Job Description and Person Specification

Job Title:	Senior Research Infrastructure and Cloud Engineer
Grade:	G8
School/Division:	IT Services
Location:	Shawcross
Responsible to:	Associate Director, Digital Research Services
Direct reports:	N/A
Key contacts:	Senior Research Platform and Data Engineer Other ITS Digital Research team colleagues ITS Assistant Director Infrastructure and Cloud ITS Senior Network Engineer ITS Cybersecurity and Network Engineer ITS Head of Architecture

Role description:

The Senior Research Infrastructure and Cloud Engineer designs, builds and operates the specialist compute, storage and cloud platforms that underpin digital research across the University.

The role provides senior technical leadership and hands-on engineering expertise to ensure research infrastructure is reliable, scalable, secure and capable of supporting advanced data and compute-intensive research.

The post focuses on research-specific infrastructure services and cloud platforms, working closely with colleagues across IT Services to ensure they remain aligned with University standards, security requirements and technical governance.

The role works closely with the Senior Research Platform and Data Engineer to deliver integrated digital research services across the University. The Senior Research Infrastructure and Cloud Engineer is responsible for the design, delivery and operation of the compute, storage, cloud and supporting infrastructure that underpin digital research, while responsibility for research software, analytical workflows and researcher-facing services sits with the Senior Research Platform and Data Engineer. The roles work collaboratively to ensure services meet current and emerging research needs while maintaining clear responsibility for infrastructure and service domains respectively

Lead in the provision of expert advice and insight within relevant specialist area to help to address problems, make recommendations and propose improvements to maximise efficiency and effectiveness.

PRINCIPAL ACCOUNTABILITIES

- Delivering and continually improving the specialist compute, storage, and cloud platforms that underpin digital research across the University, ensuring these are secure, reliable and scalable.

- Providing technical leadership for the University's research infrastructure services, while remaining hands-on in the engineering, configuration and operation of High Performance Computing (HPC), large-scale data storage, and private and hybrid cloud environments.

- Ensuring research infrastructure and cloud platforms are designed and operated to provide a high-performance foundation for data-intensive research, research software and analytical services.

- Lead the use of automation and infrastructure-as-code approaches to deploy, manage and evolve research infrastructure and cloud services, ensuring consistency, reliability, security and operational efficiency.

- Lead the technical planning and lifecycle management of research computing and data storage infrastructure, including capacity planning, technology refresh, sustainability considerations, and the evaluation of emerging technologies

- Lead the technical planning and management of integration between on-premise infrastructure and public-cloud services

- Lead on the provision of objective and expert information, advice and guidance for managers within the organisation on improvements to services and activities related to a specific area of expertise.

- Assess queries and potential issues, identifying options and recommending solutions, liaising closely with relevant operational teams.

- Support the implementation of improvement solutions through planning and project management.

KEY RESPONSIBILITIES

Role Specific Responsibilities:

- Lead the design, implementation and ongoing development of research infrastructure services, including High Performance Computing (HPC), large-scale data storage, and private and hybrid cloud platforms

- Use automation extensively to build, configure, integrate, and manage research infrastructure and storage platforms, improving reliability, scalability, and consistency.

- Lead the development and maintenance of technical roadmaps for research infrastructure services, covering compute, storage, and cloud capabilities, and balancing performance, sustainability, and cost over time.

- Lead lifecycle planning for research infrastructure services, including capacity growth, technology refresh, sustainability considerations, and service evolution.

- As required, lead the design and implementation of integration between on-premise HPC, private cloud, and public cloud services used for research workloads, using automated workflows where appropriate.

- Maintain responsibility for research hardware hosted within shared datacentre facilities, including coordinating rack layout, power and cooling requirements, hardware installation, and maintenance activities in collaboration with central datacentre and facilities teams.

- Lead the implementation, operation and continuous improvement of security controls across research infrastructure, ensuring compute, storage, networking and cloud platforms are designed, configured and managed in accordance with University and divisional cybersecurity policies, standards and technical governance requirements. Proactively identify and mitigate security risks and vulnerabilities, and support audit and compliance activities as required.

- Work closely with the Senior Research Platform and Data Engineer and other colleagues to ensure compute, storage and cloud platforms continue to support current and emerging research software, analytical and computational service requirements

- Act as a senior technical escalation point and work with relevant ITS teams to ensure digital research infrastructure align with University standards, security requirements, and technical governance.

- Engage with third-party technology partners and peer organisations to share good practice and inform the future direction of research infrastructure services.

General Responsibilities:

- Develop and maintain effective relationships across the organisation to engender confidence and trust in the advice provided at all stakeholder levels

- Provide advice to managers on best practice based on regularly updated knowledge within own area of expertise.

- Through close collaboration with the relevant management team, identify and document the specific issue or query to be investigated. Provide coaching and guidance at leadership level to help to articulate and research the problem or issue presented.

- Empowered to make pivotal decisions, leveraging critical analysis, and strategic insight to drive impactful outcomes

- Monitor and analyse Key Performance Indicators, to assist in the identification of risks, errors, problems and improvement opportunities

- Identify options and make recommendations to address or improve problem areas.

