Vendor: Microsoft

Exam Code: 74-335

Exam Name: Lync Network Readiness Assessment

Version: DEMO

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Case Study 2 - Humongous Insurance (Question 16 – Questions 27)

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Case Study 5 - Lucerne Publishing (Question 51 – Questions 61)

Background

Lucerne Publishing is an international publishing company headquartered in Seattle. Lucerne specializes in computer technology books and popular science magazines. The company was founded in 2001 and has since expanded significantly through multiple acquisitions.
Lucerne Publishing has four main editorial offices, located in Seattle, Denver, London, and Beijing. The company also has more than 50 bookstores and publishing units distributed worldwide, with the biggest bookstore and library located in Glasgow.

Today the company has 2,900 employees worldwide:

Office / data center	Number of users	Departments
Seattle	1,250	Headquarters, human resources, finance, sales, marketing, editorial office
Denver	600	Finance, sales, editorial office
London	450	Marketing, sales, editorial office
Beijing	300	Marketing, sales, editorial office
Glasgow	60	Bookstore, publishing unit, library
Other remote offices	240	Bookstore, publishing unit, library
Total	2,900	

Proof of Concept Deployment

Lucerne Publishing has a proof of concept (POC) deployment of Lync 2013.

During the POC testing, users reported the following:

- In the Seattle office, there were significant delays in the Presence status updates.
- In the Seattle office, the quality of audio calls is often poor during business hours.
- In the London office, users often experience issues with video calls during business hours, such as video freezing or video not being available during conferences.

The management team would like to rectify the issues which users have reported before proceeding with an implementation.

Existing Environment

The existing application environment includes the following components:

- An Active Directory (AD) domain named lucepub.com with two regional subdomains named uk.lucepub.com and ch.lucepub.com.
- A Microsoft Exchange 2010 organization with MS Exchange 2010 servers

in Seattle and London.

The Beijing office has an Office Communications Server (OCS) 2007 R2 deployment, including Group Chat.

Each editorial office has a datacenter to support local infrastructures. The existing network infrastructure is configured as shown in the Network Topology Diagram exhibit. (Click the Exhibit button.)

The data centers connect to each other by using a Multiprotocol Label Switching (MPLS) network with wide area network (WAN) links that have the following characteristics:

Data center	Link type	Link speed (Mbps)	Phone system
Seattle	MPLS	100	IP-PBX
Denver	MPLS	100	IP-PBX
London	MPLS	40	IP-PBX
			PBX
Beijing	MPLS	10	PBX

Peak phone usage in the main offices is as follows:

Office	Number of calls per hour	Percentage of calls to North America	Percentage of calls to Europe	Percentage of calls to China
Seattle	1,000	60%	30%	10%
Denver	450	75%	15%	10%
London	300	40%	50%	10%
Beijing	600	15%	15%	70%

Client computers in each office are connected to a switched 100 Mbps Power over Ethernet (PoE) port, and servers are connected to 1-Gigabyte per second (Gbps) Ethernet ports. Corporate firewalls are installed at all locations, and Quality of Service (QoS) is available globally on the network equipment.

Business Requirements
Lucerne Publishing has the following requirements to validate the POC Lync Server 2013 deployment:

- Evaluate audio call quality and confirm that the public switched telephone network (PSTN) long distance calls are not required for interoffice communication.
- Evaluate the new collaboration tools and services (including conference calls, audio and video calls, instant messaging (IM), and screen sharing) and obtain user feedback.
- Model the call flow of video conference calls for the Beijing office users who will need to continue using OCS 2007 R2 client software during the coexistence phase of the deployment.
- Estimate the effectiveness of replacing the local PSTN connections in

each office with centralized session initiation protocol (SIP) trunking service (one per region: North America, Europe, and Asia).
- Ensure optimal audio quality of phone calls and conferences between all company offices.
- Support stereo audio for marketing and sales executives for internal conference calls to provide a high quality user experience.

Lucerne Publishing also requires that the following Lync 2013 components and maintenance tasks be evaluated:

- Back-end and network performance reports for business hours are generated on a daily basis.
- Today's performance reports for the Seattle office and the London office are shown in the Performance Reports section.
- The existing solution for monitoring network utilization between all major locations will trigger an alert if utilization becomes high.

