Citrix

Exam 1Y0-401

Designing Citrix XenDesktop 7.6 Solutions

Version: 7.0

[Total Questions: 241]

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Topic 3: Analyzing the Current EnvironmentExecutive SummaryProject OverviewCGE is a global, diversified, upstream (exploration and production) oil and gas company headquartered in North America. CGE's three main operating areas are North America, Europe, and Southeast Asia. CGE also has a portfolio of international exploration opportunities.	**14**
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Topic 1, Assessing the Current EnvironmentExecutive SummaryProject OverviewCGE is a global, diversified, upstream (exploration and production) oil and gas company headquartered in North America. CGE's three main operating areas are North America, Europe, and Southeast Asia. CGE also has a portfolio of international exploration opportunities.

CGE began in North America as a small, upstream oil and gas company. Through acquisitions, CGE grew quickly and acquired companies globally. This led to a decentralized IT model, both from systems and personnel perspectives.

CGE currently utilizes several Citrix technologies to provide application virtualization to a global end-user base spread across several continents. Its current IT model for application virtualization is based on regional locations; each region hosts its own Citrix environment to support its local end-user base. CGE is moving toward a global IT model in which the entire application and desktop virtualization environment will be hosted in three data centers, each with a highly available NetScaler pair. CGE would like to provide dedicated desktops to some end-user groups to alleviate past issues with applications and performance. In addition, an Internet upgrade project is underway to eliminate slow connections at all sites. This will improve latency and bandwidth issues throughout the environments.

CGE engaged Citrix Consulting to determine whether best practices are being followed in its existing Citrix environments; to provide a design document for a new, consolidated Citrix environment; and to point out risks that should be resolved before moving to this new environment. This deliverable represents the output of the requirements gathering phase and will be used as an input during the architectural design phase of this engagement. Through interactive meetings, Citrix Consulting obtained information regarding CGE's existing Citrix XenApp environments and strategic goals. By reviewing this information, CGE can understand and methodically address those areas that represent the most profound risks, improve various facets of its current environments, and prepare for the future design phase of a consolidated environment.

Project GoalsDuring the course of the project, CGE and Citrix Consulting identified a number of project goals. The following summarizes these goals:

• Perform a detailed assessment of the Citrix components supporting the existing Citrix environments, which include XenApp 6.x, XenServer, and NetScaler Gateway.

• Review relevant peripheral components that support the existing Citrix environments (for example, Active Directory, storage, SQL, networking) to determine if each can support current production workloads and a new Citrix environment.

• Identify operational and environmental improvements to better account for the environments' growth.

OverviewCGE has locations spread across three primary regions—North America, Europe, and Southeast Asia—with its primary headquarters located in Houston. Sub regions exist within each region, each with its own Citrix infrastructure. Once power and cooling upgrades are complee, Houston will be the primary datacenter and London will be the secondary datacenter.

The following diagram details the locations and network connection types.

Coolidge Global Energy
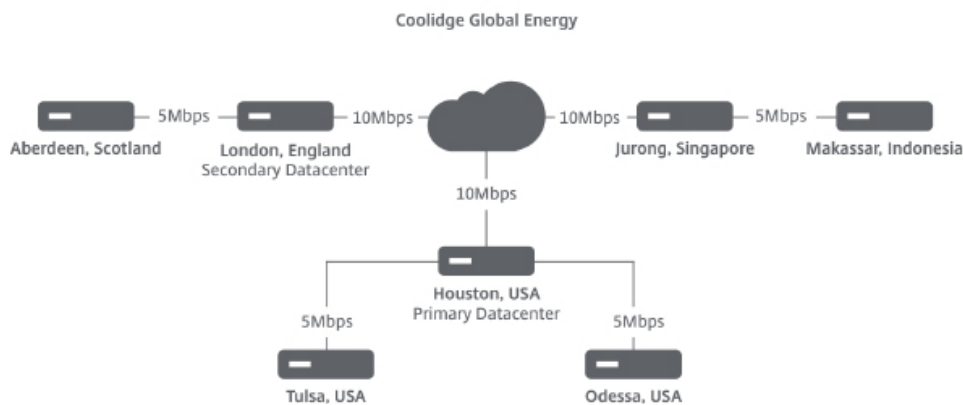
Business Layer OverviewSince CGE expanded quickly through acquisitions, corporate IT left infrastructure management up to the acquired companies. As a result, some regions have well-run Citrix environments, while others experience critical outages that simultaneously affect hundreds of end users.

