1. Environment Database
    a. Which versions are mounted in which environments.
    b. When each version was mounted in each environment.
    c. Generate purge notices for gatekeeper approval (e.g. volume mounted in omega for 30 days).
    d. Flag alpha volumes which haven't moved in 6 months (dead space or misused space).
    e. Track all pertinent information, who is the developer, old releases, what has been purged to tape, etc.
2. Bugs Database
    a. Track bugs on a per-version basis.
    b. Queue reports from users for the developers to review.
    c. Allow developers to file bugs, assign priorities, mark bugs as closed.
    d. This implies that certain users have "privileged" access for certain applications.
    e. Dump a history of bugs per application per version.
    f. Honor a request for a release notice, stating which bugs were fixed in the new version - have this generated from the database.
3. Release To Gamma - Gatekeeper acting on a developer's request. (Note it is possible to release for a subset of architectures)
    a. Remove old mountpoints from gamma (if they exist).
    b. Mount old volumes in omega.
    c. Purge old omega volumes (if they exist. This means unmount the volume, request a tape snapshot, then delete the volume when the tape request has been honored).
    d. Mount new volumes in gamma.
    e. Run depot in gamma.
    f. Replicate new volumes (if beta is not replicated).
    g. Release parent volumes.
    h. Generate release notice (Developer will supply the details. The bugs database can also be accessed for any outstanding bugs, or for a list of repaired bugs between this version and the previous)
    i. Notify Operations.
    j. Update environmental database and if necessary bugs database.
    k. Fix access lists on released volumes (deny developer access).
    l. Unmount volume from alpha (default behavior)
    m. Clone src volume (and obj volume if mklink is used).
    n. Mount src clone in new environment.
    o. Generate request for src snapshot to tape.
    p. After tape image is created (of src), delete clone and remove mountpoint.
4. Back-out from gamma. (Note it is possible to back out for a subset of architectures)
    a. Recover omega volumes (from tape if necessary).

b. Move gamma to alpha (unmount new alpha volumes - mount somewhere temporary).

c. Replicate omega volumes.

d. Move omega volumes to gamma and beta.

e. Run depot in gamma and beta.

f. release parent volumes.

g. Handle Src control - unclear how to do this currently.

h. Update environmental and bugs database.

i. Notify operations.

j. Generate and post back-out message.}

5. Release To Beta - Gatekeeper acting on a developer's request. (Note it is possible to release for a subset of architectures)
    a. Remove old mountpoints from alpha.
    b. Mount new volumes in beta
    c. Run depot in beta.
    d. Replicate new volumes (if beta is replicated).
    e. Release parent volumes (if beta is replicated).
    f. Generate release notice (Developer will supply the details. The bugs database can also be accessed for any outstanding bugs, or for a list of repaired bugs between this version and the previous)
    g. Notify Operations.
    h. Update environmental database and if necessary bugs database.
    i. Fix access lists on released volumes (deny developer access).
    j. Unmount volume from alpha (default behavior)
    k. Clone src volume (and obj volume if mklink is used).
    l. Mount src clone in beta src environment.
    m. Generate request for src snapshot to tape.
    n. After tape image is created (of src), delete clone and remove mountpoint.
6. Back-out from beta. (Note it is possible to back out for a subset of architectures)
    a. Move gamma to beta,
    b. Run depot in beta.
    c. release parent volumes (if beta is replicated.)
    d. Handle Src control - unclear how to do this currently.
    e. Update environmental and bugs database.
    f. Notify operations.
    g. Generate and post back-out message.
7. Request for new volumes from a developer.
    a. Create obj, src, rcs, alpha volumes.

   b. Create access list.
   c. Entry in bugs and environmental databases.
   d. Mount all volumes.
   e. Generate notice to developer.
8. Age Omega volumes and purge to tape after a certain time.
   a. Generate a request to Archive Server.
   b. Update databases.
9. Inquiries
   a. What is different in (beta gamma omega)?
   b. List outstanding (closed) bugs on application in environment.
   c. Who is working on what and for how long.
   d. History of each application.
10. Requests
   a. Queue all requests for the gatekeeper.
   b. Simple interface so the gatekeeper can honor or deny request easily. Give reasons for denial.
   c. Only allow developers to queue requests on their own projects.
   d. Provide a template so that all information is available.}
11. Retrieval - Source Control
   a. Be able to retrieve any source for any released version.
   b. Be able to retrieve depot volumes for any version.

@Chapeter(External Services Needed)

@Section(Administrative Server)

1. Handle requests to replicate volumes.
2. Handle requests to unreplicate volumes.
3. Handle requests to create volumes with specific space requirements.
4. Handle requests to delete volumes.
5. Handle errors and denials intelligently (e.g. Not enough space on the system to honor request).
6. Balance space usage, move volumes.
7. Handle requests to clone volumes on a priority basis so development won't have to be halted when a release is requested. This is for the source snapshot.
8. Be able to check for appropriate authority to complete requested task. The requesting user need not have an admin token, just have been registered with this server as having authority to perform these tasks.
9. Set access lists and quota for new volumes.

@Section(Archive Server)

1. Handle requests to archive a volume.
2. Answer queries as to whether request has been honored.
3. Send information which will allow easy recovery (tape number, sequence number, header information).
4. Handle requests to retrieve any volume on tape.
5. Answer queries as to whether a retrieve request has been honored.