Also, Lucerne Publishing has the following minimum requirements for the Beijing office:

- Ensure that the office link is not saturated with Lync 2013 traffic, and that other network services are not impacted by it.
- Implement Call Admission Control (CAC) to ensure the quality of the connection.
- Implement QoS to ensure that services other than Lync 2013 are not compromised.

Scalability of the solution is very important to Lucerne Publishing. The company has future acquisition plans, and it must be easy to integrate new offices and sites into the existing infrastructure to provide enterprise voice, messaging, and email solutions. It should also be easy to add additional servers to the existing locations in case those location experience growth and add users.

Finally, the solution must provide high availability (HA) and disaster recovery (DR) capabilities. It must provide failover and voice resilience mechanisms in case of single server or entire pool or site failure. For branch offices, voice resilience must be increased by using Survivable Branch Appliances (SBAs) or Survivable Branch Servers (SBSs).

Technical Requirements
Lucerne Publishing will need to be able place a server offline for maintenance without impacting Enterprise Voice.

All Lync traffic should be encrypted, and integrated security of Lync devices should be used when possible.

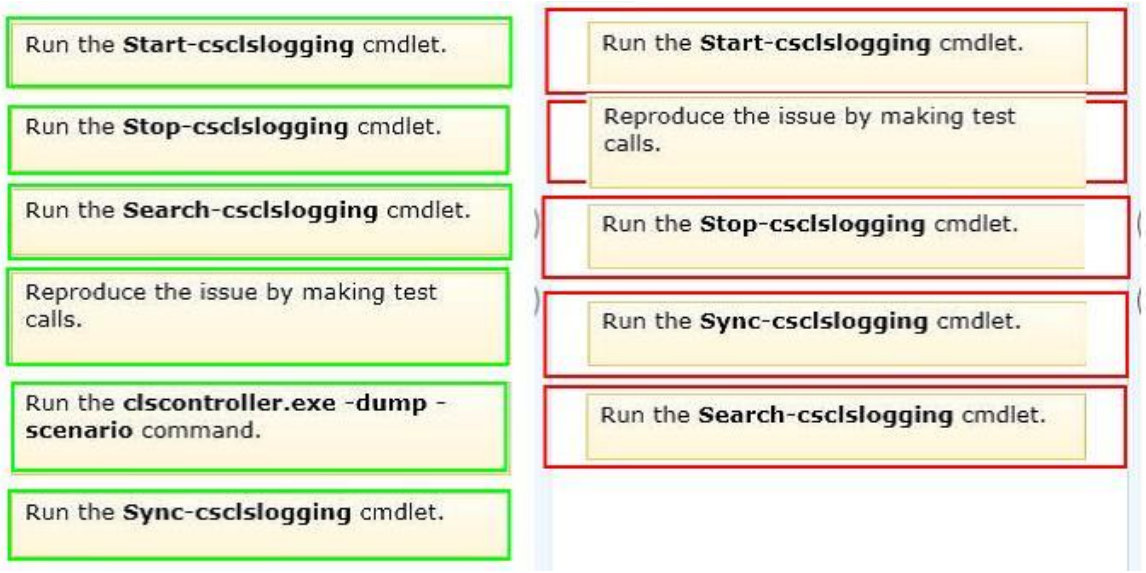
The solution must support:

- Microsoft Lync Phone Edition
- Connections from the Lync app from Windows Store for Windows 8 and Windows RT, and from Lync apps on mobile devices
- Interoperability with devices manufactured by participants in the Lync Interoperability program
- Interoperability with Skype clients

The existing implementation of WAN/LAN/Wi-Fi and QoS must also be supported.

QUESTION 1
Drag and Drop Question
You need to collect troubleshooting information to analyze the Enterprise Voice functionality issues at the Seattle office during the Proof of Concept (POC) testing.
Which five steps should you perform in sequence?
(To answer, move the appropriate five actions from the list of actions to the answer area and arrange them in the correct order.)

Answer:



QUESTION 2
You need to identify the quality metrics that are responsible for the issues with video calls for users in the London office identified during Proof of Concept (POC) testing.
Which quality metric should you identify?

