Agenda Item: 11

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| Meeting of: | **Cabinet** |
| Date of Meeting: | **Thursday, 01 May 2025** |
| Relevant Scrutiny Committee: | Corporate Performance and Resources |
| Report Title: | Migration of Technology Infrastructure to Cloud |
| Purpose of Report: | To seek Cabinet approval to initiate a migration of the Council's core computing and storage infrastructure to a hybrid cloud environment. This programme of work is a strategic response to current and future digital requirements, addressing significant risks within our current infrastructure while positioning the organisation to deliver scalable, secure, and sustainable digital services in line with our corporate objectives. |
| Report Owner: | Executive Leader and Cabinet Member for Performance and Resources |
| Responsible Officer: | Head of Digital |
| Elected Member and Officer Consultation: | Consultation has taken place with Senior Leadership Team. No further elected Member consultation has been undertaken due to the corporate nature of this report. |
| Policy Framework: | This is a matter for Executive decision by Cabinet. |

**Executive Summary**

1. This report alongside the associated Part II report on the agenda requests Cabinet to consider and approve the 'strategy' as described in this report with a view to taking decisions on the implementation of a programme of work to migrate the Council's computing and storage infrastructure to the Cloud.
2. The Council's current digital estate comprises roughly 240 virtual machines hosted at the Civic Offices, with a handful of backup servers at the Alps Depot, supporting critical functions from revenues and benefits through to legal services and schools' telephony. This ageing, end-of-life infrastructure will require a full replacement within five years, and the cooling failure in August 2023 starkly exposed the vulnerability of relying on a single physical site with only minimal disaster-recovery capability. An internal audit of business continuity returned limited assurance, underscoring the urgent need to shore up resilience, safeguard data, and ensure uninterrupted service delivery across all departments.
3. Following a detailed appraisal, our options have been evaluated as follows: reinvestment in an on-premise solution—including capital outlay in excess of £1 million over three years to refresh

servers, build a secondary site at the Alps Depot, and upgrade connectivity—or migration to a cloud-hosted environment. The cloud option not only eliminates the bulk of upfront capital expenditure but also delivers built-in disaster recovery, enhanced flexibility, and predictable operational spending through a mix of reserved instances and pay-as-you-go models. Subject to Cabinet approval, this report—and its accompanying Part II commercial annex outlines the scope of work completed to date and sets out the proposed roadmap for transitioning to a more resilient, scalable, and cost-effective digital infrastructure in the coming months.

## Recommendations

1. That Cabinet approves the strategy as described in this report for the implementation of a programme of work to migrate the Council's computing and storage infrastructure to the Cloud.
2. That Cabinet considers the associated Part II report on this agenda, with a view to taking decisions on the completion of a procurement exercise and subsequent award of a contract to a preferred supplier, within the costs outlined in this report, including the use of the Digital reserve.
3. That Cabinet notes the anticipated offset of revenue costs by eliminating future capital investment requirements and the requirement to recognise a future pressure on the Council's revenue budget.

## Reasons for Recommendations

1. To enable Cabinet to consider the options available and confirm approval of the 'strategy' on the implementation of a programme of work to migrate the Council's computing and storage infrastructure to move to the Cloud.
2. To allow the completion of a procurement exercise and subsequent award of a contract to a preferred supplier, to achieve best value for the outcome and programme's delivery in compliance with the Council's Contract Procedure Rules and Procurement Code of Practice.
3. To acknowledge the transition from capital expenditure to revenue for technology infrastructure and the requirement to reflect an increase in revenue costs as a result.

## 1. Background

**1.1** The Council's digital infrastructure currently operates from approximately 240 virtual machines (VMs) housed at the Civic Offices, with a limited number of backup servers located at the Alps Depot. These VMs are used to run a wide range of core business applications and services across all departments, including revenues and benefits systems, legal services, and schools' telephony.

**1.2** The infrastructure is ageing, with all compute and storage hardware due for replacement within the next five years. A cooling failure incident in August 2023 highlighted the vulnerability of the current setup and, whilst avoiding significant organisational disruption, the post incident review identified the need to consider the future arrangements to prevent a potential significant loss of data and system availability in the future. Furthermore, there is currently an insufficient disaster recovery (DR) environment in place to support business continuity in the event of a significant failure.

