

White Paper – August 2012

Output from consultation with DCA members: skilling and resourcing of data centres today and in the future.

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Background

The data centre industry is relatively young and generally immature with the vast majority of organisations having evolved data centres circa 10-15 years ago when the Internet and business online applications became adopted. Companies needed fast Internet connectivity and nonstop operation to deploy systems and establish a presence on the Internet. As a result a number of companies started building very large facilities, called Internet data centres (IDCs), which provided businesses with a range of solutions for systems deployment and operation. New technologies and practices were designed to handle the scale and the operational requirements of such large-scale operations. These practices eventually influencing the data centres designs that we are familiar with as of today, and were widely adopted largely because of their practicality and operational management advantages.

However within this expanding industry the expertise and skills required have largely been developed from specific technical areas and through work experience with little or no interface or skills transference to, or from, academic institutions.

Due to its nature the data centre straddles and draws from a wide range of scientific and vocational disciplines, for example:

- Mechanical and electrical engineering,
- Civil engineering and buildings management,
- Thermal and heat transfer sciences,
- ICT and computing,
- Telecommunications networking and structured cabling,
- Security and fire suppression
- Mission critical operational management
- Project management.

However, many suppliers and individuals are either historically or have become highly specialised in these fields and as such these areas of expertise are not aligned to, nor related specifically to, the broader data centre environments; thus creating “silos” of expertise and support. This necessitates the unwelcome requirement to manage across these fields from an overall data centre management perspective.

This is one key factor that has led to the emerging requirement to view and support the data centre owners and operators as a new “industry” and to tailor provisioning and support in line with their distinct needs. Within the Human Resourcing domain this includes satisfying the key associated requirements for appropriately skilled personnel.

Following on from the “DCA summit” luncheon held in late January 2012, the DCA has sought input from its participating members on identifying tactical and strategic steps to ensure the sustainability of such data centre human resourcing. This paper is designed to provide a set of strategic ideas and proposals for some short term required action.

Findings

Lack of Skills

The Data Centre industry is a new, fast moving and highly inter-disciplinary industry which sits between the traditional engineering disciplines such as mechanical, civil and electrical engineering and the disciplines involved with the computing and telecommunication/networking environments.

This has led to a serious disconnect between educational programs and the future requirements of the Data Centre industry. The DCA has consulted on this topic with a number of Universities and the general supported view is that of a requirement to establish a working partnership between the DCA and high quality Higher Education Institutions.

The objective will be to provide a range of courses and training that will enhance the quality and knowledge of the data centre operation and environments, and will assist greatly in meeting the industry's future needs.

Employment and hiring criteria

We consulted with both Operational and HR managers within DCA member organisations, who both widely reported difficulty in identifying individuals to fill existing roles and also locating and attracting entry level personnel into entry level roles.

This was perceived as due to a general lack of understanding and lack of reference to academic or vocational education or qualifications feeding into the industry demands. Regional variations existed, but the general picture reported that hiring was overwhelmingly based on previous experience only and that the consensus of opinion was that this pool of resources would not scale in line with data centre growth plans.

For more senior positions where previous experience was impossible to obtain, certain vocations, such as military or critical services are referenced. However, for the junior roles practical thinking individuals, without significant academic achievement, sometimes proved more successful through tailored internal mentoring programmes.

In the colocation and hosting sector, it was suggested that the DCA could assist with developing pre-company industry specific inductions covering data centre training, prior to interview stage and in support of such programmes.

Existing Training

The DCA recognises the value of commercially run training by for example, Datacenter Dynamics and CNET. Many DCA members contribute their expertise via these platforms.

It is thought that these work very well for individuals already in employment wishing to enhance, update and extend their knowledge over a relatively short time span. However, they are seldom affordable for the unemployed or student. In addition perhaps the depth required for full transfer of knowledge for those aiming for the most senior roles the industry offers requires a 1 or 3 year educational commitment. Therefore the possibility exists for the DCA to collaborate and develop a wider educational programme to meet this top end need.

Data Centre Industry “Entry Point”

DCA Members agree that they themselves found employment within the industry from an unplanned route or by “accident” with very little, if any, prior knowledge of the role or function of data centres.

It is also felt that this in itself is less likely to happen today, because of the mission critical, complex and sensitive nature of the data centre.

Therefore it was agreed that the DCA can assist by providing and presenting the industry with a career path and provide the opportunity and potential for personal development, thus encouraging and attracting both young people and individuals who may not realise their skills and experience can be applied to the industry.

Short term action

Short term action is four-fold

1. Meet specific urgent need for colocation and hosting sector entry level – with a short DCA “accredited” course.
2. Build an interface or entry point for under and post graduates who are interested in working in the data centre industry, to respond to member’s needs.
3. Provide a platform to co-ordinate internship and training opportunities
4. DCA to communicate and advise the employment opportunities and career opportunities that the industry can offer, thus attracting the interest of talented young people.

DCA accredited course for colocation & hosting sector

The specific need for a “industry induction” course to meet the requirements of the expanding hosting and colocation sector was identified; this will provide the candidate with an understanding of the role of data centre colocation and hosting in business, a brief overview of its critical systems, components and environments, introduction to the commonly used industry terms and acronyms and an overview of the types of work and initial roles that they could undertake.

An appropriate test and pass level would be used to create an accredited candidate who would then be available for interview or selection.

Note: It was suggested that due to immediate demand the London area would be an ideal area to be used a pilot region.

Internships and work experience

Various DCA members have had positive experiences with working with university interns etc. on an ad-hoc basis, but recognise the need for more collaborative, strategic programme and therefore the DCA has made it possible for members to post their requirements for entry level people (whether internships or employment) for review and action by the DCA.

Similarly The DCA has built a specific student membership type (Associate) where under or post graduates can upload their CV and details about their work or experience that is relevant to the data centre industry.

DCA Career Centre

The DCA have accordingly developed the Career Centre capability within the DCA web portal www.data-central.org to provide the central repository for lodging both the specific member's requirements and the core candidate pool for selection. This will be managed on a secure and confidential manner as is required within best practices within this business.

Long Term and Summary

Resource efficient data centres will require new design, construction, operational methods and technology. These cannot be implemented without acquiring new skills and techniques.

Therefore this needs to commence with a co-ordinated strategy in partnership with academia and the data centre industry.

The short term actions identified above will provide a platform from which to build, however the DCA aims to identify all the gaps and co-ordinate a strategic programme to ensure the deployment of new skills and educational programmes that can be achieved rapidly via the university infrastructure.

In addition with broader participation and collaboration this will be expanded in existing and new regions in order to meet the wider needs of our members and that of the industry.

Call to Action

If you are a University who has undergraduates or postgraduates who would be interested in learning more about career opportunities within the data centre industry or if you are an organisation looking for staff or assisting on this programme please contact stephend@datacentrealiance.org or info@datacentrealiance.org