#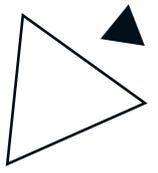 Swiss IT Company Designs Highly Available and **Scalable** GitLab Infrastructure on **Oracle Cloud Infrastructure (OCI) OKE**

The current GitLab setup struggled to maintain uninterrupted access & adapt to fluctuating workloads

Swiss IT Company, a renowned cloud consulting and engineering firm, sought to enhance their GitLab infrastructure to meet the growing demands of their organization. The existing GitLab setup, while functional, struggled to adapt to **fluctuating workloads** and maintain uninterrupted access, hindering collaboration and productivity. To address these challenges, Swiss IT company embarked on a project to design and implement a **highly available and scalable** GitLab infrastructure on Oracle Cloud Infrastructure **(OCI) OKE**.

Frequent GitLab outages, and manual scaling and provisioning of runners putting a strain on resources

The existing GitLab infrastructure faced several limitations:

- **Limited scalability:**

  The manual provisioning of runners could not keep pace with the fluctuating workloads, leading to performance bottlenecks and delays in pipeline executions.

- **Lack of resilience:**

  The absence of redundancy and fault tolerance made the GitLab environment susceptible to outages, disrupting collaboration and productivity.
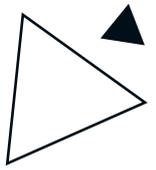
- **Manual scaling:**

  The manual process of scaling runners was time-consuming and resource-intensive, hindering the ability to adapt to evolving demands efficiently.

Solution

Swiss IT Company sought to design a **solution architecture** that would **enable automatic runner scaling**, ensuring **resilience** and fault tolerance. The goal was to create a reliable and scalable GitLab infrastructure on OCI OKE, capable of accommodating **increased workloads** and promoting efficient collaboration within the organization.
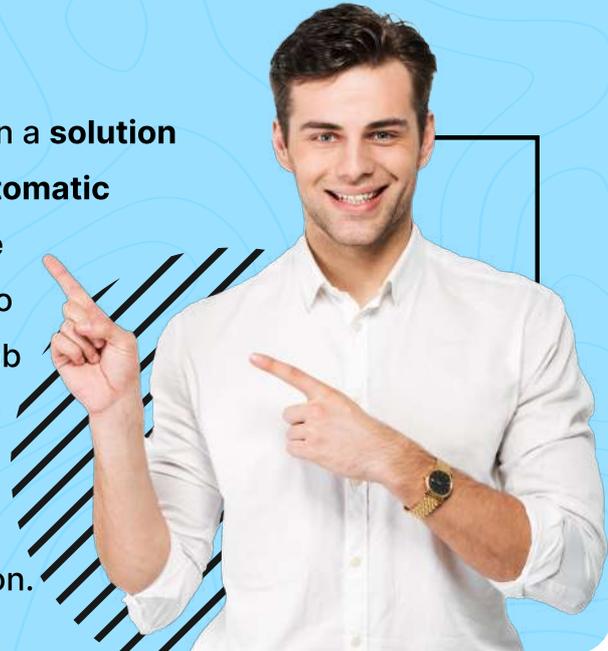
The implementation of a highly available and scalable GitLab infrastructure on OCI OKE involved the following key components:

- **Automatic runner scaling:**

  A custom autoscaler was implemented to monitor GitLab resource utilization and dynamically scale the number of runners based on demand. This ensured that the GitLab environment could handle fluctuating workloads without compromising performance.

- **Resilient architecture:**

  A highly available GitLab cluster was deployed on OCI OKE, utilizing multiple availability domains to ensure redundancy and fault
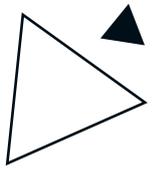
tolerance. This ensured that the GitLab environment remained operational even in the event of hardware or software failures.

- **Automated provisioning:**

  Infrastructure provisioning was automated using Terraform, an IaC tool, enabling consistent and repeatable deployment of GitLab components. This reduced the time required for infrastructure setup and maintenance.

- **Monitoring and alerting:**

  Comprehensive monitoring and alerting mechanisms were implemented to provide real-time insights into GitLab performance and resource utilization. This enabled proactive detection and resolution of potential issues.

- **Continuous integration & continuous delivery pipeline:**

  A robust CI/CD pipeline was integrated with GitLab, enabling automated testing, deployment, and monitoring of code changes. This streamlined the development process and accelerated the delivery of new features.

Minimized GitLab downtime by (stat) and resources

The implementation of a highly available and scalable GitLab infrastructure on OCI OKE has yielded significant benefits for Swiss IT Company, including:

Enhanced resilience

Improved scalability

Reduced operational overhead

Accelerated development

- **Improved scalability:**

  GitLab can now seamlessly handle fluctuating workloads, ensuring uninterrupted access and efficient pipeline executions.

- **Enhanced resilience:**

  The highly available GitLab environment minimizes downtime and disruptions, promoting collaboration and productivity.

- **Reduced operational overhead:**

  Automated provisioning and monitoring streamline infrastructure management, freeing up resources for more strategic initiative.

- **Accelerated development:**

  The CI/CD pipeline expedites the delivery of new features, enabling faster time to market.

Conclusion

Swiss IT Company's successful implementation of a highly available and scalable GitLab infrastructure on OCI OKE exemplifies the power of cloud infrastructure and **automation in transforming DevOps processes.** The new infrastructure has not only enhanced the **reliability and performance** of GitLab but has also streamlined collaboration, accelerated development cycles, and **reduced operational overhead.** This success story serves as a testament to the Xgrid's commitment to innovation and its ability to leverage technology to **achieve its business goals.**