



Performance Engineering Non-Functional Testing

G-Cloud 15 Service Definition Document

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1 Deloitte Overview

As a leader in professional services, Deloitte LLP is committed to making an impact to our clients, our people and for society. We have over 27,000 staff based across the UK providing audit, risk advisory, tax, consulting, financial advisory and legal services to public and private clients across multiple industries. We work together to build trust, support inclusive growth, and build capability, enabled by our **breadth and depth of expertise across advisory, delivery, engineering and managed services.**

Our **public sector practice** serves Central Government, Government Agencies, Local & Regional Government, Defence, Security and Justice, Health and Social Care, Transport, Education and Housing. We also provide services to the Northern Ireland Office, Scottish Government, Welsh Government and Crown Dependencies.

Our Cloud Capability

At Deloitte, we help our clients **Imagine, Deliver** and **Run** the businesses of the future through the power of **Cloud**. We have deep Cloud architecture, engineering, operational, commercial, and business transformation expertise delivered by a team of more than 26,000 Cloud Practitioners globally. We have delivered over 2,000 cloud implementations over the past 5 years and have 60+ cloud centres of excellence supporting the delivery of cloud services to our clients.

In the UK, we have a team of over 100 Cloud managed service specialists plus the following certifications across AWS, Microsoft Azure, Google Cloud and Oracle Cloud Infrastructure (OCI):



We help our clients with all aspects of their journey-to-cloud and optimisation of their cloud and cloud-services investments. Our Cloud practice can support you to optimise your client investments, and to navigate your organisations cloud journey, providing specialist cloud architecture, engineering, and operational skills at all stages, with a large proportion of our team holding the clearances required to meet your specific security requirements.

Our AI Capability

Deloitte stands at the forefront of AI transformation and was recognised as a Leader in the 2025 IDC MarketScape for Artificial Intelligence (AI) services for the fourth consecutive time. Supported by a £3 billion investment in AI, Data, Automation, Cloud, and Cyber, we seamlessly integrate our deep AI expertise with our extensive cloud capabilities. Our UK team is part of 339K AI-fluent practitioners globally, and includes over 1,300 AI specialists and engineers, many of whom hold the necessary security clearances for public sector delivery.

Through the Deloitte AI Institute, our hub for cutting-edge research and innovation, and strategic alliances with leading hyperscalers, we empower public sector clients to optimise costs, streamline processes, and navigate their AI journey. We achieve this by leveraging our ReadyAI™ models, which provide end-to-end support for AI solution implementation, and our Trustworthy AI™ framework, ensuring responsible and ethical deployment.

Our alliances & ecosystems

To bring full value to our clients, Deloitte is a premier consulting partner with all the leading hyper-scale cloud vendors in the market including AWS, Google, Microsoft¹, Google and SAP. A selection of our partners and alliances are presented below:



What the analysts say

Don't just take our word for it. Deloitte is recognised by the analyst community as being **leaders in cloud transformation services**. This reflects the wealth of experience we have in delivering cloud services across the public sector and wider private sector combined with our out-of-the-box templates, tools and assets.

Gartner

Originating in 2021, Deloitte has been recognised as a Leader in this category for four years in a row. Deloitte was also positioned as a Leader in the **Gartner Magic Quadrant for Public Cloud Infrastructure Professional and Managed Services, Worldwide** in 2021, 2020 and 2019, the previous form of this category.



Gartner

Gartner: Magic Quadrant for Public Cloud IT Transformation Services. © Gartner inc. 2025

IDC

Deloitte has been awarded Leader status in the **IDC MarketScape: Worldwide Industry Cloud Professional Services 2024** Vendor Assessment. We have also been recognised as Leaders in **Hybrid IT Consulting & Integration Services** and **Software Engineering Services**.



Source: IDC, 2024

IDC MarketScape: Worldwide Industry Cloud Professional Services Vendor Assessment © IDC inc. 2024

Cloud Transformation

Transform Faster, Transform Smarter

Deloitte's Cloud Transformation can fast-forward your journey to the Cloud, unlocking innovation, efficiency, and growth.

