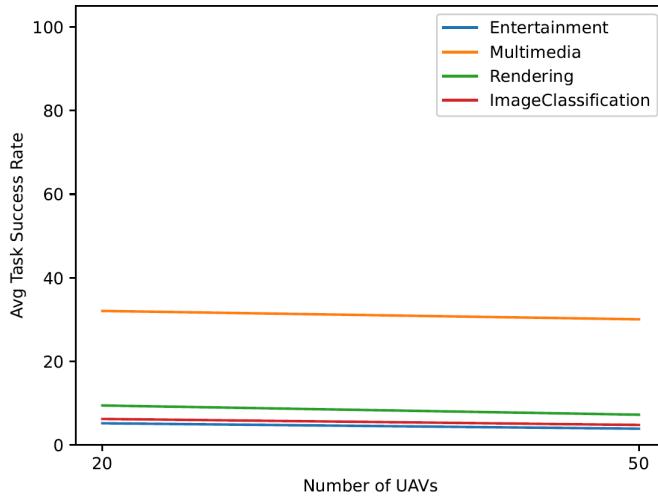


Simulation Parameters

- Number of Users: [20, 40, 60]
- Number of Servers: [1, 8]
- Number of UAVs: [20, 50]
- UAV Waiting Policy: [100]
- UAV Radius: [10, 50, 100]
- User Mobility: Mobile and Nomadic

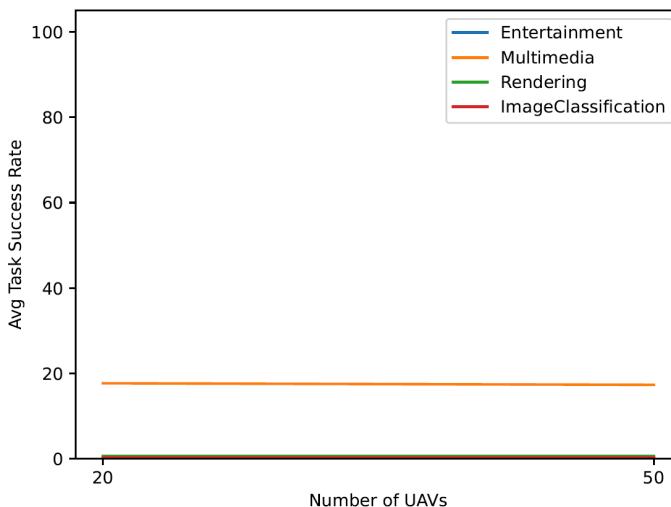
1. Application-Based Task Success Rate

- **80 Users**



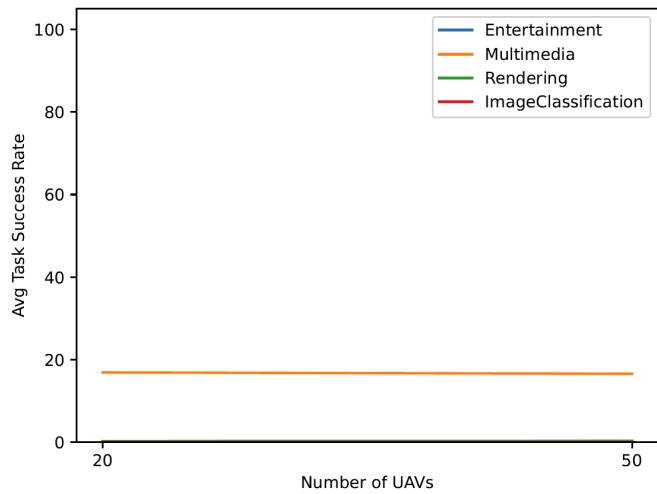
- **Multimedia** applications show relatively higher success rates across different UAV deployments.
- **Rendering** tasks have moderate success, while **Entertainment and Image Classification** shows low success rates due to its high computational demands.

- **100 Users:**



- **Multimedia** success rates decline significantly, dropping to nearly half as user density increases.
- **Rendering, Entertainment, and Image Classification** tasks face critical performance issues, with success rates nearing zero, highlighting their sensitivity to system congestion.
-

- **250 Users:**

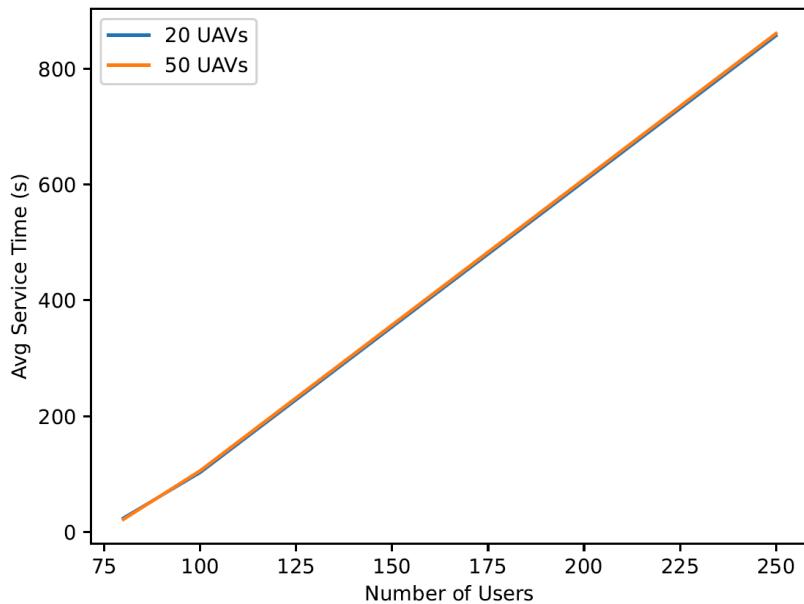


- Performance trends remain consistent with the 100-user scenario, indicating that adding more users exacerbates system strain without significant improvements in resource availability.

Key Insight: Image Classification and Entertainment tasks demonstrate persistent performance issues due to their high computational requirements. UAVs alone cannot efficiently manage these tasks. Incorporating additional **edge** or **cloud** resources is essential to improve their success rates and ensure system reliability under heavy workloads.

2. Average Service Time

- Service time steadily increases with the number of users.
- The deployment of **50 UAVs** does not reduce service time significantly compared to **20 UAVs**.



3. Offloaded Task Distribution

- **20 and 50 UAVs:**
 - Tasks are distributed between Edge and Cloud, with a notable percentage still going to the Cloud due to limited UAV capacity

