



Fractal Analytics- Platform Engineering Capabilities

Platform Engineering Capability – Architecture to Operations

“Enable Faster Development & Platforms scalable, reliable and secure”

Platform Design



- Architecting workload for fit for purpose and use - Application, Analytics, Data Science
- Landing Zone design and Guardrails, Cloud Security Posture.
- Centralized network and security control with Hub and Spoke Network topology.
- We ensure Platform design is optimized for cost.

Platform Implementation



- Automated Platform provisioning per the architecture\blueprint
- Central Infra as a code for easier future platform provisioning.
- Assessment – against OKRs and KPI, security, availability and reliability requirements.
- Enable self service and internal developer platforms, speed up development.

DevSecOps



- Maturity assessment and improvement road map
- Federated DevSecOps – DevSecOps parametrized pipelines for application, data pipelines.
- SecOps integrated with CICD
- Release Management with versioned releases
- Container and Kubernetes security and management

Site Reliability Engineering



- Platform Observability & Monitoring – SLO, SLI discovery for platform,
- Telemetry setup for logging, alerts.
- Integrating with monitoring tools – Grafana, App Dynamics and Splunk.
- L1\L2\L3 support –Depth skill on Cloud Sys Admin – networking, IAM, service performance, Kubernetes cluster, Cloud Databases.

EnterpriseOps Services Offering

DataOps

- Trigger, Monitor, Manage ETL pipeline
- Data quality check on back end
- Data pipeline Bug-Fixes
- Monitor pipeline failure logs
- Monitor performance
- Manage Documentation
- DQ stewardship
- Data Alert mechanisms
- Built-in traceability & Lineage
- Implement schedulers
- Data Freshness

Platform Engineering

- Platform Architecture from development to Production
- **Kubernetes** - cluster for varied use cases - web application, machine learning, data engineering.
- **Cloud Operations** - Platform Provisioning automated through Infra as a Code & Maintenance
- Maintain operational compliance. Protect workloads and associated assets
- IAM policy and Security management.

DevSecOps & SRE

- Scalable parametrized pattern for CI/CD ensuring reliable and secure code delivery.
- Automation of data refresh.
- Development of Infrastructure as a Code.
- Shift left of Testing, Quality and Security
- Building observability and monitoring.
- Automating event notification and response.

AppOps - Reports/ Decision Systems

- Data visualizations
- REST & SOAP API
- Marketplaces
- DQ stewardship
- Decision Systems monitoring

FinOps

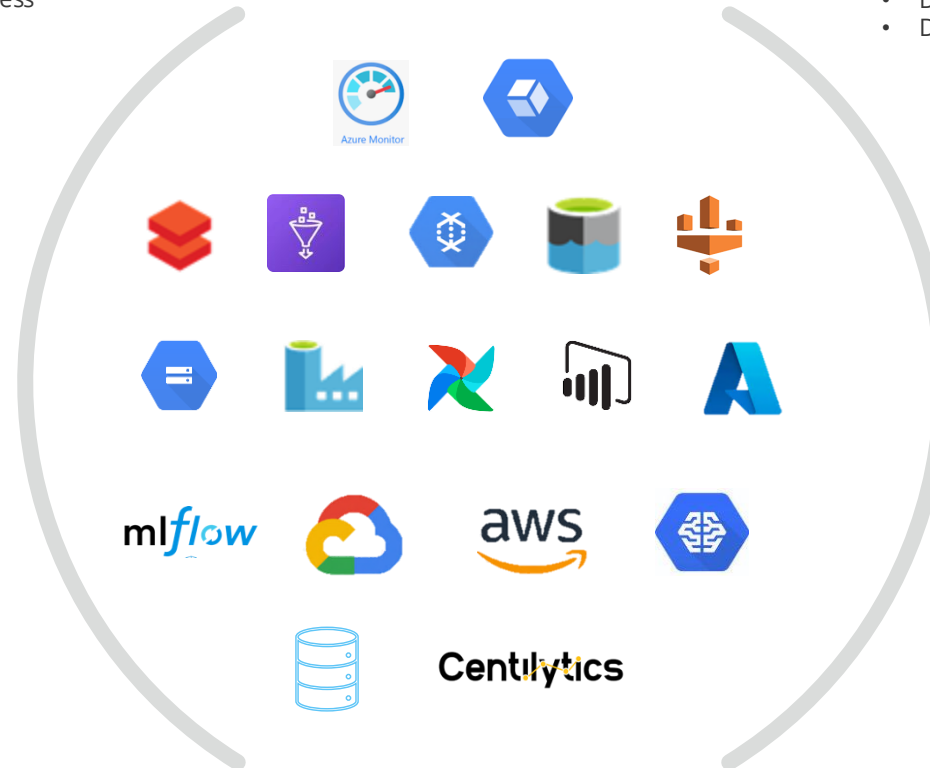
- Monitor & Report on Cost consumption on daily/weekly/monthly basis.
- Optimizing cost using capacity and performance reporting.

