

# All Recoveries Are Not The Same

## IBM i System Protection

# IBM i System Protection Solutions

- Backups
  - Traditional Tape
  - Virtual Tape Library (VTL)
- High Availability
- Disaster Recovery
- FlashCopy
- Storage Replication
- Volume Protection
- IBM DB2 Mirror

**There is not a single solution that  
will address all scenarios**

# Types Of Issues & Considerations

- Application Issue
- System Hardware Failure
- Data Center Loss
- Backup Impact to Production Operations
- Intentional or Unintentional Corrupted or Deleted Data Files
- Ransomware
- OS or Application Upgrade Testing
- Recovery Point Objective (RPO)
- Recovery Time Objective (RTO)
- Resource Constraints
- Offsite Storage
- Enterprise Connectivity
- Recovery Testing

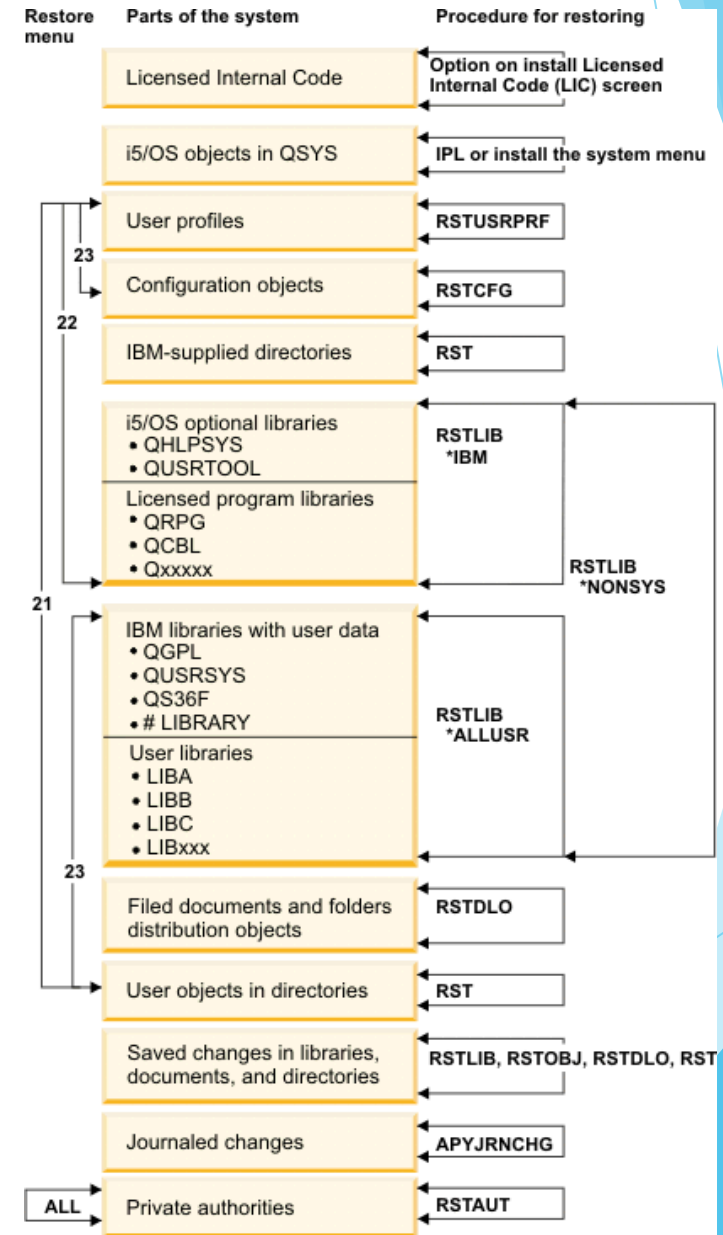
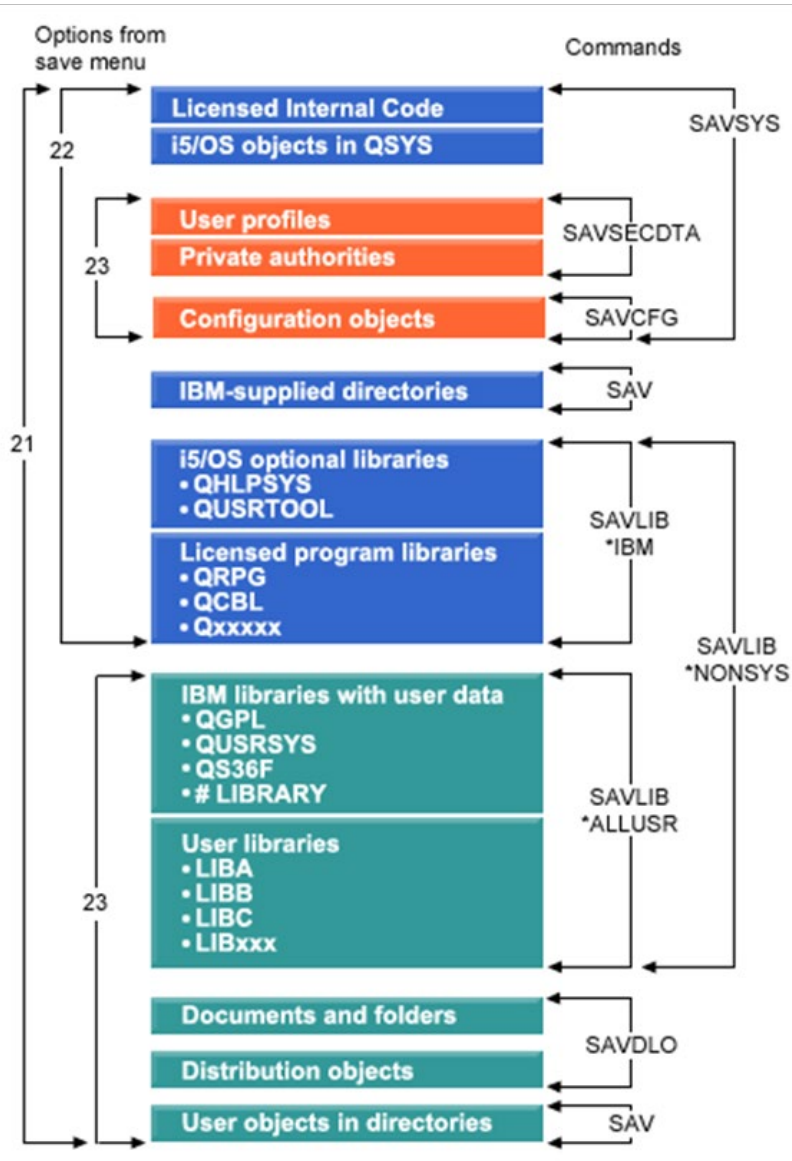
# Backups

