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An Insight into the Digital Infrastructure Industry and Opportunities for Service Leavers and Ex-Forces

October 2022

cnet-training.com/resettlement

What is the Digital Infrastructure Industry?

Digital Infrastructure is all about data, how we use it, where we store it and how we connect both together (we refer to Digital Infrastructure as the network cabling infrastructure and data centre sectors).

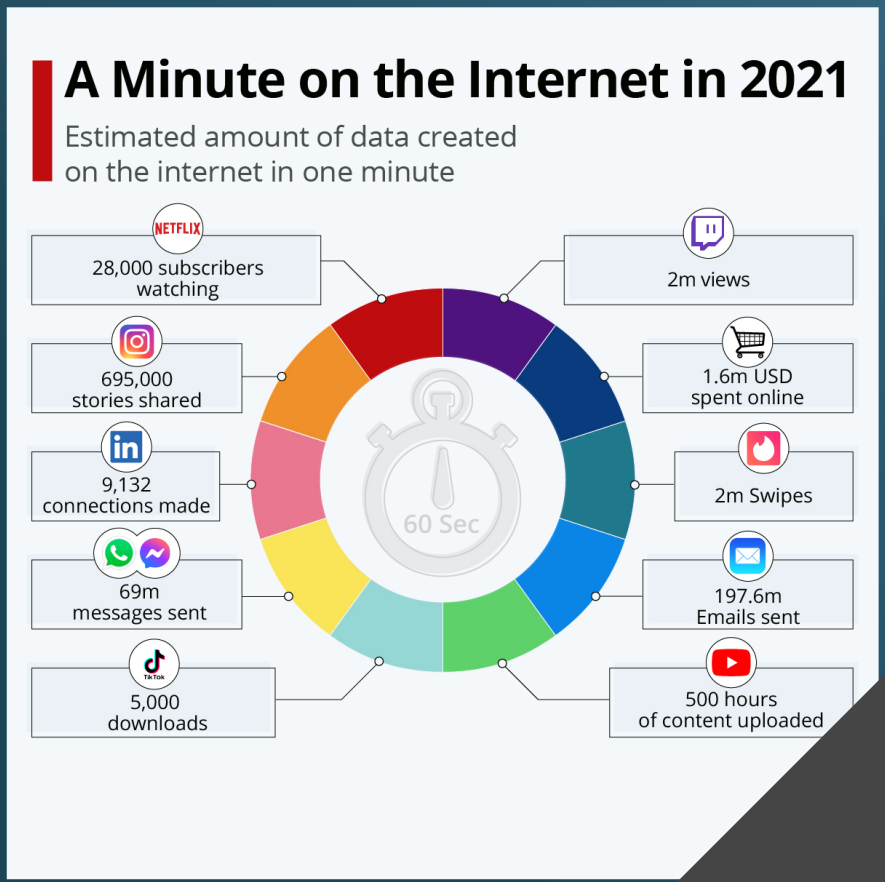
Today's world relies heavily on digital functionality. The way that we communicate with each other, the entertainment systems that we use, the way that we shop, our workplace functionality are just a sample of our day-to-day relationship with data.

As the demand for digital communications is increasing exponentially throughout the industrial, commercial, and domestic sectors, the need to upgrade national broadband infrastructure is now urgent and is being supported by government strategy in partnership with commercial network service providers. Commonly referred to as the 4th utility alongside water, electricity and gas, broadband relies on a high-speed fibre optic network cable infrastructure to deliver the data rates being demanded. The pandemic has also highlighted the need for greater flexibility, with the vast majority of workers being restricted to working from home during lockdown periods, demand shifted significantly to the domestic sector.

