The DESY User Registration Server

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A working remarks to the report

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Corrections:
November 2, 1993
November 15, 1993
January 28, 1994
January 31, 1994
February 1, 1994
February 3, 1994
February 4, 1994
February 8, 1994
May 2, 1994

A. Shevel

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Chapter 1

A MAIN PART

1.1 A PREFACE

DESY has several type of the centralized computing facilities:
IBM 3090;
SGI;
HP cluster;
Zeuthen cluster;
VAX cluster (including ALPHA).

In principle it does not matter which type of computer service we consider at moment (separate computer station, computer cluster, program system, etc.).

In order to register a lot of users on various computers it is useful to develop the general registration mechanism in spite of a concrete service which a user would require.

Apparently this registration procedure has to be realized in the form of the SERVER.

Also see figure 1 at the end of this paper.

This server should decrease a computer administrator effort in respect of registration of the new users and other related topics. On other hand it may help to find info about the users.

1.2 A MODEL

In this proposal we shall follow the next model. There are several resources, for instance, K. There are also a range of users, for example, N. Every user can be registered as a consumer of one or more resources. If user has a desire to be registered as a consumer of several computer resources he should be registered for every resource separately.

Probably one registrator is enough for one computer resource. Also see figure 2 at the end of this proposal.

Consistency. A central data base with user registration information is checked every night.

Beginning stage. At the beginning stage we can fill the central URS data base by means simple program which permits us to send the user data from every work station (which is in poll list) to the central URS data base. It is assumed that the /etc/passwd file will be sent from every work station or another service.

Exploitation stage. At the exploitation stage it should be realized self mantanence scheme. It is assumed that only a few efforts will be needed to maintain whole structure.

1.3 A TECHNICAL CONSIDERATION

In order to simplify an inter-login from one computer host to other one under UNIX (for instance: rlogin, remote shell) we should supply the same UID and GID. Probably it is useful to do for all computer stations which will be in scope of URS. In other words if user is to be registered on station1, the same UID and GID should be reserved for all other stations which are included in scope of URS.

There are three parts in this project: a data base interface, a network interface and a registrator interface. Also see figure 2 at the end of this proposal.

ORACLE data base for URS data and ORACLE Forms for registrator interface are acceptable tools.

1.3.1 CENTRAL REGISTRATION SERVER

A Central Registration Server is program installed on the one of the centralized computer stations.

As a rule this program is in sleep state and waking up for instance every T minutes. The CRS investigates the e-mails which arrived and adressed to the CRS during the sleep period and trys to react on requests which are contained in these e-mails.

Request type 1. The user is successfully registrated on remote service.

Information: user login name, user name, resource name.

Action: to move user info from temporary place to the main base.

Request type 2.

1.3.2 THE VOLUME OF THE DATA BASE

It is assumed every user will be needed for 256 bytes for registration purposes. It is equal 0.25KB per user. The total number of users may be estimated as N*1000, where N is integer (2-5).

In this way we can obtain the required space for the data base. It is required about 0.25KB per account name. Every user can have about 10 accounts on several computers. Hence about 2,5KB will be required for one user. And for the 2000 users it will be needed about 2.5KB * 2000=5MB. This is only for active users. If we shall take into account the old users will need to add about the same value, i mean 5MB. In this case the sum will achieve 10MB.

1.4 THE REGISTRATION SCENARIOS

A registrator (man) registers the users through a main dialog procedure based on ORACLE Forms. Also see figure 3 and 4 at the end of this proposal.

All data concerning a user will be put into ORACLE data base.

After registration completion and needed checking the URS sends the special messages (mails) to the local computer stations (local hosts) on which the user to be registered. The data concerning just registered user are specially marked or placed in temporary data table.

The hosts under Unix should receive GROUP number and USER number in addition to other information. I think these numbers will be useful in case when the hosts are in trusted host group.

It is important to have on the local hosts the automatic registration procedure. After receiving the special mail from central URS the local registration procedure (on every hosts) performs a registration process. A result of a registration process is sent back to the URS.

The URS receives the results of the local registration processes. I guess the unusual completion of registration processes will be interesting for the central registrator (man). These unusual situations have to be investigated manually (by means speaking with a local administrator, etc.).