- Full System Save
- Save User Data
- Incremental Save
- Parallel Save
- Tape vs. Virtual Tape Library vs. Cloud
- Encrypted Backups
- Offsite Storage
  - Retrieval time
  - Storage & handling costs
  - Security

# Restore

- Bear Metal Restore
- Full/Incremental Restore
- Take into account configuration disk time
- Where are the encryption keys?
- Who has access to request tapes back from off-site?

# iSeries Backup and Recovery



# High Availability

If you have not tested HA, you don't have HA

- What is the criteria for switching?
- Who makes the decision to switch?
- Is all your data there?
- Can your users connect?
- Can your customers connect?
- Can your other systems connect?
- Is latency a problem?
- Are there any supporting systems that need to be included at your HA site?
- Is software licensing an issue?



# High Availability

Is your HA/DR at the right location?



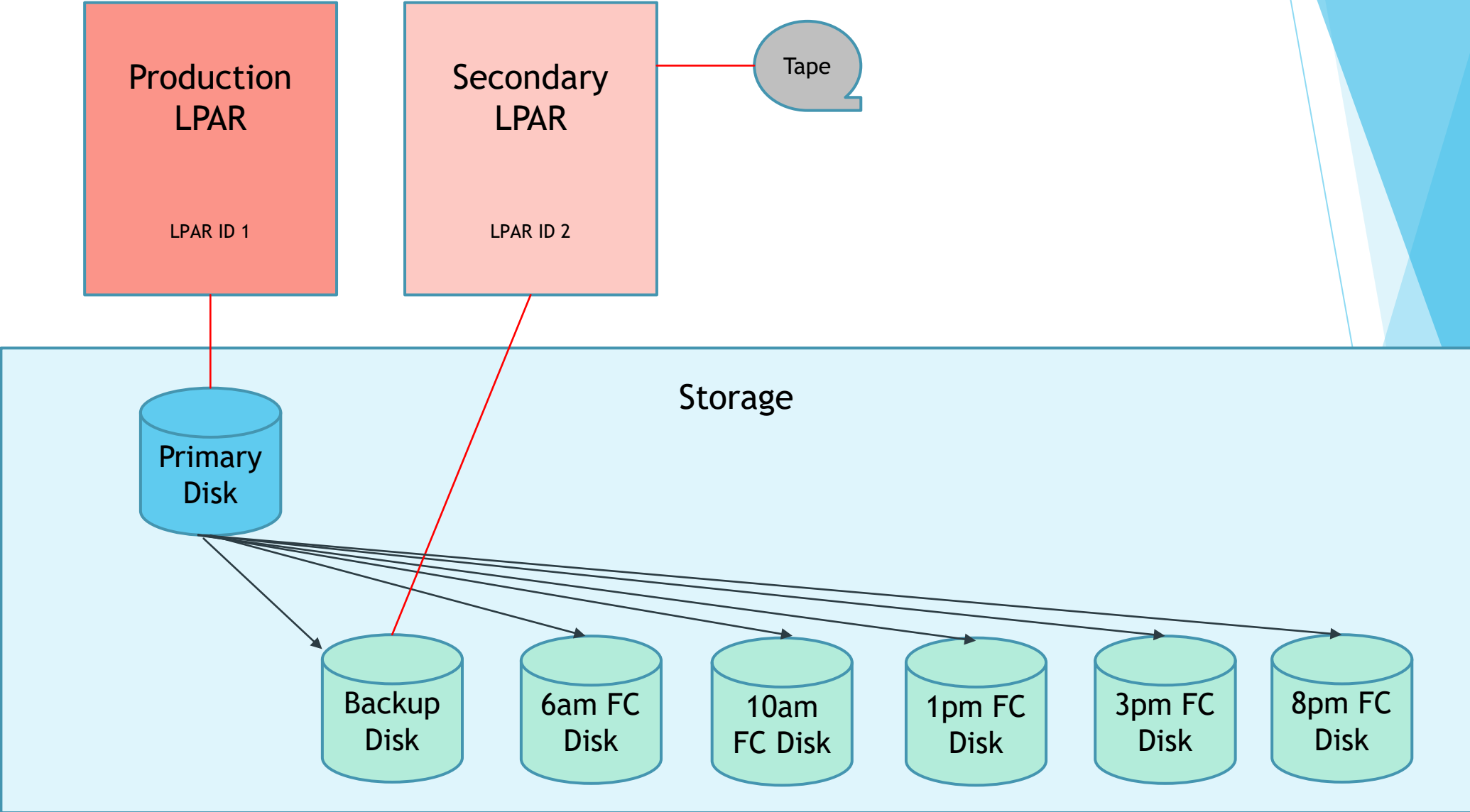
# Sophisticated Ransomware/Hackers

- The Attack
  - Gains Access to Network and Systems
  - Deletes or Encrypts Backups
  - Encrypts Production Data
  - Demands Payment
- Solutions
  - Network Security
  - System Access
  - Air-Gap Backups

