redacteur går af!

## MIPS ABI

MIPS ABI-samarbejdet lever  
stadig.

## General- forsamling

Så er det den tid igen.



## Indhold

Storhed står for fald...	3
Hvor ska' vi hen du?	5
About the MIPS ABI	6
FreeBSD, The Inside Story 7/N	11
The New Face Of Open Systems	14
The Intranet Reinvents Business	16
Etc.	26

## Hvor blev DKUUG-Nyt af?

Det er et godt spørgsmål. Det er vi mange der godt kunne tænke os at vide. Det skyldes jo nok i alt sin enkelthed, at bladet drives af frivillig (ulønnet) arbejdskraft. Og at alle deltagerne i bladudvalget har haft travlt med andre opgaver. Så som at passe vore civile jobs, samt et enkelt barselsorlov.

Men, men, men - Nu er vi på banen igen. Desværre har vores gamle redaktør Søren Oskar Jensen valgt at søge nye udfordringer. Dermed mangler DKUUG-Nyt en ny redaktør. I den mellemliggende periode er det blevet mit lod at fungere som redaktør, indtil stillingen er blevet genbesat. Det skal lige her bemærkes, at dette forventes at blive snart.

Lad os haste videre til dette nummer. Læs her om DKUUG's COSE seminar, hvor vi kan byde på spændende udenlandske talere, som behandler emnerne CDE, JAVA og Broadway. Skal det være "UNIX nye an-

sigt"? Ja, hvad mener vore læsere. Bladet bringer gerne læserbrevne, da vi gerne vil skabe lidt debat i bladet.

Anden steds i bladet kan du læse om MIBS ABI-samarbejdet, hvor bl.a det pæredanske edb-firma Dansk Data Elektronik A/S deltager. Samarbejdet falder godt i tråd med DKUUG's vej mod åbne systemer.

*Fung. redaktør  
Gitte D'Arcy*

□

## Storhed står for fald...

*J.P. Pennevisker*

Sommeren var indtil for ganske nylig helt almindelig.

Såsnart solen viste sig en lille smule (og med det forår vi har haft i år, er De ikke i tvivl om, at vi mener en lille smule), fordampede d. Gl. Redacteur som altid ud i sit sommerslum ved havet.

Som regel, men ikke altid, har han så i tilfælde af heldagsregn, uden varsel kommet brasende ind på redaktionen og klasket en pamphlet sammen af hvad der nu lå rundt omkring på skrivebordene.

Observante læsere vil her erindre den noget svævende forklaring der forgangent efterår blev givet i lederen om hvorfor vi i den i sommer havde trykt artikelen "Hvad jeg lavede i min ferie" af "Peter, 3B".

Sekretærens søn fik forøvrigt aldrig sit honorar.

Hvorom alt er, måtte vi

her da lærere, skolebørn og tilsvarende feriestornydere var tilbage i deres respektive sadler notere os at det nok slet ikke havde regnet på d. Gl. i år.

Nu har vi imidlertid erfaret fra ejerkredsen at d. Gl. har fundet ny, men dog ikke evige græsgange og at vi indtil en ny redacteur er antaget vil blive ledet med rund men retfærdig hånd af en af aktionærene udpeget stråmand (M/K).

Dog blev der mumlet noget om at d. Gl. X i et vist (ikke viist!) omfang ville bistå indtil en passende efterfølger var fundet.

Vi antager dette bliver en kort periode, viceværtten har længe haft kig på det noget nemmere job.

Det eneste rygte vi har erfaret om d. Gl. X er at "han sidder og væver et eller andet sammen ude i byen et sted."

Det ønsker vi ham da held og lykke med!

En rask gennemgang af sommerens nyheder gør det pinligt klart at der skal laves mere arbejde før denne artikel er færdig.

### SCO

Novel, har de hørt at nu giver SCO sine produkter væk til studenter? Persistent rygte vil vide at man anså det for den eneste chance man havde for at kæmpe mod "Linus & and the FreeBSD gang", medens andre siger at de simpelthen bare holder "garage sale" for at få ryddet op på deres lager...

Den officielle forklaring er der ihvertfald slet ingen der tror på. At det skulle kunne hjælpe på deres noget slunkne kasse er der vist ikke mange der tror på, hverken på langt eller kort sigt.

[<http://www3.sco.com/Products/openind.htm>]

### DDE

Så er der jo DDE. De har

som bekendt indset at markedet for all-terrain granat-sikre unixboxe med larvefødder ikke er så stort, så de drossler kraftigt ned for produktionen af de midnatsblå kasser. Nu skal det ske via underleverandører og samles i Herlev i stedet for hjemmebyg i de mindre fashionable dele af Vendsyssel. Det skal nok hjælpe, men hverken i Klokkeholm eller Herlev.

## Kryptering

Og minsanten om ikke det er ved at være lykkedes for de stakkels amerikanske virksomhedsejere af få vækket (læs: betalt) både kongressen & senatet til at kigge lidt på krypterings galskaben.

Selveste Bill Gates har holdt tale for et udvalg, hvor han forklarede at han ville sagsøge forbundsregeringen for med tekniske handels-hindringer at forhindre ham i at kunne opnå sin retmæssige 100% markedsandel.

RSA's direktør derimod smed nærmest en håndfuld chips på bordet og sagde "dem her måtte vi få lavet i

Japan fordi FBI er dumme".

FBI insisterer på deres ret til at kunne aflytte terrorister og andet kriminelt pak, men må dog indrømme at deres største problem desangående er at de ofte taler sprog som FBI ikke kan forstå, mere end at de anvender kryptering.

Det er pudsigt at notere sig den "Godav Mand - Økse-skaft!" kommunikation der foregår. FBI frygter en intelligent, velorganiseret terrororganisation, noget henimod RAF/IRA, mens alle andre ser enten en islamisk fundamentalist der kan recitere koranen, men ikke læse, eller en arbejdsløs "høbo" fra midtvesten der kan recitere biblen, men ikke læse.

