

Test1 performance

PERFORMANCE COMPARISON

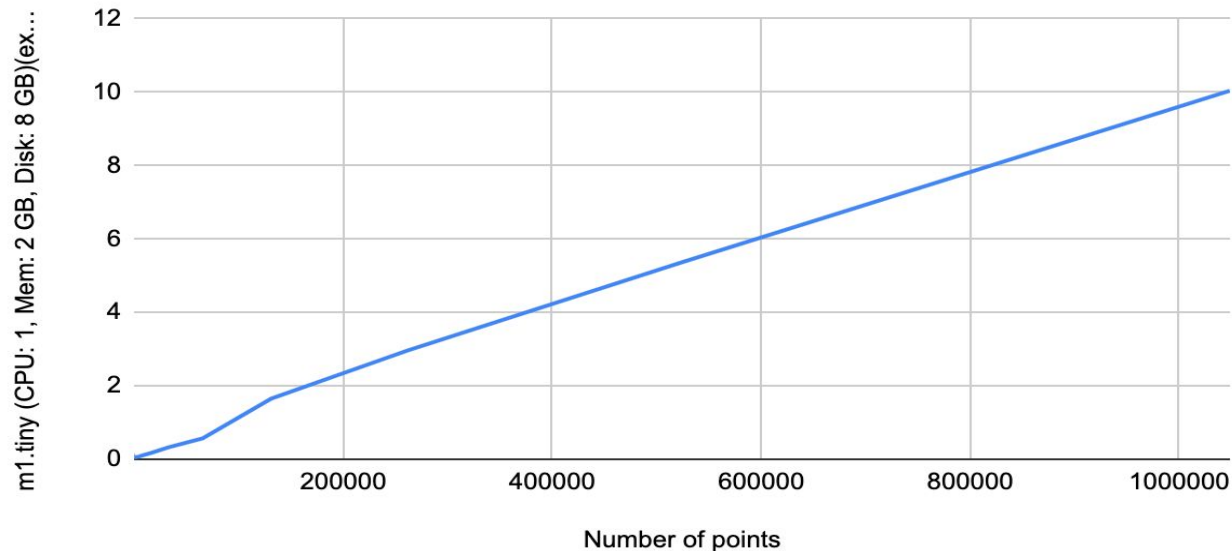
Resources

1. Resource 1: Edge
 - a. m1.tiny (CPU: 1, Mem: 2 GB, Disk: 8 GB)
2. Resource 2: Fog
 - a. m1.quad (CPU: 4, Mem: 10 GB, Disk: 20 GB)
3. Resource 3: Cloud
 - a. m1.xlarge (CPU: 44, Mem: 120 GB, Disk: 60 GB)

