# 13. Fencing

Let's learn about fencing and its usage.

**We'll cover the following**



# Background#

In a leader-follower setup, when a leader fails, it is impossible to be sure that the leader has stopped working. For example, a slow network or a network partition can trigger a new leader election, even though the previous leader is still running and thinks it is still the active leader. Now, in this situation, if the system elects a new leader, how do we make sure that the old leader is not running and possibly issuing conflicting commands?

# Definition#

Put a ‘Fence’ around the previous leader to prevent it from doing any damage or causing corruption.

# Solution#

Fencing is the idea of putting a fence around a previously active leader so that it cannot access cluster resources and hence stop serving any read/write request. The following two techniques are used:

- **Resource fencing**: Under this scheme, the system blocks the previously active leader from accessing resources needed to perform essential tasks. For example, revoking its access to the shared storage directory (typically by using a vendor-specific Network File System (NFS) command), or disabling its network port via a remote management command.
- **Node fencing**: Under this scheme, the system stops the previously active leader from accessing all resources. A common way of doing this is to power off or reset the node. This is a very effective method of keeping it from accessing anything at all. This technique is also called STONIT or “Shoot The Other Node In The Head.”

# Examples#

**HDFS** uses fencing to stop the previously active NameNode from accessing cluster resources, thereby stopping it from servicing requests.

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