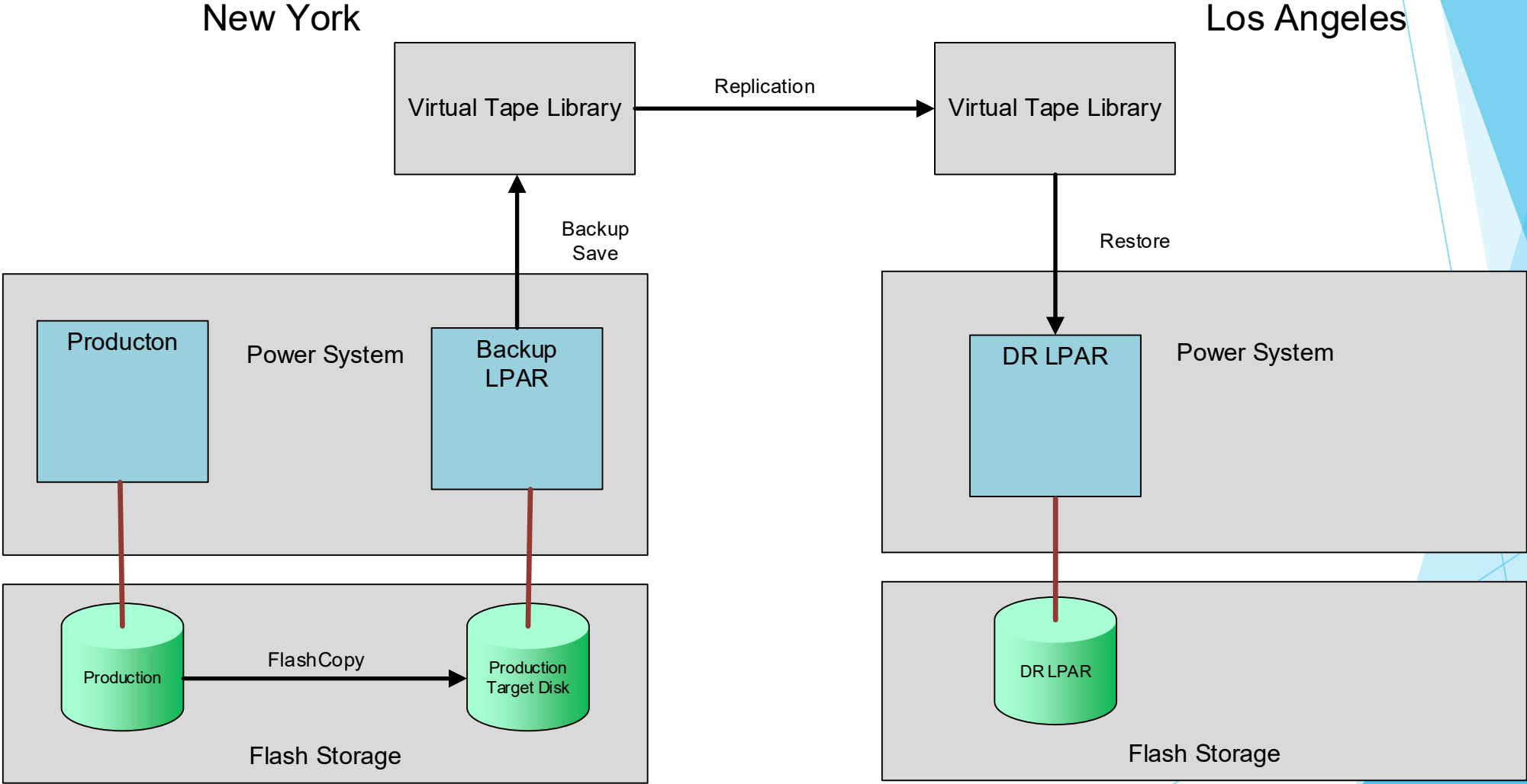
# Flash Copy

- Instant point in time copy of LUNs
- Full System FC Backup
- IASP Flash Copy
- Scheduled Snapshots
- Object recovery from Snapshot
- Rollback
  - Lost transactions since RPO