Running K_means: Clustering 4,8,16.....1048576 point into 3 clusters

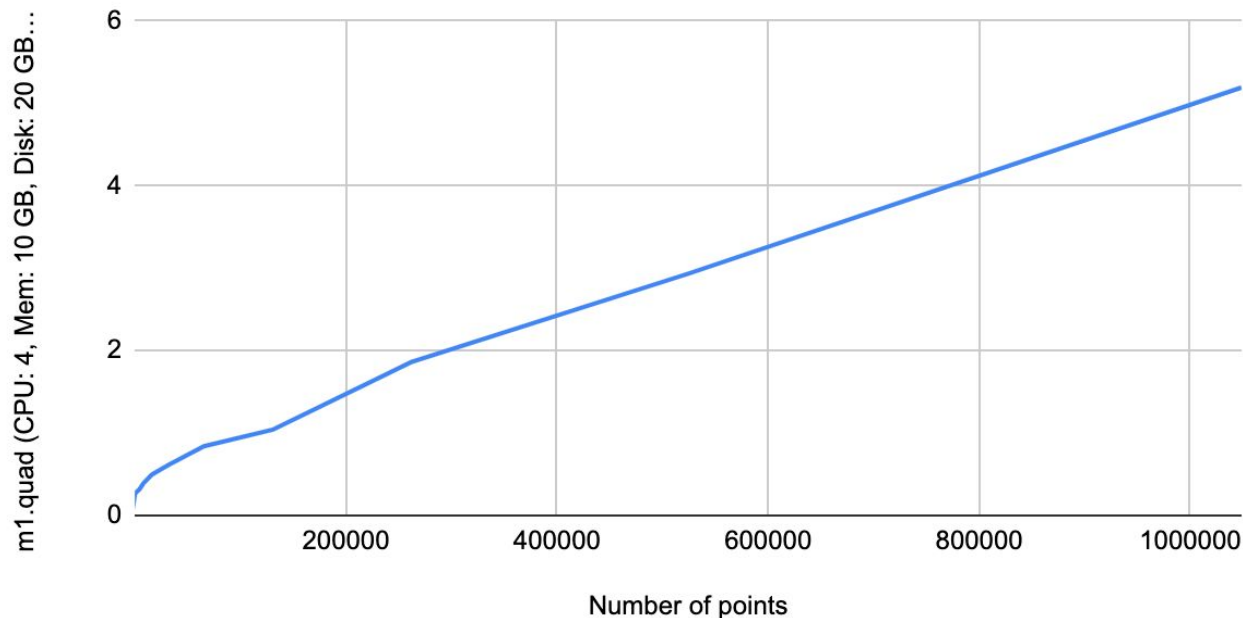
Individual performance: Edge resources

m1.tiny (CPU: 1, Mem: 2 GB, Disk: 8 GB)(execution time in seconds) vs. Number of points



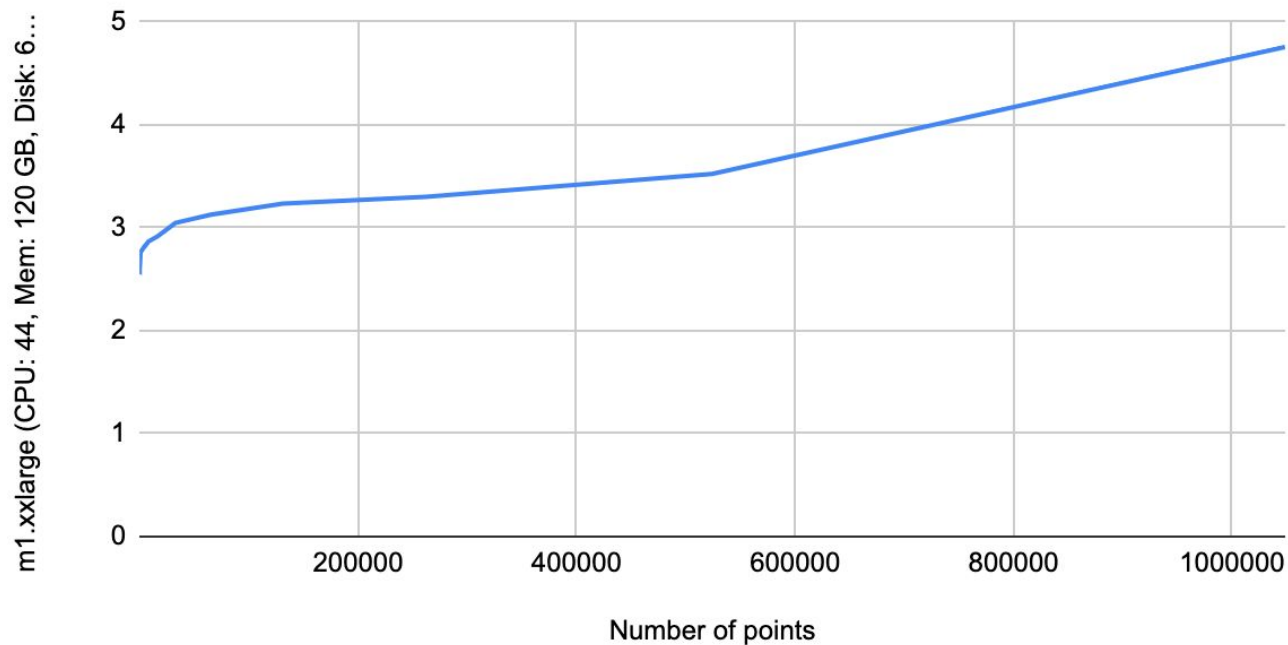
Individual performance: Fog resources

m1.quad (CPU: 4, Mem: 10 GB, Disk: 20 GB)(execution time in seconds) vs. Number of points



