Self-Study Tips: MEF-SDCP (June 2022)

You are destined to become the next MEF SD-WAN Certified Professional!

This overview incorporates the references required to prepare for the *NEW* MEF-SDCP (June 2022) certification exam. A majority of those who have passed the MEF-SDCP certification exam have utilized these resources for self-study.

If you desire a formalized self-study programs, there are a number of MEF Accredited Training Providers to choose from: Lumious, Perpetual Solutions and The Academy.

Exam Design

The new MEF-SDCP exam has 50 multiple choice questions and is approximately 90 minutes long. The questions are multiple choice with no more than four choices. Only one choice is the correct answer.

An exam blueprint is created for all MEF Professional exams. The blueprint is defined by the learning domains and objectives within each learning domain. Each exam question is developed and vetted with respect to a learning domain and objectives. Explained in more detail below, each question is also associated to a topic area and given a topic tag and a percentage weight is calculated to assist in study guidance. The exam questions are designed around a cognitive complexity approach described in more detail below, but generally, for MEF professional exams, three methods of study are emphasized: Remember/Recall, Understand/Apply and Analyze/Evaluate. MEF exams are highlight scenario based, so each of the cognitive complexities are utilized simultaneously. In other words, there are not many questions which ask the definition of a term. There are a great deal more which require your ability to understand and analyze, but of course you must recall the terminologies being referenced. Acronyms and Terminology are included at the end of each MEF standard.

The new MEF-SDCP (June 2022) exam incorporates MEF 70.1 which replaces the MEF 70 standard, and now includes MEF 88 Application Security for SD-WAN and MEF W105 Performance Monitoring and Service Readiness.

The following are the five learning domains and summary of the objectives in the exam blueprint. The exam blueprint itself provides much greater detail.

Learning Domains:

SD-WAN Concepts, Business Benefits and Value Proposition	**Securing an SD-WAN Service**

Demonstrate knowledge of the SD-WAN terminology, concepts, and Service Attributes, understand infrastructure and operational benefits in contrast to legacy solutions and provide implementation and migration strategies.	Identify and understand security threats, middle box function use cases, appropriate security functions to mitigate threats, use of 'allow' and 'block' lists and determine whether an application flow's security requirements are met.
Planning, Design, and Architecture Understand and apply SD-WAN application flow specifications, underlay connectivity, Internet Breakout, virtual topologies and policies for planning, design and architecting SD-WAN services based on business requirements. **Planning, Design, and Architecture** Understand and apply SD-WAN application flow specifications, underlay connectivity, Internet Breakout, virtual topologies and policies for planning, design and architecting SD-WAN services based on business requirements.	**Monitoring an SD-WAN Service** Understand the Service Readiness requirements for an SD-WAN Service, monitor the performance metrics, use of threshold crossing alerts and troubleshoot issues.

Within the learning domains and objectives are a significant number of updates resulting from the updates in MEF 70.1 vs. MEF 70. These including SD-WAN Virtual Connection (SWVC) Zones, virtual topologies, performance and policy criteria, SD-WAN UNI routing protocols, UCS UNI, UCS end-point service attributes, performance metrics etc. MEF 88 adds SD-WAN Security functions, policies supporting application flows, middle box functions, certificate authority and validation functions, Transport Layer Security (TLS), IP, DNS, URL filtering, Malware detection/removal, then MEF W105 adds SD-WAN performance measurements, monitoring, service readiness, Measured Information Rate for application flows, zones.

Changes in MEF 70 vs. MEF 70.1

The following list represents the major changes in this standard, MEF 70.1, from the previous version, MEF 70:

- The document title was changed from "SD-WAN Service Attributes and Services" to "SD-WAN Service Attributes and Service Framework".
- Added section 5.1 with Numerical Prefix Conventions and 5.2 with Notational Conventions. Move Diagram Conventions from section 7 to section 5.3.
- Inclusion of Service Attributes for Underlay Connectivity Services, UCS UNIs, and UCS End Points
- An updated definition of Application Flow that includes packet flows that both ingress a UNI and are directed toward the UNI
- Definition of Application Flow Specification as distinct from Application Flow
- Rename Application Flow Group to Application Flow Specification Group
- An updated and enhanced description of Application Flow Criteria
- The table of Application Flow Criteria and the table of Policy Criteria were split into two tables, those that Service Providers are required to support and those that Service Providers should support.
- The values for most Application Flow Criteria are now lists of items rather than individual items.
- The DSCP Field was added to the list of Application Flow Criteria that require support.