A. average packet loss rate
B. average jitter
C. maximum round trip
D. burst gap duration

Answer: A

QUESTION 3
You need to identify the quality metrics that are responsible for the poor quality of audio calls for users in the Seattle office.
Which quality metric should you identify?

A. average packet loss rate
B. maximum round trip
C. burst gap duration
D. average jitter

Answer: D

QUESTION 4
You prepare to deliver a network assessment for a customer. The customer has four sites as described in the following table:

Characteristic	Site Name			
	New Delhi	Hong Kong	Seattle	New York
Total users	250	500	2000	2000
WAN link speed (Mbps)	2	20	200	300
BW allocated to RTC traffic	0.2	2	10	39
Peak users signed in	160	320	1280	1280
Total WAN BW	1864.2	3728.4	14253.6	14253.6
Total WAN BW no video	1424.2	2848.4	11393.6	11393.6
% of WAN link	93.21	18.64	7.13	4.75
% of WAN link no video	71.21	14.24	5.70	3.80
% of WAN BW for RTC traffic	932.10	186.42	142.54	47.51
% of WAN BW for RTC traffic no video	712.10	142.42	113.94	37.98

The results of the traffic simulation for Seattle to Hong Kong are shown in the following table:

Traffic simulated	Seattle to Hong Kong: 25 calls
Average MOS	4.36
Average Delay	53.48 ms
Average Jitter	0.42 ms
Maximum Jitter	60 ms
Average Packet Loss	1%
Maximum Consecutive Datagram Loss	2.00
General Comments	

You need to analyze the data and provide the General Comments for the traffic simulation results. What should you recommend?

A. The average delay is beyond acceptable levels. Users might experience poor call quality.
B. The network performance tests indicate the link is ready for voice.
C. The packet loss is above 0.5%. Audio quality will be greatly reduced.
D. The percentage of WAN BW for RTC Traffic is greater than 100%, and users will experience poor calls due to limited bandwidth.

Answer: A

QUESTION 5
Northwind Traders has a Lync 2013 deployment. The company has outsourced the help desk to a third- party service provider that is located in New Delhi. The service provider has a 10-MB site-to-site virtual private network (VPN) connection to Northwind Traders. The service provider uses a proxy server to route and monitor traffic to Northwind Traders. Both sites' computers are on the 10.10.1.x/24 subnet. The proxy server's Northwind Traders-facing IP is 192.168.1.100. New Delhi users can access Northwind Traders' Lync environment with username@northwindtraders.com, and they are able to access conferences without issue. However, users complain that they are unable to share their desktops. You need to recommend a solution. Which two actions should you recommend? (Each correct answer presents a complete solution. Choose two.)

A. Add an Edge server at the New Delhi office.
B. Route Lync traffic externally by using the Edge server.
C. Disable all firewalls between Northwind Traders and New Delhi.
D. Change IP scope and remove the proxy server.

Answer: AB

QUESTION 6
You perform a network readiness assessment for Lync deployment. The network includes a main office and 40 branch offices. The main office and 30 of the branch offices are located in North America and use a dedicated 20-megabits per second (Mbps) Multiprotocol Label Switching (MPLS) link. The remaining 10 branch offices are located in India and are connected to the main office by a virtual private network (VPN) site-to-site link. Each branch office includes 100 clients and two multipurpose servers. Employees from the branch offices will use the Lync client for peer-to-peer audio communications with employees at the main office. You need to identify the

number of offices required to test Lync readiness. What is the minimum number of offices you should include?

A. 2
B. 3
C. 40
D. 41

Answer: B

QUESTION 7
Your customer has a main office that houses 450 employees and a call center that houses 120 employees. The main office and the call center are connected by a 100-megabits per second (Mbps) wide area network (WAN) link. The call center uses a Private Branch Exchange (PBX) that has 150 incoming lines.
Your customer plans to deploy a Lync infrastructure for atl employees. You collect network information and start building a Lync usage model. You need to identify the deliverables that must be achieved after the Lync usage modeling phase is completed.
Which two deliverables should you achieve? (Each correct answer presents part of the solution. Choose two.)

