



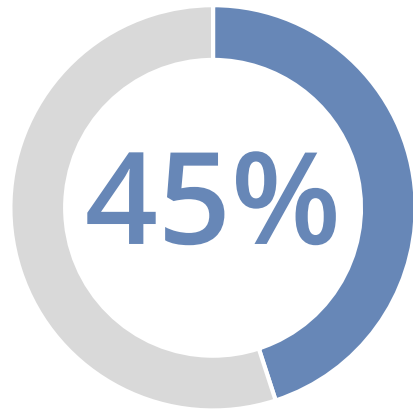
# High Availability & Disaster Recovery with Instrument Manager

Safeguard your lab with always-on continuity

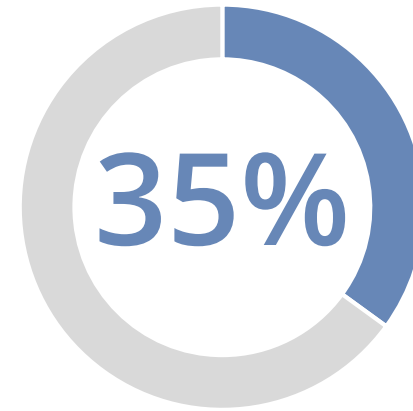
# Topics

- I. Understanding High Availability & Disaster Recovery from Instrument Manager

# Unplanned outages happen



caused by hardware failure



caused by loss of power



Potential cost of an unplanned outage

**\$926 to \$17K+** per minute

# What if you could reduce risk?

- Better assure IM system availability
- Prevent impact to patient care
- Protect lab operations and productivity



# Instrument Manager forms the foundation of lab operations

- Manages connectivity from instruments to LIS
- Supports clinical operations to analytics



# Shadow (Hot Backup)

- Function of Intersystems Cache database
- Available through IM v8.14 only
- Disaster Recovery Only
- Manual Failover Only
- Difficult Failover Process
- Not easily practiced

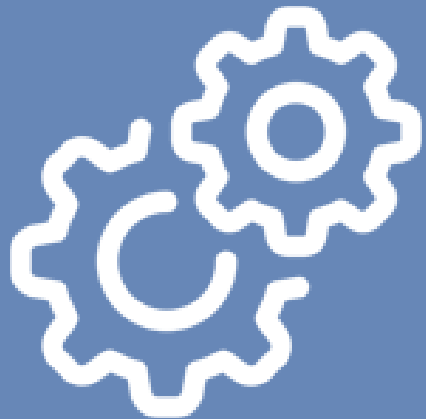


# Mirroring



- Function of Intersystems Cache database
- Available on IM v8.15 and above
- Available with multiple Mirror Members
  - Production
  - High Availability
  - Disaster Recovery
- Shadow (Hot Backup) is upgradable to High Availability

# High Availability & Disaster Recovery with Instrument Manager



Avoid the cost and worry of lab downtime with confident continuity for onsite automatic failover combined with offsite disaster recovery



# 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)

The High Availability module within IM achieves this by utilizing Intersystems Mirroring Technology with automatic failover.

High Availability differs from Disaster Recovery in that the failover process is automatic.

# Infrastructure you can count on for systems issues small and large



## High Availability

- Approach 99% uptime
- On-site failover
- Triggered by hardware issues or system failures to maintain operations

## Disaster Recovery

- Activated for major site issues, disasters
- Off-site activation and failover
- Enables recovery after site damage

