CERN COMPUTER NEWSLETTER

CERN - IT Division
CH-1211 Geneve 23
SWITZERLAND

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Contents

Merry Christmas!

Happy 2001!

Editorial Information

Editorial Board

General Information

The CNL Web home page is at URL: `http://cern.ch/ref/cnl`

The policy is to have approximatively 4 CNL editions per year (Spring, before and after the Summer, and before Christmas shutdown).

However we intend to advance the next publication in order to be in time to celebrate the *CNL 35th anniversary*, on February 15th, 2001, with a *special* edition. Therefore the scheduled deadline is:

Issue number	Deadline
Special Anniversary (35th) Edition	Thursday 15th of February 2001.

Information for contributors

The CNL is processed using XML technology and templates. Article marked up in HTML are preferred, but plain text is also acceptable. A Web form to be used for article submission (contributions) is provided in the CNL "Home" page (`http://cern.ch/ref/cnl`), link "Article Submission form" (`http://cern.ch/ref/cnl/submit`).

Help in using this form is provided via the "Help" link (`http://cern.ch/ref/cnl/help/submit`) on the top bar.

Distribution

- An electronic mail is sent to the "CNL Announcement Distribution List" (`http://cern.ch/ref/cnl/help/announcement`) as soon as a new issue of the CNL is available on the Web.
- A paper version is sent to the users who have subscribed to the "CNL Paper Version Registration" (`http://cern.ch/ref/cnl/help/register`) list.

All *subscriptions to our distribution lists* can be made through the CNL "Help&Info" page at the URL `http://cern.ch/ref/cnl/help`.

You can also cancel your subscription in either case by filling in the appropriate form.

The compressed *PostScript file* containing the complete printable version of this CNL is available via the Web at the URL `http://cern.ch/ref/cnl-2000-003/main.ps.gz`. It is possible that, in order to optimize typesetting, the PostScript printable version differs slightly from the HTML master version. In any case the HTML version on the Web must be considered as the reference.

If you need Help

FRONT LINE Services

	Phone	Location	E-mail Address
Computing Help Desk	**78888**	**513/R-052**	`Helpdesk@cern.ch`
Opening hours: 8:30–17:30 (Monday–Friday)			
Satellite Helpdesk@B1: Monday–Friday 8:30-12:30			
Administrative Applications (EDH, BHT, etc.)	**79933**	**5/R-021**	`Ais.Support@cern.ch`
Opening hours: 8.30–12:30 and 13:30–17:30			
Central Computer Operators (24/24 hours on call)	**75011**	**513/R-049**	`Computer.Operations@cern.ch`
General Network Operational Problems	**74927**		`Network.Support@cern.ch`

Contacts at CERN

The “Computing Help Desk” is the recommended central point for help on all computer-related issues. Following is a non-exhaustive list of individual people responsible or assigned to a given service. If you do not find a pointer to the service you need, then contact the "Computing Help Desk" for submitting your request. For all the services listed below please use the generic electronic mail address whenever possible. These mailboxes will be read even when the usual specialist is absent. It is helpful to use relevant keywords in the subject field of your message. Contact specialists directly only for very urgent cases or for very general consultations. Please note:

- In the *Web version* of this page the “Service Definition” can be a *link* to the Welcome page of this service: we invite you to read carefully all the information given in this page before submitting a question/problem.
- In addition you might find useful to search in the User Support “Questions&Answers” database for possible answers to your query (`http://consult.cern.ch/qas`).
- Many generic e-mail addresses for support lines are just an automatic re-direction to the Computing Helpdesk (this is the case, for instance, for `Mail.Support` or `Www.Support`). Those addresses have been kept mainly for backward compatibility, and also to help the Helpdesk to escalate the query towards the right specialist whenever this is needed.

USER SUPPORT

Service Definition	Name	E-mail Address
User Relations and Service Manager	M. Marquina	`user.support@cern.ch`
Help Desk Manager	R. Woolnough	`user.support@cern.ch`
User Registration	M.C. Perler	`user.registration@cern.ch`
Accounting Service	A. Koppanyi	`user.registration@cern.ch`
Computing BookShop	J. Megies	`bookshop@cern.ch`

CENTRAL COMPUTERS

Public Services (PLUS batch & interactive services and CSF/PCSF Simulation farms)
See the complete and up-to-date list of contacts at URL:
`http://http://wwwinfo.cern.ch/pdp/is/main/experiments.html#PUBSERV`

SHIFT (Reconstruction & Analysis Clusters)	T. Smith	`tim.smith@cern.ch`
CORE Operations	M. Vergari	`mario.vergari@cern.ch`
Work Group Servers	T. Smith	`tim.smith@cern.ch`

Support for Experiments
See the complete and up-to-date list of contacts at URL :
`http://http://wwwinfo.cern.ch/pdp/is/main/experiments.html`

Distributed File Services (incl. AFS)		`afs.support@cern.ch`
NAP and Parallel Applications	E. Mcintosh	`eric.mcintosh@cern.ch`
Tape Allocations and Vault Space	R. Minchin	`richard.minchin@cern.ch`
Stager, tapes and TMS support		`tape.support@cern.ch`
Central Data Recording (CDR)		`cdr.support@cern.ch`
CASTOR HSM software		`castor-support@cern.ch`
HPSS Services		`Hpss.Support@cern.ch`
Oracle Databases	N. Segura	`oracle.support@cern.ch`
CERN-wide Print Service	J.L. Vosdey	`printer.support@cern.ch`

DESKTOP COMPUTING

Service Definition	Name	E-mail Address
NICE (Networked PCs)	F. Hemmer	nice.support@cern.ch
PC Desktop (Repairs and sales)	C. Ball	pc.admin@cern.ch
MACintosh Support	F. Ovett	mac.support@cern.ch
MACintosh Sales	W. Hug	waltraud.hug@cern.ch
X Terminals Support		xterminal.support@cern.ch
ASIS Support		asis.support@cern.ch

Operating System Support

Service Definition	E-mail Address
HP 700 s/w:	hp.support@cern.ch
SUN s/w:	sun.support@cern.ch
Solaris s/w:	solaris.support@cern.ch
RS/6000 s/w:	aix.support@cern.ch
Digital Unix s/w:	dunix.support@cern.ch
Linux:	linux.support@cern.ch

SCIENTIFIC APPLICATIONS & SOFTWARE ENGINEERING

Service Definition	Name	E-mail Address
PaRC Service (Engineering Cluster)		parc.support@cern.ch
CERN Program Library	L. Besson	heplib.support@cern.ch
PAW Support	O. Couet	paw.support@cern.ch
Anaphe and GEANT		heplib.support@cern.ch
Objectivity DB Service		objectivity.support@cern.ch
Software Development Tools		sdt.support@cern.ch
Adobe FrameMaker		docsys.support@cern.ch

COMPUTING FOR ENGINEERING

All comments, problem reports, and suggestions can be reported via the “Feedback” Web form accessible from the “IT-CE Home page” (`http://wwwinfo.cern.ch/ce`, link “Feedback” on the left).

COMMUNICATIONS AND NETWORKS

A complete and up-to-date list of contacts is at the “Communications Systems Group” Home page at the URL: `http://network.cern.ch`

INTERNET SERVICES

Service Definition	E-mail Address
Web support	www.support@cern.ch
Mail support	mail.support@cern.ch

In addition to this generic address, the normal support lines are listed at the URL: `http://consult.cern.ch/service/mail/problems/contacts.html`

COMPUTER SECURITY

Computer Security Information	computer.security@cern.ch
Security Alert Reports	cert@cern.ch

Other Newsletters

Computing for Engineers (`http://wwwinfo.cern.ch/ce/newsletter/newsletter.html`)

Editor/Distribution: L.Pregernig `ludwig.pregernig@cern.ch`

Some Useful Web Pages

TvScreen (Systems Status)	http://tvscreen.cern.ch
Network Connection Request Form	http://network.cern.ch/register
Remote/Mobile Computing	http://network.cern.ch/mobile
User-Oriented Catalogue	http://cern.ch/consult
User-Oriented Service Directory (*)	http://cern.ch/services
FrameMaker Support	http://cern.ch/framemaker
Text Processing related documentation	http://wwwinfo.cern.ch/asdoc/textproc.html
IT Home Page	http://cern.ch/it
User Support	http://wwwinfo.cern.ch/support
NICE Home Page	http://nicewww.cern.ch/
PC Support Service Page	http://pcwww.cern.ch/
PC Farms Homepage	http://wwwinfo.cern.ch/pdp/pc/
UNIX Workstation and X Terminals Support	http://wwwinfo.cern.ch/pdp/ose/support.html
CASTOR Query Report	http://http://wwwinfo.cern.ch/htbin/pdp/castor_report.pl
Software Development Tools	http://cern.ch/sdt
Computing Support for Engineering	http://wwwinfo.cern.ch/ce
Joint Controls Project (LHC Experiments)	http://itcowww.cern.ch/ITCO/jcop/
Web Services	http://cern.ch/WebServices

(*) *Useful service entry points at this page include the Computing Helpdesk, User Registration, Computing Bookshop, Mail, Netscape, Listbox, etc.*

Seminars and Presentations

Designation	Usual Location	Organizer(s)	Tel.	E-mail Address
Computing Colloquia	Auditorium / bldg 500	S. Jarp, IT	74944	sverre.jarp@cern.ch
Computing Seminars	IT Auditorium 31/3-005	L. Pregernig, IT	72666	computing.seminar@cern.ch
Technical Presentations	IT Auditorium 31/3-005	S. Cannon, IT	75036	stanley.cannon@cern.ch
Informatics Tutorials	IT Auditorium 31/3-005	M. Marquina, IT		it-training.service@cern.ch

Computer Resources Allocation and Divisional Contacts

Computer Resources Allocation Committee (COCOTIME):

Chairman:	H. Hoffmann/DG	60/5-006	75458	Hans.Falk.Hoffmann@cern.ch
Secretary:	H. Meinhard/EP	1/1-028	76031	Helge.Meinhard@cern.ch

Divisional Representatives for Computing

For questions about new registration and resource allocation please ask the contact person for your division.

Div.	Repres.	Div.	Repres.	Div.	Repres.	Div.	Repres.	Div.	Repres.
AS		AT	P. Heymans	IT	A. Koppanyi	ETT	M. Draper	FI	C. Saitta
EST	Ch. Delamare	HR	M. Buttner	EP	A. Bjorkebo	PS	J. Riche	SL	M. Bornand
ST	E. Sanchez-Corral	TH	E. Gianolio	TIS	G.R. Stevenson				

NICE Divisional Representatives

See the URL http://nicewww.cern.ch/homepage/nicerepr.htm

Divisional Representatives for Networking

For questions about new installations, testing, local coordination, etc., please ask the contact person for your division (or, if you are an experimental physicist, the networking contact person within your experimental group).

