SCALEOUT

Configuration Management Tools - Storage

Max Andersson

- File Storage
- Block Storage
- Object Storage

- File Storage
  - File-level or File Based storage
  - Stores in hierarchical structure
  - Stored in files and folders
  - Can be accessed via SMB, NFS or CIFS

- Block Storage
  - Block Storage is organized into blocks
  - Does not organize data. It doesn’t understand file semantics, and only deals in bytes.
  - Block storage is sometimes exposed to a network via fibre channel or iSCSI to form a SAN (Storage Area Network)

- Filesystem types
  - Disk/local file systems
  - Distributed file systems
  - Special purpose file systems

- Gluster Features
  - Gluster has a number of features that favorably tip the geek scale
  - Global namespace
  - Clustered storage
  - Modular and stackable
  - Highly available storage
  - Built in replication and geo-replication
  - Self-healing
  - The ability to re-balance data

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- Four main concepts:
  - Bricks - storage units which consist of a server and directory path (i.e., server:/export)
  - Translators, modules that are chained together to move data from point a to point b
  - Trusted Storage Pool, a trusted network of servers that will host storage resources
  - Volumes, collection of bricks with a common redundancy requirement

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- Trusted storage pools contain one or more storage servers that will host Gluster volumes
- A brick contains the name of a trusted storage server and a directory on the server where data will be read and written by clients
- Bricks are combined into volumes based on performance and reliability requirements
- Volumes are shared with Gluster clients through CIFS, NFS or the Gluster file system

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- Gluster supports a number of volumes types, each providing different availability and performance characteristics:
  - **Distributed**, Files are distributed across bricks in the cluster
  - **Replicated**, Files are replicated across one or more bricks in the cluster,
  - **Striped**, Stripes data across one or more bricks
  - **Distributed replicated**, Distributes files across replicated bricks in a cluster
  - **Distributed striped**, Stripes data across two or more nodes in the cluster

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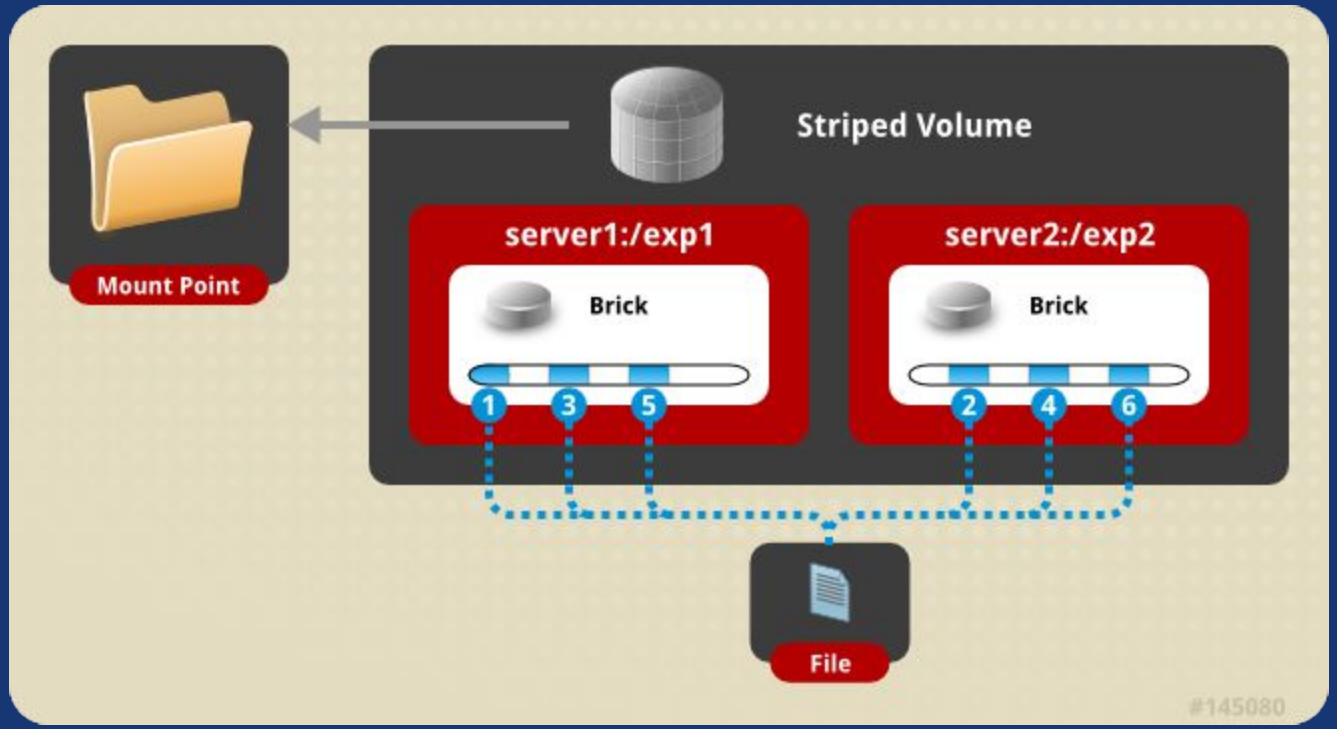

