

## Digital Platform: Certificate in Network Softwarization

Your foundation in the software-centric technologies that are transforming the network infrastructures of today

**Two parts: Digital Platform Core (10 days) and Digital Platform Advanced (12 days)**

Version 2.0

A new era of network infrastructure is emerging that will result in operational and application changes on a scale never before experienced. The transition to SDN is transforming the networking industry into an open ecosystem by separating the hardware on which network functions/services run and the software that realizes and controls the network functions/services. At the core of this change is a shift to increasingly software-centric operations, and the virtualization of most of the hardware devices, in the network. Software will thus play the dominant role in emerging telecommunication environments. It promises to empower network owners and operators, to increase the pace of innovation, diversify the supply chain for networking hardware and software and drive the transformation of networks into a highly capable platform that supports emerging IoT and other data science applications.

This fundamental shift in architecture requires a skills-set that is different to traditional telecoms skills. The Digital Platform programme has been designed to provide the exposure and skills-set necessary for people to successfully evolve and transform into the age of 5G, SDN, and NFV.

### What is the Digital Platform Qualification?

On successful completion of the Digital Platform programmes a learner will receive the following certificates:

1. An international **Pearson Digital Platform Core: Certificate in Network Softwarization** and **Digital Platform Advanced: Certificate in Network Softwarization** certificates. Pearson is a global firm which is on the cutting edge of technology and advances in education. Pearson awards over 1.5 million certificates to learners around the world every year.
2. An industry, internationally recognised **Open Networking Foundation (ONF) SDN Associate certification**.

### Who should attend the Digital Platform Certificate programme?

Typical delegates include technical staff, network operations personnel, network solution architects, project managers, managers who are in a technical telecoms environment, management consultants, sales consultants and anyone who would like to gain an in-depth knowledge of software-centric network infrastructure technologies.

**An understanding of traditional IP based telecoms networks and technologies is required by those attending the programme.**

### Why should you attend this programme?

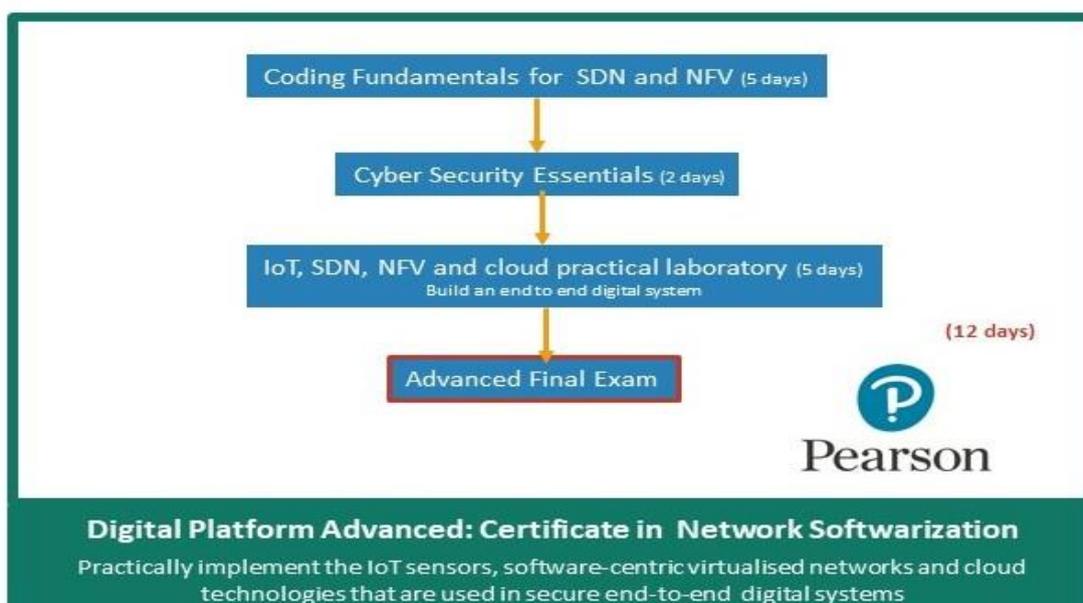
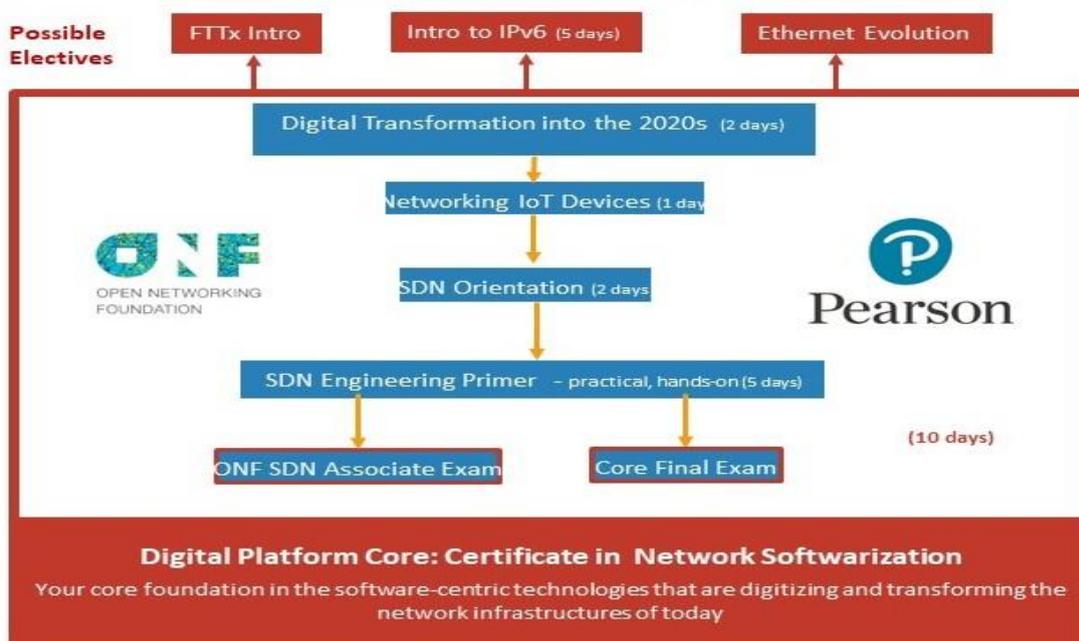
After completing the programme, you will:

- Know how legacy telecoms networks are evolving into software-centric infrastructures
- Understand how software-centric infrastructures are architected
- Know how technologies like SDN and NFV work and are implemented
- Identify where the different areas of risk are and understand the technologies used in cybersecurity and how to apply them
- Develop an understanding and appreciation for programming logic
- Understand the range and scope of IoT applications that will be communicating over the network and what their network demands are
- Know what the leading IoT protocols are – such as NB-IoT

- Learn about the end-to-end workings of digital systems
- Gain practical exposure on how cloud back end servers can be spun up and resourced on an on-demand basis (Digital Platform Advanced)
- Be able to read, develop and implement basic python scripts which is an important skill going forward into software-led infrastructures (Digital Platform Advanced)

## Digital Platform programme structure

The programme is divided into two parts: The Digital Platform Core and Digital Platform Advanced Certificate programmes. They are instructor-led training programmes and are comprised of the modules shown in the flow charts below. Some of the courses include practical hands-on laboratory exercises where the learners can experientially apply what they are learning. SBI emphasises assessment during the programme. The assessment includes review exercises that form part of the learners' after hours learning, an end of course exam, an SBI final exam plus the SDN Associate exam. If required, there can be elective courses added to the programme. The programme structure is as follows:



## **Success Builders International**

Success Builders International (SBI) is a training provider that has specialised in custom developed training solutions since 1995. These courses provide the necessary knowledge to ensure that delegates are confident, efficient and functional in their work environment.

### **Programme Content**

Course overviews for each of these courses are provided below.

#### **Digital Transformation into the 2020s**

*The enabler to building your digital vision – 2 days*

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Digital transformation (DX) is here with the major influences of virtualisation, cloud computing, mobile, big data and social media. The massive increase of connected devices resulting from IoT and other technology innovation accelerators such as robotics, 3D printing and AI, require enterprises to become digitally focused to survive in this new age.

The objective of the DX into the 2020s course is to provide a primer for anyone who needs to become well versed and expertly functional in the digital world. The DX into the 2020s course will build vision and enable understanding and appreciation of the transformation that the industry and each enterprise is going to be experiencing in the years to come. The course discusses technology but is not overly technical. It is designed so that it can be understood and appreciated by non-technical people.

#### **Coding Fundamentals for SDN and NFV**

*Literacy for the digital age – 5 days*

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Coding is a fundamental skill that every member of a technology-based team must possess. Code is a language that speaks universally, giving access to the inner workings of the technologies that underpin nearly every major industry and creative process in the digital economy. With the rise of SDN, NFV, and network automation and programmability, networking people will benefit from learning a programming language so that they can be grounded in this digital age. Basic programming logic and constructs, data interpretation and Python are taught in this course.

#### **SDN Orientation**

*The why, what and how of SDN – 2 days*

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The movement towards Software Defined Networking and how it is changing telecoms networks into a dynamic service orientated environment, makes the SDN Orientation course particularly valuable. It is designed to provide you with the why, what and how of SDN. The course explains the different visions of SDN and the concepts behind the technology. It also includes practical demonstrations and working examples of the technology in action.

By the end of the course, the learner will understand the terminology and the roles of the various components used in SDN, including APIs, SDN controllers, OpenFlow, network appliances and Open vSwitch devices.

The course is intended for network designers, network planners, supervisors, project managers, sales people, technicians and anyone new to SDN.

