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# High Availability with Mirroring

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# Agenda

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2 System Architecture

3 Components of a High Availability System

4 Monitoring

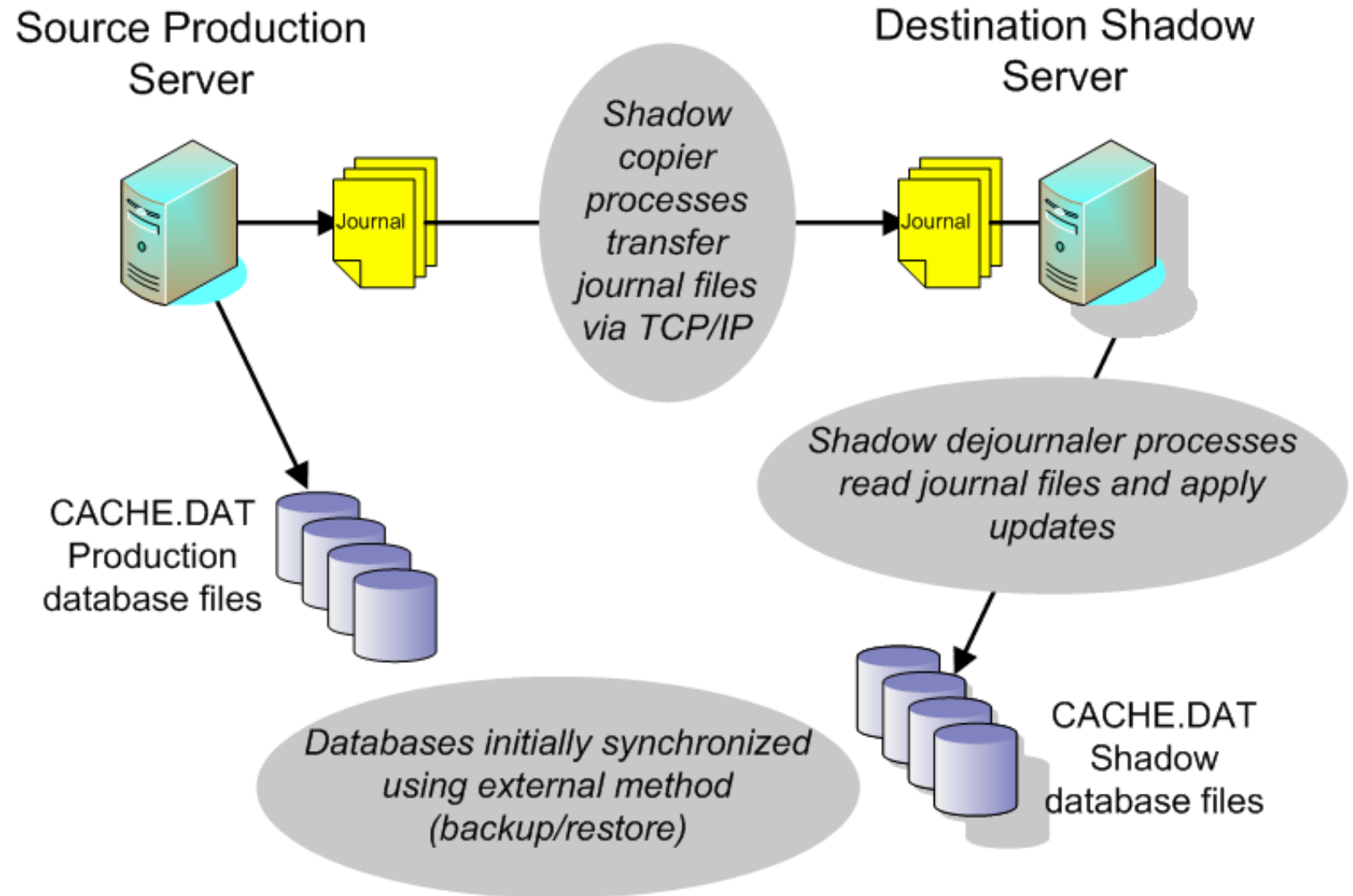
# What is High Availability?

- High availability is a characteristic of a system, which aims to ensure an agreed level of operational performance, usually uptime, for a higher than normal period. (source: Wikipedia)
- New with v8.15, the High Availability module within IM achieves this by utilizing Intersystems Mirroring Technology with automatic failover.
- High Availability differs from Hot-Backup in that the failover process is automatic.

