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74-335 PRACTICE EXAM

Lync Network Readiness Assessment

Product Questions: 95/5Case Study Version: 8.1

Case Study: 1
Humongous Insurance
Background
Humongous Insurance currently employs 7,500 people and is based in the United States.
The company has 4,000 users in its main office in Chicago. It also has two branch offices, one in New York with 2,000 users and the other in Los Angeles with 1,500 users. The company has 30 executives located across the offices.
The company recently migrated from Lync Server 2010 to Lync Server 2013.
The company plans to increase the use of audio and video (A/V) conferencing to reduce travel costs. Employees have been asked to use A/V, telephony, and instant messaging (IM) conferencing solutions whenever possible for communication with clients and users in the branch offices.
Humongous Insurance is federated with Trey Research Corporation, which uses a third-party IM. Users at both companies need to communicate with each other by using their respective IM client.
The company plans to continuously analyze the network to identify:

- potential network delay points and
- availability of adequate bandwidth to meet current requirements and anticipated growth.

The company plans to continuously analyze the Lync 2013 servers for performance metrics.
Planned Changes
Humongous is in discussion to acquire the Southridge Video company. Southridge Video has 2,000 users in two sites.
Employees of Humongous Insurance use a variety of mobile devices, including Windows Phones and iOS phones. All iOS phone users must be notified of events, such as new or missed IM invitations and voice mail messages, even when they are using the corporate wireless network.
All public switched telephone network (PSTN) traffic will use the G.711 codec.
All voice will use the RTAudio Wideband codec.
All peer-to-peer (P2P) video sessions will support H.264 and RTVideo codecs.
Audio bandwidth between the Los Angeles and New York offices is limited.
Challenges
All users report poor audio and video quality. Calls are dropped or suffer from jitter and lag. These issues exist when users are using the Lync client or Lync Phone Edition.
Humongous Insurance users currently are unable to IM with external clients that use different IM programs.
Currently there is no network oversight for Lync communications.
The company has no plans to increase the bandwidth at any sites.
Humongous Insurance does not have a defined remote user access policy.
Existing Environment
The three offices are connected to one another as shown in the following network diagram:

Additional information about the existing environment is shown in the Supporting Information section:

- Overview of data centers
- Detail of the Chicago data center
- Overview of audio and video codec bandwidths

Employees of Humongous Insurance use various operating systems, including Windows XP, Windows Vista Enterprise, Windows 7 Enterprise, and Windows 8. All users are enabled for Enterprise Voice, and many have Lync Phone Edition.

The concurrent communication modalities usage of the three offices is shown in the following table:

Role	Concurrent usage percentage		
	Chicago office	New York office	Los Angeles office
PSTN	5%	5%	5%
Voice	10%	10%	15%
H.264/RTVideo	5%	5%	5%

Humongous Insurance expects to see the number of video users increase by as much as 10 percent. The company expects to see the number of voice users increase by as much as 15 percent.

All users at Humongous Insurance will be Lync enabled.

The company uses synthetic transactions to perform call and voice tests.

Many of the employees of Humongous Insurance work from home and sign in securely to the corporate environment in order to use Lync.

Business Requirements

Humongous Insurance would like to review the existing network topology and wants to ensure that network capacity will meet current Lync 2013 infrastructure capacity requirements for audio and video usage, as well as meet the anticipated increases.

All existing issues relating to the poor quality of Lync calls and conferencing need to be addressed.

Company policy allows for all employees to have the option to use video conferencing. Employees will be limited to VGA video quality. Company executives will not have these limitations.

Quality of Service (QoS) ports must be unique for audio and video traffic.

The company wants to confirm that the current network bandwidth allocated for the network is sufficient for all current and anticipated growth in Lync traffic and would like to guarantee high-quality Lync calls and video conferencing.

Humongous Insurance wants to ensure that the volume of Lync traffic does not exceed 50 percent of WAN bandwidth.

The recommended design solution needs to eliminate the possibility of WAN oversubscription by Lync traffic.

Humongous Insurance wants to use only dedicated computers to monitor the network and perform synthetic transactions to limit the load on the computers.

The proposed Lync 2013 solution needs to provide scalability to accommodate the company's future

acquisition of Trey Research.
The proposed Lync 2013 solution should be readily available for users in all three sites.

Technical Requirements

The company wants to allow only authorized employees to connect remotely.
All remote users will use a secure method when remotely connecting to the network and the Lync environment.
The number of open and listening ports must be kept to a minimum.
All maintenance and tests of network policies must be done outside of normal business hours.
Bandwidth between sites cannot be increased.
The quality of voice and video traffic must be increased.
The number of dropped calls must be reduced.
The corporate information technology (IT) department must be able to push updates and scan users' computers when they are connected remotely.
All push notifications must be able to be sent mobile clients on all supported cell phone manufactures. Many users do not use Windows mobile phones.
IM users must be able to IM with users who are using other IM programs.
The Microsoft Lync 2013 Bandwidth Calculator must be used to analyze Lync traffic.
It is recommended to deploy QoS for end-to-end support.
Mobile client users are supported only with Lync 2010 Mobile clients.

Role	Chicago data center	New York data center	Los Angeles data center
Lync 2013 Front End Servers	CHI-LyncFE1 CHI-LyncFE2 CHI-LyncFE3	NYC-LyncFE1 NYC-LyncFE2	LA-LyncFE1 LA-LyncFE2
Lync 2013 Mediation Server	CHI-LyncME1 CHI-LyncME2	NYC-LyncME1 NYC-LyncME2	LA-LyncME1 LA-LyncME2

Role	Name
Active Directory Domain Controllers	CHI-DC1 CHI-DC2
Exchange 2013 Servers	CHI-EXCH1 CHI-EXCH2
Lync 2013 Back-End Server	CHI-LyncBE1
Lync 2013 Edge Servers	CHI-LyncEdge1 CHI-LyncEdge2
Windows Server 2008	CHI-Edge1
Windows Server 2012	CHI-Edge2

Audio codec	Bandwidth autio payload, IP header, UDP, RTP, and STRP (Kbps)
G.711	92.0
G.722	95.6
G.722 Stereo	159.6
Siren	47.6
RTAudio Narrowband	39.8
RTAudio Wideband	57

Video codec	Maximum bandwidth (Kbps)
H.264/RTVideo (320x240) 4:3	350
H.264/RTVideo (640x480) 4:3	800
H.264/RTVideo (1280x720) 16:9	2,500
H.264 (1920x288) 20:3	2,000
H.264 (1920x1080) 16:9	4,000

Question: 1

You need to identify the current average amount of bandwidth required for public switched telephone network (PSTN) calls for all three sites.
Which bandwidth should you choose?

A. 16,800 Kbps
B. 23,250 Kbps
C. 36,375 Kbps
D. 61,725 Kbps

Answer: C

Question: 2

You need to recommend a solution to test instant messaging (IM) communications with the federated company. Which synthetic transaction should you configure?

A. Test-CsMcxPushNotification
B. Test-CsMCXP2PIM
C. Test-CsASConference
D. Test-CsXmppIM

Answer: D

Explanation:

Note:
Humongous Insurance is federated with Trey Research Corporation, which uses a third-party IM. Users at both companies need to communicate with each other by using their respective IM client.
A third party IM provider will use XMPP.

Question: 3

You need to recommend a course of action to improve the performance of Lync audio and video sessions. What should you do?

A. Enable Quality of Service (QoS).
B. Deploy new wide area network (WAN) links between the Central Sites.
C. Enable Media Bypass.
D. Change the Differentiated Services Code Point (DSCP) values.

Answer: A

Explanation:
Bandwidth between sites cannot be increased.
The company wants to confirm that the current network bandwidth allocated for the network is sufficient for all current and anticipated growth in Lync traffic and would like to guarantee high-quality Lync calls and video conferencing.

Question: 4

You need to configure the monitoring computers to support the deployment of watcher nodes to meet the technical requirements. What should you do?

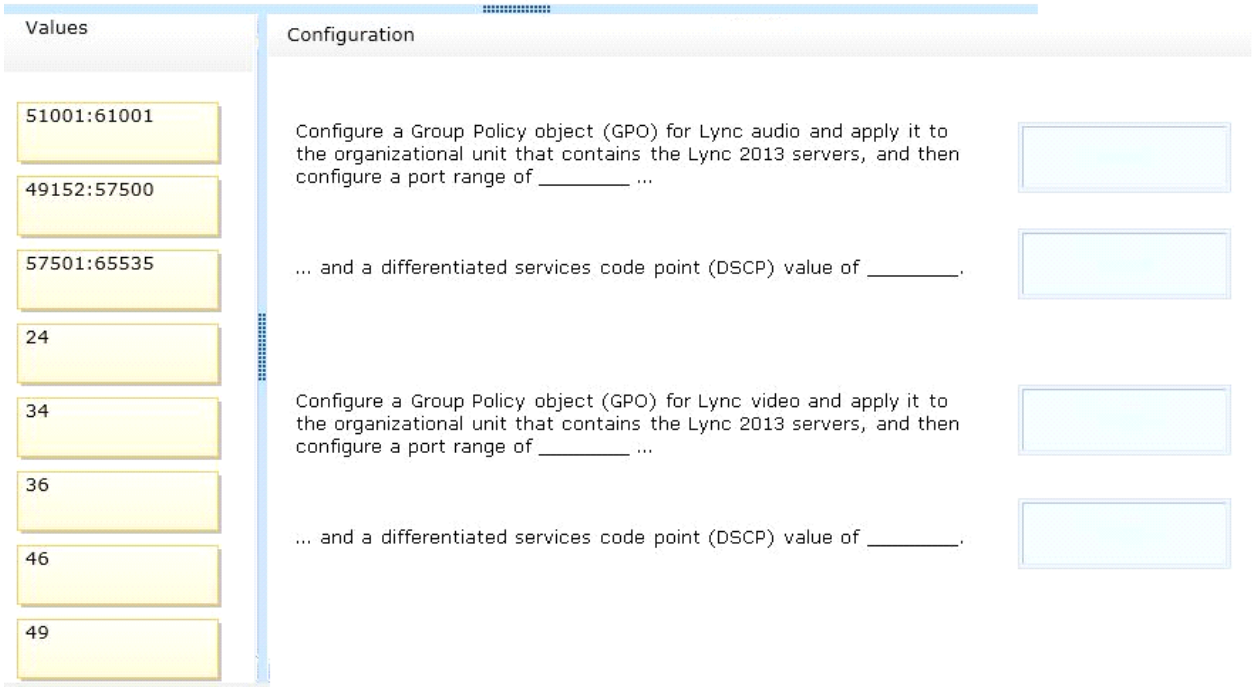
A. Deploy the Lync 2013 watcher nodes on the same computers as the Lync 2010 watcher nodes.
B. Deploy Lync 2013 watcher nodes and remove the Lync 2010 watcher nodes.
C. Run the Install-CsWatcherCollocate cmdlet on each computer that is running the Lync 2010 watcher nodes.
D. Run the Install-CsLegacyWatcherNode cmdlet on each computer that is running the Lync 2010 watcher nodes.

Answer: B

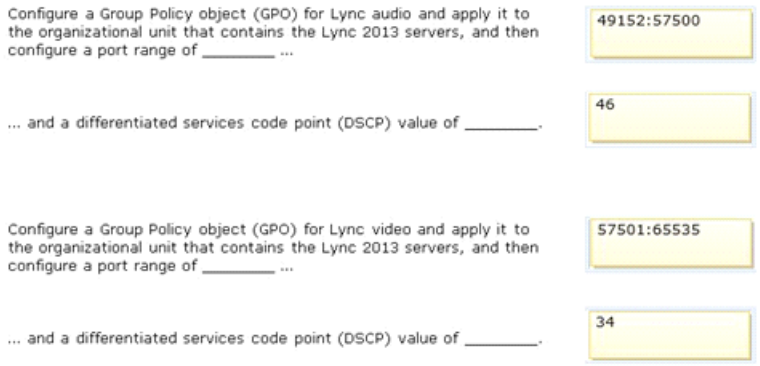
Explanation:
A legacy Microsoft Lync Server 2010 watcher node cannot be collocated on the same machine with a Lync Server 2013 watcher node. This is because the core system files for Lync Server 2010 and Lync Server 2013 cannot be installed on the same computer.
However, Lync Server 2013 watcher nodes can simultaneously monitor both Lync Server 2013 and Lync Server 2010. The Default synthetic transactions are supported on both product versions.

Question: 5

DRAG DROP
You need to prepare the Quality of Service (QoS) policy for the audio/video (A/V) Edge Servers in order to meet the technical requirements of Humongous Insurance.
Which values should you use for each configuration? (To answer, drag the appropriate value or values to the correct configuration or configurations in the answer area. Each value may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)



Answer:



Explanation:
http://technet.microsoft.com/en-gb/library/jj205076.aspx

Question: 6

You need to recommend a solution that will improve voice quality for Lync clients.
What should you recommend?

A. Configure an Audio and Video Quality of Service (QoS) to use a DSCP value of 40 and a port range of 57501:65535.
B. Change the Voice8021p value to 46.
C. Configure a Domain Group Policy object (GPO) configuring Quality of Service (QoS) and set it to Enforced for all Windows XP SP3 and Windows Vista clients.
D. Ensure that VoiceDiffservtag values are set to 46 for all Lync Phone Edition devices at all sites.

Answer: D

Explanation:
We have QoS on the servers using a DSCP value of 46 for audio. We should configure the Lync Phone devices to use the same DSCP value (instead of the default 40).

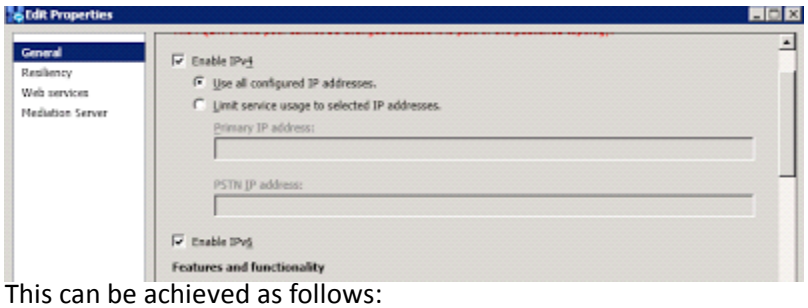
Question: 7

You need to recommend a solution to meet the planned changes for remote users.
Which two actions should you recommend? (Each correct answer presents part of the solution. Choose two.)

A. Configure internal Domain Name System (DNS) to point to the external IPv4 address for Lync Edge Services.
B. Configure Direct Access on CHI-Edge1.
C. Configure Direct Access to send Domain Name System (DNS) queries for the access, webconf, av, _sip._tls, and meeting URLs and all other Lync services to external DNS.
D. Limit service to selected IP addresses in the Topology Builder.

Answer: B, C

Explanation:
DirectAccess, Its Microsoft new Remote connectivity solution where users on the Internet get Intranet connectivity to their corporate network without installing any client or initiating any software like old traditional VPN.
Microsoft DirectAccess is purely based on IPV6 and Lync 2013 is fully supporting IPV6 and Lync 2013 clients using DirectAccess should work without any problem.
If any one encountered problems making Lync calls or connecting to Lync on a DirectAccess Computer then you need to ensure that IPV6 is enabled on the Lync 2013 Server as per the below image.



This can be achieved as follows:
Open the Lync 2013 Topology Builder from an old file or download the topology
Edit the properties of the Lync server and in the General Properties ensure that IPV6 is enabled.
These settings need to be published from the Action Menu - Topology - Publish
Now you can enjoy Lync 2013 over DirectAccess Connection.
* From scenario:
The company wants to allow only authorized employees to connect remotely.
All remote users will use a secure method when remotely connecting to the network and the Lync environment.

Question: 8

You need to identify the current maximum bandwidth required for peer-to-peer (P2P) video calls to match business requirements.
Which bandwidth should you choose?

A. 303,750 Kbps
B. 310,960 Kbps
C. 759,760 Kbps

D. 1,503,750 Kbps

Answer: A

Explanation:
The company has 30 executives located across the offices.
Company policy allows for all employees to have the option to use video conferencing. Employees will be limited to VGA video quality. Company executives will not have these limitations.
All peer-to-peer (P2P) video sessions will support H.264 and RTVideo codecs
VGA = 640x480 = 800kpbs for H.264 and RTVideo.
Execs using H.264 and RTVideo = 2500kbps
5% of 7500 users = 375
5% of 30 execs = 1.5
(375 x 800) + (1.5 x 2500) = 303,750

Question: 9

You need to configure the Lync 2013 environment to meet the technical requirements for push notifications for mobile users. Which two actions should you perform? (Each correct answer presents part of the solution. Choose two.)

A. Configure a web publishing rule for port 80 on the reverse proxy for the acquired domain.
B. Configure CNAME redirection over HTTPS for the acquired domain.
C. open port 5223 on the Enterprise Wi-Fi network.
D. Open port 23457 on the Enterprise Wi-Fi network.

Answer: AC

Explanation:
Mobile device clients do not support multiple Secure Sockets Layer (SSL) certificates from different domains. Therefore, CNAME redirection to different domains is not supported over HTTPS. For example, a DNS CNAME record for lyncdiscover.contoso.com that redirects to an address of director.contoso.net is not supported over HTTPS. In such a topology, a mobile device client needs to use HTTP for the first request, so that the CNAME redirection is resolved over HTTP. Subsequent requests then use HTTPS. To support this scenario, you need to configure your reverse proxy with a web publishing rule for port 80 (HTTP).
If you support push notifications and want Apple mobile devices to receive push notifications over your Wi-Fi network, you also need to open port 5223 on your enterprise Wi-Fi network. Port 5223 is an outbound TCP port used by the Apple Push Notification Service (APNS).
From scenario: All push notifications must be able to be sent mobile clients on all supported cell phone manufactures. Many users do not use Windows mobile phones.
http://technet.microsoft.com/en-gb/library/hh690030.aspx

Question: 10

You need to deploy and enable Quality of Service (QoS) on all workstations to meet the planned changes and performance goals. Which three actions should you perform? (Each correct answer presents part of the solution. Choose three.)

A. Apply Service Pack 3 to all Windows XP workstations and Service Pack 2 to all Windows Vista workstations.
B. Create Group Policy objects (GPOs) for Lync audio and video and configure them to use the same port ranges and

Differentiated Services Code Point (DSCP) values for QoS.
C. Create Group Policy objects (GPOs) for Lync audio and video and configure them to use different port ranges and Differentiated Services Code Point (DSCP) values for QoS.
D. Configure the Group Policy object (GPO) configuring QoS and set it to Enforced.
E. Upgrade all Windows XP and Windows Vista workstations to Windows 7 or above.

Answer: C, D, E

Explanation:
Note that Microsoft Lync Server 2013 does not support QoS for other Windows operating systems, such as Windows Vista or Windows XP.
The port ranges and DSCPs must be different for audio and video.
To create a Quality of Service audio policy for Windows 7 or Windows 8 computers, first log on to a computer where Group Policy Management has been installed. Open Group Policy Management (click Start, point to Administrative Tools, and then click Group Policy Management) and then complete the following procedure:

- In Group Policy Management, locate the container where the new policy should be created. For example, if all your client computers are located in an OU named Clients then the new policy should be created in the Client OU.
- Right-click the appropriate container and then click Create a GPO in this domain, and Link it here.
- In the New GPO dialog box, type a name for the new Group Policy object in the Name box (for example, Lync Audio) and then click OK.
- Right-click the newly-created policy and then click Edit.
- In the Group Policy Management Editor, expand Computer Configuration, expand Policies, expand Windows Settings, right-click Policy-based QoS, and then click Create new policy.
- In the Policy-based QoS dialog box, on the opening page, type a name for the new policy (e.g., Lync Audio) in the Name box. Select Specify DSCP Value and set the value to 46. Leave Specify Outbound Throttle Rate unselected, and then click Next.
- On the next page, make sure that All applications is selected and then click Next. This setting instructs the network to look for all packets with a DSCP marking of 46, not just packets created by a specific application.

Etc.

Question: 11

You need to identify the current average amount of bandwidth required for peer-to-peer (P2P) voice calls for all three sites.
Which bandwidth should you choose?

A. 36,960 Kbps
B. 51,150 Kbps
C. 80,025 Kbps
D. 135,795 Kbps

Answer: B

Question: 12

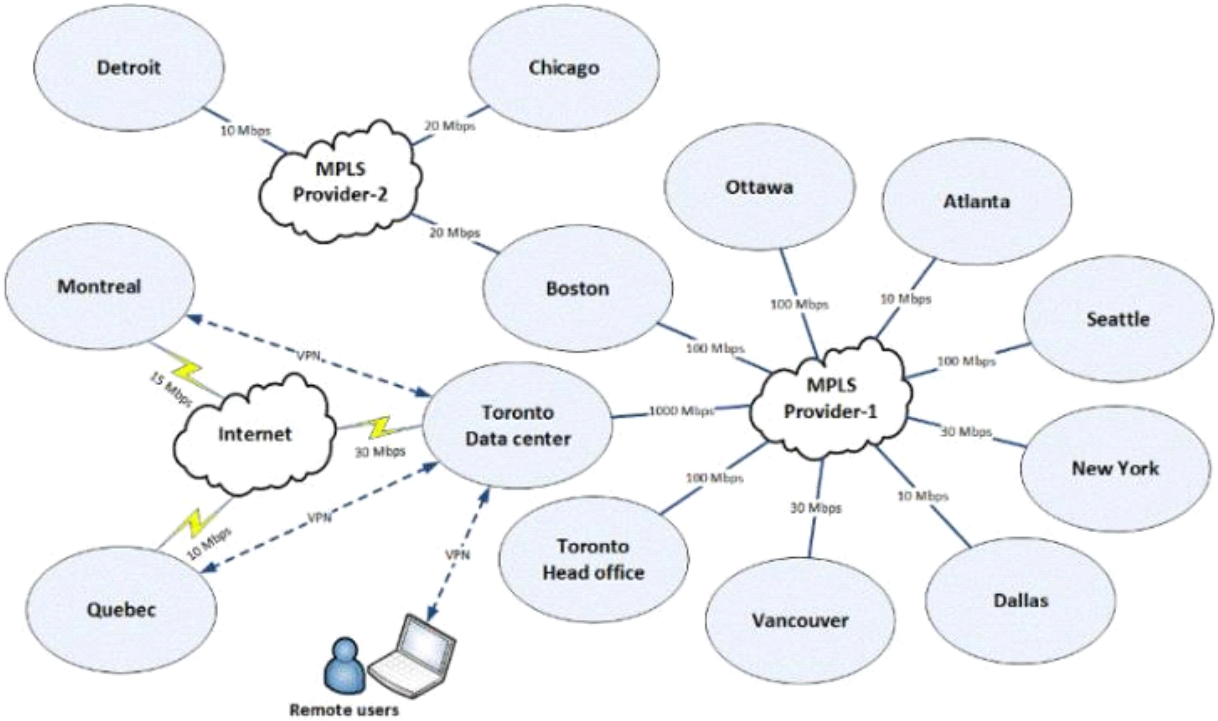
You need to recommend a solution to test users' ability to schedule, join, and conduct an audio/video (A/V) conference. What should you do?

A. Run the Test-CsMcxConference synthetic transaction, save the results, and then view the results through the Lync Server Logging Tool.

B. Run the Test-CsAVConference synthetic transaction and then analyze the trace call flow in Snooper.
C. Run the Test-CsUcwaConference synthetic transaction.
D. Run the Test-CsAudioConferencingProvider synthetic transaction, save the results, and then view the results through the Central Logging Service.

Answer: C

Case Study: 2
A Datum Corporation
Background
Based in North America, A. Datum Corporation is a leading financial technology solutions provider. The company provides mortgage lending processing, payment solutions, call centers, and other services for the largest Canadian and US financial institutions.
A. Datum Corporation has its main office and a data center in Toronto. Call centers are located in Montreal and Quebec. Branch offices are located in other cities across Canada and the United States.
The company plans to consolidate multiple isolated voice communication systems used across the office sites by a single scalable and secured unified communications (UC) solution. The company evaluated several UC vendors and has decided to deploy Microsoft Lync 2013.
A. Datum Corporation has grown very fast within the last few years. The company has made multiple acquisitions. Each acquired company had its own information technology (IT) policies and support procedures, and some branch offices still operate relatively independently. As a result, the existing network and server infrastructure is very inconsistent.
Existing Environment
A. Datum Corporation has consolidated all production servers in the data center. Network switches and routers are mounted in the data center and in secured racks in the offices.
Audio conferencing services for all employees are provided by a dial-in conferencing provider.
Video conferencing services are available in designated meeting rooms at various offices and are based on an eight-year-old third-party solution.
All offices, except the call centers, are linked by a Multiprotocol Label Switching (MPLS) network. The call centers are connected with the data center by virtual private network (VPN) links.
Quality of Service (QoS) is not currently implemented, but network specialists have detected that all existing equipment is compatible with possible QoS implementation.
The network topology diagram is shown in the Network Topology Diagram exhibit- (Click the Exhibit button.) The diagram shows bandwidth capacity of primary wide area network (WAN) links. All offices also have backup WAN links with bandwidth capacity of 50 percent of the matching primary WAN link.



Existing average primary WAN links workload is shown in the following table:

Site	WAN link	Bandwidth utilization
Atlanta	MPLS, Provider-1	25%
Boston	MPLS, Provider-1	15%
Boston	MPLS, Provider-2	25%
Chicago	MPLS, Provider-2	25%
Dallas	MPLS, Provider-1	40%
Detroit	MPLS, Provider-2	20%
Montreal	Internet	30%
New York	MPLS, Provider-1	20%
Ottawa	MPLS, Provider-1	5%

Site	WAN link	Bandwidth utilization
Atlanta	MPLS, Provider-1	25%
Boston	MPLS, Provider-1	15%
Boston	MPLS, Provider-2	25%
Chicago	MPLS, Provider-2	25%
Dallas	MPLS, Provider-1	40%
Detroit	MPLS, Provider-2	20%
Montreal	Internet	30%
New York	MPLS, Provider-1	20%
Ottawa	MPLS, Provider-1	5%
Quebec	Internet	40%
Seattle	MPLS, Provider-1	10%
Toronto data center	Internet	25%
Toronto data center	MPLS, Provider-1	15%
Toronto main office	MPLS, Provider-1	20%
Vancouver	MPLS, Provider-1	30%

Call center statistics show a steady increase in average call duration. Fifteen percent of call center incoming public switched telephone network (PSTN) calls are transferred to employees located in other offices.

Business Requirements

A. Datum Corporation wants to evaluate the existing network infrastructure to ensure that the infrastructure is capable of meeting the company's expectations of the new UC solution.

All existing phones will be replaced with voice over Internet protocol (VoIP) Power over Ethernet (PoE) phones.

Employees who travel between offices or work remotely must be able to use the Lync 2013 client installed on their laptops to make phone calls.

The proposed Lync deployment and possible QoS policies should not increase existing average network traffic delays for existing applications.

Audio conferencing traffic for employees in the call center sites must be limited.

The call centers must support monthly workload fluctuations from 50 to 200 contract employees who serve customers' incoming PSTN calls.

Audio communication between the offices must be operational 24 hours a day, seven days a week. Audio communication must remain available in a case of an external power failure at any office or at the data center.

The company also plans to improve the quality of call center services by decreasing the rate of dropped calls due to busy PSTN lines.

The network must be able to automatically switch to backup WAN links without any degradation of audio call quality.

Technical Requirements

All communications within the UC infrastructure must be secure due to compliance requirements for processing credit card information.

Wireless networks are restricted in the call centers; however, several other offices have implemented wireless guest networks.

Lync Edge Servers and Conference Servers will be located in the data center.

Existing analog and digital Private Branch Exchanges (PBXs) will be replaced with Lync Mediation Servers.
The existing video conferencing solution will remain untouched and left without Lync integration.
The network infrastructure must provide maximum network latency for real-time communication (RTC) traffic of 150 ms between any two offices.
Available bandwidth for the Lync RTC traffic is limited to 20 percent of the primary WAN links bandwidth.

