



Crown
Commercial
Service



AWS Cloud DevSecOps and CI/CD/CO Development

GCloud Service Description Document

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AWS Cloud DevSecOps and CI/CD/CO Development

1.1 Short Service Description

Our proven DevSecOps industry frameworks such as Culture-Automation-Lean flow-Measurement-Recovery (CALMR) and AWS-specific tooling for seamless Cloud-scaled web and app development e.g. AWS Amplify combine to deliver transformational process, people/culture and platform change, embedding DevSecOps practices for web & app service development. PA holds the AWS DevSecOps Competency.

1.2 Key Service Features

1. Delivery of applications using DevSecOps methodology
2. CALMR method for AWS Cloud and Data deployment
3. Continuous Integration of new application features via AWS Amplify
4. Continuous Delivery through automated toolsets e.g. AWS Guardrails, Jenkins, GitHub
5. Continuous Operations through AWS Control Tower
6. Automated scaled AWS Cloud application build, test and deployment
7. Employing Scaled Agile and Lean 6-Sigma methodologies for code quality
8. AWS Lambda, AWS Glue and Amazon Kinesis for microservices development
9. Infrastructure as Code through AWS Amplify
10. AWS certified DevSecOps practices (AWS DevOps Competency Award)

1.3 Key Service Benefits

1. More rapid, customisable applications with continuous enhancement capabilities
2. Secure/resilient/scalable AWS Cloud and Data through AWS-certified DevSecOps
3. Faster and more predictable ideation-to-code delivery lifecycle
4. Improved test coverage and code test cycles reduced by >50%
5. Ability to plug in/out new technologies or coding practices
6. Create product (not project) focused outcomes, delivering long-term results
7. Collective ownership of software/infrastructure products and reduced siloed working
8. Rapid identification and solving of software bugs
9. Ability to build a modern Software Development LifeCycle (SDLC) culture

1.4 Service Definition

PA brings AWS-certified capabilities through its AWS DevOps Competency Award and a wealth of DevSecOps frameworks that tailor industry-standard practices such as the CALMR method. Our knowledge of AWS services – such as AWS Amplify for scaled Cloud and Data application, web and app development, and AWS Control Tower for proactive AWS application monitoring and incident anticipation, enables us to help teams operate and evolve applications quickly and reliably. These tools help engineers independently accomplish tasks (for example, deploying code or infrastructure) that normally would have required additional teams, increasing a team's velocity.

Our approach involves working hands-on in three ways: (1) setting the target scope, engineering goals and timelines, informed by a DevSecOps maturity assessment using the industry-standard DevSecOps CALMR method, (2) bringing targeted improvements to specific 'pain points' to the engineer delivery lifecycle, starting by piloting DevSecOps with 'quicks wins' focused on providing the right developer tools throughout the Software Delivery Lifecycle (SDLC), and coaching teams on service-based ownership, (3) measuring the changes to the SDLC, driven by having both standardised DevSecOps approaches e.g. standard developer builds & toolkits, and giving teams autonomy and ability to use new tooling e.g. AI in code development.

Example: We have built a suite of DevSecOps deployment pipelines for a UK Law Enforcement agency. These pipelines have been fully automated and remove most manual steps, speeding up deployment time by over 50%. The ability to deliver business value quickly through advanced automation in the Cloud platform offered opportunities to drive maximum value, achieve cost reductions, perform rollbacks for risk mitigation, and deliver key functionality required by the client.

Typically, we use the CALMR method and our AWS knowhow to iteratively build-up our collective engineering delivery capability, maturity and teams' confidence in DevSecOps:

- Culture – We conduct DevSecOps maturity assessments and call-out the support you need from leadership and engineering teams to: 1) create a culture of shared responsibility for development, testing and operations, 2) increase confidence in delivery and improved relationships, without silos between engineering teams, operations teams and issue troubleshooting teams.
- Automation – Based on our knowledge of tooling such as Jenkins, Jira, and AWS Cloud Landing Zones etc., we: 1) lay the foundations of automation, configuration management and continuous delivery, and 2) improve agility and confidence in delivery via continuous integration, testing & deployment, using automated pipelines.
- Lean flow – We work with your teams to look at areas for process improvement. Reducing friction between engineering, operations and issue troubleshooting teams enables: 1) identification of the challenges that matter and prioritise focus, 2) assessment of which resources and skills are assigned to which priority, 3) keeping a continual flow of capabilities and new features being delivered and operated with confidence.
- Measurement – Our approach enables teams to: 1) gain real-time insight into performance and throughput of teams, products, and code pipelines to support a feedback-loop and rapidly respond to end-user needs, 2) define DevSecOps KPIs to align with your priority goals, analyse the KPIs for 'good practice' trends that should be highlighted and scaled to other teams, and increase sense of shared responsibility, collectively owned by developers, 3) create a broadcast mechanism to drive visibility through real-time dashboards.
- Recovery – We help embed operations team members earlier in the SDLC ('shifting left'), with operations specialists and developers working together to co-write recovery plans that actually work and are validated, creating coding notes and test stubs to more rapidly diagnose issues, and map-out rollback approaches so these form part of the Knowledge Base at the point of release.