Og sådan er det så hele vejen...

Det er på sin vis også pudsigt at se hvem det er der kæmper på samme side:

I hjørnet mod øst, (med hjemmekalkede hvide hatte):

Der er "Industry leaders" eller om man vil "evil capitalists", M\$, Netscape, RSA, IBM osv. De er bange for deres markedsandel.

Der er de mange småpanoide "borgerrets" fanatikere. De er bange for big-brother staten men ikke for storkapitalen der rask væk kræver drug- & aids-testing.

Der er de mange computer-geeks, hvis virkelighedsopfattelse tilsyneladende først for sent registrerer at forplantningsakten ikke kan ske i Cyberspace og derfor yder en værdifuld selvjustits i den genetiske masse. De mener ikke at staten skal kunne decode deres PGP (1024bit) crypterede emails, der typisk literært er på højde med "Hey dude! Just did lvl3 in DOOM again, c00l warez!"

I hjørnet mod vest, (med hjemmekalkede hvide hatte): FBI der skal kunne aflytte internationale terrorister, men som ikke kan forstå arabisk, israelsk, mexicansk mv.

De kristne fundamentalister der er bange for at lille Peter (20 år) skulle kunne liste et krypteret billede af en letpåkledt kvinde eller måske en videnskabelig artikel om Charles Darwin forbi det af hans forældre installerede

"KristentInterNetSmudsFilt erProgram".

NSA som ikke er meget for at fortælle nogen noget-somhelst, men som støtter den side der giver dem mest arbejde i fremtiden. Folk der siger at de ved at man kan "kontrollere" indholdet af InterNettet, bare staten vil støtte dem med passende lovgivning.

Strange bedfellows indeed.

Resultatet kan man pt. kun gætte på. Når man har stærke lobbyister, 1st amendment aktivister, religiøse fundamentalister og et eller flere af deres "spook" departments og den nationale sikkerhed med i samme sag kan der ske hvad det skal være.

Et glimrende eksempel herpå: Da det gik op for nogle af de centrale politikere at problemet var assymetrien i loven (man må gerne importere en hvilken-somhelst kryptering i en hvilken-somhelst form, men kun exportere under meget restriktive former), foreslog de straks at "de kunne da

meget hurtigt lave en importbegrænsning også".

Det grinede vi en del af den dag...

En af de mere markante agitatorer bemærkede at man måske skulle forbyde export af sarkasme, fordi det for ham så ud som noget FBI heller ikke kunne forstå...

Nye redaktører kan begynde her.

□

---

## Hvor ska' vi hen du?

*Fung. redaktør  
Gitte D'Arcy*

DKUUG har nu været på her i mere end 10 år. Hvor vi

startede som en lille forening for UNIX-freaks, er vi blevet mere og mere strømnet over årene.

Nu mener vi så at det er på tide at standse op og finde ud af - *hvor ska' vi hen, du?*

Hvad skal der ske i og med foreningen fremover? Bestyrelsen efterlyser her masser af gode ideer og ønsker til DKUUG's fremtid.

Skal vi følge med strømmen og blive en forening for åbne systemer? Og dermed åbne helt op for f.eks. PC-verdenen. Eller skal vi holde fast i de gode gamle traditioner, og holde os til UNIX og kun det?

Send en post, enten elektronisk (sek@dkuug.dk) eller med postvæsnet til DKUUG's Sekretariat, Fruebjergvej 3, 2100 København Ø senest den 16. oktober.

Alle de indkomne ideer og forslag vil blive behandlet på en strategi-weekend, som afholdes den 18-20. oktober 1996 på Bornholm.

□

# About the MIPS ABI

## Introduction

Until now, software portability across computers from competing manufacturers has been limited to Intel-based PCs. The MIPS System V Application Binary Interface (ABI) brings the possibility of a similar approach to high-performance UNIX systems ranging from laptops to mainframes.

Since 1991, companies committed to the MIPS® RISC architecture have been working together to deliver this level of software portability in a completely open UNIX environment in the MIPS RISC architecture.

The members of the MIPS ABI Group, Inc. are:

- Concurrent Computer Corporation
- Control Data Systems Inc.
- Dansk Data Elektronik
- NEC Corporation
- Pyramid Technology Corporation
- Siemens Nixdorf Informati-

- onssysteme AG
- Silicon Graphics Inc.
- SONY Microsystems Company
- Tandem Computers

Key independent software vendors including Oracle Corporation, SAS Institute, and SCO/UNIX System Group also regularly work with the MIPS ABI group.

The group's objectives are to:

- Improve software availability and selection for end users.
- Lower the cost of business and quicken product development for ISVs and platform vendors.
- Provide customers with a "laptop-to-mainframe" compatible solution.
- Preserve the customer's investments in hardware, software and training.

A key difference of the MIPS ABI program includes the concept of a Reference Platform. Binary compatibili-

ty, via the MIPS ABI, means that software ported to the MIPS ABI Reference Platform can run unmodified, without recompilation or re-linking, on any other system that is compliant with the MIPS ABI. Hardware companies whose products support the MIPS ABI guarantee that their systems will conform to the Reference Platform. The result is that software developers need only to maintain one reference port on one reference system.

Software developers can no longer afford the cost of maintaining ports to numerous UNIX operating systems, many of which are not identical. In addition, many hardware companies primarily address specific market niches and don't offer the critical market size needed to make a software product successful. Thus, to maintain profitability, many developers are limiting support to four or five hardware platforms that will give them the

best value for their engineering, marketing and sales resources, leaving other geographic or niche markets uncovered and thereby losing prospective sales opportunities.

## SVR4 and the MIPS ABI

UNIX System V, Release 4 (SVR4) has emerged as a dominant UNIX standard. Computer companies using SVR4 on the MIPS RISC processor have agreed upon an extended set of the standard Application Binary Interface (ABI). The MIPS ABI addresses which system-level and application interface calls to be supported in the operating system and compilers.