[Find out more here](#)



¹ As Microsoft's Independent Auditor, Deloitte cannot have a direct or material indirect business relationship with Microsoft, such as having an alliance or being a registered partner. Nonetheless, Deloitte can provide Microsoft-related technology services and invests heavily across its global business building technical skills and capabilities to develop world-class consulting and solution delivery capabilities.

2 Service Overview

Deloitte collaborates consistently with the public sector to enhance innovation and efficiency. To successfully execute numerous scalable and high-performing projects, Deloitte relies on its dedicated Performance Engineering team. This team delivers innovative, automated, and best-practice solutions.

Leveraging our expertise in Performance Testing, Deloitte's professionals possess a unique advantage. We combine our comprehensive understanding of non-functional requirements, architecture, scalability, and capacity with cutting-edge industry-leading QA practices and technical knowledge. This enables us to shift performance engineering left, into the design stage.

- We use our experience to identify potential performance issues before code is written – saving cost and time further down the development lifecycle.
- This enables us to support in meeting the evolving demands of fast paced policy changes whilst upholding the highest quality standards

Who would benefit from using this service?

- Organisations looking to facilitate business analysis with a holistic view of non-functional requirements (NFRs), SLAs or SLOs.
- Projects wishing to detect performance degradation and performance issues as early as possible during requirement gathering, design and development.
- Agile deliveries who want to not just integrate performance execution and reporting but also automate analysis driven by thresholds and monitoring and alerting flags issues.
- Multi-Cloud architectures utilising multiple virtual environments looking to optimise infrastructure cost and implement performance budgets.

Features/Benefits

On platform delivery involving multiple systems, data migration, dual running, effective performance is key to prevent system outage in the production environment. Recognising this and ensuring NFRs cover the full solution is a key deliverable – that is both SMART and MOSCOW'd.

- The aim of our performance testing service is to validate that the system performs as required during multi-user activity, based on real-life business scenarios and data volumes that model typical, and atypical, situations.
- Our coordinated performance testing service is governed by proven test structures implemented by our skilled and experienced performance engineers.
- We can deliver a consistent and reliable performance suite that reduces the manual overhead and provides repeatable results.
- The performance test team will perform a thorough review of the end-to-end solution, engaging with various business stakeholders, solution architects, and business analysts.

Example Scenarios

- An organisation undergoing digital transformation faces the challenge of defining realistic and measurable performance requirements. We can help Business Analysts and Architects establish and refine a set of measurable program-wide Non-Functional Requirements (NFRs) by conducting workshops, stakeholder interviews, and performance assessments. Through these collaborative efforts, we ensure that the NFRs are

aligned with business objectives and technical capabilities, enabling the organisation to effectively measure and monitor performance throughout the digital transformation journey.

- A new digital solution which is going to be used by millions of people across the UK that is expected to be resilient, scalable, and secure, before people would start using it. In such a complex dynamic environment, ensuring the load models are consistent and understood by all relevant stakeholders is critical to project success, so we can work closely with your quality assurance team and the wider capacity management teams to model future predicted loads.
- A project delivery that needs mobilisation of skilled and experienced resources and setting up of performance engineering capability on short notice due to critical nature of delivery.

3 Detailed Service Description

Deloitte offers an end-to-end performance validation service that encompasses performance engineering, testing, tuning and capacity management. The aim of our performance service is to validate that the system performs as required during multi-user activity, based on real-life user scenarios and data volumes that model typical, and atypical, situations. Our coordinated performance validation service is governed by proven validation structures implemented by our skilled and experienced performance engineers.

Our differentiator is our ability to communicate the business impact of a performance concern right down to the root cause of an issue.

- Constructed with a variety of accelerators and techniques developed through our vast experiences, such as automated performance testing scripts, custom monitoring dashboards, and predictive analytics models, that enable rapid identification of performance concerns.
- Clear and undeniable business impact as performance concerns are communicated for both non-technical and technical members alike.
- Continuous Improvement and scaling through automation, best practices, and standards.

Fit-for-purpose Performance

With the overarching goal of confirming the system's capacity to manage real-world volumes while upholding desirable user experience standards as defined in NFRs, Deloitte utilizes established test structures overseen by our proficient performance engineers. We ensure that continuous improvements are implemented in a non-production environment. Key performance indicators additionally assure a reliable, scalable, and efficient end-to-end delivery.

