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Planning

Specialised Genomic Cloud Services Framework for Wales' National Genomics Services.

NHS Wales Shared Services Partnership-Procurement Services (hosted by Velindre University NHS Trust)
Cardiff University

F01: Prior information notice

Prior information only

Notice identifier: 2024/S 000-020380

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Section I: Contracting authority

I.1) Name and addresses

NHS Wales Shared Services Partnership-Procurement Services (hosted by Velindre University NHS Trust)

4-5 Charnwood Court., Heol Billingsley, Parc Nantgarw

Cardiff

CF15 7QZ

Email

rhys.wathan@wales.nhs.uk

Telephone

+44 1443848585

Country

United Kingdom

NUTS code

UK - United Kingdom

Internet address(es)

Main address

<http://nwssp.nhs.wales/ourservices/procurement-services/>

Buyer's address

https://www.sell2wales.gov.wales/search/Search_AuthProfile.aspx?ID=AA0221

I.1) Name and addresses

Cardiff University

Procurement Services, McKenzie House, 30-36 Newport Road

Cardiff

CF24 0DE

Email

Procurement@cardiff.ac.uk

Telephone

+44 2920879648

Country

United Kingdom

NUTS code

UKL - Wales

Internet address(es)

Main address

<http://www.cardiff.ac.uk/business/why-work-with-us/for-suppliers>

Buyer's address

https://www.sell2wales.gov.wales/search/Search_AuthProfile.aspx?ID=AA0258

I.2) Information about joint procurement

The contract involves joint procurement

I.3) Communication

Additional information can be obtained from the above-mentioned address

I.4) Type of the contracting authority

Body governed by public law

I.5) Main activity

Health

Section II: Object

II.1) Scope of the procurement

II.1.1) Title

Specialised Genomic Cloud Services Framework for Wales' National Genomics Services.

II.1.2) Main CPV code

- 72222300 - Information technology services

II.1.3) Type of contract

Services

II.1.4) Short description

Genomics Partnership Wales (GPW) was established as part of the Genomics for Precision Medicine Strategy by Welsh Government in 2017. In 2022 Welsh Government updated this strategy, publishing a Genomics Delivery Plan for Wales which provides a set of concrete steps to develop and enhance the use of genomics to improve the health, wellbeing and prosperity of the people of Wales. GPW operates as a partnership, bringing together our patients and the public clinical and laboratory services, public health, research and innovation to deliver transformative change in the NHS in Wales. Key partners in GPW include Cardiff University (which hosts the Wales Gene Park), Cardiff and Vale University Health Board (which hosts the All-Wales Medical Genomics Service) and Public Health Wales (which hosts the Pathogen Genomics Unit and Public Health Genomics Programme).

Collectively the GPW partners sequence tens of thousands of genomes every year, to provide clinical and public health services to the patients and public of Wales, and to underpin cutting edge research. At present, this data is stored locally, and analysed on-premise. The Genomics Delivery Plan for Wales includes ambitious targets to expand genomics services and research in Wales, which will bring with it significant expansion in the computational resources required to analyse the data generated. Based on this, GPW has identified a requirement to move analysis workloads and data storage into the cloud in order to enable service and research expansion, underpinned by data management that enables appropriate secure data sharing and collaboration.

GPW intends to develop and award a framework agreement that has the ability to collaborate across GPW and beyond baked in from the start, and which will provide the mechanism to enable the GPW partners to expand their capabilities in a joined-up, collaborative way.

The framework will be divided into the following lots:

Lot 1 - Cloud Infrastructure Services: This lot will cover infrastructure as a service offerings, covering a wide range of cloud computing services, including but not limited to compute instances, storage solutions (both high-performance and archival), databases, networking, and security. These services will support the various products and platforms used by GPW for data processing, analysis, and management.

Lot 2 - Cloud Professional Services and Support: This lot will include consulting, migration, integration, support and ongoing support services provided by the Cloud Service Provider (CSP). These services will ensure the successful implementation, operation, and optimization of the cloud infrastructure to meet GPW's specific requirements in the field of genomics.

Suppliers should demonstrate proven experience and expertise in delivering cloud services within the genomics domain, showcasing their understanding of the unique challenges and requirements associated with handling large-scale genomics data.

The framework will allow for both Direct Award and Mini-Competition procedures, providing flexibility in procuring the required cloud services based on GPW's specific needs and timelines. Because GPW sits at the heart of a wider collaborative network, the Framework will be designed to be available to all of the wider GPW partners and collaborating institutions across the UK.

II.1.5) Estimated total value

Value excluding VAT: £1,500,000

II.1.6) Information about lots

This contract is divided into lots: Yes

II.2) Description

II.2.1) Title

Cloud Infrastructure Services

Lot No

1

II.2.2) Additional CPV code(s)

- 72222300 - Information technology services

II.2.3) Place of performance

NUTS codes

- UKL22 - Cardiff and Vale of Glamorgan

Main site or place of performance

Cardiff Edge, Longwood Drive, Cardiff CF14 7YU

II.2.4) Description of the procurement

Lot 1 will focus on the provision of a menu of services which cover the core infrastructure components that can be used to store and analyse the data that GPW partners generate. For a supplier to qualify for this lot, we plan to require that they must offer products in all of the required areas identified, and they must also guarantee that those required products are accessible/usable from services operating on other clouds.