Specifically, SCO publishes the generic ABI or "gABI", the standard SVR4 ABI document. SCO also provides the "processor specific" ABI or "psABI" for each microprocessor architecture (MIPS, SPARC, Intel, etc.). The psABI contains extensions to the gABI

that are unique for each microprocessor. SCO also provides for the creation of further extensions through the MIPS ABI Conformance Guide. This guide includes functional extensions to the MIPS ABI that make it more useful to software developers.

The MIPS ABI Conformance Guide (also known as the "Black Book") contains implementation guidelines and defines additional capabilities beyond the binary standards provided by gABI and the psABI. These include object files, dynamic linking, system commands, windowing (X11, Motif), terminal interfaces and other important extensions.

Information on the MIPS ABI, gABI and psABI is available from SCO or reference books available in most computer bookstores. The "MIPS ABI Conformance Guide" in printed form is available from the MIPS ABI Developer Program.

## Market Potential

A software developer porting

to the MIPS ABI Reference Platform is, in effect, porting to many of the computer industry's leaders including Concurrent Computer, Control Data Systems, NEC, Pyramid, Siemens Nixdorf, Silicon Graphics, SONY, and Tandem. These companies also have many VARs who resell their own compatible, private labeled systems.

According to IDC, the MIPS ABI Group, Inc. represents the third largest UNIX market worldwide. Member companies collectively represent hundreds of thousands of installed seats worldwide and more than \$4 billion in annual UNIX-based hardware revenues. In 1992, the MIPS ABI group shipped 59,400 MIPS RISC-based UNIX systems, more than any single RISC UNIX competitor except Sun SPARC, according to International Data Corp. estimates. The 1993 IDC Workstations and High-Performance Systems Report shows that the number of systems shipped has increased to

87,015 and more than \$4 billion in annual UNIX-based hardware revenues. Since many MIPS RISC systems are used in the commercial multiuser market, the number of actual users or seats associated with each MIPS-based system can be as high as 100 to 1,000 per system.

From a geographical standpoint, the MIPS ABI provides leadership positions in Europe, Japan and North America. Sony and NEC are leading computer vendors in the Pacific Rim. Siemens Nixdorf is one of the largest computer companies in Europe and DDE is a leading supplier of multiprocessor systems in Scandinavia. In addition, the MIPS ABI companies represent some of the most successful commercial applications-oriented companies, with leadership in both commercial fault-tolerant, real-time, and visual computing.

## The Reference Platform Model

As indicated above, the MIPS

ABI member companies support the Reference Platform model approach for supporting software vendors. This model assures developers that they need only port to a single specified operating system on a single specified hardware system. All MIPS ABI-compatible companies guarantee that their systems will support binaries generated on the Reference Platform. Information on the current MIPS ABI Reference Platform can be found in the Conformance Guide.

The MIPS ABI compatible companies work together to ensure that all operating systems are indeed compatible. This is done both through proactive, coordinated engineering efforts and rigorous testing. The MIPS ABI testing process involves more than 10,000 test suites and more than 1,000,000 lines of code that test for MIPS ABI conformance and functionality, plus stress and load. Independently supplied applications including the Oracle RDBMS and The SAS System from SAS Institute are used

as real-market tests of binary compatibility.

These companies believe that the Reference Platform model is the superior model for software developers as it delivers a real system with a real operating system for developers to port and support their products on. This compares to other models, such as the "virtual" reference port model, under which developers may never be assured that the product actually runs on any given system in the marketplace.

Member companies have and will continue to provide developers with systems for development and support via porting centers (located worldwide), telephone access to systems, discounts for system purchases and rental programs. Technical support is provided at the porting centers and via electronic mail services. ISVs that register for a MIPS ABI port receive the MIPS ABI Conformance Guide and a separate Frequently Asked Questions Guide, as well as newsletters and technical



bulletins.

## Ease of Porting

UNIX applications currently ported to the MIPS RISC architecture will easily migrate to the MIPS ABI Reference Platform operating system, often just by recompiling. To access a system, developers simply need to contact the MIPS ABI Developer Program by sending email to [devprogram@sgi.com](mailto:devprogram@sgi.com) to receive technical reference and marketing materials and information on technical support services.

Upon notification of a completed port, information on the ISV's products is distributed to all member companies. In addition, developers receive regularly distributed information regarding changes in MIPS ABI group members' systems, markets and sales strategies.

## Marketing Programs

The success of this effort lies in the cooperative marketing programs between

member companies. These programs are designed to ensure that ported applications get maximum visibility to prospective customers via applications directories, seminar programs, literature distribution and trade-shows.

Each company's sales force is provided with applications directories that include all MIPS ABI-compatible applications. Together, this represents over 10,000 sales people in over 600 sales offices worldwide, all of whom represent software developer's products to their customers.

## A Cooperative Effort

The success of the MIPS ABI program depends upon cooperative efforts between the member companies and the software developer community. Both must be mutually committed to the other's success.

These mutual commitments include:

- The developer need only port and test their product on the Reference Platform.

- Access to Reference Platform systems will be made available for ISV use.
- Technical assistance will be made available to assist developers.
- MIPS ABI hardware members will maintain compatibility to the Reference Platform.
- Developers will sell and support their products on all MIPS ABI-compliant platforms.
- Ported developer products will be included in MIPS ABI vendor marketing programs, including software catalogs.

## The Open Systems Promise

The MIPS ABI is the realization of perhaps the most famous pledge of open systems vendors - one port will provide access to multiple platforms. Industry groups grappling with diverse system architectures and inherently incompatible UNIX flavors have repeatedly seen this promise broken as technological and compe-

titive barriers kept them from fulfilling the ideal of open systems.

The MIPS ABI Group, however, recognizes the shortcomings of previous efforts to reign in different version of UNIX to simplify and strengthen choices for both software vendors and customers. The MIPS ABI group's approach - publishing an application binary interface capable of running across all MIPS RISC-based systems and identifying a single Reference Platform - sidesteps many of those technological barriers.