The complete and up-to-date list of contacts is given in the “Communications Systems Group” Home page, at the URL: http://network.cern.ch.

Editorial

This is the 3rd and last CNL edition for the Year 2000, and we hope you will receive it (if you subscribe to the paper version) just in time for Christmas!

Contrary to our usual habits, and because the contribution deadline was too early to print a definitive version fully approved by the management, you will not find in this edition the plans concerning the annual CERN shutdown. All necessary information for the users will be printed in the Weekly Bulletin *as soon as the details have been finalised.*

However much important information is part of this edition, and specifically let me emphasize:

- *The official announcement of the* End of the VXCERN Service*, which is linked to the end of the LEP data taking. Users will find all necessary information in order to migrate to another central platform.*
- *A presentation of the* DataGrid *project, a large* European *collaboration, which will probably occupy many computer scientists in the coming years.*
- *IT/PDP plans concerning the future computing environment for the Scientific community, and the migration from RISC-based hardware towards Linux.*

I am sure that all other contributions, in more specific areas, will interest our readers, and I thank the authors for devoting their time to provide useful input for our NewsLetter.

None of our readers have probably noticed that next February (strictly speaking February 15th, 2001) will be the 35th anniversary of the CNL! For this reason we propose to set the next deadline for contributions on that date, in order to celebrate this birthday. A call for special contributions will be launched, aiming at a mono-graphic issue (2001-001 - Millenium Edition and 35th birthday). We will welcome and encourage contributions from the technical staff having been longer at CERN, who can offer their own (and personal) vision on the evolution of Computing throughout these years.

Let me finish this editorial by wishing you a

MERRY CHRISTMAS!

... and a Happy New Year too!

Nicole Crémel,
CNL Editor, IT/User Support.

What our Users Have to Say . . .

On Wed, 27 Sep 2000, Ryszard Gokieli wrote:

Dear Nicole &Roger,

this month I have sent 2 mails to HELPDESK. In neither case did I receive ANY answer, not even the automatic one about the ticket allocation. Can you check what is going on here (and please also with the problems therein!)? In your recent CNL article you write that I should have received this notification "almost immediately"...

Thank you, best regards - Richard

Dear Ryszard,

Just to make the things a little more clear, I must first apologize for my CNL article being a little unprecise. The sentence:

> "you should quite immediately receive a notification message (with a ticket number), acknowledging that your problem..."

should be (to be more correct):

> "you should either receive a direct reply form the Helpdesk, or a notification message (with a ticket number), acknowledging that your problem..."

Indeed, the notification with the ticket number is only sent when the problem is escalated to another level, which is not true for "password change" (where the helpdesk does it immediately).

I should also add another sentence:

> "N.B. Those messages are not necessarily sent to the originator of the e-mail, but often directly to the user who has the problem (when the request is not sent by the user himself)".

In your case the explanation is: password changes do not generate a ticket, but a direct reply from the Helpdesk, which was not sent to you, but directly to the users with the problem.

Regards, Nicole Cremel / User Support and CNL Editor.

On Tue, 5 Sep 2000, Joachim Tuckmantel wrote:

Hello Miguel,

I did not receive a paper copy of the CNL for already some years and was quite happy scanning the web-version. Thus I was very astonished to find a printed copy in my mail box, my name on it. The only thing I know was that a few days ago I had a look in the electronic version of the latest edition (including the very nice mouse cartoon, I made a screen shot from it!!), but to my best knowledge I did not order nor a single paper copy nor a general subscription.

Is this a single error somewhere at CNL's place, if not, could you please cancel an eventual subscription for a paper copy but KEEP me on the ELECTRONIC notification list ...

Thanks and regards Joachim

We have recently decided to widen the default paper distribution to all professional CERN staff, thus your "unexpected" paper copy. The ground to it is to ensure that at least CERN staff are in the default information loop regarding IT activities, similar to what happens with the Bulletin.

Of course no problem to check you out from that distribution.

Regards, Miguel Marquina / User Support

On Sat, 26 Aug 2000, Hamid Chakir wrote:

Bonjour

Je vous prie de bien vouloir nous envoyer votre enrichissante revue "CERN COMPUTER NEWSLETTER" à notre Université pour enrichir notre bibliothèque et que nos étudiants profitent le maximum de vos informations enrichissantes. Nous voulons bien recevoir les numéros apparus depuis Janvier 1999 jusqu'à nos jours.

Pour cela, est-il dans la mesure du possible de nous envoyer regulièrement les futurs numéros? Merci infiniment.

En attendant de recevoir votre réponse, je vous prie d'agréer l'expression de ma considération distinguée.

Professeur Chakir Hamid

Cher M. Chakir,

Tout d'abord merci de votre interêt pour le CNL. Veuillez noter que la réponse a vos requêtes se trouvent dans la "CNL Home page", à l'URL: http://cern.ch/ref/cnl (`http://cern.ch/ref/cnl`) et à la page "`Help&Info`" (http://cern.ch/ref/cnl/help (`http://cern.ch/ref/cnl/help`)).

Je viens d'ajouter vos nom et adresse pour l'envoi des prochains numéros, à travers la "web form" *CNL PAPER Version REGISTRATION* http://cern.ch/ref/cnl/help/register (`http://cern.ch/ref/cnl/help/register`)).

Pour les numéros apparus depuis Janvier 1999, ceux-ci (version PostScript) sont tous accessibles depuis le Web a l'URL: http://cern.ch/ref/cnl (`http://cern.ch/ref/cnl`) Est-il possible pour vous d'imprimer localement chez vous ces numéros ? (Sinon nous pourrons effectivement vous les envoyer par courrier).

Nicole Crémel / CNL Editor.

On Tue, 7 Nov 2000, Ryszard Gokieli wrote:

Bonjour, Nicole!

I would like to ask you for a help in fixing the broken links in old CNL articles. This is of course due to the constant changing of the web-servers name at CERN without maintaining backward compatibility and I am sure you are suffering from it as anybody else (probably more…) - but maybe you can take up this point in any further discussion on this subject… I think that we, the "users", have lost this battle…

In any case the problem I have at hand is a large number of DELPHI users, who are still using VXCERN for their mail. And now with the VXCERN being probably removed in the coming months (if no LEP running anymore…), they need to change to Unix mail. I direct them to old CNL articles on this subject - unfortunately, some links are broken there. Can you please fix this?

The first example is Tami Kramer's article in CNL 231 on the future of VXCERN at the URL `http://consult.cern.ch/cnls/231/art_vxcern.html`. Both the link to another CNL article and the link to Pine clients are broken (although only the latter leaves the user on his own).

Thank you for your help, best regards -

- Richard Gokieli / DELPHI

Hello,

Thanks for pointing to me these invalid links and I hope I have corrected them. However please note that the CNL articles must always be considered as "punctual" information (like any other newspaper) and the information which was available on old CNLs is not "guaranteed" (even though it is available on the Web). I am pleased to correct wrong information that users bring to my attention (as you did) and when I can (otherwise I can also put an "obsolete" background on the Web). But I cannot afford to run regularly some HTML checker for all invalid links on old CNLs and then correct them to the right value (which is the difficult part).

Regards, Nicole Cremel / CNL Editor.

Regarding the VXCERN migration I invite all users to read the related article in this CNL.

About *A French Story about Consulting* (`http://cern.ch/ref/CERN/CNL/2000/002/fun-consult/Pr/`) in the last CNL.

On Fri, 15 Sep 2000, Bernd Pollermann wrote:

The joke has been told many times, but doesn't work:

Either the shepherd had 1586 sheep + one dog, but then the consultant would have counted 1587, or the shepherd had 1585 sheep + one dog, but then the shepherd made a mistake as well…

Indeed Bernd, you are perfectly right!… The CNL Editor did not even notice this obvious mistake, and I have no idea how many readers have. The consultant was not that bad!

1. Announcements

This chapter contains announcements concrete in time and/or of informative nature from the division to the User Community.

1.1 Operational Circular N° 5: Use of CERN Computing Facilities

Denise Heagerty, IT/IS

Abstract

All users are subject to CERN's Computing Rules. Details are at the URL `http://cern.ch/ComputingRules`.

New rules covering the use of CERN computing facilities have been drawn up. All users of CERN's computing facilities are subject to these rules, as well as to the subsidiary rules of use. Full information is available, including both French and English versions of the rules, at the web site at the URL `http://cern.ch/ComputingRules`.

You need to be aware of these rules which cover:

- responsibility of users
- third party access to accounts and data
- rules for personal use
- specific service rules: e-mail, NICE, network
- liability and sanctions

Printed copies of Operational Circular N° 5, in both French and English, are available in the Divisional Secretariats.

About the author(s): *D. Heagerty is the CERN Computer Security Officer.*

1.2 The End of the VXCERN Service

Tony Cass, IT/TS

Abstract

The VXCERN service will be shutdown at the end of 2000.

V X C E R N

1 9 8 4 – 2 0 0 0

R I P

All good things come to an end and the faithful VXCERN service is no exception. Although VXCERN was a general purpose service for many years, the service has been kept for the past two years only to support LEP data taking activities that were dependent on VMS.

Articles in CNLs 230, 231 and 232 set out the VXCERN shutdown plan, including

- ending account registration on April 1st 1998;
- ending new file archival on April 1st 1998;
- ending the tape service and SHIFT disk access on July 31st 1998;
- progressively restricting user access from January 1999;
- encouraging users to migrate mail and news activities to other platforms;
- ending file retrieval from the archive on 31st December 2000.

The end of LEP data taking has, sadly, now come and so the VXCERN service will be switched off on the morning of January 8th 2001, after this year's annual shutdown. VXCERN users must make sure that any essential files are migrated to other services by December 22nd (as we cannot guarantee services during the shutdown). Recommendations on how to do this for Mail and Home Directory files are given below.