To continually mature the engineering capability, we can help you establish Communities of Practice and a culture of knowledge sharing, so lessons learned from incidents are fed continuously into development and security teams, accelerating bug fix for long-standing issues, and increasing the level of automation e.g., in code release so you get better quality code from increased volume and coverage of testing enabled by automation. This will result in a resilient pipeline that supports adoption of modern, scalable and resilient architectural patterns.

To enable rapid and secure development, our approach uses AWS Amplify and automation – both in the creation of ‘paperwork’ needed to document the proposed engineering code changes e.g. automation creating the forms and documentation needed for Architecture, Security and Operations review, and also a part of a deployment process that prioritises automation to augment human reviews and enhance the steps to risk mitigation. This allows for code linting, unit testing, integration testing, end-to-end testing, automated deployments, and rollbacks using Infrastructure as Code. The automation extends to tasks like release note and test report generation, as well as config management, significantly reducing resource time. We use immutable and repeatable deployments governed by approval workflows to minimise potential risks.

Automation plays a crucial role, particularly in incident response, disaster recovery, and alerting. We will configure these response mechanisms, considering contextualised scenarios that may potentially occur and the type of response they require. By using this bespoke approach, we will be able to create a fully customised disaster recovery and automated response system that can evolve based on business needs and changes. Typically, to bolster disaster recovery, we implement secure multi-site backups for data protection and durability, establish lifecycle policies for cost management and retention, and – where secure Cloud backups are used use Multi-Site, Multi-Platform Replication with services like S3 and RDS for automatic data replication across regions, enabling redundancy and availability of up to 99.5% for services as set out in the Non-Functional Requirements (NFRs).

All this work is backed by PA’s 400+ trained & certified staff on AWS services. Part of our annual commitment to being in AWS’s highest tier of partner status – AWS Premier Tier.

1.5 Why PA Consulting Group (PA)?

A trusted partner for cloud, AI, and digital technologies

PA Consulting Group (PA) is a leading technology and innovation consultancy and one of the UK government’s most trusted advisors, combining strategy, delivery assurance and deep engineering to turn complex ambition into assured outcomes. We bring end-to-end capability across cloud architecture, data and AI, cyber, and advanced technology R&D, backed by a track record of scaling innovation in the public and private sectors.

Our UK work is anchored by secure, standards-led delivery. PA maintains ISO/IEC 27001 certification across global operations, demonstrating disciplined information security and operational control, and applies UK government good practice (GDS, NCSC CAF) across cloud and digital programmes.

We combine consultancy with real engineering. At our Global Innovation & Technology Centre (Cambridge), 300+ scientists, designers and engineers operate extensive labs and studios to prototype and industrialise solutions, bridging physical and digital from concept to production

1.5.1 Why PA for cloud, data and AI

Hyperscaler alliances without vendor lock-in. PA is Premier Tier with **Google Cloud** (13+ years; 150+ certifications; specialisations in infrastructure, data analytics, app dev and security) and holds deep **AWS** and **Microsoft** credentials, accelerating secure data foundations and generative AI at scale while keeping advice independent and outcome-led.

- **Responsible AI you can trust.** Our Responsible AI framework, governance toolkits, and risk policy make AI adoption transparent, auditable, and compliant, embedding lifecycle controls, model documentation, and human-in-the-loop safeguards aligned to evolving regulation.
- **Impact beyond pilots.** We help organisations become *intelligent enterprises*, using data and agentic AI to create and protect value, with pragmatic roadmaps from use-case selection to scaled operations.
- **Proof through delivery.** Our client stories span enterprise data platforms, IoT and analytics (e.g., Rentokil Initial), and product innovation at scale (e.g., Unilever) where PA has put data and AI at the heart of continuous, market-leading improvement.

