



**IBM Spectrum Scale**

## **Computing Insight UK 2015**

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Dec 2015





## 4.2.0 Summary

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- GUI \*
- QoS \*
- Compression \*
- Improved Object capabilities
- Ssh and scp wrappers
- Native Hadoop HDFS support \*



## GUI Demo

# No GUI Demo?

Never work with children, animals or live demos

## QoS

- Configurable limit for number of IOPS that maintenance tasks can use
- Can be configured at a per-storage pool level
- The IOPS being used can be viewed with `mmlsqos`
- Limited to just “maintenance” and “other” classes in 4.2.0

# Compression

- Designed for cold data or write-once objects and files
- Compression is at a per-file level
  - Mmchattr for a single file
  - mmappolicy to compress many files
- Can be done synchronously or deferred until a restripe
- Uses zlib, favouring compression over speed



## Big Data & Analytics on Scale



# Big Data and Analytics on Scale

Spectrum Scale is a natural fit in this space

Data locality (FPO & Hadoop Connector)

POSIX data access (Spark / Tachyon)

Massive scale out (Big Data)

# Big Data and Analytics on Scale

- Current support:
  - FPO (data locality)
  - Hadoop (HDFS connector)
    - HDFS Transparency (support for HDFS:// protocol)
  - “How to” Guides
    - Watson Explorer
    - InfoSphere Streams
    - BigInsights & Ambari

[https://www.ibm.com/developerworks/community/wikis/home?lang=en#!/wiki/General%20Parallel%20File%20System%20\(GPFS\)/page/Analytics](https://www.ibm.com/developerworks/community/wikis/home?lang=en#!/wiki/General%20Parallel%20File%20System%20(GPFS)/page/Analytics)

# Big Data and Analytics on Scale

- Future:
  - Big Insights
  - Cloudera
  - Hortonworks
  - Cognos
  - SPSS
- Performance tuning guidelines for:
  - Map Reduce
  - Hive
  - HBase
  - BigSQL
  - Spark

Anything missing? Speak now, or corner Cam later!



## Priorities for 2016

## Priorities for 2016

- *Every year we define a set of imperatives / goals / hills*
  - *Based mainly on client feedback*
  - *Address their needs*
  
- *Target is to achieve them within the year*
  - *Aim to build on last year's successes*

# Priorities for 2016

- Documentation
- Defect backlog
- Security
- Problem Determination

# Documentation

- We are looking for feedback on existing Documentation
  - What is important to Improve / add
  - Please talk to me (Cam) and let me know areas that are particularly important to you
  - And ways to improve it

# Reduce the Defect Backlog

- It's not sexy..

