CS553 Cloud Computing

Programming Assignment #3

Report

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Performance Evaluation

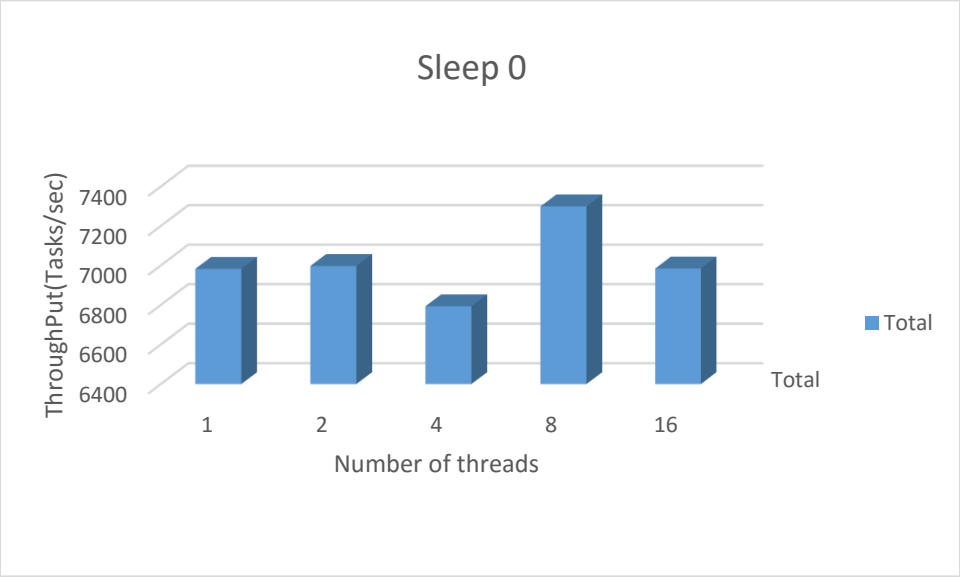
The language used is Java with the AWS Toolkit provided by Amazon. Here client would be responsible for sending the workload file to the queue (in-memory or SQS). Now For LocalWorker the tasks are taken from in-memory Queue and using threads each task is executed.

Throughput and Efficiency:

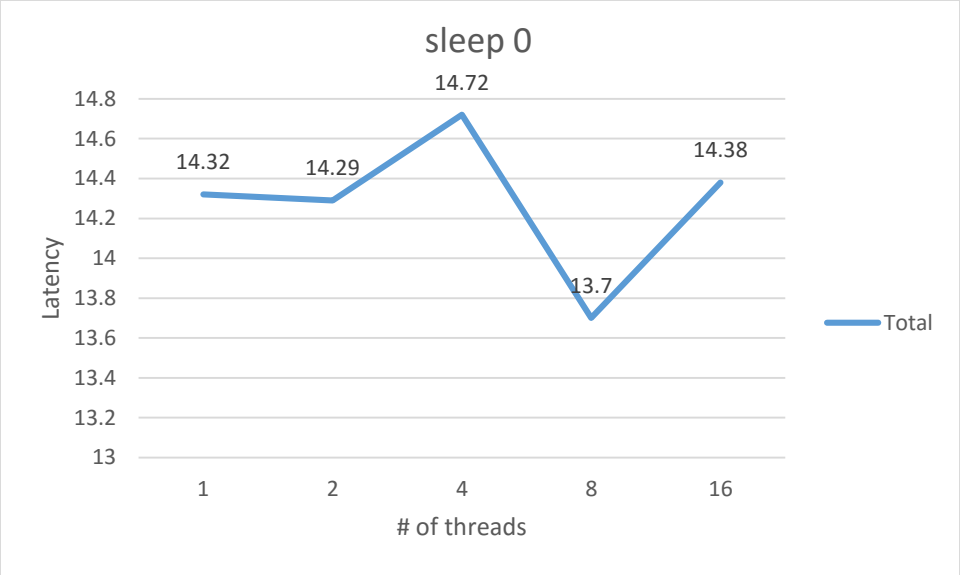
LocalQueue:

Throughput

Thread	Time (Sec)	Throughput(Task/sec)
1	14.321	6982.75
2	14.291	6997.41
4	14.721	6793.02
8	13.7	7299.27
16	14.318	6984.21

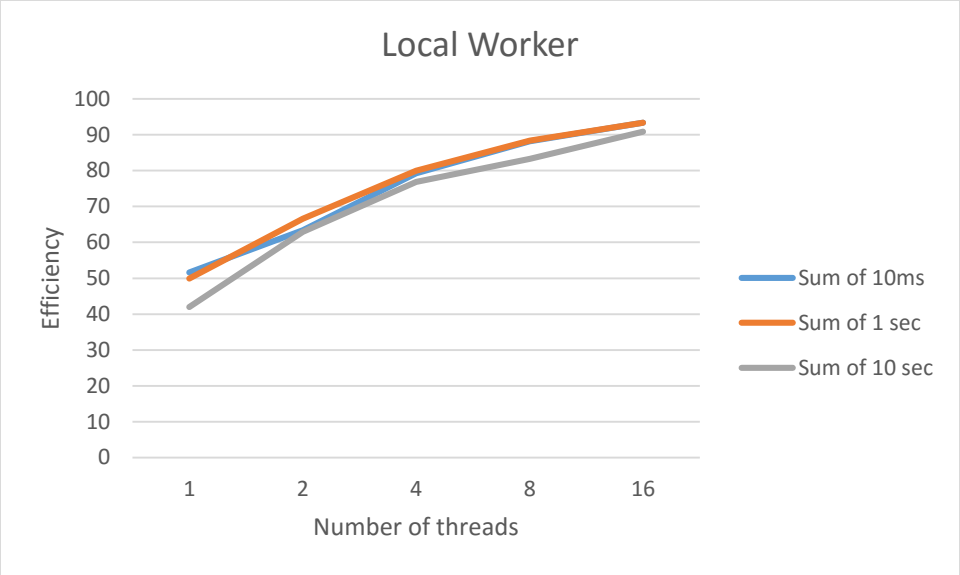


Latency:



