DevOps Engineering

Digital Technology Service
Agenda

- Who are we
- Overview
- Addressing CI/CD
- CI/CD
  - Pillars of CI/CD
  - Sorint’s Tailored Journey
  - Experts Involved
  - Closer Looks
- Success Stories
- Testimonials
- Bonus slide - Related by Sorintians
- Going Forward
17 Offices
3 Continents

**EUROPE**

**USA**
San Diego

**AFRICA**
Douala

Other Business Units
Overview Facts

900+
Tech-Savvy
Cloud Engineers
SREs
DevOps Engineers
Full Stack Developers

+40000
Training hours per year

50+
Technical Sircles

Methodology
ISO 27001
ISO 20000
ISO 9001
ISO 14001

PM Methodology
Prince2
PMI
Agile
SCRUM/UX

35+
Years of experience with a Startup mindset

Market
Finance & Insurance, Utility & Telco, Industry & Services, Transport, Public Administration

250+
Large Enterprise Customers

98%
Customer Retention Rate

947+ Tech-Savvy
Cloud Engineers
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CI/CD Continuous Integration and Deployment

- Advanced set of practices, tools, and technologies that power automation throughout the development, testing, and deployment phases.

- **When implemented correctly**, it enables efficiency and optimization across various IT processes.

- Processes that include:
  - Continuous Integration & Deployment. CI/CD
  - Configuration management
  - Infrastructure as Code (IaC)
  - Monitoring and logging
  - Incident management and response
  - Collaboration and communication
  - Agile and Lean practices

75% of DevOps initiatives will fail to meet expectations due to issues around organizational learning and change. Through 2022.

*Gartner predicts 2019*
Addressing

- Slow and inefficient development and deployment
- Communication issues between development and operations teams
- A lot of manual and error-prone processes
- Challenges in managing the Infrastructure
- Limited monitoring and control
- Lack of flexibility
Pipeline key components:

- Source code management
- Continuous integration (CI)
- Continuous delivery (CD)
- Deployment
- Testing and quality assurance
- Monitoring and feedback
Pillars of CI/CD

- Agility and speed in software development and deployment processes
- Automation of SDLC. Automation reduces manual errors, increases efficiency, and enables rapid iteration and delivery
- Customer-Centricity and business value. Improve customer experience, responsiveness, and satisfaction
- Inline with Agile methodologies
- Security. Protecting sensitive data.
- Governance, risk, and compliance
- Communication and culture
- Scalable and resilient software/infrastructure

35.9%

DevOps/DevSecOps most practised software development methodology globally used by software development teams. Respondents reasons:
- Faster time to market.
- Security, code quality.
- Improved communication and collaboration among developers.

*Statista 2022*
Sorint’s Tailored Journey

Instantiated from

Every journey is a unique challenge, but our know-how:

- DevOps philosophy and GitOps practices
- Adopted DevOps practices. Implemented complex CI & CD pipelines to automate workflow from development, to delivering a solid ecosystem.
- Hands-on knowledge on all trending tools

To prominent market entities in Europe and US
Sorint’s Tailored Journey

Instantiated from

Less pipelines, more effective deployments

+5K
Configured, maintained, and managed pipelines.

+50K
Deployments in 2022

+200
Projects in 2022

Day x — Continues support — Continues support — Continues support — Day y

Figures mentioned are rough estimates
Experts Involved

- Luigi Leoni
  - Head of DevOps - Software Architect
  - +18 years of experience in software development. +9 years of experience in DevOps practices. DevOps evangelist and Opensource passionate

- Mateus Pavei
  - DevOps Architect Engineer
  - +8 years of experience in DevOps practices and CI/CD solution delivery

- Alessio Carmazzi
  - Senior Solution - Architect Consultant
  - +10 years of experience in enterprise IT infrastructure and application architecture

Senior masterminds

Some prestigious certifications

- Microsoft Certified: Azure Developer Associate
- Certified Kubernetes Administrator
- Certified Kubernetes Application Developer
- Certified Kubernetes Application Specialist
- DevOps Engineer Professional
- GitLab Certified Associate
**Closer Look**

Areas and field of focus

**Coaching and Training**

In terms of culture, methodologies and processes.

**Tools**

Support in the selection, implementation or optimization of different tools.

**Enhancement**

Analysing the existing implemented pipeline(s), and delivery enhancement-related reports and solutions.

**New Implementations**

New implementations
From testing to, architectural and methodologies.