**1.3** To maintain service continuity and mitigate the risks outlined in the most recent internal audit of business continuity which provided only limited assurance, it is important that action is taken. Consideration has therefore been given by the Head of Digital, in consultation with the Strategic Leadership Team to explore different options to address the issues described above. These primarily relate to the option to retain and invest in servers 'on-premise' or to externalise this functionality via the cloud.

**1.4** Overall, it is considered that continuing to invest in on-premise infrastructure would require significant capital investment exceeding £1.2m over 3 years. This would include server and storage replacement, building work to establish a secondary site, and the high cost of connectivity. The move to the cloud represents a strategic and more cost-effective alternative, reducing capital outlay while improving resilience, flexibility, and long-term value.

**1.5** This report, and the associated Part II report on this agenda, sets out the work undertaken to date and subject to Cabinet's approval, how this programme will progress in the coming months.

## 2. Key Issues for Consideration

### Case for Change

### Alignment with Digital Strategy and National Direction

**2.1** The Council's Digital Strategy (2023–2028) sets out a clear commitment to modernising digital infrastructure, enabling agile service delivery, and adopting more sustainable, scalable solutions. Migration to the cloud is a cornerstone of this strategy and supports other key corporate priorities including the Risk Management Policy and Project Zero. In recent years, many of the Council's core business systems have been migrated to cloud-hosted versions and this is the general trajectory for managing digital systems and data in all sectors.

**2.2** At a national level, the UK Government has consistently advocated for cloud-first principles across the public sector. This includes guidance from the Cabinet Office and Government Digital Service (GDS), encouraging local authorities to move away from legacy infrastructure in favour of flexible, secure cloud environments. Transitioning to cloud ensures the Council is aligned with these wider public sector standards and enables opportunities for future cross-organisation collaboration and shared services.

**2.3** As part of the Council's digital strategy implementation, and in response to the issues outlined in this report, the Head of Digital has been working to identify the feasibility of cloud migration for the Council's core compute and data requirements, including the financial implications of doing so.

### Operational Risk and Resilience

**2.4** The existing data centre infrastructure is no longer fit for purpose. The incident in August 2023 highlighted to risks associated with maintaining an on-premise arrangement. The absence of adequate disaster recovery provision and the fragility of relying on a single physical site are high risk issues which have been formally noted in internal audits.

**2.5** Building a resilient secondary site at the Alps Depot is an option that has been considered and would require significant construction and technical investment, estimated at over £400,000. A cloud environment offers an opportunity to resolve these risks rapidly, with proven disaster recovery capabilities built into service models.

**Cost Avoidance and Long-Term Efficiency**

**2.6** The Part II report on this agenda contains the commercial information regarding the proposals.

**2.7** Three options have been appraised:

- Remain as is, no disaster recovery
- Remain on-premise with disaster recovery developed at the Alps Depot
- Cloud Migration including disaster recovery

**2.8** These options have considered the required levels of capital investment, the contribution from the Council's Digital Reserve, future revenue running costs and the level of revenue pressures associated with each option. These have enabled an overall total cost of operation/ownership to be calculated for each option.

**2.9** All options require a revenue cost pressure to be funded in the Council's budget as investment is required in order to mitigate the risks described above. Cabinet will note in the Part II report that a revenue pressure would be required to retain even the current situation (option one) as there are anticipated licensing and support costs.

**2.10** When considering the capital investment required and level of revenue funding (including the level of pressures associated with each option), the total cost of ownership for the cloud option including disaster recovery is the most cost-effective option and also the option which mitigates the level of current and future risks to the greatest extent.

**2.11** While initial project costs will be incurred, cloud adoption avoids over £1.2m capital investment required to refresh on-premise infrastructure and establish a secondary data centre. Operational expenditure becomes more predictable and controllable through reserved instances (pre-paid allocations of cloud-based storage/compute space) where pricing is fixed combined with some utilisation for Pay-As-You-Go to enable flexibility.

**2.12** There are other benefits associated with this proposal which are described below.

**Scalability to Support Innovation**

**2.13** A key ambition for the Council is to expand its capacity to build and deploy digital solutions in-house. Our current infrastructure limits our ability to scale development environments, test new services, and respond rapidly to organisational needs as articulated in the Reshaping Programme.

