Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

Job Description

Comp ID:	037773
Job Title:	Systems Architect
School/Department:	School of Computer Science and Statistics
Job Category and Level:	Professional, Administrative & Support; Administrative 1 (Full Scale)

The Purpose of the Role

Plan, organise and manage state-of-the-art core IT infrastructure systems and technologies within the School of Computer Science and Statistics (SCSS). The post-holder will be responsible for providing high level contributions and leadership, as well as being a valuable resource to teaching and research groups within the School. As a Systems Architect specializing in virtualization, containerization, and Storage systems, the role will play a pivotal role in designing, implementing, and optimizing our core infrastructure. The post-holder's expertise will be critical in ensuring the reliability, performance, and scalability of our core systems while also staying abreast of emerging technologies to drive innovation and efficiency.

Context

The School of Computer Science and Statistics is one of the largest Schools in the University, with over 1,500 taught students, 400 research account holders and in excess of 150 members of staff.
Our extensive academic offering includes a diverse array of undergraduate courses, spanning disciplines such as computer science, statistics, management science, business, European languages, computer engineering, electronic engineering, and mathematics. Notably, the School's five-year Master's level degree in Computer Science has earned accreditation from Engineers Ireland, underscoring its commitment to delivering programs of the highest standard.
In the realm of research-led education, the School sets itself apart by providing a dynamic range of taught Master's level programs. These programs are designed to cultivate an environment where innovation and academic inquiry thrive. Notably, our standing in the QS World University Rankings attests to our global prominence, ranking number 1 in Ireland, within the top 25 in Europe, and securing a position within the top 100 worldwide in the subject of Computer Science and Information Systems for the years 2019 to 2021.
Within this distinguished academic landscape, the role under consideration resides within the esteemed Systems Support group. This group, comprised of nine dedicated members, collaborates seamlessly with the Technical Support team to deliver comprehensive IT support. This support

spans across the multifaceted spectrum of research, teaching, and administrative activities, as well as the provision of specialized IT requirements.
This role holds a pivotal position, reporting directly to the Systems Manager. As a part of this dynamic team, the role presents an exciting opportunity for the individual to actively contribute to the ongoing development of cutting-edge systems. The role spans project management, system design and software development, educational technology design, and computer science research. The role requires a unique blend of technical acumen, educational technology expertise, and leadership skills. The role will be key to devising an overall strategy for technology use in computer science education and research, fostering innovation, and ensuring that the department's technical resources align with its academic goals. This role requires the ability to bridge the gap between cutting-edge technology and effective implementation to enhance pedagogy and research. This role's contribution will play a crucial role in shaping the technological landscape that underpins the forefront of teaching and research within our vibrant academic community. The role, therefore, serves as a gateway to engaging with the pulse of innovation within an environment that fosters academic growth and excellence.

The School offers a wide range of undergraduate courses, encompassing subjects such as computer science, statistics, management science, business, European languages, computer engineering, electronic engineering and mathematics. The School's five-year Master's level degree in Computer Science is accredited by Engineers Ireland. The School also offers a dynamic range of research-led taught Master's level programmes.

Main Responsibilities

The principal duties may include (but are not limited to):

- Orchestrating the successful delivery of intricate technical projects, spanning the comprehensive management and upkeep of central services, as well as the provisioning of cutting-edge applications and services within the School of Computer Science & Statistics.
- Proactively engaging, overseeing, and fostering effective communication with key stakeholders within the School to ensure the provision of state-of-the-art teaching services in alignment with organizational objectives.
- Providing visionary leadership by regularly reporting on emerging technologies and offering insights on their alignment with the strategic vision of the School, facilitating informed decision-making at leadership level.
- Formulating intricate strategies and meticulously planned execution approaches for complex business requirements, collaborating closely with Windows and networking teams to ensure seamless integration with overarching organizational goals.