If actual registration is completed without problems the central server moves the user data to main user data base from temporal table.

In addition every night URS sends the test messages (mails) to the local hosts in order to check the consistency and integrity of the central data base. More concrete, the URS sends a list of the centrally registered users. A local host checks this list and sends back a result of that test. The inconsistencies should be reported.

In this way the local administrator may have a freedom to register somebody for a technical reason without a disturbing the URS.

It should be taken into account at least two scenarios.

First scenario. A registrator of a concrete computer service logins into URS by for instance telnet. After he fills the forms which are required. Later an administrator performs the standard registration procedure in terms of for instance VMS. In this scenario an administrator should do approximately same job - in URS environment and in standard registration procedure.

Second scenario. The registration procedure is corrected to add some operators which connect to and call URS automatically or vice verse.

My opinion. To my understanding a system administrator (man) should register a user only once, but not two times (firstly on URS and secondly on a concrete computer station).

1.4.1 RELIABILITY

Centralized URS functions assume high degree of accessibility. I think URS should be not less accessible that computer network. URS server, URS data base should be at least on two separate computer stations.

1.4.2 SCALABILITY

The URS should have a good structure in order to change the applications:
to add new computer service if wee will need for that;
to remove the concrete type of service if will not need more for that.

1.4.3 THE ADMINISTRATION PROBLEMS

This project should be supported by administrators of several groups. I mean at least moral supporting.

1.5 THE REALIZATION MILESTONES

First stage. On the first stage it have to be organized the needed tables, and this tables should be filled with appropriate information (at least most information should be up to date concerning the concrete service). At the same time the forms should be prepared and checked.

At this stage we can begin to use this data base for selected computer station to get some experience with tables, forms, etc.

Second stage. On the second stage we can begin to use URS on several stations.

Third stage. On the third stage URS may be suggested to use by physics collaborations.

1.5.1 AN ESTIMATION OF THE REALIZATION TIME

I think it is needed may be two people (one for server and network and another for data base interface - ORACLE forms).

I suppose about three month of work will be required to achieve the first working stage. I mean stage when it will be possible to show the working version to several friend computer administrators.

After that yet three month will be required to correct some programs and propagate it among computers (stations).

In my opinion, in sum, it is required about 1 man/year or more.

After that anybody should be careful on this system. I mean question answering, help in learning, etc.

1.6 THE CURRENT SITUATION (date by date)

November 1, 1993. It is created the needed table space with name USERS in x4u2. All tables from Zabinska are created also. The ORACLE forms are leaved as it are and still not checked.

January 31, 1994. It is investigated the available info on URS and related information through mosaic on the centres: LBL, BNL, FNAL, SLAC, CERN, NIKHEF. It were found several sheets from SLAC and CERN.

February 3, 1994. The questions.

Should we support or insist on same user name for every computer service?

Should we limit the user name length till 8 character?

February 8, 1994. Today and yesterday we (with Witold Racoczy) tested ready to use ORACLE URS forms:

desygrp - creation new DESY group modadm - administrator modification modgrp - group modification naccnt - new account nuser - new user

1.7 GLOSSARY

Here is the list of technical terms used in above text.

LOCAL HOST - any computer or computer station which can run a local registration procedure.

LOCAL REGISTRATION PROCEDURE - standard registration procedure which is applicable on a LOCAL HOST.

REGISTRATOR - a man who registers the users on URS.

URS - User Registration Server, also a host where central URS ORACLE data base is installed.

1.8 APPENDIX

Probably main importance of the USR existence is a possibility to get information.

1. Any user from DESY can ask URS for info about another user or about the users.

2. Should be realized the possibility to find anybody by part of name or by part of account name or by phone, etc.

3. Interesting to know about a person which computers he uses (which stations).

4. User list may be ordered by alphabetic
time and date (for instance, registration or expiration)
telephone numbers
buildings
...
In group:
project:
experiment:
DESY
in selected station or computer.
in building
office.

5. Concrete user may be found by:
telephone number
office
building
home institute
e-mail address.
It is interesting to realize the possibility to send a mail on telephone number.
And so on, and so on.