SWINBURNE UNIVERSITY OF TECHNOLOGY

Digital Research Innovation Capability Platform

Software Systems Lab

The Sofware Systems Lab develops new techniques, mechanisms and tools for building intelligent software systems. These systems will enable new generations of applications, products and services within the growing digital eco-system market where software, hardware and people interconnect.

swinburne.edu.au/dricp/software-systems-lab

Software Systems Lab

Our research capabilities include artificial intelligence, cloud computing and distributed software systems.

Our work includes building and managing new digital platforms, enabling and optimising smart infrastructure, automating and optimising decision-making, and creating novel applications, like autonomic cyber-resilient enterprise and community-based energy management.

CASE STUDY

The Smart Cloud Broker

The Smart Cloud Broker suite of software tools allows cloud infrastructure consumers to compare the different Infrastructure as a Service (IaaS) offerings from various cloud service providers, and purchase the cloud configuration that best suits their needs from the most competitive provider. Each component of the suite provides unique functionality that can be used individually or in combination. These include the Smart Cloud Bench Profiler (real-time comparative benchmarking based on data analytics and machine learning); Smart Cloud Purchaser (policy-based IaaSLA automation with intelligent agents); Smart Cloud Manager (automated consumer-centric QoS management based on predictive analytics, AI and adaptive resource optimisation); and Smart Cloud Marketplace (AI-based market optimisation for open IaaS exchange).

The Smart Cloud Broker has already proven valuable to several of the project's industry and research partners. AARNet conducted a trial to benchmark different cloud infrastructures and was able to develop a new strategy with regard to their cloud service orientation. The Smart Cloud Purchaser and Marketplace components aided Suncorp Group in understanding relevant strategic innovation initiatives, such as intelligent agents and digital marketplaces. Strategic partner Wipro has also expressed interest in integrating the Smart Cloud Broker into their products and services.

FACILITIES

The Lab has access to the Swinburne Research Cloud, which includes the recently upgraded test-bed, SwinCloud. SwinCloud serves as a hosting, experimentation and collaboration platform for various intelligent systems and cloud computing projects in Australia and overseas.

KEY CONTACTS

Professor Ryszard Kowalczyk, Director of the Software Systems Lab, has over 25 years' research and development experience in intelligent systems and their real-world applications. His research includes artificial intelligence, intelligent software agents and collective intelligence, and their applications in digital eco-systems of interacting organisations, people and things. He was instrumental in developing and commercialising Smart Cloud Broker technology. Professor Kowalczyk previously led Artificial Intelligence (AI) research and development at the CSIRO.

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