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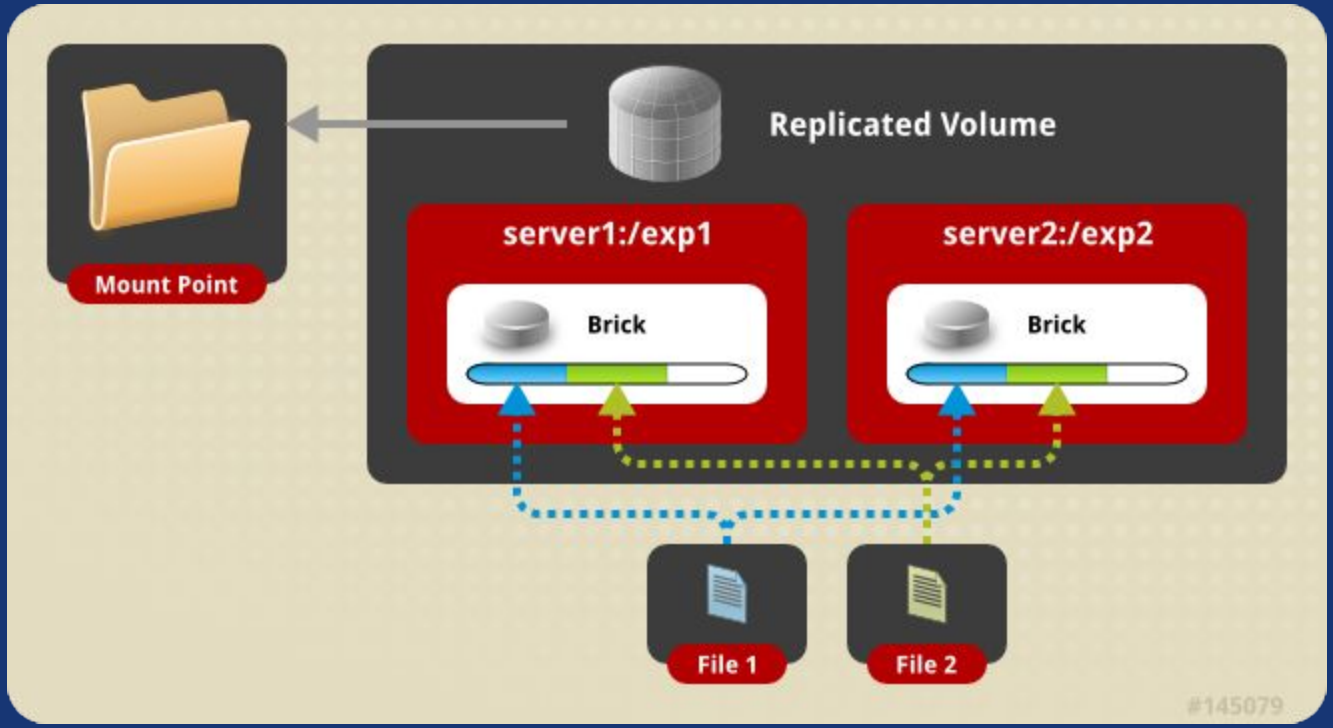

