OSB HUB- SystemEngineer Trail Meeting on February 24th Meeting report

General Context:

- This was the second meeting (after a kickoff) regarding the **Open Study Builder (OSB)** trail, specifically focused on **System Engineering**.
- Part of the COSA community's Open Study Builder (OSB) initiative, focusing on deployment strategies, APIs, and system integration.

Objectives and Scope:

- Share knowledge and best practices about deploying OSB.
- Develop a network of experts and create purposeful guidelines for companies using OSB.
- Initially focused on **deployment workflows**, with future focus on APIs integration.

Technology Stack and Deployment Practices:

- **Cloud Providers:** Azure, AWS, and Oracle Cloud were mentioned as platforms where OSB is deployed.
- Novo Nordisk specifically uses Azure cloud for deployment, employing Bicep for infrastructure as code (IaC).
- Docker containers are widely used, with eventual migration planned toward Azure Kubernetes Services (AKS) or Red Hat OpenShift.
- Use of Neo4j graph database hosted on virtual machines with Red Hat Enterprise Linux.

Security and Testing:

- OAuth protocol is utilized for authentication.
- Azure Key Vault used for secret management and SSL certificates.
- Storage accounts utilized for:
    - Backup of metadata and databases, significantly reducing deployment/testing times.
    - Docker images storage for security and disaster recovery.
- Security scanning of Docker images with Veracode (static security testing tool).
- Vulnerability scanning of Docker images before registry deployment.

Deployment Challenges Identified:

- Transitioning from Docker to OpenShift has been challenging.
- Need for clearer migration paths and simpler upgrade processes.
- Standardization and improved configurability for identity providers (Azure AD commonly used).

Monitoring and Observability:

- Azure's Log Analytics is primarily used, complemented by Grafana dashboards for intuitive visualization.
- Metrics monitored:
    - Application usage and adoption.
    - Performance metrics (CPU, memory, response time).
    - API container performance and Neo4j database interactions.
- Grafana dashboards assist in identifying and troubleshooting performance issues efficiently (e.g., endpoint response time).

Performance and Optimizations:

- Utilized database backups significantly reduced the pipeline duration (from 2 hours to around 15 minutes).
- Docker images are maintained in storage accounts to avoid vulnerability scanning issues with registry-stored images.
- Recent improvements in mitigating container vulnerabilities were highlighted.

Deployment Practices at Novo Nordisk:

- Novo Nordisk uses Azure with Bicep for infrastructure as code.
- FastAPI (Python) is used for backend and API development.
- Front-end development utilizes Vue.js.

Community Feedback and Future Improvements:

- Migration scripts for OSB are available and documented, ensuring smooth upgrades without data loss.
- Migration scripts are validated and available, addressing community concerns about losing data during upgrades.
- Future OSB updates will include solutions to known issues such as Docker initialization delays and API migration.

Community Engagement:

- The group emphasized open communication, sharing practices and scripts, notably Gherkin scripts for validation.
- Next community meeting (scheduled one month from this meeting) will focus on APIs.