**DevOps Assessment**

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*For the given problem domains; candidate should provide* ***infrastructure automation code (IAAC) project*** *with some* ***supportive diagrams****.*

*Scenario: Build 3-tier architecture setup on cloud for customer facing web application architecture.*

*Preferred coding/orchestration language/technology: Terraform/Cloudformation*

*Configuration management: Ansible/Bash scripts/Chef/puppet*

*Infrastructure requirements:*

* *Complete VPC with 3 tiers, 3 AZs (Singapore region), internet GW, NAT*
* *Highly available application.*
* *Deliver static and dynamic web content with download efficiency.*
* *Load distributions, EC2/ECS/EKS*
* *Limited unidirectional/bidirectional internet connectivity from system. (Only needed resources should have required access)*
* *SSL enabled system.*
* *Cost optimized and right sized.*
* *Centralized logging/monitoring.*
* *Capable of scale up/down itself based on load*
* *Limited port access for SSH/application specific ports, DB etc.*
* *RDS DB and its high availability*
* *Traffic filtering capability to prevent attacks*

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**1) Need to build customer facing web application architecture on cloud considering following aspects:**

* Capable of Handling peak traffic of 1000 tps with 50 ms latency
* Deliver static and dynamic web content with download efficiency
* Traffic Filtering capability to prevent attacks
* SSL enabled system
* Limited Unidirectional/Bidirectional internet connectivity from system ( only needed resources should have required access)
* Load distribution capability
* Highly available application
* Cost optimised and right sized
* Capable of scale up/down itself based on load on application
* Limited required port connectivity between different resource
* Centralised logging for application event
* InMemory Database and key/value pair Database requirement which are not exposed to internet at all and only accessible from app server
* Application system/server talks to DataCenter component hence Cloud to OnPrem connectivity is required.
* Application response time needs to be monitored and alerted based

**2) Need to build CI/CD setup for application and requirement is as follows:**

* Developer works in feature branch code merge happens to master branch and release artifacts comes from release branch
* Every commit in feature branch triggers building of code which should cover
  + Units test case
  + Code coverage check
  + Code Quality check
  + Code vulnerability check
* Master branch merge trigger build and successful build pushed artifact to some artefact repo
* Auto deploy artifact to first environment like DEV
* Auto promote it to next environment QA id DEV deployment is successfully
* QA automation test suite execution and auto promotion to next environment
* Manual checkpoint/decision for production deployment and approval triggers production deployment
* Blue green deployment
* Rollback deployment