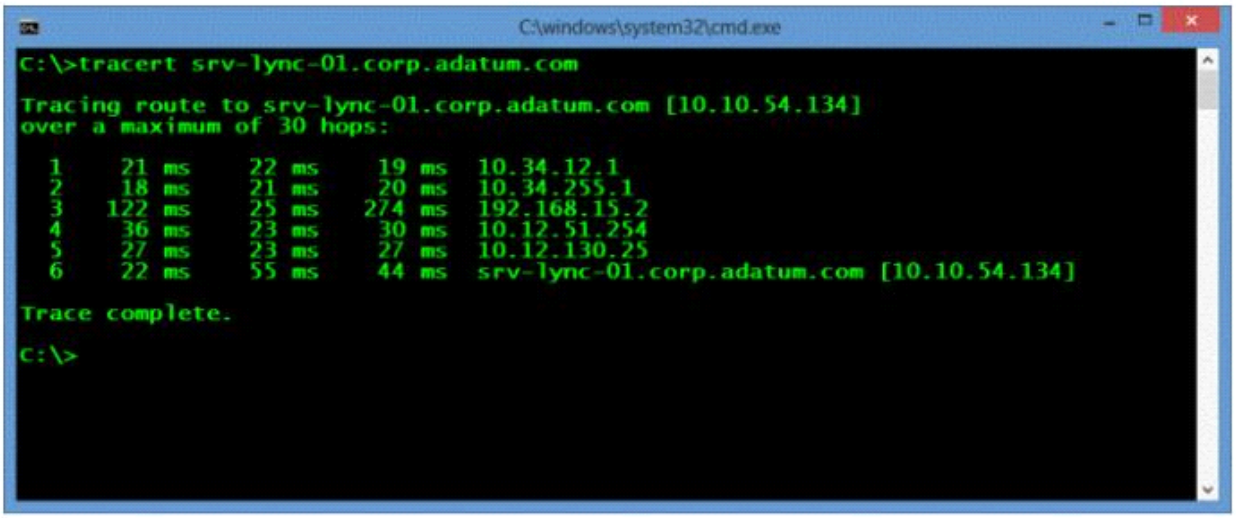
Lync Traffic simul-ation

The initial Lync traffic simul-ation has been completed for the following locations:

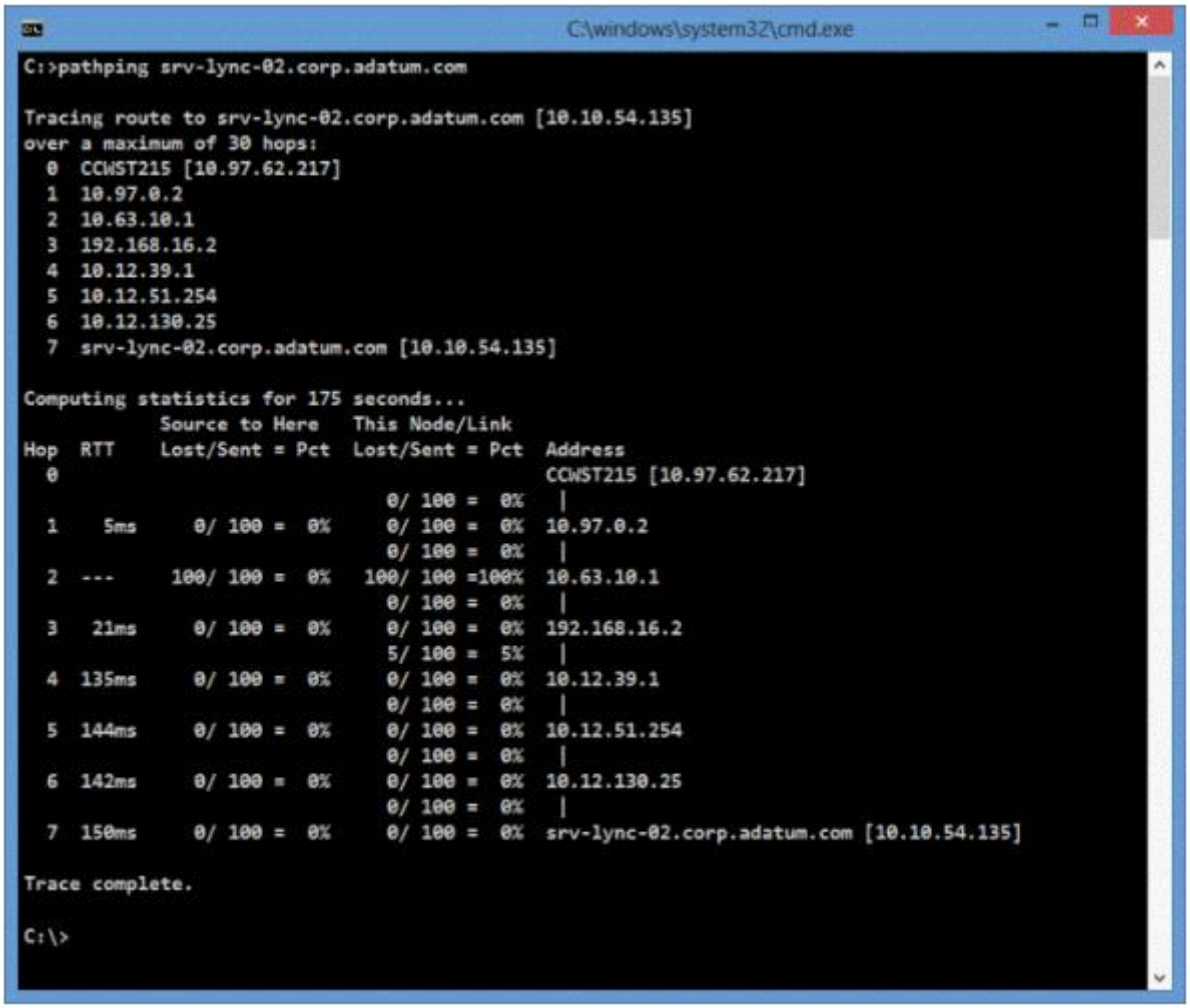
- Boston
- Detroit
- Chicago
- Montreal
- Quebec
- Toronto data center

A. Datum Corporation wants to design and perform an additional Lync traffic simul-ation for all other offices. The additional simul-ation must also include external users that connect through the Edge Server and simulate phone calls to the Mediation Server.

An output of the tracert.exe tool running from a desktop computer in the Quebec call center was captured during the initial Lync traffic simul-ation. The output is shown in the Quebec Traffic simul-ation Output exhibit. (Click the Exhibit button.)



An output of the pathping.exe tool running on a computer located in the Montreal call center was captured during the initial Lync traffic simul-ation. The target computer is located in the data center. The output is shown in the Montreal Traffic simul-ation Output exhibit. (Click the Exhibit button.)



The table below shows peak traffic delays between several offices during the initial Lync traffic simul-ation.

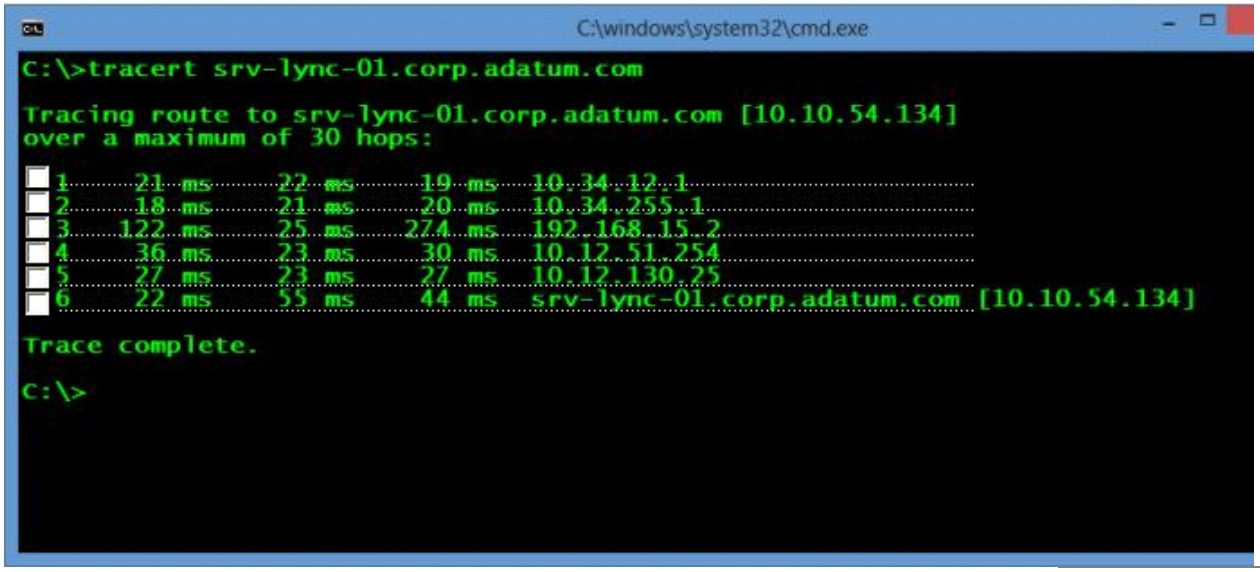
Office-1	Office-2	Delay (ms)
Boston	Toronto data center	15
Detroit	Chicago	45
Detroit	Boston	160
Detroit	Toronto data center	175

A portion of the initial Lync traffic simul-ation summary is shown in the table below. The table compares estimated (modeled) and simulated real-time communications (RTC) traffic over WAN links.

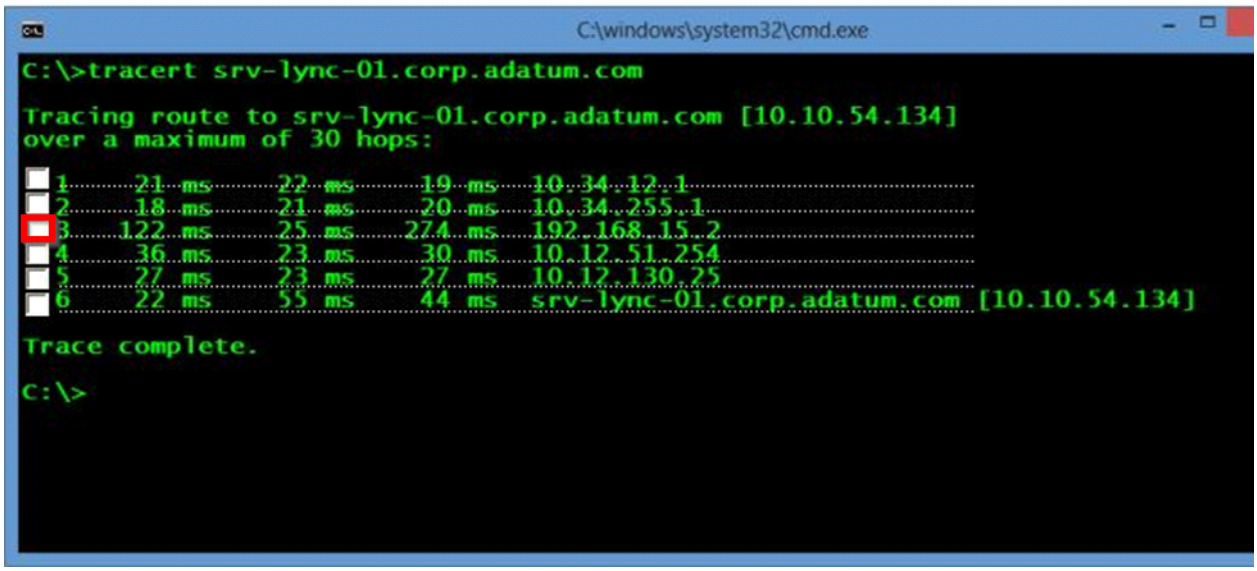
WAN Link	Modeled RTC Traffic (Kbps)	Simulated RTC Traffic (Kbps)
Montreal, Internet	2,500	2,700
Toronto datacenter, MPLS	91,000	105,000
Toronto datacenter, Internet	4,300	4,400
Quebec, Internet	2,000	1,900

Question: 1

HOTSPOT
You need to determine which hop or hops between the Quebec call center and the data center should be further investigated for high raw jitter values.
Which hop or hops should you select from the output of the tracert.exe tool? (To answer, select the appropriate line or lines in the command screen showing output of the tracert.exe tool.)

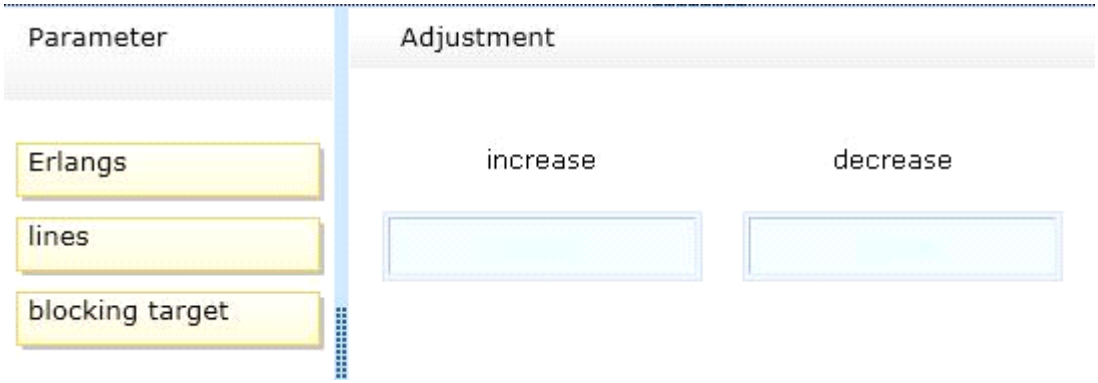


Answer:



Question: 2

DRAG DROP
You need to calculate the estimated number of incoming lines required to serve the future needs of the call centers.
How should you adjust the parameters in your calculation? (To answer, drag the appropriate parameter or parameters to the correct adjustment or adjustments in the answer area. Each parameter may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)



Answer:

Question: 3

You need to run a Lync traffic simul-ation for the Dallas office.
What should you do first?

A. Install Power over Ethernet (PoE) phones in the office.
B. Determine whether sufficient bandwidth is available.
C. Failover the office to a backup wide area network (WAN) link.
D. Implement Quality of Service (QoS) policies.

Answer: B

Question: 4

You need to validate the Lync 2013 implementation design traffic simul-ation scenario based on the existing network environment.
Which two actions should you perform during a test run? (Each correct answer presents part of the solution. Choose two.)

A. Confirm that Lync Server is configured correctly.
B. Confirm that the network infrastructure is configured correctly.
C. Confirm that Quality of Service (QoS) policies are being correctly applied.
D. Determine whether any congestion patterns develop within the network.

Answer: AB

Question: 5

You need to collect relevant information about the existing video conferencing solution.

Which piece of information should you collect?

A. video codecs used by the third-party video conferencing solution
B. conferencing usage statistics
C. echo cancellation capabilities with third-party video appliances
D. base video resolution used by the third-party video conferencing solution

Answer: B

Question: 6

You want to perform a traffic simul-ation for the Dallas office.
You need to identify the location to place the second probe.
Which location should you select?

A. Detroit office
B. location where Lync Conferencing services will reside
C. location that has the most congested network
D. Atlanta office

Answer: B

Question: 7

You are developing a scope of work (SOW) document for the Discovery phase in the call centers. You need to identify the deliverables to include.
Which piece of information should you include?

A. business hours of the offices and call centers
B. average duration of calls
C. available capacity of the uninterruptible power supply (UPS) devices located in rack mounts in the offices
D. inventory of Windows domains and workgroups

Answer: C

Question: 8

You need to recommend changes to improve the quality of Lync calls for users in the Detroit and Chicago offices. Which change should you recommend?

A. Upgrade the data center's Multiprotocol Label Switching (MPLS) link to 1,100 megabits per second (Mbps).
B. Implement Quality of Service (QoS).
C. Upgrade the wide area network (WAN) links at these offices to 30 megabits per second (Mbps).
D. Connect the offices to the Multiprotocol Label Switching (MPLS) network from Provider-1.

Answer: D

Question: 9

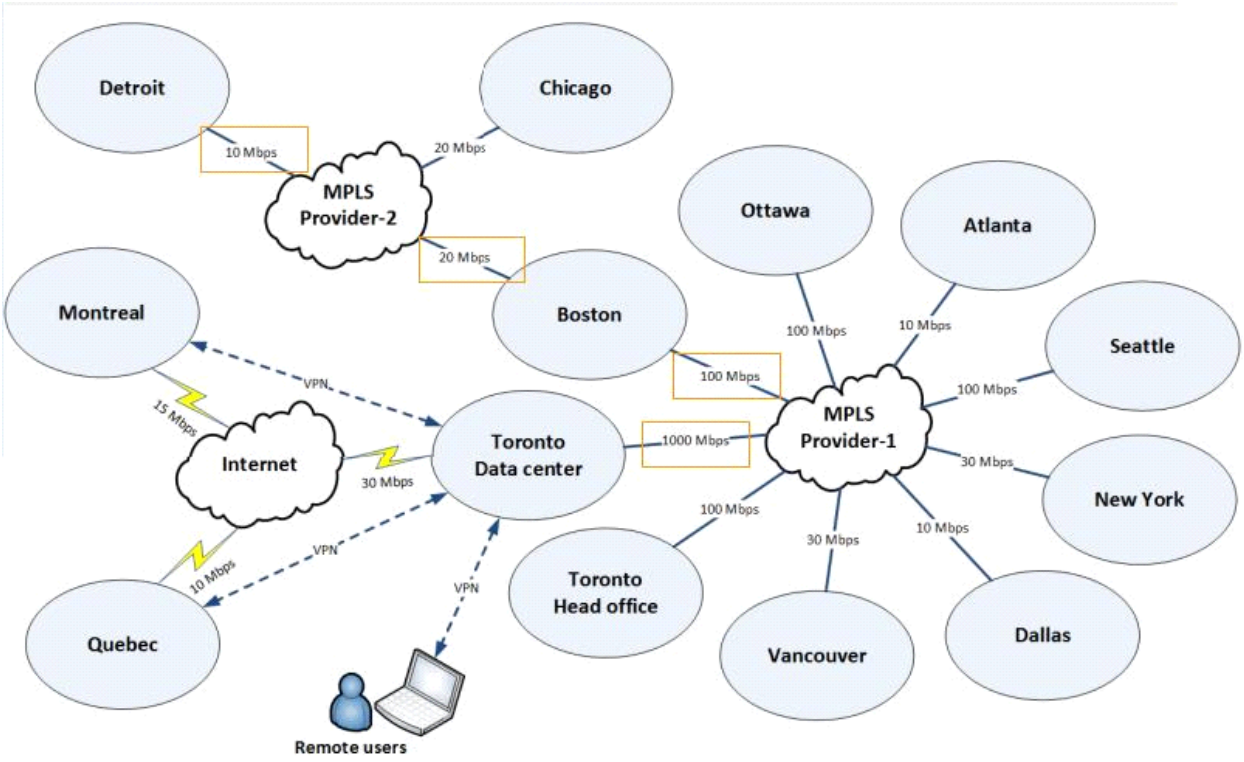
You need to recommend a network upgrade based on the results of the Lync traffic simul-ation. Which upgrade should you recommend?

A. Upgrade the backup Internet connection at the Quebec call center.
B. Upgrade the backup Multiprotocol Label Switching (MPLS) link at the Toronto data center.
C. Upgrade the backup Internet connection at the Toronto data center.
D. Upgrade the backup Internet connection at the Montreal call center.

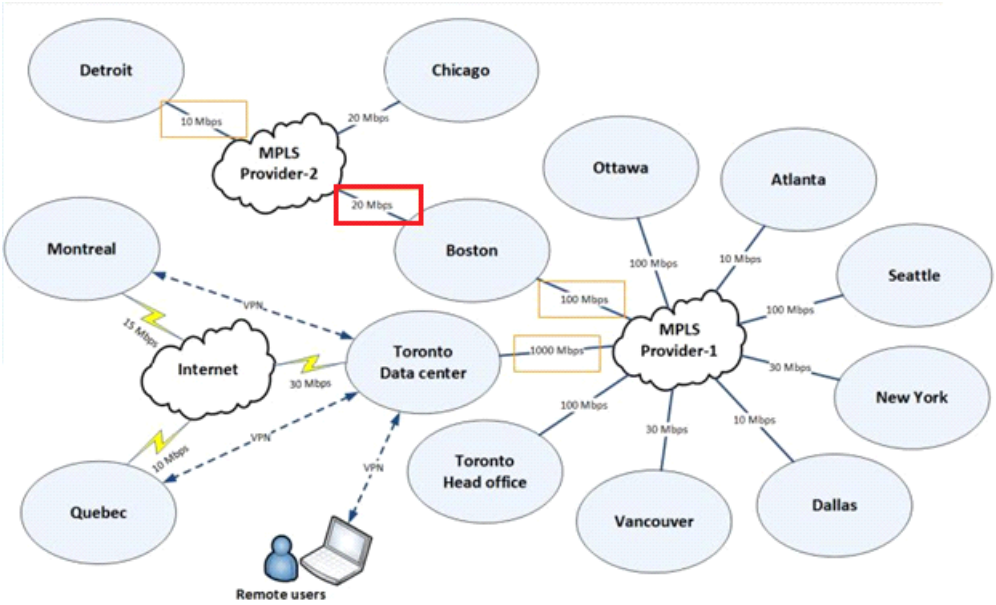
Answer: A

Question: 10

HOTSPOT
You need to identify the wide area network (WAN) link between the Detroit office and the data center that shows unacceptable performance. Which link on the network topology diagram should you choose? (To answer, select the appropriate link in the answer area.)



Answer:



Question: 11

DRAG DROP

You need to configure the Lync Server 2013 Stress and Performance Tool to simulate public switched telephone network (PSTN) traffic.

Which four actions should you perform in sequence? (To answer, move the appropriate four actions from the list of actions to the answer area and arrange them in the correct order.)

- Use UserProvisioningTool.exe to create users and contacts, and use UserProfileGenerator.exe to configure User Profile.
- Configure Lync Server 2013 for Scenarios.
- Install CapacityPlanningTool.msi on each client computer that you will be using to simulate user traffic.
- Use Stressconfig.exe to create users and contacts, and use UserProfileGenerator.exe to configure User Profile.
- Run LyncPerfTool.exe.
- Install CapacityPlanningTool.msi on test client computers and on the Front End Server.

Answer:

Install CapacityPlanningTool.msi on each client computer that you will be using to simulate user traffic.

Configure Lync Server 2013 for Scenarios.

Use UserProvisioningTool.exe to create users and contacts, and use UserProfileGenerator.exe to configure User Profile.

Run LyncPerfTool.exe.

Question: 12

You need to manage voice traffic for the call centers.
What should you do?

A. Define Call Admission Control (CAC) policies.
B. Modify the Lync Client policy for the call center users.
C. Modify the Lync Global Conferencing policy.
D. Define all audio traffic as non-real-time traffic.

Answer: C

Question: 13

You are analyzing the collected data about the current environment.
You need to identify the information that will be used to develop usage modeling to fulfill the business requirements.
Which three pieces of information should you choose? (Each correct answer presents part of the solution. Choose three.)

A. average meeting size and duration
B. number of users at each location
C. number of public switched telephone network (PSTN) channels provisioned
D. results of traffic simul-ation
E. total minutes of video conferences used per month

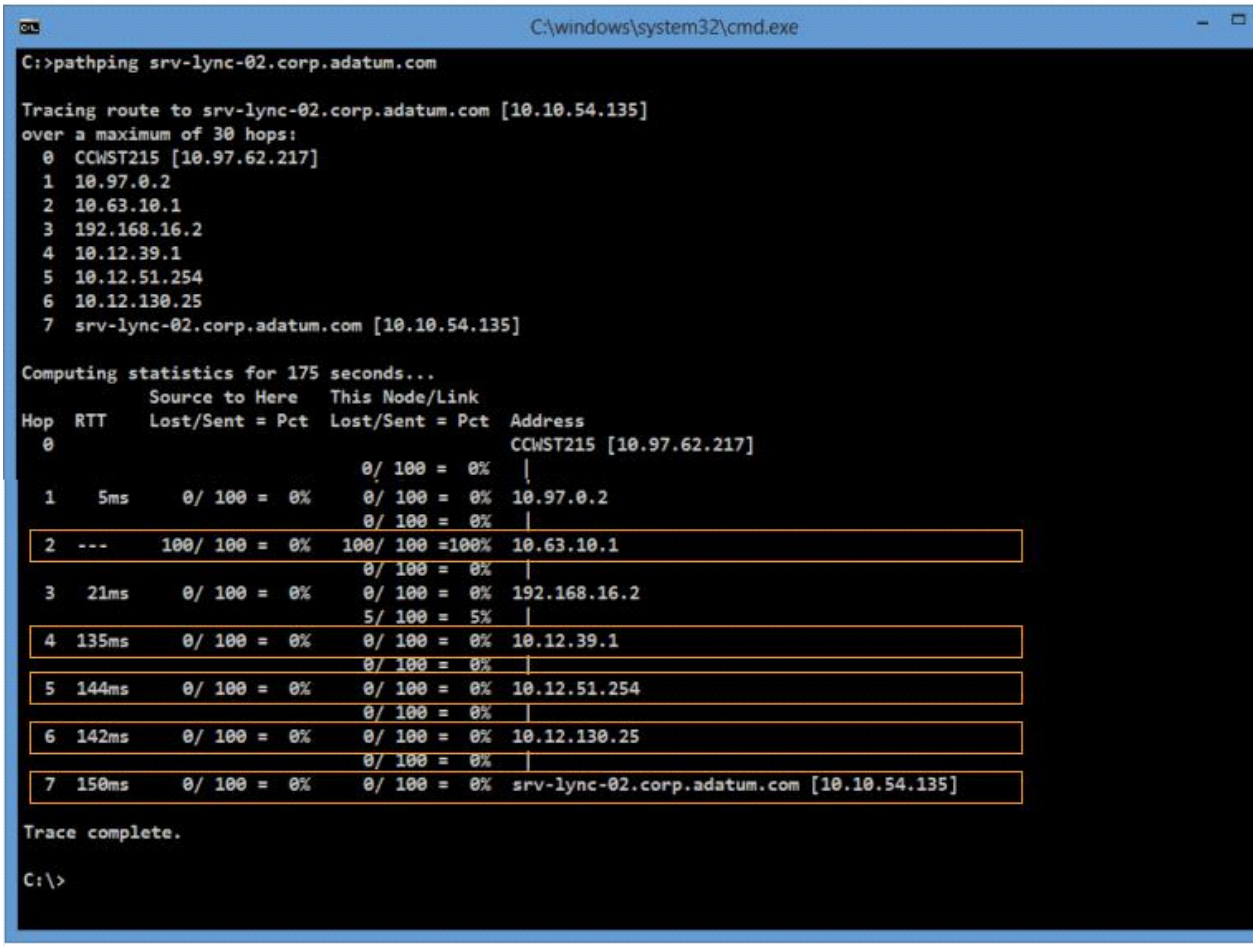
Answer: BCE

Explanation:
* To begin the process of usage modeling, you should ask a number of general questions:
How many site locations are there?
(B) How many users are at each site location?

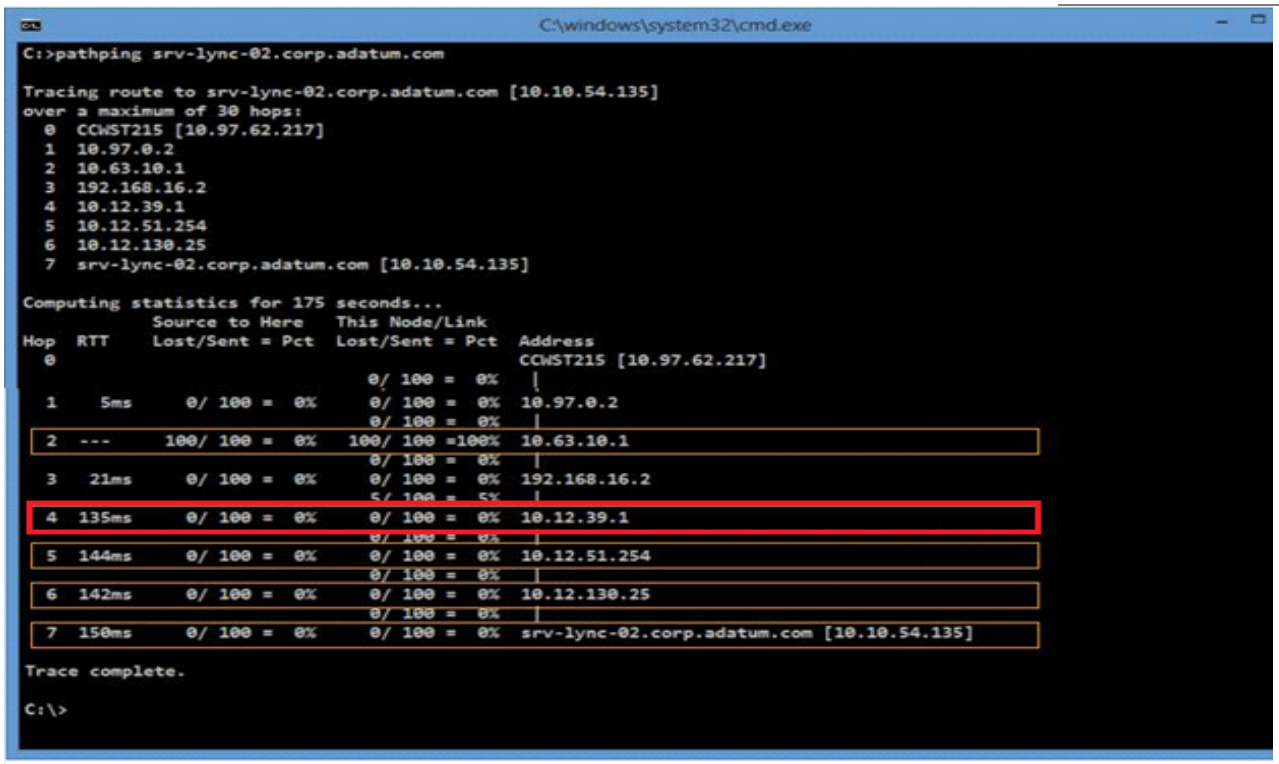
How many users will always be remote?
What are the future growth estimates?
What sort of WAN technology/topology is deployed?
What is your overall WAN link speed?
* A key ingredient in defining personas is to review the existing private branch exchanges (PBXs) or real-time communications system infrastructure capacity. This data helps to validate any personas and usage models that you create. It also helps to indicate any future capacity planning requirements for Lync servers, and other adjunct systems required. Evaluate the following information, if available, for usage modeling:
Number of PBXs implemented.
Number of public switched telephone network (PSTN) channels provisioned.
Number of any intersite tie connections between PBXs, or whether intersite calls are made through the PSTN.
Number of users at each location.
Call data records (CDRs) for PSTN traffic usage.
Usage statistics, such as the maximum number of concurrent calls during the busy hour:
(CE)Total number and usage of PSTN channels at each site
Trunk usage for intersite connections

Question: 14

HOTSPOT
You need to determine which hop between the Montreal call center and the data center must be further investigated due to unacceptable performance.
Which line in the output of the pathping.exe tool indicates the unacceptable performance? (To answer, select the appropriate line in the in the pathping.exe tool output.)



Answer:



Question: 15

You need to perform an additional traffic simul-ation for validating Lync Server implementation in the call centers. What should be the minimum duration of the simul-ation?

A. one week, business hours only
B. one week, 24 hours a day
C. one month, business hours only
D. one month, 24 hours a day

Answer: B

Explanation:
As a best practice, Lync Server traffic simul-ation scenarios for a specific site should include:
Running for a minimum of one week.
Running 24 hours a day.

Case Study: 3
Contoso Ltd
Background
Contoso, Ltd. is a Canadian business law firm that currently employs 300 people.
Contoso operates a main office in Vancouver that houses 250 employees and a branch office in Seattle that houses 50 employees. All Contoso users are Lync-enabled.
Contoso plans to introduce a remote disaster recovery data center to host remote replicas of key services, including Active Directory, Lync, Exchange, and files and legal software,
Contoso is launching a hybrid configuration of Office 365 to validate the cloud-based Exchange Online service.

Contoso also plans to acquire a small law firm in Vancouver called Litware, Inc., which has 80 employees. Litware currently uses a 10-megabit per second (Mbps) Internet connection.
Half of Litware employees will use Lync services. All Lync-enabled users in Litware will use Instant Messaging only. Currently, Instant Messaging concurrent usage at Litware is 50 percent during peak hours.
There is a possibility that Contoso will make two more acquisitions during the next three years.
Vancouver and Seattle employees have submitted support tickets to report poor quality of outbound Lync calls to external users. A user activity report collected by the help desk department is shown in the User Activity Report section.
There is a concern that in the future, the volume of Lync traffic may reach up to 50 percent of the current bandwidth available in the Vancouver office.