The How… The User Interface

Traditionally, the user interface to the network was generally considered to be the domain of the personal computer that sent packets of data over a Local Area Network (LAN) to a server hosted in a computer room. Today, the most popular User Interface (UI) devices by far are the mobile phone and tablet, filled with applications that we use to live our lives. In addition to this, the term 'Internet of Things' (IoT) describes a vast array of devices that communicate with or without human interaction, you can even have a smart fridge that lets you know when food is going out of date and creates a shopping list for you.

As well as some of the amazing innovations, the IoT and smart technology are effecting serious changes to our daily lives. Some areas of particular note are:



Internet of Things (IoT) Devices

Simply described, IoT refers to any device (the thing) that can be switched on and connected to the internet or other IoT device. The analyst firm Gartner predicted that by 2025 there will be over 100 billion connected devices.

In your home this could be as simple as your mobile phone, headphones, Fitbit and other wearable devices, heating and hot water systems, doorbells etc. In industry it could also apply to components of machines, for example a jet engine of an airplane or the drill of an oil rig.

On a broader scale, the IoT can be applied to "smart cities" where data gathered by intelligent monitoring can be used to improve core infrastructure such as ensuring adequate supplies of electricity and water, improving waste management, transportation services, security and improving connectivity to ensure equal access to Government departments and services.

Artificial Intelligence (AI)

AI refers to the simulation of intelligence in machines that are programmed to think like humans and mimic their actions. The applications of artificial intelligence are endless and can be applied to many different sectors and industries. AI is being tested for use in the healthcare industry, being able to spot conditions with high levels of accuracy from brain images. The banking sector also benefits, using AI to detect and report unusual banking activity. Currently AI is under development for multiple functions within data centre environments.

Autonomous Vehicles

Autonomous vehicles are fully automated driverless vehicles that sense the environment around them and operate without human involvement. They create and maintain a map of their surroundings based on a variety of sensors situated in different parts of the vehicle. Radar sensors monitor the position of nearby vehicles. Video cameras detect traffic lights, read road signs, track other vehicles, and look for pedestrians. Lidar (light detection and ranging) sensors bounce pulses of light off the car's surroundings to measure distances, detect road edges, and identify lane markings. Ultrasonic sensors in the wheels detect curbs and other vehicles when parking.

They are the equivalent of a mobile supercomputer, generating and transmitting huge amounts of data as they drive along, this can be up to 4 terabytes per day, per vehicle. As driverless vehicles take to the roads, they will require low-latency wireless connections with high-speed fibre backhaul to a data centre.