Individual performance: cloud resources

m1.xlarge (CPU: 44, Mem: 120 GB, Disk: 60 GB)(execution time in seconds) vs. Number of points



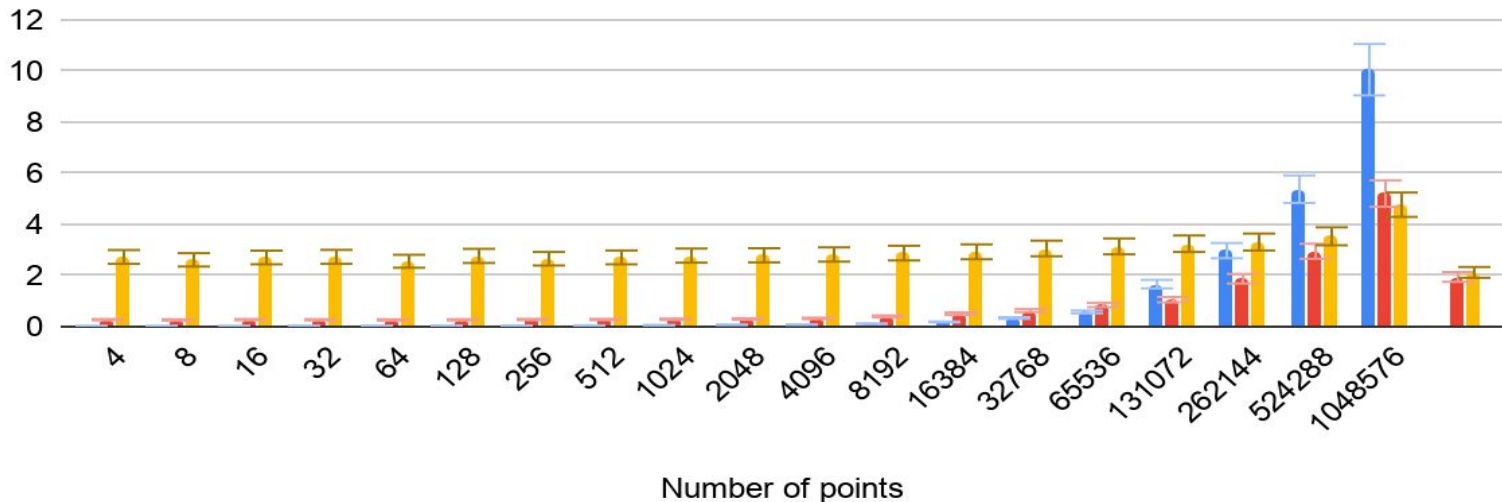
Comparison between resources

m1.tiny (CPU: 1, Mem: 2 GB, Disk: 8 GB)(execution time in seconds), m1.quad (CPU: 4, Mem: 10 GB, Disk: 20 GB)

■ m1.tiny (CPU: 1, Mem: 2 GB, Disk: 8 GB)(execution time in seconds)

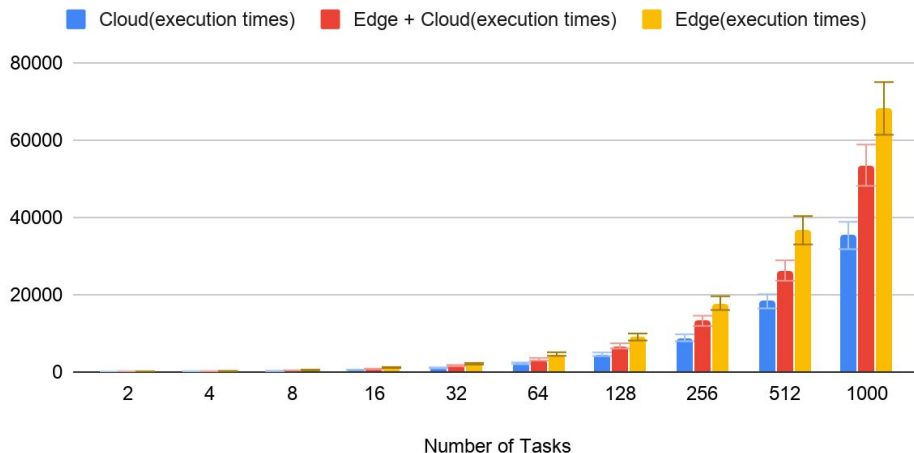
■ m1.quad (CPU: 4, Mem: 10 GB, Disk: 20 GB)(execution time in seconds)