The broad categories of products/services already identified as required include:

- Volume/POSIX data storage
- Object data storage
- Archive data storage
- Container service
- High performance computing service
- Virtual machine service
- Ability to orchestrate nextflow workflows on the cloud (e.g., a managed batch service compatible with nextflow)
- Database service
- Messaging service

For the storage elements, we will require granular access control for data sharing, covering the ability to manage access for users within each of our individual organisations, seamlessly share data between GPW partners, and provide mechanisms to allow specific access to

collaborators/external organisations to selected files. Data access should be auditable, and functionality should exist to enable the cloud services to be secured in line with NHS requirements.

The intention within this lot will be to provide a mechanism for rapidly purchasing cloud capacity in response to service need.

Lastly, as this lot would also be concerned with potentially moving large quantities of data from our current facility into the cloud routinely, this lot would also need to include options to install dedicated links to cloud providers, from our facility based in Cardiff.

Genomics Partnership Wales will be holding an in person supplier engagement day on the 25th July 2024 at the Cardiff Edge facility. If you are interested in attending the event, please contact rhys.wathan@wales.nhs.uk by the 18th July to obtain further information and confirm your place.

II.2) Description

II.2.1) Title

Cloud Professional Services and Support

Lot No

2

II.2.2) Additional CPV code(s)

- 72222300 - Information technology services

II.2.3) Place of performance

NUTS codes

- UKL22 - Cardiff and Vale of Glamorgan

II.2.4) Description of the procurement

Lot 2 focuses on the provision of professional services and support. This lot will most probably include consulting, migration, integration, support and ongoing support services provided by the Cloud Service Provider (CSP). These services potentially cover the development/supply of managed platforms/solutions for genomic data analysis and storage. In all cases, for a supplier to be included in this lot, we would anticipate that they must be

able to demonstrate a track record of delivery of relevant services for genomics and suitable cybersecurity accreditation.

The products/services that will be covered within this lot may include;

- A secure, comprehensive analysis platform/environment providing accredited/accreditible pipelines and ability to move data in/out to other cloud services.
- Professional services to support the building of a platform to meet the specific needs of GPW partners.
- Professional services to design and build a secure gateway/system on the cloud using services procured in lot 1.
- Professional services to provide support to the GPW team in the management of cloud services used by the GPW partners.
- Professional services to design/build analysis and storage platforms using cloud services.
- Professional services to support the integration of cloud services procured via lot 1 into a hybrid setup using on-premise equipment.
- Professional services to support the migration of current workloads onto the cloud, considering the technical engineering required and ensuring an appropriate cybersecurity wrap for any migrated services.

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II.3) Estimated date of publication of contract notice

2 September 2024

Section IV. Procedure

IV.1) Description

IV.1.8) Information about the Government Procurement Agreement (GPA)

The procurement is covered by the Government Procurement Agreement: Yes

Section VI. Complementary information

VI.3) Additional information

For supplier information, we have already identified a number of situations where we would look to procure cloud services. These use cases are provided for information and to provide a basis for engagement at the supplier day.

Data Storage

GPW's genomics initiatives generate vast amounts of data that require efficient and secure storage solutions. The GPW partners currently host sequencing instruments that have the capability of generating 50TB+ of data per week.

Data storage, across the data lifecycle, is therefore a critical issue for the GPW partners. Further, because the GPW sequencing instruments are envisaged to act as a shared resource, we require systems that enable data generated by a sequencer in one organisation to be shared with a different GPW partner.

We therefore require a range of data storage systems, including:

- Short-term high-performance storage is essential for ongoing data analysis and processing. This storage solution must provide fast read and write speeds, low latency, and high throughput to support the demanding computational requirements of genomics workflows. The storage system should be scalable, allowing for seamless expansion as data volumes grow. Currently the on-prem high performance storage is integrated into HPC systems.
- Medium-tier storage for routine data access and analysis is required for a range of workloads where we want to return to data frequently. This data is pulled both by workloads running on HPC systems and by users running local analyses or applications such as R. The access is generally ad-hoc and in response to need, with data on this tier generally needing to be available for 2-5 years post sequencing for rapid access.
- Long-term archival storage is necessary for the preservation of genomics data that must be retained for extended periods, often spanning several decades (NHS requirements are 10 years minimum, University requirements can be 10-15 years from date of last access). This storage solution should prioritize data integrity, ensuring that the data remains uncorrupted and accessible over time. The archival storage system must be cost-effective, as the data volumes can be substantial. The archival storage should also provide data lifecycle management capabilities, allowing for automated data tiering and migration based on access frequency and retention policies.

In addition to the storage infrastructure, a robust data management and data access framework must be implemented to ensure data governance, auditability, security, and accessibility. This includes implementing granular access controls, encryption, and auditing mechanisms to protect sensitive genomics data. Data cataloguing and metadata management are essential for efficient data discovery and retrieval. Integration with data analysis platforms and bioinformatics tools should be seamless, enabling researchers and clinicians to leverage the stored data effectively.

- Routine Data Processing and Analysis
- Data Sharing and Collaboration
- Disaster Recovery (DR)

NOTE: To register your interest in this notice and obtain any additional information please visit the Sell2Wales Web Site at

https://www.sell2wales.gov.wales/Search/Search_Switch.aspx?ID=142544.

(WA Ref:142544)