A. Quality of Service (QoS) configuration
B. calculation of user-generated Lync traffic
C. calculation of server-to-server generated Lync traffic
D. calls simulation over the WAN link
E. RTC traffic estimation over the WAN link

Answer: AC

QUESTION 8
You perform a network readiness assessment for Lync deployment. The organization's network includes a head office and 400 branch offices. All branch offices are connected to the head office with a Multiprotocol Label Switching (MPLS) link. You have completed the traffic simulation. The Usage Modeling Data for the Beijing site is shown in the following table:

Total users	500
WAN link speed (Mbps)	20
Peak users signed in	320
Total WAN BW	3,728.4
Total WAN BW no video	2,848.4
% of WAN link	18.21%
% of WAN link no video	13.91%
% of WAN BW for RTC traffic	182.05%
% of WAN BW for RTC traffic no video	139.08%

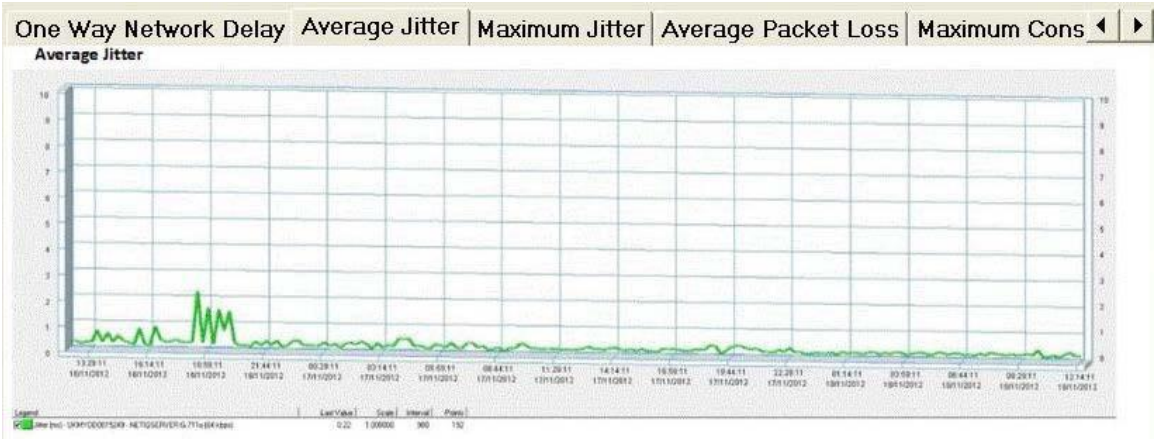
A summary of the simulation results is shown in the table below:

Traffic Simulated	Beijing: 18 calls
Average MOS	4.36
Average Delay	39.57 ms
Average Jitter	0.31 ms
Maximum Jitter	30 ms
Average Packet Loss	0%
Maximum Consecutive Datagram Loss	1
General Comments	Overall the network performed extremely well, with optimal scores throughout.

Detailed simulation results are shown in the following exhibits:

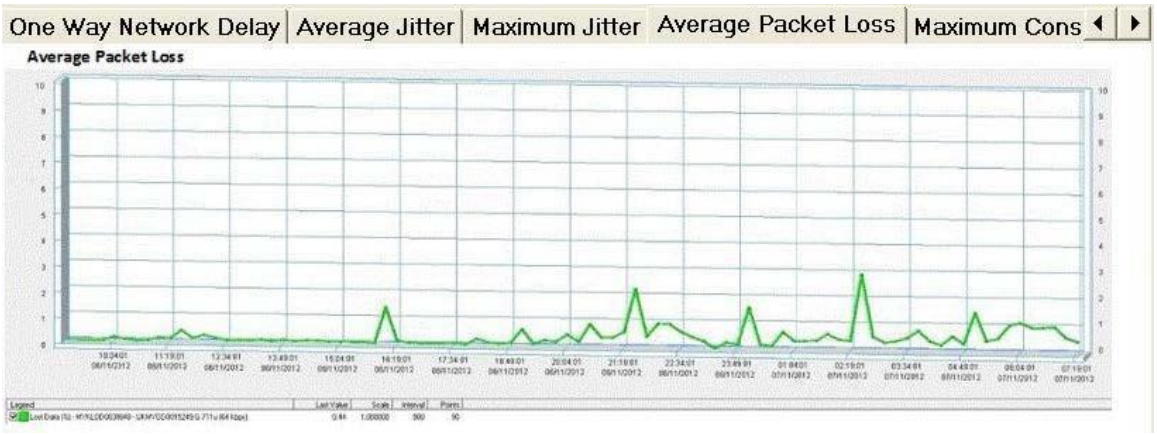
One Way Network Delay {Click the Exhibit button.)