- Does the system 'as a whole' remain stable over a period of sustained workload (e.g., hours, days)
- What are the limits of the system and which components are the bottlenecks.
- How fast does the application process requests under the expected peak load?

Our Approach

A. Coordinated Strategy to delivering Digital Transformation

- SMART Performance Non-functional requirements that underpin testing effort are agreed.
- Emphasis on test design and analysis reduces the number of retests as affected components are more rapidly identified.
- With experience in a large variety of performance testing tools including JMeter, NeoLoad, Locust, K6, Load Runner and more, we select the best tool to meet your needs.
- Automated scripts that emulate agreed business as usual activities are outlined.

B. Identify and address bottlenecks to enhance performance and ensure a positive impact for end users.

- End to end support streams from advising developers directly within the sprints to resolving abnormalities within production.
- Our performance engineers have significant experience using all major monitoring and optimisation tools, such as New Relic, Dynatrace, and Splunk, allowing rapid identification of issues. We use metrics for detailed Root Cause Analysis (RCA) of these issues.
- Where necessary, tests are recalibrated to focus on an issue.

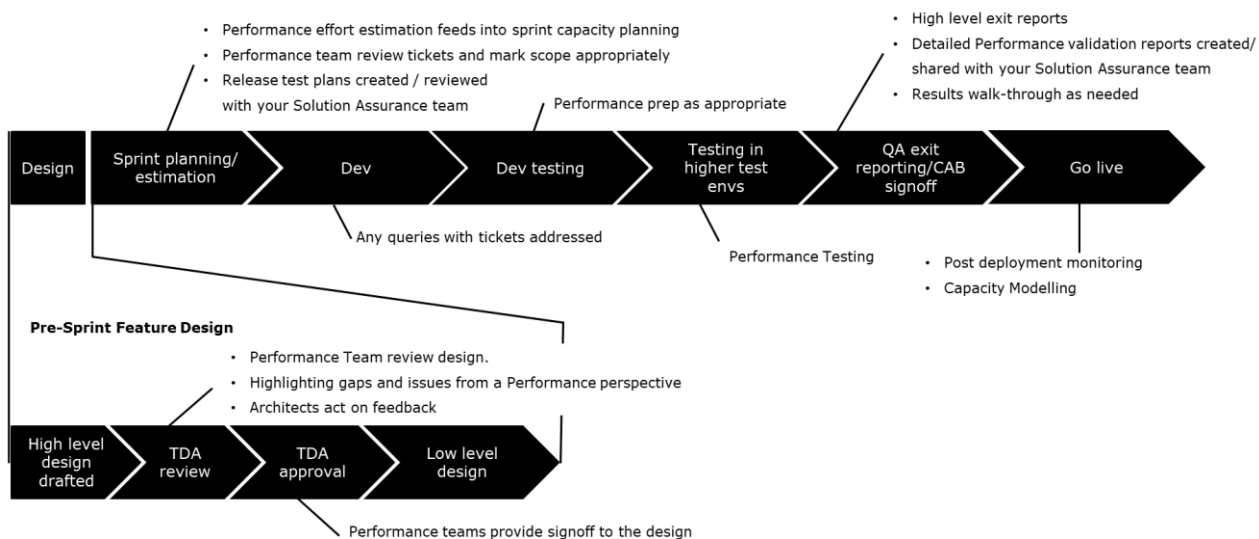
C. Unlock solution potential with On-time and performant delivery

- Using our experience of performance testing across industries, as well as our knowledge of public sector integrations, we can quickly quantify the scale of performance issues and take mitigation steps.

- Communication channels are opened and maintained with development teams to allow investigations into identified issues.
- A summary of findings with potential next steps are communicated in a clear accessible format that supports informed decisions by non-technical stakeholders.