Efficiency:

	Sleep 10	Sleep 1000	Sleep 10000	Ideal Time	Efficiency (ideal/time*100)(%)
1	19.254			10	51.6
1		200.043		100	49.9
1			238.011	100	42.0
2	15.765			10	63.4
2		150.026		100	66.6
2			159.008	100	62.9
4	12.615			10	79.3
4		125.022		100	80
4			130.005	100	76.9
8	11.343			10	88.2
8		113.017		100	88.4
8			120.005	100	83.3
16	10.708			10	93.4
16		107.016		100	93.4
16			110.009	100	90.9

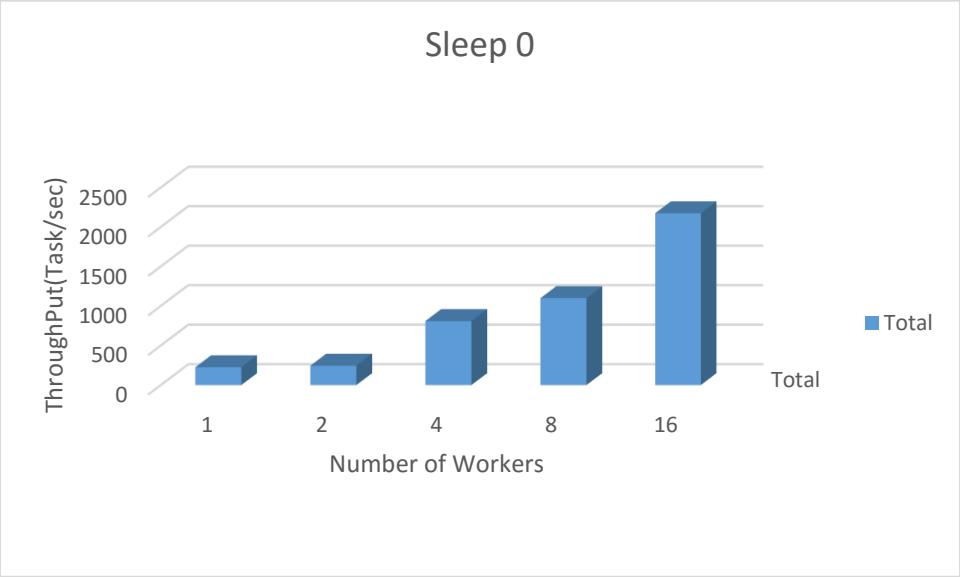


RemoteWorker:

Remote Workers: for remoteWorker the messages are taken from SQS Queue and are performed using thread and the messages are sent into the SQS results queue and Amazon Dynamo Db is used to check for the duplicates present in the input SQS queue

Throughput:

Worker	Time(sec)	Throughput(Task/sec)
1	34.32	291.4
2	55.89	357.84
4	72.36	552.79
8	139.1	575.12
16	204.6	782.01

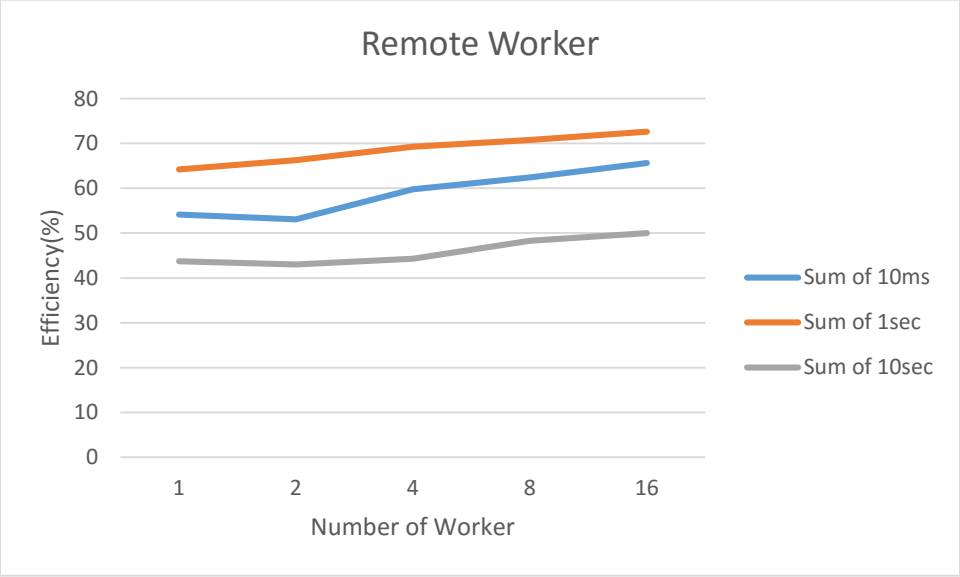


Latency:

Efficiency:

Worker	1000task/worker 10ms	100task/worker 1 sec	10task/worker 10sec	Ideal Time	Efficiency (%)
1	18.46			10	54.17
1		155.7		100	64.2
1			228.9	100	43.7