User Activity Report

Audio Stream (Caller -> Callee)			
Codec:	G722	Sample rate:	16000
Audio FEC:	False	Bandwidth estimates:	8987 Kbps
Packet utilization:	80370		
Avg. packet loss rate:	16 %	Max. packet loss rate:	21.00 %
Avg jitter:	23 ms	Max. jitter:	29 ms
Avg. round trip:	21 ms	Max. round trip:	24 ms
Burst duration:	0 ms	Burst gap duration:	1606060 ms
Burst density:	0.00 %	Burst gap density:	0.00 %
Avg. concealed samples ratio:	0.00 %	Avg. stretched samples ratio:	0.00 %
Avg. compressed samples ratio:	0.00 %		
Avg. network MOS:	2.21	Min network MOS:	1.89
Avg. network MOS degradation:	0.08	Max network MOS degradation:	0.40
NMOS degradation (jitter):	0.00 %	NMOS degradation (packet loss):	0.00 %
Avg. sending MOS:	1.35	Min. sending MOS:	1.00

Audio Stream (Callee -> Caller)			
Codec:	G722	Sample rate:	16000
Audio FEC:	False	Bandwidth estimates:	9011 Kbps
Packet utilization:	7887		
Avg. packet loss rate:	22.00 %	Max. packet loss rate:	29.00 %
Avg. jitter:	1.2 ms	Max. jitter	2.2 ms
Avg. round trip:	1.3 ms	Max. round trip:	2.2 ms
Burst duration:	0 ms	Burst gap duration:	156400 ms
Burst density:	0.00 %	Burst gap density:	0.00 %
Avg. concealed samples ratio:	0.00 %	Avg. stretched samples ratio:	0.00 %
Avg. compressed samples ratio:	0.00 %		
Avg. network MOS:	4.23	Min. network MOS:	4.06
Avg. network MOS degradation:	0.06	Max. network MOS degradation:	0.23
NMOS degradation (jitter)	0.00 %	NMOS degradation (packet loss)	0.00 %
Avg. listening MOS:	1.58	Min. listening MOS:	1.00

Existing Environment

The core portion of the infrastructure is located in the Vancouver data center, although the Seattle data center also has two servers (listed below) to provide redundancy of Active Directory and data services.

The following services and applications comprise Contoso's infrastructure in Vancouver and Seattle:

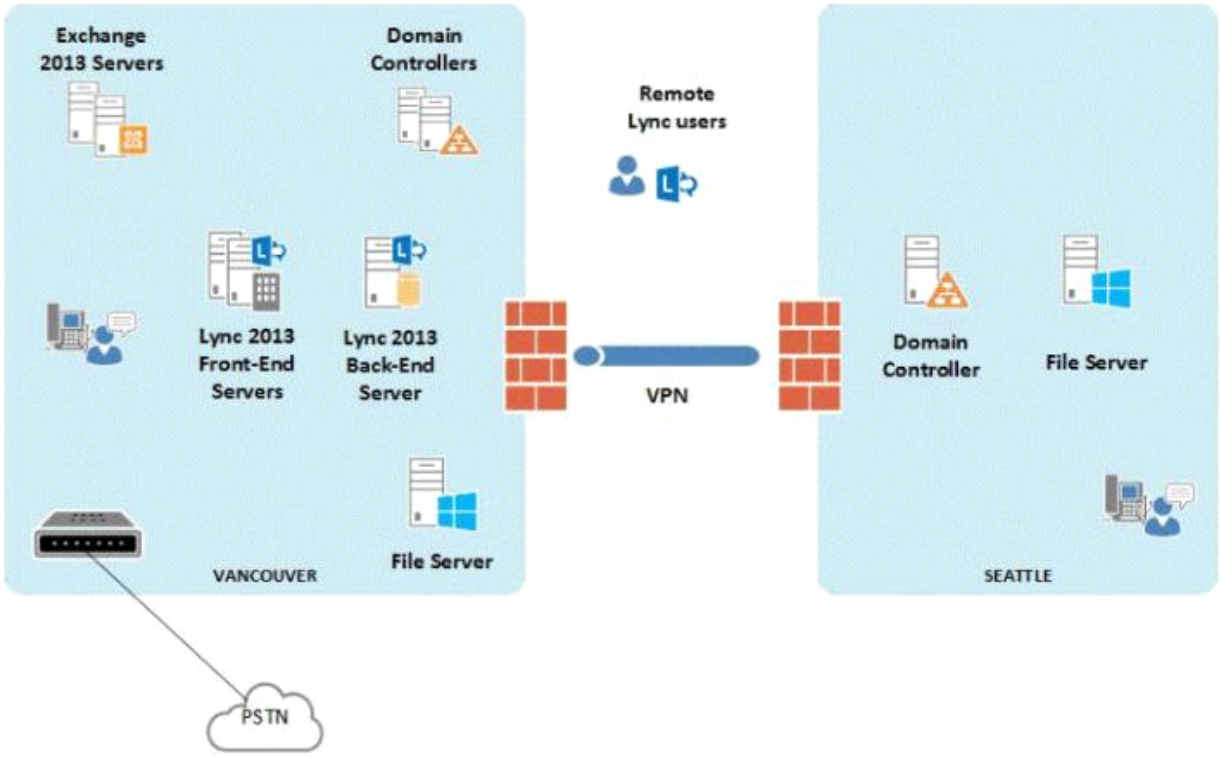
Vancouver Data Center

Role	Name
Active Directory Domain Controllers	DC1-VAN DC2-VAN
Exchange 2010 Servers	EXCH1-VAN EXCH2-VAN
Lync 2013 Front-End Servers	LyncFE1-VAN LyncFE2-VAN
Lync 2013 Back-End server	LyncBE1-VAN
Lync 2013 Edge Server	LyncEdge1-VAN
DFS Server	FileSRV1-VAN
Backup Server	BackupSRV1-VAN
Fax and Print server	PrintSRV1-VAN
Application Server	AppSRV1-VAN

Seattle Data Center

Role	Name
Active Directory Domain Controller	DC1-SEA
DFS Server	FileSRV1-SEA

An overview of the network infrastructure of Vancouver and Seattle data centers is shown in the exhibit. (Click the Exhibit button.)



All users in the Vancouver and Seattle offices use the Microsoft Windows 8 Enterprise operating system and Lync phones that are enabled for Enterprise voice.
Contoso expects to see a growing number of remote users. They anticipate that up to 20 percent of users in Vancouver might work remotely.
Contoso has defined a team of 35 users who will participate in a pilot deployment of the Office 365 hybrid configuration.
The offices in Vancouver and Seattle are using 5-Mbps Internet connections.
Contoso has a site-to-site VPN between the Vancouver office and the Seattle office.
All external outbound calls from the Vancouver and Seattle offices are routed outside through the office in Vancouver.

Business Requirements

Contoso needs to review the existing network topology as well as the Lync 2013 infrastructure to ensure that network capacity is sufficient to accommodate the Litware, Inc. Lync users in the future.
Contoso expects to see up to 85 percent of simultaneous instant messaging and 25 percent of public switched telephone network (PSTN) calls during business hours.
All existing issues that relate to poor quality of outbound Lync calls need to be addressed as well.
Contoso wants to ensure the following:

- Current network bandwidth allocated to the Vancouver office is sufficient to sustain the future volume of Lync traffic and guarantee high quality of Lync calls.
- Volume of Lync traffic does not exceed 25 percent of the WAN bandwidth.

Contoso plans to redesign the existing site-to-site VPN solution between the Vancouver and Seattle offices to implement a robust and reliable WAN solution with end-to-end support of Quality of Service (QoS).
The recommended design solution needs to eliminate the possibility of WAN oversubscription by Lync traffic.
The proposed Lync 2013 solution needs to be:

- Scalable to accommodate the company's future acquisitions.
- Readily available for Vancouver and Seattle users.

In case of a disaster, a manual switchover of Lync services to the disaster recovery datacenter should be

available.

Technical Requirements

All Session Initiation Protocol traffic (SIP) traffic must be encrypted.
All external Lync 2013 services must be protected by a firewall.
A commercial third-party certificate must be used on the external interface of Lync 2013 Edge servers.
The Role-Based Access Control (RBAC) model will be implemented to delegate basic administrative tasks to the Lync help desk team.
All maintenance of Lync servers must be performed outside of business hours.
The proposed architecture solution must support interoperability between Lync 2013 and Exchange 2013.
The Microsoft Lync 2013 Bandwidth Calculator must be used to analyze Lync traffic. The QoS end-to-end support needs to be implemented.

Question: 1

You need to determine which connection will be most affected by the Office 365 users.
Which two connections should you select? (Each correct answer presents part of the solution. Choose two.)

A. The internet connection at the Vancouver office.
B. The site-to-site virtual private network (VPN) between the Vancouver and Seattle offices.
C. The PSTN connection at the Vancouver office.
D. The internet connection at the Seattle office.
E. The PSTN connection at the Seattle office.

Answer: AD

Explanation:
* From scenario:
/ Contoso is launching a hybrid configuration of Office 365 to validate the cloud-based Exchange Online service.
/ Contoso has defined a team of 35 users who will participate in a pilot deployment of the Office 365 hybrid configuration.
/ The Exchange 2013 Servers are placed in Vancouver

Question: 2

You need to configure the Lync 2013 Bandwidth Calculator to provide a visual alert when the volume of Lync traffic at Contoso exceeds the maximum allowed threshold.
What should you do?

A. For the Contoso office in Vancouver, update the value for WAN link BW allocated for RTC traffic to 5 Mbps.
B. In the global definitions, update the value of the Flag in Red parameter to 50%.
C. For the Contoso office in Seattle, update the value for WAN link BW allocated for RTC traffic to 5 Mbps.
D. In the global definitions, update the value of the Flag in Red parameter to 25%.

Answer: D

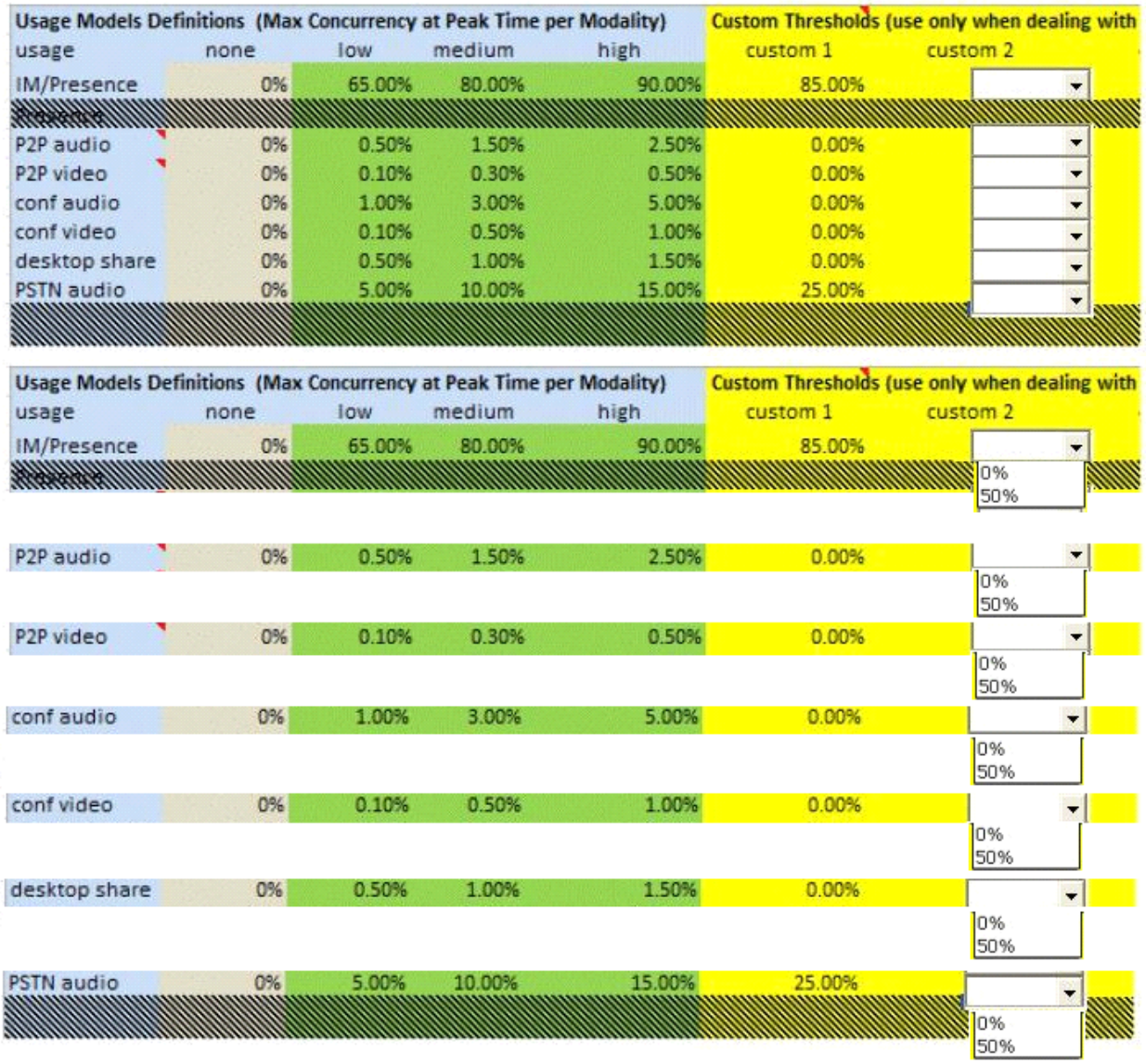
Explanation:
/ Volume of Lync traffic does not exceed 25 percent of the WAN bandwidth

Question: 3

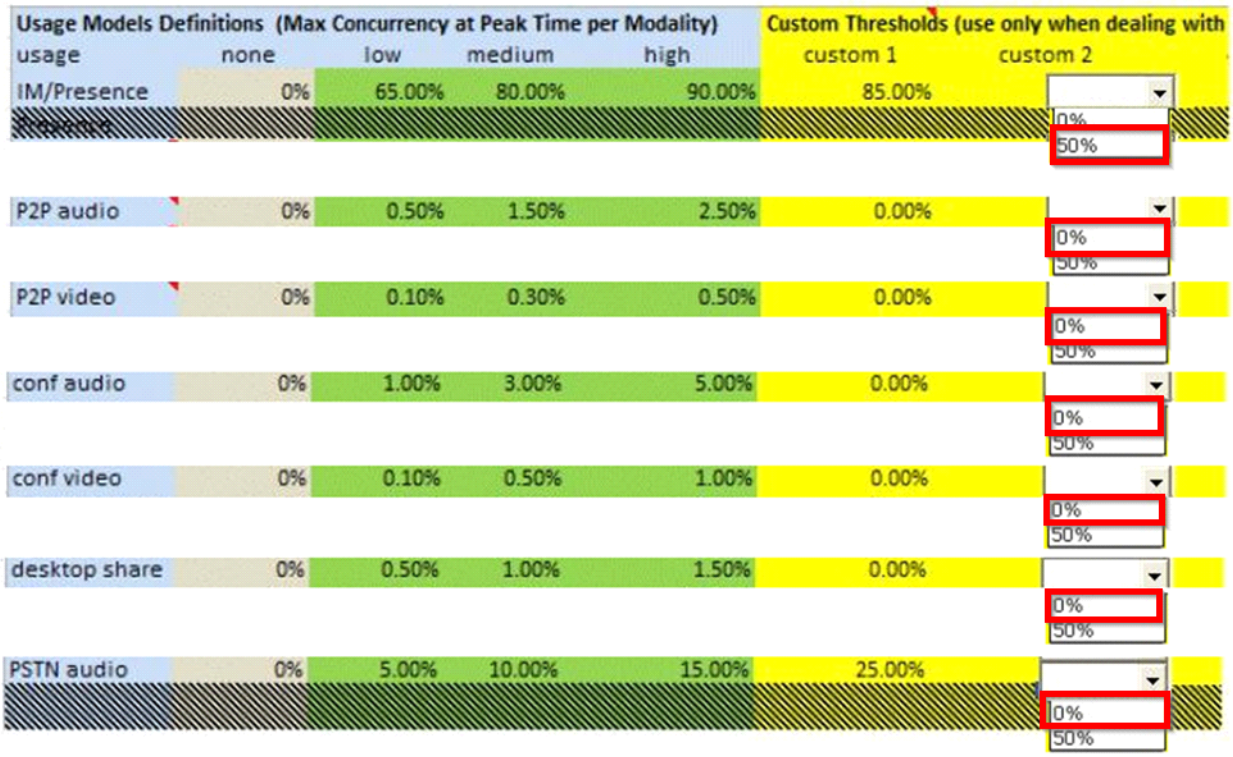
HOTSPOT

You need to adjust modalities to define the custom usage model for Litware Inc by using the Lync Bandwidth Calculator.

How should you set the modalities in the Lync Bandwidth Calculator? (To answer, select the appropriate value in each drop-down menu in the Lync Bandwidth Calculator.)



Answer:



Explanation:
/All Lync-enabled users in Litware will use Instant Messaging only. Currently, Instant Messaging concurrent usage at Litware is 50 percent during peak hours.
The default setting for a custom value is 0%. We're only using IM here so we can set the IM value to 50%. The remaining values would be left at the default 0%.
/ Contoso expects to see up to 85 percent of simultaneous instant messaging and 25 percent of public switched telephone network (PSTN) calls during business hours.
We have a custom 'high' of 85% for IM (custom1) and a custom 'high' of 25% (custom1) for PSTN.

Question: 4

You need to determine whether the poor quality of Lync calls is related to inadequate network bandwidth. What should you do?

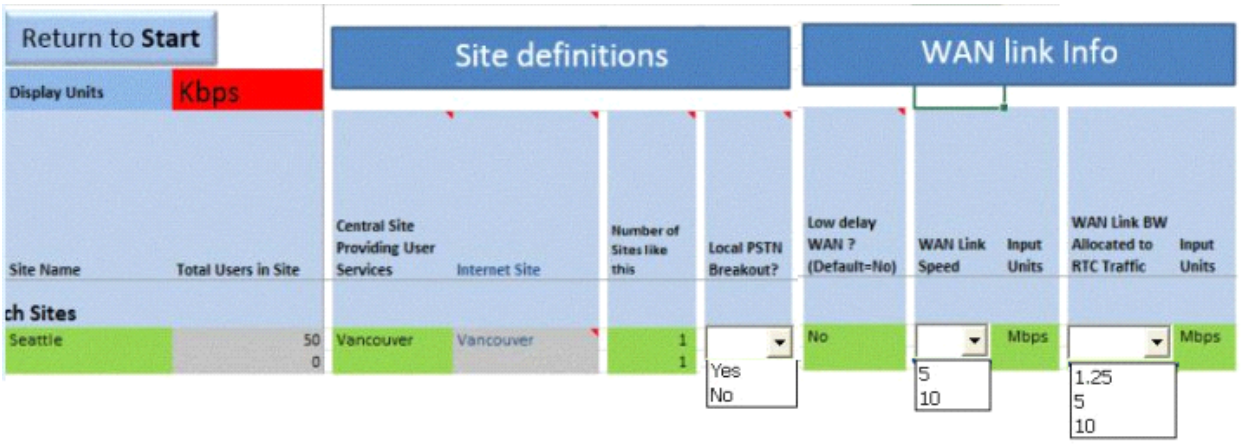
A. Enable Jumbo Frames on all network switches.
B. Calculate the current volume of Lync traffic in Litware, and then confirm that volume of Lync traffic does not exceed 50 percent of wide area network (WAN) bandwidth.
C. Calculate the current volume of Lync traffic in Contoso, and then confirm that the volume of Lync traffic does not exceed 25 percent of wide area network (WAN) bandwidth.
D. Disable Quality of Service (QoS) support on all network switches.

Answer: C

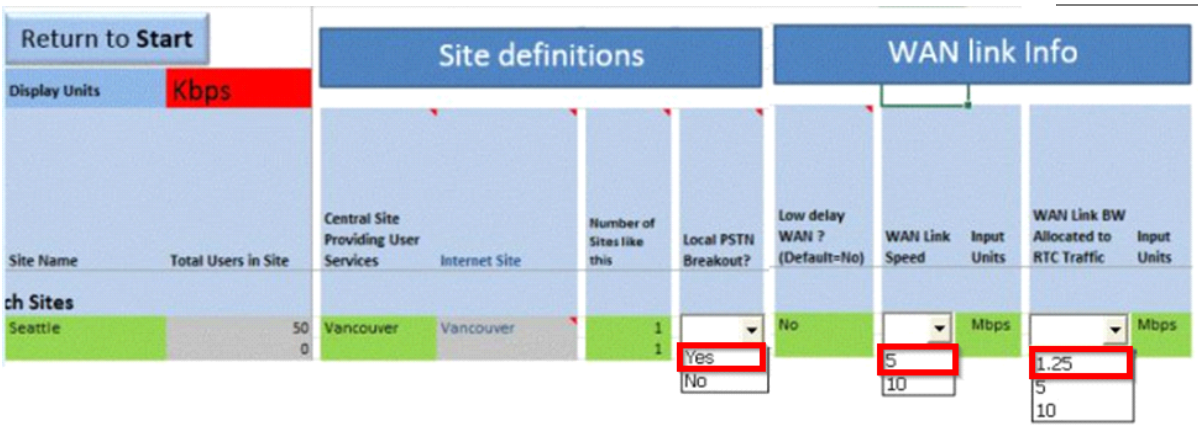
Question: 5

HOTSPOT
You need to define branch sites in the Lync Bandwidth Calculator to estimate the volume of Lync traffic.
Which branch sites should you select? (To answer, select the appropriate branch site or sites in the Lync Bandwidth

Calculator.)



Answer:



Question: 6

You need to recommend a design solution to upgrade the wide area network (WAN) link in the Vancouver office. What should you do?

A. Implement a Frame Relay link.
B. Implement a Multiprotocol Label Switching (MPLS) link.
C. Implement a split-tunnel virtual private network (VPN).
D. Implement a WAN optimization solution.

Answer: B

Question: 7

You need to identify the metric that is causing poor quality in Lync calls by analyzing the user activity report collected by the help desk department.
Which metric should you choose?

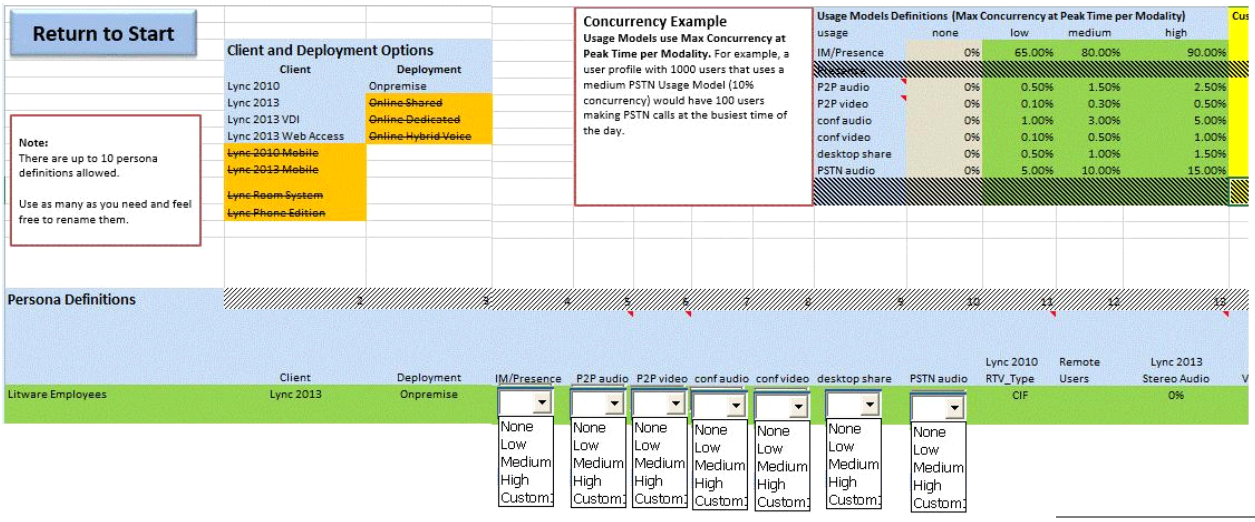
A. burst gap duration
B. packet loss
C. jitter
D. round trip

Answer: B

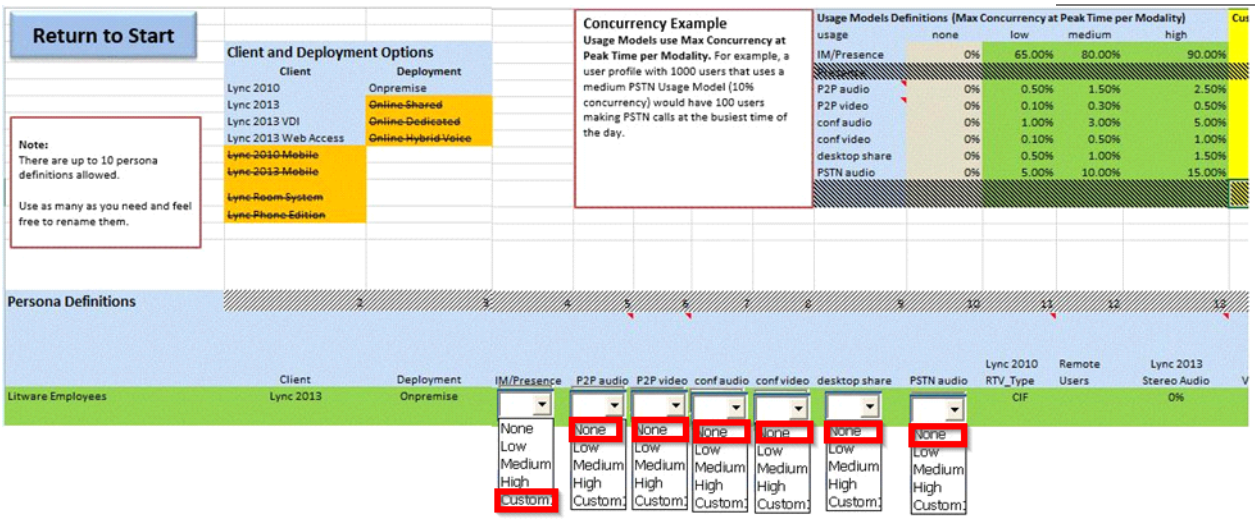
Question: 8

HOTSPOT

You need to use the Lync Bandwidth Calculator to create a new persona definition for Litware, Inc. Which options should you select? (To answer, select the appropriate option in each drop-down menu in the Lync Bandwidth Calculator.)



Answer:



Explanation:

/ All Lync-enabled users in Litware will use Instant Messaging only. Currently, Instant Messaging concurrent usage at Litware is 50 percent during peak hours.

Question: 9

You need to identify the parameters that are required to estimate the future volume of Lync traffic in the Vancouver office. Which two parameters should you choose? (Each correct answer presents part of the solution. Choose two.)

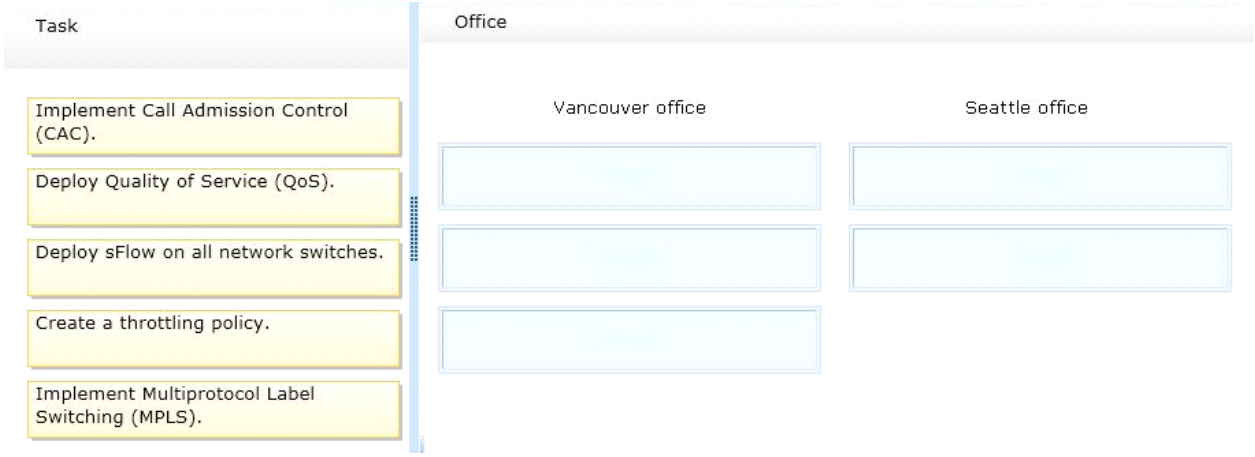
A. 300 employees at Contoso, Ltd.

B. 80 employees at Litware, Inc.
C. 40 employees at Litware, Inc.
D. 35 hybrid users at Contoso, Ltd.

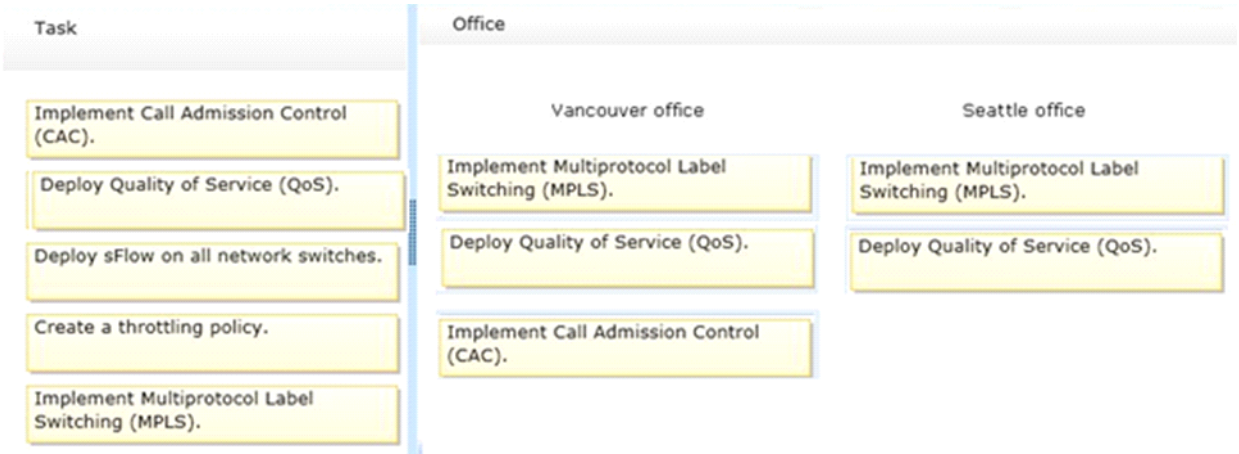
Answer: AC

Question: 10

DRAG DROP
You are developing a design solution to eliminate the possibility of wide area network (WAN) oversubscription by Lync traffic.
You need to assign tasks to each office.
Which tasks should you assign to each office? (To answer, drag the appropriate task or tasks to the correct office or offices in the answer area. Each task may be used once, more than once, or not at all. You may need to drag the split bar between panels or scroll to view content.)



Answer:



Explanation:
Note:
From scenario:
* The core portion of the infrastructure is located in the Vancouver data center, although the Seattle data center also has two servers (AD Domain controller, DFS server) to provide redundancy of Active Directory and data services.
* Contoso plans to redesign the existing site-to-site VPN solution between the Vancouver and Seattle offices to

implement a robust and reliable WAN solution with end-to-end support of Quality of Service (QoS).