**2.14** A cloud environment removes these constraints. It provides a flexible platform that can be rapidly scaled up or down depending on requirements, without the lead times and capital investment associated with traditional infrastructure. This will empower our internal teams to design and launch innovative tools more efficiently, such as the recent pilot of a cloud-based translation solution. The Council is also exploring new cloud-based capabilities, including modern telephony platforms, and anticipates broader adoption of Software-as-a-Service (SaaS) applications in the near future.

**2.15** The infrastructure shift will support a new model of digital delivery – one that is agile, cost-effective, and aligned with user needs. Cloud infrastructure can be scaled dynamically to meet demand, removing traditional constraints on storage and compute resources. This enables the Council to respond faster to changing service requirements, deliver digital solutions more rapidly, and explore new technologies with lower risk.

**Environmental Sustainability**

**2.16** Cloud infrastructure offers lower carbon emissions compared to traditional on-premise models. Purpose-built data centres operated by cloud providers are designed to run at peak efficiency, reducing both energy usage and environmental impact. Providers invest in energy-efficient hardware and operate at high levels of utilisation, ensuring minimal environmental impact. Migrating services supports the Council's climate change commitments and aligns with our objectives under Project Zero.

**Resilience and Business Continuity**

**2.17** The current infrastructure provides no formal disaster recovery provision. By migrating to the cloud, the Council will gain access to built-in resilience, including multi-region failover, automated backups, and robust disaster recovery capabilities. This ensures business continuity even in the event of a local infrastructure failure or external disruption.

**Security and Compliance**

**2.18** The cloud migration will introduce improved security measures, including enhanced access controls, threat detection, automated patching, and continuous monitoring. Cloud environments are certified to the highest industry standards, supporting the Council's compliance with UK GDPR, PSN, ISO standards, and other regulatory requirements.

**Innovation and Modernisation**

**2.19** The new environment supports in-house development and prototyping of services, unlocking new possibilities for digital transformation. It also creates opportunities for integration with existing cloud-based applications, such as

Microsoft 365, and future systems that follow a Software-as-a-Service (SaaS) model.

**Risks and Mitigations**

**2.20** While the proposed cloud migration presents a range of benefits, it is recognised that there are associated risks. These have been considered as part of the planning process, and mitigations are being built into the project delivery model.

**2.21** **Service Disruption During Migration -** There is a risk of temporary disruption to services during the transition from on-premise to cloud infrastructure. To manage this:

- A phased migration plan will be adopted, with systems prioritised based on criticality.
- Dual-running environments will be used where needed to support continuity.
- Migration activities will be scheduled during low-usage periods to minimise user impact.
- A rollback plan will be in place in case of unexpected issues.

**2.22** **Cost Management in the Cloud -** Unlike traditional infrastructure, cloud environments are consumption-based. Without appropriate controls, there is a risk of cost escalation. Mitigations include:

- Adoption of FinOps principles and cost monitoring tools.
- Clear tagging, naming conventions, and automation to manage usage.
- Involvement of specialist support to configure controls and reporting.

**2.23** **Data Governance and Compliance -** Handling of data in the cloud must continue to meet all regulatory obligations, including data protection and residency (where that data is held). The approach will ensure:

- Sensitive workloads remain on-premise where required.
- Encryption and access controls are enforced at all layers.
- All solutions are compliant with UK GDPR, PSN, and ISO 27001 standards.

**2.24** **Staff Readiness and Capability -** Cloud environments require different technical skills. There is a risk that the internal team may be initially unfamiliar with managing the new infrastructure. To address this:

- Side-by-side working is built into the vendor engagement model.
- Staff training and certifications are included in the delivery plan.
- A defined hypercare period will ensure continued vendor support after go-live.

**2.25** **Vendor Lock-In -** There is a general risk of lock-in when adopting a specific cloud provider's toolset. While this project remains vendor-neutral at this stage, future procurement decisions will be guided by:

- Open standards and interoperability requirements.
- Strategic alignment with public sector best practice.
- Contractual provisions for portability and exit.

**2.26 Proposed Approach: Procurement, Timeline and Programme Delivery**

**2.27** The Council proposes to transition to a hybrid cloud model, combining both public and private cloud environments. This approach has been selected to meet the Council's operational needs while ensuring compliance with security, data residency (where data is held), and cost control requirements.