# Hot-Backup Architecture

- Hot-Backup

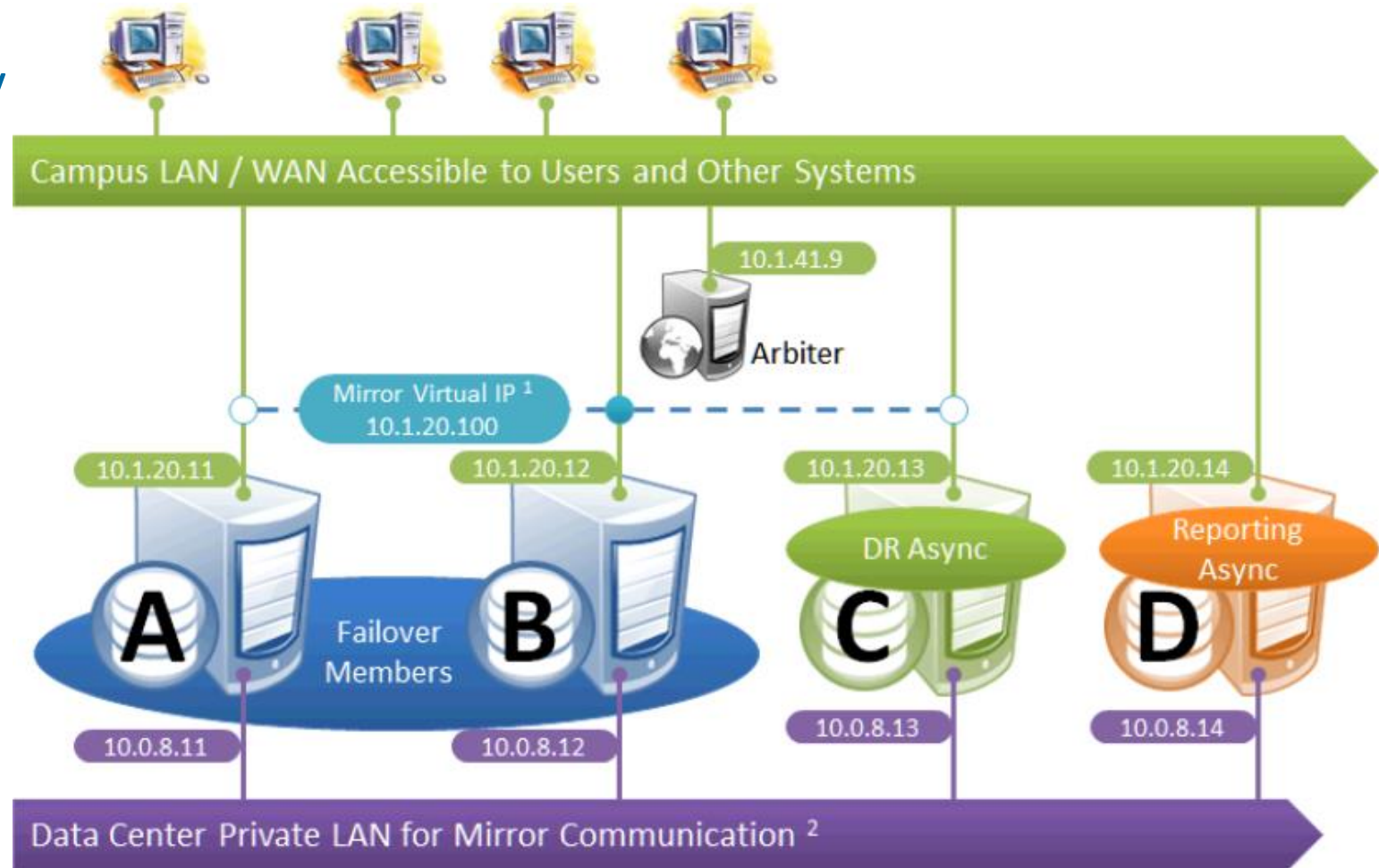
- Failover is a manual process
- Acting Primary system needs primary's IP Address and Hostname
- Only a Disaster Recovery Option



