

Cloud networking and Continuous Integration /Continuous Deployment (CI/CD) Infra

Project Logistics:

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Min-max team size: 4-5

Expected project hours per week (per team member): 6-8

Project Overview:

Connectivity to the cloud and between clouds is an evolving technology area. CI/CD is essential in ensuring robust operation of networking in production cloud environments. A judicious balance between evaluating functional correctness and run times makes the infrastructure more valuable. Often times the tests do not provide enough coverage and the pass results are not truly representative of the state of the change sets. In the other extreme, we may have multiple tests that do not add much value in terms of coverage and just result in longer run times. Evaluation of hardware based networking devices add additional constraints in setting up the deployment to accurately represent the performance benefits of physical devices as well.

Students can consider looking at mapping some formal verification techniques to adapt to construct representative optimal test sets or for the more pragmatic minded even focus on building tools using metrics such as code coverage to provide guidance on usefulness of additional tests. Some of the constraints with hardware devices can be modeled using the ASR1k based environment present at BU.

What the students will get:

- Good Knowledge of CI/CD immediately applicable to industry
- Tools such as zuul, ansible