...but is important



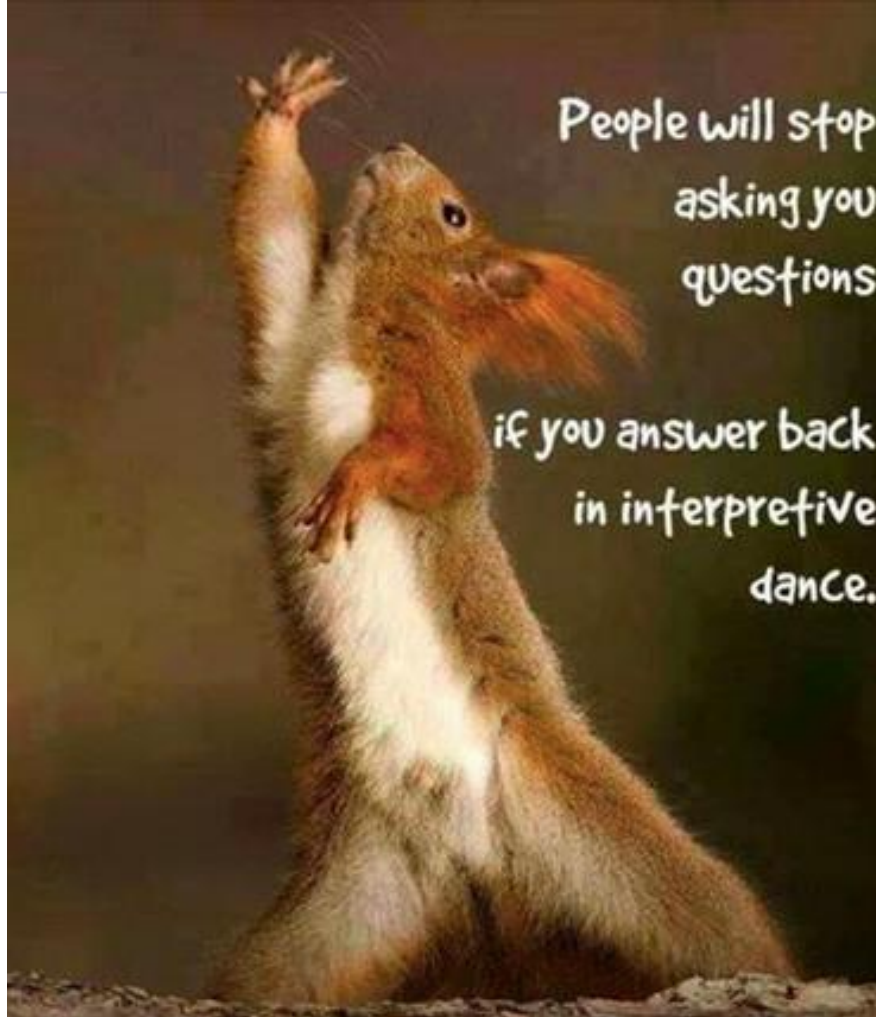
# Security

- NIST-compliance
- FIPS-certified encryption
- Vulnerability scanning and security hardening
- Improvements in file encryption consumability (configuration of key server)
- Execution in an environment with restricted password-less ssh capability
- White papers: Spectrum Scale Security

# Problem Determination

- The main area that needs to be improved based on feedback from users