The result is a proven manifestation of the open systems promise -- and the opportunity for clear and easy choices both for ISVs and for end users.

Copyright © 1995, MIPS ABI Group, Incorporated.

## MIPS ABI v1.1 Conforming Systems

Company	Operating System	Product Family
Concurrent Computer	MAX/OS 1.1	MAXION
Control Data Systems	EP/IX V2.2.1	CD4000 Series
DDE	Unix SVR4 MP	Supermax Enterprise Server
NEC	UX/4800 R11.1	UP Series EWS Series
SGI	IRIX 5.2 IRIX 5.3	Indy, Indigo, Indigo2, Crimson, Challenge
SNI and Pyramid	SINIX-N v5.42	RM200 Series RM400 Series
	SINIX-Y v5.42	RM600 Series
	DC/OSx 1.1 C079	MIServer ES
	DC/OSx 1.1 D079	Nile Series
	DC/OSx 2.0 M079	Reliant Model 1000
Sony	NEWS OS v6.0.3	NEWS
Tandem	NonStop-UX vB32	Integrity FT Integrity NR
	NonStop-UX vC10+	S4000
	IRIX 5.2 IRIX 5.3	Indy, Indigo2 NR Server Family (401, 4404, 4412, 4436)

IRIX 5.3 on SGI Equipment is the Reference Platform



# FreeBSD, The Inside Story 7/N

*Poul-Henning Kamp*  
*The FreeBSD Core team*  
 <phk@FreeBSD.org>  
<http://www.freebsd.org/~phk>

## Siden sidst

Nu er der jo gået nogen tid siden sidst, så der er sket en del ting. Ikke ret mange store altomfattende ting, men bare en masse små trin på vejen til at blive verdens bedste unix.

### 2.1.5

Vi har releaset 2.1.5 for en måneds tid siden. 2.1.5 er vores 2.1 release med bugfixes og nogle få udvalgte nye features. Vi valgte at lave denne side-gren til vores versionstræ, fordi man af vores brugere ønskede et mere roligt releaseforløb.

Som sådan er 2.1.5 en stor succes, men forløbet har været alt andet end en succes for os. Den energi og den mængde tid der er blevet brugt på at lave 2.1.5

# FreeBSD

har ikke stået mål med udbyttet, set fra projectets side, så i fremtiden vil vi nok prøve at finde en anden løsning på problemet.

## ELF

Der er tre nogenlunde anstændige måder at formattere en eksekverbar binær på: "a.out", "COFF" og "ELF".

"COFF" springer vi over, det er ikke rigtig interessant nu om dage, p.g.a. en del indbyggede tåbeligheder.

"a.out" er det traditionelle unix-format.

"ELF" er et mere moderne format, men det bringer sådan set ikke noget fundamentalt nyt til gårde. Kort fortalt generaliserer man fra de implicitte sectioner i a.out til nogle explicitte sectioner, og opnår derved at man kan have flere af dem.

Vi modtager en del spørgsmål fra ex-Linux folk om hvornår vi skifter til ELF. Vi plejer at spørge tilbage hvorfor de tror vi skulle gøre det?

Det lader til at skiftet fra

“a.out” til “ELF” i Linux-lejren har været noget af en støjende affære, men det lader ikke til at der er nogen der ved hvorfor det blev gjort, udover altså at det var “mere moderne”.

Vi kan exekverer et ELF-program, vi kan såmænd også lave dem med John Polstras “Elfkit”. Men at ændre vores default? Det er der sgu ikke grund til. Når vi kan se en klar fordel, overvejer vi det, ikke før.

## Appletalk & IPX

Vi har fået noget support i vores kerne nu der tillader os at arbejde med Appletalk og IPX-netværk. Præcis hvor meget man kan med det må guderne vide, min kone har godt nok en Machintosh, men jeg har altså ikke prøvet det, og Novell får I mig ikke til at installere!

## Ccd

Satoshi Asami, vores “Ports-Meister”, har som en del af sin uddannelse banket “ccd”-driveren på plads. Det er ikke en driver til fotostatistiske chips, men til “ConCatenated

Disks”. Driveren tillader at man laver en logisk disk ud af et antal fysiske, f.eks ved striping, mirroring osv. Virker glimrende.

Mens vi er ved den gode Hr. Asami, så er der nu 532 ports i vores ports system, d.v.s. 532 stykker software af alle mulige arter, klar til at installere med bare en enkelt kommando.

## TCL

Vi har gjort Tcl (Tool Command Language) til en standard del af FreeBSD. Der var en del diskussion, men en om ikke andet så højtråbende fraktion, ledet af undertegnede, trumfede igennem at hvis perl var en del skulle tcl dælme også være det.

## Contrib

I forbindelse med at Tcl blev introduceret begyndte vi også at håndtere vores “contributed” software på en ny måde. Istedet for det rod vi har arbejdet med nu, hvor vi har hamret og banket på den “fremmede” source så den passede ind i vores model for source-maintenance. Det virker ikke. Det vi så gør nu istedet er at importere den fremmede source i /src/

# FreeBSD

contrib/<pakke> og så laver vi nogle facade makefiler i src/usr.sbin eller hvor det nu hører til, som compilerer i vores træ, men som henter alle source filerne nede i /src/contrib. Foreløbigt ser det ud til at virke bedre.

## Syscons

Vores core-team medlem nordenfjords, Søren Schmidt, har som sædvanlig haft fingrene nede i vores konsol-driver, så nu kan man bruge sin mus til cut&paste i tekstmode. Nu venter vi bare på at han putter hele X11 serverens DDX lag ned i kernen.:-)

Traditionen tro har vi optimeret her og der, vores drivere er blevet forbedret hist og her, sådan det sædvanlige småpilleri. Sommeren er jo altid lidt sløv, folk skal passe familien og ferien osv. osv og vores antipodiske fraktion kan altså ikke helt kompensere for det.

