Comparing Cloud Platforms - AWS & GCE

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Motivation and Goals

- Many applications developed today use cloud platforms to reduce cost, achieve scalability, etc.
- There are many cloud platforms available for developers. How to choose? What criterion?
- Nowadays, several media applications are being implemented over cloud platforms as well.
- We compare AWS and GCE by deploying a computation intensive MapReduce Application.
- We deploy an OpenCV Image Processing Application on AWS and evaluate AWS' performance by using a large image collection that has images with different quality.

Related Work and Efforts

The following papers/articles compare different cloud platforms in general. Our work is focused on media applications alone.

- Comparing different cloud providers- https://www.cs.duke.edu/~angl/papers/imc10-cloudcmp.pdf
- Comparison of cloud platforms : Google cloud and AWS : http://cloudacademy.com/blog/google-cloud-vs-aws-a-comparison/
- Cloud computing platforms – metrics comparisons - http://www.researchgate.net/profile/Nawsher_Khan/publication/228067937_Cloud_Computing_Analysis_of_Various_Platforms/links/09e414feaf48f004db000000.pdf
- Performance analysis based on leading cloud computing services - http://www.cse.wustl.edu/~jain/cse567-11/ftp/clouds/

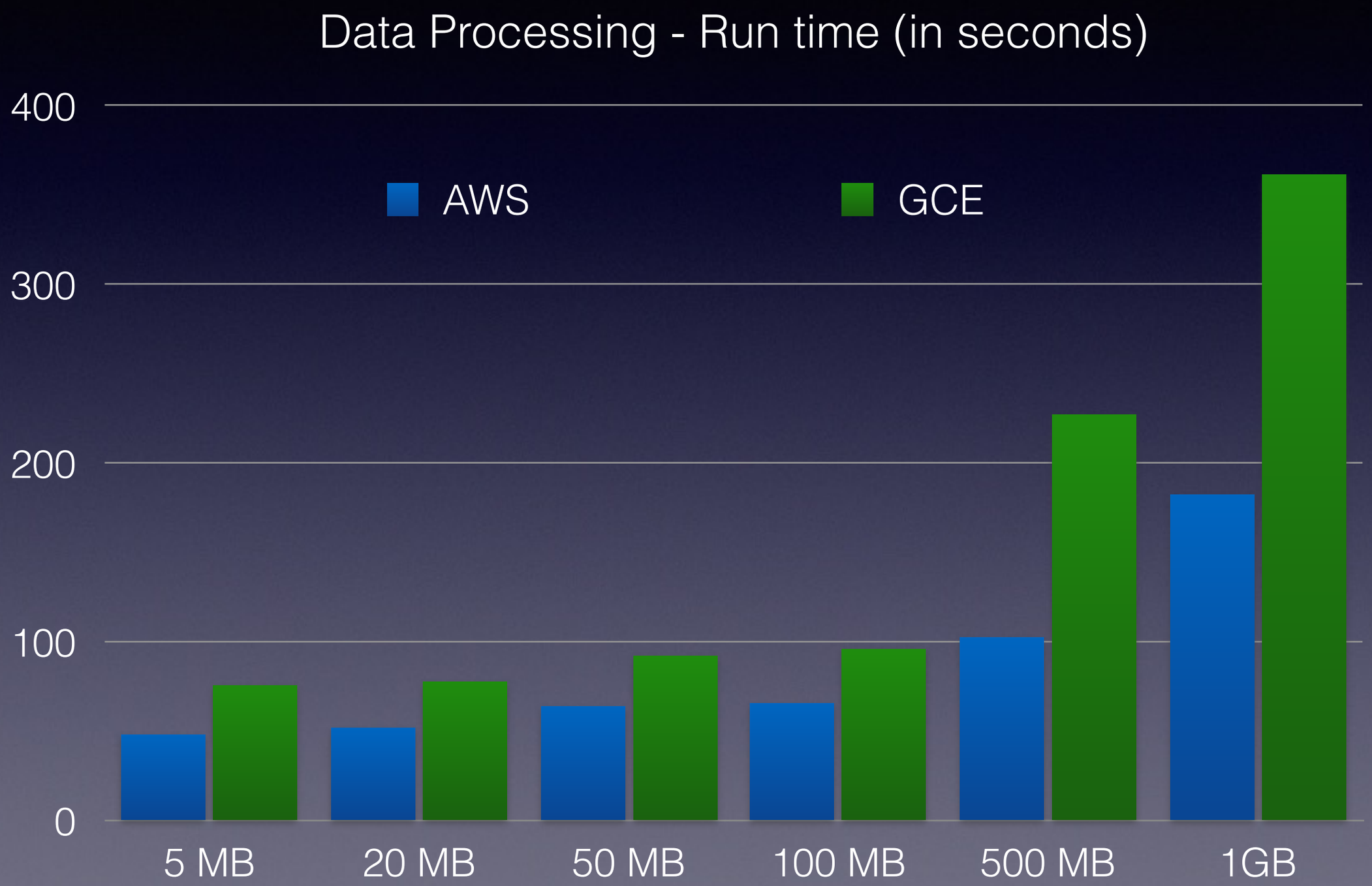
Tools and Softwares

VS

Evaluation Criterion

- Data Processing
  - Making application work with datasets of different sizes (10MB, 100MB, 1GB, …..) on AWS and GCE
  - Evaluating platforms based on cost, computation time, scalability performance, CPU processing time
- Image Processing
  - Making application work on an image collection that has images with different quality (HD, blurred images)