Question: 11

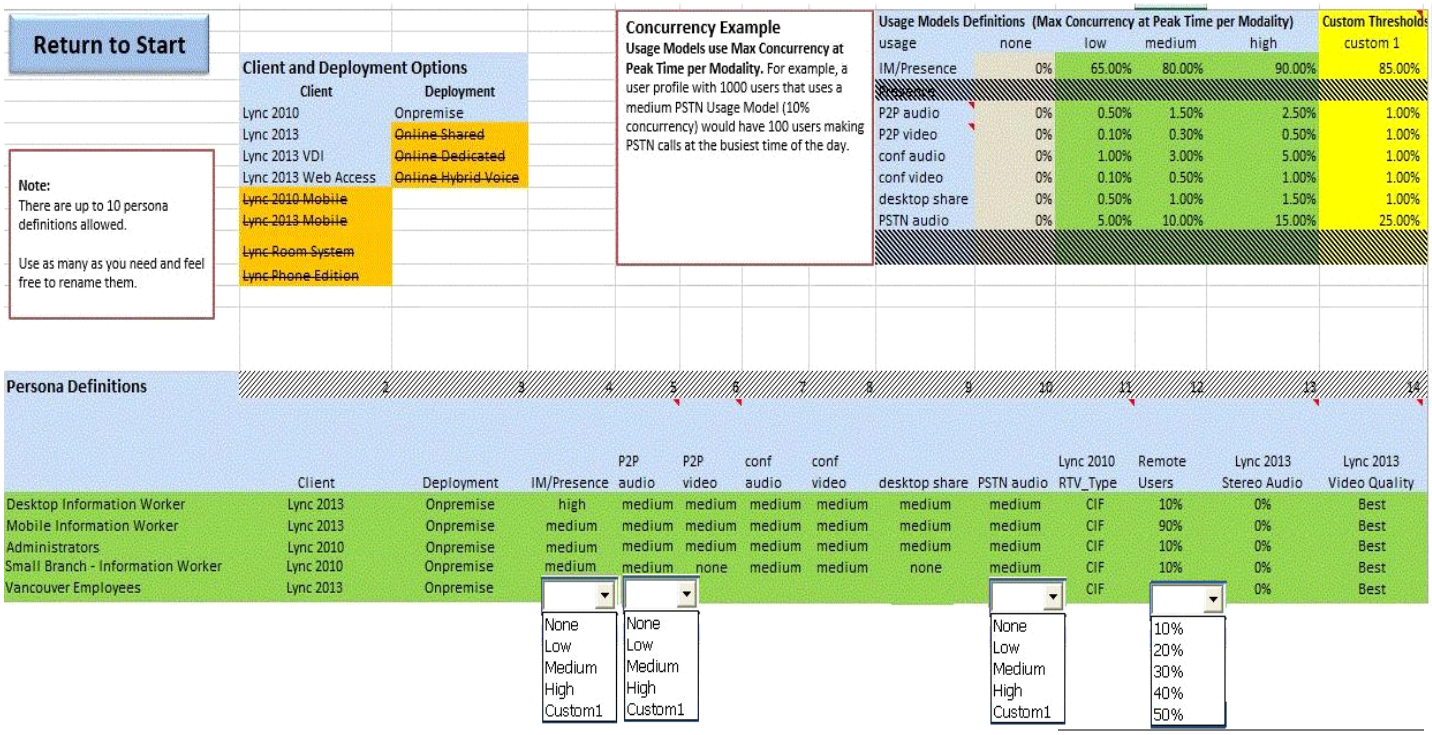
You need to define the goals that you would like to achieve after you perform usage modeling of Lync traffic in Contoso. Which two goals should you establish? (Each correct answer presents part of the solution. Choose two.)

A. Confirm that the volume of Lync traffic does not exceed 25 percent of wide area network (WAN) bandwidth.
B. Confirm that bandwidth is sufficient for Microsoft Office 365 Hybrid Lync deployment.
C. Confirm that the volume of Lync traffic does not exceed 5 megabits per second (Mbps).
D. Confirm that bandwidth is sufficient for 40 new Litware, Inc. Lync users.
E. Confirm that bandwidth is sufficient for 80 new Litware, Inc. Lync users.

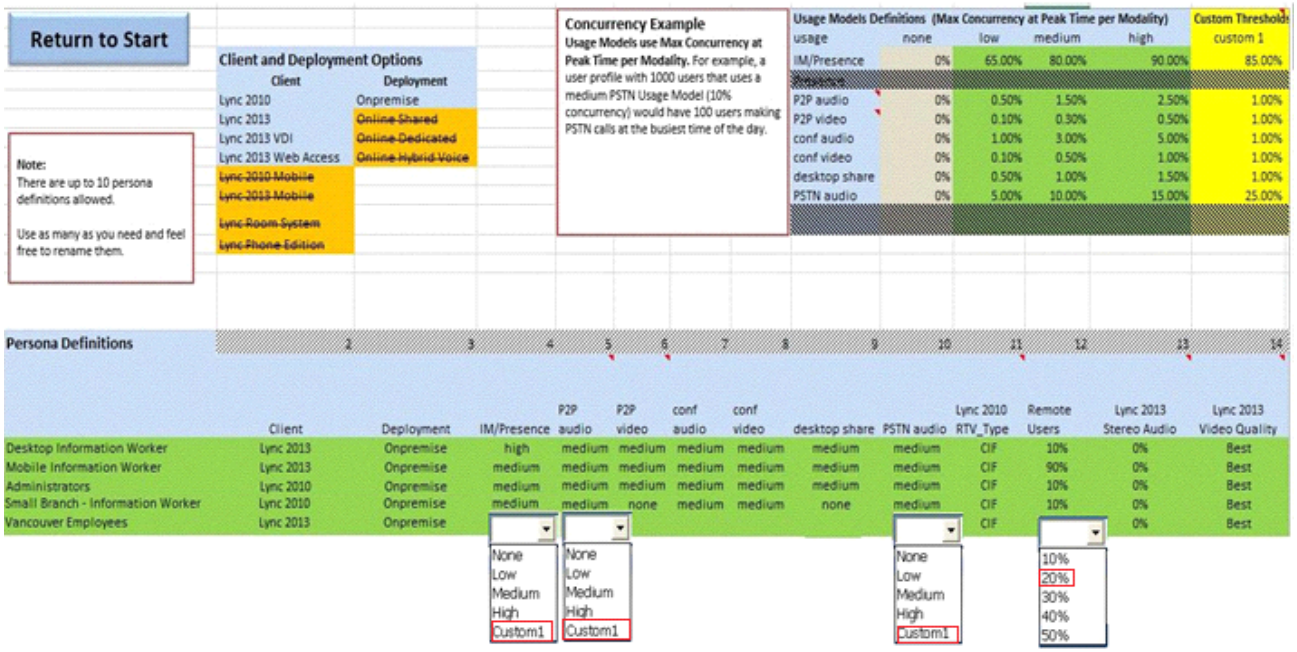
Answer: A, D

Question: 12

HOTSPOT
You need to modify the relevant portion of the Persona configuration in the Lync Bandwidth Calculator to estimate the planned volume of Lync traffic for the Contoso office in Vancouver.
Which options should you select? (To answer, select the appropriate value in each drop-down menu in the Lync Bandwidth Calculator.)



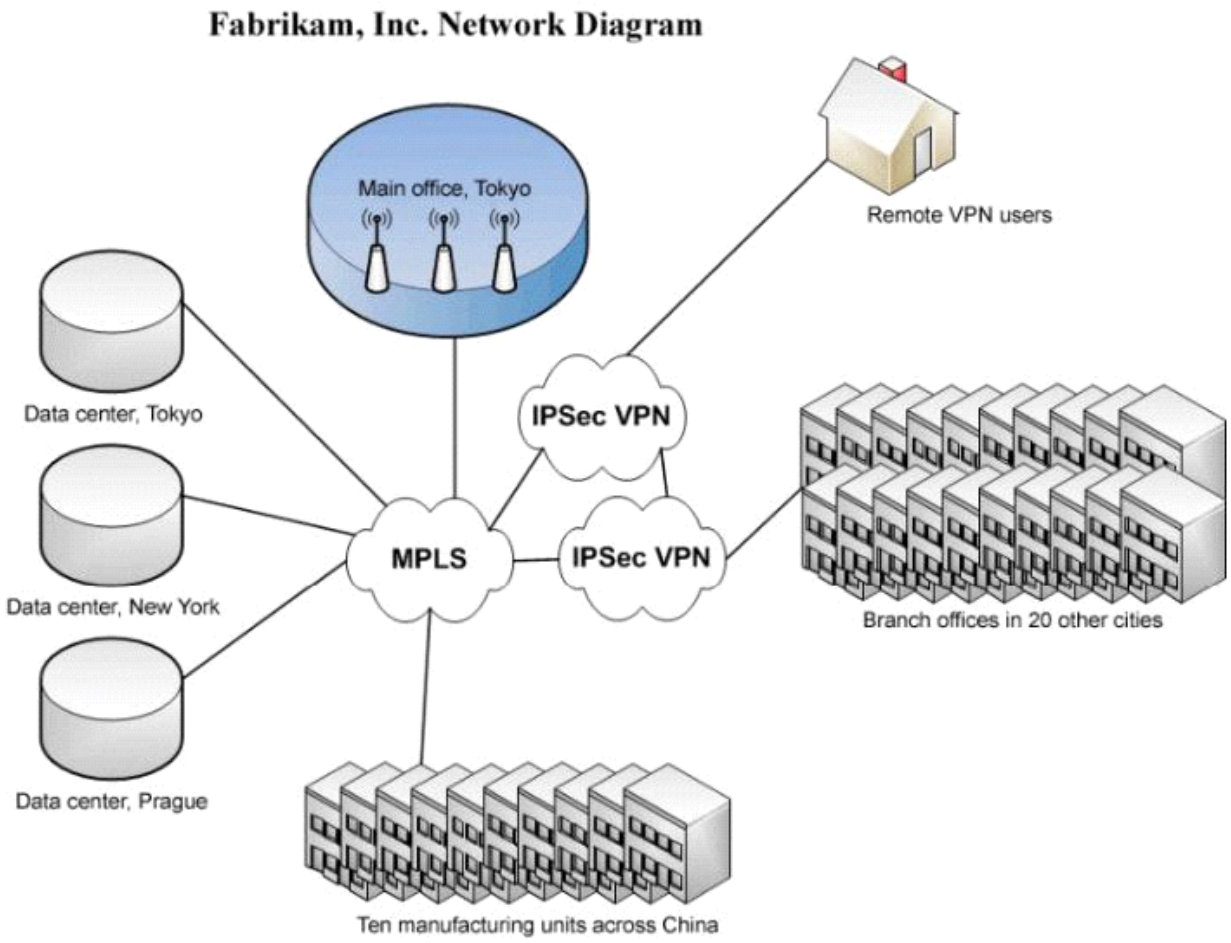
Answer:



Case Study: 4
Fabrikam Inc.
Background

Fabrikam, Inc. is a worldwide leader in production and sales of cameras, lenses, flashes, and photography accessories. The company employs 6,500 people worldwide.

The company has its main office in Tokyo; three data centers in Tokyo, New York, and Prague; ten manufacturing units across China; and branch offices in 20 other cities. The network diagram for Fabrikam, Inc. is shown in the exhibit. (Click the Exhibit button.)



For the pilot project, a Front End Server and an Edge Server will be located at the New York data center. Test users will be located in the Tokyo main office and outside the Fabrikam network over a public Internet connection.

The company plans to replace the existing traditional non-standard analog Private Branch Exchange (PBX) implementations with a modern collaboration and telephony solution. This modernization should allow employees to collaborate efficiently and reduce the company's phone bills at the same time.

A proposal was made to accomplish this by testing and implementing a Microsoft Lync 2013 infrastructure.

For cost effectiveness, the company wants to utilize the existing network infrastructure when implementing the Lync 2013 infrastructure.

The company needs to make sure the existing network infrastructure is ready for Lync 2013 implementation by analyzing:

- Wide area network (WAN) infrastructure,
- Wi-Fi infrastructure, and
- Quality of Service (QoS) approaches.

During analysis, rogue access points (APs) were detected, so management wants to secure the Fabrikam, Inc. wireless network infrastructure.

The company wants to design and implement a wireless local area network controller (WLC) to minimize operational complexity and support.

During the test phase of implementation, Lync Phone Edition device users are experiencing voice degradation when they use audio with other Lync users, There are no reports of any problems between Lync phone communications.

Upper management is very concerned about ensuring security over a public network. The recommended solution should use secured protocols such as Transport Layer Security (TLS), Mutual Transport Layer

Security (MTLS), or secure real-time transport protocol (SRTP).

Existing Environment

The company's existing environment includes:

- a domain controller,
- a Microsoft Exchange 2013 infrastructure server, and
- a Microsoft SharePoint 2013 server.

The existing analog PBX telephony has reached its capacity in most locations.

Currently the company has a mix of Multiprotocol Label Switching (MPLS) Layer-3 network and Internet Protocol security (IPSec) using an Asymmetric Digital Subscriber Line (ADSL) between their locations, a remote VPN network for remote/on-field employees, and Wi-Fi point-to-point links between buildings within the same locations, as well as internal Wi-Fi access points. QoS is enabled globally for all WAN and LAN connections. Corporate firewalls are installed at all locations.

At the Fabrikam, Inc. main office, there are three wireless access points (WAPs) deployed with no Remote Authentication Dial-In User Service (RADIUS)/AA

A. All of them are configured for channels 2 or 7 with the same Service Set Identifier (SSID) and Wi-Fi Protected Access-Pre-Shared Key (WPA-PSK).

Users at the main office use the wireless infrastructure, and as users roam they do not switch over to different WAPs but stay associated with the original WAP until the signal is completely gone. Then the wireless signal associates with the closest WAP.

For Lync Phone edition devices, QoS is set to its default.

The company's network platforms support only four queues with QoS-based admission.

The company uses traffic shaping and traffic policing.

Business Requirements

Employees travel between sites and require stable and reliable collaboration and phone solutions. The company wants to reduce investment in telecommunications, overseas calling, roaming, and conference call charges. Branches should be able to support up to 24 simultaneous peer-to-peer (P2P) calls between sites.

Employees should be able to call any phone number at any time, be visible, and be able to chat and use audio conferencing.

The company plans to deploy wireless LAN controllers (WLCs) for wireless management and monitoring, and wants to deploy Wireless IP phones in the main office.

The company wants to map the Differentiated Services Code Point (DSCP) markings to industry best practices for all media types.

The proposed solution:

- must operate effectively for the entire company, including all locations and remote users,
- must be reliable and recoverable in case of network or other problems affecting any site,
- should offer rapid deployment,
- should be scalable, and
- should consolidate chat, phone, and email.

Technical Requirements

All Session Initiation Protocol (SIP) signaling and media traffic must be encrypted. The company wants integrated security within phones and servers, and Wi-Fi secured communications for WPA/WPA2.

The new system should be highly available and should remain fully functional if any one server fails.

The proposed solution must be compatible with most known video and audio device manufacturers. The audio codec bandwidth is shown in the following table:

Audio codec	Bandwidth audio payload, IP header, UDP, RTP, and STRP in Kbps
G.711	92.0
G.722	95.6
G.722 Stereo	159.6
Siren	47.6
RTAudio Narrowband	39.8
RTAudio Wideband	57

Fabrikam uses RTAudio Wideband. Call Admission Control (CAC) is disabled for VPN users.
The company's existing network supports MPLS, IPSec VPN, and Remote VPN networks. WAP Infrastructure and WLC placement must be cost effective, with capacity management allowing high availability. QoS is currently deployed with non-standard setting for DSCP marking on the TCP/IP packets. Voice over IP (VoIP) requires service guarantees regardless of network conditions.

Question: 1

You need to recommend channel distribution to resolve the voice over wireless local area network (WLAN) interference problem.
Which channel distribution should you recommend?

A. Use a four-channel solution.
B. Use channels 2, 5, and 10.
C. Use channels 1, 6, and 11.
D. Use a single-channel solution.

Answer: C

Question: 2

You need to recommend the appropriate wide area network (WAN) connection for Fabrikam, Inc., including Quality of Service (QoS) support and low latency.
Which technology should you recommend?

A. Internet
B. Virtual private network (VPN)
C. Multiprotocol Label Switching (MPLS)
D. Frame Relay

Answer: C

Question: 3

You need to reconfigure Quality of Service (QoS) Differentiated Services Code Point (DSCP) values for media traffic to meet Fabrikam, Inc.'s requirements.
What should you do?

A.
For audio traffic, update the DSCP value to 0.
For video traffic, update the DSCP value to 1.
B.
For audio traffic, update the Voice8021p value to 40.
For video traffic, update the Voice8021p value to 40.
C.
For audio traffic, update the DSCP value to 47.
For video traffic, update the DSCP value to 33.
D.
For audio traffic, update the DSCP value to 46.
For video traffic, update the DSCP value to 34.

Answer: D

Question: 4

You need to ensure that wireless users in the main office stay associated with the most powerful wireless access point (WAP) available when they are roaming.
What should you do?

A. Configure all WAPs on the same channel.
B. Configure fast roaming.
C. Decrease IP Dynamic Host Configuration Protocol (DHCP) lease timeout on WAPs.
D. Disable lower data rates on WAPs.

Answer: B

Question: 5

You need to implement a traffic regulation mechanism to monitor and classify packets, both incoming and outgoing, with the ability to remark excess traffic.
What should you use?

A. Call Admission Control (CAC)
B. a queuing technique
C. traffic policing
D. traffic shaping

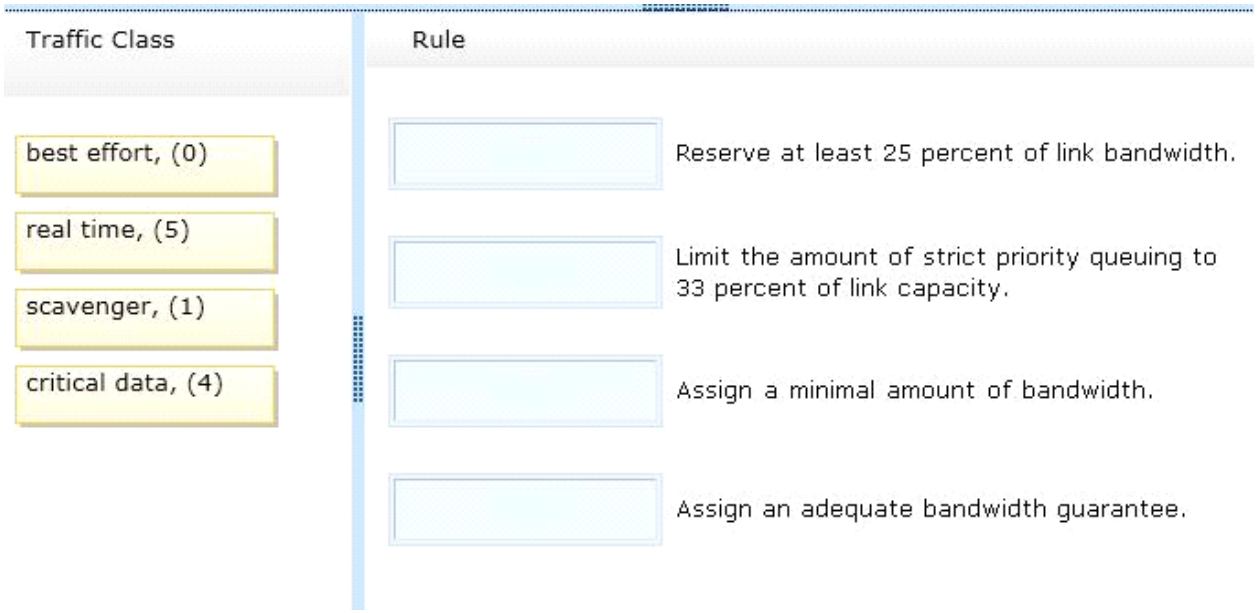
Answer: C

Explanation:
The following table lists the differences between shaping and policing:

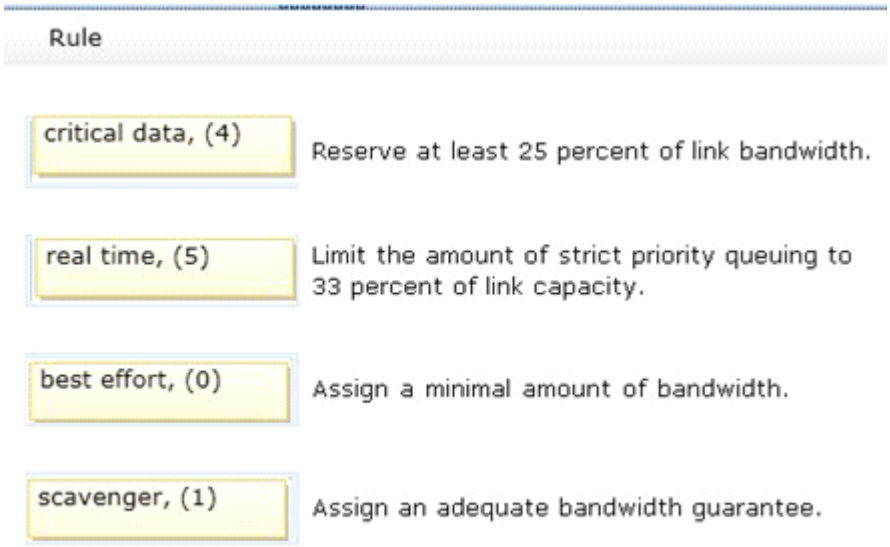
Shaping	Policing
Buffer and queue excess packets above the committed rates.	Drop (or remark) excess packets above the committed rates. Does not buffer.*

Question: 6

DRAG DROP
You need to identify and apply queuing rules for different traffic types.
Which traffic class should you use with each rule? (To answer, drag the appropriate traffic class or classes to the correct rule or rules in the answer area. Each traffic class may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)



Answer:



Explanation:
Note:
* Best effort
Best-effort is the standard service level in many IP-based networks. It is a connectionless model of delivery that provides no guarantees for reliability, delay, or other performance characteristics.

Question: 7

You need to resolve the poor voice quality issues for Fabrikam, Inc.
Which cmdlet should you use?

A. Set-CsUCPhoneConfiguration -Voice8021p 40
B. Set-CsUCPhoneConfiguration -VoiceDiffServTag 40
C. Set-CsUCPhoneConfiguration -Voice8021p 46
D. Set-CsUCPhoneConfiguration -VoiceDiffServTag 46

Answer: D

Question: 8

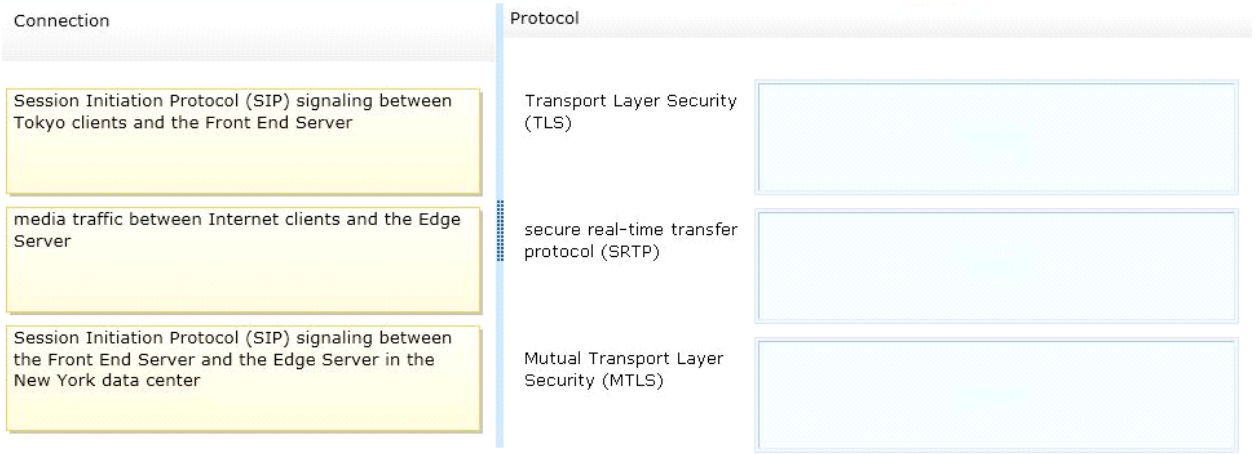
You need to recommend a wireless LAN controller (WLC) management strategy for Fabrikam, Inc. that uses the least administrative effort.
Which management strategy should you recommend?

A. centralized management
B. access layer management
C. distribution management
D. independent management

Answer: A

Question: 9

DRAG DROP
You need to determine which type of encrypted traffic will be seen across which connections for the pilot project.
Which protocol should you use for each connection? (To answer, drag the appropriate connection type or types to the correct protocol or protocols in the answer area. Each connection type may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)



Answer:

Transport Layer Security (TLS)	Session Initiation Protocol (SIP) signaling between Tokyo clients and the Front End Server
secure real-time transfer protocol (SRTP)	media traffic between Internet clients and the Edge Server
Mutual Transport Layer Security (MTLS)	Session Initiation Protocol (SIP) signaling between the Front End Server and the Edge Server in the New York data center

Explanation:
Note:
Transport Layer Security (TLS) and Mutual Transport Layer Security (MTLS) protocols provide encrypted communications and endpoint authentication on the Internet. Microsoft Lync Server 2013 uses these two protocols to create the network of trusted servers and to ensure that all communications over that network are encrypted. All SIP communications between servers occur over MTLS. SIP communications from client to server occur over TLS.
http://technet.microsoft.com/en-us/library/dn481133.aspx

Question: 10

You need to determine the minimum Asymmetric Digital Subscriber Line (ADSL) network service requirements for the branch locations.
Which bandwidth should you choose?

A. l Mbps/512 Kbps
B. 5 Mbps/1 Mbps
C. 5 Mbps/1.5 Mbps
D. 10 Mbps/3 Mbps

Answer: C

Explanation:
/ Branches should be able to support up to 24 simultaneous peer-to-peer (P2P) calls between sites
/ Fabrikam uses RTAudio Wideband (57Kbps)
24 x 57 = 1368. For redundancy, the backup line must be at least 1368kpbs, ie: 1.5Mbps.

Question: 11

You are implementing Microsoft Lync for Mobile and you need to limit and control rogue access point (AP) exposure to protect the organization.
Which technology should you implement?

A. wireless intrusion prevention system (WIPS)
B. firewall
C. Wi-Fi Protected Access version 2 (WPA2)
D. 802.1X

Answer: A

Case Study: 5
Lucerne Publishing
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.

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 services (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

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: 2

DRAG DROP
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.)

Run the **Start-csclslogging** cmdlet.

Run the **Stop-csclslogging** cmdlet.

Run the **Search-csclslogging** cmdlet.

Reproduce the issue by making test calls.

Run the **clscontroller.exe -dump -scenario** command.

Run the **Sync-csclslogging** cmdlet.

Answer:

Box 1:

Run the **Start-csclslogging** cmdlet.

Box 2:

Reproduce the issue by making test calls.

Box 3:

Run the **Sync-csclslogging** cmdlet.

Box 4:

Run the **Stop-csclslogging** cmdlet.

Box 5:

Run the **Search-csclslogging** cmdlet.

Explanation:

Note:

* start-csclslogging

Starts the specified scenario centralized logging service scenario. Centralized logging provides a way for administrators to simultaneously enable or disable Lync Server 2013 tracing on multiple computers.

* Stop-CsClsLogging

Stops the specified scenario centralized logging service scenario. Centralized logging provides a way for administrators to simultaneously enable or disable Lync Server 2013 tracing on multiple computers.

* Sync-CsClsLogging

Flushes the centralized logging service cache

When a scenario is being logged, the service will maintain data in memory and then periodically write that data to disk. However, at any time administrators can run the Sync-CsClsLogging cmdlet to "flush" the data cache. When this is done, all the logging data currently in memory will be written to disk, the data caches will be cleared, and the log files will be available for searching.

* Search-CsClsLogging

Provides a command-line option for searching the centralized logging service log files.

Lastly we capture the data:
Start-CsClsLogging –Scenario "NewScenario"
Repro the Issue
Sync-CsClsLogging
Stop-CsClsLogging – Scenario "NewScenario"
Search-CsClsLogging –OutputFilePath c:\newscenario.log (data can be filtered if needed)
Incorrect:
clscontroller.exe -dump

Question: 3

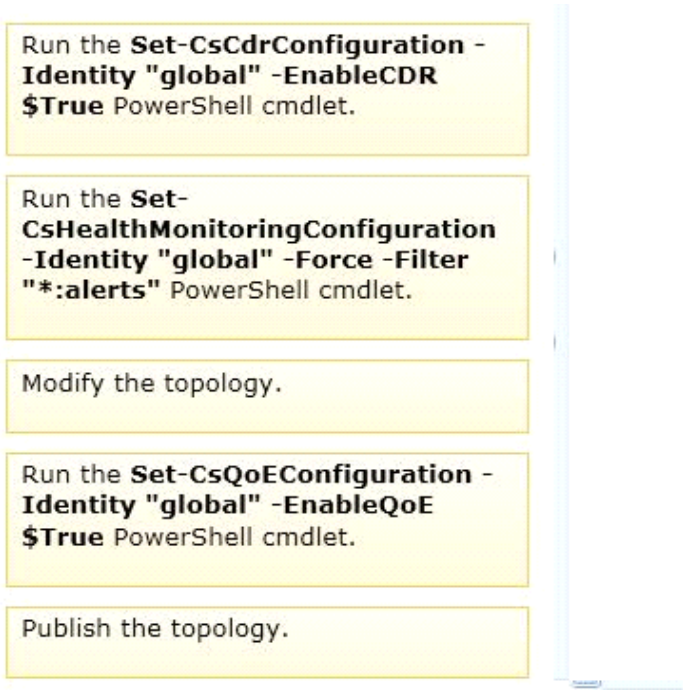
You need to identify the quality metrics that are responsible for the poor quality of audio calls for users in the Seattle office.
Which quality metric should you identify?

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

Answer: A

Question: 4

DRAG DROP
You need to start collecting media quality data generated by Lync during Proof of Concept (POC) testing.
Which three steps should you perform in sequence? (To answer, move the appropriate three actions from the list of actions to the answer area and arrange them in the correct order.)



Answer:

Box 1:

Modify the topology.

Box 2:

Publish the topology.