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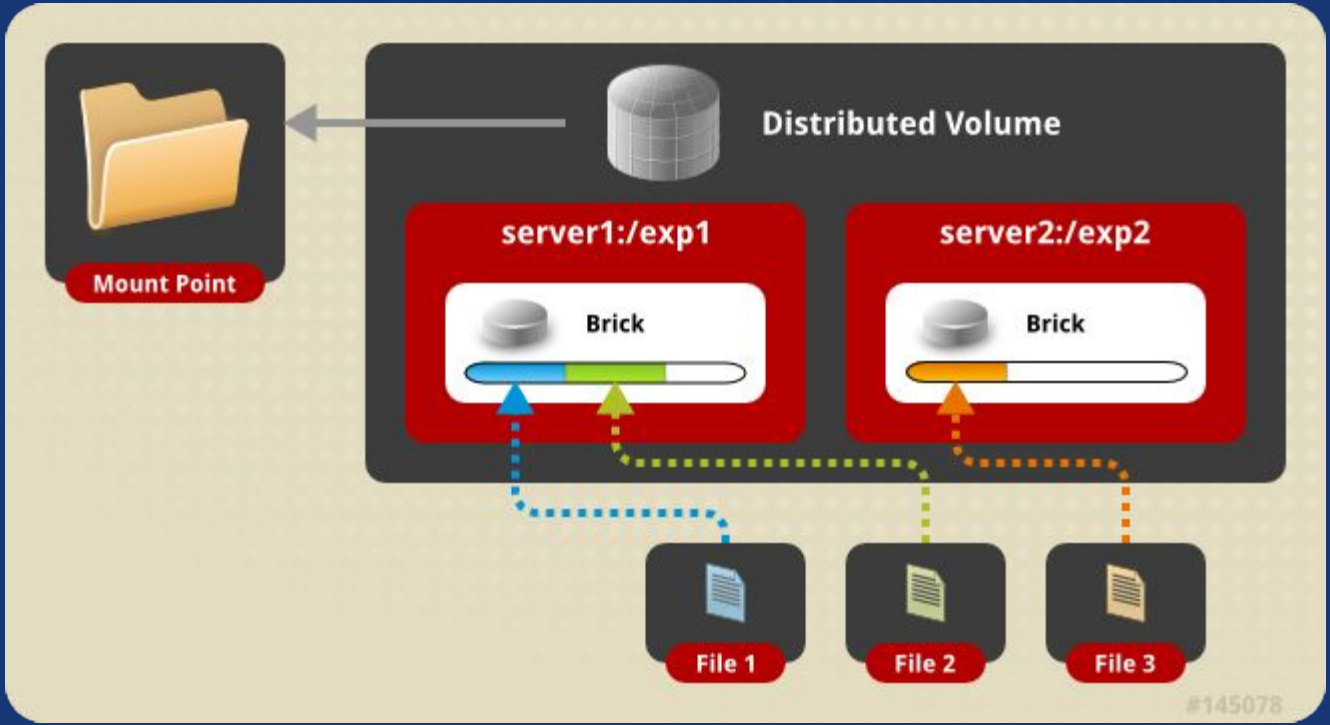