**Performance and Monitoring**

Introduce performance management applications

**All Journey**

The whole process
Some common tools

- **VCS**
  - GitLab
  - GitHub

- **CI/CD**
  - GitLab CI
  - agola
  - Azure DevOps
  - Jenkins
  - Tekton
  - argo

- **Artifact management**
  - artifactory
  - Nexus

- **Application definition**
  - HELM
  - kustomize.io

- **Project management**
  - Confluence
  - JIRA

- **Key management**
  - Vault

- **Provisioning**
  - kops
  - Terraform
  - pulumi
  - ANSIBLE

- **Platforms**
  - OPENSHIFT
  - RANCHER
  - Amazon EKS
  - Kubernetes
Success stories
Delivered by: Sorintians

A Well-known Corporate and Investment Bank
Initiate a DevOps Practice

Challenge
Used by core banking offices.
Client’s requirement included:
• Adapt a DevOps practice.
• Accelerate software development & delivery.
• Guarantee a robust software.

Going forward
Intensive requirement gather sessions, software assessment and product selection.

Accepting the challenge - Solution and Implementation
Proposed a tailor-made CI/CD solution. That included:
In a proposal form, an architected CI/CD solution from scratch.
• Customized SWLC with heavy automation tools. Automate new project onboarding, QA onboarding, fully code QA and simplify deployment on OKD/VMs.
• OpenShift Origin as container platform.
• Centralized login process on EFK with customized “Fluentd” configuration as a new logging system.
• Pipeline to supported (Java, Python, TS, C/C++)

Result & delivery
• Delivered in several phases. Main phase in 3-4 month.
• +544 projects managed by centralized & extensible CI/CD pipelines.
• Introduction to GitOps principles.
  • Versioning deployment code.
  • Code review for deployment changes.
• Supported the development team to integrate legacy/new software in CI/CD solution.
• Started managing SWLC and QA. (Assigned at later stages)
• Introduced an automated QA badge (by third party)
Success stories

Delivered by: Sorintians

Well know Italian Retail - Store Chain
Enhance the CI/CD Practice

Challenge
Issues in DevOps practices.
Client’s requirement included:
- Fix legacy CI/CD pipeline.
- Overhaul and refactor CI/CD processes.
- Implement a maintainable workflow. In terms of tech and culture.

Going forward
Intensive requirement gather sessions, software assessment and product selection.

Accepting the challenge - Solution and Implementation
In a proposal form. A re-architected CI/CD solution. That included:
- Introduce several new software and use already effectively installed.
- Introduce GitOps principles:
  - Separate build code from deployment code.
  - Replace imperative pipeline with declarative one.
  - Versioning deployment code.
  - Code review for deployment changes.
- Influence client’s team and create a dynamic workflow.

Result & delivery
- Delivered in several phases. Main phase in 1-2 month.
- Solution was executed 100% effectively.
- Implemented generic Jenkins CI pipeline to build and publish application containers.
- Declarative management of Jenkins Jobs (both CI and CD).
- Drastic changes in culture approach. Lead to a positive workflow.
- Documentation, required alignments.
- Took the learnings and closed the challenge.
Success stories
Delivered by: Sorintians

Research and Intelligence Services
Migration and major changes in the CI/CD tools

Challenge
Client’s requirement included:
• Migrate from Docker Swarm to K8S.
• Substitute BitBucket/Bamboo to OpenSource alternatives.
• Implement CI/CD with new infrastructure (different VCS and target system).

Going forward
Understanding the environment through round tables.

Accepting the challenge - Solution and Implementation
In a proposal form. An executable timeline for:
• Software selection (Rancher as cluster management tool, GitLab as VCS, Tekton as CI/CD tool).
• Installation and configuration of Rancher and K8S clusters.
• Migrate VCS tool (from BitBucket to Gitlab).
• Introducing GitOps principles.

Result & delivery
• Delivered in several phases. Main phase in 1-2 month.
• Solution was executed 100% effectively.
• Implementated generic tasks (build, push to registry, deploy to k8s…etc) in Tekton..
• Implementated Tekton pipeline for the CI/CD.
• Integrate GitLab and Tekton using Tekton triggers.
• Documentation, required alignments.
• Took the learnings and closed the challenge.

Floatingpoint.sorint.com
Agola – CI/CD Redefined

Agola is a CI/CD system with a lot of great features like advanced and reproducible workflows (runs), containerized tasks, fully distributed, high-available and much more. Featured on Cloud Native Landscape.

SSL – Shift Security Left

SSL promotes security as a common responsibility shared by all teams involved in software development. The service follows DevSecOps as a methodology.
Going Forward
How we can move forward from here

One hour workshop

Read more on /sorintlab

Alternative approach