Nu er der imidlertid grøde i det igen, og blandt de mange ting der rumsteres

# FreeBSD

med er en generalisering af scsi-systemet, diverse filsystems-projekter, integreringen af LITE-2 koden fra UCB, vores SMP (multicpu) support bliver der arbejdet en del på.

Her i Danmark er der et par spændende projekter igang der bruger FreeBSD, f.eks er Thomas Sparrevorn & co igang med ATM-kort fra OliCom. [<http://www.diku.dk/distlab/atm/olicom>]

Blandt InterNet Service Providers er FreeBSD også ved at blive kendt for det gode. Det er jo en meget hård branche, så man sidder ikke ligefrem i ERFA-grupper og taler sammen, men vi hører jo lidt fra hist og pist nu og da.

Hvis der er interesse for nogle FreeBSD-aktiviteter bedes I rette henvendelse til klub@dkuug.dk eller undertegnede, vi er to core-medlemmer i Danmark, så vi kan jo nok stable noget på bene...

□

# The New Face Of Open Systems

Vi får her besøg af de helt store kanoner fra UNIX-universet. Det er lidt sjovt, men ikke overraskende, at UNIX idag er blevet en trendsætter på Internet-markedet.

Vi får besøg af Bob Scheifler, skaberen af X Window System, som sidder i toppen af X Consortium. Bob arbejder idag med Broadway, et system til udvikling af interaktive WWW-baserede applikationer.

Herudover vil der blive behandlet kommende versioner af X, Motif og CDE (Common Desktop Environment; UNIX's grafiske brugergrænseflade). Det er iøvrigt ganske tankevækkende hvor meget koncepterne X-protokol og HTTP minder om hinanden, begge baseret på TCP/IP og begge client/server-baserede med TCP/IP forbindelsen som kommunikationskanal.

Udover Bob Scheifler, kommer der talere fra Open Group (som idag kontrollerer UNIX), OSF som idag er en del af Open Group, DEC, Hale and Dorr samt TriTeal som leverer kommercielle CDE-løsninger.

Dette er en enestående chance for at møde toppen af UNIX-verdenen, jeg troede aldrig det skulle lykkes i lille Danmark.

Vel mødt på "The New Face Of Open Systems".

*UNIX-hilsen*

*Brian Eberhardt*

# The New Face of Open Systems

DKUUG-seminar om CDE, JAVA og Broadway

Mandag den 21. oktober 1996

kl. 8.30 - 17.00

på

LO-Skolen

Gl. Hellebækvej 70

3000 Helsingør

- 08.30 Kaffe og registrering  
09.00 Velkommen  
09.15 Broadway : Universal Access to Interactive Applications over the Web  
v/ Robert W. Scheifer - X Consortium, Inc.  
10.30 Kaffepause  
11.00 JAVA  
v/ Dr.Vania Joloboff - Open Group Research Institute  
11.45 Facing the future  
v/ Robert W. Scheifer - X Consortium, Inc.  
v/ David E. Knorr - The Open Group - OSF  
12.30 Frokost  
13.30 Desktop Integration for the Impatient  
v/ Nick Ruse - Digital Equipment Corporation  
14.15 Taking Business to Heart  
v/ Jim Hollender - Hale and Dorr  
15.00 Kaffepause  
15.30 CDE - The great Integrator  
v/ Jon Werner - Triteal Corporation  
16.30 Paneldiskussion og afslutning

Tilmelding kan ske til DKUUG's sekretariat på tlf. 39 17 99 44, eller på fax 31 20 89 48 senest den 16. oktober 1996.

# The Intranet Reinvents Business

**Behind the corporate firewall, the World Wide Web is rapidly changing internal operations and transforming the way people work together.**

*Douglas Cruickshank*

## **Intranet: The Company Wide Web**

The Internet and its extraordinarily popular graphical component, the World Wide Web, have been getting the lion's share of media attention over the last couple years, but intranets may prove to have an equal impact on the way organizations around the world do business. The word intranet, which has only come into use relatively recently, was coined to describe World Wide Web technology used solely for internal communications.

Intranets employ the same information organizing principles as the World Wide Web, a graphically-oriented, highly flexible approach that can be tailored to the existing structure of virtually

any organization or project. Yet unlike the Internet, an intranet can only be accessed by individuals within an organization, and by outsiders who've been given passwords to allow them in. A special network security device known as a "firewall" keeps out all others. Organizations use their intranets for distributing information and computing applications, for everyday communications, such as on-line employee newsletters, and even as virtual meeting places for work groups. And employees who travel - sales personnel for example - can use the corporate intranet as a means of keeping in touch with headquarters and staying abreast of late-breaking product or price information.

Edward McCracken, Silicon Graphics Chairman and CEO, believes that his

company's intranet serves as an excellent model for behind-the-firewall use of the Web in organizations. "I think we're further ahead in terms of being a showcase for using the Web inside a company than, perhaps, any other company in the world," McCracken said recently. "We find that, when they hear about what we're doing, information systems executives - CIOs - from around the world come to visit us just to look over our shoulders and see what's happening at Silicon Graphics."

"Our company is in the process of being transformed," McCracken continued, "in terms of how we operate and how we work with each other, by how we use the Web. In the beginning it was simply a way to find out what was going on around the company. Now, we're mo-



ving into training: employee training information can be accessed on-line in a variety of media forms. We provide access to databases. For example, employee benefits forms are available on-line. And our corporate purchasing system is going on-line. This enables employees to fill out a purchase request and pass it through the approval loop, all on the Web. There are a whole set of applications that are changing how we operate within the company.

Most companies with intranets have a central internal Web server that functions as the entry point - a sort of digital Grand Central Station - to all that is available on the Company Wide Web. At Silicon Graphics it's called "Silicon Junction." Silicon Junction, as described in a brochure the company circulates to employees: "is like an on-line newspaper combined with a Table of Contents for Silicon Graphics Web pages. It has daily news and stock information and it has in-

dexes for hundreds of Web pages on other internal Web servers. Silicon Junction is also a repository of reference material, including on-line manuals, press releases and the Cafe Iris [employee cafeteria] lunch menu."