# High-Availability Architecture

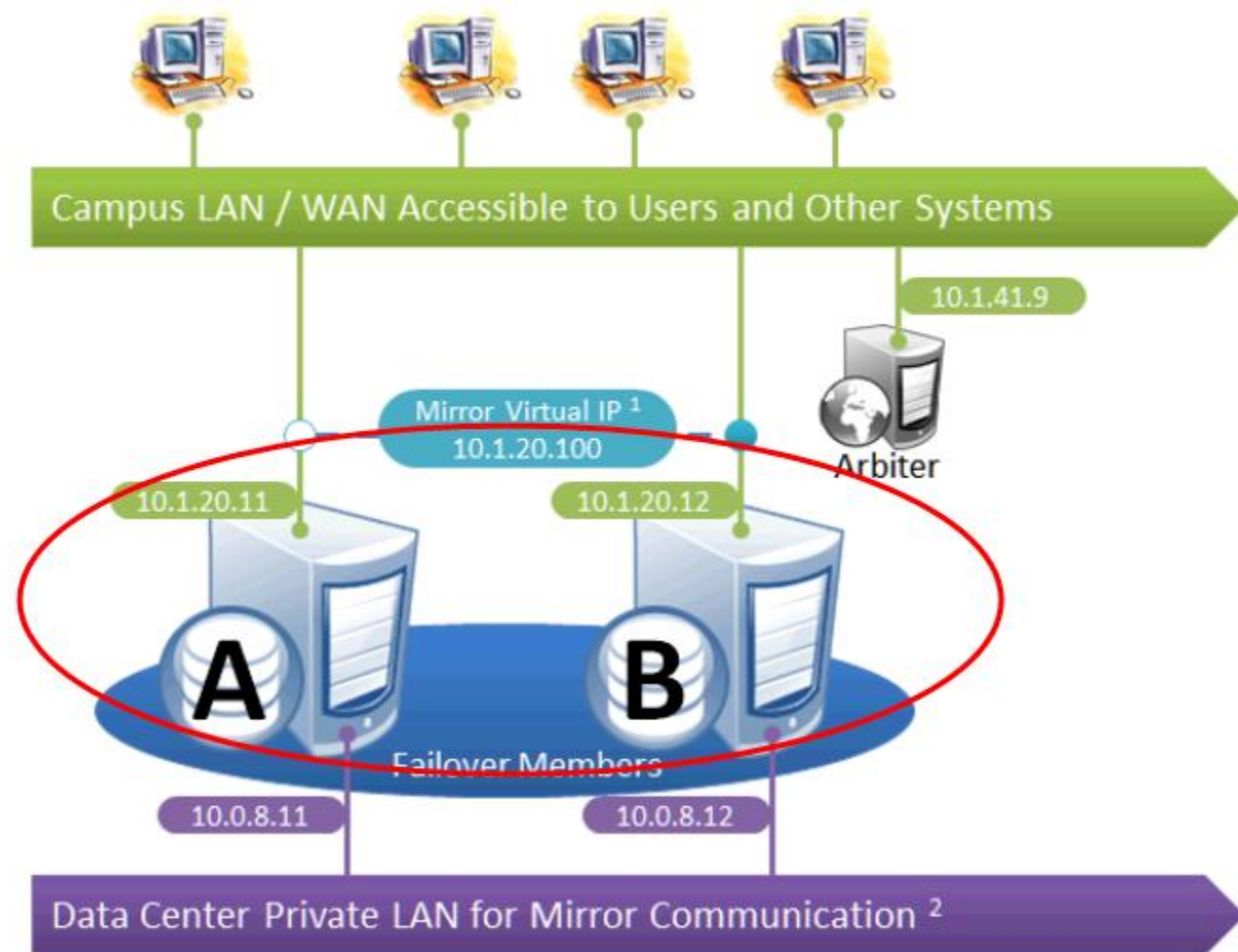
- Mirroring

- Allows both High Availability and Disaster Recovery options
- No IP Addresses or Hostnames have to be changed
- Limited IT involvement for failover action
- High Availability allows automatic failover
- Hot Backup failover is manual in a single click