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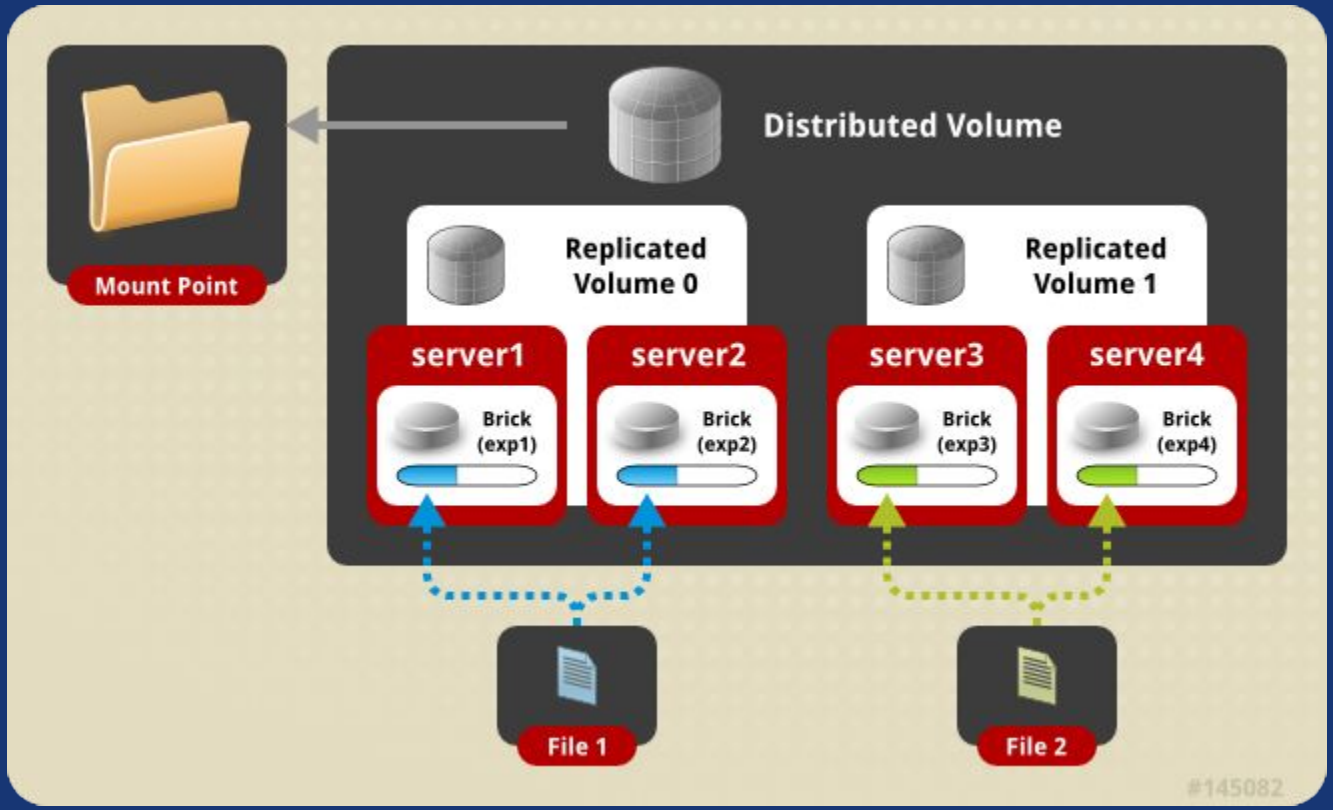