- Three main focus areas for Problem Determination:
  - Active monitoring of the system
  - Improved documentation and guidance for fixing problems
  - Pro-active configuration checking
- Make information more easily accessible

# Questions?



People will stop  
asking you  
questions

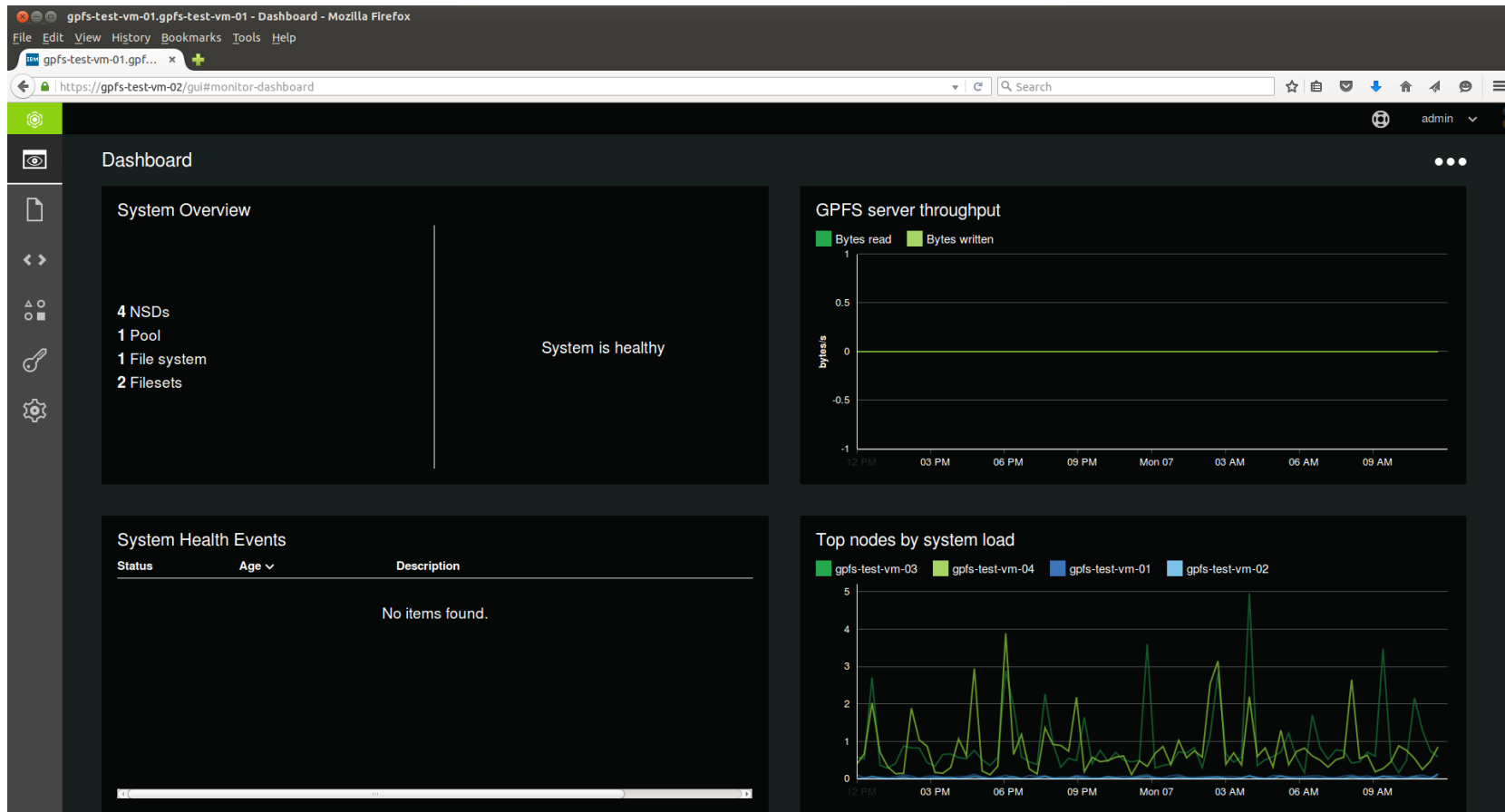
if you answer back  
in interpretive  
dance.