CGE's CIO, who has been with CGE for slightly less than a year, was hired to be the central point for IT across all regions. The CIO has engaged with the various business units to understand their processes and received various complaints about the stability of the existing Citrix infrastructures.

The CIO feels that the majority of Citrix infrastructure issues are due to a lack of centralized control and common platforms. Some regions have older versions of XenApp, while some are more current. As CGE moves forward, the CIO plans to use a single vendor for the entire solution, and wants to ensure that the new infrastructure is virtualized and fault tolerant.

End-User Layer OverviewCGE has 10,350 employees, approximately 4,700 of which access the Citrix environments daily. Peak logon times are Monday through Friday, from 8:00 a.m. – 10:00 a.m., based on local, regional time zones. Technicians and engineers are shift workers who rotate to accommodate a 24 hours a day, seven days a week schedule.

End user distribution is as follows:

Location	Number of Citrix End Users	GMT (Greenwich Mean Time)
Houston	1,075	GMT -6:00
Odessa	600	GMT -6:00
Tulsa	600	GMT -6:00
London	400	GMT 0:00
Aberdeen	1,100	GMT 0:00
Jurong	325	GMT +8:00
Makassar	600	GMT +8:00

The majority of end users connect using CGE-owned HP laptop and desktop devices. Over 90 percent of these devices are Windows 7-based, as CGE is in the process of completing a Windows XP to Windows 7 migration.

CGE has standardized all these devices on Citrix Online Plug-in for Windows12.1, and is in the process of testing Receiver for Windows 4.2. In the past, some end users have complained about slowness when typing, which may indicate issues with latency.

CGE also allows end users to connect using non-corporate-owned devices. Many end users connect from personal computers and mobile devices such as Apple iPads and iPhones. End users are instructed to download Citrix Receiver from either the Citrix website or the Android or Apple app stores.

End users can be grouped into six separate categories:

•**Executives/Management**– Regional upper- and mid-level management staff.

•**Back Office**– End users that provide functions such as accounting, administration, human resources, and finance.

•**Research**– End users focus mainly on discovering new energy fields and sources.

•**Engineers**– End users who work with technicians in a senior lead role for both technical and management functions. There is approximately one engineer for every five technicians.

•**Technicians**– Field workers who service the oil and gas equipment.

•**Sales**– Primary customer-facing group.

End-user groups and numbers are as follows:

End-user Group	Total Number of End Users	Physical Location
Executives/Management	300	Houston - 175 London - 100 Jurong - 25
Back Office	500	Houston - 300 London - 200
Research	1,000	Houston - 500 Aberdeen - 500
Engineers	500	Odessa - 100 Tulsa -100 Aberdeen - 100 Jurong - 100 Makassar - 100
Technicians	2,500	Odessa - 500 Tulsa - 500 Aberdeen - 500 Jurong - 500 Makassar - 500
Sales	200	Houston - 100 London - 100

The engineers, technicians, and research groups access Citrix applications primarily in an

office-type environment, but may need to access these applications while in the gas and oil fields. In these scenarios, end users connect to Citrix using local Internet connections, ranging from a wireless access point to a tethered mobile device.

To prevent printer driver issues and sprawl, CGE tries to limit end users to their default printer when accessing Citrix. The IT department at CGE's headquarters has mandated that only the Citrix Universal Print Driver be utilized. As each region manages its own Citrix infrastructure, this has been difficult to enforce.

Each end user's home directory is mapped when accessing a Citrix session; the drive-mapping letter varies based on the end user's region. End-user data is stored on different network device types and shares ranging from a Windows CIFS share to an NAS appliance. Corporate ITis unsure if end-user data is being backed up in all regions. CGE hopes to implement formal, corporate-wide standards in the new Citrix environment.

Access Layer OverviewSince each region has its own Citrix environment, end users are fairly isolated within their specific regions. In each region, NetScaler Gateway and Web Interface provide access for internal and external end users. In some regions, Citrix Secure Gateway is still being utilized for external access. This is primarily due to a past budget constraint, but CGE hopes to provide a redundant and fault-tolerant Citrix access solution for all regions with the new environment. Confusion with the use of the appropriate URL also occurs for end users travelling among regions. A common access point that routes end users to their closest datacenter would most likely reduce this confusion.

As CGE is sensitive to the research that is being conducted toward the development of new energy types and methods, external access to the Citrix environment must be as secure as possible. Currently, internal and external end users employ single-factor authentication; however, the development of a two-factor authentication process is desired.