Silicon Graphics encourages all its employees to create their own intranet Web pages for work-related purposes or just for fun. WebMagic the company's own Web authoring software is made available on the Silicon Graphics intranet at no charge, as is training and assistance. The company also provides classes in Web authoring for its employees. In the relatively short period of time since the advent of the Silicon Graphics intranet, individuals and groups within the company have embraced the technology with enthusiasm. Groups in each division have taken it upon themselves to develop distinctive Web pages representing their area, making the intranet the backbone of company-wide communica-

tions. And it's a good thing - the company, with 7,000-plus employees, has more than 30 buildings at its Mountain View, Calif. headquarters and over 100 offices around the world. Keeping all employees apprised of the internal workings of one of the fastest growing companies in the world's fastest-moving industry is essential. As of early 1996, Silicon Graphics had about 600 internal Web sites carrying a total of over 100,000 pages of information.

## **Silicon Graphics' Silicon Junction**

Providing business partners limited access to part of a corporate intranet can also be an advantage. Frank Dietrich, Manager of Corporate Web Systems at Silicon Graphics, who oversees Silicon Junction and is a prime mover behind the company's intranet development, recently described how qualified resellers of Silicon Graphics systems use its intranet. "The reseller

Microsoft - Silicon Junction

File Edit View Go Bookmarks Options Directory Window Help

Location: http://www.microsoft.com/

What's New What's Cool Handbook Net Search Net Directory Software

EMPLOYEE INTERACT  
 COMPUTER EXTERNAL  
 SEARCH

SILICON Junction

TRANSACTIONAL WORK-TO-DO SOLUTIONS SOCIETY PROVISION

Visual Computing  
 sheds its skin  
 a new SURF emerges!  
 DIGITAL DHARMA

STOCK PAGE  
 On-line News

- Software 2001 Available for Download
- Great Tools for Internal Web Developers
- "Ultimate Engineers" Wins for 1999

SILICON Sales

SECURITY FORUM

sponsored by  
 Network Services  
 corporate information services

How and why security is what you need to protect your

channel is of growing importance to us, and we have a special section on our intranet devoted to it," Dietrich explained. "That section's called Channel City. It offers sales tools and sales information, as well as sales automation facilities. For instance, it has a device called Code Configurator. Using the Silicon Graphics intranet, resellers can access a database, get all the production information and all the prices they require, and configure a system. There's even a little artificial intelligence built in that assists them in matching components to the desired application; it helps them provide the right system for the customer.

"Once they're finished," Dietrich continued, "it computes all the prices accordingly, and then the quote can actually be sent automatically to the prospective customer - by sort of turning the Web server into a fax server. It's an enormous convenience to the reseller, and also helps ensure

that the customer will get a system appropriate to their needs, and at the correct price. What's more, the reseller can use this feature most anywhere in the world."

Silicon Graphics also uses its intranet to closely integrate component suppliers with the company's manufacturing operations. Suppliers have access to up-to-the-minute scheduling, technical specifications and change orders that relate to the component they're supplying. But an intranet is not only an excellent vehicle for publishing and disseminating information - globally and in real-time - Dietrich emphasized. "It is also an extremely effective device for changing the way people use and interact with databases, and link databases together. If you want to use a fancy term, call it knowledge engineering."

## Linking Your Entire Company

An intranet makes it possi-

ble to integrate data that already exists in databases throughout an enterprise as what Silicon Graphics' Frank Dietrich calls "isolated islands" and "link" or cross reference that data in a way that substantially enhances its value and usefulness. Many companies, Silicon Graphics among them, consider this one of the key productivity gains that an intranet provides. For example, Dietrich explained, in the past the Silicon Graphics manufacturing database was "separate and independent of the customer call-tracking database. Now, utilizing the Web as a single-user interface, we can link between the manufacturing database and the component that might be at fault according to specific customer reports as logged in the call-tracking database."

This means that manufacturing, a function that is typically several levels removed from customer feedback, now has direct access to it. And customer service

personnel can go directly to the manufacturing database for reference while they're engaged in a customer call. "All of a sudden," Dietrich said, "through this enhanced availability of information, we're realizing extraordinary productivity gains and savings. The intranet makes it possible by expanding the collective corporate knowledge - data that has been residing in isolated islands - and making it accessible to all the individuals within the organization in an orderly, highly transparent fashion. And that's just one example," he said. "There are many."

Julie Farris, Marketing Manager for the Silicon Graphics WebFORCE intranet products, agrees with Dietrich, citing the intranet's "dramatic returns as a rapid prototyping environment, adept at getting information on-line quickly and sharing it across the company regardless of platforms. All of the information and the content that people already have," Farris said, "whether it is on

their desktops, in file systems, in databases, or tied to other applications, can now be easily shared using the Web. When people first see this it looks like magic to them, because all of a sudden all this information is now visible. Of course it's been there all along, it's just that the intranet provides a ubiquitous way of organizing and sharing it, along with a friendly interface."

One of the most significant changes that the proliferation of intranets is bringing with it may be a shift in power from the companies that sell technology to the organizations that buy it. In the past, standardizing computer technology throughout the organization has been a critical concern, often calling for near-impossible product buying decisions. Now, in an intranet-based computing environment, where platforms ranging from workstations to PCs and laptops all share the same easy-to-use Web browser software (Netscape Navigator is by far the most po-

pular at present), customers enjoy much greater flexibility.

Julie Farris recalls that previously companies "were always faced with the proprietary approach - Do we standardize on this computer system, this chip, this software? And what they'd done at that point [by committing to one enterprise-wide system] is given up some measure of control of their destiny," Farris said. "Now they can go back to choosing the best-of-class platforms for each part of their business and not worry about the interoperability problems. Today," she added, "the incredible rate of innovation and competition in the high-technology industry really works to the customers advantage. Prices are lower, the products are better and customers have the freedom to select components from different vendors, while not worrying about the traditional problems of systems integration."