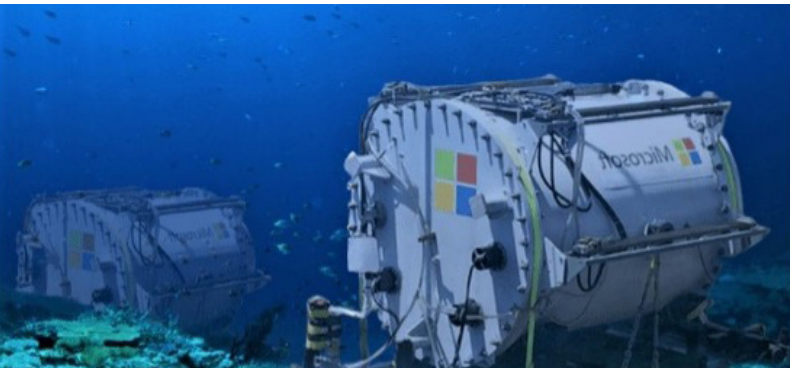
The Where… The Data Centre

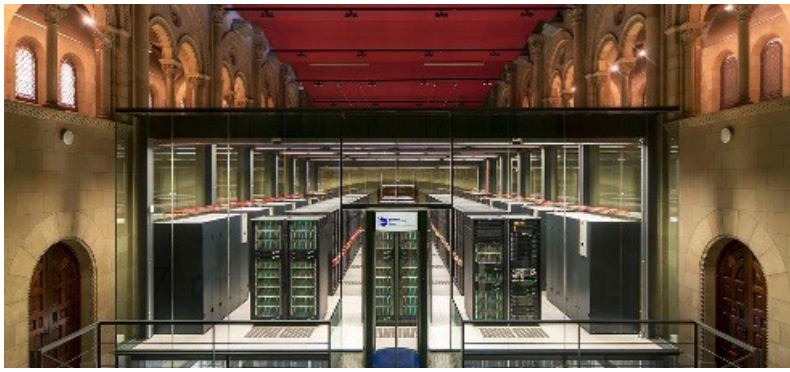
All of this data has to have somewhere to go where it can be processed, securely stored and accessed. To many, the entity that we access our applications from, and store our data, has simply become known as ‘the cloud’, this is a data centre. If you have a mobile phone it is likely that your service provider has included cloud storage as part of the contract, so you are paying to have your data stored in a data centre. As well as domestic user storage, data centre owners provide cloud services to the public and private sectors known as Software as a Service (SaaS) and Infrastructure as a Service (IaaS).

Data Centres range in size from a single room hosting a few racks of servers to the Hyperscale DC, the largest of which is known as the Citadel and boasts 7.2 million square feet (almost 2.2m2), located in Nevada and consuming an eye-watering 650MWatts of power (enough electricity to power a small town). These larger data centres are usually located away from the general population, however, with the pressure for faster, error-free streaming and the future demand to support driverless vehicles, data centres are going to have to be closer to the demand. Smaller ‘edge’ data centres will soon become prominent in populated areas.

What does a data centre look like? There are a number of ways to define a data centre but size and shape are rarely used, it could be a small dedicated building, an area within a building that is used for other purposes or a sprawling multi building data centre site. If you live in a city, it is highly likely that you have unwittingly walked right past one. Mostly, the data centre does not want to be seen or recognised, it prefers to be the ‘grey person’ of the architectural landscape. There are exceptions to this, but you would have to know the data centre operators, a large warehouse complex with a large Google sign at the gate might be a giveaway.

Some you might never see at all!