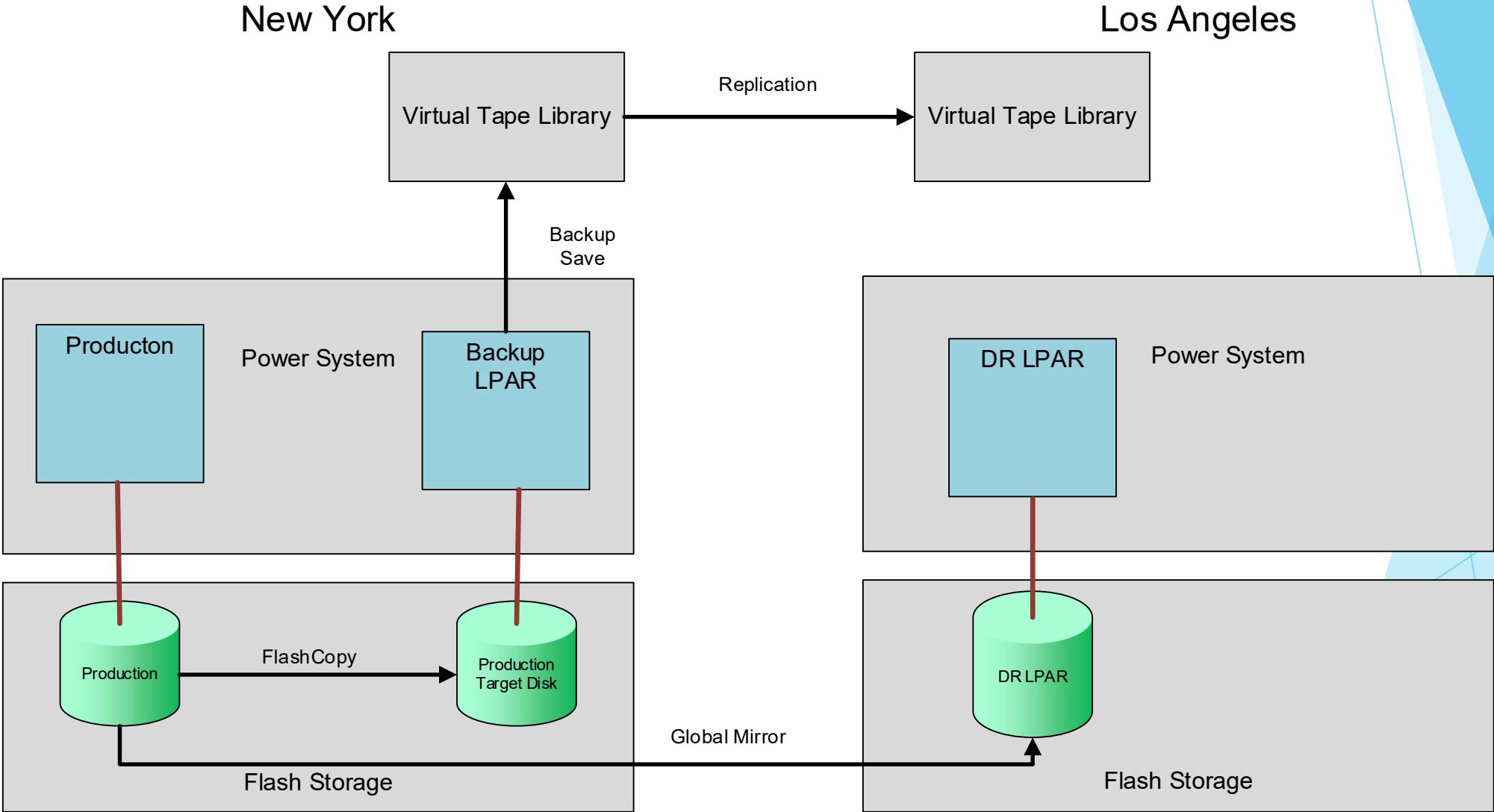
# Flash Copy



# Full System Flash Copy Backup



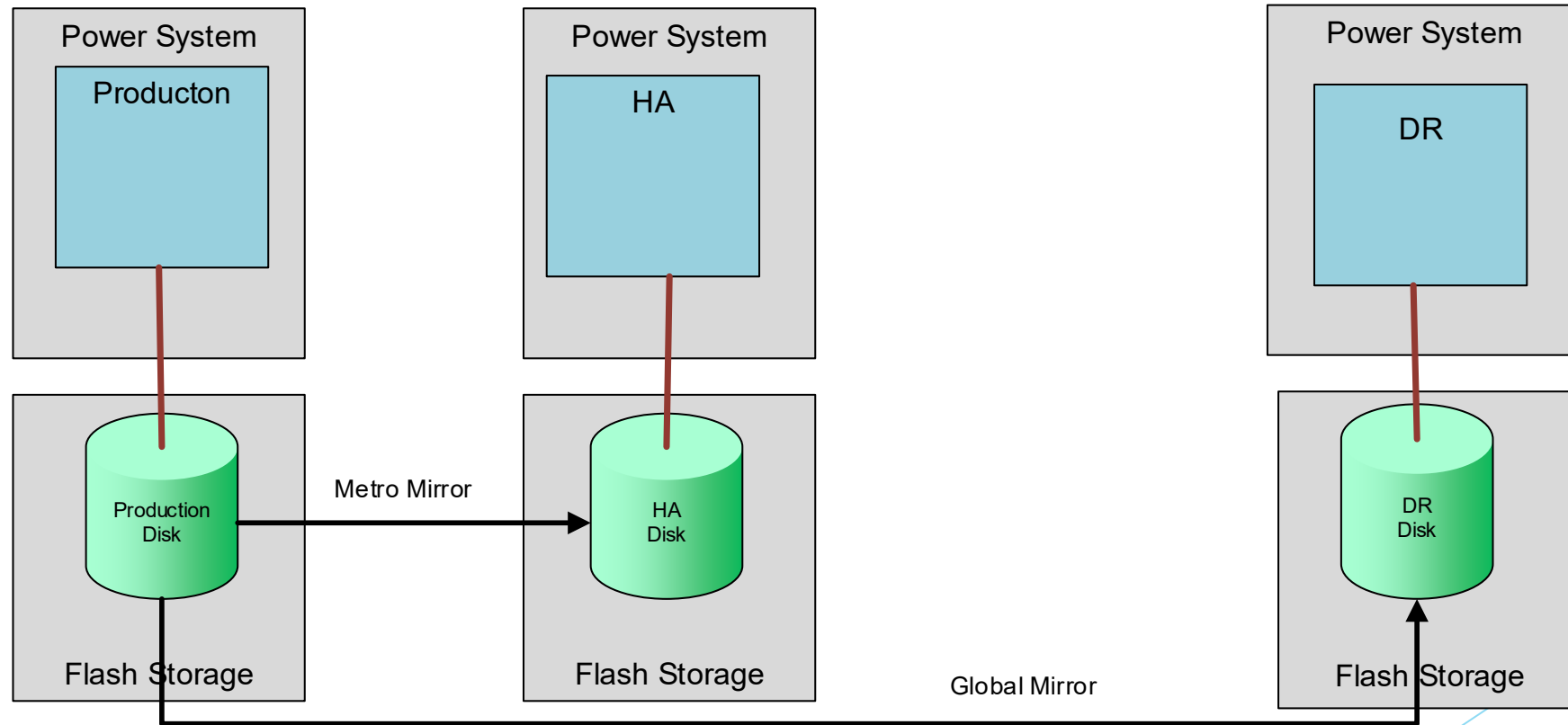
# Storage Replication