## **Networking IoT Devices**

*Gain insight into the different IoT implementations and technologies – 1 day*

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The IoT is rapidly evolving and the world is becoming fully connected. The Networking IoT Devices course addresses this evolution and how the interconnection of people, processes, data, and things is transforming every industry. Due to IoT's broad range of use cases and individual devices, network architects need to pay attention to a wide combination of variables for communication, power, bandwidth, reliability, cost and more. This course discusses these variables plus the infrastructure, networking protocols, sensor technologies, data/storage/analytics and security aspects of IoT.

## **Cyber Security Introduction**

*Understanding Cyber Security and the risks – 2 days*

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It is of utmost importance that critical infrastructure organisations understand the security risks that they are potentially exposed to in a growing digital and elastic world. Software Defined Networking is changing the cyber security landscape by collecting network usage information, which could support the improved algorithm design used to detect attacks. A new generation of applications will take advantage of better-informed Software Defined Networking agents to improve policy enforcement and traffic anomaly detection and mitigation. These applications will be able to block malicious intruders before they enter the critical regions of the network. This introduction discusses the cyber security threats that are prevalent in networking today, cryptographic technologies and it introduces advanced methods of mitigation.

## **SDN Engineering Primer**

*What you need to know to successfully implement SDN – 5 days*

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Software Defined Networking is set to be the way that networks of the future will be implemented and thus network engineers and technicians need to develop a new-skills set. The SDN Engineering Primer course is designed to create a learning environment that practically embeds the key concepts, logic and components that are critical in understanding how an SDN network is built and implemented. This course teaches the concepts and roles of virtualisation, VMs, SDN NOSs / Controllers, Openflow, network appliances, programming standards and scripting logic. This is a foundational, practical hands-on course where learners will build Switched NWS, VLANs, Routed NWS etc. using SDN technology. Emulation tools such as Mininet will also be taught.

The objective of the SDN Engineering Primer course is to teach network engineers and technicians the essential concepts upon which SDN is based, plus to expose them practically to the SDN environment so that they are sufficiently empowered to develop further in the field of SDN as it unfolds.

## **IoT, SDN, NFV and cloud practical laboratory**

*Build an end to end digital system – 5 days*

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This practical hands-on lab session is designed to help learners integrate and apply the knowledge that they have gained from the previous 6 modules of the programme. In this lab, an end-to-end digital system will be deployed in a virtualised environment. Virtual Instances will be created and attached to a SDN and NFV based network architecture. IoT sensors will then be programmed using Python to collect data and pass this information through the environment they have created. Role based securities and policies will be driven by the NFV functionality to show security aspects on the network. Collected IoT data will then be stored on a cloud-based solution, that will be spun up on demand by the learners. Data science principles can then be applied to the collected data.

At the conclusion of this lab, a fully integrated digital content delivery system will exist that covers inception, movement and storage of the content.

## Course Electives

### **FTTx** (Fibre to the home, curb...)

*Learn the fundamentals of FTTx - 2 days*

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The FTTx course is designed to introduce the concepts and technologies that combine to provide fixed broadband access across fibre. Delegates will learn why FTTx has become such an important architecture today, including the technical and financial justifications. The different types of FTTx architectures are discussed, including the advantages and disadvantages of each, and the types of components that are required. The course also includes technical details of the specialized FTTx topologies, active and passive architectures such as GPONs, components like splitters and wavelength-division multiplexers, and the specifications for cables, connectors, splices and hardware.

The course is intended for network designers, network planners, supervisors, project managers, sales people, technicians and anyone new to the FTTx market.

### **Ethernet Evolution**

*Explore the evolutionary path of Ethernet – 5 days*

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Ethernet is constantly evolving; because of this it has found its way into most parts of telecoms infrastructures. Ethernet has been able to adapt to the needs of the networking world and address requirements of both operators and end-users, while making sure that the resulting technology is cost-efficient, reliable, and operates in a plug and play manner. This training course provides a backdrop of the early history of Ethernet, but focuses more on the recent developments which are of particular interest to network operators. The Ethernet Evolution course includes technical details of the operation and implementation of the Ethernet technologies. This course discusses the generations of Ethernet, switching, VLANs, redundancy, Metro Ethernet, Carrier Ethernet 2, Carrier Ethernet and SDN, Ethernet in Data Centre and SyncE.

The course is intended for network designers, network planners, project managers, technicians and anyone technical that is new to telecoms .

### **IPv6 Introduction**

*Learn the fundamentals of the IPv6 protocol and its implementation– 5 days*

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The next generation IP, IPv6, will take the TCP/IP protocol into the 21st century and effectively aid in the implementation of the IoTs. IPv6 provides larger addresses, simplified address configuration options, optimized routing and support for new applications designed to overcome current limitations. In this course, experienced internet working professionals gain the knowledge and skills they need to understand the basics of the functionality, implementation and migration from existing IPv4 networks to the new IPv6 protocol.

This course provides an overview of the core functions of the IPv6 protocol. The IPv6 Introduction course is a combination of lecture based training and practical, hands-on exercises that provide the course attendees with the opportunity to apply the concepts that they are learning.

The course is intended for network designers, network planners, project managers, technicians and anyone technical that is new to telecoms .