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| --- | --- | --- | --- | --- | --- |
|  | Log shipping | Mirror | Always On | Cluster | Replication  Peer to peer |
| What type of data is transfer | Logs | Transaction | Transaction | Transaction | Transaction |
| Terminology |  |  |  |  |  |
| Level of protection | DB | DB | DB / Instance | Server | DB |
| Sync / A sync | Sync / A sync | Sync | Sync | Sync | Sync / A sync |
| In which version was announced | 2005 | 2016 | 2012 | 2008 | 2005 enterprise only |
| 1:1 / 1:N | 1:N | 1:1 | 1:1 | 1:N | 1:N |
| Replication usage |  |  |  |  |  |
| Prerequisites | 1.Full & Bulk logged recovery  2. Shared folder | 1. Full recovery  2. must be running on the same version | 1.**Windows Server Failover Cluster (WSFC)**  2.**Same SQL Server collation for all replicas**.  3.**Windows Server Failover Cluster.** | 1. SQL Server media must be installed  2. Cluster Service must be installed | 1. snapshot folder  2. snapshot backup  3. A publication must be enabled for p2p replication |
| Limitations | Read only | Mirrored DB in no recovery | 1.Limit of two replicas (primary and secondary) 2.No read access on secondary replica 3.One database per group |  | 1. available only in Enterprise versions  2. Participating databases must have identical schema and data  3. Row and Column filter options are not available |
| System catalogs / Monitor tool | X | V | V | V | V |
| Description | SQL Server log shipping is a technique which involves two or more SQL Server instances and copying of a transaction log file from one SQL Server instance to another. The process of transferring the transaction log files and restoring is automated across the SQL Servers. As the process result there are two copies of the data on two separate locations | Database mirroring is the creation and maintenance of redundant copies of a [database](https://searchsqlserver.techtarget.com/definition/database). The purpose is to ensure continuous data availability and minimize or avoid [downtime](https://whatis.techtarget.com/definition/uptime-and-downtime) that might otherwise result from data corruption or loss, or from a situation when the operation of a [network](https://searchnetworking.techtarget.com/definition/network) is partially compromised. | SQL Server AlwaysOn is a marketing term which refers to the high availability and disaster recovery solution introduced when SQL Server 2012 was launched. | A cluster includes two or more physical servers, called nodes; identical configuration is recommended. One is identified as the active node, on which a SQL Server instance is running the production workload, and the other is a passive node, on which SQL Server is installed but not running. If the SQL Server instance on the active node fails, the passive node becomes the active node and begins to run the SQL Server production workload with some minimal failover downtime. | Peer-to-peer replication provides a scale-out and high-availability solution by maintaining copies of data across multiple server instances, also referred to as nodes. Built on the foundation of transactional replication, peer-to-peer replication propagates transactionally consistent changes in near real-time. |