An Overview of Moira

Moira is the Athena Service Management system. It serves as the central repository for information about users, groups, hosts, print queues, and several other aspects of the Athena environment.

At its most basic, Moira is responsible for generating configuration files for the various services that receive data feeds from it.

Origin of the Name

In Greek mythology, Moira is the collective name given to the fates. Their individual names were:

- Clotho
- Lachesis
- Atropos

Moira Architecture - Getting data in

Moira consists of the following components:

- Oracle database, currently based on Oracle 8.1.7.4.
- daemon written in C (moirad) using Oracle's Pro*C product.
- An additional daemon, reg_svr, for registration of new users.
- Clients, which speak a krb4 authenticated RPC protocol to moirad.

A krb5 authenticated version of the Moira client/server protocol has been written, but not deployed.

More on Moira clients

A large number of clients exist for talking to Moira:

- Command line clients - blanche, stella, stanley, mitch - named after "A Streetcar Named Desire" characters.
- Curses based clients - moira, listmaint, mailmaint, etc.
- ch* - chsh, chfn, chpobox
- mrtest - intended as server debugging tool.
- webmoira - uses C moira implementation and Java JNI.

Moira Architecture - Getting data out

Moira updates of other services take two forms:

Incremental, tend to happen in real time, but can get backlogged.

DCMs (Data Control Manager), which occur once every 3 hours, and involve a complete rebuild of config files for the relevant service. The DCM process on moira speaks a krb4 authenticated protocol to a daemon named update_server running on machines that receive updates.

Moira development sources are available in `/mit/moiradev/src`.

Moira production sources are available in `/mit/ops/services/moira/src`.

```
@@ -48,6 +48,10 @@
 #endif
      int n, pid;

+     if (!have_authorization) {
+        reject_call(MR_PERM);
+        return(0);
+     }
      if (config_lookup(``noexec'')) {
         code = EPERM;
         code = send_object(conn, (char *)&code, INTEGER_T);
```

Services updated from Moira

Incremental: AFS, Windows Active Directory

DCM: Most services maintained by Moira, including:

- Hesiod
- Mailhubs
- PO servers
- Print servers
- etc.

Checking update status/Debugging

`lastupd` in the `consult` locker will tell you last update time of mailhubs.

`mrcheck` will tell you the status of all failed/disabled DCMs.

All incremental errors and `moirad` startup/shutdown notices are zephyred to -c moira.

```
Host ACCESS:MANAWATU-MAIL-CENTRE.MIT.EDU
Enabled/Failure/Idle/Normal/Error unable to compile database files
  Last try Nov 10 13:36:10 2003; Last success Nov 10 10:35:31 2003
  Last modified by mark.dbadmin@ATHENA.MIT.EDU at 10-nov-2003 01:49:3
 * Error needs to be reset

Host ACL:ASMODEA.MIT.EDU Disabled/Failure/Idle/Normal/NoError
  Last try Oct 29 13:15:50 2003; Last success Oct 22 13:15:34 2003
  Last modified by zacheiss.root@ATHENA.MIT.EDU at 30-oct-2003 15:16
 * Should this be enabled?
```

Sample user problems

- User can log in, can send mail, but can't receive mail.

* Use `mrcheck` to see if the MAILHUB or POSTOFFICE DCMs have failed recently.

- User can receive mail, but sent mail bounces.

* Use `mrcheck` to see if the ACCESS DCM has failed.

These problems should only occur with users who have just recently registered for their accounts.

Debugging continued

A test and development Moira server exists, this-too-shall-pass.mit.edu. It can be accesssed by specifying the `-db hostname` flag to most Moira clients.

Feel free to try to reproduce bugs there, but note the server may be unavailable or broken with no notice.

Data in the test server's database is frequently a fairly old version of the production server's data.

Moira data from the Data Warehouse

New students and staff appear in Moira as a result of the nightly student and staff load processes, which obtain data from the Data Warehouse, which itself receives data from the Registrar and Personnel departments, respectively.

Deactivations occur based on the last time a user appeared in a student or staff load data feed.

“grouper” lists are updated nightly from the Data Warehouse during term, based on data received from the Registrar.

New Account Registration

Staff: Register using first name, last name, and MIT ID.

Students:

- Incoming undergraduate students receive a coupon containing "six words" to use for registering for their accounts in an MIT mailing.

- Graduate students also need registration coupons, but they are distributed to the departments for handout, since no central mailing to all incoming grad students exists.

- Sloan School students use the PIN they used as part of the Sloan online application process in lieu of the six words coupon.

Registering involves clicking on the "Register for an Account" button from xlogin or visiting `http://web.mit.edu/register` from a Java enabled browser.

Ongoing work and enhancements

- krb5 moira deployment
- Further Windows AD management and integration
- More mailman integration? (unclear)

Contact Information

Moira server is maintained by Athena Server Operations.

Bug reports can be sent to bug-moira@mit.edu.

Development discussion takes place on moiradev@mit.edu.

Administrative issues can be sent to moira-admin@mit.edu