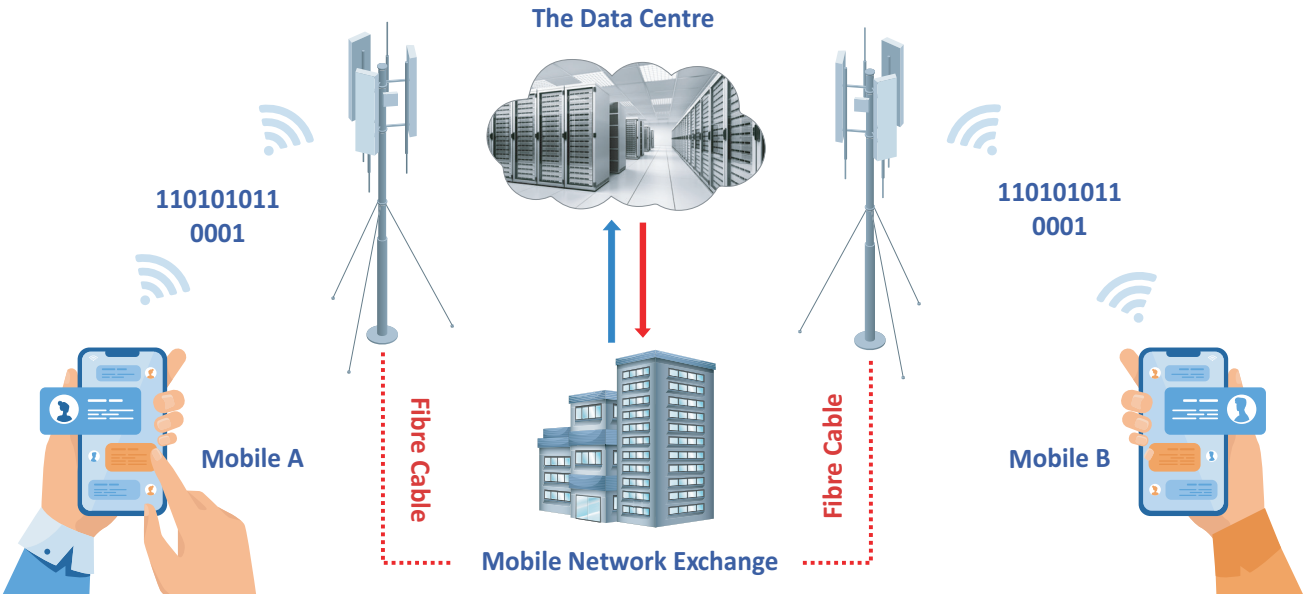




Others are just unmissable…

The What… The Network Cable Infrastructure

Cable networks provide the heart of the digital network providing the arterial structure that facilitates the flow of data from the user access device to the storage and processing facilities in the data centre. Even if your device accesses the network via a mobile cell or wireless LAN the proprietary back haul is likely to be a fibre optic cable at some stage in the channel.



Cabling Supports Digital Infrastructure in a Number of Ways:

- **Local Area Networks (LAN)** – LANs are not restricted to office environments, standards define local network architecture for offices, homes, industrial environments, data centres, healthcare buildings and homes. In the majority of environments, the final cable link to the user device is copper twisted pair or other application specific cables e.g. Co-axial.

- **Wireless LANs (WLAN)** – As previously mentioned, wireless LANs (WiFi) use radio frequency channels to connect to user devices and whilst the network of access points can interconnect using wireless channels, in the majority of cases twisted pair copper cables are used to provide data channels and power (if required).

- **Wide Area Networks (WAN)** – The term WAN defines the connections between the local area and the point of service provision/data storage. Common terminologies include trunk cables, backhaul, highway cables, trackside cables, broadband cables etc. A recent declaration by service providers means that long haul copper cabling will become obsolete, in favour of fibre highways.

5G is on its way, thousands of closely located cellular devices providing high bandwidth with full network coverage.
To achieve error free, low latency communications, fibre to the antenna will provide the backhaul to the service providers.

Government Commitment

In July 2018 the government published The Future Telecoms Infrastructure Review that set clear, ambitious targets for the availability of full fibre and 5G networks and launched a £1.1 billion digital connectivity package, including the £400 million Digital Infrastructure Investment Fund to help investment in new fixed and mobile networks.

As of May 2020, 14% of UK properties had access to full-fibre connections. In November 2020, the Government stated it now aims, with industry, to deliver a “minimum of 85%” gigabit-capable coverage by 2025. The Government has allocated £5 billion to deliver gigabit broadband to the “hardest to reach” 20% of UK premises that will not be reached by commercial investment. £1.2 billion of which will be allocated between 2020 and 2025.

The aim is to see 15 million premises connected to full fibre by 2025, with coverage across all parts of the country by 2033 and that the majority of the population will have 5G coverage by 2027.

Some notable Fibre to the Premises (FTTP) contracts:

- City Fibre £39.6m covering Barnsley and Halifax
- MLL Networks £4.63m for a Local Full Fibre Network (LFFN) in South Essex
- Fibrus £165m to deliver a fibre network improvement plan across Northern Ireland
- Openreach £579m to deliver Scotland’s R100 program