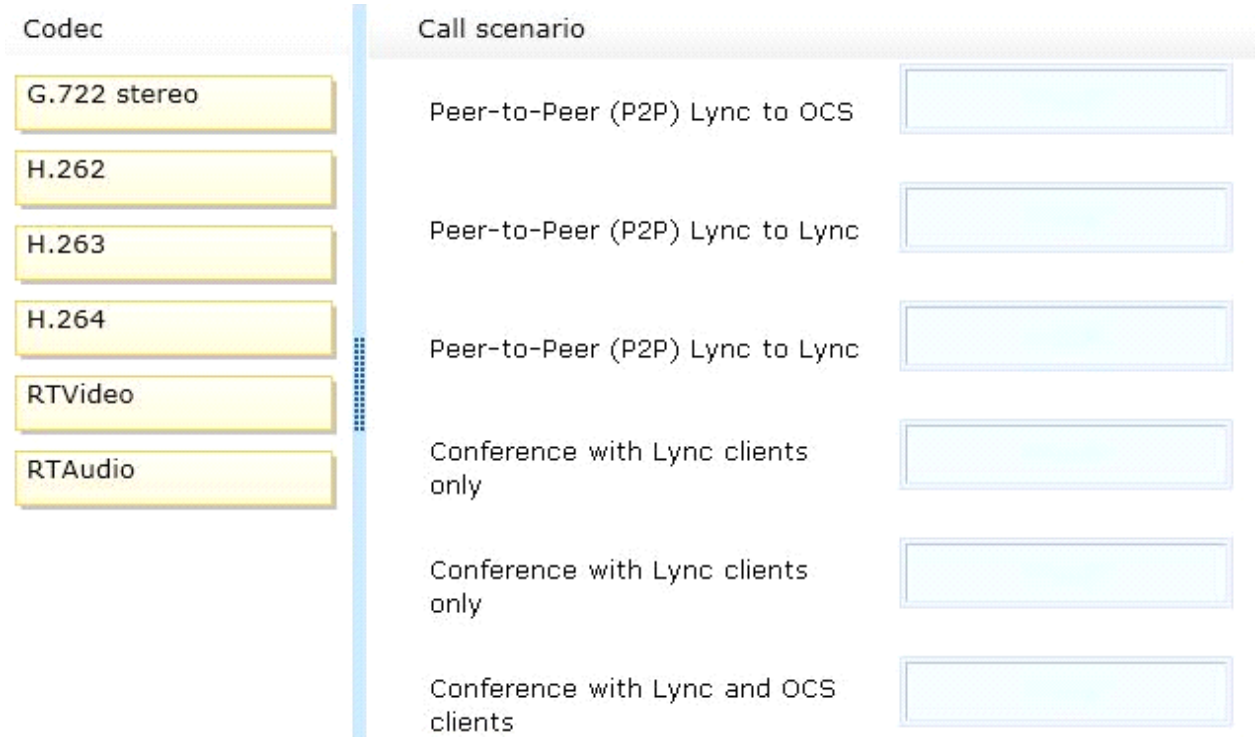
Box 3:

Run the **Set-CsQoEConfiguration -Identity "global" -EnableQoE $True** PowerShell cmdlet.

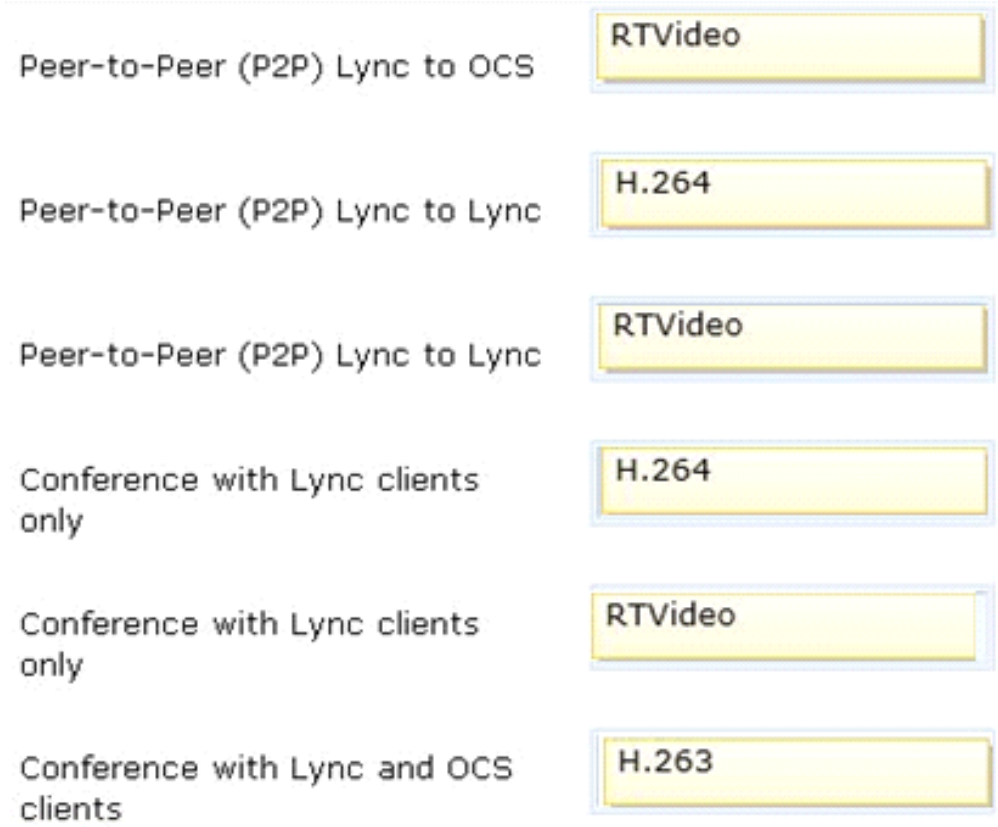
Explanation:
Note:
* Set-CsQoEConfiguration
Modifies an existing collection of QoE (Quality of Experience) settings.
QoE metrics track the quality of audio and video calls made in your organization, including such things as the number of network packets lost, background noise, and the amount of "jitter" (differences in packet delay). These metrics are stored in a database apart from other data (such as call detail records), which allows you to enable and disable QoE independent of other data recording. Use this cmdlet to modify settings that configure QoE at the global or site level.
QoE is part of the Monitoring Server role; therefore Monitoring Server must be deployed on your Lync Server installation before QoE recording takes effect or any QoE data can be collected.
Incorrect:
* Set-CSHealthMonitoringConfiguration
Modifies an existing collection of health monitoring configuration settings. These settings enable administrators to run quality assurance tests without having to supply the user names and passwords for the required test accounts.
* Set-CsCdrConfiguration
Modifies an existing collection of call detail recording (CDR) settings. CDR enables you to track usage of such things as peer-to-peer instant messaging sessions, Voice over Internet Protocol (VoIP) phone calls, and conferencing calls. This usage data includes information about who called whom, when they called, and how long they talked.

Question: 5

DRAG DROP
You need to analyze the bandwidth impact of different video call flows at the Beijing office.
Which codec will apply to which call flow? (To answer, drag the appropriate codec or codecs to the correct call scenario or scenarios in the answer area. Each codec may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)



Answer:



Question: 6

During Proof of Concept (POC) testing, the Denver office showed signs of heavy network utilization from Lync intra-

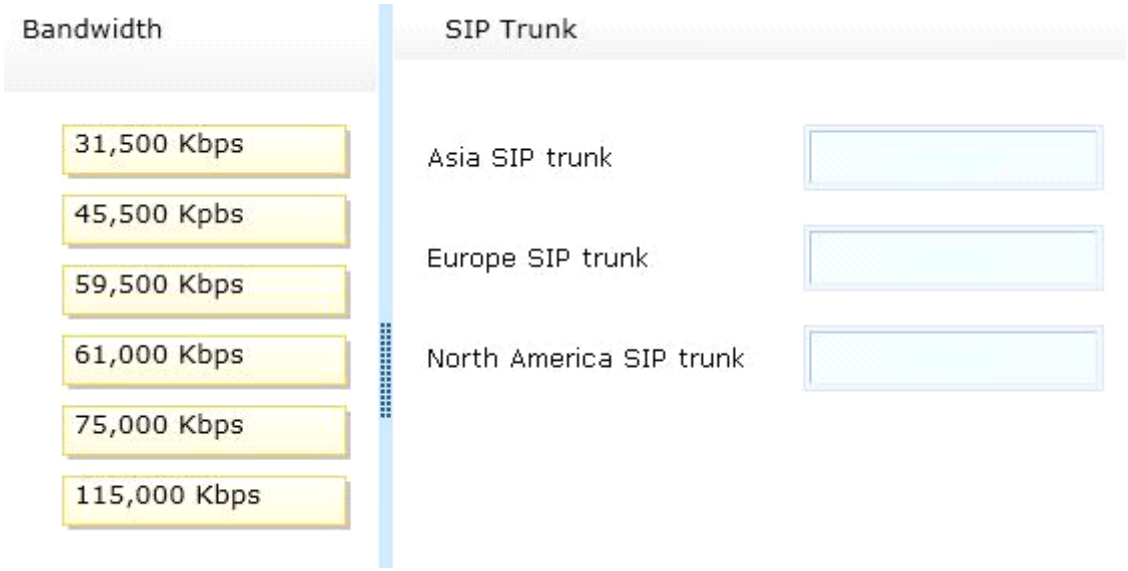
site calls causing issues with production network applications.
You need to mitigate the impact of Lync call testing on the network bandwidth during POC testing. Which Lync 2013 feature should you recommend?

A. Quality of Service (QoS)
B. Location Policy
C. Call Admission Control (CAC)
D. Conferencing Policy

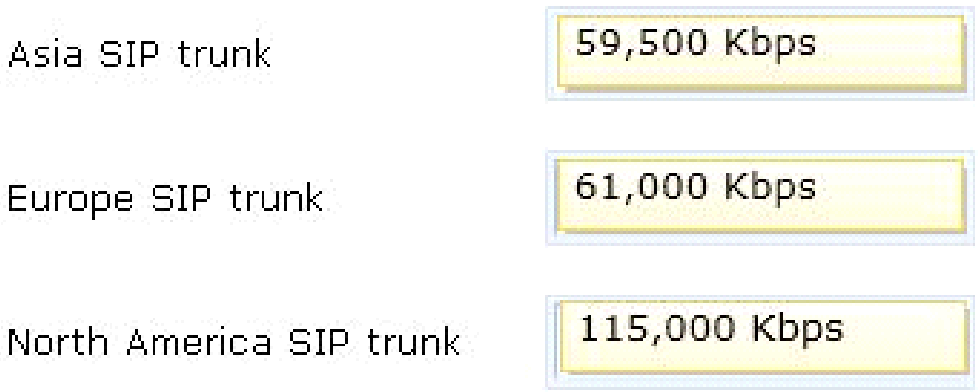
Answer: A

Question: 7

DRAG DROP
You need to assess the maximum bandwidth required to replace public switched telephone network (PSTN) connections with a Session Initiation Protocol (SIP) trunking service.
Which bandwidth should you allocate for each region? (To answer, drag the appropriate bandwidth or bandwidths to the correct SIP trunk or trunks in the answer area. Each bandwidth may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)



Answer:



Question: 8

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: CD

Question: 9

You need to identify the root cause of call quality issues and presence issues that are represented on the Back-End Performance Seattle report.
Which two values should you examine? (Each correct answer presents part of the solution. Choose two.)

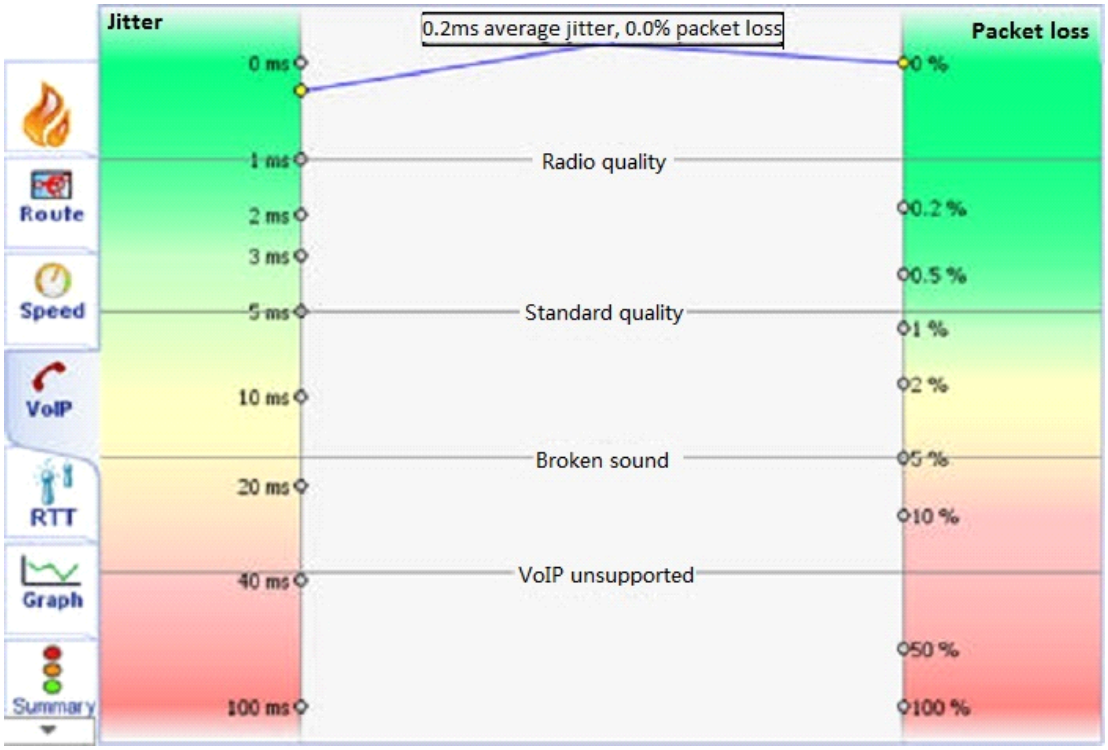
A. average jitter
B. average network MOS
C. average listening MOS
D. average round trip
E. packet utilization

Answer: AD

Explanation:
* From scenario:
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.
* Client Alerting thresholds from the Work smart guide
To summarize: calls that exceeded 10% average packet loss, 50% max packet loss, 500ms latency or 30ms Jitter, or have a healer metric exceeding .007 for concealing, should be investigated.

Call classification metric	Optimal range	Acceptable range
Jitter	20 milliseconds	30 milliseconds
Packet Loss	0.10	0.05
Network MOS Degradation	0.60	1.0
Round Trip Time	200 milliseconds	500 milliseconds
Healer Metric: Concealed	0.03	0.07

* Example:



Question: 10

You need to ensure that marketing and sales executives are able to place their internal conference calls in stereo quality. Which Lync Server 2013 edition should you deploy?

A. Lync Server 2013 Enterprise Edition
B. Lync Room System (LRS)
C. Lync Server 2013 Standard Edition
D. Lync Server 2013 Standard Edition with XMPP gateway

Answer: B

Question: 11

You need to identify the Lync Server 2013 features to employ in order to optimize the quality of audio calls in the Beijing office, even during heavy network load.
Which three features should you employ? (Each correct answer presents part of the solution. Choose three.)

A. call Admission Control (CAC)
B. Mediation Server bypass
C. call Detail Recording (CDR)
D. Quality of Service (QoS)
E. Quality of Experience (QoE)

Answer: ABD

Explanation:
A: Real-time communications are sensitive to the latency and packet loss that can occur on congested networks. Call admission control (CAC) determines, based on available network bandwidth, whether to allow real-time communications sessions such as voice or video calls to be established. The CAC design in Lync Server 2013 offers four main attributes:
It is simple to deploy and manage without requiring additional equipment, such as specially configured routers.
It addresses critical unified communications use cases, such as roaming users and multiple points of presence. CAC policies are enforced according to where the endpoint is located, not where the user is homed.
In addition to voice calls, it can be applied to other traffic, such as video calls and audio/video conferencing sessions.
Provides the flexibility to enable representation of various kinds of network topologies.
B: In Microsoft Lync Server, we recommend that you configure voice traffic to bypass the Mediation Server when possible. Doing so helps improve call quality by optimizing the media path, reducing latency, minimizing unnecessary transcoding, limiting packet loss, and eliminating potential points of failure.
Mediation Server bypass also provides you bandwidth savings in configurations where a Mediation Server and a PSTN gateway or PBX are at different sites connected by WAN links, especially if bandwidth over the link is limited. Offloading the media processing from the Mediation Server also improves scalability.
D: Quality of Service (QoS) is a networking technology used in some organizations to help provide an optimal end-user experience for audio and video communications. QoS is most-commonly used on networks where bandwidth is limited: with a large number of network packets competing for a relatively small amount of available bandwidth, Quality of Service provides a way for administrators to assign higher priorities to packets carrying audio or video data. By giving these packets a higher priority, audio and video communications are likely to complete faster, and with less interruption, than network sessions involving things like file transfers, web browsing, or database backups. That's because network packets used for file transfers or database backups are assigned a "best effort" priority.
Incorrect:
Not C: Call detail recording (CDR) records usage and diagnostic information about peer-to-peer activities including instance messaging, Voice over Internet Protocol (VoIP) calls, application sharing, file transfer, and meetings. The usage data can be used to calculate return on investment (ROI) and the diagnostic data can be used to troubleshoot peer-to-peer activities and meetings.

Case Study: 6
Mix Questions

Question: 1

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 simu-lation 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	

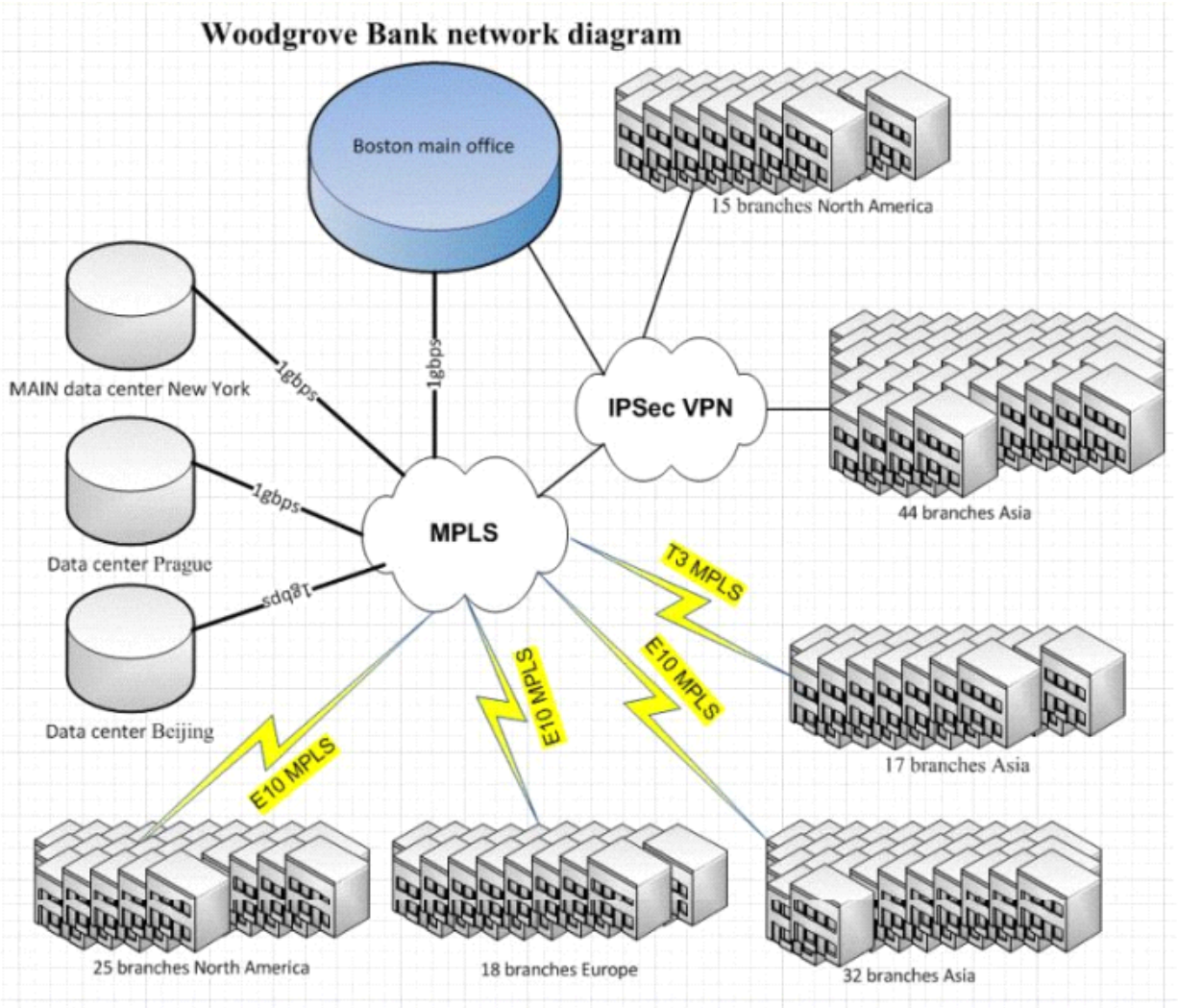
You need to analyze the data and provide the General Comments for the traffic simu-lation results. What should you recommend?

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: 2

Woodgrove Bank plans to implement Lync 2013 for all voice and video enterprise communications.
The bank's network topology is shown in the exhibit. (Click the Exhibit button.)



The bank wants to design a Lync Server traffic simu-lation before the production implementation.
You need to determine the locations to test the Lync Server traffic simu-lation.
Which locations should you test?

A.
Main office in Boston
Data centers in New York, Prague, and Beijing
One branch in North America
One branch in Europe
One branch in Asia
B.
Main office in Boston
Data center in New York
All sites that have connectivity issues
C.
Main office in Boston
Data centers in New York, Prague, and Beijing
Two branches in North America
One branch in Europe
Three branches in Asia
D.
Main office in Boston

Data centers in New York, Prague, and Beijing
Ten branches in North America
Five branches in Europe
Ten branches in Asia

Answer: C

Explanation:
In practice, this end-to-end approach can be expensive to implement and difficult to maintain. This is why organizations often implement traffic prioritization at the WAN entry point of each location.
An Introduction to Network Assessment Concepts: Microsoft Unified Communications

Question: 3

Fourth Coffee has deployed a Lync 2013 infrastructure. Company employees and guests joining from outside of the company do not report any issues with shared media. The company reports, however, that visiting consultants experience poor audio quality when they conduct peer-to-peer (P2P) audio sessions with Fourth Coffee employees who are located in the same office.
A section of the call data report (CDR) in represented in the following table:

MediaLine Information			
Caller report received:	True	Callee report received	False
Caller Connectivity:	Direct	Callee Connectivity:	
Transport:	UDP		
Caller ICE warning flag:		Callee ICE warning flag:	
Applied bandwidth limit:	81 Kbps	Applied bandwidth source:	StaticMax
Caller IP:	172.16.10.231	Callee IP:	69.87.59.241
Caller subnet:	172.16.10.0	Callee subnet:	
Caller MAC address:	00-1F-3B-5D-01-C1	Callee MAC address:	
Caller connection type:	Wi-Fi	Callee connection type:	
Caller Basic Service Set Identifier (BSSID):	28-C6-8E-24-F3-87	Callee Basic Service Set Identifier (BSSID):	
Caller link speed:	144000 Kbps	Callee link seed:	
Caller inside:	False	Callee inside:	
Caller VPN:	False	Callee VPN:	
Caller A/V edge server:	172.2.228.219	Callee A/V edge server:	
Caller VPN:	False	Callee VPN:	
Caller A/V edge server:	172.2.228.219	Callee A/V edge server:	
Caller A/V edge server port:	57244	Callee A/V edge server port:	
Conversational MOS:	0.00		

Audio Stream (Caller -> Callee)			
Codec:	x-msrta	Sample rate:	16000
Audio FEC:	False	Bandwidth estimates:	13508 Kbps
Packet utilization:	2821		
Avg. packet loss rate:	0.00 %	Max packet loss rate:	0.00 %
Avg. jitter:	4 ms	Max. jitter:	7 ms
Avg. round trip:	434 ms	Max. round trip:	451 ms
Avg. concealed samples ratio:	0.00 %	Avg. stretched samples ratio:	3.00 %
Avg. compressed samples ratio:	6.00 %		
Avg. sending MOS:	3.21	Min. sending MOS:	1.48
Audio Stream (Callee -> Caller)			
Codec:	x-msrta	Sample rate:	16000
Packet utilization:	4428		
Avg. packet loss rate:	4.03 %	Max. packet loss rate:	6.50 %
Avg. jitter:	3 ms	Max. jitter:	19 ms
Burst duration:	246 ms	Burst gap duration:	12665 ms
Burst density:	18.91 %	Burst gap density:	0.22 %
Avg. concealed samples ratio:	1.00 %	Avg. stretched samples ratio:	3.00 %
Avg. compressed samples ratio:	4.00 %		
Avg. network MOS:	3.95	Min. network MOS:	3.67
Avg. network MOS degradation:	0.29	Max. netweork MOS degradation:	0.57
NMOS degradation (jitter):	63.00 %	NMOS degradation (packet loss):	36.00 %
Avg. listening MOS:	1.49	Min. listening MOS:	1.49

You need to identify the root cause of poor audio quality.
Which value should you choose?

A. Applied bandwidth limit: 81 Kbps
B. Lower burst gap duration
C. Avg. round trip: 434 ms
D. Callee IP: 69.87.59.241

Answer: D

Question: 4

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

Explanation:
The Edge Server provides users with the same external characteristics and internal experience that Lync Server 2013..
With the publication of the Edge Server, the following features are supported:
/Connecting remote clients;
/Federation with messenger;
/Integration with Public IM's;
http://technet.microsoft.com/en-us/library/gg398918.aspx

Question: 5

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

Explanation:
In practice, this end-to-end approach can be expensive to implement and difficult to maintain. This is why organizations often implement traffic prioritization at the WAN entry point of each location.
An Introduction to Network Assessment Concepts: Microsoft Unified Communications

Question: 6

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 all 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 simu-lation over the WAN link
E. RTC traffic estimation over the WAN link

Answer: BE

Explanation:
Modeling traffic is effectively a process of calculating or extrapolating expected data usage of an application based on understanding the data requirements of the application. Usage scenarios can be defined and data calculation can be performed based on the respective scenarios.
However, modeling RTC traffic is only as useful as the information provided. There are certainly some published generic guidelines about utilization levels and user profiles, but they are not a replacement for obtaining accurate information on actual PSTN usage, peer calling, and conferencing usage.
An Introduction to Network Assessment Concepts: Microsoft Unified Communications

Question: 7

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 simu-lation. The Usage Modeling Data for the Beijing site is shown in the following table:

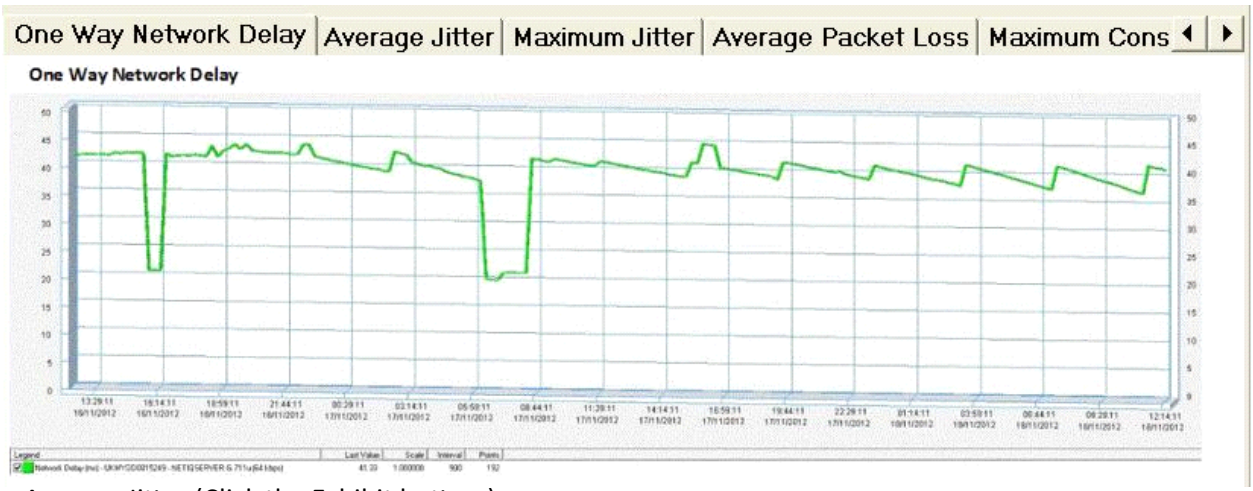
Total users	500
WAN link speed (Mbps)	20
Peak users signed in	320
Total WAN BW	3,728.4
Total WAN BW no video	2,848.4
% of WAN link	18.21%
% of WAN link no video	13.91%
% of WAN BW for RTC traffic	182.05%
% of WAN BW for RTC traffic no video	139.08%

A summary of the simu-lation results is shown in the table below:

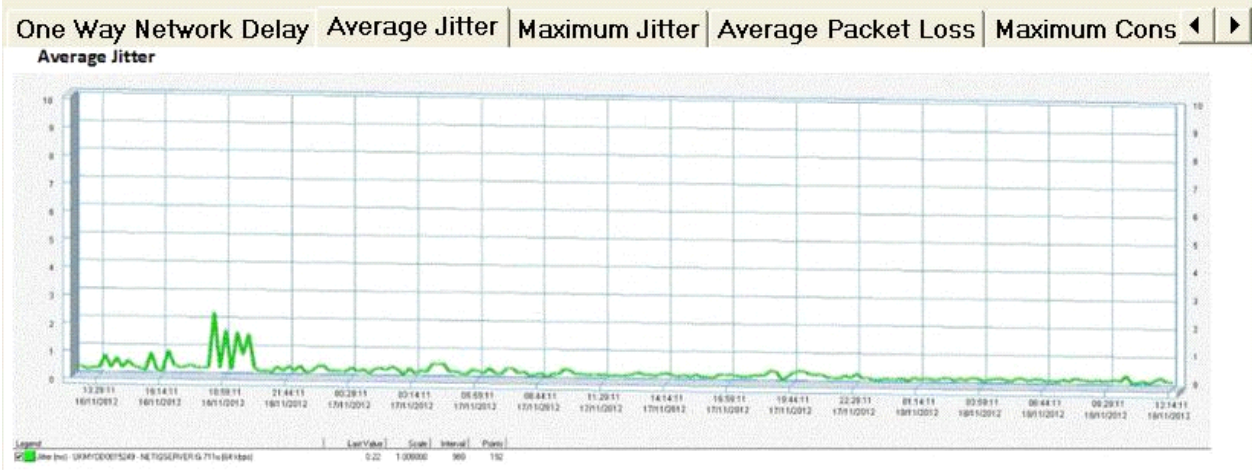
Traffic Simulated	Beijing: 18 calls
Average MOS	4.36
Average Delay	39.57 ms
Average Jitter	0.31 ms
Maximum Jitter	30 ms
Average Packet Loss	0%
Maximum Consecutive Datagram Loss	1
General Comments	Overall the network performed extremely well, with optimal scores throughout.