Performance within the release cycle

Deloitte's performance engineering delivery is designed to give confidence and holistic view of system's performance across production and non-production environments and be prepared with resources required to address scalability, capacity, throughput, and response time concerns. We conduct key performance checks early in the development cycle to enable firm foundation for solution delivery and provide assurance that the solution architecture would be fit for purpose from a performance perspective post go live. We work with the DevOps teams to setup metric-based dashboards using monitoring tools like New Relic, AppDynamics, Dynatrace, AWS Cloud Watch, or Azure monitor to configure monitoring, and raising alerts to relevant stakeholders when service performance degrades.



Case Study – Government Digital Service (GDS)

Task: The Government Digital Service (GDS) engaged with Deloitte Quality & Test Engineering (Q&TE) to review their approach to testing across the One Login programme and deliver as per advice on the current strategy. The review came out with recommendations across varying methods of testing including performance testing and analytics. GDS requested Deloitte to take on the main supplier role of testing across the programme and enable One Login to be successful. This included:

- Establish a centralised performance testing framework across One Login.
- Develop an overarching performance testing strategy and approach across the programme.
- Standing up a load testing capability to provide assurance on response times, transactions per second and bottleneck identification.

Action & Impact: Deloitte Q&TE mobilised a Lead Performance Engineer to work with the cross-product teams to help define NFRs and build an approach and capability for designing, creating, executing, and reporting on performance tests. Deloitte also provided wider cross programme capability in QA, Delivery Leadership, Product Management, Software & Platform Engineering, Live Services and Performance Analytics.

The performance SMEs worked in close collaboration with the wider Business stakeholders, Business Analysts, Solution Architects, development, and DevOps teams to gather the non-functional requirements, volumetrics analysis, and in the process has helped the BAs to define the NFRs.

The overarching performance test strategy was established in agreement with stakeholders. This included a detailed analysis of the application architecture and related NFRs. We worked in collaboration with Business analysts and product owners to identify business critical and resource-intensive journeys which were then prioritised and used to collect volumetric details and evaluate these journeys against the given NFRs. We designed the workload models required to verify the objective of each load test.

We scripted our scenarios in a modular manner using TypeScript which allowed us to use reusable TypeScript functions, classes, and types. Some examples of this are for generating Time-based One-Time Passwords (TOTP) to emulate Multi Factor Authentication (MFA) apps, handling the selection of load profiles, etc. This also helps decoupling volumetrics and test components, to maximise reusability of test elements in addition to reducing maintenance efforts.

Our performance engineers worked closely with the Dev Platform team to design load injection infrastructure that was deployed within product team's AWS accounts to facilitate early performance testing. Following consultation with tech leads and architects the design was further refined to move away from team dependencies and to be hosted centrally to gain more control on the infrastructure deployment and maintenance.

After each test execution, a deep dive analysis was performed, and user and system metrics were collected for interpretation. We worked closely with platform engineers to carry out infrastructure related performance tuning. A summary of findings with potential recommendations were delivered in a non-technical format to enable informed decision making.

The framework was further extended to publish real time Open Telemetry metrics captured during performance tests to Dynatrace. Application logs and metrics from the core GDS services were gathered into monitoring tools like Amazon CloudWatch, Splunk, and Grafana dashboards helping performance engineers and developers to deep dive and pinpoint performance bottlenecks. These dashboards were further enhanced, from a performance perspective, with the requirements and results obtained from testing.

Outcomes:

- Helped Business Analysts to establish and refine a set of measurable programme wide NFRs across One Login.
- Through our test architecture we designed a scalable performance test framework using K6 and Typescript to enable performance engineers to design, build and execute performance tests.
- As the service began to roll out and scale with more dependent parties (Governments Departments / Services) being onboarded, we established the capability to run tests against each individual microservice to evaluate each product in isolation against the given NFRS and thereby enabling the team to run frequent performance tests and supporting the service building towards its NFR of 2,000 transactions per second.
- Test runs were recorded in Dynatrace for visibility and for analysis and tuning for better response times enabling the performance engineers to report any performance deviations directly to the product team.

4 Contact Details

Please send your requirement to publicsectorbidteam@deloitte.co.uk. Alternatively, if you wish to discuss your requirements in more detail, please send us the following information and we will be happy to contact you:

- Your organisation name
- The name of this service
- Your name and contact details
- A brief description of your business situation
- Your preferred timescales for starting the work.



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