- Provide expertise and support in understanding the impact of the recommended action and help to build plans for implementation

- Support managers within the relevant area on the production and maintenance of project plans for solution implementation and ensure that these are shared with key stakeholders

- Lead the design and delivery of support materials for implementation plans where appropriate

- Where required, lead a small team of colleagues in area of expertise

- Where required, deliver coaching and training to develop capabilities in line with required improvements.

- Work closely with relevant teams across the organisation and within external networks leading on the sharing of best practice and collaboration in improving processes and procedures.

- To carry out any other duties that are within the employee's skills and abilities whenever reasonably instructed.

INDICATIVE PERFORMANCE CRITERIA

- This role does not have any budget responsibility.

- This role does not have any line management responsibility but may do in the future.

- This role has responsibility for equipment.

- The post holder reports to the Associate Director, Digital Research Services, working under broad direction to enable the post holder to manage their own work and that of their team members, to achieve their agreed objectives. The role holder will play a key role as part of the Divisional leadership team in supporting the achievement of the strategic and operational goals of the University, Professional Services & their Division. The post holder is expected to work collaboratively across the University and with key stakeholders to deliver single team working that efficiently and effectively supports the achievement of those goals and objectives.

- Support achievement of the Division's/Unit's/School's compliance with all applicable statutory and regulatory compliance obligations, including (but not limited to): UKVI, Health & Safety, the Prevent Duty, data protection, Competition and Markets Authority requirements and equal opportunities, as appropriate to the grade and role. Additionally, to promote good practice in relation to University policy, procedure and guidance in relation to those compliance matters in respect of students, staff and other relevant parties.

- Balance effectiveness and cost-efficiency in the management of the budgets you are accountable for, demonstrating compliance with Value for Money and Return on Investment principles to support the University's strategic aim to achieve a world-class standard of teaching and research by managing our resources effectively and efficiently

This Job Description sets out current responsibilities of the post that may vary from time to time without changing the general character of the post or level of responsibility entailed.

PERSON SPECIFICATION

Essential General Criteria

1. Of graduate calibre with relevant professional qualification or experience, as appropriate to the discipline (see role-specific criteria below).

2. Highly effective planning and organisational skills, including project management.

3. Skilled in harnessing extensive datasets to discern challenges and devise innovative solutions, employing strategic methodologies when necessary.

4. Ability to utilise large data sets to identify issues and solutions using innovative approaches where necessary.

5. Proficient problem solver with a proven track record in analysing complex issues and implementing effective solutions.

6. Well-developed interpersonal skills with the ability to quickly build rapport with the ability to effectively influence others in area of expertise, effectively contribute to team working.

7. Effective oral and written communications skills to work with colleagues and customers providing information and responding to questions and queries, with the ability to present complex technical messages in a way that can be understood by most stakeholders.

8. Ability to work flexibly within a small team and on own initiative.

9. Analytical skills with the ability to generate effective solutions and make effective decisions.

10. Competent IT skills to effectively manager own workload – MS Suite. Experience using functional databases.

Essential Role-Specific Criteria

11. Excellent working knowledge of theory and evidenced practice of area of expertise.

12. Experience designing, building, and operating research computing infrastructure, including High Performance Computing (HPC) platforms.

13. Hands-on experience with large-scale data storage platforms supporting data-intensive research workloads.

14. Practical experience with private cloud or hybrid cloud platforms and technologies in a research, scientific, or high-performance computing context.

15. Advanced hands-on experience using automation and infrastructure-as-code approaches to deploy, configure, and manage complex compute and storage platforms.

16. Demonstrable understanding of performance, scalability, resilience, and reliability considerations in shared research infrastructure environments.

17. Proven experience working within enterprise IT standards and governance frameworks, including collaboration with infrastructure, cybersecurity, technical governance, and service delivery teams.

18. Ability to translate emerging research computing requirements into sustainable infrastructure services, platforms, and technical roadmaps

19. Familiarity with container technologies commonly used in research computing and HPC environments.

20. Experience developing and maintaining clear, practical technical documentation for research infrastructure services, including platform design, automation workflows, operational procedures, and user-facing technical guidance.

21. Hands-on experience managing research computing hardware within shared datacentre environments, including coordination of installation, cabling, power, cooling, and maintenance activities with central datacentre or facilities teams.

22. Strong knowledge and practical experience of Infrastructure as a Service (IaaS) concepts and platforms, including design, deployment, and operation of virtualised compute, networking, and storage resources within private and/or public cloud environments.

Desirable General Criteria

23. Experience in a similar role.

24. Extensive experience working in a university or similar environment.

Desirable Role-Specific Criteria

25. Experience integrating on-premise HPC systems with public cloud services, including workload portability and data-movement considerations.

26. Experience with software-defined, scale-out, or object-based storage systems used for active or large-scale research data.

27. Experience supporting data-intensive workflows where compute and storage performance must be closely aligned.

28. Awareness of cybersecurity principles and standards relevant to research infrastructure and sensitive or regulated research data.

29. Experience engaging with external research infrastructure communities, vendors, or peer institutions to share best practice and inform platform evolution.