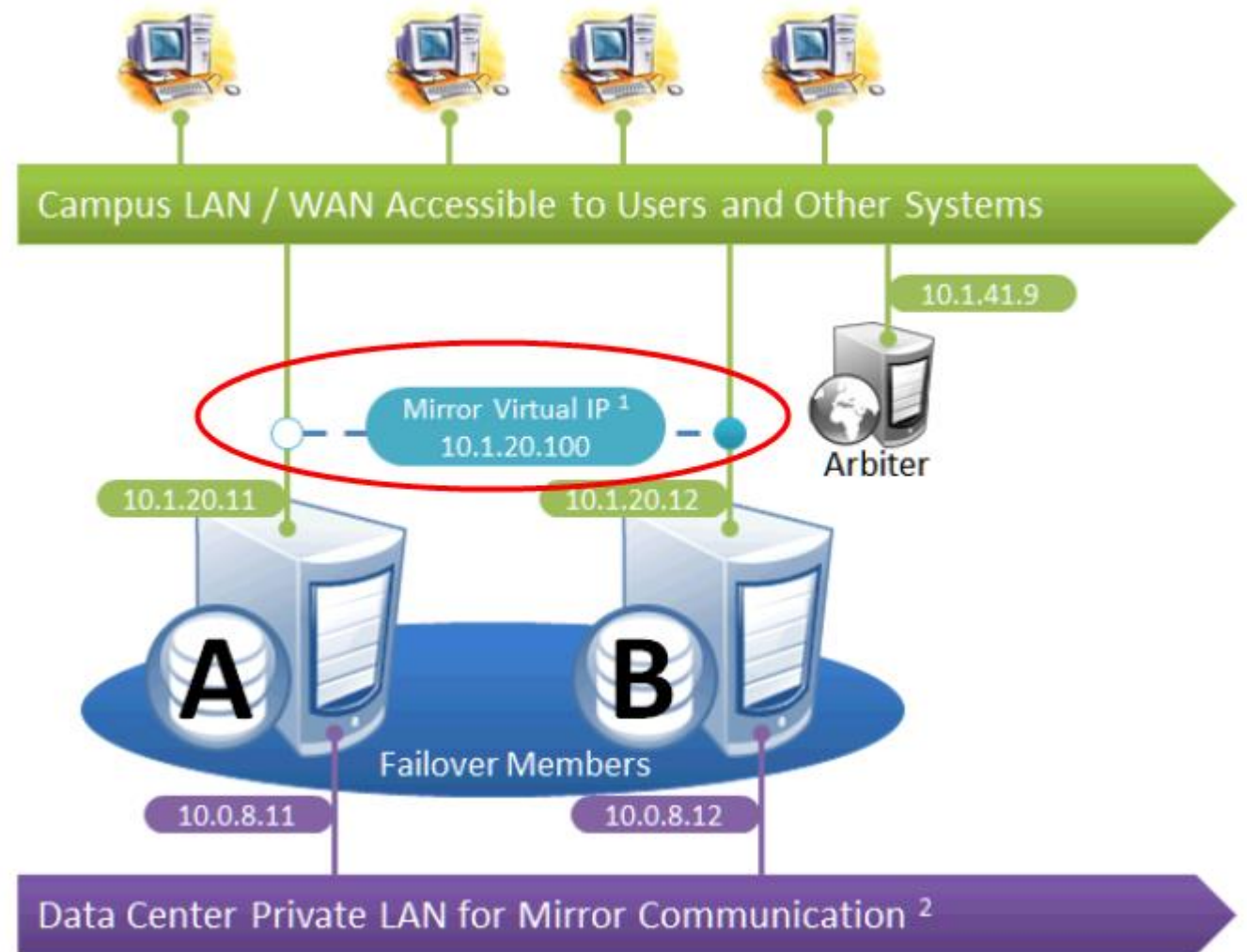
# Components of a High-Availability System

- All systems are **Mirror Members**
  - A Mirror Member can have different roles
    - Failover (High Availability)
    - Read-Write Reporting (Report Server)
    - Disaster Recovery (Hot Backup)
  - A Failover member can be in different states
    - Primary
    - Backup
    - Connected
  - The status of the system is logged in `cconsole.log`
    - Instrument Manager - Mirror Member Role: Failover: This instance is configured as a failover member
    - Instrument Manager - Mirror Status: PRIMARY



