UCD IT Services
Seirbhísí TF UCD

Research IT Plan

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The main goal of this plan is to provide a sustainable and evolving campus Cyberinfrastructure for the UCD research community. We will continue the development and implementation of new services to support research and scale our existing services which we have been building over the past three years. We will continue to work with national organisations (e.g. HEAnet, ICHEC and Grid Ireland) to build services at the core (e.g. equipment hosting, data storage, central HPC facilities and collaborative tools) while supporting edge research services (e.g. data acquisition and instrumentation support).

The IT strategy for UCD (2009-2013) outlines five areas of priority for the UCD Research community and they are:

3.9 Expand hosting and storage capacity for research in the new data centre

3.10 Continuous upgrade of network capacity in conjunction with HEAnet

3.11 Provision of data management service to address the full data life cycle

3.12 In conjunction with ICHEC, provision of high performance compute resources

3.13 Further develop training and support services for research users, including applications

The Research IT programme of work to meet these needs will have the following key areas:

(1) Research Infrastructure

(2) Research IT Support Services

(3) Collaboration within virtual communities

(4) Research applications and tools

A recent EDUCAUSE[1] report highlights the following areas as a focus for Cyberinfrastructure Technologies which supports the direction been taken in the IT Strategy for UCD:

- High-Performance Computing
- Cyberinfrastructure Applications and Tools
- Data Storage and Management
- Advanced Network Infrastructure
- Collaboration within virtual communities

1. Research Infrastructure

Research Infrastructure will focus on a mix of building research infrastructure capacity in UCD and using national research infrastructure and industry resources where appropriate. This key area supports all of the Research IT objectives in the IT Strategy document.

It comprises the following specific projects under:

1.1 Data Hosting Centre Capacity

- Build a new data centre in UCD and / or source external hosting capacity

1.2 HPC Resources

- Raise awareness of the new ICHEC/UCD national HPC cluster in UCD and ensure the UCD part of the machine is a fit for UCD researches requirements.

- Build takeup of new UCD „Phaeton" HPC cluster.

- Evaluate industry cloud computing offerings for HPC e.g. IBM, Amazon EC2, Sun, Google app engine and others

1.3 Server provisioning

- Virtual servers – similar to industry cloud offerings, Research IT have been working with several research groups providing virtual server platforms to address their server and operating systems requirements.

- Evaluate industry cloud computing offerings for server provisioning e.g. IBM, Amazon EC2, Sun, Google app engine and others

1.4 High bandwidth network capacity

- Liaise with HEAnet and UCD networks and ensure network research requirements are met

1.5 Data Storage and Management

- Work with UCD research groups on

- Data acquisition – the best way to get data from scientific equipment, sensors, surveys etc to appropriate mass data storage.

- Data Storage – work with UCD Technical Services on meeting continual storage growth.

- Data Backups – create a data backup offering for research data.

- Data Archive – evaluate data archive options.

- Information Lifecycle Management – evaluate ILM options.

- Databases – evaluate database consultancy options.

- Evaluate industry storage offerings, e.g. Amazon S3 and others.

2. Research IT Support Services

This area is largely centered on developing services to provide support and consultancy for research and innovation in UCD. We will further enhance partnership strategies with UCD researchers and external organisations. Communications with the UCD and national research community is included here. This key area directly supports the objective of developing training and support services for research users, including applications. It comprises the following specific projects under:

2.1 Develop support and advice services

2.2 Improve on-line material which will assist research community

2.3 Communications – review and improve our customer communications

2.4 Training – we will work to scale our existing training programme.

3. Collaboration within virtual communities

This area will focus on implementing tools to assist researchers to collaborate within virtual communities. These tools will be based on industry standards, i.e. Web 2.0., and may include using industry offerings e.g. Google apps etc. It comprises the following projects:

3.1 Web conferencing – building on our trials of Adobe Connect and Webex.

3.2 Video conferencing – utilising the soon to be completed Daedalus G4 collaborative space through HEAnet.

3.3 Use relevant software tools and services as required e.g., Identity management and Web 2.0 initiatives.

3.4 Evaluate industry collaboration offerings, e.g. Google apps and others.

4. Research applications and tools

This area is about developing services to assist researchers with access to applications and programming tools. It comprises the following projects:

4.1 HPC applications - job scheduler, parrallelisation, compilers and application packages. We will leverage ICHEC application suite and skills and implement on UCD cluster where appropriate.

4.2 Visualisation – implement 3D prototype in Daedalus G4.

4.3 Programming, data mining and database provisioning – define user requirements and work with community to develop services in this area.

[1]EDUCAUSE is a US based nonprofit association whose mission is to advance higher education by promoting the intelligent use of information technology. EDUCAUSE helps those who lead, manage, and use information resources to shape strategic decisions at every level. The current membership comprises more than 2,200 colleges, universities, and educational organisations, with more than 17,000 active members.