# Protect daily operations from typical outages and failures with High Availability

High Availability ensures seamless operations-as-usual when you need it



Automatic,  
zero-touch  
onsite failover



Continuous,  
real-time  
mirroring

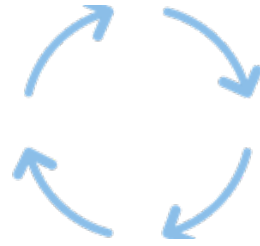


Automated  
outage detection  
and notification



No IT effort  
to activate

# Disaster Recovery for offsite emergency recovery



Prevent data gaps with  
continuous, off-site  
mirroring

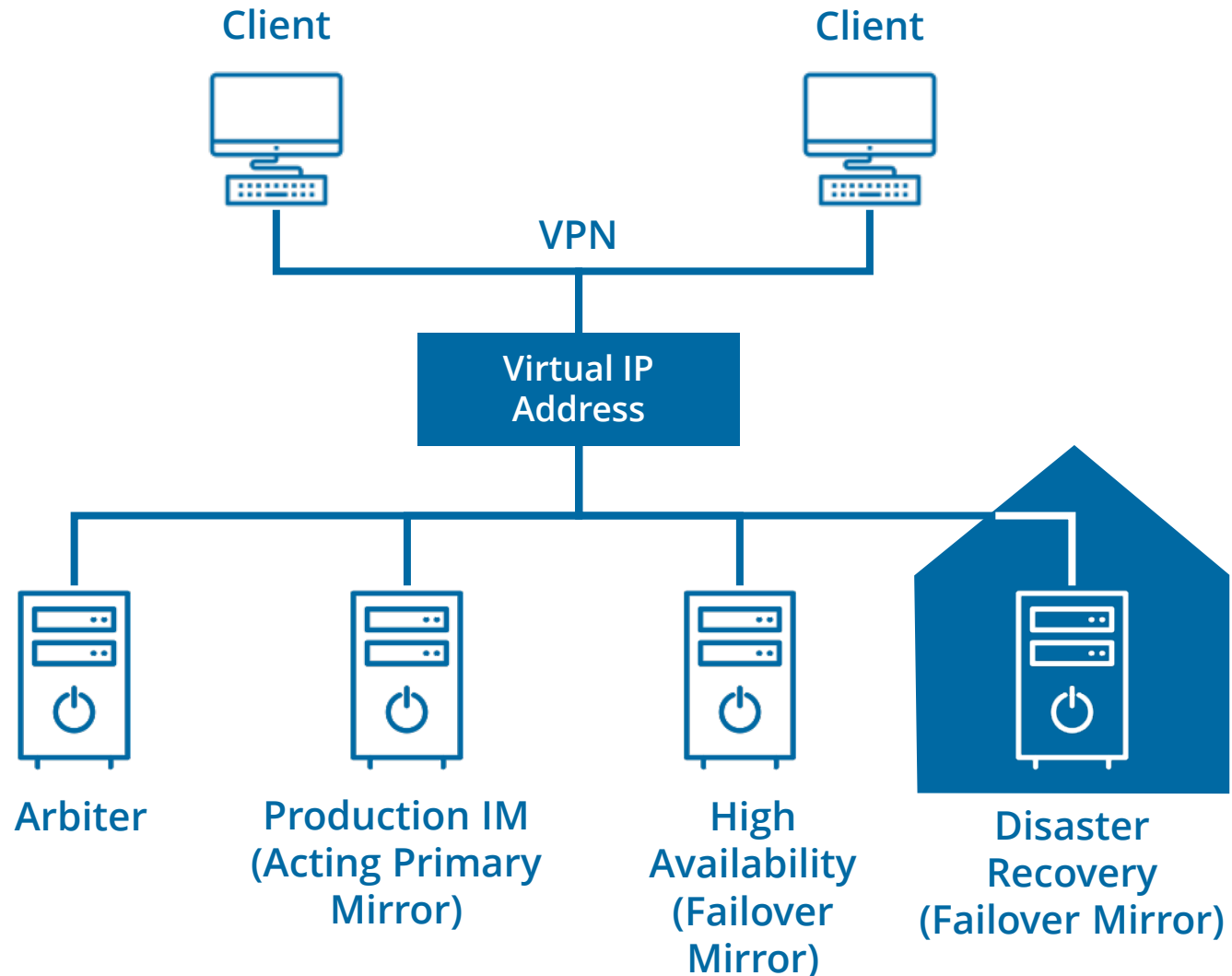


Recover from catastrophic  
site or natural disaster



One-touch activation for  
minimal IT demand

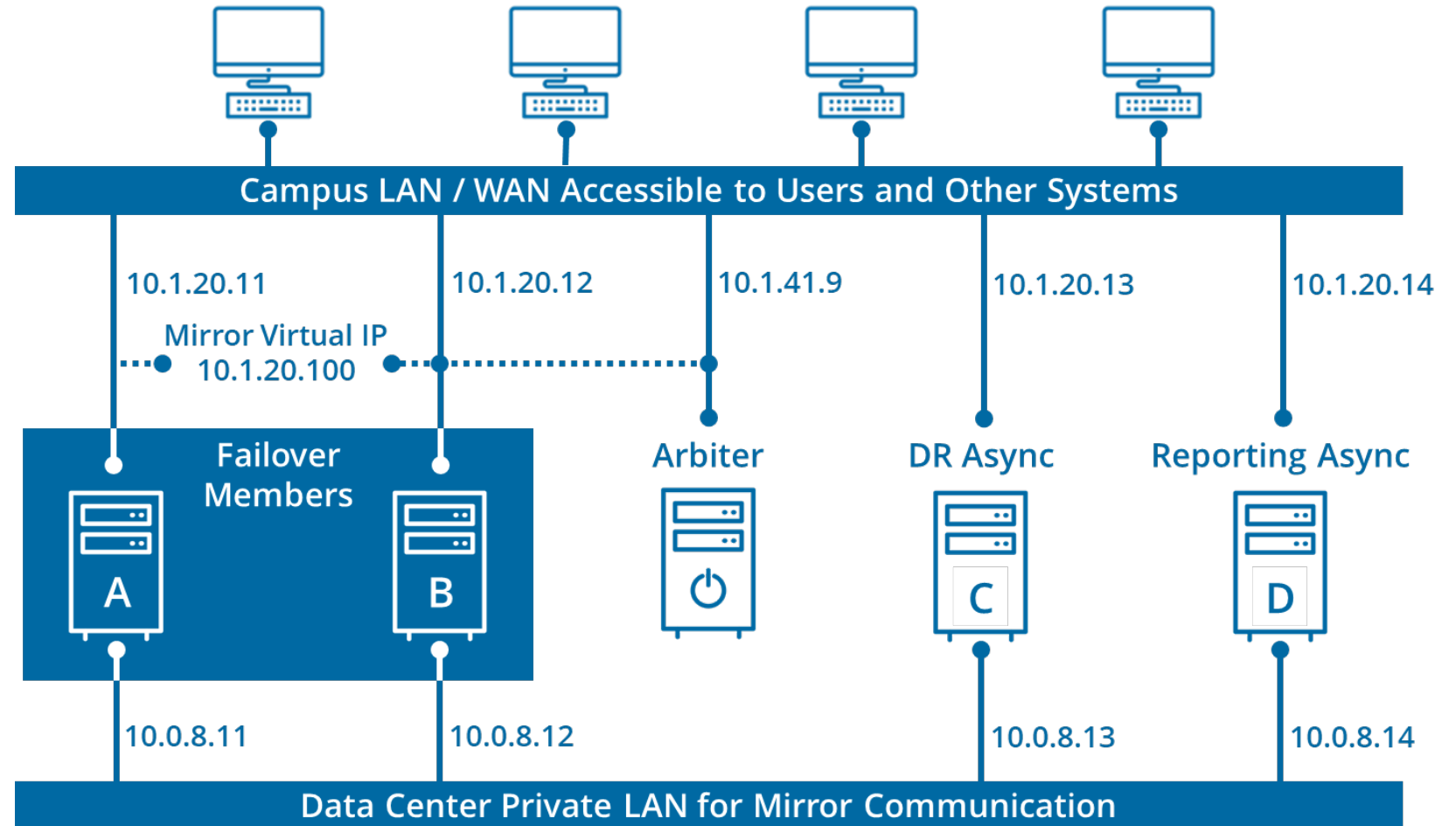