Migrating mail files from VXCERN

We recommend that mail files are migrated to the central mail server. The Pine mail client was made available on VXCERN in 1998 to facilitate this migration and information on how to move mail files using Pine is available at the URL

`http://consult.cern.ch/service/mail/clients/pine/v3/vmspine.html`

Migrating Home directory files from VXCERN

We recommend that home directory files are migrated to the AFS service. The easiest way to do this migration is with tar. Information on how to migrate files in this way is available at the URL

`http://vscrna.cern.ch/migrate`

Please contact the Computing Helpdesk if you have any problems (email `Computing.Helpdesk@cern.ch`or phone 78888)

2. Physics Computing

Functional description of all the Central Public Services, specifically oriented to use by the Research sector, either for interactive (central and CPU intensive) or batch processing. The main physics-computing services consist of providing computer farms, central data recording facilities and central data storage facilities.

2.1 DataGrid Project successfully Negotiated with the EU

Fabrizio Gagliardi, IT/DI

Abstract

Presentation of the DataGrid Project, a collaboration between CERN and several European laboratories.

The *European Union FrameWork 5 IST* programme has recently successfully concluded the negotiation for a Data Grid research and development project submitted by a consortium of 21 scientific applications (HEP, Earth Observation and Biology), computer sciences and industry. CERN is the leading and coordinator partner. The project will receive in excess of 9.8 Million Euros for three years staring early 2001. The project will develop middleware software necessary to deploy real production test beds in a phased approach over the three-year period.

As far as CERN is concerned, this programme of work will integrate well in the already planned LHC computing test bed activity. Indeed the model of the distributed computing architecture, which DataGrid will implement, is mostly based on the results of the *Monarc* project. CERN efforts will be essentially integrated into the IT programme of work and jointly staffed by EU and CERN funded personnel.

CERN major contribution will be in *WorkPackage 2*, dedicated to data management and data replication, WP4, computing fabric management and WP 8, HEP applications. WP8 is coordinated by EP Division, with resources mostly coming from the four LHC collaborations. Other areas of work include workload management (coordinated by INFN), monitoring and mass storage (coordinated by Rutherford laboratory), and testbed and networking (coordinated by IN2P3 and the CNRS).

The data management work package will develop and demonstrate the necessary middleware to assure secure access to Petabyte size data collections via a universal global name space, including efficient high speed data movement between Grid sites with caching and replication of data as appropriate. Strategies will be developed for optimising and costing queries on the data, including the effect of dynamic usage patterns. A generic interface to various mass storage management systems in use at different Grid sites will also be provided. The objective of the fabric management work package is to develop new automated system management techniques that will enable the deployment of very large computing fabrics constructed from tens of thousands of mass market components with reduced systems administration and operations costs. All aspects of management will be covered from system installation and configuration through monitoring, alarms and problem resolution. WP8 aims at deploying and running large scale distributed simulation, reconstruction and analysis programs using the GRID technology. This package is central to the project, as it provides, together with an earth observation work package (coordinated by ESA) and a biology activity (coordinated by the CNRS), testing on a very large scale of the middle-ware developed by the other work-packages and provides the user requirements that drive the definition of the architecture of the project. Several tens of physicists, mostly from Europe, will participate to this effort, while performing their day-by-day research activity in a geographically distributed environment.

CERN is also contributing to the project testbeds and networking with IT resources. CERN is also responsible for overall project management and administration with resources partially funded by the EU.

A project Architecture Task Force has been recently appointed with participants from the relevant Middleware work packages and a representative from the applications. Leading US computer scientists such as *Ian Foster* and *Carl Kesselman* are participating also in this task force to guarantee that our developments and similar developments in USA will not diverge. DataGrid is also hosting the first *Global Grid Forum* in Amsterdam early March next year. This Forum is trying to coordinate Grid activity at a world-wide scale.

More information on the project can be found on the (temporary) DataGrid Project WEB site at the URL `http://www.cern.ch/grid`.

About the author(s): *F. Gagliardi is the coordinator of the DataGrid project.*

2.2 What is SCADA?

Axel Daneels and *Wayne Salter, IT/CO*

Abstract

An industrial SCADA system will be used for the development of the controls of the four LHC experiments. This paper describes the SCADA systems in terms of their architecture, their interface to the process hardware, the functionality and the application development facilities they provide. Some attention is also paid to the industrial standards to which they abide, their planned evolution as well as the potential benefits of their use.

This article is based on a very similar one that has been published in the Proceedings of the 7th International Conference on Accelerator and Large Experimental Physics Control Systems, held in Trieste, Italy, 4-8 Oct. 1999.

Introduction

On 20 Sept. 2000, the Finance Committee approved the proposal to negotiate a contract with ETM A.G. (Eisenstadt, Austria) for the supply of PVSS - ETM's SCADA - for developing the control systems of ALICE, ATLAS, CMS and LHCb. In addition the SCADA Working Group, that was set up by the CERN Controls Board, recommends PVSS as one of the SCADA products for the development of future control systems at CERN.

These decisions are the accomplishment of around thirteen person-years (FTE) of effort - spanning over more than three years - to identify and evaluate a proper industrial control system that copes with the extreme requirements of high energy particle physics experiments such as those of the LHC.

Widely used in industry for Supervisory Control and Data Acquisition of industrial processes, SCADA systems are now also penetrating the experimental physics laboratories for the controls of ancillary systems such as cooling, ventilation, power distribution, etc. More recently they were also applied for the controls of smaller size particle detectors such as the L3 muon detector and the NA48 experiment, to name just two examples at CERN.

SCADA systems have made substantial progress over the recent years in terms of functionality, scalability, performance and openness such that they are an alternative to in house development even for very demanding and complex control systems as those of physics experiments.

What does SCADA mean?

SCADA stands for *Supervisory Control And Data Acquisition*. As the name indicates, it is not a full control system, but rather focuses on the supervisory level. As such, it is a purely software package that is positioned on top of hardware to which it is interfaced, in general via Programmable Logic Controllers (PLCs), or other commercial hardware modules.

SCADA systems are used not only in industrial processes: e.g. steel making, power generation (conventional and nuclear) and distribution, chemistry, but also in some experimental facilities such as nuclear fusion. The size of such plants range from a few 1000 to several 10 thousands input/output (I/O) channels. However, SCADA systems evolve rapidly and are now penetrating the market of plants with a number of I/O channels of several 100 K: we know of two cases of near to 1 M I/O channels currently under development.

SCADA systems used to run on DOS, VMS and UNIX; in recent years all SCADA vendors have moved to NT and some also to Linux.

Architecture

This section describes the common features of the SCADA products that have been evaluated at CERN in view of their possible application to the control systems of the LHC detectors [1], [2].

Hardware Architecture

One distinguishes two basic layers in a SCADA system: the "client layer" which caters for the man machine interaction and the "data server layer" which handles most of the process data control activities. The data servers communicate with devices in the field through process controllers. Process controllers, e.g. PLCs, are connected to the data servers either directly or via networks or fieldbuses that are proprietary (e.g. Siemens H1), or non-proprietary (e.g. Profibus). Data servers are connected to each other and to client stations via an Ethernet LAN. The data servers and client stations are NT platforms but for many products the client stations may also be W95 machines. Fig.1. shows typical hardware architecture.

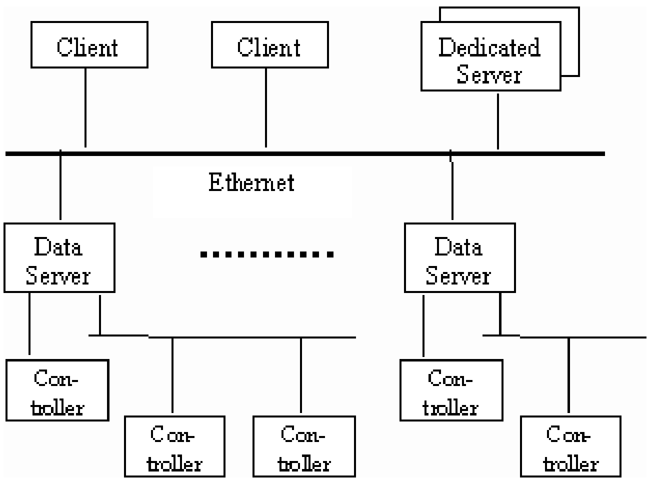

Figure 1: Typical hardware Architecture

Software Architecture

The products are multi-tasking and are based upon a real-time database (RTDB) located in one or more servers. Servers are responsible for data acquisition and handling (e.g. polling controllers, alarm checking, calculations, logging and archiving) on a set of parameters, typically those they are connected to.

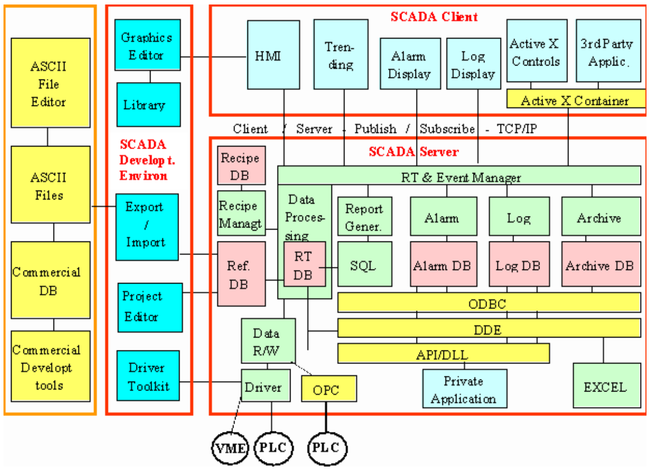

Figure 2: Generic Software Architecture

However, it is possible to have dedicated servers for particular tasks, e.g. historian, datalogger, alarm handler. Fig. 2 shows a SCADA architecture that is generic for the products that were evaluated.

Communications

Internal Communication

Server-client and server-server communication is in general on a publish-subscribe and event-driven basis and uses a TCP/IP protocol, i.e., a client application subscribes to a parameter which is owned by a particular server application and only changes to that parameter are then communicated to the client application.

Access to Devices

The data servers poll the controllers at a user defined polling rate. The polling rate may be different for different parameters. The controllers pass the requested parameters to the data servers. Time stamping of the process parameters is typically performed in the controllers and this time-stamp is taken over by the data server. If the controller and communication protocol used support unsolicited data transfer then the products will support this too.

The products provide communication drivers for most of the common PLCs and widely used field-buses, e.g., Modbus. Of the three fieldbuses that are recommended at CERN, both Profibus and Worldfip are supported but CANbus often not [3]. Some of the drivers are based on third party products (e.g., Applicom cards) and therefore have additional cost associated with them. VME on the other hand is generally not supported.

A single data server can support multiple communications protocols: it can generally support as many such protocols as it has slots for interface cards.