## Appendix

# QoS

List of tasks that are “maintenance” tasks:

- mmadddisk
- mmapplypolicy
- mmbackup
- mmcheckquota
- mmdefragfs
- mmdeldisk
- mmelfileset
- mmdeletesnapshot
- mmdf
- mmfileid
- mmfsck
- mmsssnapshot
- mmrestripefs
- mmrpldisk



gpfs-test-vm-01.gpfs-test-vm-01 - Events - Mozilla Firefox

gpfs-test-vm-01.gpf...

https://gpfs-test-vm-02/gui#monitor-events

Search

admin

Events

Next recommended action

Actions

All Events

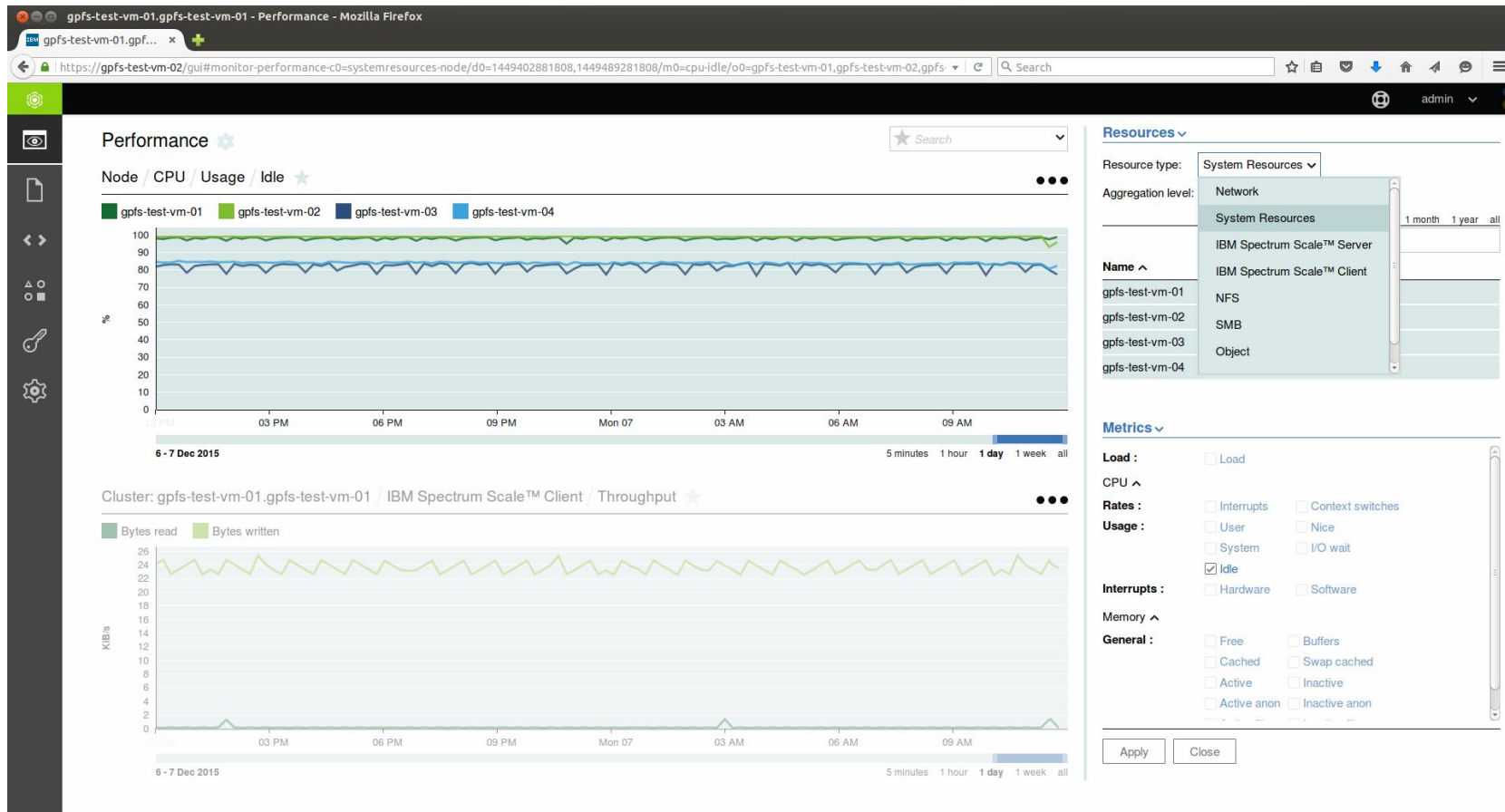
Download

Refresh

Last Updated: 11:52

Search

Status	First Occurrence	Event ID	Description	Action
Information	07/12/2015 11:42:57	MS0140	The local file systems on node gpfs-test-vm-02 reached a normal level.	
Information	07/12/2015 11:42:56	MS0140	The local file systems on node gpfs-test-vm-03 reached a normal level.	
Information	07/12/2015 11:42:56	MS0140	The local file systems on node gpfs-test-vm-04 reached a normal level.	
Information	07/12/2015 11:42:56	MS0140	The local file systems on node gpfs-test-vm-01 reached a normal level.	
Information	07/12/2015 11:40:34	MS0371	The state of performance monitoring sensor service pmsensor on node "gpfs-test-vm-01" ...	
Information	07/12/2015 11:40:34	MS0371	The state of performance monitoring sensor service pmsensor on node "gpfs-test-vm-04" ...	
Information	07/12/2015 11:40:34	MS0371	The state of performance monitoring sensor service pmsensor on node "gpfs-test-vm-03" ...	
Information	07/12/2015 11:40:34	MS0371	The state of performance monitoring sensor service pmsensor on node "gpfs-test-vm-02" ...	
Information	07/12/2015 11:40:03	MS0361	The state of performance monitoring collector service pmcollector on cluster "gpfs-test-v...	
Information	07/12/2015 11:38:34	MS0520	The SMB service is healthy on node "gpfs-test-vm-04".	
Information	07/12/2015 11:38:34	MS0540	The network state is healthy on node "gpfs-test-vm-04".	
Information	07/12/2015 11:38:33	MS0530	The object service is healthy on node "gpfs-test-vm-04".	
Information	07/12/2015 11:38:33	MS0510	The NFS service is healthy on node "gpfs-test-vm-04".	
Information	07/12/2015 11:38:33	MS0500	The Hadoop DFS state is healthy on node "gpfs-test-vm-04".	





gpfs-test-vm-01.gpfs-test-vm-01 - Snapshots - Mozilla Firefox

gpfs-test-vm-01.gpf... x

https://gpfs-test-vm-02/gui#files-snapshots

admin

## Snapshots

Create snapshots or snapshot rules to automate snapshot creation and retention.

**Create Snapshot** Actions

Name	Remote Cluster
fs0	
root	
object_fileset	

**Create Snapshot**

Manual Schedule

Path: /ibm/fs0/object\_fileset Browse

Select one or more Create Rule

**Create Snapshot Rule**

Name:

Frequency: Hourly

Minute: + -

Retention:

Hours: 0 ! + - Days: 0 + - Weeks: 0 + - Months: 0 + -

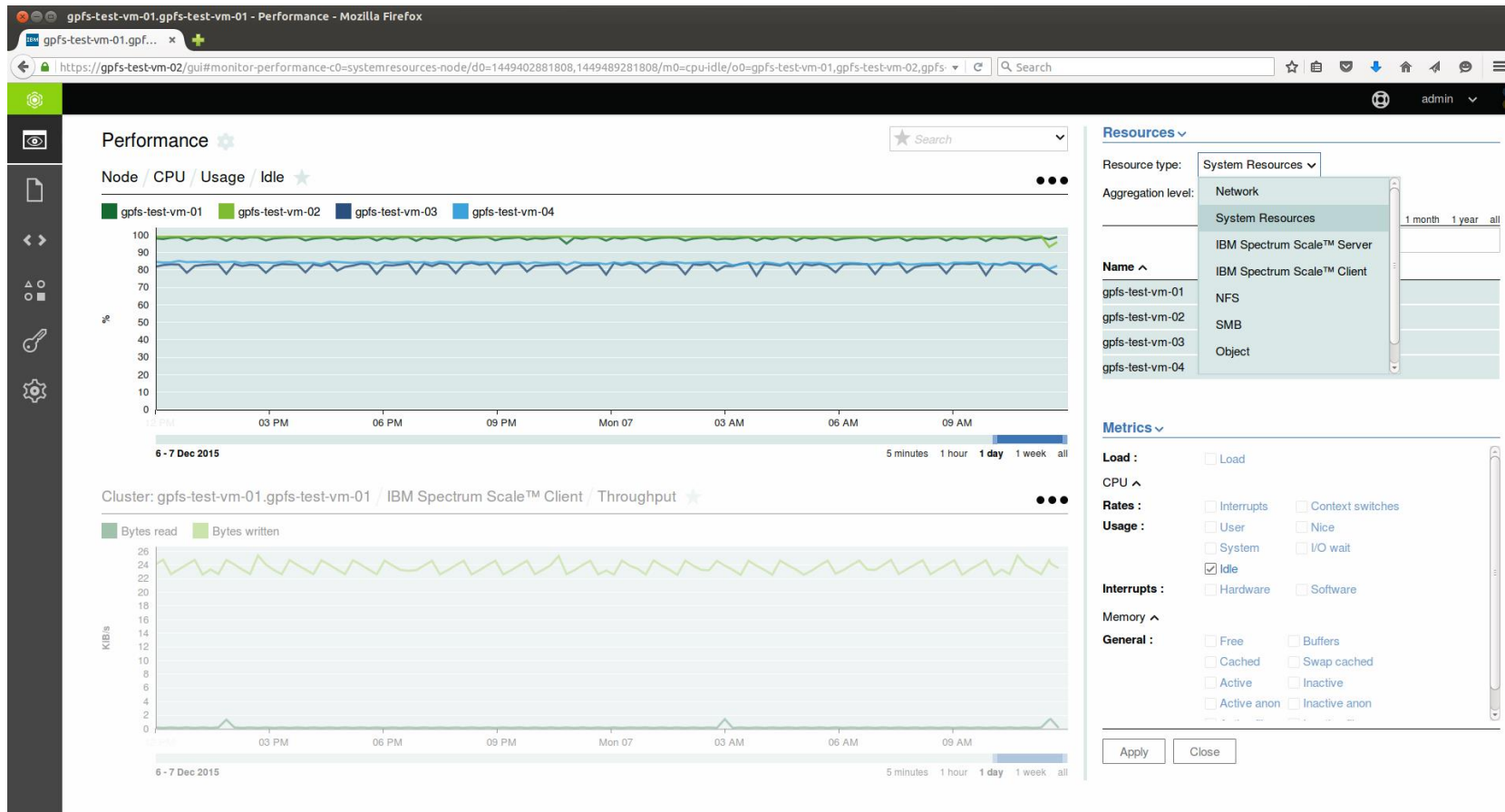
Prefix:

OK Cancel

Schedules Status Time

Search

Last Updated: 11:56



gpfs-test-vm-01.gpfs-test-vm-01 - Information Lifecycle - Mozilla Firefox

File Edit View History Bookmarks Tools Help

gpfs-test-vm-01.gpf... x

<https://gpfs-test-vm-02/gui#files-ilm>

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▼

Information Lifecycle

Create, manage, and delete policies that manage automated tiered storage of information.

Active Policy

Policy Repository

File System

fs0

Pool **system** (29% used)

4.0 GiB

Rules

Add Rule

1. Placement Example (\*)

⚠ There are some issues with the policy

Apply Changes

Cancel Changes

Placement Example

Enabled

Pool:

!

Placement scope:

Entire File System

Placement criteria:

Place files into pool if

any

of these criteria is met:

-

-

-

+

-

Delete Rule

Policy Text

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gpfs-test-vm-01.gpfs-test-vm-01 - NFS Exports - Mozilla Firefox

gpfs-test-vm-01.gpf... x

https://gpfs-test-vm-02/gui#protocols-nfs

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## NFS Exports

Create and manage NFS exports.

+ Create Export Actions

Path File System Access Type

Search

Path:

Owner:

Owning group:

Add NFS client. Reorder the clients as needed.

+ Add NFS Client Actions

Search

Name or IP Address	Access Type	Root Squashing	NFS Protocol
No items found.			

Create Cancel