# Storage Replication

New York

Los Angeles



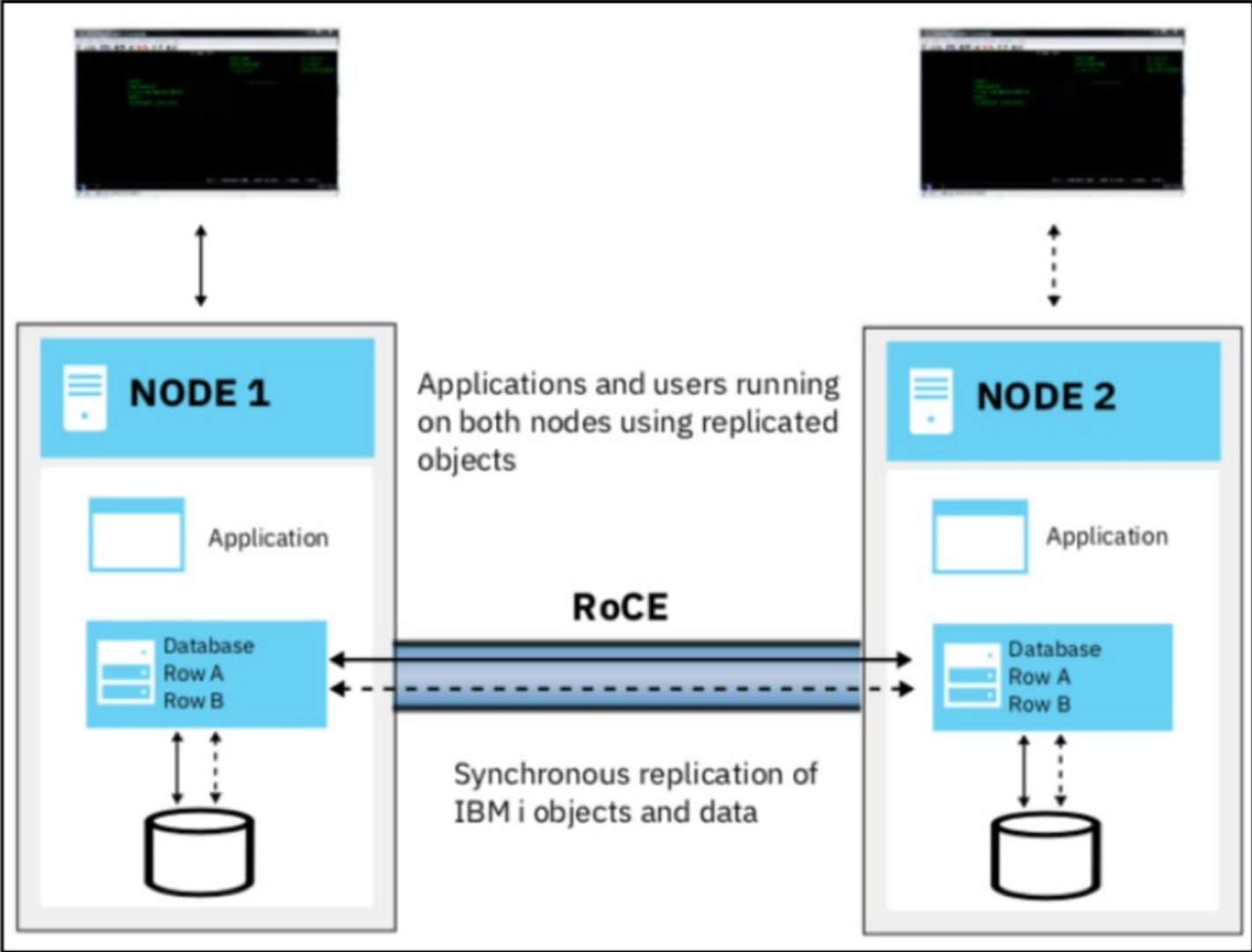
# Volume Protection

- Flash Copy
- Volume Mirroring
- Metro/Global Mirror