- Spearheading the generation of specifications for the procurement of specialized hardware, while concurrently offering high-level technical consultations to stakeholders involved in research projects, aligning technology investments with the School's strategic research goals.
- Design and Management of High-Performance Computing (HPC) Infrastructure: Lead the design, implementation, and management of GPU clusters and HPC systems. Ensure these infrastructures effectively support research in AI, Deep Learning, scientific simulations, and numerical analysis.
- Support for Data-Intensive Research: Develop and manage systems tailored for large-scale data processing, real-time analytics, and computer vision tasks. Utilize distributed computing environments to meet the diverse needs of research projects.
- Optimisation of Computing Resources for Research: Optimising computing resources across various computer science disciplines, including AI, NLP, big data analytics, and 3D modeling/reconstruction, ensuring efficient and effective use of infrastructure.
- Project Leadership and Collaboration: Lead cross-functional project teams, ensuring the successful delivery of complex technical projects that align with research goals and timelines. Collaborate closely with researchers to understand and meet their budgetary restraints and technical needs.
- Overseeing the comprehensive management, design and implementation of Unix/Linux servers, clusters, virtualization, containerization and cloud platforms, with a dedicated focus on maintaining system reliability and optimizing uptime to meet the School's operational demands.
- Strategically implementing and enforcing robust system security policies, ensuring compliance with industry standards and regulatory requirements, safeguarding the integrity and confidentiality of School systems.
- Engage, manage and communicate with all key stakeholders on the requirement of projects including external vendors, technical and administrative teams.
- Ensuring meticulous documentation of the design of running systems and services, contributing to a comprehensive knowledge repository for current and future reference.
- Leading the documentation and support of business disaster recovery procedures within assigned areas of responsibility, ensuring the School's operational resilience in the face of unforeseen challenges.

Person Requirements

The role-holder will require the following knowledge, skills and attributes for successful performance in the role.

Qualifications

- Bachelor's degree in Computer Science or a related technical field involving systems engineering.
- MSc degree in Computer Science or a related technical field or equivalent professional work experience
- Project Management Certification would be advantageous.

Knowledge

- Demonstrates an advanced technical acumen, facilitating the insightful identification and resolution of intricate technical needs and challenges specific to the unique environment of the School of Computer Science & Statistics.
- Possesses and actively maintains a broad and current knowledge of state-of-the-art technology and emerging trends, ensuring a proactive and strategic approach to technology adoption in alignment with the School's objectives.
- The role demands a deep technical understanding across multiple domains of computer science, coupled with the ability to effectively communicate and collaborate with researchers. The successful candidate will be responsible for ensuring that the systems developed and maintained are at the forefront of technology, enabling and accelerating advanced research across various scientific disciplines.
- Exhibits expert understanding of the Linux operating system, showcasing expertise in system analysis, tuning, and leveraging cloud-based Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS) offerings to optimize operational efficiency.
- The candidate possesses a deep and comprehensive understanding of virtualization platforms, such as Citrix XenServer, XCP-ng, Proxmox VE, and OpenNebula. Ability to optimise these platforms to meet the complex needs of academic and research settings, where diverse workloads, including development, testing, and production, require robust and flexible virtualization solutions.
- Expertise in Designing Development Environments: The candidate possesses a deep understanding of the requirements for creating development environments that support a diverse range of programming languages and platforms. This is particularly important in an academic setting where students are often exposed to various languages such as Python, Java, C++, and emerging technologies like cloud computing and machine learning.
- Multi-language proficiency enabling context switching between high-level and low-level programming. Demonstrate a depth of knowledge across multiple programming paradigms

and development environments. The candidate should be capable of providing high-level guidance to computer scientists on best practices, emerging trends, and effective integration of various technologies in academic settings for both teaching and research.

- In addition to designing development environments, the candidate possesses strong coding skills necessary for integrating complex systems, which are essential for both teaching and research in computer science. The candidate must have the ability to lead projects involving data analysis, machine learning, simulation, and other cutting-edge areas of computer science, providing the technical backbone required for successful research outcomes.
- Possesses a deep and comprehensive understanding of critical network protocols, including DNS, DHCP, SSH, LDAP, SMTP, HTTP, TCP/IP, IPv6, and other common network protocols, ensuring a solid foundation for robust network architecture.
- Expertise in storage systems and in particular Dell Compellent storage systems design and implementation.
- Expert understanding of Containerization platforms such as Docker and Kubernetes and expertise in deploying cutting-edge platforms running on Kubernetes clusters.

Experience

- Offers over 7 years of exceptional leadership in managing a diverse range of IT projects, showcasing a proven track record of successful project delivery.
- Demonstrates expertise in Site Reliability Engineering (SRE), showcasing a proactive and strategic approach to maintaining highly reliable systems and services.
- Displays a proven track record in the design of sophisticated system architectures, reflecting innovation and strategic vision.
- Possess extensive experience in managing and enhancing academic environments where diverse programming languages and development tools are utilised for teaching computer science. This role requires a strategic approach to integrating educational technology, collaborating with faculty, and optimising the overall learning experience in computer science courses.
- Proven experience managing cloud-based IaaS/PaaS deployments, virtual infrastructures, and high-performance computing (HPC) clusters, ensuring optimal utilization of resources.
- Displays proficiency in deployment methodologies and technologies, such as CI/CD, Chef, Puppet, Ansible, showcasing a commitment to modern and efficient deployment practices.
- Brings extensive experience in working with high-availability services, encompassing hardware, OS, storage, network, and database solutions, ensuring resilient and reliable IT environments.