Netscape: ELVIS Home Page

File Edit View Go Bookmarks Options Directory Window Help

Back Forward Home Reload Images Open Print Find Stop

Location: http://elvis1.d50.lilly.com/

**ELVIS**  
Eli Lilly Global Information Service

Table of Contents

?

Help

New Users Help Feedback Events What's New

---

**Eli Lilly and Company Information**

Environmental, Health and Safety      Human Resources  
 Financial (BAP)      Information Technology  
 General and Corporate      Lilly Research Laboratories  
 Global Affiliate Web Pages      Manufacturing  
 Global Business Units  
 Global Manufacturing Services      LEWIS - Lilly's Server on the Internet

---

**External Information**

The Internet spans approximately 90 countries and millions of computers. Please be aware that these resources are external to Eli Lilly and Company and treat the information accordingly. When using the Internet you are operating under the Corporate Policy regarding the Appropriate Use of Public Networks. Please read the Guidelines for Accessing Public Networks before you access the Internet.

Subject Index      Internet Search

Internet Services Group

## Eli Lilly's Intranet: Elvis

Of course, Silicon Graphics is a technology company and one would expect it to be in the forefront of the intranet trend, but what about companies from other industries? Certainly one of the best examples - and an organization very different in many respects from Silicon Graphics - is Eli Lilly and Company, the pharmaceutical firm founded in 1876. The company has nearly 26,000 employees and markets its products in 120 countries. John Swartzendruber is an information consultant at Lilly, and Technical Manager of the firm's Internet Services Group. At present he oversees a burgeoning corporate intranet that features "15 to 20 internal Web servers."

"We are slowly evolving toward a model with Web servers at various locations, which may be run by central groups who will provide the underlying Web service for the rest of the people in the company," Swartzendruber

explained. It's a different approach, but no less effective, than the one being taken at Silicon Graphics where there are hundreds of servers. "Rather than each group at Lilly having its own Web server," Swartzendruber elaborated, "there will be a few central servers on which individual groups will maintain directories."

"Right now our intranet provides everything from basic corporate services, such as a phone directory, mail directory and calendar of events, to information on various groups within the company, manufacturing, financial information, human resources material and coverage of corporate affairs," Swartzendruber continued. "Our scientific groups use it to distribute information on software products or ongoing research. And our sales and marketing people are using it as a means of electronic distribution for publishing sales results, announcing product launches and so on. People are using it for almost anything you can

imagine."

Like Silicon Graphics, Lilly also has a main corporate Web server, the digital headquarters for its intranet. It's called ELVIS. "It stands for the Lilly Virtual Information Service, but it's known as ELVIS here at the company," Swartzendruber said with a chuckle. It works much like Silicon Junction. "People connect to ELVIS and they are presented with our internal home page, which guides them to content related to other divisions and other business units within Lilly."

At this early stage, placing a dollar value on the benefits that the intranet brings to a company such as Lilly is difficult, though Swartzendruber offers a compelling illustration: "One of our global affiliates is using our intranet to distribute information to their associates worldwide - we have offices in about 24 countries. Now the personnel at those offices can access and distribute product and sales information electronically, where as previously we had to print it and ship it

around the world. By using our internal network, we've been able to substantially reduce costs for collateral. These same groups - all over the globe - are now able to get their information within minutes as opposed to days. We can reach around the world with our network and distribute information that keeps everyone up to date. How do you measure the value of that? We feel that the money we are spending is giving us back tremendous improvements in internal communication. How much is that worth to a company? I don't know, but I do know it is worth a great deal to us."

## Changing the Way We Work

The Internet, most would agree, is changing world culture everywhere that it plays a part in society. Intranets, on the much smaller scale which they exist, are likewise bound to affect corporate cultures. However, response within compa-

nies that implement an intranet has been overwhelmingly positive. "When people see our intranet for the first time," Silicon Graphics' Julie Farris says, "they're shocked and amazed that we virtually run the entire company on it - especially when they find out that nine months ago, for the most part, there was no internal Web."

"Sure," Lilly's John Swartzendruber said, "there have been some cultural changes at Lilly due to the intranet. Since we are a multinational company, it has made people at one location much more aware of what goes on at other locations, and because of our cultural diversity that can raise interesting issues. Overall, I'd say we've had tremendous acceptance of this. People really enjoy it."

Julie Farris finds that "once most people see the tools and the simplicity of the model, they very quickly understand how easy this is to do." However, there are also those who ask her if Si-

licon Graphics success with its intranet is attributable to it being a technology company. "Not really," Farris said, "we have many, many examples of customers developing excellent internal Webs in companies which are not in the business of high-technology. Lilly is a superb example. US West is another - they call their internal Web "Global Village." Boeing is still another. I'm mentioning some of the larger ones, but it's important to point out that it's not just large companies who are taking advantage of this technology. Many small and medium-size firms have intranets."

"At our company," Farris remarked, "the people in the finance organization took it upon themselves to sit down and completely educate themselves on the Web, and they're now using the intranet extensively. Keep in mind that these are not technical people, even though they happen to be working for Silicon Gra-

phics. Their expertise is not computers or software, it is finance."

The rapid development of intranets in all manner of organizations signals a profound improvement in the way enterprises manage internal information, and perhaps even in the way they view their employees. Silicon Graphics' Frank Dietrich believes that it is indicative of a move away from hierarchical corporate cultures toward more egalitarian, progressive organizations where sharing of information is seen as fundamental to success. "At Silicon Graphics," he says, "we definitely believe in empowering people, because we feel that only highly informed employees are able to do a good job and continue to be motivated. Our management believes that to have a highly motivated, well educated workforce, you must make available abundant information - it enables people to see the big picture. The nature of World Wide Web technology is that it encourages more access to information, which,

we believe, is the most productive way to operate a company - as opposed to limiting the information available to employees.