# High Availability Architecture



# High Availability Architecture

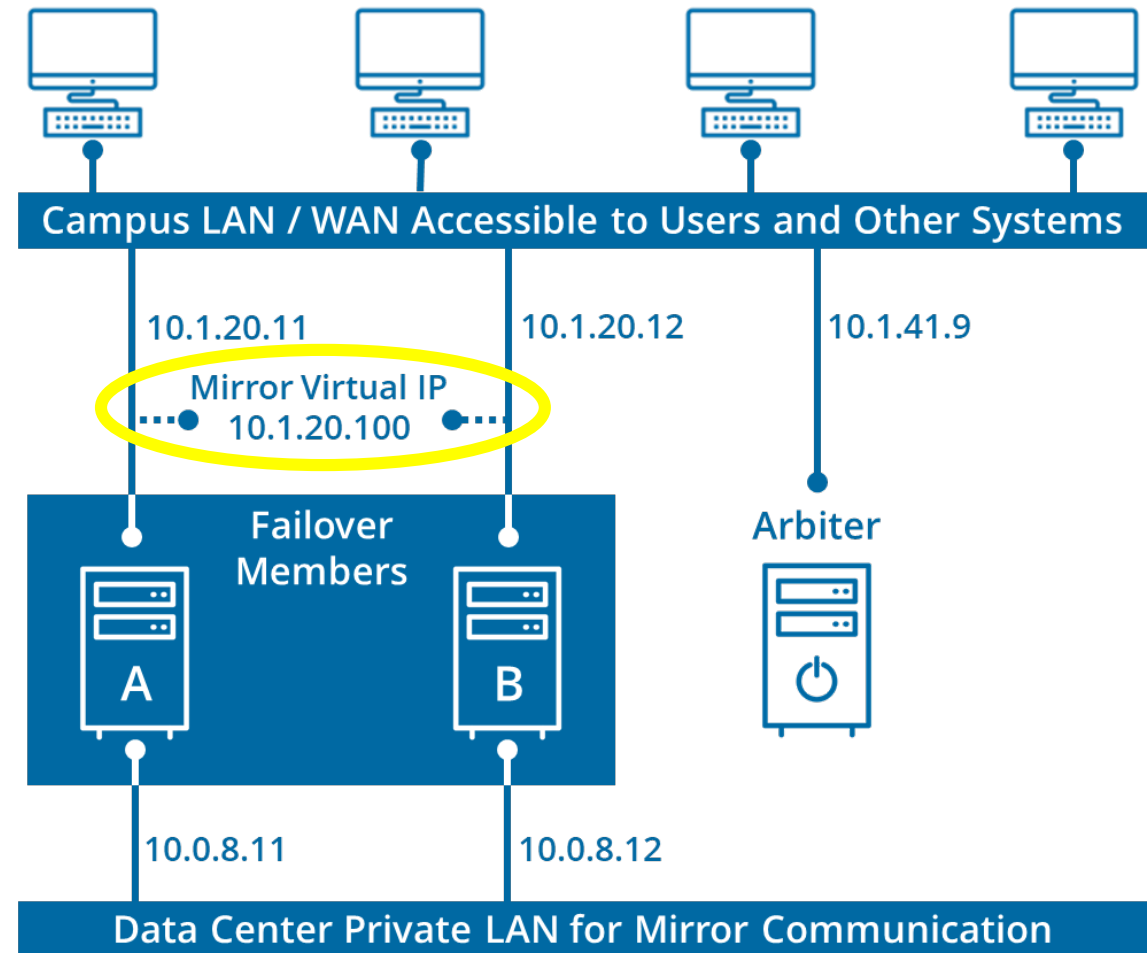
- Mirroring

- Allows both High Availability and Disaster Recovery options
- No IP Addresses or Hostnames have to be changed
- Limited IT involvement for Disaster Recovery failover
- High Availability allows automatic failover