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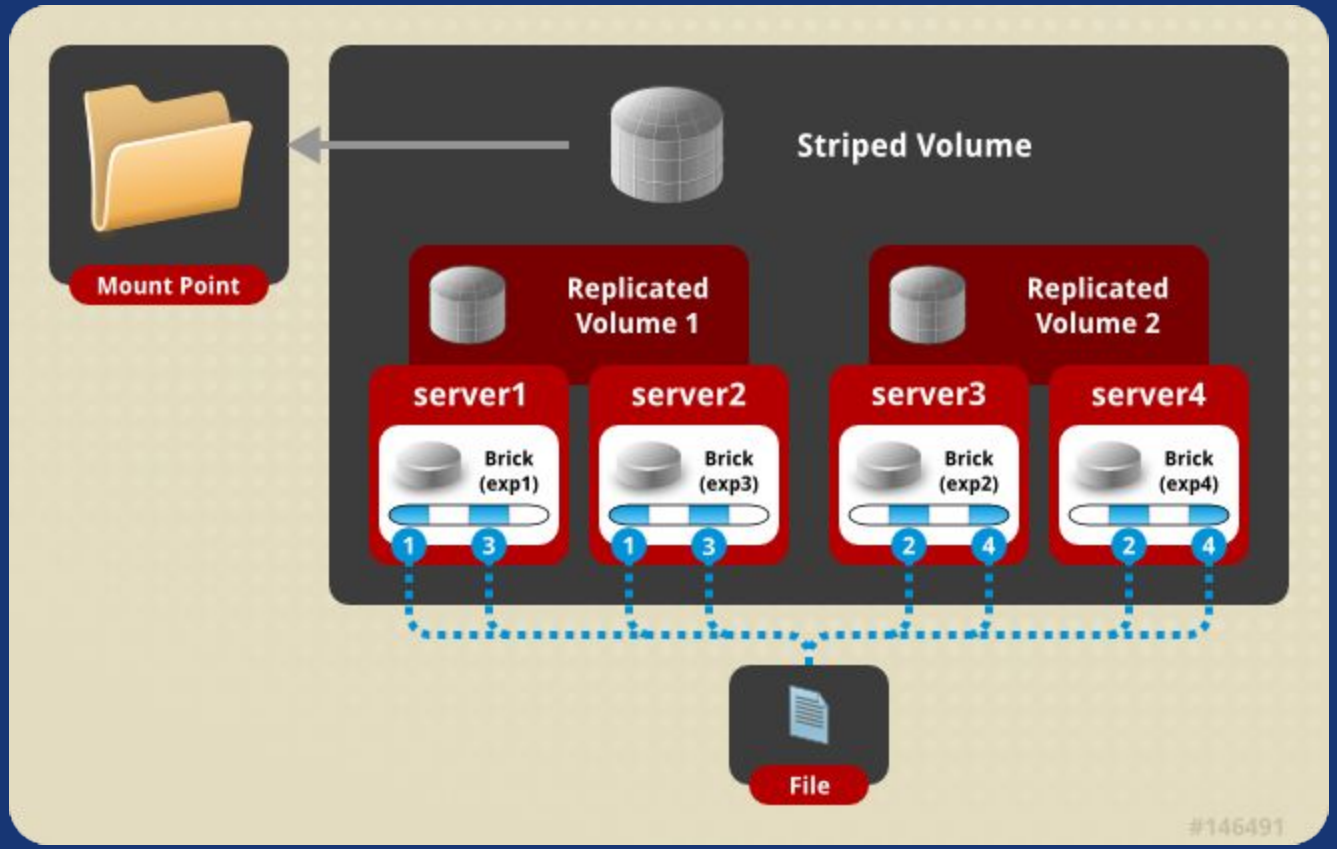