1.5.2 Cloud capability (assess, design, build, assure, run)

PA applies an assured cloud delivery approach to complex government and regulated environments, blending client-side delivery assurance, multi-cloud architecture, and resilient operations:

- **Strategy & readiness.** Maturity assessments, target operating models for hybrid/multi-cloud, and cost/benefit modelling; proportionate GDS compliance and ISO 27001 controls embedded upfront.
- **Design & architecture.** Secure, well-architected patterns across Azure, AWS, and Google Cloud; data platforms, identity and access, and cross-domain solutions for sensitive estates.
- **Build & deploy.** Cloud-native engineering, DevSecOps (CALMR), CI/CD, infrastructure-as-code; automated testing and quality assurance to accelerate safe release.
- **Migration & modernisation.** Legacy transformation, platform reviews, and workload migration tuned to resilience and cost; pragmatic FinOps to keep spend predictable and efficient.
- **Operate & optimise.** Observability, incident management, performance tuning, backup/restore, and change management, maintaining business continuity and reducing total cost.
- **Client-side delivery assurance.** Forward-looking, risk-based assurance that keeps complex programmes on track, covering governance, architecture, testing, migration, service readiness and cutover. See our *IT Delivery Assurance* service.

1.5.3 AI, ML and data (from strategy to scale)

- **Strategy & governance.** AI blueprints, operating models, and policy; enterprise data governance; regulatory readiness; centre-of-excellence setup and change adoption.
- **Engineering & MLOps.** Data platforms on Azure/AWS/GCP, pipelines and feature stores; robust ML lifecycle with monitoring, drift detection and auditability.
- **Generative & agentic AI.** Secure integration of LLMs (including Copilot) into workflows for measurable productivity and quality gains, using guardrails, system cards and ROI framing.
- **Responsible AI.** Lifecycle controls and assurance tooling to manage bias, security and transparency.

1.5.3.1 Quantum and emerging technologies

PA's applied physics and quantum engineering teams help clients unlock near-term value, combining quantum techniques with classical systems for decision support, advanced sensing and secure communications:

- **Decision support & optimisation.** Hybrid quantum/classical algorithms to accelerate complex planning, routing and resource allocation where speed and quality of decisions matter.
- **Quantum sensing & RF.** Novel quantum radio and Rydberg-based sensing to enhance spectrum use, detection sensitivity and resilience in contested environments.

- **Commercialisation insight.** Advisory at the “whole-stack” level, hardware, supply chain, interfaces, and ethics, to move from lab to market within national strategies.

These capabilities are industrialised at our Cambridge centre, turning concepts into robust prototypes and pre-production systems across sectors like defence, energy and transport.

1.5.4 Cyber security and digital trust

Digital trust is central to PA’s approach. We design security into architecture, operations and culture, aligning to NCSC CAF and GovAssure, and delivering testing, red-team, SOC design and OT/IoT security:

- **Transformation & architecture.** Secure-by-design patterns, cloud security, identity, and cross-domain data protection (including NCSC-approved Oakdoor data diode products).
- **Assurance & regulation.** CAF/GovAssure alignment and pragmatic remediation plans for government organisations.
- **Testing & resilience.** CREST-aligned penetration testing, red-teaming, incident readiness, and operational resilience.

1.5.5 What PA will bring

Ideation & Strategy

- Cloud strategy and advisory services
- Cloud readiness assessments
- Cost/benefit and ROI modelling
- Security and compliance by design.
- AI/ML and data strategy (blueprints, operating model, governance) with Responsible AI policy and guardrails.
- Quantum opportunity framing and whole-stack commercialisation roadmaps.

Design & Architecture

- Bespoke enterprise and cloud architectures
- Integration with existing IT infrastructures
- Hybrid/multi-cloud design
- Continuity and disaster recovery
- Data platforms and MLOps patterns
- Security, privacy and resilience embedded by design in technical designs
- User-centred-design
- Secure cross-domain solutions and high-side/low-side integration where required.

Development & Deployment

- Cloud-native engineering
- Containerisation, microservices and serverless
- DevSecOps (CALMR) with CI/CD and automated testing
- Generative AI and Copilot enablement with measurable productivity outcomes and run-controls.

Implementation & Migration

- Data migration and legacy modernisation
- Vendor selection and management
- Infrastructure-as-code with progressive, low-risk cutover.

Operations & Management

- Observability, incident management, SIEM/SOC design
- Performance optimisation and cost management (FinOps)
- Backup/restore
- User training and change adoption.

Innovation & Scaling

- Scalable cloud infrastructure to support growth
- AI/ML implementation and scaling
- IoT integration
- Ongoing innovation sprints and R&D, supported by our Cambridge engineering labs for rapid prototyping and pre-production.

