Product Gude

Barqs

Breakout Automation and Replication for QtreeS

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Abstract

This guide is intended to provide an overview of Barqs and highlight some usage examples

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1 Overview

The Barqs tools is a compiled python application to automate the qtree breakout of multiple volume qtrees and replicate them to cDOT systems.

1.1 Process Outline

The following is the basic process for using Barqs for qtree breakout and replication:

- Setup options for plan and system access.
  - Upload the CSV plan file.
  - Add credentials for 7-mode, Cluster, and SVM access.
  - Create peer relationships between swing source 7-mode and SVM destinations.
- Initiate the process steps.
  - Create group mirrors
  - Update group mirrors
  - Test Access
  - Cutover Relationships

2 Features

The Features available in Barqs are listed below.

- Supports NetApp 7-Mode and clustered Data ONTAP systems.
- Creates new volumes
  - Volumes for qtree breakout are created in the designated swing space at 10% greater than the quota reported use size.
  - Volumes for cDOT are created in the designated SVM at 10% greater than the quota reported use size.
- Creates SnapMirror relationships
  - QSM mirrors created between original qtree and swing space designated volume.
  - TDP mirrors created between swing space designated volume, and cDOT volume.
- Initializes SnapMirrors end to end
  - QSM relationship initialized
  - QSM relationship quiesced and broken-off
  - TDP relationship initialized
- SnapMirror updates end to end
  - TDP relationship quiesced and broken-off
  - QSM relationship updated
  - QSM relationshiop quiesced and broken-off
  - TDP relationsip initialized
- Test Access
  - TDP relationship quiesced and broken-off
- Qtree level NFS exports applied to cDOT side volumes
- Cutover relationships
  - TDP relationship quiesced and broken-off
  - TDP relationships deleted

- QSM relationships released
- Swing volumes deleted

3 Installation

Barqs is distributed as a zip file

3.1 System Requirements

- Microsoft Windows 64-bit
- NetApp Management SDK for python (included in zip)
- NetApp Data ONTAP 7.3.3, 8.x (7-mode), 8.2.x, 8.3.x, 9.x (cDOT)

3.2 Installation Procedure

1. Download the Barqs zip file
2. Extract the zip file (extracted zip will create its own folder called Barqs)

3.3 Initial NetApp System Prerequisites

- 7-mode setup
  - `options tls.enable on`
  - Snapmirror licensed and on
  - Quotas on for all volumes to be migrated (see appendex for automation to turn on quotas for volumes that don't have them
  - Must be able to ping swing system(if another system), cluster, and svm by dns short names
- cDOT setup
  - Snapmirror licensed and on
  - SVM with management lif
  - SVM admin account (vsadmin for example)
  - At least one inter cluster lif per node
  - Must be able to ping swing system by dns short names

4 Usage

4.1 Defining Plans

- Open included plan.csv example file or create a new csv file
  - First row must have the following column entries. (capitalization is important);
    source_volume
    source_filer
    qsm_destination
    qsm_aggr
    dst_cluster
    dst_svm
    tdp_aggr
    group
  - 'source_volume' is the volume name that contains qtrees you want to breakout.

- ‘source_filer’ is the NetApp 7-mode system short name that contains the ‘source_volume’.
- ‘qsm_destination’ is the NetApp 7-mode system where the swing space will be used. This can be the same system or a different system.
- ‘qsm_aggr’ is the aggregate to create the swing volume in.
- ‘dst_cluster’ is the NetApp cDOT system short name you want the broken out qtree volume migrated to.
- ‘dst_svm’ is the Storage Virtual Machine name the migrated volume will be a part of.
- ‘tdp_aggr’ is the aggregate to use for the cDOT volume
- ‘group’ defines the plan group this volumes qtrees will be a part of. Processes are run on a per group basis.

- Save the file as a csv file type.