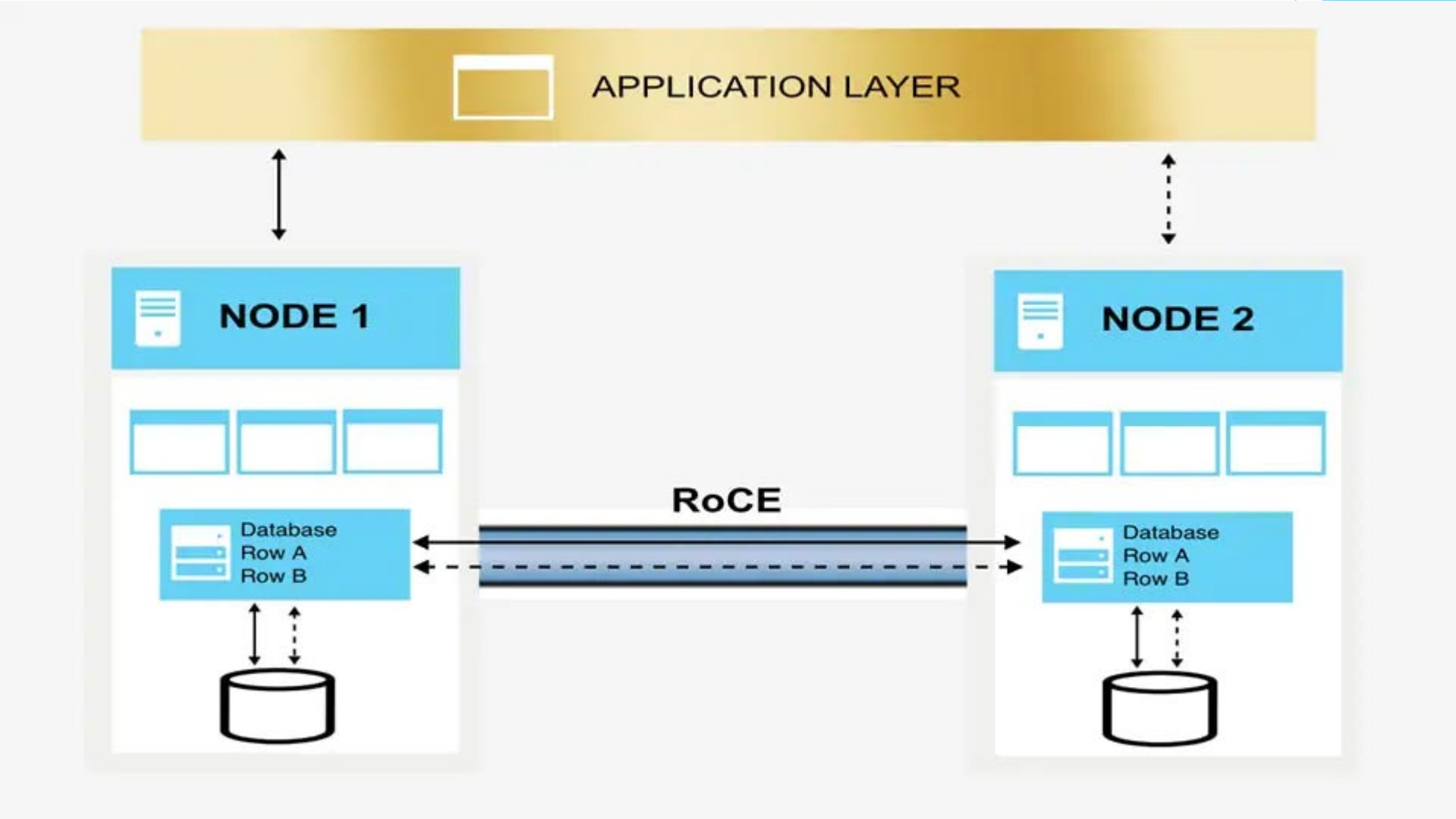
Point In Time Copy  
Replication  
Replication



# IBM DB2 Mirror



# IBM DB2 Mirror



# Final Thoughts

- Be careful that your recovery doesn't cause you more issues
- Know your process
- Know your stakeholders
- Test your recovery to uncover unforeseen issues

Questions?