# Components of a High-Availability System

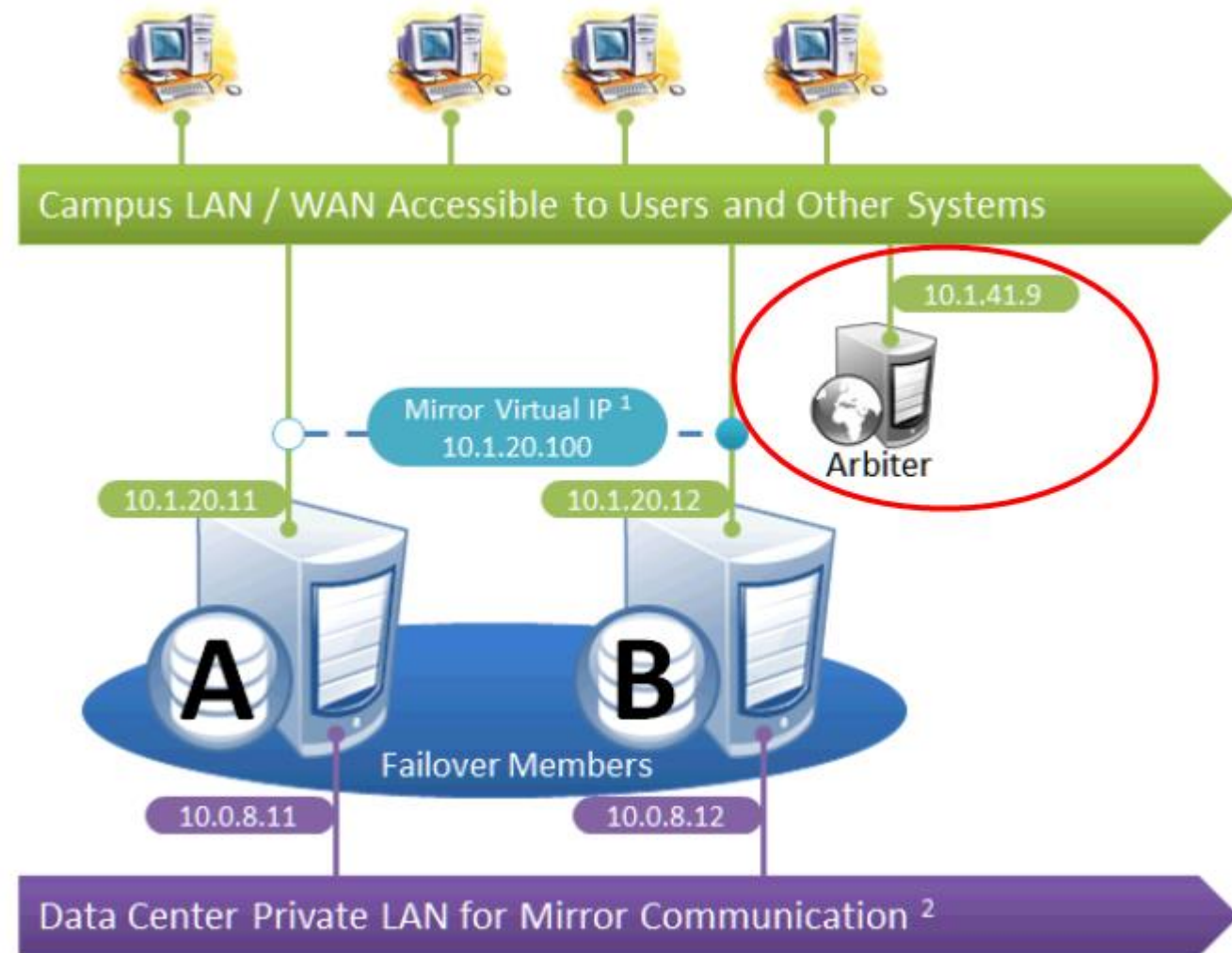
- Virtual IP (VIP)
  - This is just an IP Address that is included in the sites local DNS with a hostname assigned to it.
- How is it used?
  - As a Failover Member becomes the Primary it takes ownership of that Virtual IP.
  - Configure connections to IM and Thin Clients using the Virtual IP, so connections do not need to be reconfigured if failover occurs.



# Components of a High-Availability System

- **Arbiter System**

- This system can be any system, existing or new, that is on 24 hours a day and has network access to all of the mirror members.
- The Arbiter is a system running the ISCAgent. The ISCAgent is also running on each mirror member where Caché is installed.
- The ISCAgent is a heartbeat for the local Caché instance to the other members in the mirror set.
- The Arbiter system allows for smarter decisions as to when the acting primary system is no longer available and another system should become the primary.





# Monitoring

- Status Display

- Columns

- Connection - The hostname of the computer of the mirror member
    - Database Time Latency – Time it takes the secondary system to apply journal files to its databases.
    - Journal Time Latency – Time it will take the secondary system to process the journal records that it copied from the source but has not yet applied to its databases.
    - Mirror IP - The IP address of the system
    - Mirror Member Role - The current role of the system

- Caché Management Portal: System Operation -> Mirror Monitor

- Status of connection to Arbiter system
  - Status of all mirror members (one screen shows status from all members if they are able to communicate)
  - Status of databases in regards to local system (Activated, Caught Up, De-journaling)

# Questions?

Thank you for your time!