**Approach Document: Selenium Hub Separation for Dev and Prod Environments**

**1. Background**

Currently, both **Development** and **Production** environments share a **single Selenium Device Hub**. This architecture poses a **single point of failure** — if the hub goes down, both Dev and Prod instances are impacted simultaneously. Recently, this led to a production outage when the shared hub became unavailable.

**2. Problem Statement**

* Shared hub between Dev and Prod introduces dependency risks.
* Hub downtime directly impacts both environments, including Production, which should be isolated and highly available.
* **No alerting mechanism and no logs were present, as no monitoring mechanism is in place.**

**3. Objective**

To ensure **environmental isolation** and **high availability**, we need to separate Dev and Prod Selenium hubs, minimizing the risk of Production outages due to shared infrastructure.

**4. Proposed Approach**

1. **Environment Segregation**
   * Set up **dedicated Selenium Hub** for Production.
   * Maintain a separate hub for Development to avoid cross-environment impact.
2. **High Availability Setup**
   * Provide the ability to **restart the Selenium Hub through an API** to minimize Production environment login efforts and downtime.
   * Ensure hub monitoring and automated restart in case of failure.
3. **Monitoring & Alerting**
   * Enable hub/node health checks.
   * Integrate with monitoring tools (Grafana/Prometheus/CloudWatch) to raise alerts if the hub goes down.
   * Store logs centrally for debugging and analysis.

**5. Expected Benefits**

* **Isolation**: Dev issues won’t impact Production stability.
* **Resilience**: Restart capability reduces recovery time in case of hub failure.
* **Observability**: Monitoring, logging, and alerting improve reliability.
* **Flexibility**: Easier troubleshooting and root cause analysis.

**6. Tasks Required for Completion**

* Dev & Preprod Hub Setup on 135 Server
* Prod Hub Setup on 552 Server
* Enhance Logging Mechanism on Hub and Node Side
* Create Log file of specific parameter, log file exceeds the specific parameter hub should be able to create new log file and old file will go in backup folder.
* Logs backup folder needs to be deleted after regular interval.
* Hub Configuration with required parameters to optimise performance
* Grafana Setup for Logs monitoring
* Grafana Setup for Alerting mechanism on Mail, in case of Hub or node gone down.

**NOTE: All the activities need to be thoroughly tested on lower environment before pushing the changes on Prod.**