

## **Information Futures**

The following are my thoughts as to what technical and technology pieces will be required to support the Information Futures Commission work.

These are not fully formed ideas ... but are noted to promote discussion and debate about a long term strategy, medium term architecture, and as influencing factors in short term acquisition decisions.

## **Policy Issues**

The following are areas where policy should be in place (it may be already ... as these are policy areas noted as they have come to mind)

***Information Ownership***

***Granting of Access Rights***

***Intellectual Property, Copyright, Royalties***

***Access Management and Log Keeping***

***Records Management Processes for Electronic Records***

## **Underpinning IT Technologies**

At this time there is little or no clarity surrounding the business requirements for information futures. Without tightly defined business requirements, it is difficult to suggest what set of business applications will be needed to support the decisions that will be made over the next few months to years.

However, even without specific details it is still reasonable to identify a number of underlying technology requirements, and to also assume that Information Services will have a lead role in providing / managing these on behalf of the University.

### ***Datacentre Capacity***

Regardless of whether the University owns, leases or outsources the provision of datacentre space, it is reasonable to assume that Information Services will be responsible for the provision of suitable datacentre space for the University.

The space will be used to house corporate administration applications (Themis, HR, student administration), applications that support teaching and learning (LMS) and applications that support research.

It is also safe to assume that every application will have some requirement for data storage and processing computer power. Data backup and recovery capabilities are also a basic assumption, and Information Services will need to provide this capability.

Each datacentre will need to be connected to the University's Parkville network, so that staff and students have connectivity to each and every datacentre.

A minimum of two datacentre spaces will be required to house applications and data, and to support defined levels of disaster recovery and business continuity capability.

## ***Networking – The Proverbial Speeds and Feeds***

A common theme found in any discussion with faculties, regardless of whether the discussion is about teaching and learning or research, is about the basic network that ties all components together.

The University is in the midst renewing the underlying network that supports all other electronic forms of communication, processing, storage and application.

An assumption is the renewal of the network layer is an essential component of any digital future for the University, and that Information Services should simply continue with the programme of works, and where possible to accelerate the works.

The implementation of the Exchange platform, and IP Telephony, Unified Communications and Collaboration will provide some additional core capabilities to the University over the coming years.

## ***Identity Management, Authentication and Access Management***

Identity Management, and Access Management are underlying requirements to ensure access to information is via controlled, and where needed, audited channels.

The biggest underlying technology issue is around providing access to secured (or partly secured) information sets to people outside of the University – affiliates, research associates across the globe, and to the general public.

The progress of ubiquitous federated identity and access management will continue to be a major challenge for the University over the next few years until the technology that enables this matures, and interoperable solutions appear.

However, the university must proceed to implement an internal identity and access management solution. This will enable the delivery of a 'single-sign-on' capability for staff and students. Continuing to align the University with the Australian Access Federation capabilities and standards will ensure we are well placed to lead in the global federated community as this matures.

The capabilities of a centralised identity and access management solution will also assist the University in meeting new and/or additional regulatory and industry compliance

requirements, which will occur in the foreseeable future (eg. new privacy laws, payment system requirements).

Information Services needs to lead the design and implementation of this centralised capability.

### ***Server Processing Capacity***

Server processing capacity will be at the heart of every application used for teaching, learning, research and knowledge transfer.

Information Services will develop server management practices and services based on (almost) ubiquitous use of virtualisation technologies. These will allow Information Services to provision application environments within hours of a request (albeit not necessarily at full requested capacity). This will allow staff and researchers to begin new work quickly, and if large amounts of processing capacity are required, additional capacity can be added easily as new hardware components are delivered.

### ***Storage Capacity***

Storage virtualisation will also allow storage to be added to environments as and when required.

As the University makes more information available over time, a key criterion for the overall storage strategy and its technical solution will be to minimise the energy required, to align with the University's overall carbon footprint objectives.

New approaches to provisioning and managing storage for information will be required to be implemented.

The volumes of information to be curated by the University will simply grow, and the information will need to survive hardware and technology lifecycles.

### ***Software Sub-Systems***

A number of software sub-systems will need to be used to manage the above

### **Datacentre Management**

#### **Virtualisation**

Virtualisation of servers and storage and other core services within the datacentre will be a core capability Information Services will need to develop.

#### **Monitoring and Management**

The University will also need to invest in an appropriate set of monitoring and management tools. These tools will provide an end-to-end view of applications, from the user perspective, so that when users experience outages or performance the tools pinpoint the cause of the problem so that corrective action is taken quickly (or automatically by the tool).

These tools are quite expensive, but they are the only way to reduce manual activity, and reduce the number of people required to provide the support of the environments used by the University.

### **Information Classification**

Some information sets can be classified 'after the fact', but some must be classified at the time they are created (such as audit and security logs).

The classification of some information sets can be altered many times, as new classification systems are developed and implemented. However, to maintain some compliance requirements, some classifications must remain unchangeable.

These differing requirements may require differing classification systems to be adopted, and hence managed over time ... with the underlying resourcing and funding implications.

### **Information Indexing / Cataloguing / Searching**

Software to achieve the levels of information access will need to be implemented.

### **Access Logging / Reporting**

The University will need to define what level of access logging is required for each category of information asset. The logging data then becomes another information set to be managed.

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