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Queensland University of Technology - Academically Qualified

Constellar™ becomes the foundation of enterprise-wide integration and information management architecture

DataMirror Constellar Hub enables Queensland University of Technology to more easily develop interfaces, keep better documentation, facilitate the regeneration of the interface resulting from legacy system replacement, take greater advantage of the functionality and flexibility of new systems and enable the collaborative development of interfaces with other organisations using the same applications.



Although its roots as an educational establishment can be traced back to 1849, the Queensland University of Technology (QUT), as it is now known, has witnessed some of its most seismic changes over the last eleven years.

In 1989, the Queensland Institute of Technology was redesignated as a university and then, a year later, the former Brisbane College of Advanced Education combined with QUT. Now, with 30,000 students and some 4,000 full-time staff spread across three campuses in Brisbane, QUT is one of the largest universities in Australia.

QUT offers more than 130 undergraduate and postgraduate courses which attract students from across Australia and beyond. Indeed, the university is increasingly internationalist. Its vision is to become one of the preeminent universities of technology in the Asia-Pacific region, primarily by enhancing the academic benefits which it delivers to industry and the professions. The university sees its ability to manage information as a determinant in achieving these goals.

Clarity of Purpose

Historically, QUT's IT systems have delivered key services to students and staff but these have not always been clearly aligned with administrative business processes and support functions. Given the growth since 1989, this is understandable; IT applications have inevitably evolved in parallel with the development of the University itself.

But now, under the five year plan of the IT Division - which advises faculties and divisions on the management of information - QUT has embarked on a strategy which will lead to the better use of knowledge management across the university.

In concrete terms, this strategy aims to deliver a knowledge base from which QUT can further strengthen its reputation. By monitoring, understanding and assimilating the needs and performance of teaching and research programmes, and linking these to the demands of corporations and professions, QUT aims to take IT beyond its traditional administrative role, thereby maximizing the value of information across the university.

Strategic Direction

The university had adopted Oracle as its strategic database and toolset, plus several best-of-breed applications which would run under Oracle, yet this approach did not guarantee the creation of the desired, single IT entity. A new student administration system, however, which replaced an 18-year old legacy system, gave QUT the impetus to investigate various Enterprise Application Integration solutions.

According to Joe Dascoli, Associate Director, Corporate Information Services, 'The primary objective of the EAI project was to ensure that information was delivered to the core business services in a secure, timely and efficient manner.'

The key applications were identified as the new Student Information System, Callista, and various satellite systems, such as Finance, Library, Human Resources. Also to be included in the first wave of applications, was the data warehouse, known as QUT Virtual. In all, over 136 system interfaces were isolated.

Dascoli continued: 'The proliferation of interfaces gave rise to a secondary objective, namely to produce a standard way by which information was delivered across QUT's systems in the future and replace the many point-to-point interfaces that had previously been developed.'

Queensland University of Technology

QUT's three Brisbane campuses - Gardens Point (Brisbane's only central city campus), Kelvin Grove and Carseldine - offer more than 130 undergraduate and postgraduate courses in eight major discipline areas: Arts, Built Environment and Engineering, Business, Education, Health, Information Technology, Law, and Science.

Employees: 4,000

Students: 30,000

Systems: Sun Solaris and Digital Tru64 (Oracle), HP-UX (PowerHouse), plus many others.

Testing Ground

Following investigation of the market for EAI tools by a consortium of Australian universities, QUT chose Constellar Hub and Constellar Interfaces for Oracle Applications. The consortium undertook a market scan and subsequent proof of concept of selected products, from which Constellar Hub product was nominated as the strongest contender. QUT undertook its own proof of concept in February 1999 to ensure that this solution would work in its own environment.

QUT selected Eucalypt Software Partners, Constellar's Australian distributor, to help implement the solution, develop interfaces, provide training and ensure that the project met its goals within the established time-frame.

From the outset, it was essential that the client interface for student services (QUT Virtual) was modified and in place to enable the core business functions to continue with little or no impact. This was equally true for the Student Information System which needed to directly interface to a number of satellite applications previously fed from QUT Virtual. The Student system live date was set as early June 2000 and the major interface project commenced in January 2000.



Standard Approach

As the project got underway, it became apparent that the Constellar solution would significantly simplify the

interfaces between the core systems. For example, before the Hub was implemented, over 1,700 lines of C code were required to populate and refresh the legacy SIS to QUT Virtual. With the Hub, this was reduced to 40 transactions, including 300 business rules incorporated in just 450 lines of code to complete the same update between Callista and QUT Virtual. The QUT Virtual to the ID card system required 585 lines of complex SQL. This was replaced by a single transaction of a mere 60 lines of code.

Interfaces had traditionally been written in a variety of different languages -SQL, PERL, C, COBOL - which were largely undocumented; had minimal scheduling capacity; no error tolerance and little error reporting. They were dependent on individual's skill sets and were developed in an unstructured approach with little use of consistent development standards.

The Constellar solution changed all this by delivering a consistent and efficient approach to interface development which was no longer reliant on individual's knowledge. Constellar Hub has provided the data interface management functionality previously embedded in many point-to-point interfaces, providing a more robust management of data exchange to support key services. As a result, there has been a reduction in interface development time, testing and deployment.

QUT Virtual Reality

Currently, there are 70 transactions/interfaces in production and approximately 39 transactions/interfaces under development. The initial load from Callista into QUT Virtual was between 8.5 and 14.5 million records. This was staged over a two day period (3 & 4 June 2000) as production data became available in Callista.

The interfaces that detect changes made to the Callista database transform about 60,000 records on a nightly basis. On average this process takes about twenty minutes - previously the manually coded interface programs took a number of hours to refresh QUT Virtual system.

Students can now also change their enrolment details online using QUT Virtual with Constellar Hub generating about 150 - 500 transactions daily back into Callista; this involves about two minutes processing time in total.

The original objectives of the project have now been largely deployed. The University's client base were not aware of the massive change that had occurred and, when the new interfacing system went live on June 5, the continuity of services was seen as the definitive indication of success.

'By forming a partnership with the supplier, carrying out comprehensive project planning, gaining support from senior management and forging strong liaison between the business and technical areas, QUT has achieved its goals,' concluded Ken Baumber, Registrar of QUT. 'The combination of Constellar technology and Eucalypt support has made QUT Virtual a reality. As a result, QUT is now well positioned to continue in its quest to become one of the leading technical university in the Asia-Pacific region.'

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<p>Head Office 81A Denison Street Deakin ACT 2600</p> <p>Telephone: +61 (0) 2 6281 7600 Fax: +61 (0) (2) 6281 7650 Web: www.eucalypt.com.au</p>	