Homework 3

CS 499
Winter 2016
Craig A. Rich

1 Consider a file named `document` in a ZFS file system, with the following NFSv4 access control list (ACL):

```
A::OWNER@:wadTNC
A::EVERYONE@:rtnc
```

a) What is the largest set of requested actions (i.e. subset of {r, w, a, x, d, D, t, T, n, N, c, C}) that `document`'s owner is allowed?
b) What is the largest set of requested actions that `document`'s group owner is allowed?
c) What is the largest set of requested actions that the world is allowed?
d) What is the largest set of requested actions that the group `cppweb@cpp.edu` is allowed?

2 Consider a directory named `folder` in a ZFS file system, with the following NFSv4 ACL:

```
A:d:OWNER@:wadDTNC
A:d:EVERYONE@:rxtnc
A:fi:OWNER@:rwadtTnNcC
A:fig:cppweb@cpp.edu:rtnc
```

a) What is the largest set of requested actions (i.e. subset of {r, w, a, x, d, D, t, T, n, N, c, C}) that `folder`'s owner is allowed?
b) What is the largest set of requested actions that `folder`'s group owner is allowed?
c) What is the largest set of requested actions that the world is allowed?
d) What is the largest set of requested actions that the group `cppweb@cpp.edu` is allowed?
e) When a file is added to `folder`, what will be its NFSv4 ACL?

3 Consider a directory named `folder` in a ZFS file system, with the following NFSv4 ACL:

```
A:d:OWNER@:rwadDxtTnNcC
A:dg:cppweb@cpp.edu:r
A:fi:OWNER@:rwadtTnNcC
A:fig:cppweb@cpp.edu:rtnc
```

a) What is the largest set of requested actions (i.e. subset of {r, w, a, x, d, D, t, T, n, N, c, C}) that `folder`'s owner is allowed?
b) What is the largest set of requested actions that `folder`'s group owner is allowed?
c) What is the largest set of requested actions that the world is allowed?
d) What is the largest set of requested actions that the group `cppweb@cpp.edu` is allowed?
e) When a file is added to `folder`, what will be its NFSv4 ACL?

4 User `carich` wants to create a ZFS directory named `dropbox` that will function as a "blind" dropbox with the following functional requirements:

- User `carich` has full access and control of `dropbox` and files in `dropbox` (including those he doesn't own), except he cannot add subdirectories to `dropbox`.
- Members of the group `cs49902` can add files to `dropbox`, but have no access or control of files or subdirectories in `dropbox` (including files they own). They cannot add subdirectories to `dropbox`, delete files or subdirectories from `dropbox`, or peruse the contents of `dropbox`.
- Users other than `carich` and members of the group `cs49902` have no access to `dropbox`, or to files and subdirectories in `dropbox`.

Assuming that

- `dropbox`'s owner is `carich`,
- `dropbox`'s group owner is `cs49902`, and
- files and directories dropped in `dropbox` will have group owner `cs49902`,

give an NFSv4 ACL for `dropbox` that controls access as specified above.