Cognitive Automation

- Model training based on monitoring and alerting logs
- Pattern recognition of failures.
- Cognitive models used for predicting probable failures and engaging team before the event.

AI/MLOps

- Model refresh
- Model monitoring
- Output validation
- Manage Documentation
- Model versioning



We follow azure well architected framework

Performance Efficiency

- Loosely Coupled Services
- Pub\Sub model
- Use IaaS service with scaling.
- Plan PaaS service for Data Storage and Database

Reliability

- Define Recovery Time and Recovery Point Objectives
- Plan for cross regional data backup, redundancy and automated Infra and Application deployment.
- Based on RTO and RPO design architecture to be multi or single AZ\Region

Security

- Strong Identity management with least privilege access
- Data encryption at rest and in transit with end to end in private network encryption.
- Threat detection using cloud native services.
- FW and NSG configuration with least access principle

Cost Optimization

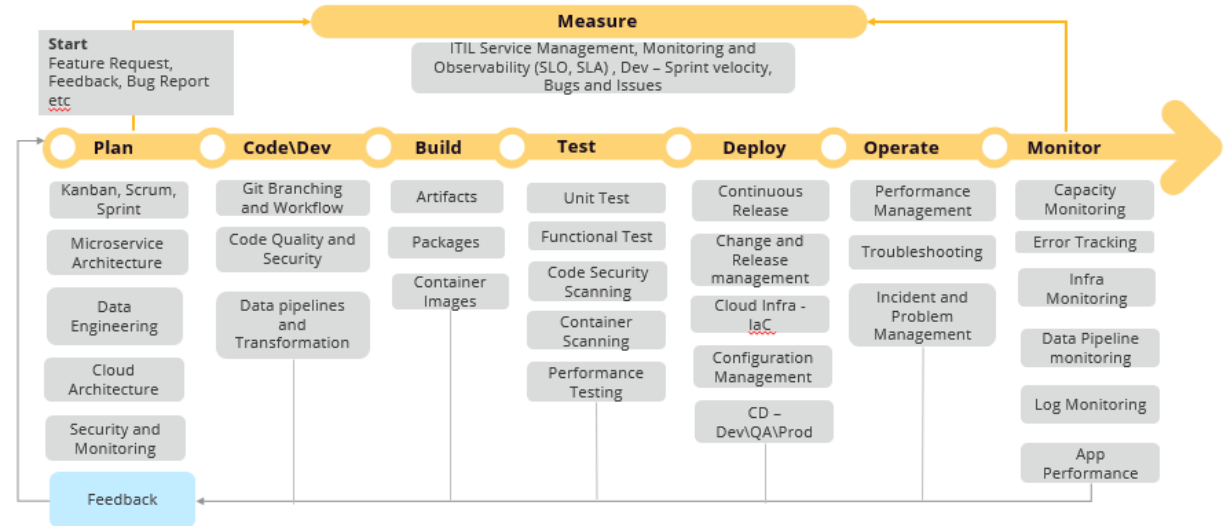
- Reserve long running services when possible
- Use cloud scaling to start small and scale later
- Create budget alerts with defined threshold
- Automate shutdown of dev environments.
- Continuous review of unused and underutilized resources

Operational Excellence

- Foster a culture of DevOps in an organization
- Standardize IAC templates
- Enabled monitoring of azure platform
- Operationalize ideation and innovation for continuous improvement

