When setting up a **3-node SQL Server cluster with Always On Availability Groups (AG)** — with **1 Primary**, **1 Secondary**, and **1 DR node** — the **licensing cost** depends heavily on:

1. **SQL Server Edition** (Enterprise vs Standard)
2. **Core count per server**
3. **Active vs Passive roles**

**✅ Two Licensing Models to Consider:**

**🔷 1. SQL Server Enterprise Edition (Per Core Licensing)**

* Required if you want **automatic failover**, **readable secondaries**, or more than one replica in AG.
* You must **license every node running SQL Server actively**.
* **Failover rights** allow **1 passive node per licensed active node** without extra cost.

**Example:**

| **Node** | **Role** | **Licensing Needed?** | **Notes** |
| --- | --- | --- | --- |
| Node 1 | Primary | ✅ Yes (Enterprise) | Handles production traffic |
| Node 2 | Secondary | ✅ Yes (Enterprise) | If readable or automatic failover |
| Node 3 | DR (Passive) | ❌ No (if truly passive) | Covered under failover rights |

➡ **Total: License 2 nodes**, if 3rd is passive and used only for DR failover.

|  |  |  |  |
| --- | --- | --- | --- |
| **Node** | **Role** | **Licensing Needed?** | **Notes** |
| Node 1 | Primary | Enterprise | Handles production traffic |
| Node 2 | Secondary | Enterprise) | If readable or automatic failover |
| Node 3 | DR (Passive) | if truly passive | Covered under failover rights |

**🔷 2. SQL Server Standard Edition (Server + CAL or Per Core)**

* Supports **Basic AGs** (1 primary, 1 secondary, no readable secondary, no automatic failover to more than one node).
* **Limited to 2 replicas only.**
* DR node cannot participate in AG.

➡ **Not suitable** for a full 3-node AG with DR.

**💰 Most Cost-Effective Setup**

**✔️ Use Enterprise Edition with this model:**

* **License only Node 1 and Node 2.**
* **Node 3 (DR)** can remain **unlicensed until failover**, as long as it:
  + Is **truly passive**
  + Does **not run backups, reports, or monitoring**

**Microsoft allows one passive failover node per licensed active node without additional licensing.**

**📌 Additional Tips**

* Use **core-based licensing**, not CAL, for most flexibility.
* **Monitor the DR node’s usage** — if it performs anything beyond warm standby, it must be licensed.
* If all 3 nodes are active (even just readable), you must license all 3.

**🧾 Summary:**

| **Option** | **Licensing Needed** | **Notes** |
| --- | --- | --- |
| 1 Primary, 1 Secondary, 1 Passive DR | License 2 Nodes | Most cost-effective under Enterprise (per core) |
| All 3 Nodes Active (readable, backups, etc.) | License All 3 | Required by MS if all are used actively |
| Standard Edition | Not suitable | Limited to 2 replicas, no DR support in AG |

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| --- | --- | --- |
| **Option** | **Licensing Needed** | **Notes** |
| 1 Primary, 1 Secondary, 1 Passive DR | License 2 Nodes | Most cost-effective under Enterprise (per core) |
| All 3 Nodes Active (readable, backups, etc.) | License All 3 | Required by MS if all are used actively |
| Standard Edition | Not suitable | Limited to 2 replicas, no DR support in AG |