

Data Cosmos_AutoDeployer

AI-Powered Repository-to-Kubernetes Deployment

Part of the Coforge Data Cosmos™ Platform | Supernova™ Portfolio

Coforge Limited | Data HBU

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Solution Overview

Data Cosmos_AutoDeployer is a Coforge accelerator that transforms any existing code repository into deployment-ready artifacts and a live Kubernetes deployment with minimal manual effort. It serves as an enterprise-grade DevOps automation engine that combines repository intelligence, AI-powered analysis, automated artifact generation, and GitHub Actions-based execution into a single governed workflow — eliminating manual creation of Dockerfiles, Compose files, Kubernetes manifests, and CI/CD pipelines. Part of Coforge Data Cosmos™, the innovation backbone combining platforms, agentic accelerators, and services, it accelerates application onboarding, modernization, and cloud delivery cycles.

In modern enterprises, taking an application from repository to production Kubernetes is slow and manual — teams struggle to understand complex repositories, hand-craft Dockerfiles and manifests, battle inconsistent configurations across environments, and iterate through multiple Dev, DevOps, and Platform cycles with limited governance and traceability. AutoDeployer eliminates this burden through a 7-step governed workflow that analyzes repositories with AI, generates production-ready artifacts, enforces human-in-the-loop approvals, validates deployment readiness, and executes deployments end-to-end. The result: 60–80% faster deployments, 70% less DevOps effort, 90%+ standardization, and 100% traceability across cloud-native applications.

Key Features

Feature	Description
AI-Powered Repository Analysis	Automatically discovers services, dependencies, ingress needs, runtime requirements, and risks, then generates deployment recommendations — understanding application architecture without manual documentation review.
Automated Artifact Generation	Creates production-ready Dockerfiles, Docker Compose files, Kubernetes manifests (Deployments, Services, Ingress, ConfigMaps, Secrets), and GitHub Actions CI/CD pipelines tailored to the analyzed repository.
Human-in-the-Loop Governance	Repository, analysis, and artifact approvals at every stage. Platform teams retain control while automation handles heavy lifting, with approval gates enforcing enterprise standards.
Deployment Readiness Validation	Preflight validation ensures artifacts are complete, consistent, and deployment-ready before execution — catching configuration issues before they impact production.
Automated Deployment Execution	Push to GitHub, manage secrets securely, trigger workflows, and monitor deployments end-to-end. Integrates natively with Kubernetes clusters on Azure Kubernetes Service (AKS).
Full Traceability & Observability	Pipeline states, execution logs, and complete audit history for every deployment — enabling compliance reporting and rapid troubleshooting.

7-Step Deployment Workflow

Step	Role	What It Does
Project Creation	Setup & Configuration	Provide repository details and deployment configuration to initialize the deployment project.
Repository Discovery	Snapshot & Inspection	Fetch a repository snapshot and inspect services, frameworks, and files to understand the application structure.
Repository Analysis	AI-Driven Insights	The Analyzer generates insights, architecture understanding, and deployment recommendations across services, dependencies, and runtime needs.
Artifact Generation	Automated Build	On approval of the analysis, the Builder creates deployment artifacts — Dockerfiles, Compose, K8s manifests, and GitHub Actions pipelines.
Artifact Review	Validation & Approval	Review generated files and confirm deployment readiness through human-in-the-loop approval gates.
Deployment Execution	Push, Trigger & Monitor	Push to GitHub, set secrets securely, trigger workflows, and monitor deployment status to a live Kubernetes environment.
Continuous Improvement	Iterate & Optimize	Modify artifacts, rerun deployment, and improve outcomes with full traceability across iterations.