Opportunities within the Digital Infrastructure Industry

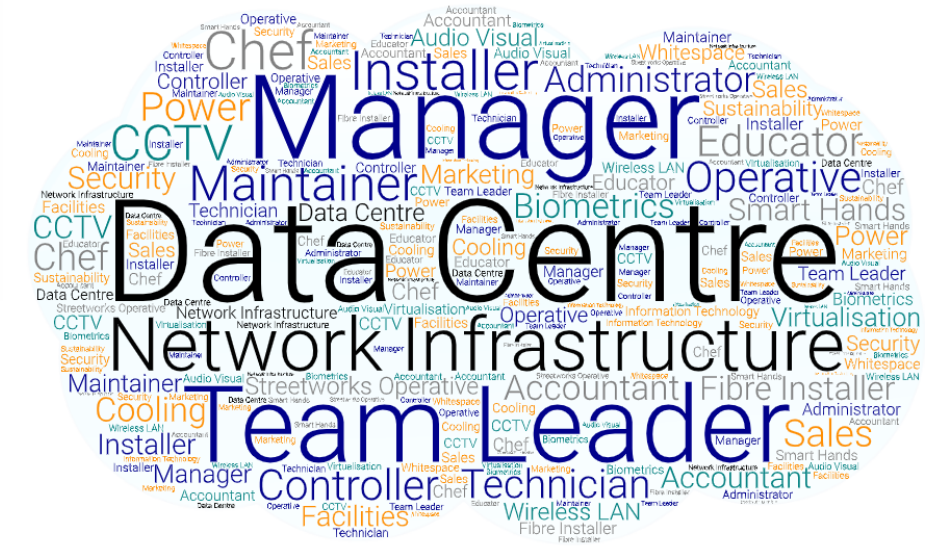
In the wake of this massive investment and rate of change across the entire Digital Infrastructure industry comes the challenge of resourcing in a sector that is already facing significant skills shortages.

Why is the industry targeting service leavers?

There is a great deal of pride in our Armed Forces, industry leaders in all sectors recognise the values that service men and women demonstrate, particularly leadership, management skills, adaptability, technical capability and flexibility. Some industry leaders will employ service leaders above all others.

Why me? I am not trained in telecommunications

The Digital Infrastructure industry is far more than just telecommunications, also including opportunities for:



There really are so many opportunities....

Typical Roles and Salaries

Job Title	Responsibilities	Salary
Cabling Engineer	Cable installation,termination and testing of copper and fibre cabling	£25-50k
Site Supervisor/ Lead Engineer	Supervising and delivering complex infrastructure projects within site environments	£35-60k
Project Manager	Produce and implement project plans and activities, and motivate teams, to manage project through to a successful completion	£40-70k
Data Centre Technician	Install, configure, test, troubleshoot and maintain hardware components and server software. Configure complex components. Ensure the data centre facility is operated and maintained to the highest possible standards.	£35-55k

Career Insight

Below, is the Resettlement and Forces Leaver Education Framework that provides insight into the recommended education programs based on current experience.

Operations Package		Technical Package
Masters Degree in Data Centre Leadership and Management	**Officer, Warrant Officer**	Masters Degree in Data Centre Leadership and Management
Certified Data Centre Management Professional (CDCMP®)	**Senior NCO**	Certified Network Infrastructure Design Professional (CNIDP®) Certified Data Centre Design Professional (CDCDP®)
Certified Telecommunications Project Management (CTPM®) Certified Network Infrastructure Technician (CNIT®)	**Junior NCO**	Certified Network Cable Infrastructure (CNCI®) Certified Network Infrastructure Technician (CNIT®) Certified Integrated Infrastructure Technician (CIIT®) Certified Outside Plant Technician (COPT®) Data Centre Fundamentals Certified Data Centre Technician Professional (CDCTP®)
Certified Network Cable Infrastructure (CNCI®)	**Seaman, Private, Airman**	Certified Network Cable Infrastructure (CNCI®)

ELC Funding

CNet is pleased to provide education programs for Service Leavers and Ex-Forces personnel seeking to utilise their ELC entitlement. We have mapped education program packages to the tiers (opposite).

Before being eligible to make an ELC claim, individual scheme members must have completed no less than six years eligible service (lower tier).

The lower tier (six years service or more) of funding is up to £1,000 per claim instalment The higher tier (eight years service) is up to £2,000 per claim instalment.