Detailed simu-lation results are shown in the following exhibits:

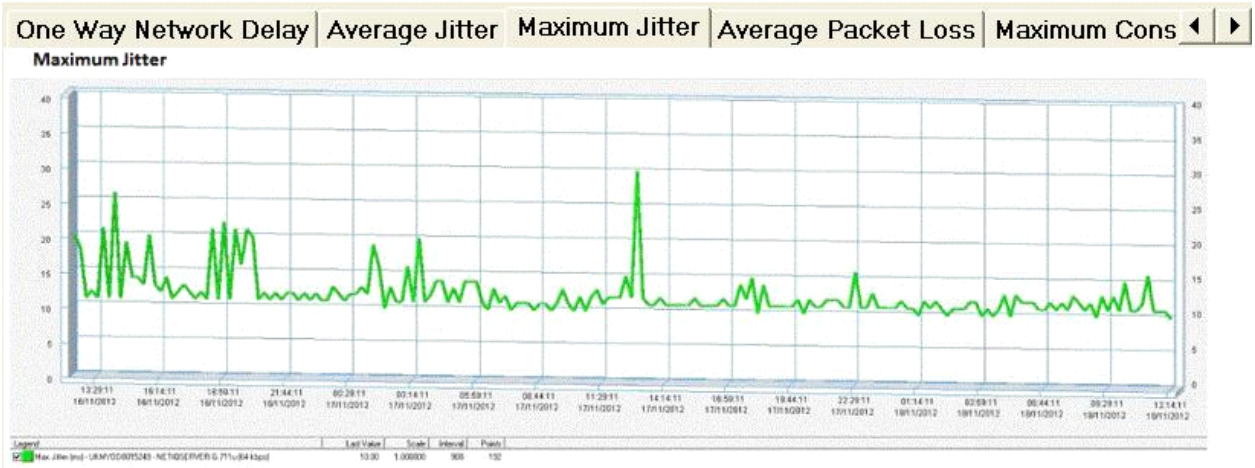
• One Way Network Delay {Click the Exhibit button.)



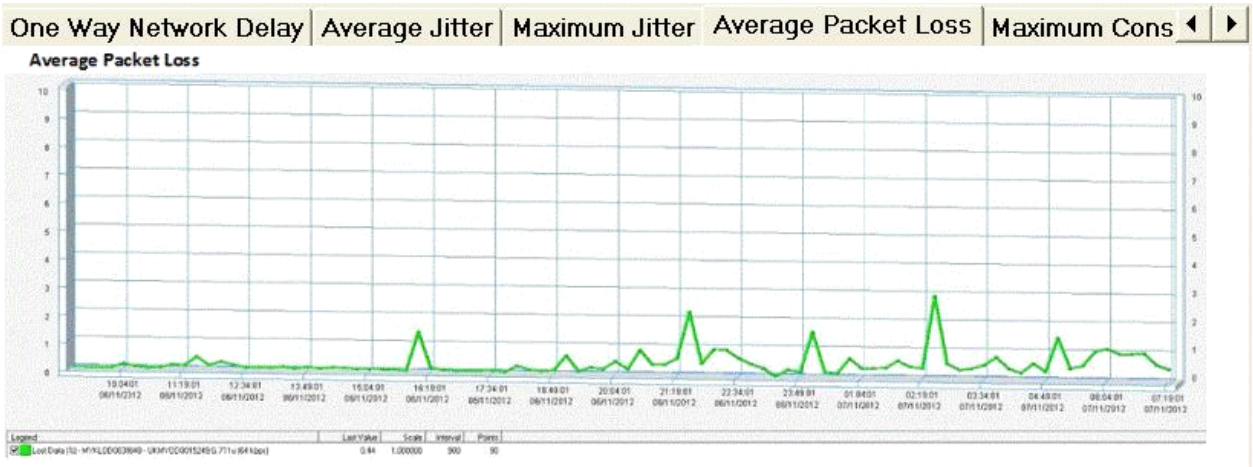
• Average Jitter (Click the Exhibit button.)



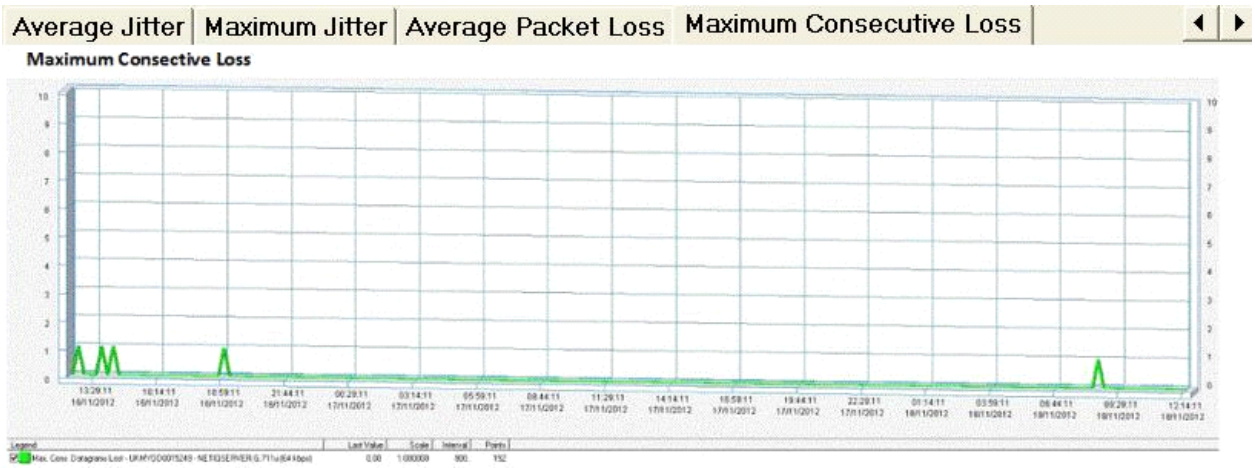
• Maximum Jitter (Click the Exhibit button.)



• Average Packet Loss (Click the Exhibit button.)



• Maximum Consecutive Loss (Click the Exhibit button.)



You need to provide recommendations based on the simu-lation 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: 8

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: ADE

Explanation:
User Guide Microsoft Lync Server 2010 and 2013 Bandwidth Calculator

Question: 9

Your customer's network includes four offices and a data center that are connected by a Multiprotocol Label Switching (MPLS) network.
Your customer has performed a network readiness assessment. The readiness report includes the following sections:
Existing network topology
Historical wide area network (WAN) links bandwidth utilization
Bandwidth estimations
Video bitrates per client window sizes
Desktop sharing bitrates
Bitrates per codec
Users and locations
You are asked to review the readiness report.
You need to identify which sections are missing from the readiness report and should be included.
Which two sections should you include? (Each correct answer presents part of the solution. Choose two.)

A. Discovery
B. Recommendations
C. Traffic simu-lation
D. Modeling

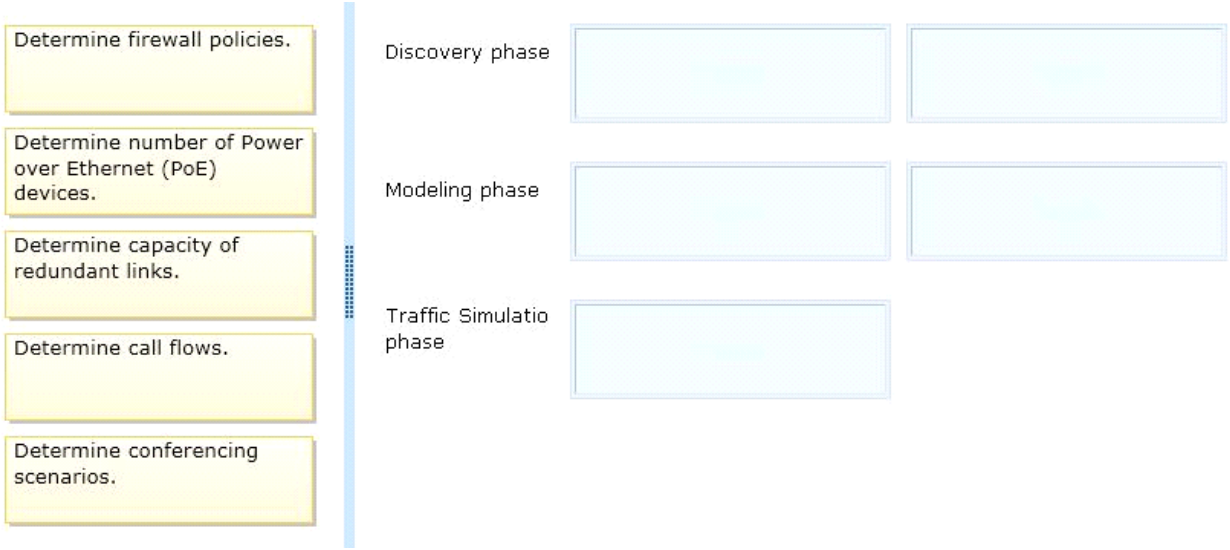
Answer: BD

Explanation:
A network assessment can be split into four distinct phases and each phase depends on information collected from the previous phase. The four phases in order are:
Discovery: Understand all aspects of the network infrastructure.

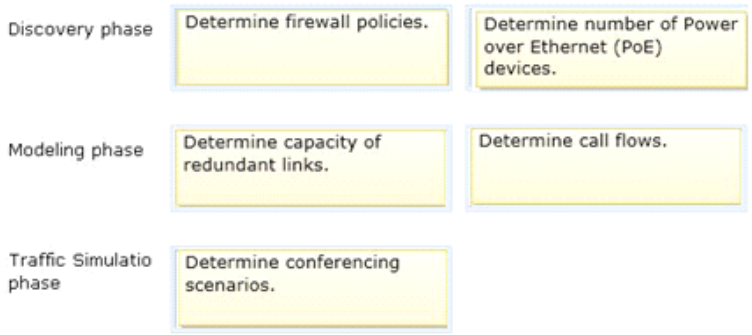
Modeling: Include both 'usage modeling' and 'traffic modeling,' where proposed bandwidth usage is models based on existing usage data and using knowledge of the new systems data requirements to estimate usage requirements of the new system.
Traffic simul-ation: Use a traffic simulator to apply application specific traffic to the production network. This phase also includes monitor the network segments to understand what impact the simulated traffic will have on the network.
Recommendations: Analyze data, and produce a report with recommendations.
An Introduction to Network Assessment Concepts: Microsoft Unified Communications

Question: 10

DRAG DROP
You perform a network readiness assessment for Lync deployment.
The organization's network includes a main office and four branch offices. Each branch office is connected to the main office by a site-to-site link- Depending on the geographic location of the branch office, the link uses either a dedicated Multiprotocol Label Switching (MPLS) link or a virtual private network (VPN) site-to-site link. Each branch office includes 100 clients and one multi-purpose server. Employees at the branch offices will use the Lync client for peer-to-peer (P2P) audio communication with employees at the main office.
You need to assign tasks for the assessment phases.
Which task should you assign to each assessment phase? (To answer, drag the appropriate task or tasks to the correct phase or phases in the answer area. Each task may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)



Answer:



Explanation:

Networking Guide: Network Planning, Monitoring, and Troubleshooting with Lync Server

Question: 11

You perform a network readiness assessment for a Lync deployment and model Lync network traffic by using the Lync Bandwidth Calculator.
The organization plans to use panoramic video conference calls.
You need to build a report to determine if the existing wide area network (WAN) links' bandwidth is sufficient to handle panoramic video conference call traffic.
What should you do?

A. In the Codecs tab, customize the parameters for Lync 2013 multiview utilization.
B. Create a custom threshold definition.
C. Create custom calculations based on peer-to-peer (P2P) and conference traffic estimations.
D. In the Definitions tab, customize the resolution parameter for application sharing.

Answer: C

Explanation:
Limitation: The Lync Server Bandwidth Calculator does not account for traffic of Panorama video.
Workaround: Build your own calculations in the Work area tab of the bandwidth calculator, based on the amount of peer-to-peer (P2P) and conferencing video calls as calculated in the Sites tab of the bandwidth calculator.
Limitation: The bandwidth calculator assumes that all conferencing traffic from branch site users who are assigned to the central site, terminates in this central site. Currently, the ability to split conferencing traffic between multiple central sites is not supported.
Workaround: Build your own calculations for split conferencing traffic in the Work area tab of the bandwidth calculator.
User Guide: Microsoft Lync Server 2010 and 2013: Bandwidth Calculator

Question: 12

Your company's corporate telephony environment is a combination of Lync 2013 and traditional Private Branch Exchange (PBX). The sites are connected by a Multiprotocol Label Switching (MPLS) topology. There are 6,500 users enabled for Lync 2013 video conferencing. Only RTVideo is being used for video conferencing. On average, 12 percent of users are on a video conference at any one time. The company plans to add additional bandwidth for all sites.
The company is concerned about the quality of video conferences.
As part of a bandwidth upgrade process, you model real-time transport protocol (RTP) media call flows for video communications that use only RTVideo. You have determined the average number of video conferences and estimated the bandwidth required for the video portion.
You need to identify the additional bandwidth requirements when modeling real-time transport control protocol (RTCP).
Which bandwidth option should you choose?

A. 10 kilobits per second (kbps) per stream
B. 15 kilobits per second (kbps) per stream
C. 10 kilobits per second (kbps) total
D. 30 kilobits per second (kbps) total

Answer: A

Explanation:
RTCP Bandwidth

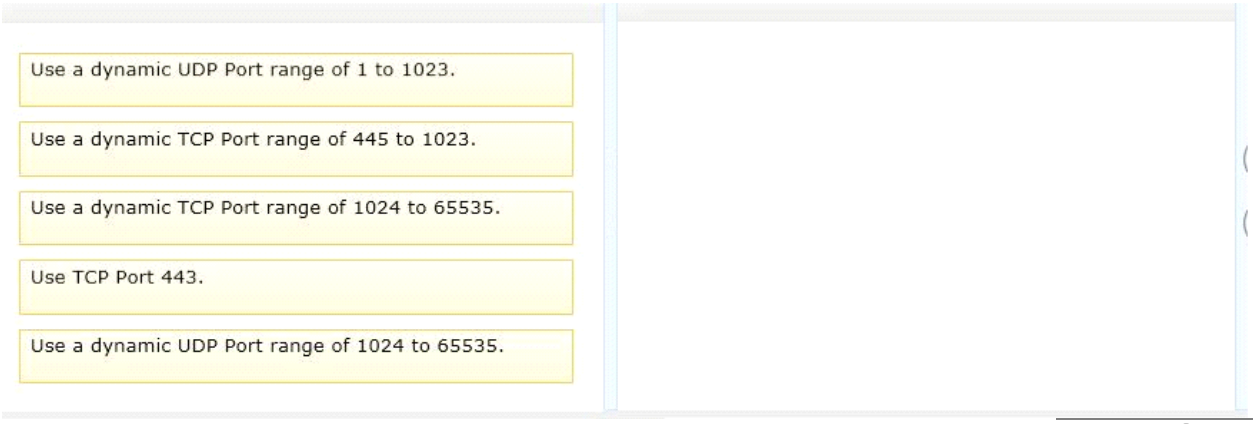
Media	RTCP maximum bandwidth (Kbps)
Audio	5
Video	10

An Introduction to Network Assessment Concepts: Microsoft Unified Communications

Question: 13

DRAG DROP
Alpine Ski House's corporate telephony environment includes a Lync 2013 Server with 3,500 users. The company plans a merger with Adventure Works, which uses a traditional Private Branch Exchange (PBX). Alpine Ski House intends to completely decommission its existing PBX and replace it with Lync 2013. With the acquisition, the total number of users would be 6,000.

Alpine Ski House has two sites and Adventure Works has a single site, all of which would be interconnected by a Multiprotocol Label Switching (MPLS) topology.
Alpine Ski House anticipates that after the merger, the company will have a total of 25 percent of its users in conferences, of which 15 percent could be on a public switched telephone network (PSTN) call at any time. The company plans to add additional bandwidth for all sites.
Before purchasing additional bandwidth, the company would like an analysis of potential real-time transport (RTC) traffic based on simulated traffic usage.
You need to prioritize real-time traffic for audio communications through Lync Client according to Microsoft Best Practices.
Which three steps should you perform in order of preference, starting with the most optimal scenario? (To answer, move the appropriate three actions from the list of actions to the answer area and arrange them in the correct order, starting with the most optimal option.)



Answer:

Box 1:

Box 2:

Box 3:

Explanation:
Note:
2.7.13 Traffic Prioritization for Real-Time Communications
By default, whenever the following communication scenarios are initiated, the Lync client attempts to establish real-time communications (RTC) through the following logic:
If no media port range configuration is enabled (default configuration):
Use a UDP dynamic range of ports from 1024-65535
Use a TCP dynamic range of ports from 1024-65535
TCP 443
If a manual media port range configuration is enabled:
Use a UDP dynamic range of ports from 1024-65535
Use a TCP dynamic range of ports from 1024-65535
TCP 443
Networking Guide
Network Planning, Monitoring, and Troubleshooting with Lync Server

Question: 14

Your company corporate telephony environment is a combination of Lync 2013 and traditional Private Branch Exchange (PBX). The company has three sites that are connected by a Multiprotocol Label Switching (MPLS) topology. There are 750 users who are using Lync 2013 and 2,500 users who are using the PBX environment. On average, the company has 10 percent of its users in conferences.
Multiple users report dropped calls and poor voice quality. The company is planning to add additional bandwidth for all sites.
You plan to generate and collect simulated traffic and then analyze the variations in the baseline network characteristics for each audio call.
You need to collect the baseline network characteristics to simulate peer-to-peer (P2P), conference, and public switched telephone network (PSTN) communications.
Which three pieces of information should you collect? (Each correct answer presents part of the solution. Choose three.)

A. cycle jitter
B. burst packet loss
C. sampling jitter
D. one-way network delay
E. average jitter
F. jitter period

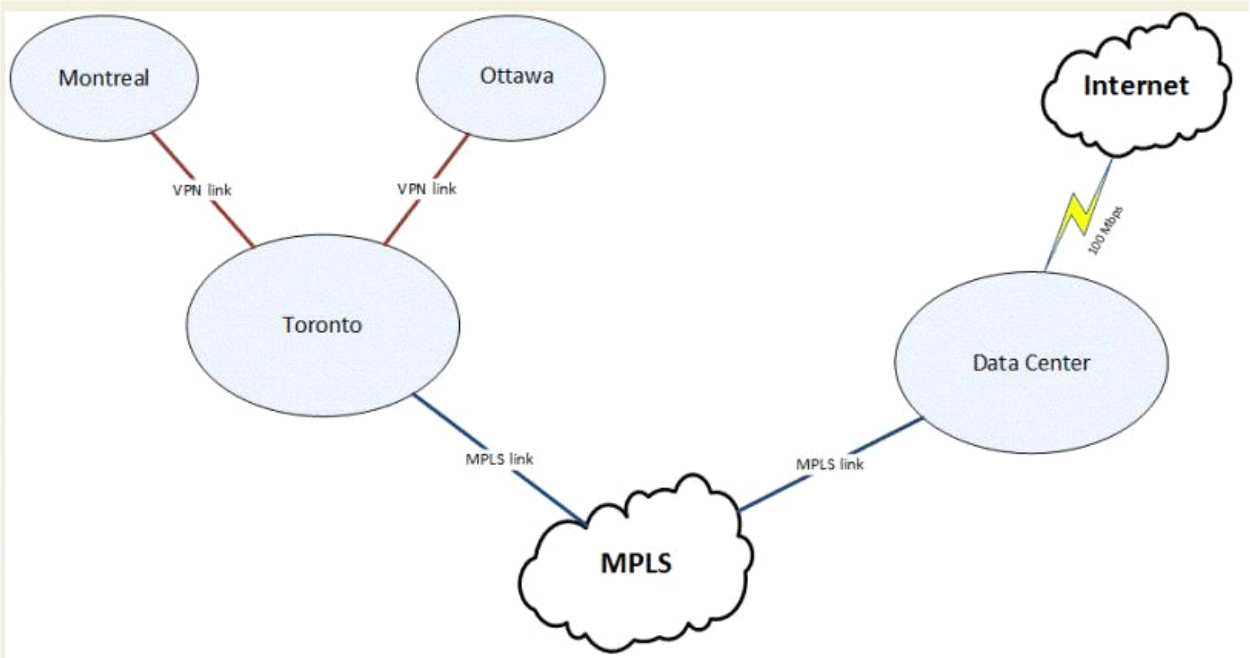
Answer: BDE

Explanation:

Support for all five baseline characteristics:
One-way network delay
Average jitter
Maximum jitter
Average packet loss
Burst packet loss (peak consecutive packets lost)
Networking Guide
Network Planning, Monitoring, and Troubleshooting with Lync Server

Question: 15

HOTSPOT
You analyze the results of Lync traffic modeling by using the Lync Bandwidth Calculator. The relevant portion of the network topology is shown in the exhibit. (Click the Exhibit button.)



You need to calculate the volume of audio and video conferencing traffic through the Toronto office Multiprotocol Label Switching (MPLS) link.

Which cell or cells in the Lync Bandwidth Calculator should you select to perform this calculation? (To answer, select the appropriate cell or cells in the Lync Bandwidth Calculator.)

Return to Start

Display Units: Kbps

Site Name	Total Users in Site	Users Registered using IM/Presence (accounts for SIP signaling): Peak Users Signed in	Peak SIP / IM BW	Intersite P2P Audio: Peak Intersite Peer Calls	Peak Intersite Peer BW	Intersite P2P Video: Peak Intersite Peer Calls	Peak Intersite Peer BW	Audio Conference: Peak Audio Conf Calls	Peak Audio Conf BW	Video Conference: Peak Video Conf Calls	Peak Video Conf BW	Desktop/App Sharing: Peak WAN Share Sessions	Peak WAN Share BW
Toronto	1000	800	1280.00	15	597.00	3	2560.00	30	765.00	5	1620.00	10	3840.00
Montreal	300	240	384.00	5	199.00	1	280.00	9	229.50	2	600.00	3	1152.00
Ottawa	200	160	256.00	3	119.40	1	280.00	6	153.00	1	300.00	2	768.00

Answer:

Return to Start

Display Units: Kbps

Site Name	Total Users in Site	Users Registered using IM/Presence (accounts for SIP signaling): Peak Users Signed in	Peak SIP / IM BW	Intersite P2P Audio: Peak Intersite Peer Calls	Peak Intersite Peer BW	Intersite P2P Video: Peak Intersite Peer Calls	Peak Intersite Peer BW	Audio Conference: Peak Audio Conf Calls	Peak Audio Conf BW	Video Conference: Peak Video Conf Calls	Peak Video Conf BW	Desktop/App Sharing: Peak WAN Share Sessions	Peak WAN Share BW
Toronto	1000	800	1280.00	15	597.00	3	2560.00	30	765.00	5	1620.00	10	3840.00
Montreal	300	240	384.00	5	199.00	1	280.00	9	229.50	2	600.00	3	1152.00
Ottawa	200	160	256.00	3	119.40	1	280.00	6	153.00	1	300.00	2	768.00

Question: 16

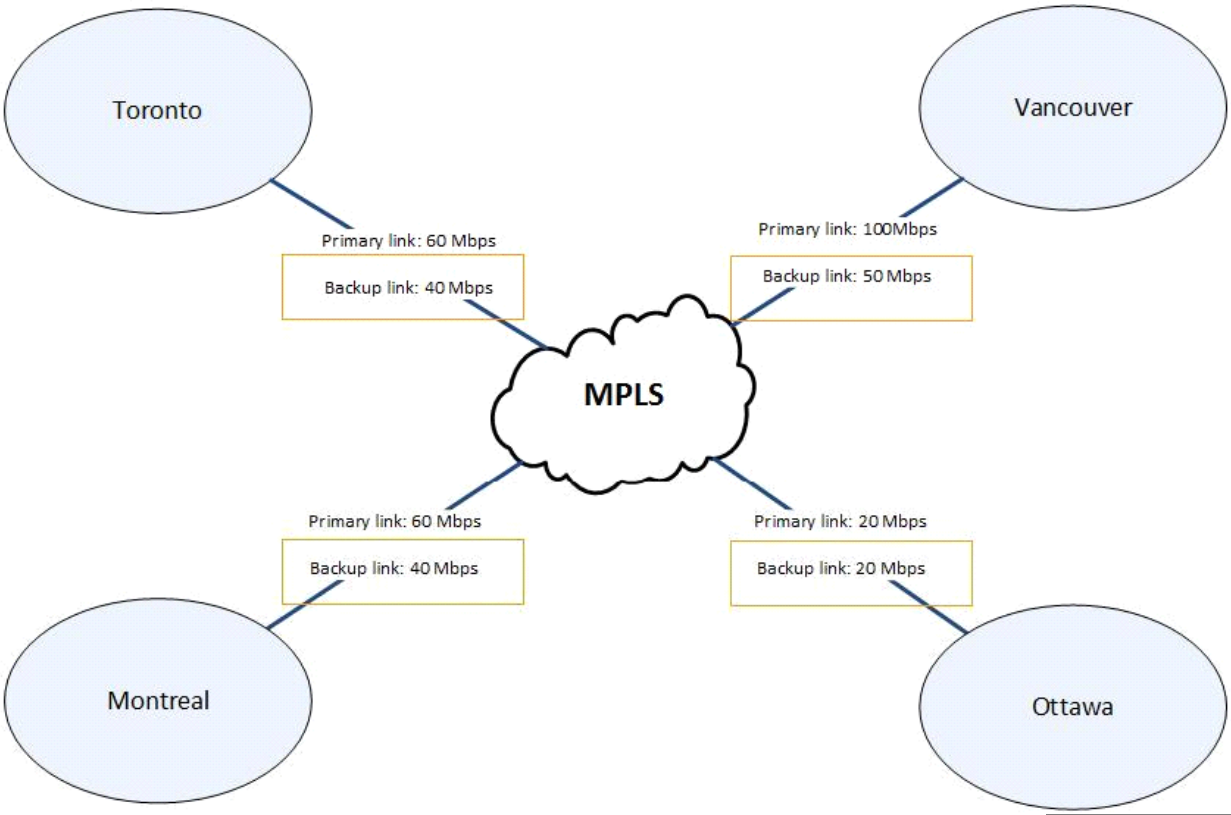
HOTSPOT

You analyze the results of Lync traffic modeling for a customer's network. The relevant portion of the network topology diagram is shown in the answer area.

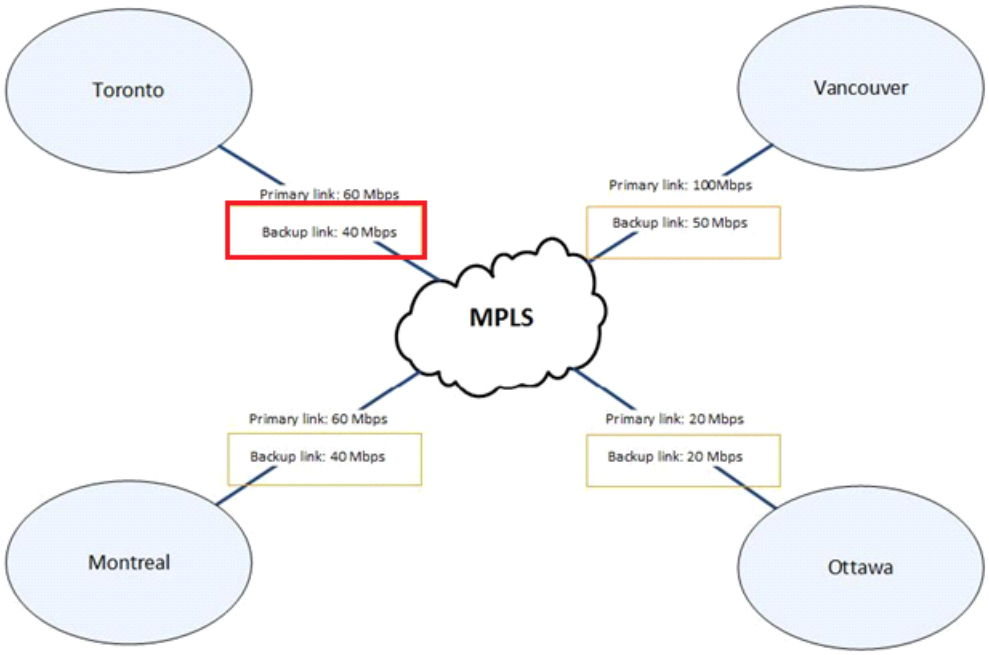
The estimated links workload is shown in the following table:

MPLS link	Available bandwidth for P2P traffic (Mbps)	Lync traffic estimation (Mbps)
Montreal	10	10
Ottawa	4	2
Vancouver	20	12
Toronto	20	15

The customer wants to build a highly available Lync infrastructure.
You need to determine which link must be updated to support the customer's requirements.
Which link should you update? (To answer, select the appropriate link in the network topology diagram.)