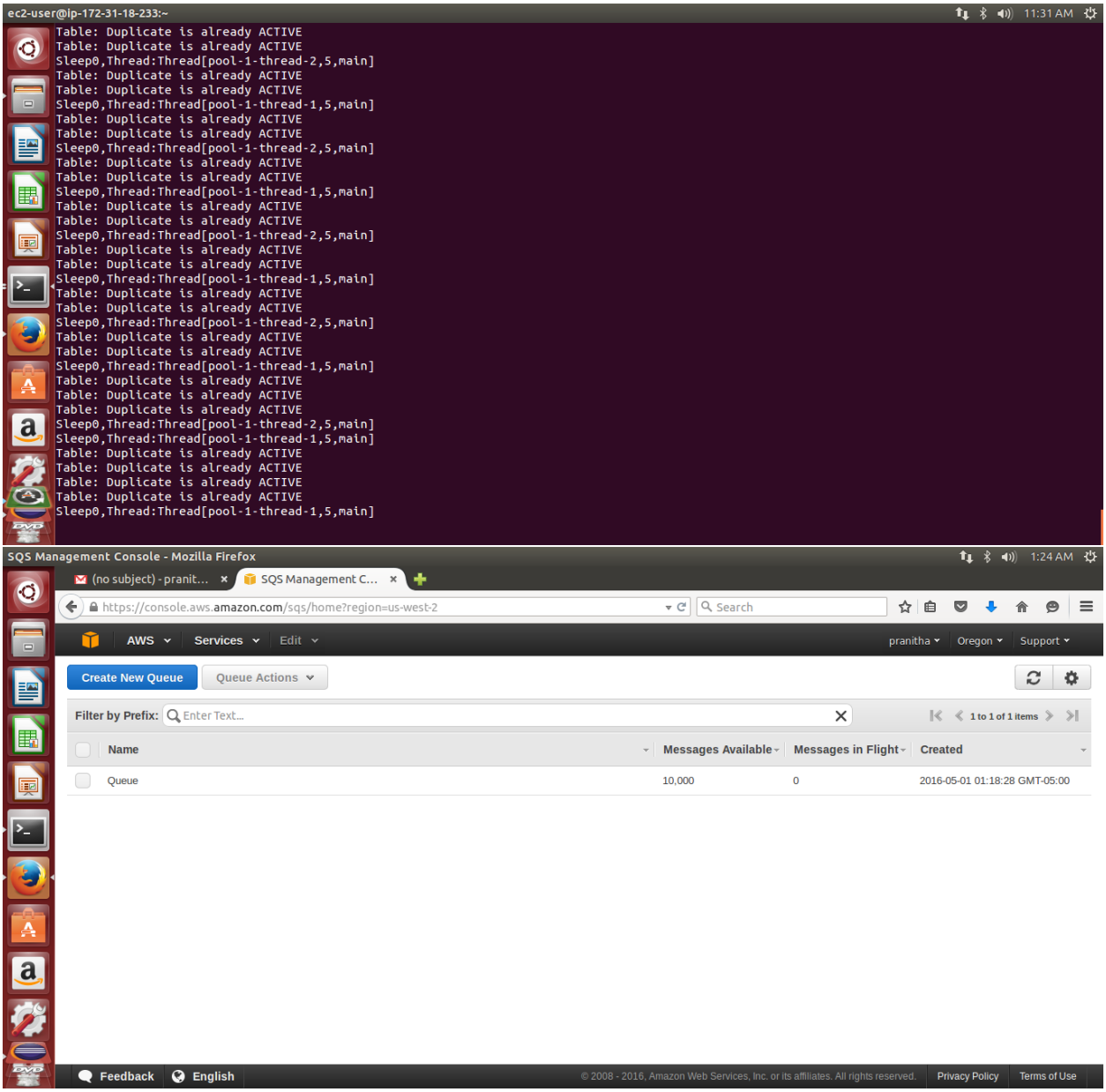
2	37.7			20	53.1
2		301.5		200	66.3
2			469.8	200	43.0
4	66.9			40	59.8
4		577.6		400	69.3
4			902.5	400	44.3
8	128.2			80	62.4
8		1139.10		800	70.8
8			1651	800	48.3
16	243.7			160	65.65
16		2203.5		1600	72.6
16			3245.9	1600	50

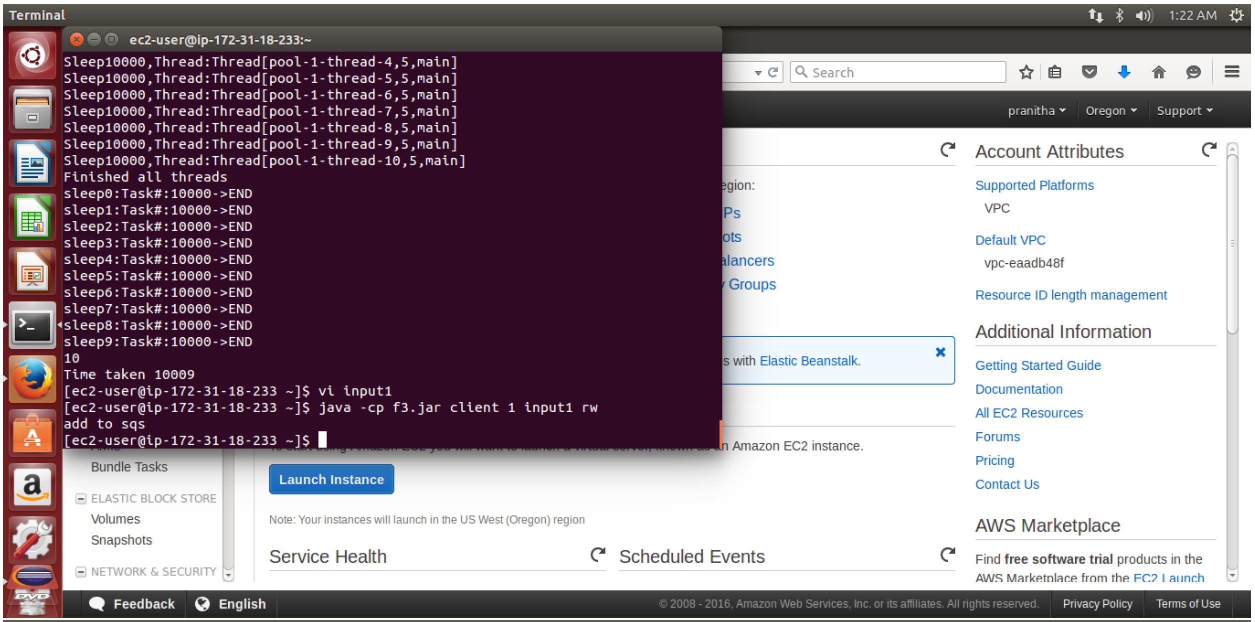


Observations:

- For local worker as the threads increase the execution speed also increase, as the workload is same though the threads are increased it would result increase in efficiency and throughput
- For the remote worker the throughput is increasing as the number of workers increase, with number of workers the workload is also increased .
- The efficiency of 1000 tasks for 10ms,100 tasks for1 sec and 10 tasks for 10 sec are also increasing.