**2.28** Subject to approval by Cabinet, the migration will be delivered in four phases, in partnership with a specialist third-party vendor. The vendor chosen will have experience supporting similar transitions for other government bodies and will work closely with internal teams throughout the programme.

**2.29** Procurement will be supported by the Council's strategic procurement partner, Ardal. It is currently anticipated that this will be completed using the Crown Commercial Service's GCloud14 framework, specifically designed for the acquisition of cloud services.

**2.30** Following appointment via the framework for the acquisition of cloud services, the migration approach will include:

- Lift-and-shift of critical systems where necessary to meet the delivery timeline
- Refactoring of workloads where feasible during migration
- Post-migration optimisation and refactoring to further enhance performance and cost-efficiency
- Deployment of disaster recovery, monitoring, and automated backup solutions as part of the base cloud architecture
- Integration with existing Microsoft 365 and other cloud-based systems

**2.31** Where appropriate, certain legacy applications or workloads requiring local hosting will remain on-premise, ensuring continuity of service for systems with specific residency or latency requirements. It is anticipated that these will be limited in number, with the vast majority migrated to the cloud.

**2.32** To support internal capability, the migration model includes side-by-side working, formal training, and a defined hypercare period (immediate support following successful migration). This will ensure that the IT team is fully equipped to manage and support the new environment post-transition. Additional support may be sourced for cost optimisation (a methodology referred to for cloud environments called FinOps), ensuring long-term control over operational expenditure.

**2.33** Subject to procurement outcomes, there may be opportunities to access migration credits or incentives which will further offset transition costs.

Key milestones will include:

- **Initial planning and setup**
- **Phased migration of services**
- **Final optimisation and handover**

**2.34** This timeline has been designed to avoid increased infrastructure licensing costs expected after mid-2026, while allowing for contingency to manage complexity and ensure service continuity.

**2.35** A defined rollback strategy will be in place throughout the programme. Knowledge transfer and side-by-side working are core to the delivery model to ensure internal capability is built during the process.

**Impact on Service Users and Staff**

**2.36** From a service user perspective, the migration is expected to have no visible impact. Applications and services will continue to operate as normal throughout the transition. Migration activity will be carefully scheduled to avoid disruption, and any required outages will be planned during low-usage periods and communicated in advance.

**2.37** In the longer term, improved infrastructure will enhance service reliability, resilience, and the Council's ability to deliver digital services more efficiently.

**2.38** All departments will be affected by the migration in terms of where their systems are hosted, but day-to-day operations will remain unchanged. There is no expectation for staff outside the Digital Services team to make any changes to how they access or use Council systems.

**2.39** Within the IT team, the shift to cloud will require new skills and ways of working. To support this, the delivery model includes:

- Side-by-side working with the third-party vendor
- Structured training on the new environment
- A defined hypercare period post-migration
- Upskilling opportunities aligned with modern digital infrastructure roles

**2.40** This approach ensures that internal capability is developed alongside the migration, reducing reliance on external support in the long term and empowering the Council's digital team to manage and optimise the new infrastructure effectively.

**Conclusion**

**2.41** The Council is at a critical decision point regarding the future of its digital infrastructure. The existing data centre presents increasing risk, rising costs, and limited capacity for innovation. A move to the cloud represents a clear opportunity to modernise, build resilience, and unlock long-term financial and environmental benefits.

**2.42** This proposal outlines a pragmatic and well-supported path to hybrid cloud adoption, with minimal disruption to service users and strong emphasis on internal capability and cost control.

**2.43** Approval of this programme will enable the Council to address immediate infrastructure risks, avoid significant capital investment, and position itself for a more flexible, secure, and scalable digital future.

## 3. How do proposals evidence the Five Ways of Working and contribute to our Well-being Objectives?

**3.1** **Long Term** This programme represents a strategic investment in the Council's future digital infrastructure. By reducing reliance on ageing on-premise equipment and eliminating the need for large-scale capital replacement, the project creates a foundation for more sustainable and scalable digital service delivery in the years ahead.

**3.2** **Prevention** By proactively addressing the risks associated with the current infrastructure, including the lack of disaster recovery and reliance on a single physical data centre, the project strengthens the Council's ability to prevent major service disruption and data loss. It also helps mitigate the escalating costs of maintaining outdated infrastructure.