Results


Data Processing - Run time (in seconds)
400
300
200
100
0
AWS
GCE
5 MB
20 MB
50 MB
100 MB
500 MB
1GB

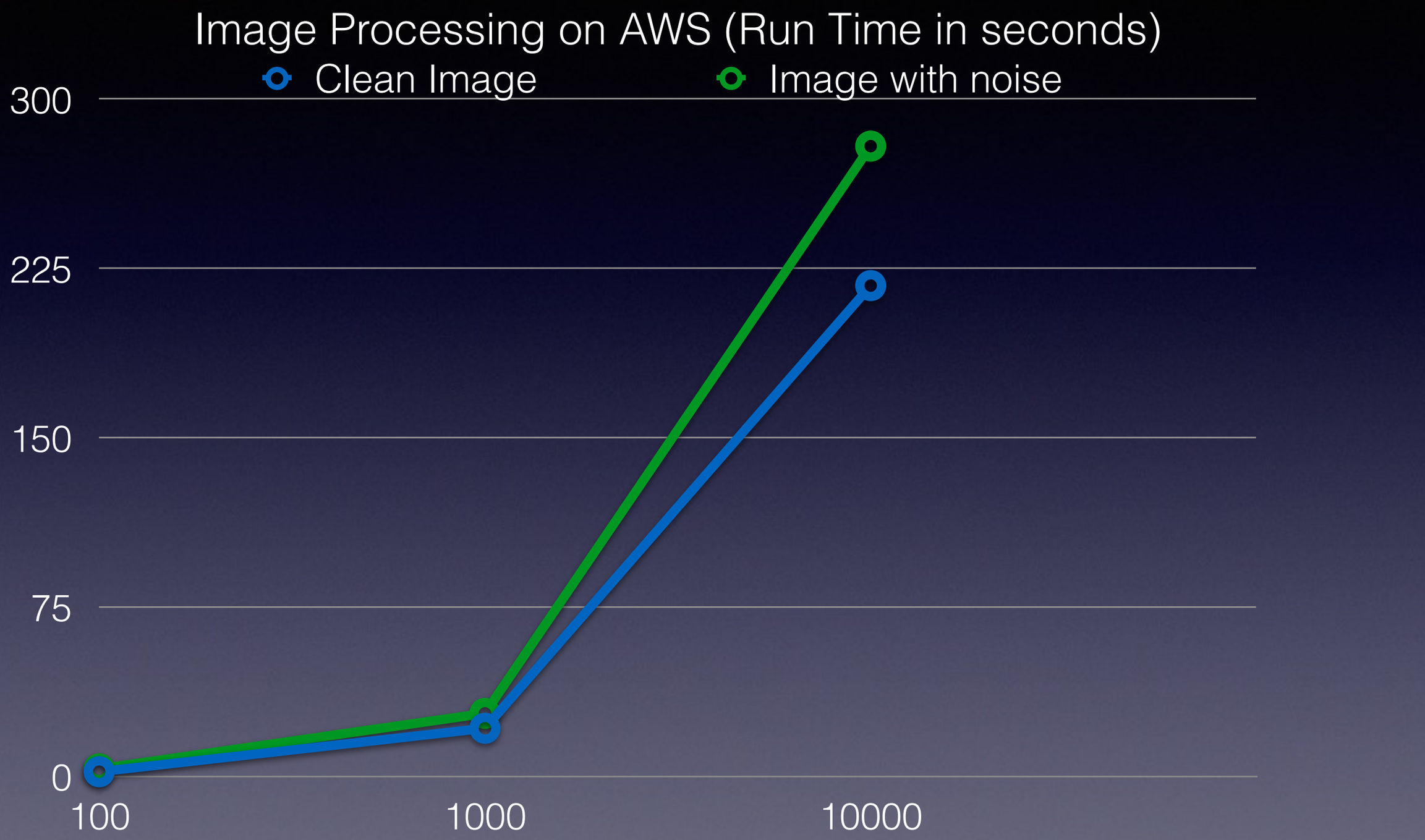


Image Processing on AWS (Run Time in seconds)
Clean Image
Image with noise
300
225
150
75
0
100
1000
10000