Screenshots:




Terminal
1:22 AM
ec2-user@ip-172-31-18-233:~
Sleep10000,Thread:Thread[pool-1-thread-4,5,main]
Sleep10000,Thread:Thread[pool-1-thread-5,5,main]
Sleep10000,Thread:Thread[pool-1-thread-6,5,main]
Sleep10000,Thread:Thread[pool-1-thread-7,5,main]
Sleep10000,Thread:Thread[pool-1-thread-8,5,main]
Sleep10000,Thread:Thread[pool-1-thread-9,5,main]
Sleep10000,Thread:Thread[pool-1-thread-10,5,main]
Finished all threads
sleep0:Task#:10000->END
sleep1:Task#:10000->END
sleep2:Task#:10000->END
sleep3:Task#:10000->END
sleep4:Task#:10000->END
sleep5:Task#:10000->END
sleep6:Task#:10000->END
sleep7:Task#:10000->END
sleep8:Task#:10000->END
sleep9:Task#:10000->END
10
Time taken 10009
[ec2-user@ip-172-31-18-233 ~]$ vi input1
[ec2-user@ip-172-31-18-233 ~]$ java -cp f3.jar client 1 input1 rw
add to sqs
[ec2-user@ip-172-31-18-233 ~]$
Search
pranitha
Oregon
Support
Account Attributes
Supported Platforms
VPC
Default VPC
vpc-eaadb48f
Resource ID length management
Additional Information
Getting Started Guide
Documentation
All EC2 Resources
Forums
Pricing
Contact Us
AWS Marketplace