The effort required to develop new drivers is typically in the range of 2-6 weeks depending on the complexity and similarity with existing drivers, and a driver development toolkit is provided for this.

Interfacing

Application Interfaces / Openness

The provision of OPC client functionality for SCADA to access devices in an open and standard manner is developing. There still seems to be a lack of devices/controllers, which provide OPC server software, but this improves rapidly as most of the producers of controllers are actively involved in the development of this standard. OPC has been evaluated by the CERN-IT-CO group [4].

The products also provide:

- an Open Data Base Connectivity (ODBC) interface to the data in the archive/logs, but not to the configuration database,
- an ASCII import/export facility for configuration data,
- a library of APIs supporting C, C++, and Visual Basic (VB) to access data in the RTDB, logs and archive. The API often does not provide access to the product's internal features such as alarm handling, reporting, trending, etc.

The PC products provide support for the Microsoft standards such as Dynamic Data Exchange (DDE) which allows e.g. to visualise data dynamically in an EXCEL spreadsheet, Dynamic Link Library (DLL) and Object Linking and Embedding (OLE).

Database

The configuration data are stored in a database that is logically centralised but physically distributed and that is generally of a proprietary format.

For performance reasons, the RTDB resides in the memory of the servers and is also of proprietary format.

The archive and logging format is usually also proprietary for performance reasons, but some products do support logging to a Relational Data Base Management System (RDBMS) at a slower rate either directly or via an ODBC interface.

Scalability

Scalability is understood as the possibility to extend the SCADA based control system by adding more process variables, more specialised servers (e.g. for alarm handling) or more clients. The products achieve scalability by having multiple data servers connected to multiple controllers. Each data server has its own configuration database and RTDB and is responsible for the handling of a sub-set of the process variables (acquisition, alarm handling, archiving).

Redundancy

The products often have built in software redundancy at a server level, which is normally transparent to the user. Many of the products also provide more complete redundancy solutions if required.

Functionality

Access Control

Users are allocated to groups, which have defined read/write access privileges to the process parameters in the system and often also to specific product functionality.

MMI

The products support multiple screens, which can contain combinations of synoptic diagrams and text.

They also support the concept of a "generic" graphical object with links to process variables. These objects can be "dragged and dropped" from a library and included into a synoptic diagram.

Most of the SCADA products that were evaluated decompose the process in "atomic" parameters (e.g. a power supply current, its maximum value, its on/off status, etc.) to which a Tag-name is associated. The Tag-names used to link graphical objects to devices can be edited as required. The products include a library of standard graphical symbols, many of which would however not be applicable to the type of applications encountered in the experimental physics community.

Standard windows editing facilities are provided: zooming, re-sizing, scrolling... On-line configuration and customisation of the MMI is possible for users with the appropriate privileges. Links can be created between display pages to navigate from one view to another.

Trending

The products all provide trending facilities and one can summarise the common capabilities as follows:

- the parameters to be trended in a specific chart can be predefined or defined on-line;
- a chart may contain more than 8 trended parameters or pens and an unlimited number of charts can be displayed (restricted only by the readability);
- real-time and historical trending are possible, although generally not in the same chart;
- historical trending is possible for any archived parameter;
- zooming and scrolling functions are provided;
- parameter values at the cursor position can be displayed.

The trending feature is either provided as a separate module or as a graphical object (ActiveX), which can then be embedded into a synoptic display. XY and other statistical analysis plots are generally not provided.

Alarm Handling

Alarm handling is based on limit and status checking and performed in the data servers. More complicated expressions (using arithmetic or logical expressions) can be developed by creating derived parameters on which status or limit checking is then performed. The alarms are logically handled centrally, i.e., the information only exists in one place and all users see the same status (e.g., the acknowledgement), and multiple alarm priority levels (in general many more than 3 such levels) are supported.

It is generally possible to group alarms and to handle these as an entity (typically filtering on group or acknowledgement of all alarms in a group). Furthermore, it is possible to suppress alarms either individually or as a complete group. The filtering of alarms seen on the alarm page or when viewing the alarm log is also possible at least on priority, time and group. However, relationships between alarms cannot generally be defined in a straightforward manner. E-mails can be generated or predefined actions automatically executed in response to alarm conditions.

Logging/Archiving

The terms logging and archiving are often used to describe the same facility. However, logging can be thought of as medium-term storage of data on disk, whereas archiving is long-term storage of data either on disk or on another permanent storage medium. Logging is typically performed on a cyclic basis, i.e., once a certain file size, time period or number of points is reached the data is overwritten. Logging of data can be performed at a set frequency, or only initiated if the value changes or when a specific predefined event occurs. Logged data can be transferred to an archive once the log is full. The logged data is time-stamped and can be filtered when viewed by a user. The logging of user actions is in general performed together with either a user ID or station ID. There is often also a VCR facility to play back archived data.

Report Generation

One can produce reports using SQL type queries to the archive, RTDB or logs. Although it is sometimes possible to embed EXCEL charts in the report, a "cut and paste" capability is in general not provided. Facilities exist to be able to automatically generate, print and archive reports.

Automation

The majority of the products allow actions to be automatically triggered by events. A scripting language provided by the SCADA products allows these actions to be defined. In general, one can load a particular display, send an Email, run a user defined application or script and write to the RTDB.

The concept of recipes is supported, whereby a particular system configuration can be saved to a file and then re-loaded at a later date.

Sequencing is also supported whereby, as the name indicates, it is possible to execute a more complex sequence of actions on one or more devices. Sequences may also react to external events.

Some of the products do support an expert system but none has the concept of a Finite State Machine (FSM).

Application Development

Configuration

The development of the applications is typically done in two stages. First the process parameters and associated information (e.g. relating to alarm conditions) are defined through some sort of parameter definition template and then the graphics, including trending and alarm displays are developed, and linked where appropriate to the process parameters. The products also provide an ASCII Export/Import facility for the configuration data (parameter definitions), which enables large numbers of parameters to be configured in a more efficient manner using an external editor such as Excel and then importing the data into the configuration database.

However, many of the PC tools now have a Windows Explorer type development studio. The developer then works with a number of folders, which each contains a different aspect of the configuration, including the graphics.

The facilities provided by the products for configuring very large numbers of parameters are not very strong. However, this has not really been an issue so far for most of the products to-date, as large applications are typically about 50K I/O points and database population from within an ASCII editor such as Excel is still a workable option.

On-line modifications to the configuration database and the graphics is generally possible with the appropriate level of privileges.

Development Tools

The following development tools are provided as standard:

- a graphics editor, with standard drawing facilities including freehand, lines, squares circles, etc. It is possible to import pictures in many formats as well as using predefined symbols including e.g. trending charts, etc. A library of generic symbols is provided that can be linked dynamically to variables and animated as they change. It is also possible to create links between views so as to ease navigation at run-time.
- A data base configuration tool (usually through parameter templates). It is in general possible to export data in ASCII files so as to be edited through an ASCII editor or Excel.
- A scripting language.
- An Application Program Interface (API) supporting C, C++, VB.
- A Driver Development Toolkit to develop drivers for hardware that is not supported by the SCADA product.

Object Handling

The products in general have the concept of graphical object classes, which support inheritance. In addition, some of the products have the concept of an object within the configuration database. In general the products do not handle objects, but rather handle individual parameters, e.g., alarms are defined for parameters, logging is performed on parameters, and control actions are performed on parameters. The support of objects is therefore fairly superficial.

Evolution

SCADA vendors release one major version and one to two additional minor versions once per year. These products evolve thus very rapidly so as to take advantage of new market opportunities, to meet new requirements of their customers and to take advantage of new technologies.

As was already mentioned, most of the SCADA products that were evaluated decompose the process in “atomic” parameters to which a Tag-name is associated. This is impractical in the case of very large processes when very large sets of Tags need to be configured. As the industrial applications are increasing in size, new SCADA versions are now being designed to handle devices and even entire systems as full entities (classes) that encapsulate all their specific attributes and functionality. In addition, they will also support multi-team development.

As far as new technologies are concerned, the SCADA products are now adopting:

- Web technology, ActiveX, Java, etc.
- OPC as a means for communicating internally between the client and server modules. It should thus be possible to connect OPC compliant third party modules to that SCADA product.

Engineering

Whilst one should rightly anticipate significant development and maintenance savings by adopting a SCADA product for the implementation of a control system, it does not mean a “no effort” operation. The need for proper engineering can not be sufficiently emphasised to reduce development effort and to reach a system that complies with the requirements, that is economical in development and maintenance and that is reliable and robust. Examples of engineering activities specific to the use of a SCADA system are the definition of:

- a library of objects (PLC, device, subsystem) complete with standard object behaviour (script, sequences,…), graphical interface and associated scripts for animation;
- templates for different types of “panels”, e.g. alarms;

- instructions on how to control e.g. a device. . . ;
- a mechanism to prevent conflicting controls (if not provided with the SCADA);
- alarm levels, behaviour to be adopted in case of specific alarms, etc.

Potential benefits of SCADA

The benefits one can expect from adopting a SCADA system for the control of experimental physics facilities can be summarised as follows:

- a rich functionality and extensive development facilities. The amount of effort invested in SCADA product amounts to 50 to 100 p-years!
- The amount of specific development that needs to be performed by the end-user is limited, especially with suitable engineering.
- Reliability and robustness. These systems are used for mission critical industrial processes where reliability and performance are paramount. In addition, specific development is performed within a well-established framework that enhances reliability and robustness.
- Technical support and maintenance by the vendor.

For large collaborations, as for the CERN LHC experiments, using a SCADA system for their controls ensures a common framework not only for the development of the specific applications but also for operating the detectors. Operators experience the same "look and feel" whatever part of the experiment they control. However, this aspect also depends to a significant extent on proper engineering.

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About the author(s): *Axel Daneels and Wayne Salter are both working in the Controls Group in IT Division and are experts on the SCADA system.*

2.3 HPSS Stoppage During week of 8 January 2001 and 2001 Data

Harry Renshall, IT/PDP

Abstract

Plans for HPSS stoppage and upgrade.

For several months our production HPSS version has been technically unsupported. We have verified the new version in our test cell and need a stoppage of several days to migrate the production cell. This involves changing the Operating System from AIX 4.2 to 4.3, the DCE (Distributed Computing Environment) from 2.1 to 2.2, then HPSS from 4.1 to 4.1.1.4.

Such a major change must be done when sufficient staff are guaranteed to be available so we are planning to take the week of 8 January 2001 when CERN re-opens. We are reserving the whole of that week but hope that only the first two or three days will be needed. We will inform users of progress as we go along. This should be the only visible major system change to HPSS during 2001.