Only service accumulated since 1st April 2000, may be counted as eligible service for the purpose of the ELC Scheme.

Service Leavers are entitled to make three ELC claims in total. They can only make one claim per financial year (1 April - 31 March), however if they have served between 6 and 8 years they are eligible to aggregate all three claims together.

ELC
PROVIDER NUMBER
1267

National Insurance Holiday for Ex-Forces Employers

From April 2021 companies will be exempt from paying national insurance contributions for ex-armed forces employees in their first year of work. This is a hugely positive message to employers and will further motivate employers to look to take on Service Leavers.

Work Placement

Work placement is an added value service that CNet provides with the Certified Network Cable Installer (CNCI®) program. Following the CNCI® program Service Leavers are placed with a cable installation company for a 10-day work placement. The CNet team arrange the placement for the Service Leavers so that they can gain valuable on-the-job hands-on experience. Plus, some cable installation companies are currently recruiting so we urge Service Leavers to treat the placement as a two-week job interview to really demonstrate their skills, ability and enthusiasm and therefore maximise the chances of them being offered employment with the company.

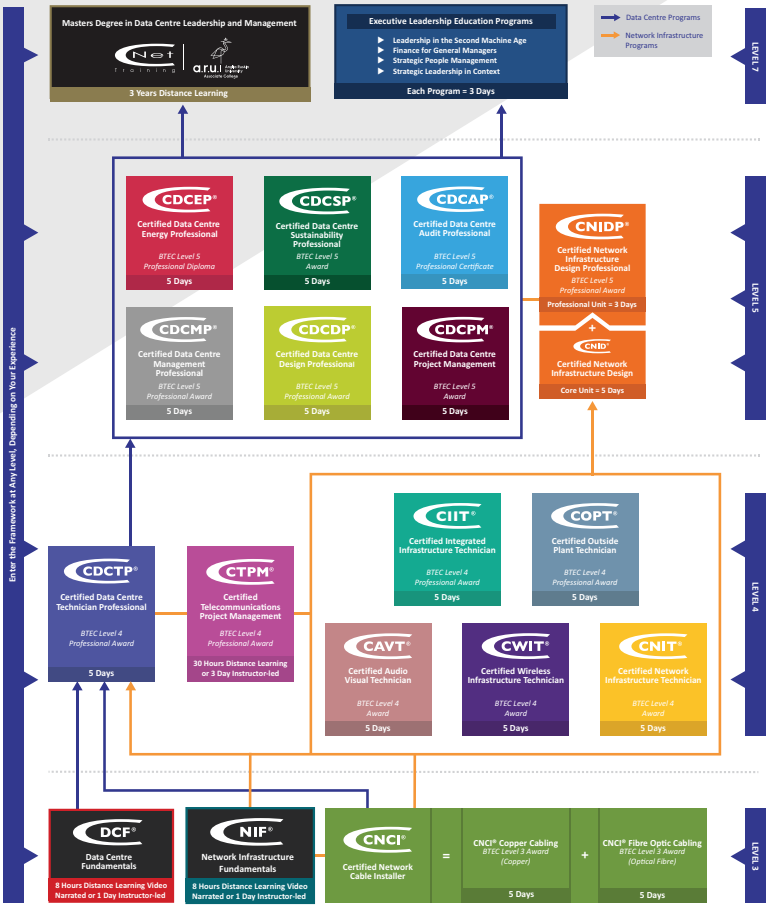
Resettlement and ELC Funded Education Packages