Find free software trial products in the
s with Elastic Beanstalk.
n Amazon EC2 instance.
Bundle Tasks
ELASTIC BLOCK STORE
Volumes
Snapshots
NETWORK & SECURITY
Launch Instance
Note: Your instances will launch in the US West (Oregon) region
Service Health
Scheduled Events
Feedback
English
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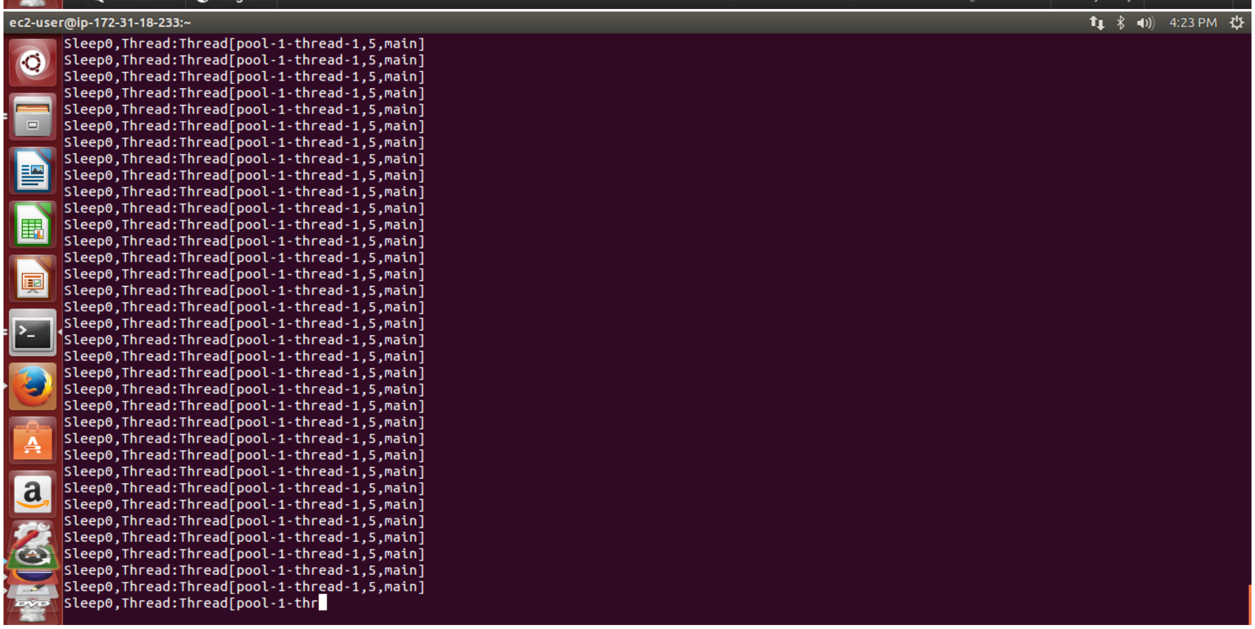
ec2-user@ip-172-31-18-233:~
4:23 PM
Sleep0,Thread:Thread[pool-1-thread-1,5,main]
Sleep0,Thread:Thread[pool-1-thread-1,5,main]
Sleep0,Thread:Thread[pool-1-thread-1,5,main]
Sleep0,Thread:Thread[pool-1-thread-1,5,main]
Sleep0,Thread:Thread[pool-1-thread-1,5,main]
Sleep0,Thread:Thread[pool-1-thread-1,5,main]
Sleep0,Thread:Thread[pool-1-thread-1,5,main]
Sleep0,Thread:Thread[pool-1-thread-1,5,main]
Sleep0,Thread:Thread[pool-1-thread-1,5,main]
Sleep0,Thread:Thread[pool-1-thread-1,5,main]
Sleep0,Thread:Thread[pool-1-thread-1,5,main]
Sleep0,Thread:Thread[pool-1-thread-1,5,main]
Sleep0,Thread:Thread[pool-1-thread-1,5,main]
Sleep0,Thread:Thread[pool-1-thread-1,5,main]
Sleep0,Thread:Thread[pool-1-thread-1,5,main]