■ m1.xxlarge (CPU: 44, Mem: 120 GB, Disk: 60 GB)(execution time in seconds)

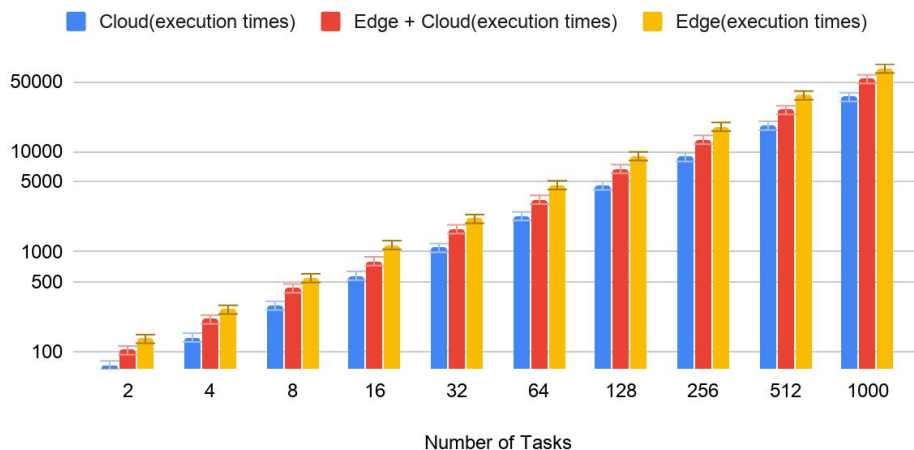


Vivek's Emulator comparison (Edge, Cloud and Edge-Cloud)

Cloud(execution times), Edge + Cloud(execution times) and Edge(execution times)



Cloud(execution times), Edge + Cloud(execution times) and Edge(execution times)



The right graph has the vertical axis in log scale.

Total data transfer time and Data rate

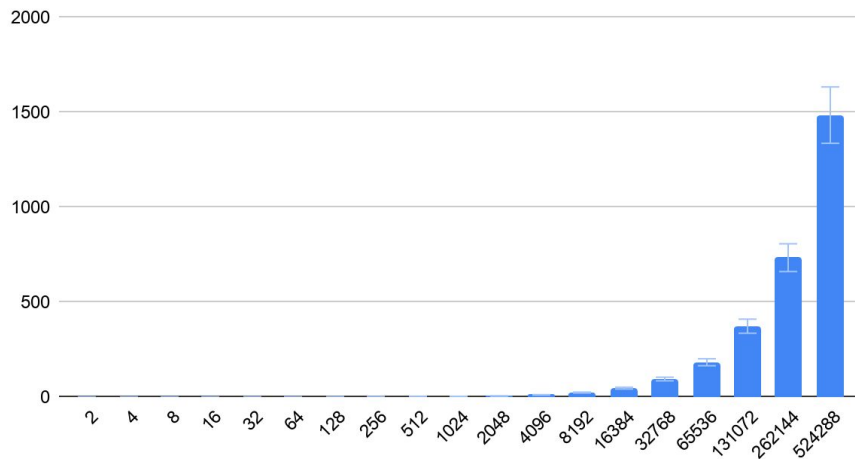
1. Resource 1: m1.small (CPU: 2, Mem: 4 GB, Disk: 20 GB)
 - a. PRODUCER
2. Resource 2: s1.large (CPU: 10, Mem: 30 GB, Disk: 120 GB, Disk: 120 GB root)
 - a. CONSUMER
3. KAFKA BROKER

Where Data rate = Number of Data_points / Total time in seconds to transfer the data