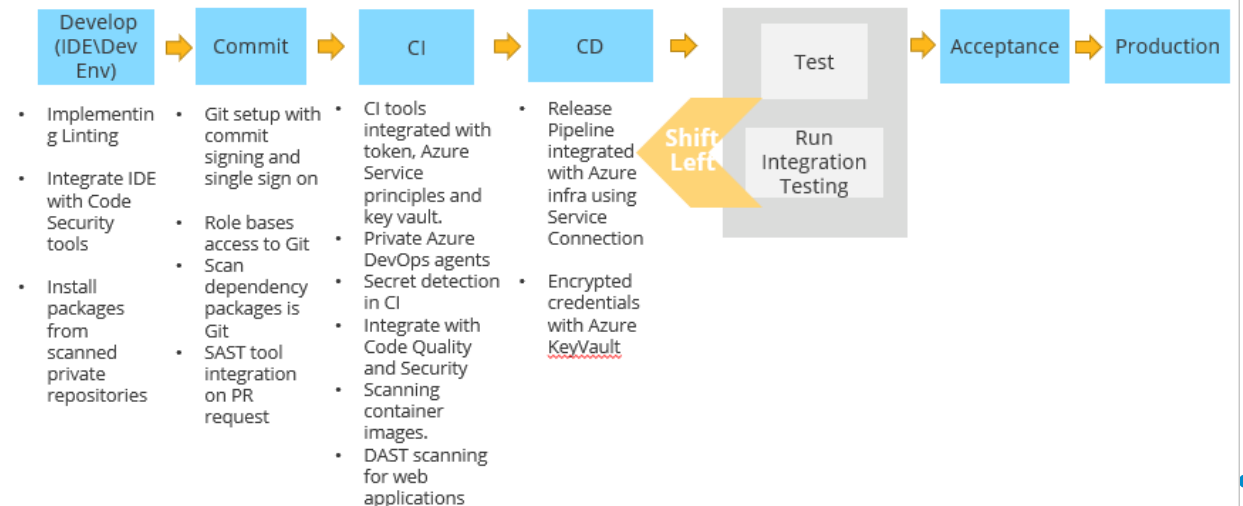
Fractal has experience in embedding DevSecOps Culture with automated testing for functionality and security

- **Git Strategy** – Simple and Effective Git workflow is more effective over complex branching Git workflow.
- **Sprint Cycle** – Following Sprint cycle brings focus to development efforts and planning of release.
- **Testing** – Automated testing framework at early stage ensures less bugs in production & faster release cycles. Include security vulnerability scanning and testing.
- **ShiftLeft** - Have ShiftLeft mindset to include security, quality and testing at early stage of CI pipeline.
- **Release** – Release as often as possible. Some features may take longer to develop. Classify release into Minor and Major and have minor releases quicker
- **Observability** – Build observability for each component not just for infrastructure. This is key input into measurement of DevOps process. It has to be designed before development starts for seamless monitoring
- **Measure** – Define DevOps measurement at early stage and build method measure it.
- **Value Stream Mapping** – VSM helps find improvement in existing development process. This aids in adopting and improvement process to DevOps framework

