CN8861 – Network Management

Quiz

26 May 2013

90 Minutes

Marks: 30

*Instructions:*

1. *Write your full name and student number at the top right hand corner of each sheet.*
2. *Please provide your response in the space provided.*
3. *You’re allowed to refer to class lecture materials No online resources are permitted.*
4. Identify correct statement(s) in the following:
5. OSI management standardization uses a variable oriented approach.
6. In the SNMP management framework, information exchange may be unreliable
7. All managed object definition found in a SMIv1 MIB contain ‘ACCESS’ clause.
8. Both SNMPv1 and SNMPv2c use community string for managed object access.
9. All of the above

**ANSWER: This question unfortunately do not have a single dominant answer. Everyone gets credit**

1. In your opinion, which of the following statement(s) is (are) key contributor(s) to wide adoption of SNMP network management standards?
2. IETF’s mandatory implementation experience requirement in the SNMP standardization process.
3. A large set of standard MIBs.
4. Strong acceptance and contribution to the SNMP standard activities by most influential network element vendors such as the Cisco Systems.
5. All of the above

**ANSWER: d)**

1. Which of the following is (are) NOT SMIv1 abstract data type(s)?
2. SnmpEngineID
3. Gauge32
4. Counter32
5. TestAndIncr
6. All of the above

**ANSWER: e)**

1. The main drawback(s) of SNMPv1 trap is (are):
2. Since SNMPv1 Trap is not acknowledged, it is difficult to know if it has reached its’ intended destination
3. For an enterprise SNMPv1 trap, the ‘specific-trap’ value alone do not uniquely identify the trap
4. For an enterprise trap, SNMPv1 Trap PDU do not support carrying vendor identification
5. a) and b) above
6. a), b), and c) above

**ANSWER: d)**

Provide full object identifier instances for the leaf objects ‘A’, ‘B’, ‘C’, and ‘D’ in the following diagram:

**1**

**3**

**6**

**1**

**A**

**2**

**3**

**4**

1

2

**B**

**C**

**1**

1

7

**D**

**ANSWER:**

**A: .1.3.6.1.1.0**

**B: .1.3.6.1.2.1.0**

**C: .1.3.6.1.3.2.0**

**D: .1.3.6.1.4.1.7.0**

1. Answer “Yes” or “No” to the following statements:
2. SMIv1 defines three primitive data types.
3. 64-bit counters are defined in the RFC1213 MIB-2
4. All IETF approved standard MIB objects are placed under the ‘mgmt’ branch of the global tree.
5. SNMPv1 defines six standard traps.
6. MIB-2 supports dynamic deletion and addition of rows.

ANSWER:

**a) Yes**

**b) No**

**c) Yes**

**d) No**

**e) No**

1. Under what circumstance a ‘tooBig’ error response is returned for a SNMPv1 get request?
2. When SNMP-GET request message size is too big for the receiving agent to handle
3. When the generated SNMP-GETRESPONSE exceeds maximum size the sending SNMP entity can handle
4. Both a) and b) above
5. None of the above

**ANSWER: b)**

1. State one standard Textual Convention you will use for each of the following managed object semantics:
2. measure of elapsed time since some event
3. time of day when some event occurred
4. the number of octets received on an interface
5. human readable textual information

**ANSWER**:

**a) TimeInterval**

**b)TimeStamp**

**c) Counter, Counter32, Counter64**

**d) DisplayString, SnmpAdminString**

1. What does the ‘error-status’ field in a SNMPv1 set-response PDU will contain when you try to set a read-only variable?
2. ‘tooBig’
3. ‘noSuchName**’**
4. ‘badValue’
5. ‘readOnly’
6. ‘genErr’

**ANSWER: b)**

1. What primitive data type the textual-conventions “StorageType”, “TruthValue”, and “TestAndIncr” resolve into?
2. INTEGER
3. OCTET STRING
4. Enumerated Integer
5. Unsigned32
6. None of the above

**ANSWER: a)**

1. Which of the following protocol operations in SNMPv1 doesn’t require a response or an acknowledgement?
2. SNMP-BULKGET
3. SNMP-SET
4. SNMP-INFORM
5. SNMP-TRAP
6. None of the above

**ANSWER: d)**

1. Which of the following SNMPv1 operation(s) is capable of returning ‘endOfMibView’ as a value in the variable binding?
2. SNMP-GET
3. SNMP-GETNEXT
4. SNMP-SET
5. SNMP-TRAP
6. a), b), and c) above
7. none of the above

**ANSWER: b)**

1. Which of the following is(are) correct statements in regard to SNMPv1?
2. The SNMP-GET and SNMP-SET PDUs have the same format
3. The SNMP-GET, SNMP-SET, and SNMP-GETNEXT PDUs have the same format
4. The SNMP-GET, SNMP-SET, SNMP-GETNEXT, and SNMP-GETRESPONSE PDUs have the same format
5. The SNMP-GET, SNMP-SET, SNMP-GETNEXT, and SNMP-TRAP PDUs have the same format
6. All of the above

**ANSWER: c)**

1. What managed object identifiers are fetched by the following operation?

SNMP-GetNextRequest (sysUptime, ifNumber, ifInOctets.1, ifInErrors.2, ifInDiscards.3)

1. {sysUptime.1, ifNumber.1, ifInOctets.1, ifInErrors.2, ifInDiscards.3}
2. {sysUptime.0, ifNumber.0, ifInOctets.1, ifInErrors.2, IfInDiscards.3}
3. {sysUptime.0, ifNumber.0, ifInOctets.2, ifInErrors.3, ifInDiscards.4}
4. {sysuptime.1, ifInOctets.1, ifInOctets.2, ifInErrors.3, ifInDiscards.4}