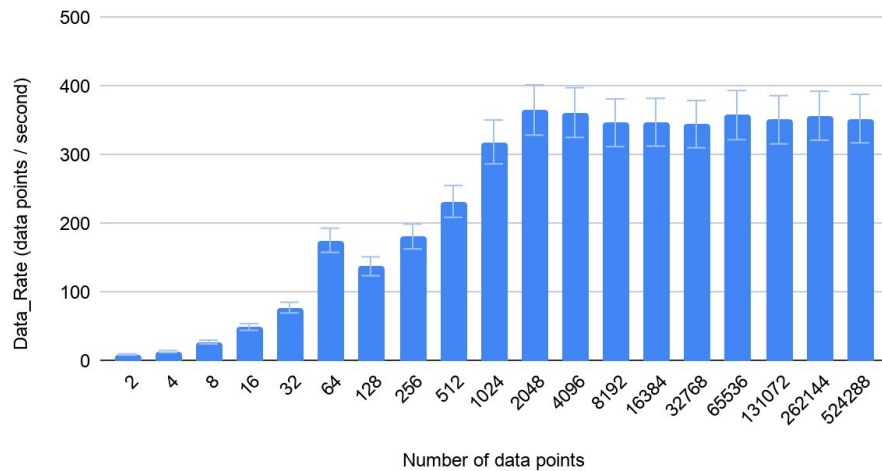
Using confluent_Kafka, I produced random points (2,4,8,16.....524288) and calculated the total time required **between generation of first point and receiving the last data point on consumer.**

Total data transfer time and Data rate

Number of data points and Total Transfer time (in seconds)



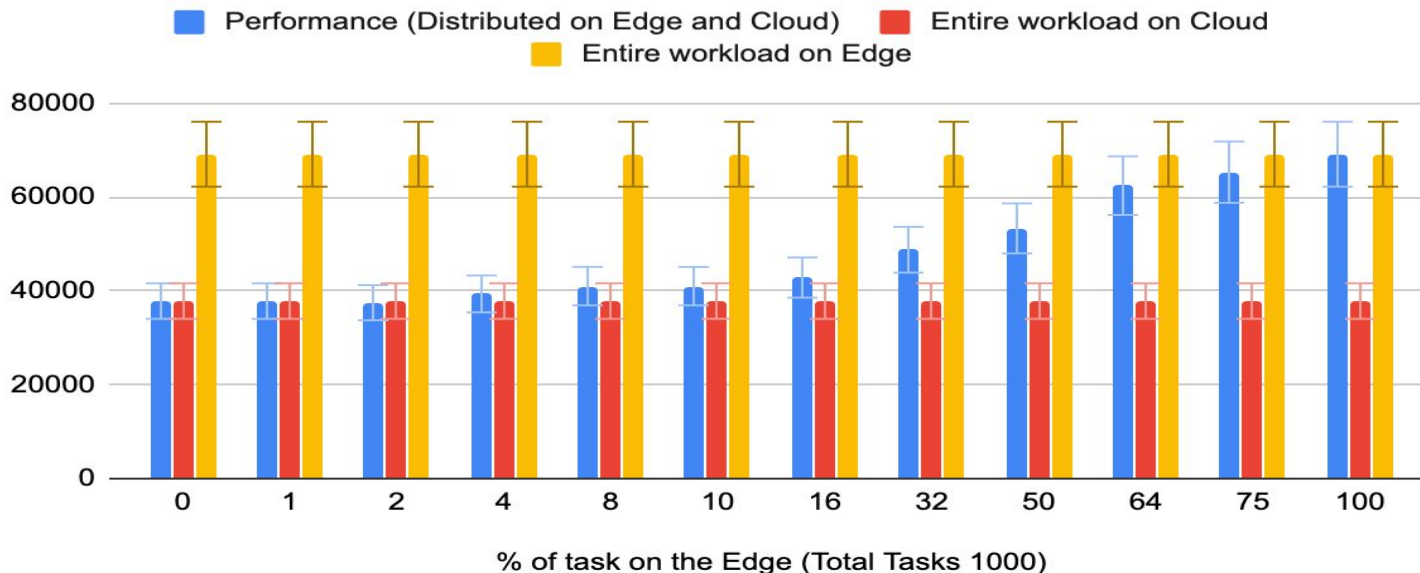
Data_Rate (data points / second) vs. Number of data points



Division of work on Edge and Cloud

How much compute can I run on the edge without degrading my performance?

Performance (Distributed on Edge and Cloud), Entire workload on Cloud and Entire workload on Edge



Division of work on Edge and Cloud

% change in total execution time with respect to Cloud vs. % of task on the Edge (Total Tasks 1000)