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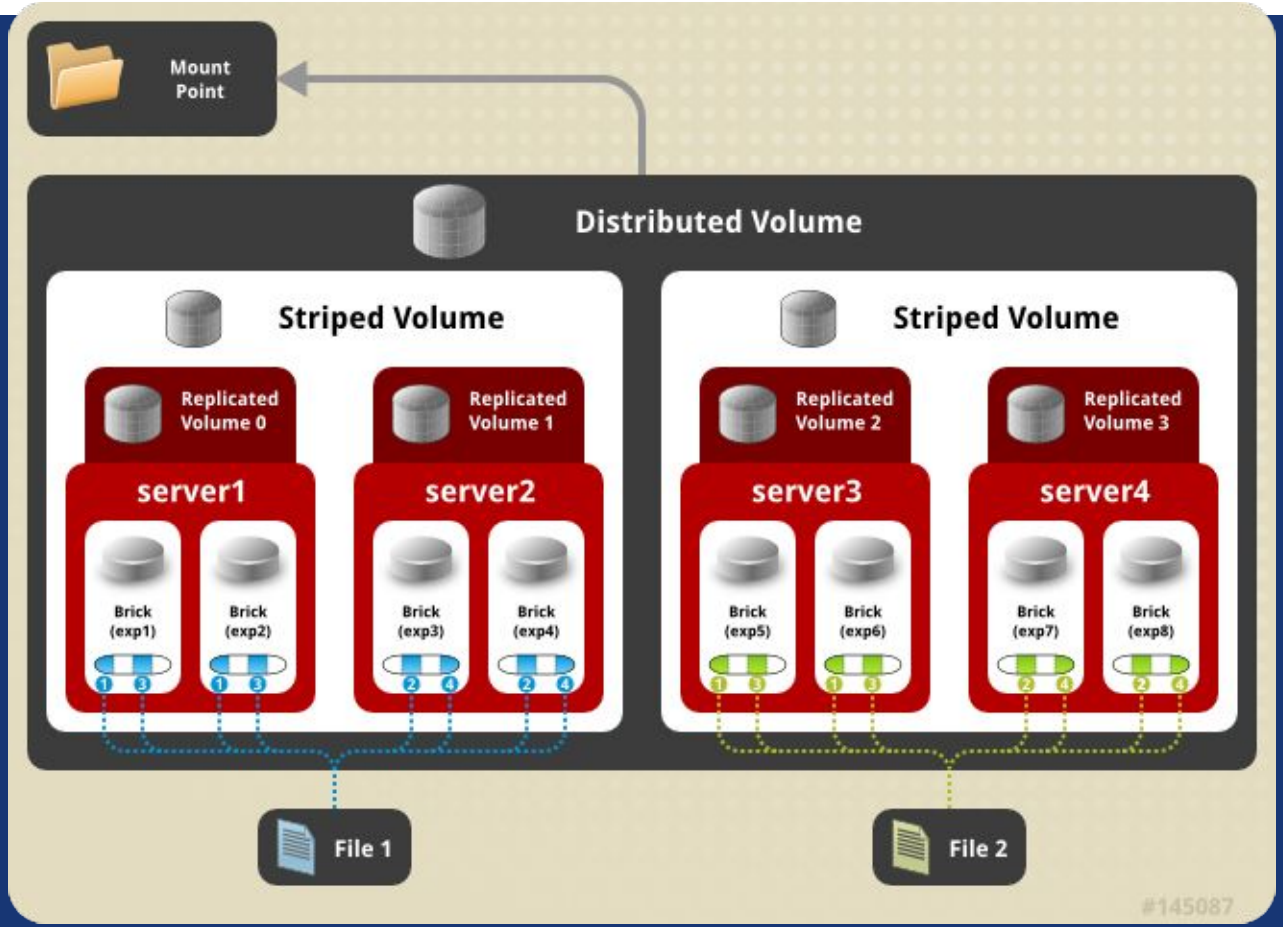

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- Kubernetes
  - **Volumes**
  - **Persistent Volumes**
    - Set up by administrators
  - **Persistent Volumes Claims**
    - Asks to consume resources.
  - **Storage classes**
    - Blueprint for persistent volumes. Defines How to provision storage.

- Snapshots
  - Snapshots in Openstack allows you to save an image or volume at a specific time.
  - Snapshot can be used to backup volumes or migrate instances.
  - Snapshots in Kubernetes are called VolumeSnapshot & VolumeSnapshotContent, But needs a driver to work.

Storage