Sleep0,Thread:Thread[pool-1-thread-1,5,main]
Sleep0,Thread:Thread[pool-1-thread-1,5,main]
Sleep0,Thread:Thread[pool-1-thread-1,5,main]
Sleep0,Thread:Thread[pool-1-thread-1,5,main]
Sleep0,Thread:Thread[pool-1-thread-1,5,main]
Sleep0,Thread:Thread[pool-1-thread-1,5,main]
Sleep0,Thread:Thread[pool-1-thread-1,5,main]
Sleep0,Thread:Thread[pool-1-thread-1,5,main]
Sleep0,Thread:Thread[pool-1-thread-1,5,main]
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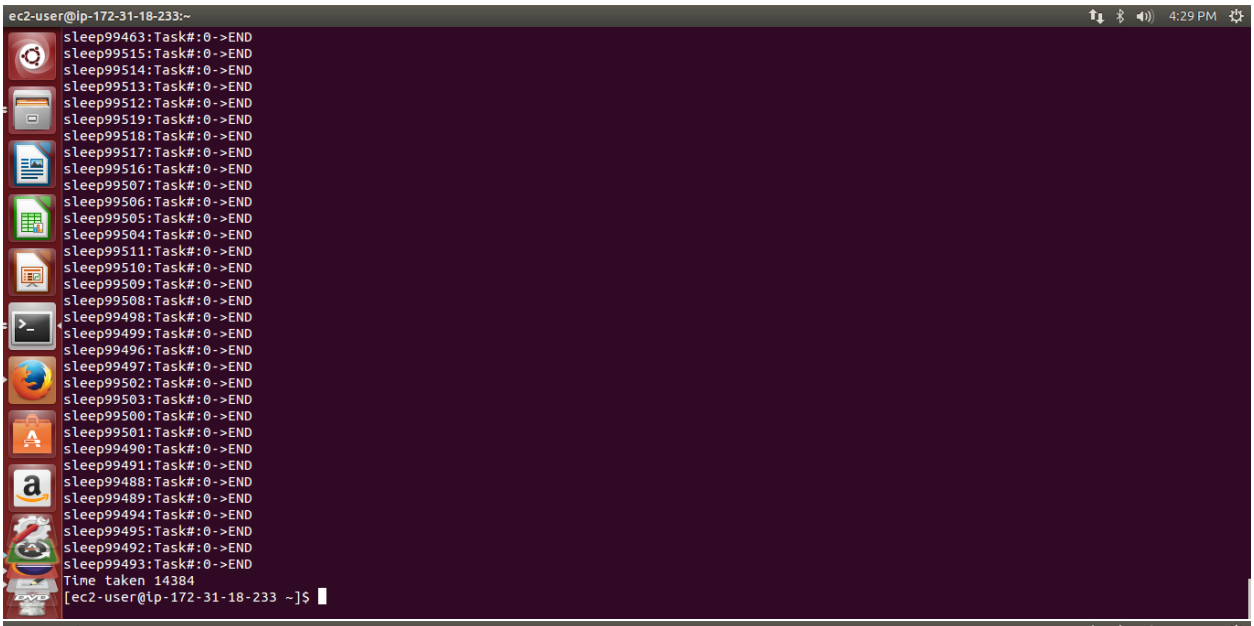
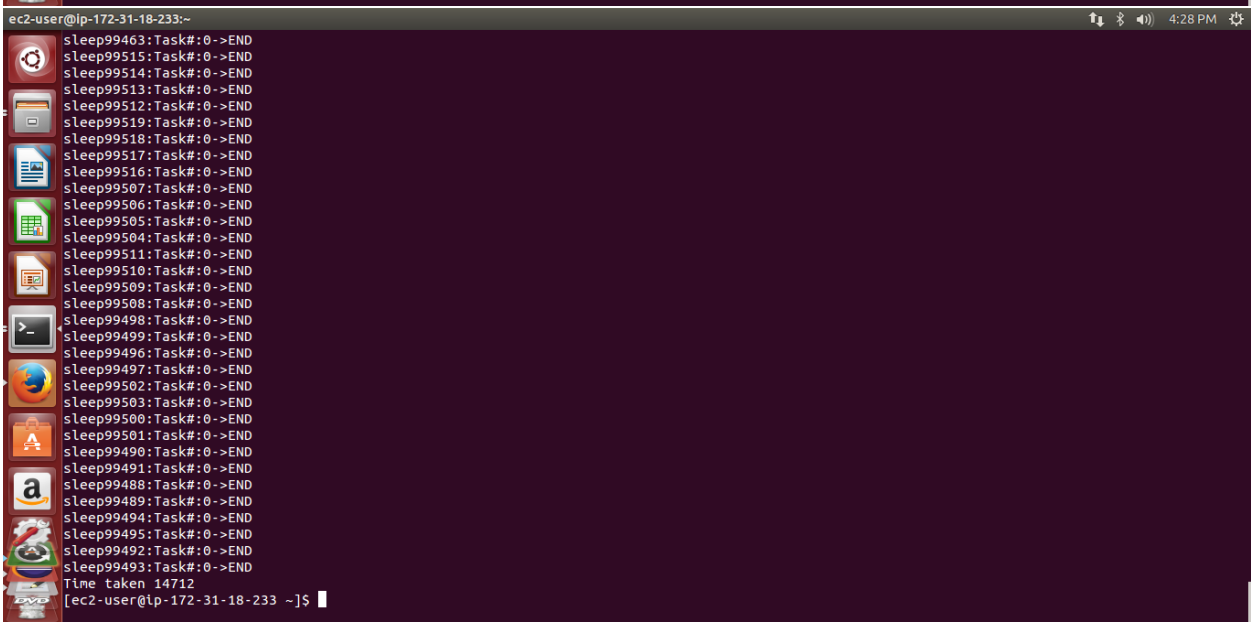
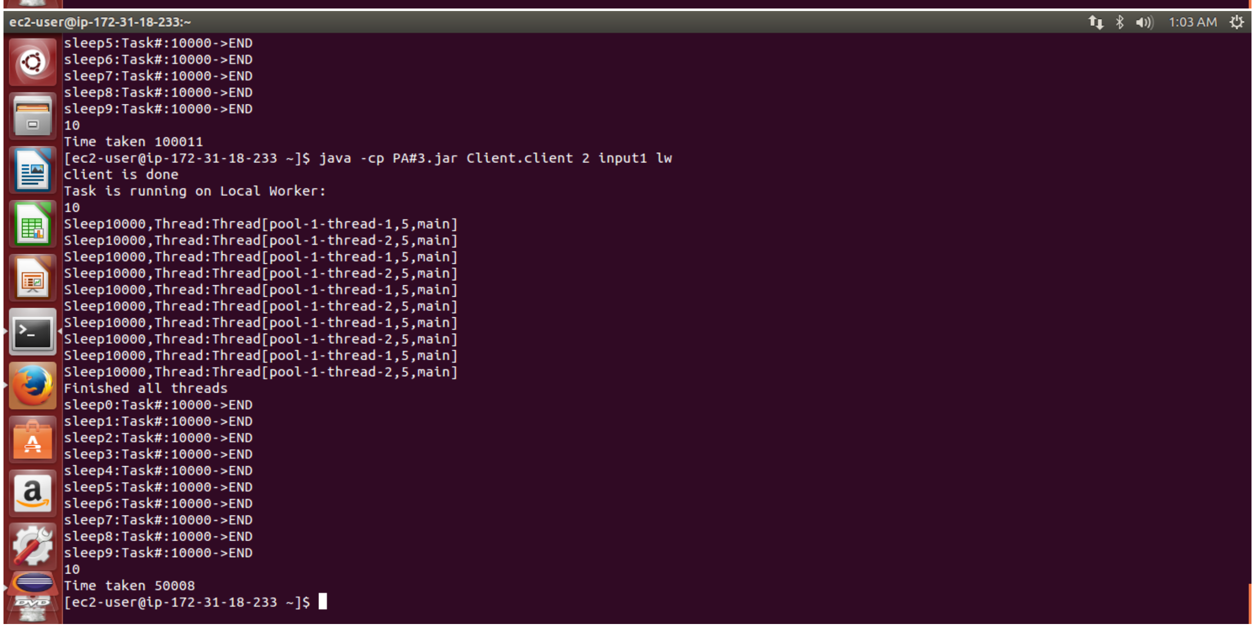
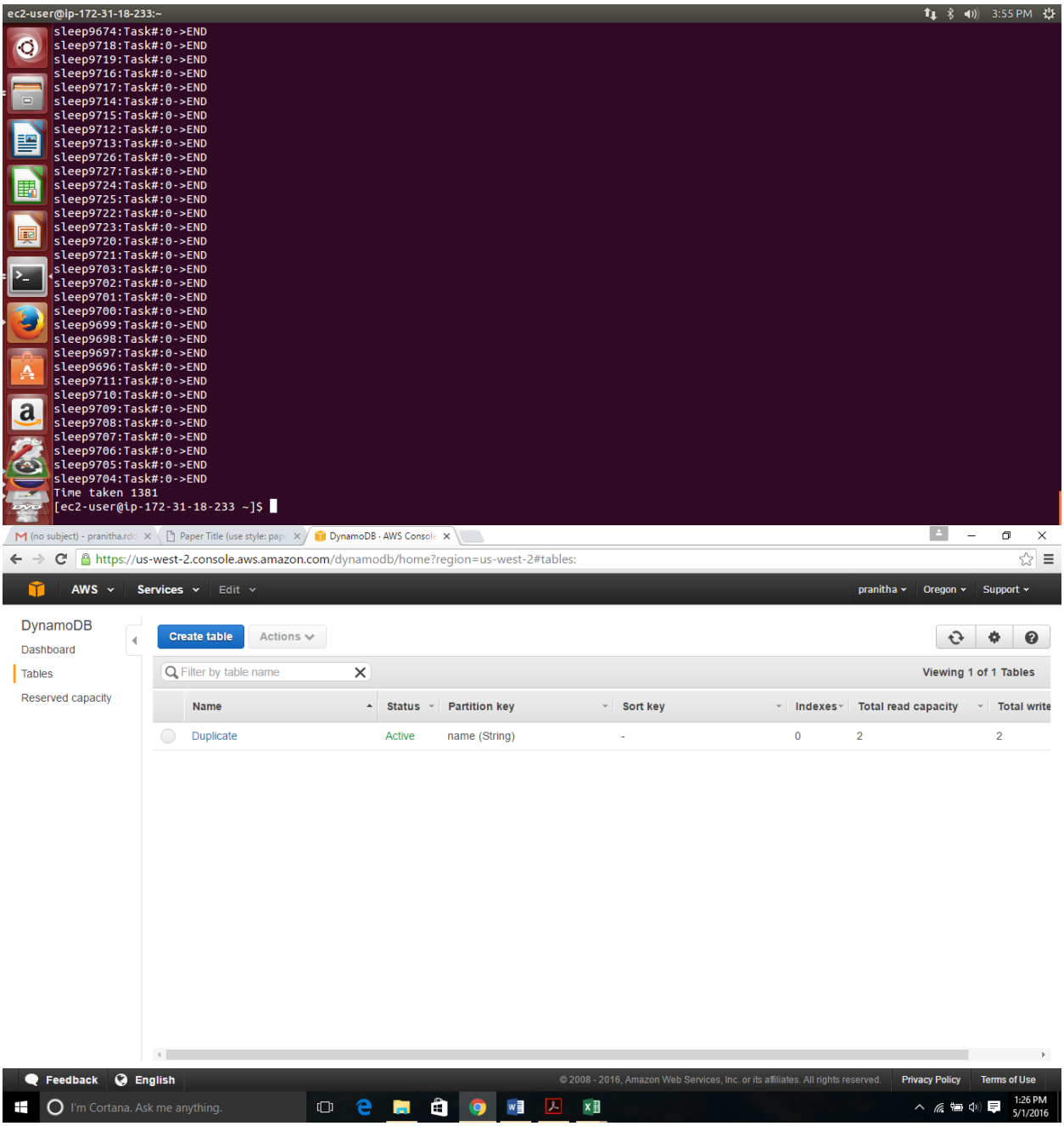
Sleep0,Thread:Thread[pool-1-thread-1,5,main]
Sleep0,Thread:Thread[pool-1-thread-1,5,main]
Sleep0,Thread:Thread[pool-1-thread-1,5,main]
Sleep0,Thread:Thread[pool-1-thread-1,5,main]
Sleep0,Thread:Thread[pool-1-thread-1,5,main]
Sleep0,Thread:Thread[pool-1-thread-1,5,main]
Sleep0,Thread:Thread[pool-1-thread-1,5,main]
Sleep0,Thread:Thread[pool-1-thread-1,5,main]
Sleep0,Thread:Thread[pool-1-thread-1,5,main]
Sleep0,Thread:Thread[pool-1-thr