How AutoDeployer Works

1. **Create Project** — Provide repository details and deployment configuration to initialize the project
2. **Discover** — Fetch a repository snapshot and inspect services, frameworks, and files
3. **Analyze** — AI analyzer discovers services, dependencies, ingress, runtime needs, and risks
4. **Recommend** — Generate architecture insights and deployment recommendations for review
5. **Approve Analysis** — Platform teams approve the analysis through human-in-the-loop governance gates
6. **Generate Artifacts** — Builder creates Dockerfiles, Compose, K8s manifests, and GitHub Actions pipelines
7. **Review & Validate** — Review generated artifacts and run preflight deployment-readiness validation
8. **Execute** — Push to GitHub, manage secrets securely, trigger workflows, and deploy to AKS
9. **Monitor** — Monitor deployment status end-to-end with pipeline states and execution logs
10. **Improve** — Modify artifacts, rerun deployments, and maintain full audit history for governance

Industry Trends and where it can be leveraged

Banking & Financial Services

Use Case	Example
Core Banking Microservice Deployment	A global bank uses AutoDeployer to accelerate deployment of microservices for core banking, risk analytics, and regulatory reporting. Human-in-the-loop governance ensures compliance-ready artifacts and full audit history for OCC examinations, cutting deployment cycles by 60–80%.
Standardized DevOps at Scale	A retail bank standardizes Kubernetes deployment across dozens of teams, using AutoDeployer's automated artifact generation to achieve 90%+ deployment consistency and reduce DevOps engineering effort by 70%.

Insurance

Use Case	Example
Claims & Policy Microservice Onboarding	A multi-line insurer onboards claims, policy admin, and underwriting microservices to Kubernetes with standardized artifacts. Complete audit history supports Solvency II evidence requirements while accelerating modernization.
Governed Application Modernization	An insurer modernizes legacy applications to cloud-native microservices using AutoDeployer's 7-step governed workflow, with approval gates ensuring enterprise standards across every deployment.

Travel, Transportation & Hospitality

Use Case	Example
Peak-Season Rapid Deployment	A global airline rapidly deploys booking, revenue management, and loyalty microservices during peak-season scaling. AutoDeployer's AI analysis and automated artifacts compress deployment cycles, enabling faster response to demand spikes.
Consistent Multi-Environment Delivery	A hotel chain uses AutoDeployer to ensure consistent, standardized deployments of guest and ops microservices across dev, staging, and production environments, eliminating configuration drift.

Healthcare & Life Sciences

Use Case	Example
HIPAA-Compliant Clinical Deployment	A healthcare provider deploys clinical microservices to Kubernetes with governed artifacts, secure secrets management via Azure Key Vault, and full audit trails for PHI-handling applications — ensuring HIPAA compliance throughout the deployment lifecycle.
Research Application Delivery	A pharma company accelerates delivery of research and analytics microservices using AutoDeployer's automated pipeline generation, with traceability supporting regulatory and research governance.

Cross-Industry Use Cases

Use Case	Description
Repository-to-Kubernetes Automation	Transform any code repository into deployment-ready artifacts and a live Kubernetes deployment with minimal manual effort.
Application Modernization & Onboarding	Accelerate onboarding of legacy and new applications to cloud-native Kubernetes with standardized, AI-generated artifacts.

Use Case	Description
DevOps Standardization	Achieve 90%+ deployment consistency across teams with automated Dockerfiles, manifests, and CI/CD pipelines.
Governed & Auditable Delivery	Enforce human-in-the-loop approvals with 100% traceability and complete audit history for compliance reporting.
Accelerated Cloud Delivery	Reduce deployment time by 60–80% and DevOps effort by 70% across large-scale cloud-native delivery programs.

Target Audience

- DevOps & Platform Engineering Teams
- Cloud Migration Leads
- Application Modernization Teams
- Data Engineering & Platform Teams
- IT Operations Leaders

Azure Compatibility

Data Cosmos_AutoDeployer deploys natively to Azure Kubernetes Service (AKS) as the target Kubernetes environment. Azure OpenAI Service powers AI-driven repository analysis, Azure Container Registry (ACR) hosts container images, and Azure Key Vault provides secure secrets management. It integrates with GitHub Actions (and Azure DevOps Pipelines) for CI/CD execution and Azure Monitor for deployment monitoring and observability. It is part of the Coforge Data Cosmos Supernova portfolio for data modernization, fully designed to leverage Azure-native services for scalable, secure, and governed enterprise repository-to-Kubernetes deployment.