During 2001 there will be a change in the usage of HPSS. So far it has been used for large individual user files (20 MB to 2000 MB), central data recording for NA57 and test-beams and various data challenges. During 2001 only individual user data will be kept in HPSS with new data for the other applications going into the CASTOR system instead. This strategy was recently approved by the FOCUS committee (see the presentation Review of Current Tape Technologies and Policy in the minutes at URL `http://cern.ch/CERN/meetings/FOCUS/Focus19`.

About the author(s): *Harry Renshall is the leader of the PDP Data Management team.*

2.4 IT/PDP Plans for 2001

Tim Smith, IT/PDP

Abstract

Evolution of PDP services in 2001.

In 2000 we have spent much energy on the aligning the configurations of the numerous individual experiment facilities, such that we could start to merge them into larger shared facilities: for example LHCb and L3C are now part of LXBATCH. This has proved very successful for both the public batch facility LXBATCH and the shared allocatable resource EFF. During 2001 we will be seeking to extend this concept by phasing out the EFF and replacing it by an even larger TESTBED facility and by merging more of the dedicated experiment clusters into LXPLUS/LXBATCH. This has only been possible due to the across the board uptake of PC technology. Along these lines, we have proposed a RISC decommissioning schedule to FOCUS (see the separate article) and will be continuing to replace aging RISC equipment with PCs wherever appropriate. The only exception to this is the proposal to create a new, shared Solaris facility SUNDEV for code development and verification, in line with the long-term strategy to consolidate onto just Linux with Solaris as the 2nd platform.

PC technology has also taken over in the area of Data Management in 2000. All tape servers are now PCs as are a growing number of disk servers. Following successful production usage of EIDE disk servers for L3C and ALEPH, we have proposed to buy EIDE disk servers instead of SCSI disks for RISC machines in 2001. They already run in mirrored configurations and we are now testing RAID-5 configurations, which open up very attractive possibilities for easing operations. CASTOR, the in-house software replacement for SHIFT, has been successfully deployed on several servers, giving us confidence that we can now base central services on it during 2001. To this end the HPSS service, which has been deployed for CDR services in 2000 will be cut back in 2001, and be replaced by a central CASTOR infrastructure for CDR. Finally to enable more efficient use of tapes and tape infrastructure, and to enable more transparent migration to new media, we propose to move away from the mode where users deal with individual tapes, to a managed storage mode. This will be announced separately when ready for deployment.

About the author(s): *T. Smith is the Infrastructure and Services Section Leader in the PDP group.*

2.5 RISC Decommissioning

Tim Smith, IT/PDP

Abstract

Concentrating resources on Linux, RISC services will start to be phased out in 2001.

After many years of successfully basing IT services on commercial RISC systems, the year 2000 has witnessed the full effect of the Linux take over. All major public and dedicated services now have Linux alternatives offered, and many non-login services have transferred wholly onto Linux, like the tape servers, disk servers and DNS subdomain servers. Our push in the year 2001 will be to streamline our services by concentrating efforts on IT's strategic platform for the coming years, namely Linux, with Solaris as an alternative. The first visible steps will take place with the turn of the new year 2001 when we terminate physics usage of RSPLUS, and restrict HPPLUS and DXPLUS to access by LEP collaborations only.

The Linux based LXPLUS and LXBATCH services already overshadow in power the AIX based RSPLUS and RSBATCH, and through the COCOTIME allocations we will be doubling their size over Christmas. Consequently (as discussed in CNL 237 (`http://consult.cern.ch/cnl/237/linux.html`) , December 1999) RSBATCH will be switched off over Christmas 2000 and for one year RSPLUS will be restricted to the engineering community who have a few applications which are known to be currently unavailable on Linux, before also being switched off at the end of 2001.

In order to achieve this the registration procedures for LXPLUS and the other services will be separated on November 27th. This will result in the multiplication of accounts reported by utilities like "phone" for any user of PLUS (instead of just PLUS, you will see PLUS, RSPLUS, DXPLUS and HPPLUS) for a short period, until the login restrictions are enforced at Christmas.

These actions form part of the RISC decommissioning schedule (`http://cern.ch/CERN/meetings/FOCUS/Focus17/delfino.pdf`) proposed by Manuel Delfino to FOCUS 17 (2nd March 2000) and detailed by Tim Smith in a memorandum (`http://cern.ch/CERN/meetings/FOCUS/Focus20/risc_decommissioning.htm`) to FOCUS 19 (12th October 2000) and discussed further in FOCUS 20 (7th December 2000).

2.6 Scheduled Reboots of Interactive Services

Tim Smith, IT/PDP

Abstract

Flushing out accumulated dead processes from interactive nodes with a regular reboot

Interactive services which are heavily used, having a large turnover of sessions, are seen to suffer from a gradual degradation of performance. There are various causes related to the unclean termination of processes, and so we regularly run scripts to try and identify and clean up the interactive machines. Unfortunately these are not wholly successful, and so the only resort is to reboot the nodes from time to time. Now that the number of interactive nodes in public and dedicated services has grown so large this is a major scheduling problem both for system administrators and users.

For all these reasons, we propose to establish a regular schedule of reboots for all CERN central platforms, in the first week of every month, with 50% of every service rebooted on the Monday and 50% on the Wednesday between 06:30 and 07:00.

3. Desktop Computing

Description and news concerning the CERN desktop environment centrally provided on UNIX and PCs (NICE95 and NICE-NT), and providing the "general-purpose computing" environment. It consists of the hardware, software strategy, and services for the basic applications, which one expects to be generally available on desktops. This environment presents the basic computing infrastructure of the laboratory.

3.1 Central Computing Helpdesk - a Front-line Service

Nicole Crémel and *Roger Woolnough, IT/User Support*

Abstract

The Computing Helpdesk (`http://consult.cern.ch/xwho/people/62118`), an out-sourced service in IT, is a front-line to many support lines and services.

`Printer.Support` has been recently diverted to the Helpdesk and it is not anymore a dedicated support line with specialists answering on the phone.

We already tried to clarify in some past CNLs (e.g. *Central Computing Helpdesk - Outlines and Strategy* (`http://cern.ch/ref/CERN-CNL-2000-001/helpdesk`) in CERN-CNL-2000-001) what users can expect from the *Computing Helpdesk*, which is, today, completely out-sourced. However, as new support lines (e.g., `Printer.Support`) are being progressively diverted to the Helpdesk, it seems that some users are now contacting the Helpdesk without being completely aware of the change in procedure they should expect.

In order to optimize human resources, and trying to avoid the shortage of these becomes a problem in the coming years, the IT policy is that ALL computer-related problems pass through the Computing Helpdesk at least as a *registration* process. Total weekly problem input to the helpdesk is between 600 and 700 requests. The majority of these problems, after being registered in the *Problem Report Management System* (PRMS) that is used by the helpdesk, are re-assigned *elsewhere*, both in IT or within the *Desktop Support* contract (with outsourced staff). The task of the desk (through their *Service Level Agreement* or SLA) - within working hours - is that problems sent by e-mail have a 1 hour deadline and, as you would expect, those transmitted by phone are treated immediately. *This does not mean that problems can be solved immediately!* In this respect we would like users to understand that non-urgent and "over-complicated" problems should be preferably described by e-mail (with as much detail as possible), such that the phone lines are dedicated to more *urgent* queries.

The *User Support Group* in IT is looking after helpdesk matters with the team leader of the outsourced staff. IT policy imposes to them that the Helpdesk *hides* support lines and there is no direct access to IT experts from general CERN user questions. This policy is also related to the staff situation: it is no longer possible to "disturb" the services and "interrupt" support staff at any time, and the Computing Helpdesk personnel (a service contract, with staff on rotation) have not been trained to understand and know all of the support lines with people names and phone numbers. A drawback of this policy is that, when the support line fails to provide an answer in an acceptable time for the user, then users *wrongly* blame the Helpdesk.

Users must understand that the *Computing Helpdesk* is only a *front-line* to reception queries. Only straightforward or quickly solvable queries such as "password reset" can be handled directly by them, whereas all other queries will just be registered and passed to the 2nd or 3rd level of support, depending on the expertize and privileges that are needed. Users will *always* be assigned a ticket number for their queries and they should systematically refer to this number in further communications regarding their problem. Various support lines such as `Printer.Support` are progressively hosted by the Helpdesk. This means that users sending queries to those lines will not anymore talk directly to the "specialists", but to someone who will just take note and transmit the problem.

This is a logical step towards the idea to provide a unique number and central point to users for all kinds of computing-related issues. This should be transparent to users who can fully explain their problem: the Helpdesk will listen to the query and pass it immediately to the appropriate person responsible for that service. In case you notice some breakdown in the procedure, and especially some unacceptable delay in the treatment of your query, then please let us know, to `User.Relations@cern.ch` . We will try to understand exactly where the procedure has failed, in order to improve it for the future.

About the author(s): *Nicole Crémel and Roger Woolnough are members of the User Support group in IT, and are the CERN responsibles for the supervision of operations of the Computing Helpdesk.*

3.2 Change in E-mail Destination for `User.Support@cern.ch`

Nicole Crémel, Miguel Marquina and *Roger Woolnough, IT/User Support*

While the *UCO (User Consultancy Office)* used to exist there were several e-mail addresses one could use, e.g. `uco@cern.ch`, `user.support@cern.ch`, etc. With the implementation (in 1999) of the new outsourced Computing Helpdesk within IT, one of the goals was to centralise problem submission via e-mail to `Helpdesk@cern.ch` , or via telephone to 78888. Dedicated staff at this address register your problems and answer straight-forward queries. More complicated problems are escalated to specific support personnel.

The *User Support* group within IT co-ordinates Helpdesk operations with the outsourced company. It is now becoming important to differentiate both. For the User Support group we need to have a meaningful mail address. Over the past months users who mail `user.support@cern.ch` have received an informative message of the change and as of December 1st 2000 mail no longer goes to the Helpdesk automatically.

Usage of the two e-mails `Helpdesk@cern.ch` and `User.Support@cern.ch` can be therefore summarized as follow:

- If you require support for a computer related problem please call 78888 or send a mail to `Helpdesk@cern.ch`; alternatively you can visit our main Helpdesk in building 513 from 8.30-17.30 Monday to Friday, or our satellite desk in building 52 in the morning from 8.30-12.30.
- Should you wish to contact the *User Support group* for comments or suggestions on the service you receive at the counter (remember that once problems are escalated they often go to areas over which we have no direct control), we will be pleased to hear from you at e-mail `User.Support@cern.ch`.

To understand the functionality of the new helpdesks we recommend you read our articles on this subject, in a previous CNL, *Central Computing Helpdesk - Outlines and Strategy* (`http://cern.ch/ref/CERN-CNL-2000-001/helpdesk`) , which sets out the strategy and guidelines, and there is further clarification in the previous article in this CNL. We look forward to hearing your comments.

Just for information, here is the message which was automatically sent back to users sending mail to `User.Support@cern.ch` in the past few weeks:

```
    This is an automatic informative message
    ----------------------------------------
This address is meant for direct communications with the IT
User Support unit. If you meant to address the IT Computing
Helpdesk to submit a query/problem, next time please use:

        Helpdesk@cern.ch    ext.78888

If this comes from an entry in your personal addressbook,
please modify it accordingly.
Automatic rerouting of Helpdesk requests will be done until
... (so you do not need to send it again).
After that time you should resend your request.

Best Regards, IT-User Support
```

About the author(s): *Miguel Marquina is the Head of the User Support unit in IT. Nicole Crémel and Roger Woolnough are working in this unit and are the CERN responsible for the supervision of operations of the Computing Helpdesk.*

3.3 CERNDB1/ACCDB Moves to Oracle 8i

Nilo Segura, IT/DB

Abstract

The central public database service CERNDB1/ACCDB will upgrade its Oracle RDBMS software to release 8i to accomplish the increasing demand of new functionality only offered in the new release.

Introduction

The central public database service CERNDB1/ACCDB will upgrade its Oracle RDBMS software to release 8i. The last upgrade took place more than two years ago. During this period, the current release 7.3.4 has proven to be a very stable database version, and has offered at the same time a very good performance to the user community.

We have tested the successive releases of Oracle RDBMS software; starting with the 8.0.x series (8.0.4, 8.0.5 and 8.0.6), checking the new technologies that Oracle was adding to the database engine (Objects, VLDB, Java. . .) with every new release. It was decided to skip the 8.0 series because we felt that it was an *intermediate* development step that led, finally, to *Oracle 8i*.

The latest version is *8i Release 3* (aka 8.1.7 *Terminal Release*). This means that this is the last version in the 8i series, ending effectively, the development cycle for 8i. All the features announced during the development cycle are already implemented.

Oracle Corporation has also published a "desupport" notice for 7.3.4, stating that *31-December-2000* is the date when the official support will end for this version.

Therefore, in order to continue with the best technical support, we have decided to move forward and upgrade all our database servers (those controlled by IT/DB) to *8i Release 3*.

Features

There has been a plethora of new functionality added throughout the successive 8.0 and 8.1 series. We briefly mention some of the features that are most interesting for the CERN community.

Java Very exciting technology like SQLJ, Java Stored Procedures, Java Servlets, EJB and Java Server Pages are all now part of the database engine. A Java Virtual Machine has been implemented inside the database, and to further enhance the performance of the Java programs, a Java compiler is used.

CORBA As part of the Java extensions, a CORBA compliant ORB runs inside the database allowing the CORBA programs to communicate with the database using IIOP.

VLDB Oracle can now much better handle large amounts of data thanks to new technologies like Partitions, Bitmap and Function Based Indexes, Materialized views, Parallel Query, etc.

XML The Oracle XML Developer's Kit (XDK) contains the basic building blocks for reading, manipulating, transforming and viewing XML documents. This toolkit is available for Java, C, C++ and PL/SQL.

Objects OO technology (objects,methods etc) is being added to the *RDBMS* (becoming now an *ORDBMS*). Full OO support (inheritance, polymorphism) is in the works (Oracle 9i).

Intermedia This option allows the database to handle specific multimedia content (images,sound,text), using specific storage and retrieval methods that improve the performance of the operations on these new complex objects.

All these features and many more are explained in the Oracle documentation (`http://oradoc.cern.ch`).

Schedule

As announced in the last Oracle Developers Forum held at CERN (October-2000), the foreseen schedule is the following:

- *October 2000 - devdb8* already upgraded;
- *March 2001 - devdb* upgrade, this includes the merge of *devdb* and *devdb8* (devdb8 will then be dropped); this operation will take place during the first week-end of March;
- *April 2001 - cerndb1/accdb* upgrade, this operation will take place during the first week-end of April.

The *Oracle Designer* database service, *casedb*, will also be upgraded once the correct version of *Oracle Designer* is fully certified to work with 8i Release 3.

Once we have completed the upgrade exercise, we will start testing the new Oracle 9i (expected availability by Summer 2001). Should we wait another couple of years before the next upgrade? Should we move to 10i directly? Time will tell.

4. Internet Services and Network

Everything related to Internet in a large sense: i.e., network issues and performances, all technical Web issues, electronic mail, Internet news, home access to CERN facilities, video conferencing and multi-media, network security, etc.

4.1 Rationalisation of Support for Network Protocols again!

Mike Gerard, IT/CS

Abstract

An update of the article (`http://cern.ch/ref/CERN-CNL-2000-001/network_protocol`) published in CNL CERN-CNL-2000-001.

In the first Computer Newsletter (`http://cern.ch/ref/CERN-CNL-2000-001/network_protocol`) of this year we gave an advance warning of the eventual suppression of certain network protocols and allied equipment. Since this time things have evolved, and so a repeat article seems useful.

Concerning old *Macintoshes* and printers connected onto *LocalTalk* networks, which are a slow-speed network connecting to the main Ethernet networking via Routers, we have been checking how many are still active. From a high of over 200 a few years ago we are now down to only about 60 FastPath Routers. Furthermore, on many of the *LocalTalk* segments there are now almost no remaining users, as old Macs and printers are replaced by new ones connecting directly onto Ethernet. We are therefore hereby giving notice that all FastPath Routers will be eliminated by July 1 2001. At that time, any remaining old Macs or printers having *only* a *LocalTalk* network interface will need to buy a special *LocalTalk-Ethernet* converter box. However, we would *strongly* recommend upgrade of the Mac/printer to a modern one.

The same cutoff date (July 1 2001) will also apply to any use of LAT protocols. See the original article (`http://cern.ch/ref/CERN-CNL-2000-001/network_protocol`) for more information.

Finally, now that NICE servers are moving from use of Novell/IPX protocols to standard IP protocols we will be starting a slow move towards elimination of IPX protocols. The first stage of this will be identification and elimination of most of the broadcast IPX service announcements (of which there are currently over 1000). The main types of systems making such announcements are *Windows NT* systems and multi-protocol printers, but there are many and varied other announcements for which we may need to consult the particular service managers over the next year or so.

5. Scientific Applications and Software Engineering

This includes descriptions of: scientific applications and libraries from CERNLIB and LHC++, mainly used by the Physicists;engineering applications likes the ones on PaRC or those associated to online controls;software development environment.

5.1 Engineering news, EDMS for electronics

Nils Høimyr and *Ludwig Pregernig, IT/CE*

Abstract

The CERN Engineering Data Management System (EDMS) allows engineers at CERN and collaborating institutes to store their data in a structured manner. Originating from mechanical engineering and the project management of the LHC accelerator and experiments, EDMS is now also available for electronics engineering.

Computing Support for Engineering in the IT/CE group handles the application and server support for a number of Electronic- and Mechanical CAE tools as well as data management with EDMS. For more information about the CE services, please consult the IT/CE homepage. (`http://wwwinfo.cern.ch/ce`)

EDMS as a CERN-Wide service

The EDMS service is responsible for the management of the engineering and equipment data management tools of the Laboratory, extending from the applications level to the database management systems level and the operational support of the servers running these applications.

The service is provided by a collaborative effort between EST and IT divisions.

The main objective is to provide CERN with an integrated and reliable Engineering and Equipment Data Information Systems. EDMS strongly supports the sharing of information with both engineering and administrative applications to ensure the availability and sharing of coherent, reliable, comprehensive and accurate data.

EDMS is accessible via the Web from the URL `http://edms.cern.ch` via a Web interface that has been developed as a joint effort between CERN and the Tuovi team (`http://tuovi.cern.ch`) at the *Helsinki Institute of Physics*. The full EDMS functionality is available via CADIM/EDB (`http://cedar.cern.ch/support`) that is available on NICE and major supported Unix platforms.

Archiving Electronics Designs with EDMS

Electronics engineers at CERN can now archive designs in CERN's Engineering-Data Management System (EDMS). Typically, designers will save and manage two packages of data in EDMS:

- The complete design directory structure packed into one compressed file ("`Container`") for reactivation of the design at a later ("as long as it makes sense") stage.
- Plot (`.pdf, HPGL`) and text files for viewing/reading throughout the lifetime of the equipment.

In EDMS your data are at a safe place, for longterm storage, yet easily accessible via the Web.

Designers who use the *Cadence* tools can archive and retrieve their designs *at the push of a button* with "`Integrate`", an interface that has been introduced recently at CERN. Look at the "INTEGRATE (The Cadence-to-EDMS Interface)" Web page (`http://wwwinfo.cern.ch/ce/edms4eda/welcome.html`) to learn more about `Integrate` and how you can use it. If you would like to try out the viewing-via-the-Web capability, just follow the example given under the "`Viewing`" action in the Integrate Quick-Reference Guide available at the URL

`http://wwwinfo.cern.ch/ce/edms4eda/IntegrateGuide/integrate_QuickRefCERN.html`

For the time being, no commercial interface has been found for other tools in use at CERN. Designers can still benefit from EDMS, but have to create "`Container`" and "`viewable`" files manually, before entering them into EDMS via the Web interface.

For additional information please send an e-mail to the authors.

5.2 Software Development Tools Service

Eric Poinsignon, IT/API

Abstract

Last news and available tools of the SDT service

In the SDT service we actively help software projects in CERN experiments to identify, evaluate, purchase and use industrial software development tools. Network floating licences are used as much as possible, so that the tools can be run remotely. We can also, if you have an AFS account, give you access to our Solaris server in case the binary for your platform is not available. You can find the complete information on what we have and how to use it at the URL

`http://sdt.cern.ch/`.

Contact e-mail address: `Sdt.Support@cern.ch`

Last news

- *X-Designer* (`http://sdt.cern.ch/XDesigner/`) New version 5.5 for Solaris, HPUX, AIX, Irix and Tru64. This new version includes Java support for Swing (Java 1.2)
- The *SDT* (`http://sdt.cern.ch/`) Web site has been reorganised with a new look & feel, we would appreciate your feedback.
- The *DocSys web* (`http://cern.ch/docsys`) containing documentation systems, featuring support information for Adobe FrameMaker, OverSite and other document preparation-related tools, has undergone a complete site reorganization and content update.

