Calendar calender

ONF Certified SDN Associate Examination Blueprint

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| Domain | % Weight of Exam |  |
| (40 questions from random pool) | No of Questions |
| 1. Networking Concepts | 15% | 6 |
| 2. SDN Concepts | 25% | 10 |
| 3. OpenFlow | 25% | 10 |
| 4. SDN Architecture and Ecosystem | 25% | 10 |
| 5. SDN Open Source | 10% | 4 |

DOMAIN 1: NETWORKING CONCEPTS

Identify and compare the layers of OSI and TCP/IP models and functionality of various fundamental elements of networking.

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| * Ethernet networks * Collision domains and broadcast domains * Function of routers and switches * Routing Protocols (RIP, OSPF, ISIS, BGP) * Optical network fundamentals – SONET/SDH, OTN * IP Network Services ( DHCP, DNS, ARP, NAT, ICMP) | * Layer 2 addressing, including address resolution * IPv4 and IPv6 fundamentals * Layer 3 / IP addressing, including subnet masks * Longest match routing * Connection-oriented vs. connectionless protocols * Packet Filtering with Match/Action Pairs |

DOMAIN 2: SDN CONCEPTS

Describe the fundamental characteristics of SDN, definitions, use cases, and history.

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| * History of SDN (Clean Slate, Ethane, OpenFlow®, donation to ONF) * What is SDN? (control and forwarding) * SDN Value Proposition * SDN Use Cases in the Data Center * SDN Use Cases in Campus Networks * SDN Use Cases in Service Providers | * SDN Use Cases in the Enterprise * SDN Use Cases in Mobile Networks * The six characteristics of an SDN Network (Plane Separation, Simplified Forwarding Element, Centralized Control, Network Automation, Virtualization, and Openness) * SDN Devices (Controllers, Switches, Orchestration, API's) * Overlay Networking Abstractions (NFV, VxLAN, etc.) |

DOMAIN 3: OPENFLOW®

Identify at a concept/definition level the OpenFlow® Protocol operations and list the packet types and contents.

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| * TCP level secure channel/communication/session establishment between controller/switch * Message Types * Basic Operation/Packet Matching * Differences between OpenFlow® versions * Proactive vs Reactive Flows * Statistics/Counters * Setting up a flow | * Policy Enforcement * OpenFlow® Management and Configuration Protocol (OF-Config, OAM, OFDPA, OVSDB, etc.) * Flow Table Entry Format * Flow Timers * Pipeline Processing * Match Types * Match Actions |

DOMAIN 4: SDN ARCHITECTURE AND ECOSYSTEM

Understand and Identify SDN architectural components, standards bodies, controller design, API’s and applications.

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| * SDN Layers * SDN Architecture compared to Traditional Network Architectures * Northbound API's * Southbound API's * East/West API's * Security and Availability * Packet and Optical Integration methods * Migration Strategies * Hybrid Mode Switches | |
| * Organization in the SDN Ecosystem   + Standards Bodies and Industry alliances   + Network Operators and Enterprises   + Network Equipment Manufacturers   + Software vendors   + Academic and Industry research institutions and labs   + Open Source Initiatives | * Who is the ONF and what do they do?   + Purpose   + Structure   + Technical Working Groups   + Open Source Software Development   + Activities and Initiatives |
| * Controller Placement and Redundancy * SDN Applications (service chaining, virtualized network functions, analytics) | |

DOMAIN 5: OPEN SOURCE SDN \*\*\* <http://opensourcesdn.org/sdn-links/> \*\*\*

Identify key open source projects in the SDN Ecosystem.

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| * OpenFlow® Agents   + Indigo   + Linc   + OVS   + CPqD/ONF Driver (aka "libFluid") | * OpenFlow® Controllers   + NOX   + POX   + ONOS   + ODL   + Floodlight   + RYU |
| * Utilities and Tools   + FlowSim   + Mininet   + Of DPA   + OF Test   + Wireshark   + Avior | |
| * Open Source SDN Distributions (OSSDN Atrium, etc.) * Open vSwitch * Orchestration Systems * Open Source Initiatives (OPNFV, OCP, ODCA, Open Config) | |