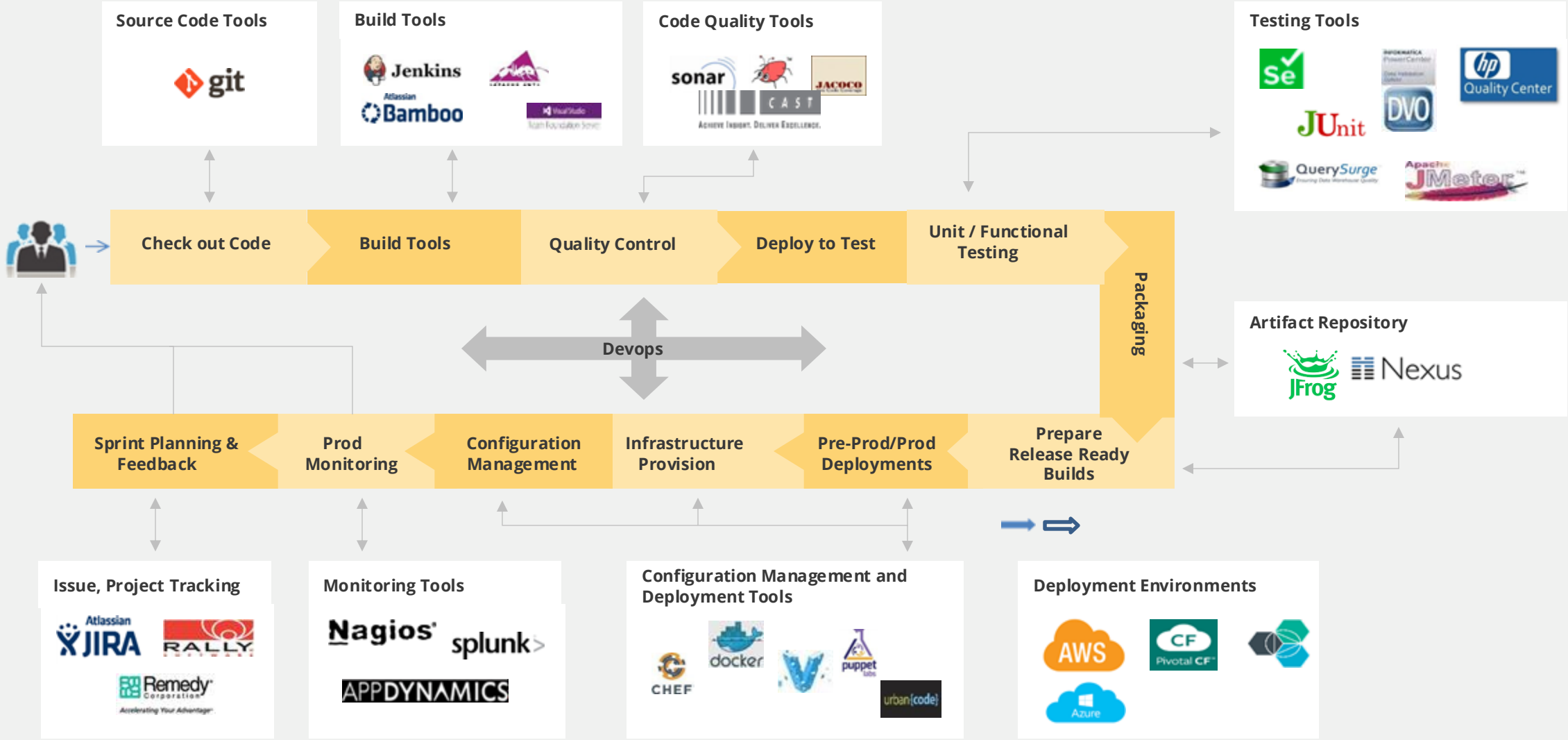


Shift Left – Testing, Quality and Security

Quality and Security can start at earliest development point i.e. at Plan and Local development stage



DevSecOps Toolchain Ecosystem Options



SPPP Accelerators

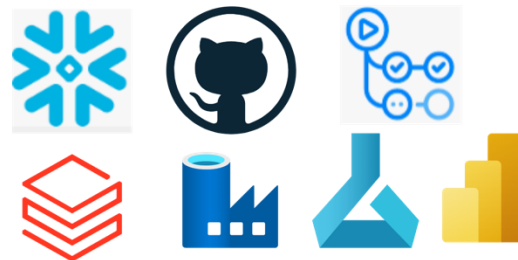
AppOps

Application Operations, focuses on managing and operating software applications. It's part of the broader DevOps methodology, with a specific focus on application management like web, container and function apps in cloud environments.



DataOps

DataOps is a data management practice that makes building, testing, deploying, and managing Databricks and MLOps and snowflake deployments.



GitOps

GitOps continuous delivery tool for Kubernetes. Argo CD follows the GitOps pattern of using Git repositories as the source of truth for defining the desired application state



InfraOps

Infrastructure architecture defines how to design and structure compute components for better performance, simpler management, scalability, and cost-efficiency.

Infrastructure as code is defined as the collection of versioned modules which are provision the azure infrastructure.



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