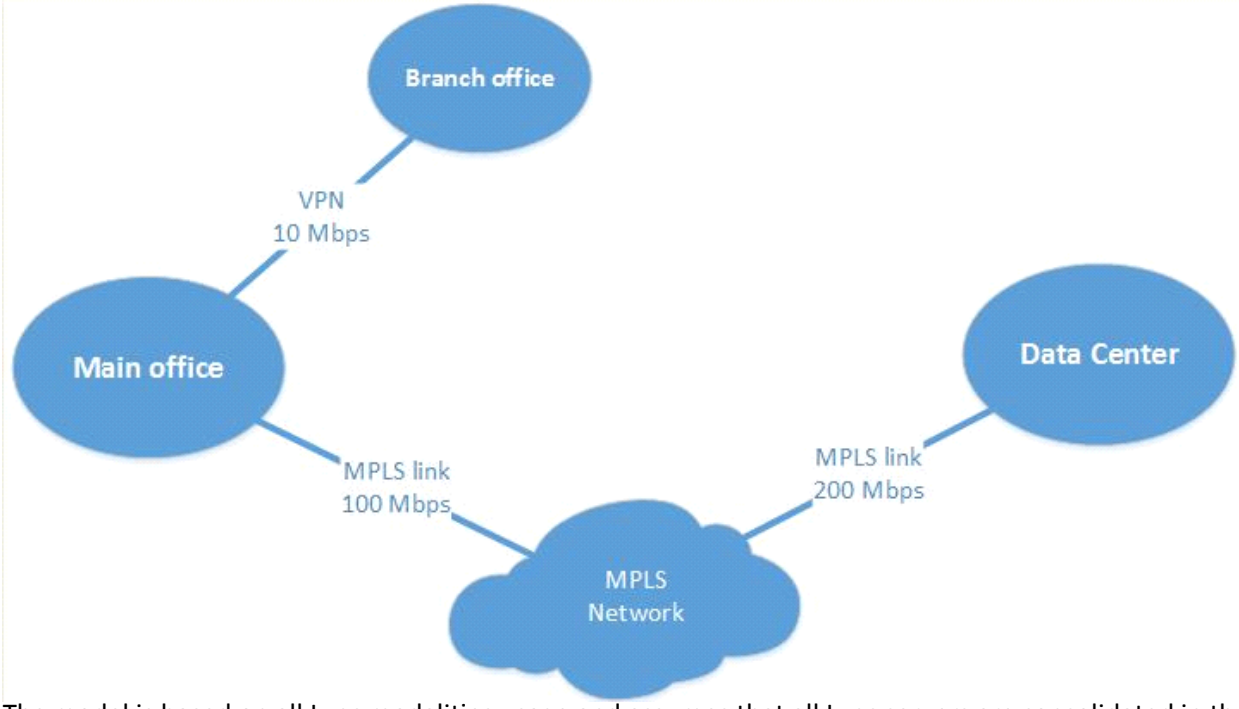


Answer:

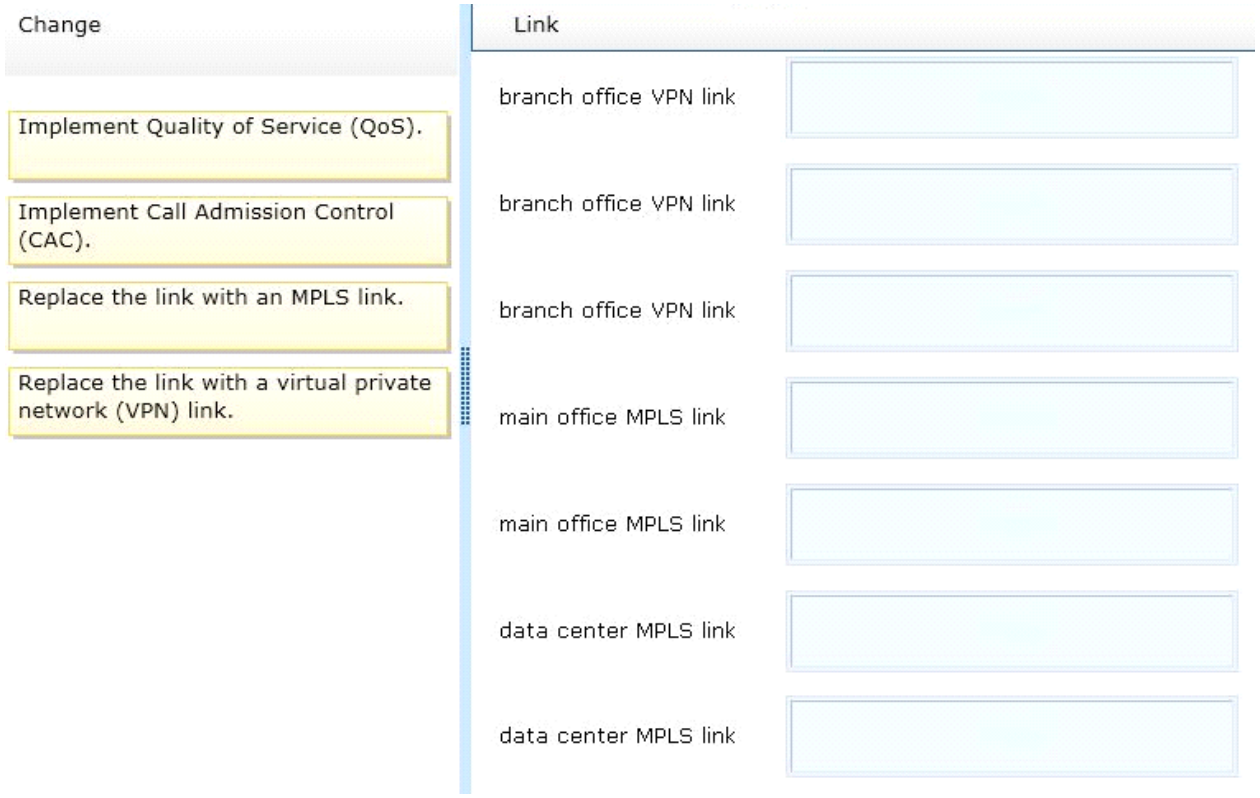


Question: 17

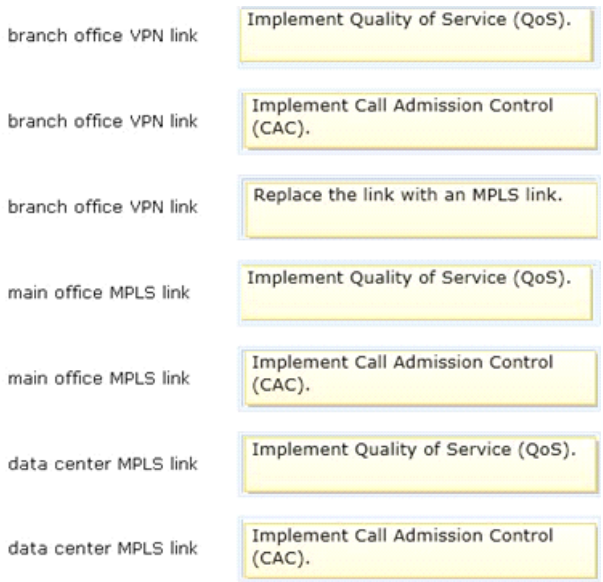
DRAG DROP
You analyze the results of Lync traffic modeling for a customer's network. Information about the network is displayed in the exhibit. (Click the Exhibit button.)



The model is based on all Lync modalities usage and assumes that all Lync servers are consolidated in the datacenter.
Your customer wants to dedicate no more than 30 percent of its Multiprotocol Label Switching (MPLS) links to Lync traffic. The branch office link must accommodate at least 50 simultaneous phone calls.
You need to recommend network changes to meet the customer's requirements.
Which change should you recommend for each link? (To answer, drag the appropriate change or changes to the correct link or links in the answer area. Each change may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)



Answer:



Question: 18

Your company corporate telephony environment is a combination of Lync 2013 and traditional Private Branch Exchange (PBX). The sites are connected by a Multiprotocol Label Switching (MPLS) topology. There are 750 users who are using Lync 2013 and 2,500 users who are using the PBX environment. On average, the company has 10 percent of its users in conferences. The company plans to add additional bandwidth for all sites.

The company is concerned about the number of dropped calls on the PBXs.

As part of a bandwidth upgrade process, you model real-time transport protocol (RTP) media call flows for audio communications. You have determined the average number of calls and estimated the bandwidth required for the

audio portion of the calls.
You need to identify the additional bandwidth requirements when modeling real-time transport control protocol (RTCP) traffic.
Which bandwidth option should you choose?

A. 5 kilobits per second (kbps) per stream
B. 20 kilobits per second (kbps) per stream
C. 5 kilobits per second (kbps) total
D. 20 kilobits per second (kbps) total

Answer: A

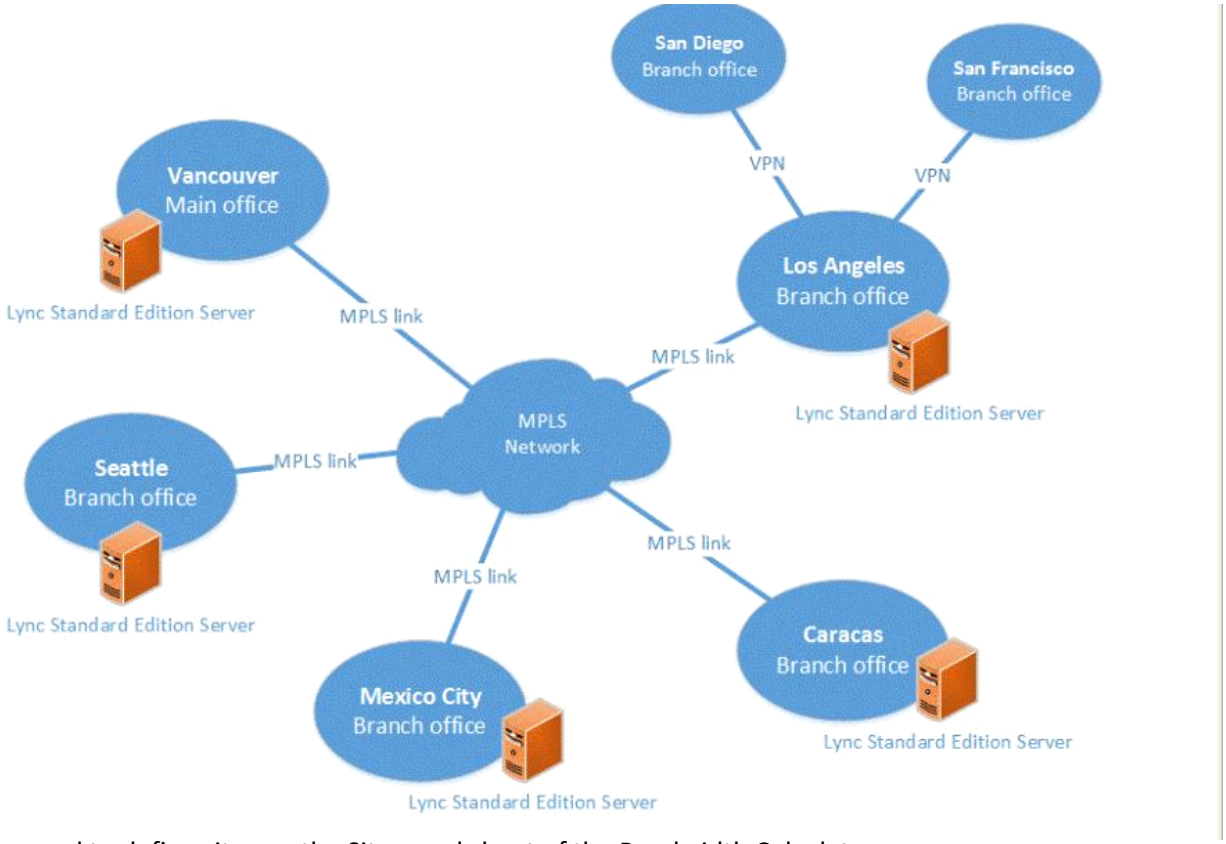
Explanation:
RTCP Bandwidth

Media	RTCP maximum bandwidth (Kbps)
Audio	5
Video	10

An Introduction to Network Assessment Concepts: Microsoft Unified Communications

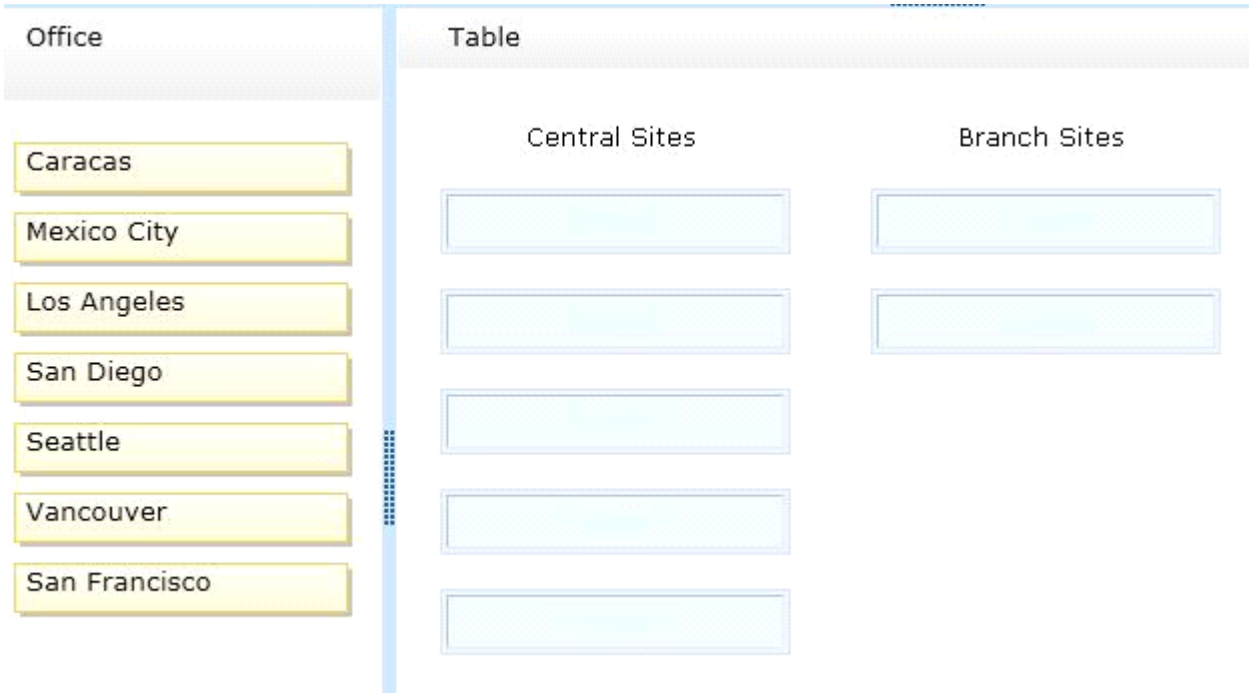
Question: 19

DRAG DROP
You prepare a Lync traffic model for a customer's network by using the Lync Bandwidth Calculator. A high-level network topology is shown in the exhibit. (Click the Exhibit button.)

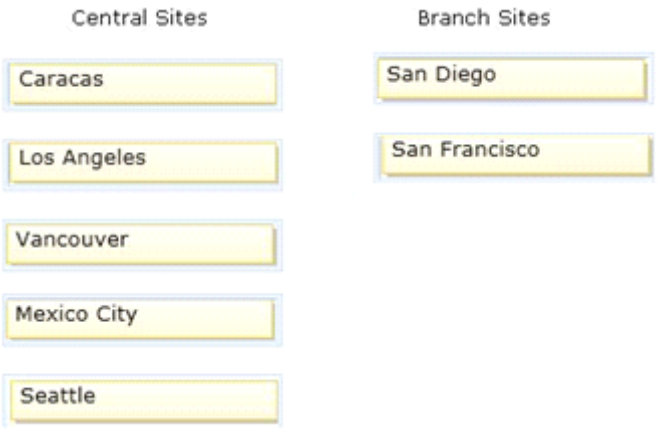


You need to define sites on the Sites worksheet of the Bandwidth Calculator.
Which table should you use for each office? (To answer, drag the appropriate office or offices to the correct table or

tables in the answer area. Each office may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)



Answer:



Question: 20

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 are connected by a Multiprotocol Label Switching (MPLS) topology. On average, the company has 10 percent of its users in conferences and 15 percent on a public switched telephone network (PSTN) call at any time. The company is planning to deploy Wi-Fi solutions for all offices and move all Lync communications through the wireless network.
You are concerned about the quality of voice traffic through the wireless network.
You plan to generate and collect simulated traffic through the wireless network to determine if the traffic is affected by going through the wireless network.
You need to determine if there is any degradation of service through the simulated traffic on the wireless network.
Which piece of information should you generate and collect?

A. Wi-Fi Multimedia Call Data Record (WMM CDR)

B. Wi-Fi Multimedia Quality of Experience (WMM QoE)
C. Wi-Fi Multimedia Power Save
D. Wi-Fi Multimedia Quality of Service (WMM QoS)

Answer: D

Explanation:
WMM QoS enables real-time media workloads to implement a higher QoS setting—in particular, for voice traffic over Wi-Fi.
Delivering Lync 2013 Real-Time Communications over Wi-Fi

Question: 21

Your corporate telephony environment is a combination of Lync 2013 and traditional Private Branch Exchange (PBX). Currently, the company has 2,000 users. The company expects to add an additional 2,000 users during the next year. On average, the company has 20 percent of its users on a public switched telephone network (PSTN) call at any time. Currently, users make three or more PSTN calls per hour, and it is expected that the new users will make a similar number of calls.
The circuit count for light, medium, and heavy traffic is shown in the table below:

Traffic	PSTN calls per hour	Users per port
Light	1	15
Medium	2	10
Heavy	3	5

You need to recommend the number of ports required by the PBXs for simulated current usage and the expected growth. How many ports should you recommend?

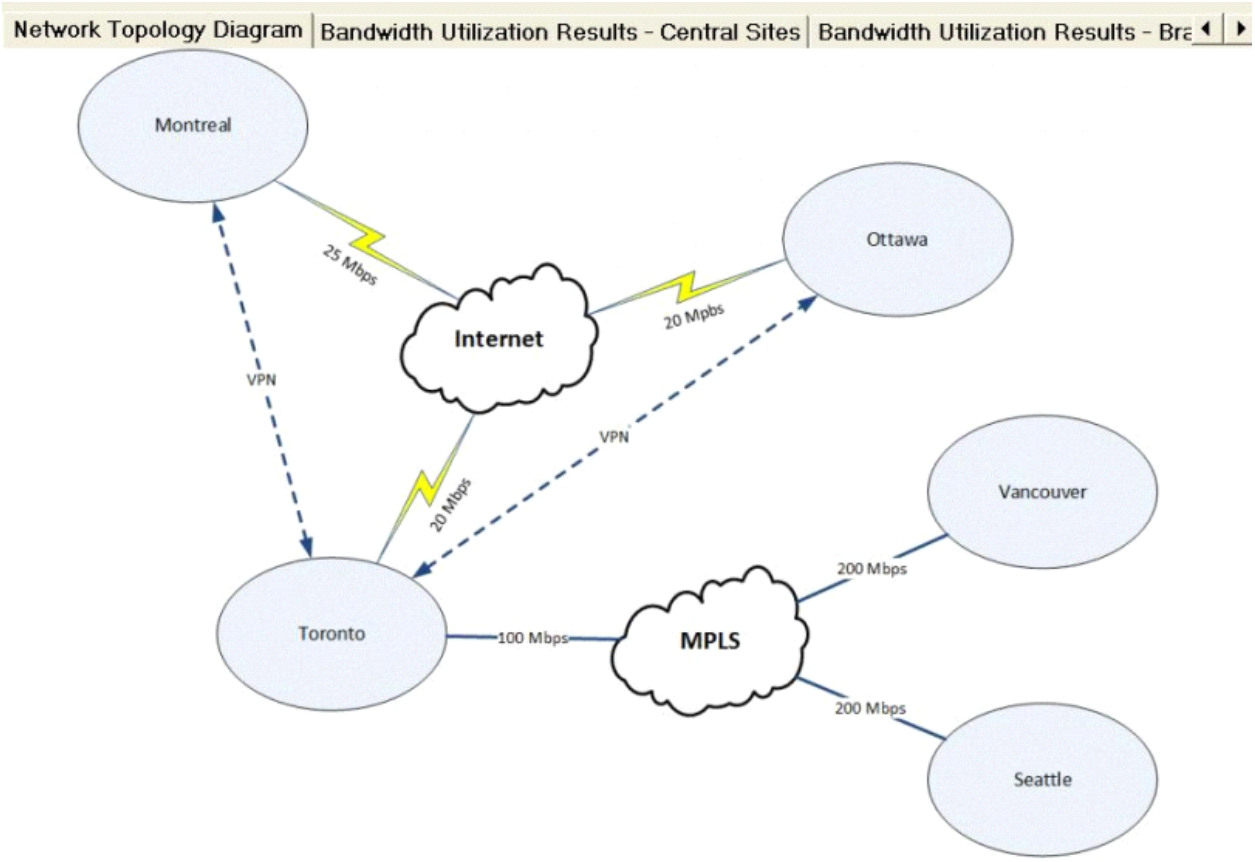
A. 40
B. 54
C. 80
D. 160

Answer: D

Explanation:
According to the scenario:
20% of 4000 = 800
800 divided 5 users per port = 160

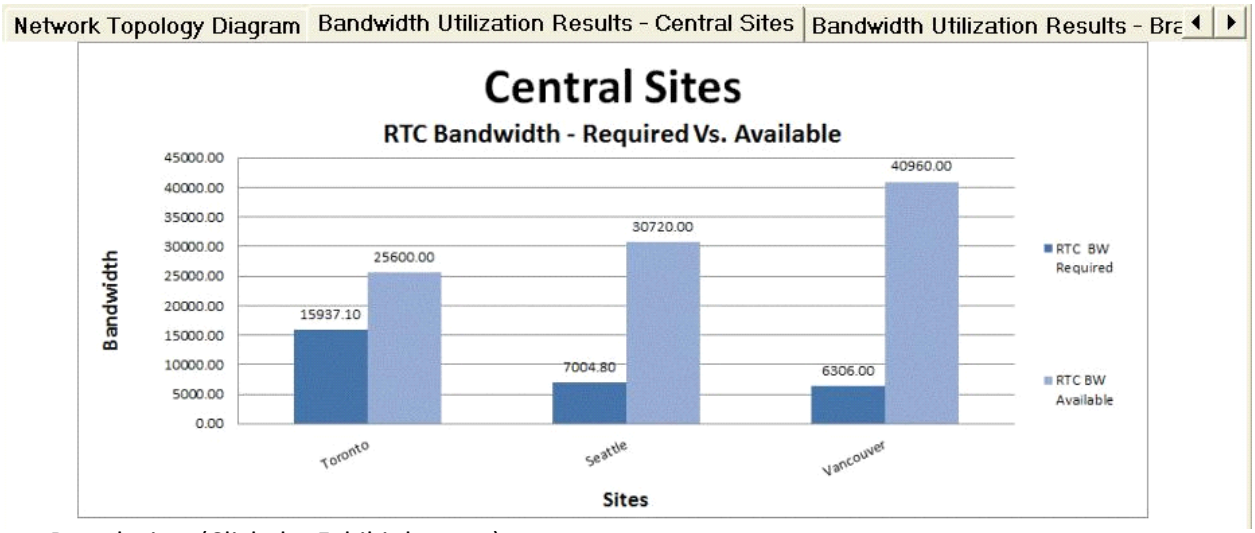
Question: 22

HOTSPOT
You are evaluating Lync traffic modeling results for your customer.
The customer's network topology is shown in the Network Topology exhibit. (Click the Exhibit button.)



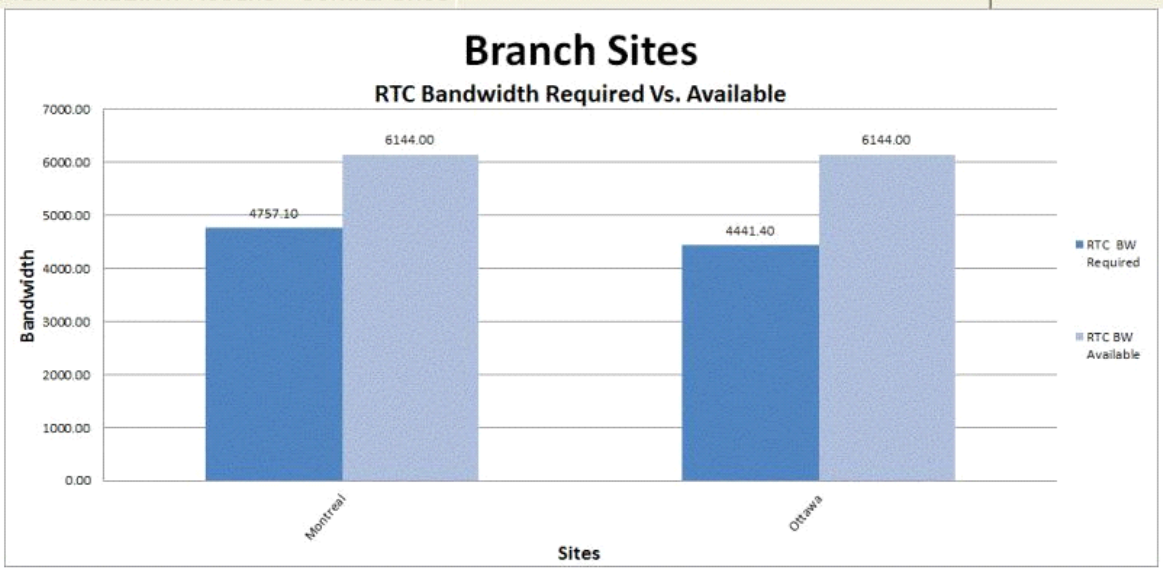
Bandwidth utilization results for the sites are shown in the exhibits as follows:

- Central sites (Click the Exhibit button.)



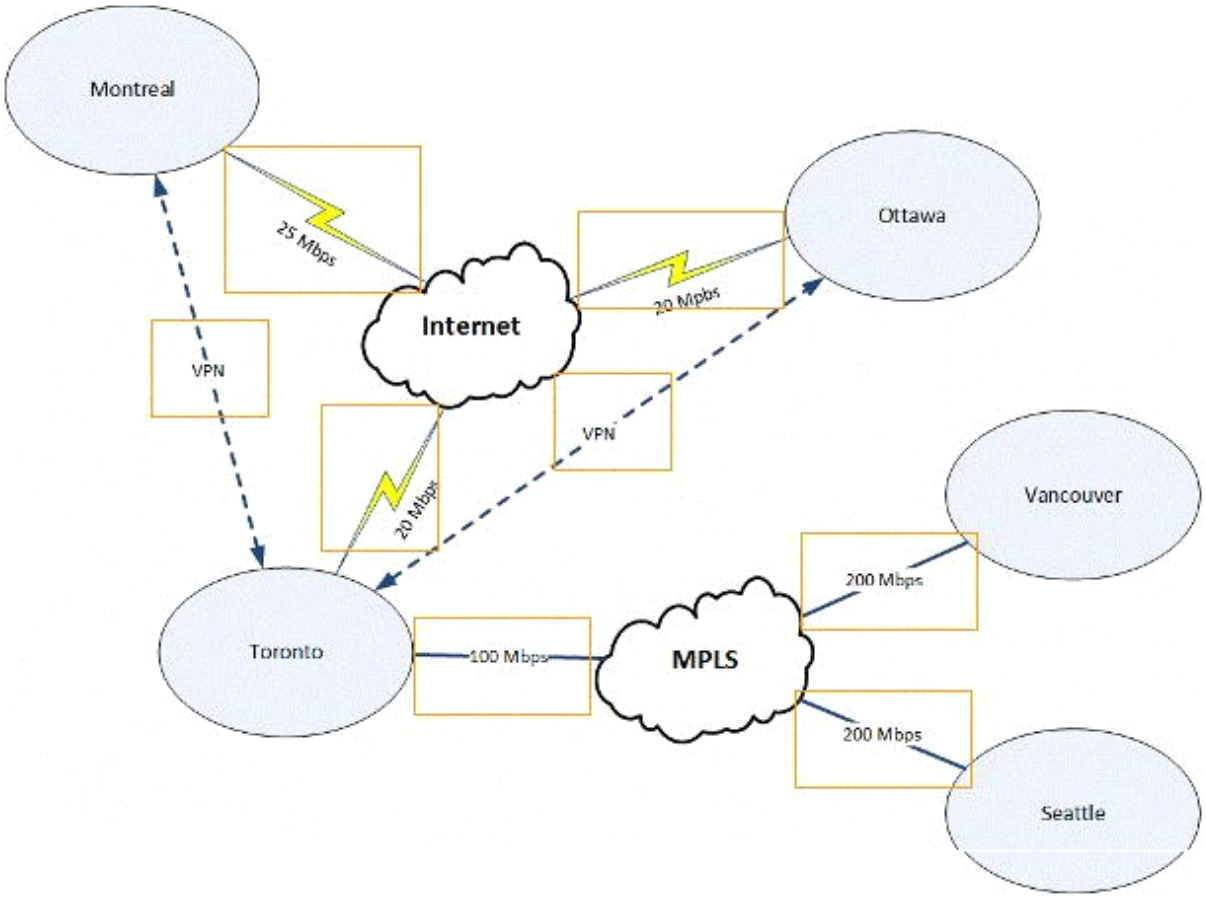
- Branch sites (Click the Exhibit button.)

Bandwidth Utilization Results - Central Sites | Bandwidth Utilization Results - Branch Sites

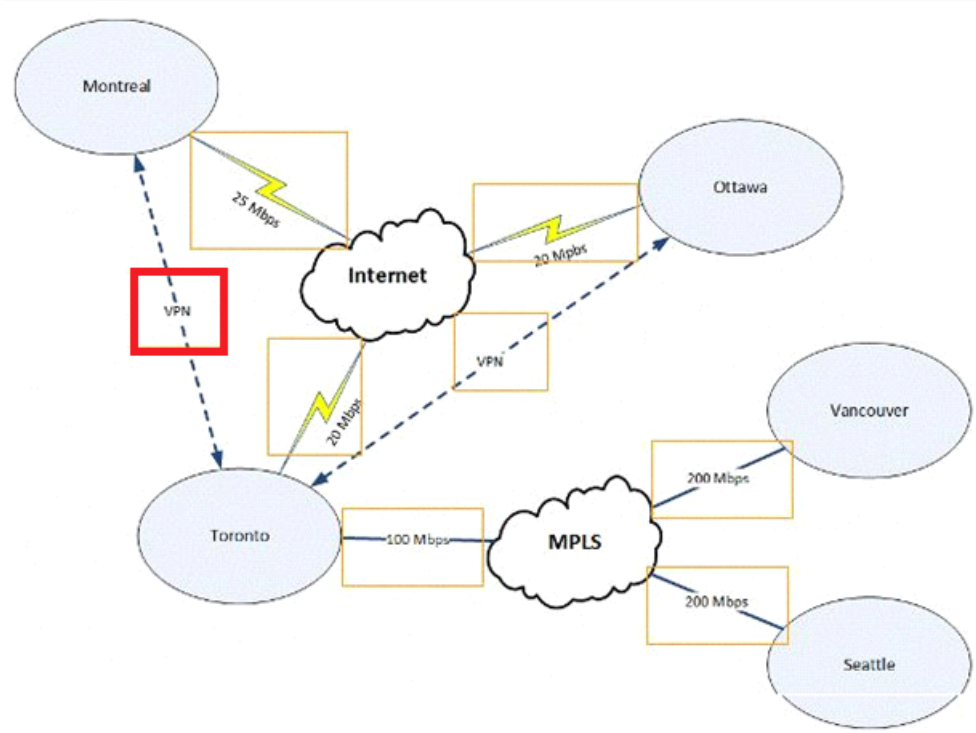


You need to identify the link that may cause issues during conferencing.

Which link shown on the network topology diagram should your customer monitor? (To answer, select the appropriate link on the network topology diagram.)