Skills

- Strong customer service focus and willing to go the extra mile to provide effective support. Exhibits an acute ability to rapidly discern stakeholder requirements and proactively manage stakeholder relationships, ensuring alignment with organizational objectives.

- Displays a keen ability and genuine interest in swiftly acquiring and mastering new technologies, methodologies, and solutions, coupled with adept problem-solving skills.
- Possesses a keen ability to document highly technical processes and provides insightful analysis of risk factors associated with complex technical projects.
- Embodies a proactive approach to solving issues and fosters a collaborative team environment, promoting effective teamwork within the School of Computer Science & Statistics and across the broader college.

Personal attributes

- Demonstrates systematic problem-solving, coupled with outstanding verbal, written, and technical communication skills, underlined by a high level of motivation and self-drive.
- Possesses exceptional interpersonal skills, interfacing effectively with a diverse range of stakeholders, with a commitment to enhancing stakeholder and customer satisfaction.
- Recognizes and upholds the importance of delivering excellent service, displaying an unwavering commitment to achieving the highest standards.
- Exhibits energy, capability, and confidence in taking ownership and responsibility for personal development and goals, while motivating, supporting, and developing colleagues to perform at their best.
- Possesses excellent planning and organizational skills, adept at structuring high volumes of work to meet target deadlines, with a positive and adaptable approach to change.
- Committed to achieving results, willing to put in additional effort as required, displaying a flexible approach to working hours to meet the dynamic demands of the position.
- Demonstrating courtesy and effectiveness in interactions with others, with the ability to influence and encourage changes in behaviour when necessary to achieve the objectives of the School.
- Exhibiting a strong commitment to achieving results, willing to put in additional effort as required to meet objectives effectively.
- Capable of building networks and partnerships across the University, fostering collaboration and synergy among diverse stakeholders.
- Recognizing the importance of quality service and proactively striving to deliver excellence in all endeavours.
- Proficient in identifying and pre-empting potential problems, offering proactive solutions to mitigate risks and challenges.
- Capable of managing multiple tasks with varying complexity levels, demonstrating effective prioritization and time management skills.

Trinity Competencies

In Trinity there are 6 Core Competencies that are applicable to all roles across a range of professional, administrative and support jobs, unlike specialist or technical skills which may be job specific. They provide a common language for describing performance and the abilities/attributes displayed by individuals. They focus on 'how' tasks are achieved, not 'what' is achieved.

Below is a summary definition of the 6 Core Competencies.

	Competency	Summary Definition
1	**Agile Leader**	Sees the big picture and harnesses opportunities to achieve the University's goals. Creates clear direction for the future and how to get there.
2	**Unlocks Potential**	Energised, capable and confident to take ownership and responsibility for their development and goals. Motivates, supports and develops people to perform to the best of their ability.
3	**Service Ethos**	Finds ways to increase stakeholder and customer satisfaction. Builds relationships, is proactive and delivery focused in order to anticipate, meet & exceed expectations.
4	**Builds Trusted Relationships**	Communicates in a clear and respectful manner building trust and commitment for mutually beneficial outcomes.
5	**Decision-making**	Confidently makes timely decisions based on knowledge, evidence and sound judgement.
6	**Achieves Results**	Delivers results by setting direction, planning, executing and evaluating impact.

Application Information

In order to assist the selection process, applicants should submit a Curriculum Vitae and a Cover Letter (1 x A4 page) that specifically addresses the following points in their application.

As part of your application for the Systems Architect position, we ask that your cover letter addresses the following three areas of job-related experience. These sections will help us evaluate how your background aligns with the responsibilities and expertise required for this role.

1. **Technical Leadership and System Design**
   Describe your experience in leading complex technical projects, including system design and implementation. Highlight your involvement in infrastructure management (e.g., High-Performance Computing, virtualization, and cloud platforms) and how you've optimized resources to support innovation in educational or research environments.

2. **Project Management and Stakeholder Engagement**
   Provide examples of your project management experience, especially in orchestrating the successful delivery of technical services across diverse teams. Focus on your ability to collaborate with stakeholders, align technological solutions with strategic objectives, and manage resources within educational or research-focused organizations.
3. **Educational Technology and Research Support**
   Outline your expertise in educational technology design and support for academic research. Discuss how you've leveraged cutting-edge technologies (e.g., AI, distributed computing, or data-intensive research) to enhance both pedagogy and research outcomes. Share any experience with optimizing systems for teaching environments and supporting large-scale research projects.

Please Note:

- Applicants who do not address the application requirements above will **not** be considered at the short list stage.

Further Information

Informal enquiries about this post may be made to James Murphy, Systems manager at James.Murphy@tcd.ie