- An updated definition of Tunnel Virtual Connection (TVC) providing a more detailed and implementation-independent description
- New PERFORMANCE Ingress Policy Criterion to specify performance goals for an Application Flow
- New SWVC List of Security Policies Service Attribute
- New AF-SECURITY-INGRESS Ingress Policy Criterion and AF-SECURITY-EGRESS Egress Policy Criterion to invoke security functions listed in MEF 88 for an Application Flow.
- Support for Egress Policies and Egress Policy Criteria
- New BLOCK-SOURCE Egress Policy Criterion
- Updated and clarified description of the BANDWIDTH Ingress Policy Criterion
- New SD-WAN UNI Routing Service Attribute to allow the Subscriber to specify/advertise reachable subnets at the UNI
- New Service Attributes and Policy Criteria to support multiple Virtual Topologies that can be assigned by Policy
- Support for partitioning the Subscribers IP Hosts into Zones and assigning Zone-wide Ingress Policies
- Removed support for Priority-tagged frames from the SD-WAN UNI L2 Interface Service Attribute.
- Uniqueness requirements were tightened for the SWVC, SWVC End Point, and SD-WAN UNI Identifiers (Service Attributes).
- Updated the SWVC Service Uptime Objective Service Attribute with a requirement that provides a definition of "outage".
- Several Policy Criteria with Boolean values were normalized to use Enabled and Disabled as values (as opposed to Yes/No, True/False, etc.).
- The parameters for the ENCRYPTION Policy Criterion have been changed from Required and Either to Required-Always, Required-Public-Only, Either. Modified the argument to several Application Flow Criteria to be a list (several of them were already lists, now all of them are).
- Clarified definitions and descriptions in several sections and concepts without changing the normative intention of the text. These include Internet Breakout and INTERNET-BREAKOUT Policy Criterion, BANDWIDTH Policy Criterion, definitions of the Performance Metrics.
- The PCParam element in SWVC List of Policies Service Attribute was changed from a list of parameters to a single parameter. If multiple parameters are needed, the Policy Criterion can define the argument as a list (or a n-tuple, if appropriate).

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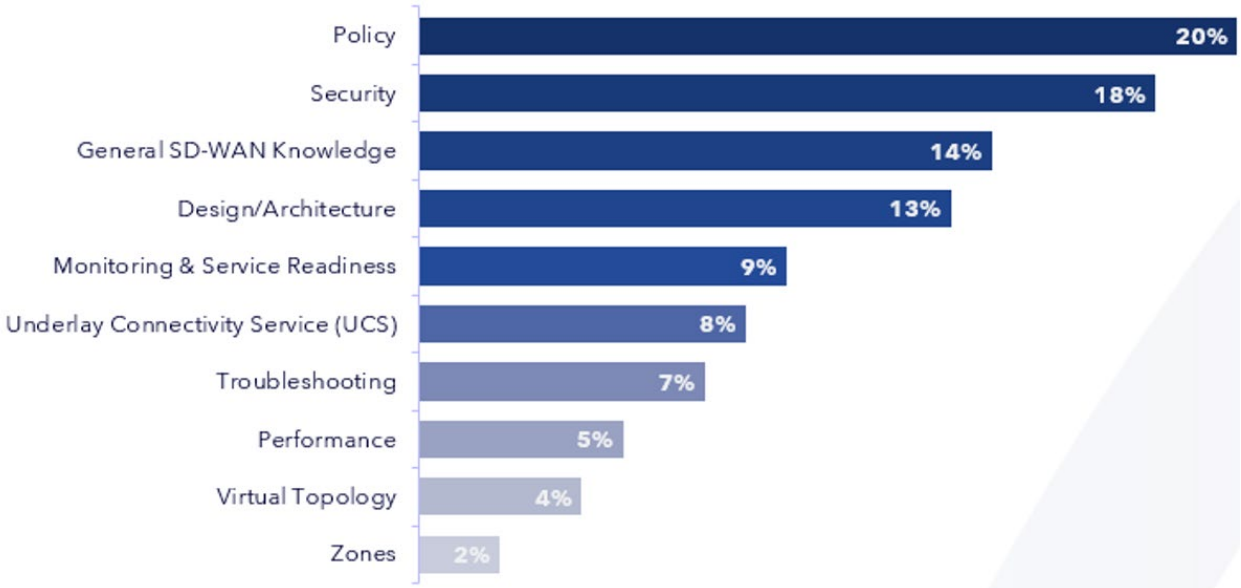
Topic Areas (tags):

To help you focus your study efforts we also weight each exam question by learning areas. If you choose to utilize the MEF SDCP Self-Study tool, you will notice the study is also organized by the following topic areas and that we associated each document reference with each topic area.