4.2 Setup

- Double click barq.exe (can take a few seconds to start)
- From the menu choose option 7. Setup.

```
Breakout Automation for Replicating QtreeS

Options:

   1. Create group mirrors
   2. Update group mirrors
   3. Test access
   4. Setup exports on cluster to match 7-mode access
   5. Cutover relationships
   6. Group management
   7. Setup
   8. Delete group from plan
   x. Exit

Selection:
```

- Choose option 1. Add credentials
  - For a 7-mode system enter ‘filer’, for a cDOT system enter ‘cluster’, for a Storage Virtual Machine enter ‘svm’
  - Enter the dns short name of the system/cluster/svm.
  - Enter the ip address of the system/cluster/svm.
  - Enter the username for the system/cluster/svm.
  - Enter the password for that username. (passwords will not be echoed to screen)

```
Setup Menu
   1. Add credentials
   2. Upload plan
   3. Create peer relationship
   x. Back to main menu

Selection: 1
For 7-mode enter 'filer' for Cluster enter 'cluster' for SVM enter 'svm':
DNS name: 7-mode-01
IP Address: 192.168.10.20
Admin account Username: root
Password for root:
```

- Choose option 2. Upload plan
  - Enter the absolute path to your plan.csv file. If the file is in the same directory as barq.exe you can just enter the name

```
Setup Menu
   1. Add credentials
   2. Upload plan
   3. Create peer relationship
   x. Back to main menu

Selection: 2
Filename or full path to fill if not in current directory: plan.csv
```

- Choose option 3. Create peer relationship
  - Enter the dns short name of the 7-mode system used for swing space.
  - Enter the dns short name of the cDOT system used for destination.
  - Enter the dns short name of the SVM to use.
  - Repeat for all Swing space source to SVM destinations to be used.

```
Setup Menu
   1. Add credentials
   2. Upload plan
   3. Create peer relationship
   x. Back to main menu

Selection: 3
7-mode system name: 7-mode-01
cDOT system name: cdot-01
Storage virtual machine name: svm01
```

4.3 Breakout and Replication

- Double click barq.exe (Can take a few seconds to start)

```
Breakout Automation for Replicating QtreeS

Options:

   1. Create group mirrors
   2. Update group mirrors
   3. Test access
   4. Setup exports on cluster to match 7-mode access
   5. Cutover relationships
   6. Group management
   7. Setup
   8. Delete group from plan
   x. Exit

Selection:
```

* Output of menu omitted for rest of section

- Create group mirrors
  - Creates volumes and baselines mirrors.
- Update group mirrors
  - Updates end to end mirror relationships
- Test access
  - Quiesces and Breaks-off the TDP relationships making the cDOT side volumes R/W for testing. Does not remove TDP relationships
- Setup exports on cluster to match 7-mode access
  - Scans /etc/exports for qtree level exports and creates the appropriate rules and policies for the volumes on the cDOT side
- Cutover relationships
  - Quiesces and Breaks-off the TDP relationships.

  - Deletes TDP relationships
  - Releases QDP relationships
  - Deletes swing space volumes
- Delete group from plan
  - Removes entries assigned to group from database

4.4 Group Management

- Double click barq.exe. (Can take a few seconds to start
- Select option '6. Group management'

```
Group management menu

   1. Disable volume
   2. Re-enable volume
   3. List disabled volumes
   4. List groups
   5. Group status
   6. Volume search
   7. Move volume or qtree between groups
   x. Back to main menu

Selection:
```

- Disable volume
  - Set a volume and all qtrees in it to be ignored by Barqs. Only effects that volume, not entire group.
- Re-enable volume
  - Re-enable a previously disabled volume.
- List disabled volumes
  - See a list of all disabled volumes by group.
- List groups
  - See a list of all defined groups
- Group status
  - Get status of a group. (Volumes, qtrees, current status, run time for last update)
- Volume search
  - Search to see what group a volume is in, or if it is there at all
- Move volume or qtree between groups
  - Move volume, or individual qtree, to another group. Can be a new group as well.

5 Appendix

- In the main menu you can enter the Selection: quotas
  - This will turn on quotas set at no restrictions for all volumes in a group. This is usful to prep a system as quotas must be enable for this application to work.
- Scheduling updates
  - In cron or the scheduler you can run this application from the command line feeding it two opitons; update and <group name>
    - barq.exe update group1

- Created files
  - During the course of its running BarqS will create the following files/directories in its current directory
  - ‘netapp.db’. This is the database file for the application
  - ‘log’. This is the logs directoy where logging is written to.

6 Known Limitations/Bugs

- At current all mirror jobs are run serially one after another.
- No export information is created if there isn’t already an export at the qtree level
- Only the first host discovered gets proper export rules created
- No CIFS or LUN information is copied over.

Version History

Version	Date	Document Version History
Version 1.0	October 2016	Initial document created