MANCHESTER 1824
The University of Manchester

THE UNIVERSITY OF MANCHESTER
PARTICULARS OF APPOINTMENT
PROFESSIONAL SERVICES
Directorate of IT Services
Division of IT Services Research IT
Senior Research Platforms Engineer (Cloud)
Vacancy ref: PSX-029528

Salary:	Grade 7 £47,389 to £58,225 per annum, depending on relevant experience
Hours:	Full time (1 FTE)
Duration:	Fixed term for 36 months
Location:	Oxford Road, Manchester

Enquiries about the vacancy, shortlisting and interviews:
Name: Simon Hood
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Overall purpose of the job
Researchers at the University of Manchester carry out world-leading research in many areas. An ever-increasing proportion of this work is computationally intensive. Research IT, within IT Services, develops and supports computational and data storage platforms which are essential to this research. Platforms are principally on-site, but commercial cloud resources (e.g, AWS, Azure) are increasingly important. As part of the Platforms and Infrastructure team within Research IT, the Senior Research Platforms Engineer will play a pivotal role in designing, developing and supporting platform-as-a-service (PaaS) within Research IT (RIT).

Platform design responsibilities, accountabilities and duties

- Designs large or complex cloud-based service solutions, covering for example: objectives, scope, constraints (such as performance, resources etc.), hardware, network and software environments, main system functions and information flows, data load and implementation strategies, phasing of development, requirements not met, and alternatives considered.
- Working with colleagues where appropriate, reviews and revises cost benefit analysis, risk analysis and development plans for PaaS to help derive best design decisions.
- Plans and direct migration of IT services from traditional infrastructure to cloud computing-based infrastructures and/or services.
- Contributes to the development of PaaS organisational policies, standards and guidelines for platform integration. Measures and monitors application of standards.
- Identifies, evaluates and manages the adoption of tools, technique and processes (including automation and continuous integration) to create a robust cloud-based

solutions integration framework. Ensures all work is documented using the appropriate standards and methods including prototyping tools where appropriate.

- Produces detailed design specification to form the basis for construction of cloud platforms, including for example: physical data flows, class and sequence diagrams, database schemas,
- file layouts, common routines and utilities, program specifications or prototypes, and backup, recovery and restart procedures. Reviews, verifies and improves own designs against specifications.
- Models, simulates or prototypes the behaviour of proposed platform components to enable approval by stakeholders.
- Constructs, interprets and executes test plans and test cases to verify successful end-to-end operation of the completed cloud platforms.
- Designs components using appropriate modelling techniques following agreed cloud architectures, design standards, patterns and methodology. Identifies and evaluates alternative design options and trade-offs.
- Undertakes impact analysis on major design options and trade-offs. Makes recommendations and assesses and manages associated risks associated with the cloud-based service.
- Reviews others' cloud-based service designs to ensure selection of appropriate cloud technology, efficient use of resources and integration of multiple cloud providers and technology. Ensures that the platform design balances functional and non-functional requirements.
- Plans and drives activities to develop organisational cloud-platform integration and build capabilities including automation and continuous integration. Leads cloud-based service integration work in line with the agreed platform and service design.
- Manages the creation, build, upgrade and support for all test cloud platforms and/or development environments, including auditable process for allocating environments, multiple bookings or shared usage, code upgrades, service levels, support, decommissioning and re-allocation.
- Provides authoritative advice and guidance on any aspect of cloud-based service solutions within RIT and acts as a leading technical expert on fault diagnosis and problem resolution. Provides feedback into the risk management process.
- Monitors and controls platform integration activities and reports on the results of each integration and build to relevant stakeholders.
- Uses SIEM to monitor the security posture of platforms using log files to detect indications of compromise and conduct forensic data analysis and investigations into network events and possible attacks.
- Leads design teams. Plans, schedules and reports on their work. Mentors less experienced staff.

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IT Services responsibilities, accountabilities and duties
You will be expected to demonstrate a commitment to the IT Services Practice Charter and the University's values. The University of Manchester values a diverse workforce and welcomes applications from all sections of the community.

You may from time to time be required to undertake other duties of a similar nature as reasonably required by your line manager.

Person specification

Experience/education/qualification background:	• Extensive experience of designing, implementing and automating cloud-based solutions within a large and complex business environment. • Experience of cloud-platforms such as Azure and AWS. • Knowledgeable about infrastructure code best practices (e.g. Terraform) and configuration management (e.g. Puppet, Ansible, Packer, etc.). • Extensive experience of working in a Linux environment and Linux cluster management. • Solid understanding of containerisation (e.g. Docker, Kubernetes, etc.) and continuous integration processes (e.g. Jenkins, GitHub, etc.). • Capable of developing in programming/scripting languages, such as Python, C, C++, Bash, etc. • Experience of working in a research and/or higher education environment is desirable.

Competency (Professional, technical or behavioural)	Level	Essential	Desirable
Cloud/virtualisation: The principles and application of cloud/ virtualisation (including ownership, responsibilities and security implications). Use of tools and systems to manage virtualised environments.	Expert in	X	
Infrastructure architecture: The frameworks and principles on which networks, systems, equipment and resources are based both on premises and cloud-based.	Expert in	X	
Application development tools: Software tools which automate or assist part of the development process.	Expert in	X	

Design principles: Principles and practice of good sustainable, secure, maintainable and efficient system design. Together with standard industry design approaches. Understanding the importance of adhering to design principles during infrastructure development, taking into account all relevant non-functional requirements in order to assure smooth running of the service in live operation.	Proficient in	X	
Programming languages: A set of codes and syntax (supported by software tools) that enables the unambiguous translation of specified functionality into source code for the creation of computer programs.	Proficient in	X	
Operating systems: System software that controls activities such as input, output, dynamic resource allocation, and error reporting, within the operation of a computer configuration.	Proficient in	X	
DevOps: The collaborative approach consisting of agile practices, processes, and procedures designed to facilitate rapid IT service and product delivery. DevOps emphasizes people (and culture) and seeks to improve collaboration between development (Dev) and operations (Ops) teams with the aim of shortening the systems development life cycle to provide continuous release of high-quality software.	Familiar with		X