Catalogue of present tools

Analysis and Design

- *Rose* (`http://sdt.cern.ch/Rose/`):
  OMT/Booch/UML analysis and design tool with C++/Java/Ada code generation.
- *StP* (`http://sdt.cern.ch/Stp/`):
  OMT/Booch/UML analysis and design with C++ code generation.

Programming and Debugging

- *SNiFF+* (`http://sdt.cern.ch/Sniff/`):
  Integrated development environment for C, C++, Java, Fortran and CORBA IDL.

Graphical User Interface Builder

- *X-Designer* (`http://sdt.cern.ch/XDesigner/`):
  Interactive X-platform GUI builder with OSF/Motif toolkit widgets, C, JAVA and Windows code generation.

Quality, Metrics and Testing

- *Logiscope Tool Kit*
  (`http://sdt.cern.ch/Logiscope/`):
  Source code analyser and test coverage for C/C++/Fortran.
- *Look!* (`http://sdt.cern.ch/Look/`):
  C++ dynamic visualization system.
- *Insure++* (`http://sdt.cern.ch/Insure/`):
  Comprehensive tool for error detection in C/C++ programs.
- *CodeWizard* (`http://sdt.cern.ch/CodeWizard/`):
  Coding standards enforcement tool that prevents errors and standardize C/C++ code.

Documentation

- *FrameMaker* (`http://sdt.cern.ch/FrameMaker/`):
  Complete and integrated publishing tool.
- *IXgen* (`http://sdt.cern.ch/IXgen/`):
  Indexing and marker management tools for FrameMaker.
- *SoDA* (`http://sdt.cern.ch/Soda/`):
  Software Documentation Automation.
- *VisualThought*
  (`http://sdt.cern.ch/VisualThought/`):
  Multipurpose drawing, diagramming and flowcharting tool.
- *SDLT* (`http://cern.ch/docsys/framemaker/templates/sdlt/`, API product):
  Software Documentation Layout Templates, for FrameMaker.
- *TDR* (`http://cern.ch/docsys/framemaker/templates/tdr/`, API product):
  Technical Design Report, for FrameMaker.
- *UGT* (`http://cern.ch/docsys/framemaker/templates/GuideTemplates/`), API product):
  User Guide Templates, for FrameMaker.

About the author(s): *Eric Poinsignon is looking after the SDT Service run by IT/API.*

6. The Learning Zone

All kinds of "educational" computing issues, not necessarily directly CERN-related, such as computing news from the Press and tutorials on various subjects.

6.1 Questions and Answers from the Computing Helpdesk

Collected by the IT/User Support Team

Nicole Crémel (Editor), IT/User Support

Abstract

This is a collection of Questions & Answers that have been treated by the Computing Helpdesk managed by the User Support group.

N.B. The number in parentheses refers to its relative numbering in the User Support "Question-Answer" database, at the URL `http://cern.ch/consult/qa/NNN`, where `NNN` is the problem identifier (a number).

PC support

(Hannes Schwarzbauer, IT/User Support)

Question [284] – Reset a profile on Windows NT

I am registered as a Windows NT administrator. What is the procedure to be followed to reset a profile (when it is corrupted)?

Answer

The procedure is the following:

- logout;
- delete roaming profile;
- login and delete local profile.

To delete roaming profile: access "`NICE NT Domain Administration`" (which had been added in the Domain tools list) in:

```
Start
  - System Management
     - NICE NT Domain Administration
```

The tool only deletes the server copy of the profile and administrators still need to delete manually the local copy. The recommended way to delete the local copy is to log in as a local administrator and use the utility in:

```
Control Panel
  - System
     - User Profiles
```

Now select the user account, and press the delete button. This will delete all the registry entries associated to the profiles.

Note that deleting the files in `\profiles\` is not enough and you run the risk of creating multiple profiles with the same name and extensions like `.000, .001`, etc.

Note the following points:

1. In case of problems you may also call local support for your division.
2. To reset your profile on Windows 95, see also the URL `http://consult.cern.ch/qa/193`

Question [287] – `ftp` from NICE

How can I `ftp` from NICE?

Answer

The standard way is to use:

```
Start
  - More applications
    - Communications
      - ftp
```

Then choose the host you want. You may also use Exceed in order to ftp to a public unix service. This method is described at the URL `http://consult.cern.ch/qa/0022`

Question [290] – Recover "unaccessible files" on NICE

I cannot access certain files/folders on NICE that I could previously. How can this be corrected?

Answer

Try using the "recover unaccessible files" option in:

```
Start
  - more Applications
    - system configuration
      - recover unaccessible files
```

Note that this is only possible under Windows 95.

Question [319] – Lock X session with Exceed

How can I lock my X session when using Exceed from NICE?

Answer

First you should note that locking your X session will only lock the UNIX (e.g. PLUS service) part, but your PC will not be locked (look at the end for more details).

Having said that, the first thing to do is to make sure you have enabled on NICE "`Allow Clients to Modify Host Access Control List` with the menu:

```
Start
  - More Appl.
    - Exceed X Terminal v6...
      - Tools
```

Then select the tools "`Xconfig`" and "`Security`".

You may then lock the screen on the UNIX side (i.e. any PLUS or WGS service) from the usual menu entry (`System menu` and entry "`Lock Screen`") when using the HEPiX/X11 environment.

Alternatively, you can also run by hand the UNIX command `xlock -remote`.

As said at the beginning this will only lock the UNIX side. In order to lock the PC screen completely, one must either:

- On NT: "`CTRL_ALT_DEL`" and click on "`Lock Workstation`".
- On W2000: "`CTRL_ALT_DEL` and click on "`Lock Computer`".
- On W95: the lock facility does not exist and the only possible workaround is to use a password protected screen saver and let it click in after one minute (for instance); to set this `Start - Settings - Control Panel` and double click on "`Display`", select "`Screen Saver'`", the picture you like, "`Password protected` and the "`Wait:`" time you want.

Question [330] – Windows 2000 account

How do I get an account for Windows 2000 and get my machine registered to use the new system?

Answer

For the account and registration for a machine please see URL: `http://cern.ch/winservices/docs/W2KSetup/setup.asp`.

This explains all you need to know about your account name and password.

For more in depth information on the Win2000 project at CERN, see the URL, which may help you further:

`http://cern.ch/winservices/default.asp`.

Question [347] – Netware to Windows 2000 Migration

What is going on concerning the migration of Netware to Windows 2000 on the CERN servers?

Answer

The current situation is explained at the following URL which also gives detailed explanations, a few hints for users and a schedule of what will go on in the future:

`http://cern.ch/homepage/migration.htm`

UNIX Support

(Roger Woolnough and Nicole Crémel, IT/User Support)

Question [142] – LINUX server installation

Is there some documentation about how to install a LINUX server with a CERN standard configuration?

Answer

All should be explained in the "Linux at CERN" Web page, at URL: `http://wwwinfo.cern.ch/pdp/ose/linux/linux_CERN.html`

Question [286] – Linking an application on ATLAS

Problems (errors) when linking an application on ATLAS

Answer

First thing to check is that some environment variables used by the loader (command `ld`) are not wrongly defined (e.g., in your login script). Examples of variables to check are `LD_LIBRARY_PATH` and `LDOPTS`.

Question [288] – Long queueing time for batch

I am experiencing an unusually long queueing time for submitted batch jobs. Normally they begin to execute within minutes, instead of remaining pending with messages like "`job forwarded to a remote cluster`" or "`awaiting allocation replies`" for a matter of anything from 2 to 6 or 7 hours.

Answer

This can be an operational problem (especially if many users report it) and the best approach is to alert *Serco* (via the Helpdesk). To know more about it (and check if this is really an operational problem):

- identification: command `bhosts rsbatch` on RSPLUS shows a `RSV` column which number add up to a total of more than a few units (e.g. 10 or 15).
- solution: run `badmin reconfig` on RSPLUS.

Question [291] – AFS "Cache partition is FULL - Decrease cachesize!!!"

With the `ls` command on some AFS directory I am getting the following weird message:

```
*** Cache partition is FULL -
        Decrease cachesize!!! ***
```

Answer

We have an old diagnostic from *Transarc* on this namely:

> "The problem is occurring because we copy the entire file into the local cache when one person on a machine has the file open and someone else on that same machine is deleting it. When you see this error message, you can confirm this by doing a `ls -la` in the directory where the file was deleted and look at the size of the `.___afsXXXX files`."

It looks as it is a known "feature". When the application using the file stopped the problem should go away.

Question [293] – AFS or network problem?

How to check if there is an AFS or network problem? I am getting many "`connection timed out`" messages.

Answer

In order to help the AFS team (`AFS.Support@cern.ch`) for a proper diagnostic you can check and give them the following information:

- command `ping afsxx` on the server (e.g. `ping afs5` should give time numbers between 0 to 2 ms. Numbers in 10s or very erratic mean trouble. (N.B. Command `fs whereis` shows on which server your files are).
- command `traceroute afsxx` shows the network hops and which one is slow.
- command `ping rsplus01` (or any other central machine) can be executed for comparison (and check if there is a general network problem).
- command `fs checkservers` shows if there is an AFS server problem.

Question [294] – LSF command `bpeek`

Is there a possibility with LSF to look into files which are opened during the run (like it was possible with `lltail` or `llmore` on `sp2pub`)?

Answer

Yes, using the command `bpeek`.

Question [300] – `bin` directory on atlas nodes

In a machine such as the `atlas09` machine I have used to create the archive test in the `bin` directory. However I cannot see this file is not seen in the same directory on `atlas008`. Why?

Answer

To ensure a correct separation of files for appropriate architectures, the AFS directories use links to architecture specific `bin` directories. This can be seen if you change directory to the `bin` directory and issue the following command:

```
[lxplus001] ~ % cd bin
[lxplus001] ~/bin % /bin/pwd
/afs/cern.ch/user/t/tjs/.@sys/bin
```

As you see, there is an `@sys` in the path. This is expanded up to a string related to the Operating System, which is `hp_ux102` on atlas09 (for HP-UX) and `i386_linux22` on atlas008 (for Linux). This is intentional, since a binary file made on an HP will not run on a Linux box! If you are dealing with scripts, not binaries, then you should use the `scripts` sub-directory instead, as this is a real directory (and the same across different Operating Systems).