"I wouldn't say that each and every piece of information this company generates is available to each and every employee," Dietrich added. "But generally we try to make more information available rather than less. And our employees, by the way, are the kind of people who are always asking for more and are eager to share what they know. The fact is, the intranet better equips us all to do our job, because, technology aside, it's simply a more compelling way to work."

### **Cutting Costs With the Web**

Julie Farris told a similar tale in regard to Silicon Graphics' external Web site, "Silicon Surf. We measure the traffic to Silicon Surf - the number of people who access the site every day," Farris remarked. "We've found that we have about 15,000 visi-

tors a day from sixty different countries. And, on average, our visitors download about 18 gigabytes of information daily. We estimate that the cost of creating, printing and distributing that material in hard copy form would be about \$100,000 a day. So, not only is our reach extended - we're coming in contact with 15,000 people a day with whom we might not otherwise make contact - but we're also avoiding a huge expense in the printing of hard copy collateral. It is a tremendous cost savings." Farris' example, though it refers to an external Web site, can easily be applied to the economies that can be realized through an intranet.

Speaking of costs, what sort of expense is a company in for when it decides to create an intranet? "The beauty of a Web browser [such as Netscape Navigator]," Farris said, "is that it can run on any type of machine. You don't have to have a high-end machine to run it. That means that companies can



leverage their existing technology investment. And this is the thing that is hard for many people to believe: in addition to the easiest way to implement things, implementing an internal Web is also the cheapest, because of its ubiquity across computing platforms. The Web is an information-processing-intensive application because you are essentially paging through information - sending pages back and forth which are full of lots of text and images. And because of Silicon Graphics' visual computing heritage, it happens to be something at which our systems excel."

## Security Concerns

As more information becomes readily available online to more people, security issues related to the Internet have fueled headlines, movies and best-selling books. At the same time, intranet Web technology has been evolving rapidly to increase the measure of security that users have as to

who has access to what information. An internal Web, Julie Farris said, "just happens to be another communications medium. To the extent that the data in your finance department's computer system is secure, publishing it on your company's intranet will not make it any less secure. The firewall technology that you already deploy to keep people out of your company's existing network will apply just as well to your internal Web. The firewall functions at a network systems level. Your Company Wide Web is a protocol that rides above that."

Lilly's John Swartzendruber, said that the security issue had come up at his company in relation to the intranet, though the source of concern is frequently a misunderstanding of how an internal Web functions. "There has been a little bit of concern. You know, people read about the Internet and how it is a non-secure environment. And sometimes they assume that because we are using the Web technology internally, we

are therefore using the Internet as a backbone, but that's not how an intranet works." Indeed, an intranet needn't have any connection whatsoever to the Internet, though most companies, including Silicon Graphics (via Silicon Junction) and Lilly (via ELVIS), offer Internet access as a convenience to their employees, who use the information-rich global network in the same ways that people all over the world do. At Silicon Graphics, Frank Dietrich explained, "the Network Services Group is chartered with architecting and maintaining, to the utmost degree possible, the security of our corporate networks. And they employ various software technologies to do it. It is a highly specialized group that understands its own techniques quite well, and is very effective. Of course, we also monitor our network traffic on a regular basis. I am not aware of any problems that we've had thus far [related to breaches of network security]."

□



# DKUUG

afholder

## Ordinær generalforsamling Torsdag den 28. november 1996

Der indkaldes derfor:

- Forslag til generalforsamlingen
- Forslag til vedtægtsændringer
- Forslag til nye medlemmer af bestyrelsen

Forslagene indsendes skriftligt til DKUUG's sekretariat senest den 16. oktober 1996 med morgenposten.



**DKUUG-Nyt** udgives af:  
Dansk UNIX-system Bruger Gruppe  
**DKUUG**, sekretariatet  
Fruebjergvej 3  
2100●København Ø  
Tlf. 3917 9944  
Fax 3120 8948  
Email: sek@dkuug.dk  
Man - fre kl. 9 - 16.00

### Redaktion

Gitte D'Arcy (ansv.)

### DKUUG-Nyt

Fruebjergvej 3  
2100●København Ø  
Tlf. 3917 9944  
Fax 3120 8948  
Email: dkuugnyt@dkuug.dk

### Deadline

Deadline for næste nummer, nr. 88,  
er fredag d. 11.10.96




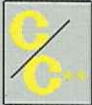





DKUUG-Nyt  
ISSN 1395-1440












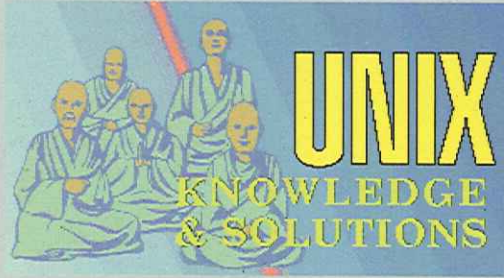
SuperUsers a/s - World Wide Web HomePage

File Edit View Go Bookmarks Options Directory Window Help

Location: <http://www.superusers.dk/>



### Kurser indenfor:

- Internet
- UNIX
- NT
- C / C++

Document: Done

INTERNET	OKT.	OKT.	OKT.	NOV.	NOV.
SU-140 Internet Grundkursus			31/10 -	1/11	
SU-142 Internet Systemadministration				18-21/11	
SU-144 Internet Homepage Redaktion	17-18/10				
SU-147 Internet Java Programming Basics				4-5/11	
SU-148 Internet Java Programming Advanced				6-7/11	
UNIX / NT					
SU-100 UNIX Grundkursus	7-10/10	21-24/10	28-31/10	11-14/11	18-21/11
SU-500 NT Grundkursus	14-15/10			4-5/11	25-26/11

**Få den nye 1997 Kursuskalender**

**samt SuperUsers a/s 244-sidershovedkatalog**

EMAIL: [Katalog.superusers.dk](mailto:Katalog.superusers.dk)  
 URL: <http://www.superusers.dk>

SuperUsers A/S  
 Karlebogaard  
 3400 Hillerød  
 TLF: 4218 0706  
 FAX: 42180705