**3.3** **Integration -** The project supports wider organisational transformation by enabling improved integration across digital systems, applications, and services. The cloud environment will facilitate interoperability and better data sharing between departments and with partners, enhancing the Council's ability to deliver joined-up services.

**3.4** **Collaboration** Delivery of the project will involve collaboration with experienced third-party providers and will draw on lessons learned from other public sector organisations undertaking similar migrations. The programme also reflects the wider digital direction of UK Government, aligning the Council with national standards and sector-wide good practice.

**3.5** **Involvement** Staff involvement is a key element of the migration strategy. The delivery model includes side-by-side working, upskilling, and knowledge transfer to ensure that internal teams are fully engaged and capable of supporting the new environment post-migration. The wider workforce and public will benefit from improved service reliability and digital capability as a result.

## 4. Climate Change and Nature Implications

**4.1** The migration to a cloud-based infrastructure is expected to have a positive environmental impact and supports the Council's wider sustainability ambitions under Project Zero.

**4.2** The Council's current data centre infrastructure is energy intensive, requiring significant power for compute, cooling, and resilience. As the equipment continues to age, efficiency decreases and emissions rise. A move to cloud-

hosted infrastructure — operated in modern, purpose-built data centres — will significantly reduce carbon output associated with digital service delivery.

**4.3** Cloud providers operate at economies of scale and are incentivised to use renewable energy sources, optimise energy usage, and invest in low-carbon infrastructure. These efficiencies are not replicable within traditional, locally hosted environments.

**4.4** By reducing reliance on physical hardware and local cooling systems, the proposed migration directly supports the Council's commitment to reducing carbon emissions, improving energy efficiency, and adopting sustainable practices across its operations. Based on current energy usage, migrating to a cloud environment is estimated to reduce the Council's data centre-related carbon emissions by approximately 5.5 tonnes of $CO_2$ per year.

**4.5** No adverse impacts on biodiversity or local nature are expected as a result of this programme.

## 5. Resources and Legal Considerations

**Financial**

**5.1** All current costs are based on detailed estimations. A full 'discovery' period will shortly take place which will confirm the finalised revenue requirements.

**5.2** Subject to Cabinet's approval, the next stage of the project would be to engage with a migration vendor to get to an exact costing. However, based on evaluation models and supplier discussions, the migration project will involve a combination of one-off implementation costs and ongoing operational spend.

**5.3** Project costs are expected to include:

- Discovery and technical planning
- Third-party consultancy and migration support
- Infrastructure and tool configuration
- Staff training and knowledge transfer
- Temporary dual-running costs during cutover
- Optional migration credits (subject to vendor confirmation)

**5.4** Ongoing costs following migration will transition from capital expenditure on hardware to consumption-based pricing for cloud services. This is expected to cover:

- Compute and storage usage
- Licensing and security services
- Support and monitoring tools

- Disaster recovery and backup

**5.5** Based on the current costings, an incremental cost pressure is required of £108,000 and will need to be factored into the Council's budget for 2026/27 onwards. This is the lowest level of cost pressure associated with any of the options.

**5.6** An estimated £359k of Digital Reserve drawdown is expected to meet the cost of migration and consultancy. No capital expenditure is required.

**5.7** The full financial analysis of the options is set out in the Part II report due to the commercial sensitivities of this information.

**Employment**

**5.8** There is no negative impact on staffing levels as a result of this proposal. The transition will be internally focused, with minimal disruption to wider staff or service users. The delivery model includes side-by-side working with the third-party provider and structured training to upskill internal IT teams, strengthening long-term organisational capability.

**Legal (Including Equalities)**

**5.9** The procurement of cloud services and third-party migration support will follow the Council's established procurement policies and applicable public sector frameworks. Legal support will be engaged as required to ensure that contractual terms meet all regulatory and risk requirements, including those related to data protection, vendor lock-in, and service continuity.

**5.10** Data hosting will remain compliant with UK GDPR, Public Services Network (PSN) requirements, and ISO 27001 security standards. Sensitive workloads requiring specific data residency controls will continue to be hosted on-premise or within UK-based infrastructure, as appropriate.

**5.11** There are no anticipated equalities impacts associated with this project.

## 6. Background Papers

Vale of Glamorgan Council Digital Strategy 2023-2028