Package	What is Included	Duration	Cost	Cost After ELC Contribution
Copper & Fibre Cable Installation	Certified Network Cable Installer (CNCI®)	10-day classroom program 10-day work placement	£2,634 inc VAT	£1,634 inc VAT – lower tier £634 inc VAT – higher tier
Data Centre Technician	Certified Data Centre Technician Professional (CDCTP®) Data Centre Fundamentals (DCF®)	5-day classroom 10-day work placement	£3300 in VAT	£2120 inc VAT- lower Tier £1120 inc VAT – higher Tier
Telecommunications Project Management	Certified Telecommunications Project Management (CTPM®)	3-day classroom program or Remote Attendance	£1,554 inc VAT	£554 inc VAT – lower tier £310.80 inc VAT – higher tier
Network Infrastructure Technician	Certified Network Infrastructure Technician (CNIT®)	5-day classroom program or Remote Attendance	£2,154 inc VAT	£1,154 inc VAT – lower tier £430.80 inc VAT– higher tier
Wireless Infrastructure Technician	Certified Wireless Infrastructure Technician (CWIT®)	5 Day Classroom Program	£2,154 inc VAT	£1,154 inc VAT - lower tier £430.80 inc VAT - higher tier
Data Centre Technician Package	Certified Network Cable Installer (CNCI®) Data Centre Fundamentals (DCF®) Certified Data Centre Technician Professional (CDCTP®)	10-day classroom program 10-day work placement 8 Hours Distance Learning 5-day program Classroom or Remote Attendance	£4,995 inc VAT	£3,995 inc VAT – lower tier £2,995 inc VAT – higher tier
Installer/Site Manager Package	Certified Network Cable Installer (CNCI®) Certified Network Infrastructure Technician (CNIT®)	10-day classroom program 10-day work placement 5-day classroom program or Remote Attendance	£3,995 inc VAT	£2,995 inc VAT – lower tier £1,995 inc VAT – higher tier
Advanced Installer Package	Certified Network Cable Installer (CNCI®) Plus any 1 of the following: Certified Integrated Infrastructure Technician (CIIT®) Certified Outside Plant Technician (COPT®)	10-day classroom program 10-day work placement 5-day classroom program	£3,995 inc VAT	£2,995 inc VAT – lower tier £1,995 inc VAT – higher tier
Advanced Technician Package	Any 2 of the following L4 programs: Certified Network Infrastructure Technician (CNIT®) Certified Integrated Infrastructure Technician (CIIT®) Certified Outside Plant Technician (COPT®)	2 x 5-day classroom programs Remote Attendance available for CNIT®	£3,650 inc VAT	£2,650 inc VAT – lower tier £1,650 inc VAT – higher tier
Network Infrastructure Design	Certified Network Infrastructure Design Professional (CNIDP®)	8-day classroom program or Remote Attendance	£3,924 inc VAT	£2,924 inc VAT - lower £1,924 inc VAT – higher tier
Data Centre Design	Certified Data Centre Design Professional (CDCDP®)	5-day classroom program or Remote Attendance	£5,754 inc VAT	£4,754 inc VAT – lower tier £3,754 inc VAT – higher tier
Data Centre Management	Certified Data Centre Management Professional (CDCMP®)	5-day classroom program or Remote Attendance	£5,754 inc VAT	£4,754 inc VAT – lower tier £3,754 inc VAT – higher tier

For further detailed information on CNet's resettlement and technical education programs please download the full Resettlement and Ex-Forces brochure from **cnet-training.com/resettlement**

The Global Digital Infrastructure Education Framework

CNet has developed **The Global Digital Infrastructure Education Framework.** The Framework maps education programs to career progression routes throughout the Digital Infrastructure industry and therefore allows Service Leavers and Ex-Forces personnel to see and plan their next professional development programs.



Certifications are in Demand

Certifications and qualifications gained from the programs throughout the Framework are recognised and respected all over the world. These designations have become key skills reference points to allow those holding them to clearly demonstrate their ability and experience.

