Cloud workshop

Workshop goals:

1. Learn a platform-agnostic way to work with the cloud
2. Learn development practices and tools for targeting **k8s** with **docker**
3. Learn how to integrate vendor products (e.g. Cosmos DB) with our cluster infra
4. Get **hands-on experience** doing all of above!
5. Optional: Learn CI/CD processes with k8s (if we managed to)
6. Optional: Learn default options for logging and monitoring with k8s (important, but most probably will not manage to cover it deeply

Prerequisites for participants:

- See Prerequisites for participants article. It must be completed before the workshop!

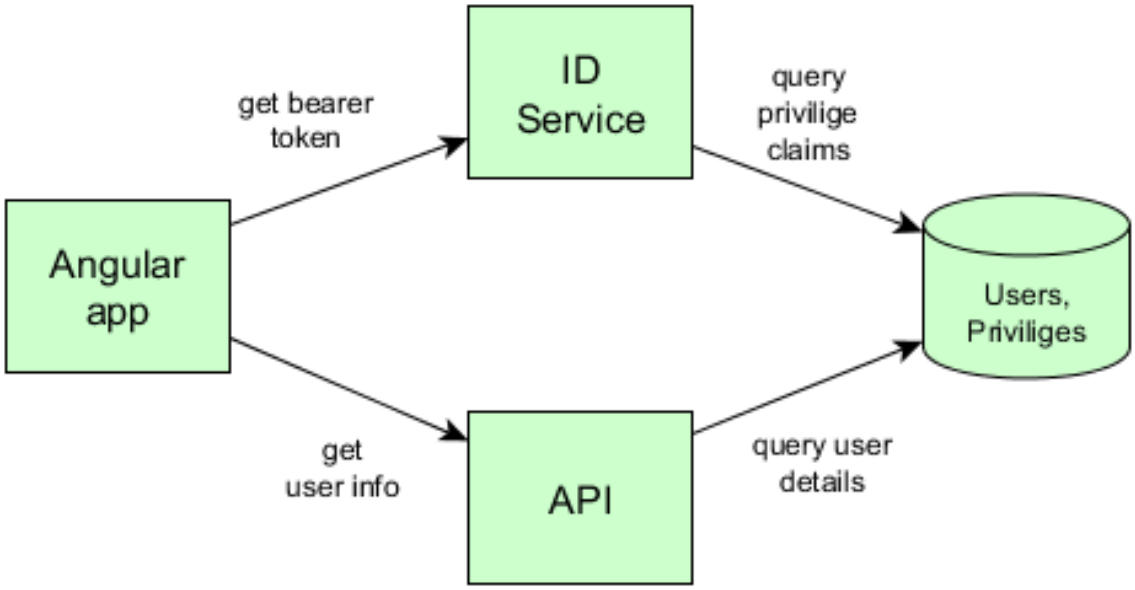
Agenda:

1. Presentation (30 min):
    a. Why k8s is a de-facto industry standard
    b. A word about AKS and EKS managed k8s clusters
    c. Kubernetes overview
    d. Used tools - terraform, k8s, docker
    e. Workshop agenda
2. Workshop (2h 45min)
    a. Prepare the cloud environment (45 min)
        i. Use Azure subscription credentials in Azure CLI
        ii. Edit terraform definitions to create AKS intance and Cosmos SB account
        iii. Short presentation about environments, resource groups, naming conventions and CI/CD
        iv. Execute terraform plan
        v. Browse Azure Portal to see generated resources
    b. Containerize apps (45 min)
        i. Create personal git branches for sample apps
        ii. Expose app config options
        iii. Deploy apps to an Azure container registry
        iv. Test apps integration with docker-compose
    c. Run k8s cluster in minikube (45 min)
        i. Configure secrets for proxy and app settings in key vault
        ii. Create k8s definitions for services and deployments
        iii. Deploy k8s manifests with sample apps to your minikube cluster
        iv. Observe deployed infra
    d. Deploy to AKS (30 min)
        i. Adjust config for AKS
        ii. Push services to the created AKS cluster using kubectl
        iii. ~~Add App Insights to the services~~
        iv. ~~Re-deploy app with the changes~~
        v. Browse Azure Portal to see services usage
    e. Adjust apps in AKS to use Cosmos DB (15 min)
        i. get connection string
        ii. change k8s mongo service to facade the Cosmos DB
        iii. apply changes
3. Closing word(15 min or more, depending on how previous steps go)
    a. CI/CD pipeline
    b. Data stores within the cluster and vendor products such as Cosmos DB
    c. Service buses - vendor and custom built
    d. Logging - elastic search
    e. Monitoring

Total time: 3.5-4h

Workshop apps:

- id service (netcore)
- sample REST API (node.js)
- sample app (Angular)



Target deployment architecture: