Nodes

Each node must have a cassandra installation

Membership

How do nodes join a cluster?

Each potential cluster member must be configured with the same cluster name.

Nodes join a cluster

Seed nodes

Special cluster nodes which support the bootstrapping of cluster nodes

Well-known nodes which nodes wanting to join the cluster will direct initial communications

Bootstrapping

Provides a known endpoint to which nodes just entering a cluster can initially talk to.

Coordinator nodes

Gossip

Peer-to-peer (node to node) protocol

Mechanism by cluster state is communicated throughout the cluster.

Nodes talk to each other to share info about themselves and about nodes they know about

Nodes gossip once every second

Each gossip involves up to three other cluster nodes

Gossip is the means by which nodes learn about other nodes in a cluster

Data centers

Rack

Related to fault tolerance

Used in replica placement

Replica strategies can place importance on racks such that replicas are ensured to be provisioned to nodes across racks to prevent having a rack as a single point of failure.

Snitch

Controller mechanism which gathers information about a cluster

Determines which rach and datacenter nodes belong to

Used by cassandra to understand the network topology so that requests are routed efficiently

Used to allow cassandra to group nodes by rack and datacenter

Request routing

TODO

Replication strategy

Replica

## Snitches

SimpleSnitch

Doesn’t recognize racks and datacenters

Configured with a keystore and a replication\_factor

## Cluster Configuration

Clean out the entire data directory before starting a new cluster.

Data directory contains information about any existing cluster membership.

### cassandra.yaml

cluster\_name: 'NasdaqCluster'

cluster\_name: 'MyCassandraCluster'  
num\_tokens: 256

relative ratio of tokens to store in the configured node relative to other nodes  
seed\_provider:  
 - class\_name: org.apache.cassandra.locator.SimpleSeedProvider  
 parameters:  
 - seeds: "110.82.155.0,110.82.155.3"  
listen\_address:  
rpc\_address: 0.0.0.0  
endpoint\_snitch: GossipingPropertyFileSnitch

## Reference

https://docs.datastax.com/en/cassandra/2.0/cassandra/initialize/initializeSingleDS.html