**ANSWER: c)**

1. What primitive- or abstract data type the textual-conventions “StorageType”, “DisplayString”, and “TimeStamp” resolve into?
2. INTEGER, INTEGER, and TimeTicks, respectively
3. INTEGER, OCTET STRING, and TimeTicks, respectively
4. INTEGER, INTEGER, and INTEGER, respectively
5. OCTET STRING, INTEGER, and TimeTicks, respectively
6. None of the above

**ANSWER: b)**

1. Which SNMP protocol versions transfer ‘community string’ in clear-text?
2. SNMPv1
3. SNMPv2c
4. SNMPv3
5. a) and b) above
6. b) and c) above

**ANSWER: d)**

1. In what category HP Network Node Manager primarily falls into?
2. Element Management System
3. Network Management System
4. Service Management System
5. a) and b) above
6. b) and c) above

**ANSWER: b)**

1. What is the significance of ‘sysObjectID’ in MIB-2 System Group?
2. ‘sysObjectID’ uniquely identifies SNMP Engine ID
3. ‘sysObjectID’ uniquely identifies SNMP Entity
4. ‘sysObjectID’ uniquely identifies the Device Vendor
5. None of the above
6. a) and c) above

**ANSWER: c)**

1. When you receive an enterprise-specific SNMPv1 trap what information you require to identify the vendor?
   1. The device vendor information (sysObjectID)
   2. The value of the ‘Generic-trap’ field
   3. The value of the ‘Specific-trap’ field
   4. a) and c) above
   5. a), b), and c) above

**ANSWER: a)**

1. Under what circumstance a device generates an ‘authenticationFailure’ trap?
2. When a device receives a SNMPv1 get request with a wrong community.
3. When a device receives a SNMPv1 set request with a wrong community.
4. When a device receives a SNMPv1 trap request with a wrong community.
5. a) and b) above
6. None of the above.

**ANSWER: d)**

1. Identify the OSI equivalent for the following IETF network management acronyms:
2. SNMP
3. MIB
4. OID
5. TRAP

**ANSWER: CMIP, MIT, DN, EVENT-REPORT**

22. Let’s say you want to retrieve the following MIB table:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Index | A | B | C | D | E |
| 1 | A.1 | B.1 | C.1 | D.1 | E.1 |
| 2 | A.2 | B.2 | C.2 | D.2 | E.2 |
| 3 | A.3 | B.3 | C.3 | D.3 | E.3 |
| 4 | A.4 | B.4 | C.4 | D.4 | E.4 |

Show the most efficient way to retrieve all the rows in the table

**ANSWER: SNMPGETBULK (non-repeaters=0, max-repitions=4, A, B, C, D, E)**

1. What can you expect when you send snmpgetnext (A, B.2, E.4) request to an agent that implements the above table?

**ANSWER: A.1, B.3, EndOfMibView**

24. Which of the following managed object type most likely would be implemented as a persistent storage type?

1. SnmpEngineID
2. Gauge32
3. TestandIncr
4. All of the above
5. a) and b) above

**ANSWER: a)**

25. Answer “Yes” or “No” to the following:

1. A SNMPv3 Entity can have one engine.
2. A SNMPv3 Entity supports only one context.
3. A “contextName” uniquely identifies a SNMPv3 engine.
4. A “snmpEngineID” uniquely identifies a SNMPv3 Entity.
5. An OID can appear under more than one context.

**ANSWER:**

1. **Yes**
2. **No**
3. **No**
4. **Yes**
5. **Yes**

26.Which SNMP version introduced the ‘Inform’ protocol operation and how it is different from the ‘Trap’ protocol operation?

* 1. Version 2, ‘Inform’ is same as ‘Trap’ except it is acknowledged
  2. Version 3, ‘Inform’ is same as ‘Trap’ except it is acknowledged
  3. Version 3, ‘Inform’ is same as ‘Trap’, but is used to send a Report.
  4. Version 2, ‘Inform’ is same as ‘Trap’ except it is used in Agent-to-Agent communication.
  5. None of the above

**ANSWER: a)**

27.State the scope of encryption in a SNMPv3 message:

1. PDU
2. Scoped PDU
3. Scoped PDU + USM Headers
4. Scoped PDU + Message Headers
5. Scoped PDU + USM Headers + Message Headers

**ANSWER: b)**

28. Which kind of UNI to UNI connectivity is used for the Ethernet Private Line (EPL) service?

a) Ethernet Private Circuit

b) Point to Point Ethernet Private Connection

c) Point to Point Ethernet Virtual Connection

d) Point to Point Ethernet Virtual Circuit

**ANSWER: d)**

29. Which three Service Types are defined in MEF? (Select three.):

a) Ethernet Circuit (E-Circuit)

b) Ethernet Line (E-Line)

c) Ethernet Tree (E-Tree)

d) Ethernet Transparent Connection (E-TC)

e) Ethernet LAN (E-LAN)

**ANSWER: b), c), e)**

30. An enterprise has a hub location and three branch locations that need to be connected to the hub. The equipment at each branch consists of a single router with an Ethernet interface that is unable to support virtual LANs (VLANs). At the hub location there is a router that supports VLANs. Which service arrangement meets the needs of the enterprise?

a) one instance of Ethernet Virtual Private Line (EVPL) between each branch and the hub

b) one instance of Ethernet Virtual Private Line (EVPL) between each branch and the hub with Customer Edge VLAN Identifier (CE-VLAN ID) preservation = Yes

c) one instance of Ethernet Private Line (EPL) between each branch and the hub

d) two instances of Ethernet Private Tree (EP-Tree) with the hub UNI designated as a Root

**ANSWER: c)**