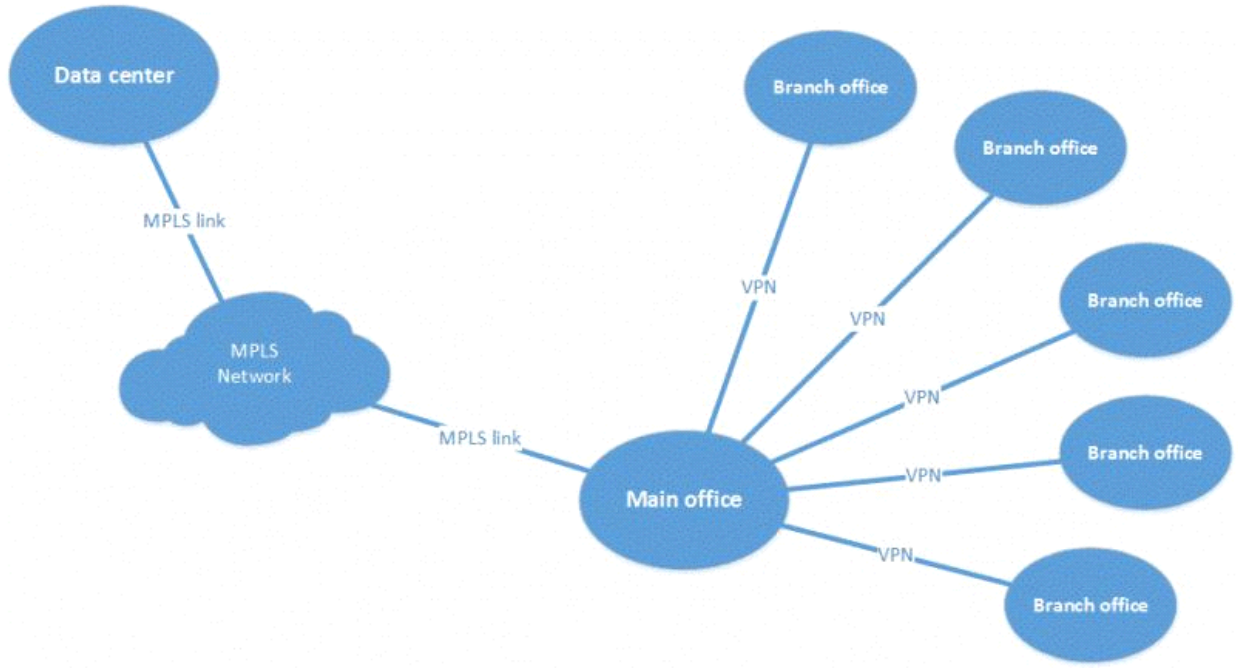
Answer:



Explanation:
Speed Sensing Mismatch (Full/Auto)
Network adapter speed and duplex mismatch is another issue that can cause packet loss and jitter on a network segment. It can seem counterintuitive that the Auto setting on a network adapter driver or switch port does not work against another interface set to Full. Both interfaces must be set to the same setting in order for packets to flow reliably. In many cases, network performance degradation caused by mismatched settings go unnoticed until real-time media is carried over this link.
Network Planning, Monitoring, and Troubleshooting with Lync Server

Question: 23

You analyze Lytic traffic modeling for a customer's network. The network includes a main office, a data center, and five branch offices. Lync servers are consolidated in the data center. The main office and the data center are connected to a Multiprotocol Label Switching (MPLS) network. The branch offices are connected to the main office with virtual private network (VPN) links. The model uses all Lync modalities for all users. The network topology diagram is shown in the exhibit. (Click the Exhibit button.)



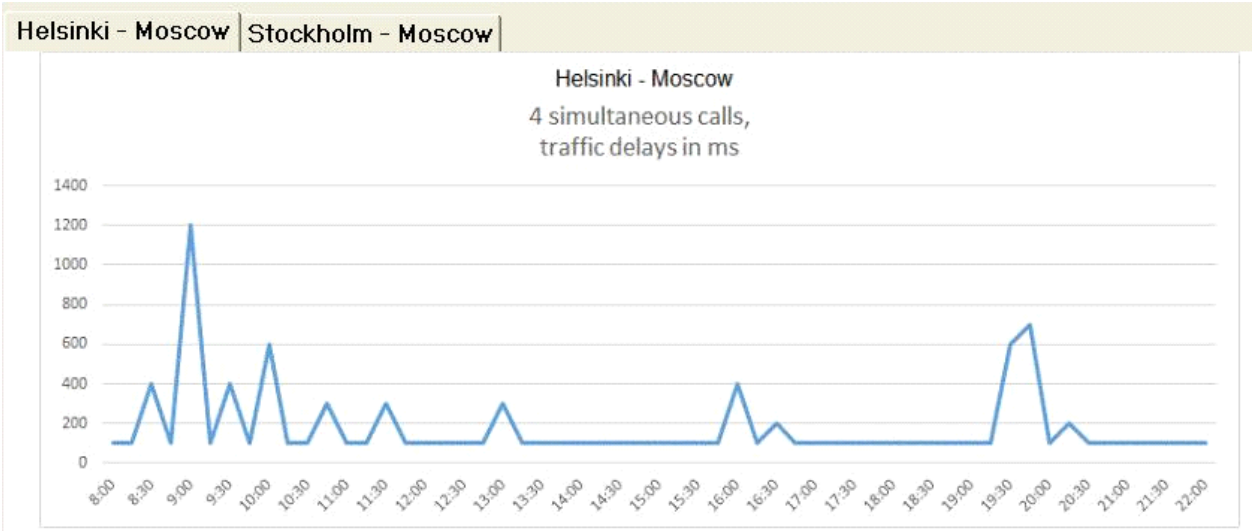
The model indicates that the main office exceeds the bandwidth available for Lync over the MPLS link by 10 percent.
The utilization of VPN links available for Lync traffic is at almost 100 percent.
You need to recommend a change to optimize Lync traffic through the main office MPLS link.
What should you recommend?

A. Move the Lync pool to the main office.
B. Move the Lync pool to a branch office.
C. Deploy a Survivable Branch Appliance (SBA) at all branches.
D. Deploy a Survivable Branch Appliance (SBA) at the main office.

Answer: A

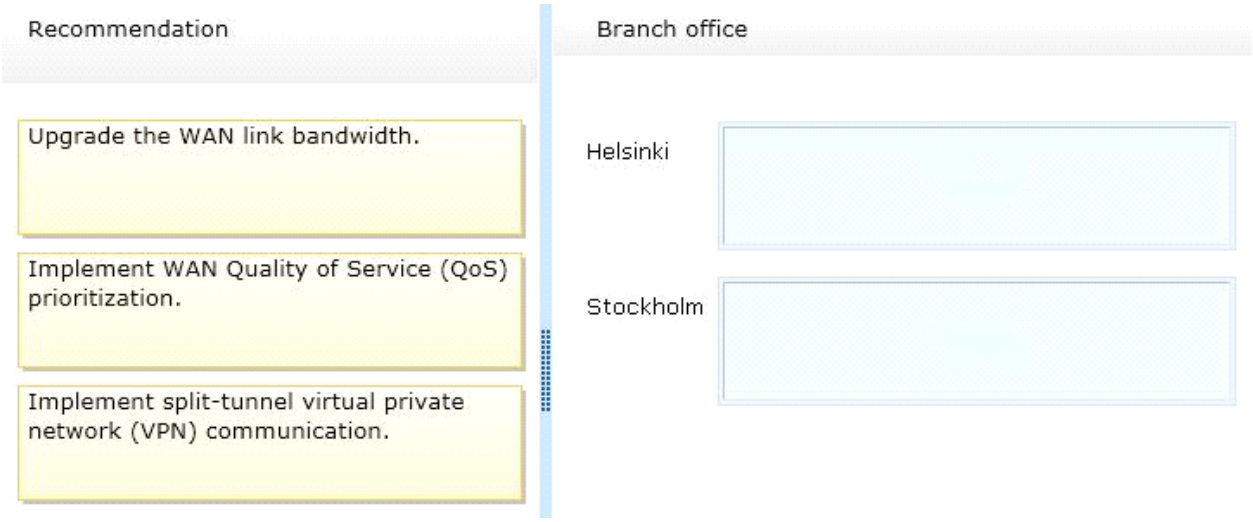
Question: 24

DRAG DROP
Your customer's network includes a main office in Moscow and branch offices in Helsinki and Stockholm- Both branch offices are connected to the main office by WAN links.
You complete a Lync network readiness assessment. The relevant portions of the Lync traffic simul-ation results for each branch office are shown in the following exhibits:
• Helsinki Lync traffic (Click the Exhibit button.)

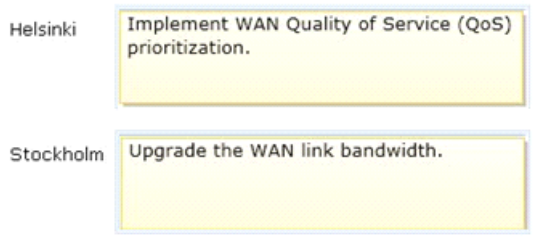


• Stockholm Lync traffic (Click the Exhibit button.)

You prepare a final slide presentation that shows the assessment results.
You need to include recommendations for the branch offices in the presentation slides.
Which recommendation should you make for each branch office? (To answer, drag the appropriate recommendation or recommendations to the correct branch office or offices in the answer area. Each recommendation may be used once or not at all. You may need to drag the split bar between panes or scroll to view content.)



Answer:



Question: 25

You perform a network readiness assessment for Lync deployment for a customer's organization.
The customer's organization includes five sites that are connected by site-to-site virtual private network (VPN) links. Each site includes 20 to 100 client computers.
You want to prepare a Lync traffic simul-ation.
You need to select the network traffic characteristics to collect.
Which three network traffic characteristics should you select? (Each correct answer presents part of the solution. Choose three.)

A. TCP/IP port statistics
B. average packet loss
C. one-way network delay
D. minimum jitter
E. average jitter
F. peer-to-peer (P2P) available bandwidth

Answer: BCE

Explanation:
Your simul-ation testing should use five baseline network characteristics that will quantify your network's performance under the anticipated traffic volume that your users will generate by using Lync Server.
A simul-ation tool must be able to generate traffic (real RTP/RTCP traffic), collect, and then graph the variation in the five baseline network characteristics for each call:
One-way network delay (C)
Average jitter(E)
Maximum jitter
Average packet loss (B)
Burst packet loss (peak consecutive packets lost)
Ref: http://technet.microsoft.com/en-us/library/gg615012.aspx
Network Planning, Monitoring, and Troubleshooting with Lync Server

Question: 26

Your customer's network includes two offices that are connected by a 100-megabits per second (Mbps) wide area network (WAN) link. Each office has 200 employees. Most employees work remotely and connect to the internal network by using a virtual private network (VPN).
Your customer plans to deploy Lync to support peer-to-peer (P2P) and conference sessions between employees. The customer wants to minimize Lync workload at the existing VPN server appliance.
You prepare modeling of Lync traffic for the customer's network.

You need to determine what additional information should be collected and included in the modeling calculation.
Which two pieces of information should you collect? (Each correct answer presents a complete solution. Choose two.)

A. codecs to be used by Lync clients
B. encryption protocols used to protect VPN communications
C. proposed location of the Lync Edge server
D. historic workload of the VPN appliance

Answer: AD

Explanation:
Note:
* Bandwidth figures include the protocol overheads for IP, UDP, RTP, and SRTP. This is why the Microsoft bandwidth figures for standard codecs are different from those quoted by other VoIP suppliers, who only state the raw codec figure, and not the entire packet overhead.
Networking Guide Network Planning, Monitoring, and Troubleshooting with Lync Server

Question: 27

Your customer's network includes three offices and two data centers that are connected by wide area network (WAN) links. Your customer has documented and modeled Lync usage within the current environment.
You review the customer's model and confirm that it is accurate.
You need to recommend the next step in the Lync network readiness assessment.
What should you recommend as the next step?

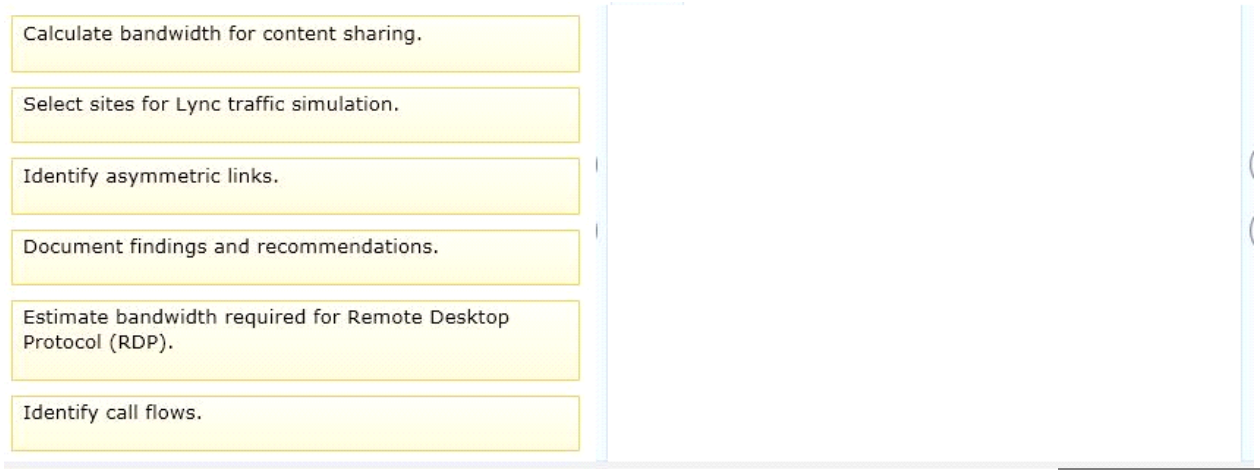
A. Implement Quality of Service (QoS).
B. Perform traffic simu-lation.
C. Calculate audio capacity for a public switched telephone network (PSTN).
D. Calculate bandwidth estimations over the WAN links.

Answer: B

Explanation:
Networking Guide Network Planning, Monitoring, and Troubleshooting with Lync Server

Question: 28

DRAG DROP
You prepare a response to a client's request for proposal (RFP) for a Lync network readiness assessment.
The client's network includes a main office that houses 500 employees and 30 branch offices that house 20 to 100 employees each. All sites are connected by a Multiprotocol Label Switching (MPLS) network. The client plans to use Lync video and upload and share Microsoft PowerPoint presentations.
The client wants to perform a Lync network assessment.
You need to include the required tasks in the RFP response, in the correct order.
Which four tasks should you perform in sequence? (To answer, move the appropriate four actions from the list of actions to the answer area and arrange them in the correct order.)



Answer:

Box 1: Calculate bandwidth for content sharing.
Box 2: Estimate bandwidth required for Remote Desktop Protocol (RDP)
Box 3: Select sites for Lync traffic simu-lation.
Box 4: Document findings and recommendations.

Explanation:
Note:
* In order:
* The network assessment uses a proven methodology to:
/ Discover your environment.
/ Model your usage patterns and usage scenarios by using information collected during discovery, with the help of the Lync Bandwidth Calculator.
/Simulate the anticipated Lync Server traffic volumes by using real media streams for a full seven days.
/ Analyze the underlying network infrastructure performance characteristics to determine your readiness in deploying Lync Server.
After you identify the scenarios to simulate traffic, coupled with the anticipated total bandwidth required, you'll need to determine which sites or locations to use for agent placement to simulate Lync Server traffic.
Networking Guide Network Planning, Monitoring, and Troubleshooting with Lync Server

Question: 29

Your company corporate telephony environment is a combination of Lync 2013 and traditional Private Branch Exchange (PBX). The company has three sites that are connected by a Multiprotocol Label Switching (MPLS) topology. There are 1,250 users who are using Lync 2013 and 2,250 users who are using the PBX environment. On average, the company has 3 percent of its users dialing in for conferences and 6 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.
You need to generate a usage model based on the existing data usage and real-time communications through all of the PBXs.
Which two pieces of information should you collect when you performing usage modeling? (Each correct answer presents part of the solution. Choose two.)

A. number of peer-to-peer (P2P) calls over the MPLS network
B. number of calls that use RTAudio Wideband
C. number of intersite calls through PSTN
D. number of PSTN channels provisioned
E. number of calls that use G.722

Answer: CD

Explanation:
Evaluate the following information, if available, for usage modeling:
Number of PBXs implemented.
(D) Number of public switched telephone network (PSTN) channels provisioned.
(C) Number of any intersite tie connections between PBXs, or whether intersite calls are made through the PSTN.
Number of users at each location.
Call data records (CDRs) for PSTN traffic usage.
Usage statistics, such as the maximum number of concurrent calls during the busy hour:
Total number and usage of PSTN channels at each site
Trunk usage for intersite connections
Incorrect:
not B: Internal Microphone (Conexant 20585 SmartAudio HD)
Networking Guide Network Planning, Monitoring, and Troubleshooting with Lync Server

Question: 30

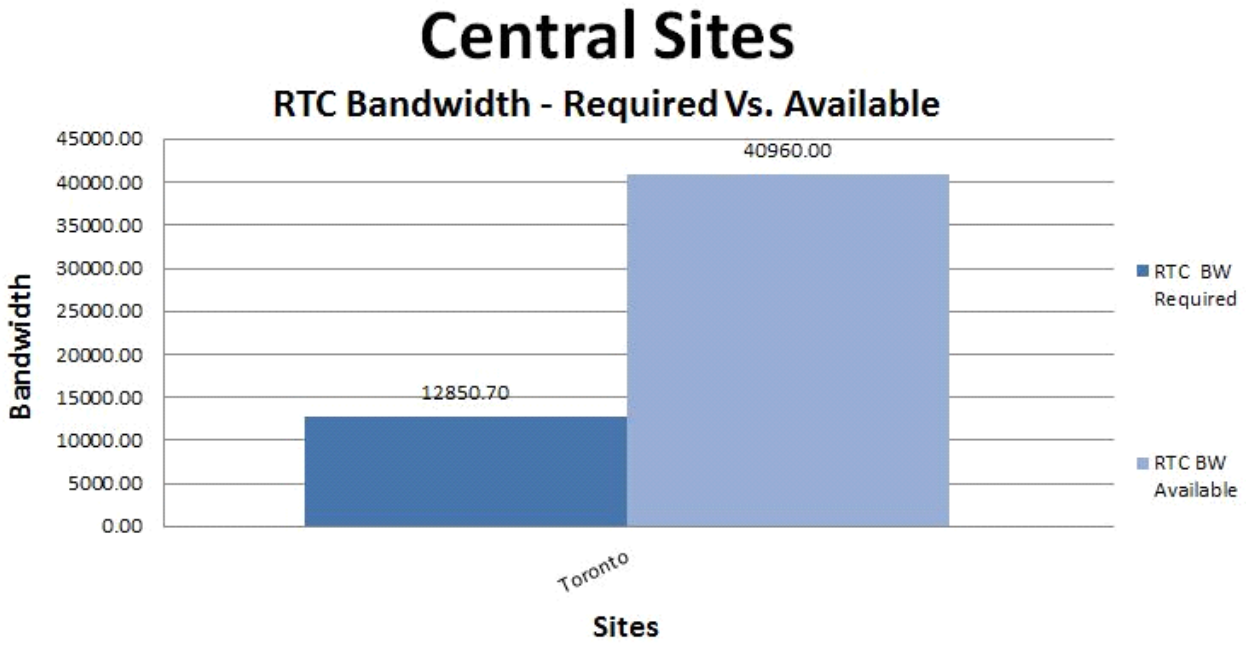
Your client network includes a main office located in Toronto and five branch offices connected to the main office by a Multiprotocol Label Switching (MPLS) network. The main office is connected to the Internet through a 100 Mbps link.
You complete Lync traffic modeling based on the values provided by the client- The relevant portions of Lync Bandwidth Calculator tool information include:
• Site definitions and its WAN link info as shown in the exhibit (Click the Exhibit button.)

Return to **Start**

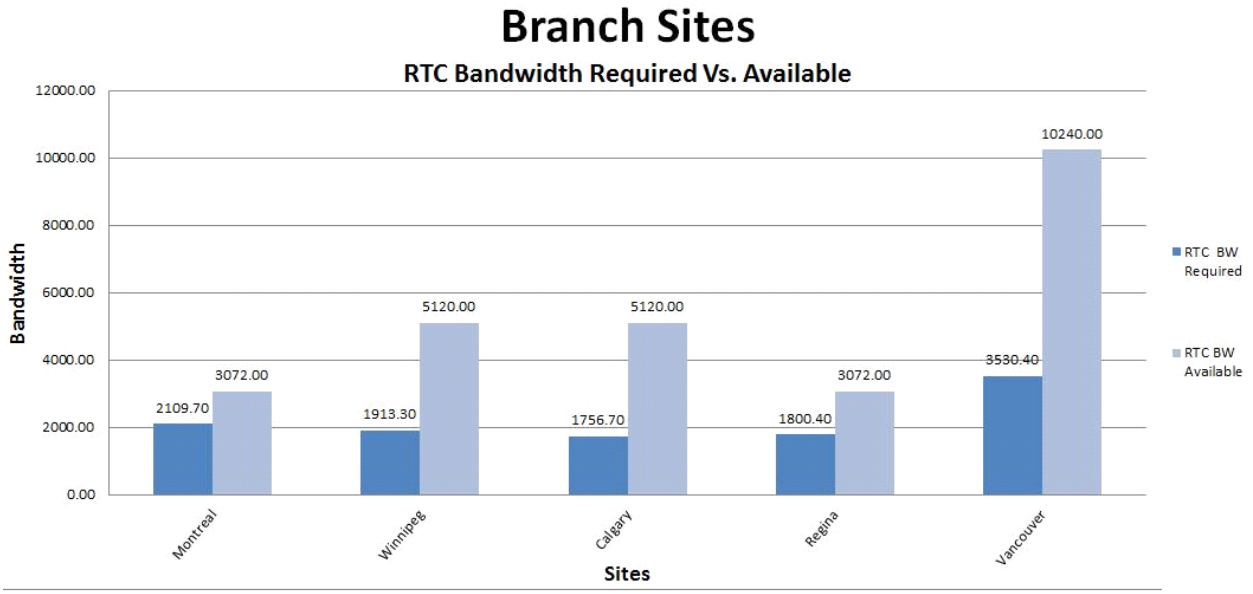
Display Units: Kbps

			Site definitions				WAN link Info			
ID	Site Name	Total Users in Site	Central Site Providing User Services	Internet Site	Number of Sites like this	Local PSTN Breakout?	Low delay WAN ? (Default=No)	WAN Link Speed	Input Units	WAN Link BW Allocated to RTC Traffic	Input Units
Central Sites											
1	Toronto	620		Toronto	1	Yes	No	100	Mbps	40	Mbps
2		0			1	Yes	No		Mbps		Mbps
3		0			1	Yes	No		Mbps		Mbps
4		0			1	Yes	No		Mbps		Mbps
5		0			1	Yes	No		Mbps		Mbps
6		0			1	Yes	No		Mbps		Mbps
7		0			1	Yes	No		Mbps		Mbps
8		0			1	Yes	No		Mbps		Mbps
9		0			1	Yes	No		Mbps		Mbps
10		0			1	Yes	No		Mbps		Mbps
Branch Sites											
1	Montreal	80	Toronto	Toronto	1	No	No	15	Mbps	3	Mbps
2	Winnipeg	50	Toronto	Toronto	1	No	No	20	Mbps	5	Mbps
3	Calgary	20	Toronto	Toronto	1	No	No	20	Mbps	5	Mbps
4	Regina	30	Toronto	Toronto	1	No	No	10	Mbps	3	Mbps
5	Vancouver	150	Toronto	Toronto	1	No	No	40	Mbps	10	Mbps

• Central Sites RTC Bandwidth Required Vs. Available as shown in the exhibit (Click the Exhibit button.)



• Branch Sites RTC Bandwidth Required Vs. Available as shown in the exhibit (Click the Exhibit button.)



You prepare a final report with the results of the Lync network readiness assessment.
You need to include a recommendation in the report.
What should you recommend to the client?

A. Upgrade the WAN link in the Regina office to at least 15 Mbps.
B. Allocate 4 Mbps bandwidth of WAN link to RTC traffic in the Regina office.
C. Upgrade the WAN link in the Montreal office at least to 20 Mbps.
D. Allocate 30 Mbps bandwidth of WAN link to RTC traffic in the Toronto office.

Answer: D

Question: 31

HOTSPOT
Your customer's network includes a main office with 500 employees and 10 branch offices with 200 employees each.

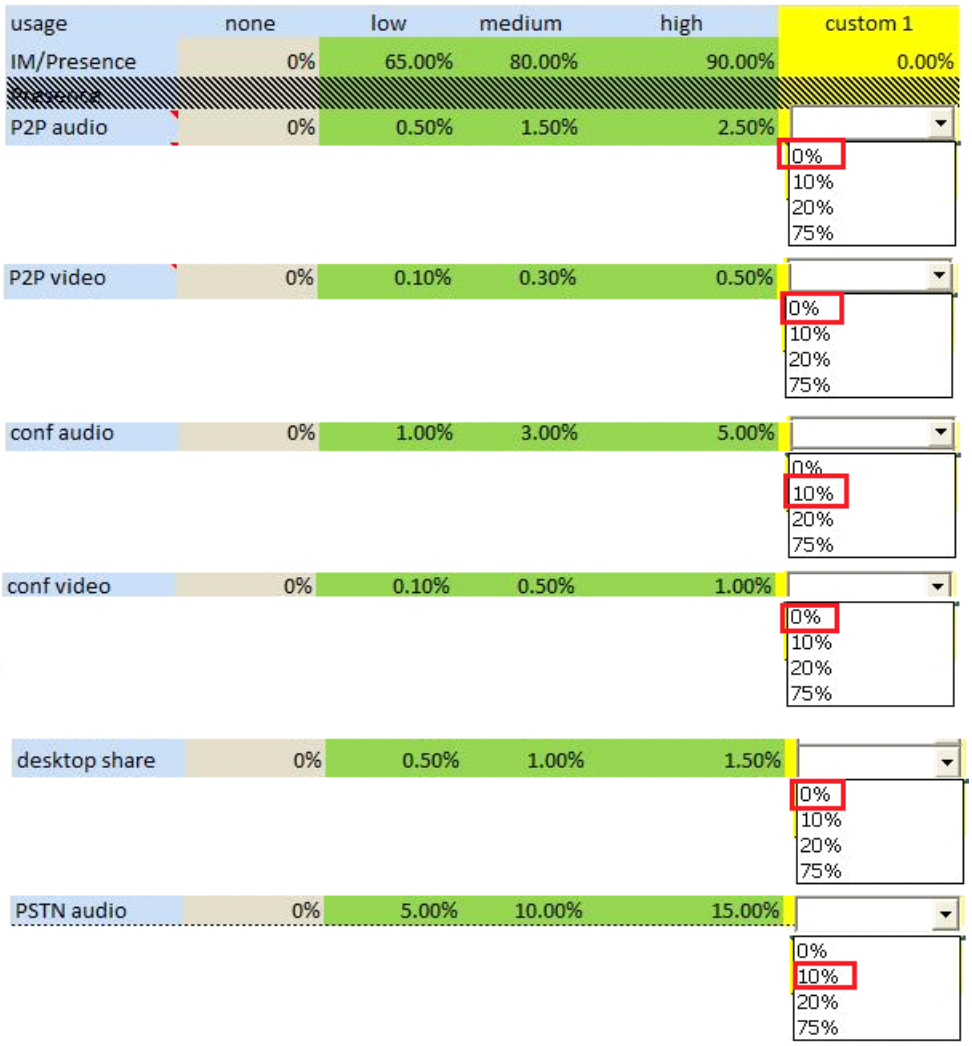
All branch offices are connected to the main office by wide area network (WAN) links.
You analyze the network readiness for Lync deployment. The customer estimates that at any given time, 20 employees at each branch office will be involved in audio conferences and 150 will be involved in public switched telephone network (PSTN) conversations over the WAN link.
You need to modify the relevant modalities of the correct usage model for the branch offices.
How should you modify the relevant modalities? (To answer, select the appropriate value in each drop-down menu in the table showing information from the Lync Persona tab.)

usage	none	low	medium	high	custom 1
IM/Presence	0%	65.00%	80.00%	90.00%	0.00%
Presence					
P2P audio	0%	0.50%	1.50%	2.50%	
P2P video	0%	0.10%	0.30%	0.50%	
conf audio	0%	1.00%	3.00%	5.00%	
conf video	0%	0.10%	0.50%	1.00%	
desktop share	0%	0.50%	1.00%	1.50%	
PSTN audio	0%	5.00%	10.00%	15.00%	

usage	none	low	medium	high	custom 1
IM/Presence	0%	65.00%	80.00%	90.00%	0.00%
Presence					
P2P audio	0%	0.50%	1.50%	2.50%	
P2P video	0%	0.10%	0.30%	0.50%	
conf audio	0%	1.00%	3.00%	5.00%	
conf video	0%	0.10%	0.50%	1.00%	
desktop share	0%	0.50%	1.00%	1.50%	
PSTN audio	0%	5.00%	10.00%	15.00%	

0%
10%
20%
75%

Answer:



Question: 32

You perform a network readiness assessment for Lync deployment for a customer who plans to provide video training sessions to its employees.
The organization's network includes a main office and a branch office that are connected by a virtual private network (VPN) link. The main office is connected to the Internet by a 20-megabits per second (Mbps) link. Employees frequently upload and download training video files to and from public cloud storage.
You need to collect additional network information for the traffic simu-lation to complete the discovery phase.
What information should you collect?

A. host distribution within the organization's IP subnets
B. call Admission Control (CAC) settings
C. Quality of Service (QoS) settings
D. average latency of external participants

Answer: C

Explanation:
http://technet.microsoft.com/en-us/library/gg405409.aspx

Question: 33

You have been hired to perform a network readiness assessment for Northwind Traders.
During the discovery phase, you collect the following data:

- Northwind Traders users' firewall policy restricts access between business units. Due to compliance restrictions, this policy cannot be modified in any way.
- Users often connect to the company's network through a virtual private network (VPN) from home. Split tunnels are enforced for non-work traffic.
- A hardware load balancer is available on the subnet. The company plans to add Lync server to the subnet.
- The company currently uses Quality of Service (QoS) marking 40 for voice traffic.

You need to identify possible problem areas and provide a recommendation. What should you do?

A. Recommend that Northwind Traders disregard the load balancer because Lync uses Domain Name System (DNS) load balancing only.
B. Inform Northwind Traders of the different methods that Lync uses to connect media.
C. Recommend that Northwind Traders open ports between user subnets for voice and video to function.
D. Suggest that Northwind Traders change the Differentiated Services Code Point (DSCP) value to 48 for Lync traffic.

Answer: C

Explanation:
http://technet.microsoft.com/en-us/library/gg425882(v=ocs.15).aspx

Question: 34

You prepare Co 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 simu-lation between New Delhi and New York are shown in the following table:

Traffic simulated	New Delhi to New York: 25 calls
Average MOS	4.29
Average Delay	90.70 ms
Average Jitter	40.97 ms
Maximum Jitter	290 ms
Average Packet Loss	0.80%
Maximum Consecutive Datagram Loss	14
General Comments	

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

A. The network performance is less than acceptable. Average Jitter is outside of recommended levels. Users may complain.
B. The network performance is less than acceptable. Average delay is outside of scope.
C. The network performance is acceptable. Packet loss is within acceptable ranges.
D. The network performance is acceptable. Maximum consecutive datagram loss is within acceptable ranges. Users may complain.

Answer: A

Explanation:
http://technet.microsoft.com/en-us/library/dn194460.aspx