Question [302] – IT policy regarding Linux

What is IT policy regarding Linux?

Answer

The Linux for the 2000s (L2K) Programme team wrote a *CERN/IT Linux Activities Survey*. This document should list all the activities around Linux in the CERN IT division (as well as official statements from the IT management).

You can find this document on the Web at URL:

`http://cern.ch/linux/l2k/docs/ilas.html`.

Question [303] – `hsm` command on a private LINUX desktop

I cannot run the `hsm` command on my PC (private LINUX desktop) and get the error message "`configuration file not found`" for some of the `hsm` commands.

Answer

To fully use the `hsm` command on a private LINUX desktop you need to be using an AFS login, that has an associated DCE service account, and have a copy of a small system file named `/etc/shift.conf`.

Note: this has to be installed as `root` but can be copied from any LXPLUS node. A few times per year this file is changed on LXPLUS that may affect `hsm` , so users who have this file and still get errors should first take a fresh copy.

Question [317] – `xuserinfo` on Linux

If I execute `xuserinfo` on LXPLUS (Linux) I get something very primitive and quite different from what I can get on RSPLUS. Why?

Answer

This is because there are NO Oracle tools available on Linux yet. The problem will disappear if Oracle was to deliver a software long overdue.

To use the "real" tools, you must run `xuserinfo/xuserreg` on another PLUS service or NICE (with the button called "`Web Reg.`" on the first page of the interface). After this has been done, `userinfo/userreg` can be invoked via *Netscape* at URL `http://userinfo.cern.ch`, resp. `http://userreg.cern.ch`.

A request was made to remove the command from the ASIS product list on LINUX, until it works, and to avoid confusion.

Question [320] – Command `bkill`

I cannot kill some batch jobs with the command `bkill` on LXBATCH. Can you please kill these jobs for me?

Answer

Please note that if you cannot kill your own jobs with `bkill` then it means that nobody can kill the job either: the process is waiting in kernel state and the only thing that can be done about it is rebooting the system. Another explanation can be that the communication between the submission cluster and the execution cluster is interrupted, and the `bkill` command cannot be sent to the execution node. Normally the command `lsclusters` shows when there are such interruptions.

In any case, the Helpdesk cannot kill the job for a user: the only think it can do is to pass the message (with as precise information as possible, and at least the execution node) to the system administrator, so that they are aware of the problem, and schedule eventually a reboot for this system.

Question [322] – Service interruption

Is there a web page where users are notified of possible interruption of the tape service, and of its estimated duration?

Answer

You can find some information about the status of tape servers in the TVScreen Web page, at URL: `http://tvscreen.cern.ch/ExpTvScreen.html`, under "`The SHIFT and CORE services'`".

Question [329] – Responsible for tools in the directory `/usr/local/bin`

Can I find out who is responsible for the tools and scripts programs present in the directory `/usr/local/bin` (e.g., `/usr/local/bin/cuserinfo`) and whether it is a tool provided by ASIS or not?

Answer

Use the command `ASISInfo -belong tool_name`, e.g.,

```
[rsplus08] ~ > ASISInfo --belong /usr/local/bin/cuserinfo
ERROR:File /usr/local/bin/cuserinfo in ASIS -
                  No such file or directory
[rsplus08] ~ > ls -l /usr/local/bin/cuserinfo
-rwsr-xr-x 1 regist c3     10331 Mar 25 1998
                       /usr/local/bin/cuserinfo
[rsplus08] ~ > phone regist -F
23932;     Ccdb DATABASE    72995    IT      31
                     3-008;Ccdb.Database@cern.ch
```

which means that this is managed by the Ccdb DATABASE service responsible.

For `/usr/local/bin/gs` you get:

```
[rsplus08] ~ > ASISInfo --belong /usr/local/bin/gs
GNU.MISC/ghostscript-5.50
```

which indicates that it is a GNU product and thus provided by the ASIS team.

Mail support

(Michel Franceschi and Miguel Marquina, IT/User Support)

Question [292] – Mail on ALPHA machines

I cannot open Netscape*/mail on my AXCAD station. I try and the window keeps dissapearing. This is irritating, please do something about it!*

Answer

We have already seen "misbehaviours" with *Netscape* on ALPHA machines. All is reduced to reset your own *Netscape* configuration which is probably corrupted.

Try the following:

```
> cd $HOME
> mv .netscape .netscape-bad
```

and then launch *Netscape*. If "cured", you would only need to copy back both your bookmarks and your addressbook:

```
> cp .netscape-bad/bookmarks.html .netscape
> cp .netscape-bad/abook.nab .netscape
> cp .netscape-bad/address-book.html .netscape
```

Question [298] – GEM and PEM

If we are encouraged to always use the Generic E-Mail address (GEM), why do the unix `phone` command and the Web page `http://consult.cern.ch/xwho` show for quite a few people the Physical E-Mail address (PEM) rather than this GEM.

Answer

This depends whether the user uses an account on the CERN mail server or not:

- If a user has no MAILSERV account at CERN, or doesn't use it for his/her PEM, we recommend to use directly the PEM (usually non-CERN)
- If a user has a MAILSERV account at CERN *and uses it for the PEM* (i.e., the PEM has the form `xxxxxx@mail.cern.ch`), we recommend to use the GEM (usually something like `firstname.familynam@cern.ch`)

Question [331] – Mouse support with `pine`

Any chance to have the mouse support under `pine` (version 4) - on the CMS Linux cluster?

Answer

`pine4` has been already introduced in ASIS, but mouse support was introduced already in version 3.95; it is not enabled by default in the CERN configuration. The "pine" parameter to enable via `Setup/Config` is:

`enable-mouse-in-xterm`

Web Publishing

(Maria Dimou, IT/User Support)

Question [296] – Network drive `\\www\cernweb1%userid`

I used to attach the `www.cern.ch` filesystem as local to my PC's file system by connecting to network drive `\\www\cernweb1%userid`.

This no longer works. Why?

Answer

The machine changed name from "`www`" to "`web1`" . Now the address is `\\web1\cernweb1%userid`.

You can find full instructions in:

`http://cern.ch/WebServices/Communications/samba.html`

Question [304] – CGI scripts on the Web

Where should I put my CGI script, so it can be reached through the web?

Answer

First you have to register your web site, if you don't have one already. To do this you open the form: `http://cern.ch/webregister`. Thus you obtain the site: `http://cern.ch/SITE`.

If your files are in afs this corresponds to the directory `/afs/cern.ch/.../SITE/`.

Create the directory `cgi-bin` under the directory `SITE`, i.e.

```
/afs/cern.ch/.../SITE/cgi-bin/
```

You can put your scripts there and they will be web reachable.

Please note: The scripts will only execute one day after the creation of the `cgi-bin` directory.

More documentation is available on this subject at

`http://cern.ch/webservices/AuthoringDoc/Scripting/Scripting.htm`

If your CGI needs to read, write or delete a given file in your afs directory, you should also enable the following permissions in your afs ACL: *wwwprot rliw* with the command

```
fs sa <your-dir-name> wwwprot rliwd
```

If your files are local to the server `web1.cern.ch` write to `web.support@cern.ch` and request your files to be enabled as executables at the level of the web server.

Question [311] – "Issuer certificate is invalid" with EDH and Netscape

I got problems with EDH web since installing Netscape 4.7. I get (one of) the following errors; after contacting `AIS.Support` they tell me they cannot help (it is not an EDH but a Netscape problem). Can you help please?

```
1. # Error: Issuer certificate is invalid (-8156)
2. # jarfile: Z\P32\NCOMM47\PROGRAM\java\classes\java40.jar
3. # path: Z\P32\NCOMM47\PROGRAM\java\classes\java40.jar
```

I click on OK and . . .

```
4. Java reported the following error on startup.
   Java.lang.SecurityException:
                  system classes were not signed.
```

Answer

This could mean that your certificates file is corrupted. Close all Netscape windows and delete

```
c:\netscape\users\<your_login_name>\cert7.db
```

An empty certificates file will be re-created at the next Netscape start.

About the author(s): *Nicole Crémel is working in the User Support group and, with Roger Woolnough, is responsible for the supervision of operations of the Computing Helpdesk. Editing and revising the "Question and Answers" database is a daily task of most members of the group.*

7. User Documentation

Everything related to "computer documentation": updates to computer documentation distributed by IT (including the User Support reference cards), offerings of the Computing Bookshop, etc.

7.1 News from the User Support Bookshop

Roger Woolnough and *Jutta Megies, IT/User Support*

Abstract

News from the User Support Bookshop.

Since the last CNL we haven't received many new titles although there have been five new editions, notably:

1. *Framemaker 6 Classroom in a Book*
2. *Running Linux*
3. *Linux Network Administration*
4. *Unix in a Nutshell*
5. *Programming Perl*
6. *Unix System Administration Handbook*

The "*Unix System Administration Handbook*" has not been updated for a long time and this is almost a complete rewrite. It covers in a tutorial fashion UNIX, Solaris, HP-UX as well as including Red-Hat Linux in this new edition.

New books that have arrived include the book by CERNs James Gillies and Robert Cailliau *How the web was born* which naturally is full of information about CERN and it's involvement, an interesting read for all. Another new title added to the collection is the *Microsoft Press* book *Inside Windows 2000* which comes highly recommended from the CERN Win2000 team. For Linux Programmers we have just received from *Wrox Press* (we are taking an account with this publisher) *Beginning Linux Programming*. This book is full of useful examples and covers a wide range of topics including Perl, Gnome, Posix and Kernel programming.

Please note that in the past months we have had to adjust the price of some books due to the strength of the dollar. This only effects certain publishers and naturally only happens when we order new stock.

The complete list of books and prices is available as usual at the URL `http://consult.cern.ch/books/` or you can mail us at `bookshop@cern.ch` where we always welcome suggestions for new titles.

7.2 User Support Book Catalogue

Roger Woolnough and Jutta Megies, IT/User Support

Situated in Building 513 1-022 (tel. 74050) is the Computing Bookshop provided by the *IT / User Support group*, where CERN users can find computer books and CDs at discount prices. The service is open weekdays from 8.30 to 12.30 or contactable by e-mail to `Bookshop@cern.ch`. Books are purchased from some 15 publishing houses and the catalogue offers a selection of documentation aimed at the range of computing utilities available at CERN. The service welcomes suggestions from the user community for new aquistions. Purchasing may be done internally via EDH or TID or alternatively cash payments via the CERN Bank.

The list, with all the relevant information, is compiled regularly at URL: `http://cern.ch/consult/books`