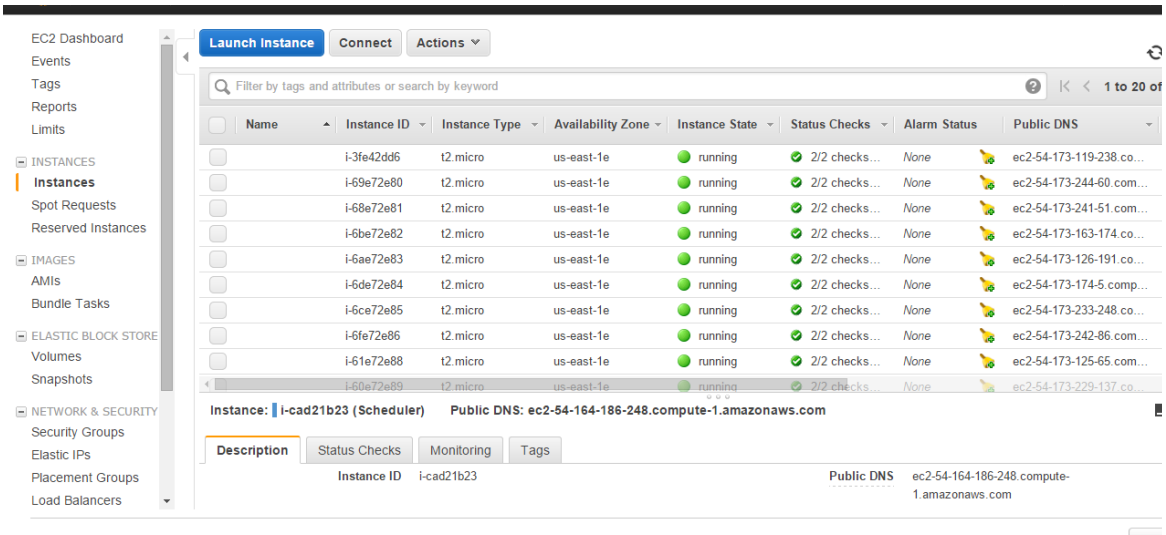

ec2-user@ip-172-31-18-233:~
4:29 PM
sleep99463:Task#:0->END
sleep99515:Task#:0->END
sleep99514:Task#:0->END
sleep99513:Task#:0->END
sleep99512:Task#:0->END
sleep99519:Task#:0->END
sleep99518:Task#:0->END
sleep99517:Task#:0->END
sleep99516:Task#:0->END
sleep99507:Task#:0->END
sleep99506:Task#:0->END
sleep99505:Task#:0->END
sleep99504:Task#:0->END
sleep99511:Task#:0->END
sleep99510:Task#:0->END
sleep99509:Task#:0->END
sleep99508:Task#:0->END
sleep99498:Task#:0->END
sleep99499:Task#:0->END
sleep99496:Task#:0->END
sleep99497:Task#:0->END
sleep99502:Task#:0->END
sleep99503:Task#:0->END
sleep99500:Task#:0->END
sleep99501:Task#:0->END
sleep99490:Task#:0->END
sleep99491:Task#:0->END
sleep99488:Task#:0->END
sleep99489:Task#:0->END
sleep99494:Task#:0->END
sleep99495:Task#:0->END
sleep99492:Task#:0->END
sleep99493:Task#:0->END
Time taken 14384
[ec2-user@ip-172-31-18-233 ~]$


ec2-user@ip-172-31-18-233:~
4:28 PM
sleep99463:Task#:0->END
sleep99515:Task#:0->END
sleep99514:Task#:0->END
sleep99513:Task#:0->END
sleep99512:Task#:0->END
sleep99519:Task#:0->END
sleep99518:Task#:0->END
sleep99517:Task#:0->END
sleep99516:Task#:0->END
sleep99507:Task#:0->END
sleep99506:Task#:0->END
sleep99505:Task#:0->END
sleep99504:Task#:0->END
sleep99511:Task#:0->END
sleep99510:Task#:0->END
sleep99509:Task#:0->END
sleep99508:Task#:0->END
sleep99498:Task#:0->END
sleep99499:Task#:0->END
sleep99496:Task#:0->END
sleep99497:Task#:0->END
sleep99502:Task#:0->END
sleep99503:Task#:0->END
sleep99500:Task#:0->END
sleep99501:Task#:0->END
sleep99490:Task#:0->END
sleep99491:Task#:0->END
sleep99488:Task#:0->END
sleep99489:Task#:0->END
sleep99494:Task#:0->END
sleep99495:Task#:0->END
sleep99492:Task#:0->END
sleep99493:Task#:0->END
Time taken 14712
[ec2-user@ip-172-31-18-233 ~]$


ec2-user@ip-172-31-18-233:~
9:32 PM
sleep998:Task#:10->END
sleep986:Task#:10->END
sleep987:Task#:10->END
sleep984:Task#:10->END
sleep985:Task#:10->END
sleep990:Task#:10->END
sleep991:Task#:10->END
sleep988:Task#:10->END
sleep989:Task#:10->END
sleep978:Task#:10->END
sleep979:Task#:10->END
sleep976:Task#:10->END
sleep977:Task#:10->END
sleep982:Task#:10->END
sleep983:Task#:10->END
sleep980:Task#:10->END
sleep981:Task#:10->END
sleep971:Task#:10->END
sleep970:Task#:10->END
sleep969:Task#:10->END
sleep968:Task#:10->END
sleep975:Task#:10->END
sleep974:Task#:10->END
sleep973:Task#:10->END
sleep972:Task#:10->END
sleep963:Task#:10->END
sleep962:Task#:10->END
sleep961:Task#:10->END
sleep960:Task#:10->END
sleep967:Task#:10->END
sleep966:Task#:10->END
sleep965:Task#:10->END
sleep964:Task#:10->END
Time taken 5166
[ec2-user@ip-172-31-18-233 ~]$