Examples of Current (Feb 2022) Job Listings

Senior Data Engineer - Somerset, UK – **CNCI®** Preferred
ICT & Telecoms Design Engineer - Bristol, UK – **CNIDP®** Preferred
Data Centre Engineer - Hayes, UK – **CDCTP®** Preferred
Design Engineer - London, UK – **CDCDP®** Required
Data Engineer - Bristol, UK – **CDCDP®** Preferred

CNet & Resettlement/Ex-Forces Training for 26 Years

Since 1996, CNet Training has educated thousands of Service Leavers, providing them with the skills, hands-on experience, and sought-after qualifications to enter the lucrative network cable infrastructure and data centre sectors. Today, CNet is the only industry dedicated education provider in the world to provide both internationally recognised qualifications and official certifications.

CNet has won multiple awards over the years for its dedication to education and is recognised for taking education seriously. The company is certified to ISO 9001:2015 and has been an approved BTEC (Pearson) Centre for over 22 years, allowing CNet to design and deliver education programs that award qualifications (this accolade proves CNet's academic processes continue to meet the high standards of Pearson, who are the largest education company in the world).

BTEC Approved Centre

Pearson

And, of course, many programs are eligible for ELC funding allowing Service Leavers extra help to continue to progress their careers.

Every CNet technical education program has been carefully designed to blend technical knowledge with essential hands-on skills that are needed throughout the industry. CNet has an on-going schedule to regularly review the content of each program to ensure it reflects the very latest changes in technology, in addition to preparing learners for possible new and emerging industry trends that are just around the corner.

Plus, working in collaboration with major companies in the industry, CNet ensures the content of each program continues to meet the needs of the industry today and reflects the emerging future trends. CNet believe that it is the combination of program design, alongside the quality of expert Instructors, many of whom are ex-Forces themselves, that form the secret of their on-going success.

In addition, CNet has entered a collaborative agreement with The Royal Corps of Signals to internally deliver the Certified Network Cable Installer (CNCI®) program. Each Installation Technician now undertakes the CNCI® program as part of their on-going education curriculum, allowing them to gain official certification and two Level 3 BTEC qualifications. It also demonstrates that their knowledge, skills and expertise in network cable installation is of the highest level.

CNet Receives Gold Defence Employer Recognition Award

CNet has been awarded Gold in the Defence Employer Recognition Awards that recognises CNet's on-going support to the Armed Forces Community in the UK. Following signing the Armed Forces Covenant and being awarded Bronze, the Silver award now recognises CNet as an organisation that is actively supporting the Armed Forces Community and has put positive HR policies in place and shows continued encouragement for our team Reservists.

Industry and Resettlement/Ex-Forces Briefings

CNet would be delighted to present the Digital Infrastructure Industry further to Resettlement/Careers Advisors, please get in touch and we can arrange individual or group presentations – just email **resettlement@cnet-training.com** in the first instance and we can arrange a suitable time.

The CNet team also holds Resettlement and Ex-Forces Briefings designed for Service Leavers to provide an insight into the industry and the opportunities available within it. Hosted by CNet's Technical Development Manager (Paul Gorman) who is ex-Forces, with CNet's Technical Developer (Clint Sherratt) who is also ex-Forces, alongside CNet's dedicated resettlement advisor, the Briefings not only introduce what it is really like to work in the industry and the opportunities available within it, Paul and Clint also share their experiences of the transition between military and civilian lives.

Please encourage your Service Leavers to email **resettlement@cnet-training.com** for future Resettlement Briefing dates.

CNet's Dedicated Resettlement Team

CNet's history in offering resettlement training, coupled with the fact that many of our technical Instructors and Development team are ex-Forces themselves, means we understand the resettlement process and realise that it is a big step for Service Leavers to choose the best way to spend their resettlement grant to meet their future career goals.

The experienced CNet resettlement team can help every step of the way as Service Leavers work towards making their important decision. We always have someone on hand to speak with and answer any questions and, of course, there's no obligation and no pressure selling.

Meet the team:

Olly Day

Ken Hillyer

Clint Sherratt

For more information please contact CNet's dedicated Resettlement Advisor Olly Day.

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The Global Leader in Technical Education for the Digital Infrastructure Industry

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