Cognitive Complexity Approach:

More on the Cognitive complexity approach. Cognitive complexity, or rather, the nature of thinking required, relates to how a person remembers, understands, analyzes the questions being asked and the correct response to the question. MEF exam developments utilize an approach includes three levels of cognitive complexity (see table below). It's good to keep this in mind as you prepare for your exam.

Cognitive Level	Description	Item Characteristics
1. Remember	Retrieve relevant knowledge from long-term memory	No scenario – knowledge-based question where the answer could be directly found in a resource
2. Understand/Apply	Construct meaning from information, demonstrate comprehension of concepts or processes, apply processes or procedures.	May have a short scenario – candidate must use knowledge to answer the question.
3. Analyze/Evaluate	Break material into parts, determine how parts relate to one another or overall structure, make judgments based on criteria.	Detailed scenario – candidate must make some kind of decision using several pieces of information provided in the scenario (think 4-6 details in the scenario)

Study References

All study materials can be download in a single zip package.

Primary:

- MEF-SDCP Blueprint B
- MEF 70.1 SD-WAN Service Attributes and Service Framework,
- MEF 88 Application Security for SD-WAN Services and
- MEF W105 Performance Monitoring and Service Readiness Testing for SD-WAN are the primary study references.

All other references are secondary and may assist in providing a broader perspective related to SD-WAN, however, few questions in the exam refer to the secondary references.

Additional:

- RFC 2764 A Framework for IP Based Virtual Private Networks
- MEF 55.1 Lifecycle Service Orchestration (LSO): Reference Architecture and Framework
- White Paper: A deep dive into SD-WAN troubleshooting and monitoring, TechTarget.com
- White Paper: What to expect with SD-WAN management, intent, and usability, TechTarget.com
- White Paper: SD-WAN For Dummies 2nd VMware Special Edition by Sanjay Uppal, Steve Woo, and Dan Pitt
- White Paper: MEF 3.0 SD-WAN Services
- White Paper: Limitations and Differences of using IPsec, TLS/SSL or SSH as VPN-solution, Ole Martin Dahl

Please note that on occasion some content may change to reflect the most up-to-date and accurate information at the time.

MEF Self-Study Portal

The MEF self-study portal provides organized guidance in each learning domain and objectives weighted in order of importance.

Registering for your exam and selecting the best proctor.

While we highly recommend our MEF Premier Accredited Training Partners (MEF-PATP), an individual who self-studies and takes the exam will select an online proctor to assist and monitor the taking of the exam. We highly recommend that you select '*Pro Exam Services'* to proctor your exam when you register. While the time choices are more limited, test takers are happier with the service vs. ProctorU. MEF-PATP's also provide online proctoring for their students. Once you register, you will receive the details needed to schedule your exam session with the proctor.

REGISTER FOR YOUR EXAM

Sample questions:

Here are some sample questions to assist in orienting you to the exam. These questions are provided for illustration and not necessarily questions you will see in the exam:

The aeronautics and space agency is evaluating SD-WAN technology for two specific applications:

- Mission-critical data during rocket launches
- End-user access to administrative and office software

What should be considered to support the mission-critical data application in an SD-WAN solution?

A. Resiliency and availability characteristics of the SD-WAN Service

B. UCS metered cost of the SD-WAN Service

C. Reporting capabilities of the SD-WAN Service

D. Choice of ISPs used to provide the connectivity of the SD-WAN Service

A company uses an SD-WAN to connect its branches. All branches are connected with two public UCS and a private UCS. The company uses a public video conferencing service.

The video conferencing service is not working because the SD-WAN Edge forwards the traffic over the private UCS only.

What is causing this issue?

A. Policy disallows forwarding traffic over a Public UCS

B. Private and Public UCS are not provided by the same Service Provider

C. Private and Public UCS are provided by the same Service Provider

D. Load-balancing is configured between the Public and Private UCS

What is the purpose of Local Internet Breakout in an SD-WAN service?

A. To split the IP and Ethernet traffic at the UNI

B. To create a backup UCS between UNIs

C. To forward traffic directly to the public Internet

D. To allow another UCS operated by a different ISP

Which SD-WAN component provides dynamic maps of the topology to help troubleshoot SD-WAN issues?