Average Jitter (Click the Exhibit button.)

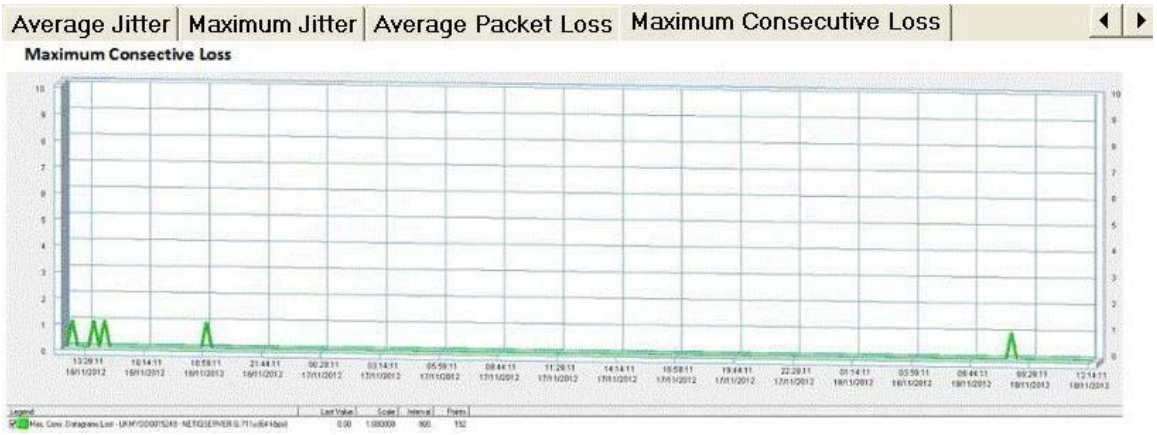


Maximum Jitter (Click the Exhibit button.)

Average Packet Loss (Click the Exhibit button.)



Maximum Consecutive Loss (Click the Exhibit button.)



You need to provide recommendations based on the simulation results. What should you recommend?

A. Implement Call Admission Control (CAC) on Lync for the affected sites.
B. Restrict video capability or reduce quality codec usage for certain user groups.
C. Increase WAN link bandwidth.

D. Monitor Quality of Experience (QoE).

Answer: C

QUESTION 9
Your company corporate telephony environment is a combination of Lync 2013 and traditional Private Branch Exchange (PBX). The company has 3,500 users at three sites that use a Multiprotocol Label Switching (MPLS) topology. On average, the company has 3 percent of its users dialing in for conferences and 7 percent on a public switched telephone network (PSTN) call at any time. The company plans to remove the PBXs and have all users use only Lync 2013. The company also plans to migrate from an existing content sharing platform. You need to generate a persona by using IP-based unified communication (UC) scenarios. Which three pieces of information should you collect when you are defining a persona for the existing communications? (Each correct answer presents part of the solution. Choose three.)

A. conference sessions
B. voice codec used
C. PSTN-to-PSTN sessions
D. peer-to-peer (P2P) sessions
E. content sharing

Answer: BDE

QUESTION 10
You need to determine whether the environment meets technical requirements for Lync apps on mobile devices from outside of the perimeter network.
Which two utilities should you use?
(Each correct answer presents a complete solution.
Choose two.)

A. Remote UC Troubleshooting Tool (RUCT)
B. Lync Server 2013 Control Panel
C. Remote Connectivity Analyzer
D. Lync Connectivity Analyzer

Answer: BD
Explanation:
D: Lync Connectivity Analyzer. This tool will help Lync administrators determine whether the deployment and configuration of their on-premises Lync Server environment meets the requirements to support connections from Lync Windows Store app and Lync mobile apps.
Incorrect:
Not A: RUCT is a free Windows utility for remotely diagnosing Lync Server and OCS issues. Specifically it helps to diagnose DNS configuration issues, certificate issues, and other Lync or Communicator client problems.
Not C: Test connectivity.

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