# Components of a High-Availability System

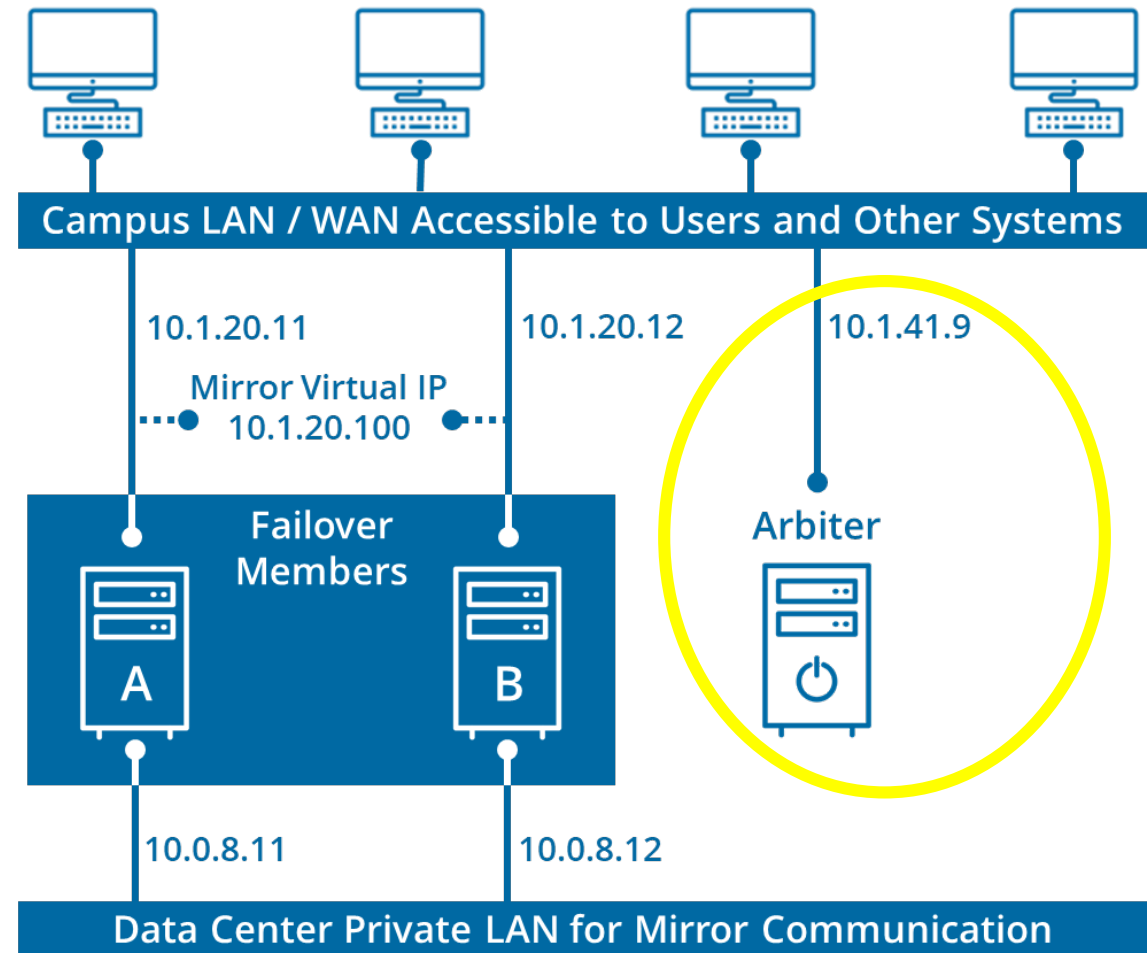
- Virtual IP (VIP)
  - This is just an IP Address that is included in the sites local DNS with a hostname assigned to it.
- How is it used?
  - As a Failover Member becomes the Primary it takes ownership of that Virtual IP.
  - Configure connections to IM and Thin Clients using the Virtual IP, so connections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



# Components of a High-Availability System

- **Arbiter System**

- Monitors status of Production Mirror Member
- Detects failure of Production Mirror Member
- Automatically Promotes HA Mirror Member to be Production
- Arbiter must:
  - Connect to Primary & HA Mirror Members
  - Be always on





# Data Innovations Services and Support have you covered

High Availability & Disaster Recovery implementations include tailored consulting services for project success from start to finish

92%

of team are medical  
technologists

300+

years combined lab  
experience

500+

years combined  
industry experience

# Questions?

**Thank you!**