1.5.6 PA is fully equipped to manage any challenges or requirements you may present

Across strategy, design, build and run, PA blends independent advice with hands-on engineering, operating to ISO 27001 and UK government standards, and backed by hyperscaler partnership depth. Whether the brief is modernising a sensitive cloud estate, industrialising AI responsibly, or de-risking a quantum-adjacent programme, we bring the multidisciplinary team to get from idea to reality, safely, quickly, and at scale.

1.6 A Genuine commitment to Social Value

At PA, we believe in the power of ingenuity to create a positive human future. Central to this ambition is our commitment to developing high-quality opportunities that enable individuals to acquire leading-edge skills, all within an environment that supports personal wellbeing and growth. We invest in our people through comprehensive training and development, ensuring they are fully prepared to tackle our clients' most complex challenges and advance their own careers.

We recognise that diversity drives innovation. Therefore, our recruitment practices are inclusive, welcoming individuals from all backgrounds. Every member of our team is empowered to reach their full potential through inclusive policies, processes, and a culture that is continuously improved using robust data.

We are passionate about creating genuine opportunities for those facing significant barriers to employment. Since 2023, our Digital Apprenticeship Programme has offered a Digital and Technology Solutions Degree through the University of Roehampton or Northumbria University. Our apprentices typically include first-generation professionals, college leavers, and individuals from ethnic minority backgrounds, many living in deprived areas. Additionally, we offer summer internships for undergraduates entering their final year, hosted at both our central London office and the Global Innovation and Technology Centre in Cambridge.

Economic responsibility is integral to our purpose. PA is accredited as a Living Wage employer, and where relevant, we ensure that our suppliers and subcontractors are paid at least the minimum living wage. We are also a signatory to the Prompt Payment Code, demonstrating our commitment to fair and responsible payments to suppliers.

Our carbon reduction targets have been validated by the Science Based Targets initiative (SBTi). We have a published carbon reduction plan and are committed to achieving carbon net zero by 2040, in alignment with PPN 06/21 criteria for UK public sector contracts exceeding £5 million. In 2024, we achieved a silver EcoVadis rating, reflecting our ongoing progress in sustainability.

We are dedicated to delivering targeted social value and will collaborate with you to determine the most effective approach for you, ensuring our efforts have the greatest possible impact.

1.7 Security Clearance

PA are fully compliant with industry best practices for information security, which includes compliance with the UK MOD Industry Personnel Security Assurance (IPSA) standard, against which we are independently audited every three years. PA also has multiple sites with FSC (previously List X) where our dedicated in-house Security Vetting team are based. This allows PA to achieve security vetting of its employees in a time effective manner ensuring the correct processes are always followed (In accordance with the Security Policy Framework/GS007). As a matter of standard process, PA puts all its eligible employees through the Baseline Personnel Security Standard (BPSS), set out by the Cabinet Office. Those employees working on, or planning to work on, government projects are automatically put forward for SC clearance which are processed via UK-SV (formally the Defence Business Services – National Security Vetting). PA also process DV vetting through the UK-SV and other agencies, these are generally client sponsored.

PA currently have a large pool of cleared individuals (80% of UK Staff). Should a resource be identified where clearance is needed, the PA Security Vetting team will then process the individual through the relevant clearance procedure. The team will also be able to validate all existing clearances held by PA employees when requested.

1.8 Next Steps

This service is intended to help customers develop and deliver successful outcomes regardless of the life cycle stage they are at. PA prides itself on working with clients and helping them to deliver outcomes whilst also providing them the ability to 'stand on their own' so that they can move their solutions forward without future involvement. Please contact us on GCloudFramework@paconsulting.com to discuss your needs further.



About PA.

We believe in the power of ingenuity to build a positive human future.

As strategies, technologies, and innovation collide, we create opportunity from complexity.

Our diverse teams of experts combine innovative thinking and breakthrough technologies to progress further, faster. Our clients adapt and transform, and together we achieve enduring results.

We are over 4,000 strategists, innovators, designers, consultants, digital experts, scientists, engineers, and technologists. And we have deep expertise in consumer and manufacturing, defence and security, energy and utilities, financial services, government and public services, health and life sciences, and transport.

Our teams operate globally from offices across the UK, Ireland, US, Nordics, and Netherlands.

PA. Bringing Ingenuity to Life.

Discover more at paconsulting.com and connect with PA on [LinkedIn](#) and [X](#).

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