ec2-user@ip-172-31-18-233:~
1:03 AM
sleep5:Task#:10000->END
sleep6:Task#:10000->END
sleep7:Task#:10000->END
sleep8:Task#:10000->END
sleep9:Task#:10000->END
10
Time taken 100011
[ec2-user@ip-172-31-18-233 ~]$ java -cp PA#3.jar Client.client 2 input1 lw
client is done
Task is running on Local Worker:
10
Sleep10000,Thread:Thread[pool-1-thread-1,5,main]
Sleep10000,Thread:Thread[pool-1-thread-2,5,main]
Sleep10000,Thread:Thread[pool-1-thread-1,5,main]
Sleep10000,Thread:Thread[pool-1-thread-2,5,main]
Sleep10000,Thread:Thread[pool-1-thread-1,5,main]
Sleep10000,Thread:Thread[pool-1-thread-2,5,main]
Sleep10000,Thread:Thread[pool-1-thread-1,5,main]
Sleep10000,Thread:Thread[pool-1-thread-2,5,main]
Sleep10000,Thread:Thread[pool-1-thread-1,5,main]
Sleep10000,Thread:Thread[pool-1-thread-2,5,main]
Finished all threads
sleep0:Task#:10000->END
sleep1:Task#:10000->END
sleep2:Task#:10000->END
sleep3:Task#:10000->END
sleep4:Task#:10000->END
sleep5:Task#:10000->END
sleep6:Task#:10000->END
sleep7:Task#:10000->END
sleep8:Task#:10000->END
sleep9:Task#:10000->END
10
Time taken 50008
[ec2-user@ip-172-31-18-233 ~]$


ec2-user@ip-172-31-18-233:~
3:55 PM
sleep9674:Task#:0->END
sleep9718:Task#:0->END
sleep9719:Task#:0->END
sleep9716:Task#:0->END
sleep9717:Task#:0->END
sleep9714:Task#:0->END
sleep9715:Task#:0->END
sleep9712:Task#:0->END
sleep9713:Task#:0->END
sleep9726:Task#:0->END
sleep9727:Task#:0->END
sleep9724:Task#:0->END
sleep9725:Task#:0->END
sleep9722:Task#:0->END
sleep9723:Task#:0->END
sleep9720:Task#:0->END
sleep9721:Task#:0->END
sleep9703:Task#:0->END
sleep9702:Task#:0->END
sleep9701:Task#:0->END
sleep9700:Task#:0->END
sleep9699:Task#:0->END
sleep9698:Task#:0->END
sleep9697:Task#:0->END
sleep9696:Task#:0->END
sleep9711:Task#:0->END
sleep9710:Task#:0->END
sleep9709:Task#:0->END
sleep9708:Task#:0->END
sleep9707:Task#:0->END
sleep9706:Task#:0->END
sleep9705:Task#:0->END
sleep9704:Task#:0->END
Time taken 1381
[ec2-user@ip-172-31-18-233 ~]$
DynamoDB - AWS Console
https://us-west-2.console.aws.amazon.com/dynamodb/home?region=us-west-2#tables:
AWS
Services
Edit
pranitha
Oregon
Support
DynamoDB
Dashboard
Tables
Reserved capacity
Create table
Actions
Filter by table name
Viewing 1 of 1 Tables
Name
Status
Partition key
Sort key
Indexes
Total read capacity
Total write
Duplicate
Active
name (String)
-
0
2
2
Feedback
English
© 2008 - 2016, Amazon Web Services, Inc. or its affiliates. All rights reserved.
Privacy Policy
Terms of Use
I'm Cortana. Ask me anything.
1:26 PM
5/1/2016


EC2 Dashboard
Events
Tags
Reports
Limits
INSTANCES
Instances
Spot Requests
Reserved Instances
IMAGES
AMIs
Bundle Tasks
ELASTIC BLOCK STORE
Volumes
Snapshots
NETWORK & SECURITY
Security Groups
Elastic IPs
Placement Groups
Load Balancers
Launch Instance
Connect
Actions
Filter by tags and attributes or search by keyword
1 to 20 of
Name
Instance ID
Instance Type
Availability Zone
Instance State
Status Checks
Alarm Status
Public DNS
i-3fe42dd6 t2.micro us-east-1e running 2/2 checks... None ec2-54-173-119-238.co...
i-69e72e80 t2.micro us-east-1e running 2/2 checks... None ec2-54-173-244-60.com...
i-68e72e81 t2.micro us-east-1e running 2/2 checks... None ec2-54-173-241-51.com...
i-6be72e82 t2.micro us-east-1e running 2/2 checks... None ec2-54-173-163-174.co...
i-6ae72e83 t2.micro us-east-1e running 2/2 checks... None ec2-54-173-126-191.co...
i-6de72e84 t2.micro us-east-1e running 2/2 checks... None ec2-54-173-174-5.comp...
i-6ce72e85 t2.micro us-east-1e running 2/2 checks... None ec2-54-173-233-248.co...
i-6fe72e86 t2.micro us-east-1e running 2/2 checks... None ec2-54-173-242-86.com...
i-61e72e88 t2.micro us-east-1e running 2/2 checks... None ec2-54-173-125-65.com...
i-60e72e89 t2.micro us-east-1e running 2/2 checks... None ec2-54-173-229-137.co...
Instance: i-cad21b23 (Scheduler) Public DNS: ec2-54-164-186-248.compute-1.amazonaws.com
Description
Status Checks
Monitoring
Tags
Instance ID i-cad21b23
Public DNS ec2-54-164-186-248.compute-1.amazonaws.com