A. SD-WAN Edge

B. SD-WAN Controller

C. SD-WAN Gateway

D. Service Orchestrator

Item/Question Stem:

A company has multiple branches and two data centers connected by an MPLS service. The users at the branches access the Internet using Internet Access Services at the data centers.

To address the continual growth of Internet access for SaaS applications, the company has had to upgrade both the MPLS service and the Internet Access Services several times. Access to the SaaS applications now exceeds internal corporate traffic.

The company wants to use an SD-WAN Service with a public UCS and a private UCS at all locations.

What is the recommended SD-WAN design at each branch?

Responses

A ☐
- Public UCS bandwidth is greater than the Private UCS bandwidth
- INTERNET-BREAKOUT = *Disabled*

B ☐
- Private UCS bandwidth is greater than the Public UCS bandwidth
- INTERNET-BREAKOUT = *Disabled*

C ☐
- Private UCS bandwidth is greater than the Public UCS bandwidth
- INTERNET-BREAKOUT = *Enabled*

D ☐
- Public UCS bandwidth is greater than the Private UCS bandwidth
- INTERNET-BREAKOUT = *Enabled*

Item/Question Stem:

A company has five remote sites and a data center migrating to SD-WAN with the following characteristics:

- Each remote site has a 200 Mbps connection to an MPLS service, and the data center has 1 Gbps connection to the MPLS service
- The MPLS connections will not be disconnected
- All locations require Local Internet Breakout
- There is a forecast for 150 Mbps of business-critical traffic needing resiliency and 50 Mbps of non-critical Internet traffic

Which minimum additional UCS option meets the requirements?

Responses

A ☐ A 300 Mbps MPLS UCS at the data center and the remote sites

B ☐ One additional 200 Mbps MPLS UCS at all locations, one additional 50 Mbps Internet UCS at each remote site

C ☐ One additional 150 Mbps MPLS UCS at the data center, one 50 Mbps Internet UCS at each remote site

D ☐ A 200 Mbps Internet UCS at each remote site and a 1 Gbps Internet UCS at the data center

Item/Question Stem:

An SD-WAN Subscriber and an SD-WAN Service Provider have different threat database contents for a particular Security Function. The Service Provider's database matches a specific Application Flow to a security threat. The Subscriber's database does not.

The Subscriber does not view the application as a threat. How is this situation handled?

Responses

A ☐
- The Provider's classification takes precedence and the Application Flow will be blocked
- The Subscriber accesses the Provider's threat database and removes the application

B ☐
- The Subscriber's classification takes precedence and the Application Flow will be allowed
- No changes are necessary

C ☐
- The Provider's classification takes precedence and the Application Flow will be blocked
- The Provider must request a change using a predefined process

D ☐
- The Provider's classification takes precedence and the Application Flow will be blocked
- The Subscriber must request an update using a predefined process

Item/Question Stem:

A company wants to deploy an SD-WAN Service with UCS Type Service Attribute = *Public*. The UCS is a MEF IP Service.

What are the required values for the IPVC Service Attributes?

Responses

A ☐
- IPVC Topology Service Attribute = *Internet Access*, **or**
- IPVC Cloud Service Attribute with Cloud Type parameter = *Cloud Access*

B ☐
- IPVC Topology Service Attribute = *Internet Access*, **and**
- IPVC Cloud Service Attribute with Cloud Type parameter = *Cloud Access*

C ☐
- IPVC Topology Service Attribute = *Cloud Access*, **or**
- IPVC Cloud Service Attribute with Cloud Type parameter = *Internet Access*

D ☐
- IPVC Topology Service Attribute = *Cloud Access*, **and**
- IPVC Cloud Service Attribute with Cloud Type parameter = *Internet Access*

Item/Question Stem:

A finance company uses an SD-WAN Service to connect all its locations. Each location has one Public UCS and one Private UCS.

The company asks the IT manager to increase the security of the SD-WAN Service.

The IT manager enables all Security Functions at all SD-WAN Edges using the web portal. After this, users at the branches complain about a significant increase in delay accessing finance applications in the head office.

How can the IT manager address this issue?

Responses

A ☐ Disable all Security Functions at all branches and depend on encryption for security

B ☐ Increase Private UCS bandwidth of complaining branches

C ☐ Increase Public UCS bandwidth of complaining branches

D ☐ Enable only the Security Functions appropriate for the company's applications

Need more help? Email kirby@mef.net or utilize the only chat at https://mefprocert.com