Developing Solutions Using Cisco IoT and Edge Platforms v1.0 (300-915)

Exam Description: Developing Solutions Using Cisco IoT & Edge Platforms v1.0 (DEVIOT 300-915) is a 90-minute exam that is associated with the DevNet Professional Certification. This exam tests a candidate's IoT application development knowledge as it pertains to Cisco IoT edge compute and network architecture including Cisco IOx and Cisco EFM, IoT Data Visualization, and security methods. The course, Developing Solutions using Cisco IoT & Edge Platforms, helps candidates to prepare for this exam.

The following topics are general guidelines for the content likely to be included on the exam. However, other related topics may also appear on any specific delivery of the exam. To better reflect the contents of the exam and for clarity purposes, the guidelines below may change at any time without notice.

20%	**1.0**	**Cisco Network IoT Architecture**
	1.1	Interpret the data flow of a topology that includes:
		1.1.a gateways
		1.1.b access points
		1.1.c firewalls (including industrial firewalls)
		1.1.d routers
		1.1.e switches
	1.2	Describe the purpose, functionality, and use of these operational technology components:
		1.2.a PLCs and operations
		1.2.b embedded microcontrollers
		1.2.c RTOS systems
		1.2.d Cisco interfaces (serial, sensors, I2C, and USC)
		1.2.e communication protocols (BLE, WiFi, Ethernet, and LoraWAN)
		1.2.f communication standards (DDS, OPC UA, MT Connect, and Open PLC)
	1.3	Describe IoT requirements related to networking and device configuration policies (including configuring IOS commands to enable IOx, port and protocol needs of an application, and security and prioritization of data)
	1.4	Construct a workflow to connect a sensor
	1.5	Troubleshoot sensor connectivity issue
10%	**2.0**	**Compute and Analysis**
	2.1	Compare the characteristics, capabilities, and use of edge devices to generic compute devices
	2.2	Determine the use of cloud or specific edge devices for a given application scenario
	2.3	Analyze application resource usage information to determine any required changes to the application or hardware

	2.4	Construct a Python script to deploy an application at the edge using FND and GMM APIs
	2.5	Troubleshoot application resources usage and network connectivity issues when using FND and GMM APIs
	2.6	Determine data handling procedure and action to take with edge data based on business requirements

20% 3.0 Cisco IOx IoT Software
3.1 Describe the capabilities of a Cisco IOx application
3.2 Troubleshoot a Dockerfile for Cisco IOx
3.3 Describe the process to build applications for Cisco IOx
3.4 Identify the troubleshooting approaches for a deployed application for Cisco IOx
3.5 Describe the process to deploy an Cisco IOx application into a CI/CD on platforms (such as FND, Kinetic GMM, or Directly to IOx)
3.6 Construct a Cisco IOx application to meet requirements given SDK documentation

15% 4.0 Cisco Edge Data IoT Software
4.1 Describe characteristics of edge data services
4.2 Analyze a DSLink (extracting data from a sensor)
4.3 Identify the process to send data to a public cloud provider

10% 5.0 Open Source IoT Software
5.1 Evaluate the flow and processing of data from sensor to cloud in a given scenario
5.2 Compare characteristics and usage of MQTT and AMQP
5.3 Determine the output from given messages and subscription details
5.4 Identify broker QoS level for messages in a given scenario
5.5 Diagnose issues with broker deployment and application connection

10% 6.0 IoT Data Visualization
6.1 Describe the characteristics and capabilities of data visualization tools (such as Freeboard, Grafanna, and Kibana)
6.2 Identify the data visualization technique to meet business requirements
6.3 Interpret visualized data

15% 7.0 Security
7.1 Identify methods to implement a secure software development life cycle
7.2 Identify methods to secure an application and infrastructure during production and testing in a CI/CD pipeline
7.3 Describe risk management (including security challenges in IT and operational technology)
7.4 Describe the concepts related to confidentiality, integrity, and availability
7.5 Describe the capabilities of:
    7.5.a ISE and ISE integration
    7.5.b pxGRID
    7.5.c AMP for Endpoints proxy
    7.5.d Cisco Tetration
    7.5.e StealthWatch (Enterprise and Cloud)
    7.5.f Cisco Cloudlock