Access ControllersOverviewThe following table outlines the utilization of Web Interface, StoreFront, NetScaler Gateway, and Citrix Secure Gateway in the various Citrix environments.

Region	Internal Access - Web Interface	Internal Access - StoreFront	External Access - NetScaler Gateway	External Access – Citrix Secure Gateway
Houston		Two servers; load balanced by NetScaler	High availability (HA) pair	
Odessa	Single server			Single server
Tulsa	Single server			Single server
London		Two servers; load balanced by NetScaler	HA pair	
Aberdeen	Single server			Single server
Jurong	Single server			Single server
Makassar	Single server			Single server

Resource LayerPersonalization OverviewThe following table outlines the current overall profile strategy:

Group	Profile Type	Need to Save Data	Folder Redirection	Need to Print
Executives/Management	Microsoft roaming	Yes	Yes	Yes
Back Office	Microsoft roaming	Yes	Yes	Yes
Research	Microsoft roaming	Yes	Yes	Yes
Engineers	Local mandatory	Yes	Yes	Occasionally
Technicians	Local mandatory	No	No	Occasionally
Sales	Microsoft roaming	Yes	Yes	Yes

Corporate IT would like to streamline the profile management solution. Numerous end users complain about slow logon and logoff times, and routine profile corruption is also a concern. It is common for IT to have to reset end-user profiles on a daily basis. CGE hopes to provide a stable end-user profile platform by implementing a standardized set of hardware to host profiles and by employing Citrix Profile Management.
Citrix policies vary from region to region, but corporate IT has tried to enforce the following policy settings (at a minimum):

Policy Name	Policy Setting(s)
Default	Auto-create client printers: Auto-creates the client's default printer only
	Automatic installation of in-box printer drivers: Disabled
	Use local time of client: Enabled
	Client USB device redirection: Enabled

Technicians and engineers require USB mapping for various field devices such as flow meters and sonar devices. Since the majority of the remaining end-user groups probably do not need USB mapping, this could be disabled for those groups in the new environment. Corporate IT feels that most end users require only their default printer within a Citrix session. However, other end-user groups (primarily Back Office) need to access multiple printers with advanced printing functionality, such as stapling. In all cases, the need to limit native print drivers is critical.
Applications OverviewThe majority of end users utilize published applications delivered through one of the regional XenApp farms. Some end-user groups require a full desktop instead of published applications. CGE mandates that no new software (agents) may be deployed in the current desktop infrastructure.
The following table provides additional details about the applications and desktops used throughout the Citrix environments.

Applications/ Desktop	End-user Groups	Delivery Strategy	Notes
Office Suite	All groups	Published application	• Currently using Microsoft Office 2010. Would like to go to Office 2013 in the new environment.
Salesforce, MGMT Application	Sales, Executives/ Management	Published application	• Executive end users have logon scripts assigned that map network drives and copy large template files into their profiles that are updated weekly. • Executive end users report intermittent, very slow logon times (usually once a week). • Salesforce is used by the sales and executives teams to interface with CGE's customers. • The Sales team has hundreds of MBs of unnecessary application log files in the user profiles. • The help desk team notes that in the past, users have deleted profile files and folders during home drive cleanups, which have caused corruption and access issues. • Management uses the MGMT application.
SAP	All groups	Published application	• Used for back office functions such as accounting, payroll, time entry, etc.
Proprietary Energy Application	Engineers, Technicians, Research	Published application	• Main application used by the technical groups. • This application is disk intensive.
Desktop - Research	Research	Published desktop	• Server desktop for the Research end-user group. Required applications are embedded into the server image. • Research end users need to install software; this has been an issue in the existing environments. • Responsible for developing new resources. • End users report that Group Policy settings in the Citrix_User Policy are not being applied and that they receive conflicting, standard end-user policies.
Desktop - Back Office	Back Office	Published desktop	• Server desktop for the Back Office group. • End users report intermittent, very slow logon times (usually once a week). • End users have logon scripts assigned that map network drives and copy large template files into their profiles that are updated weekly • Uses a financial reporting application that requires end-user certificates to function.
			• CGE recently standardized Adobe Reader; however, Back Office end users receive a full version of Adobe Acrobat. • Required applications are embedded into the server image.
OpenGL (CAD)	Engineers	Published application	• Processor-, graphics-, and memory-intensive. • This application often crashes the XenApp server. The only resolution is to restart the server.

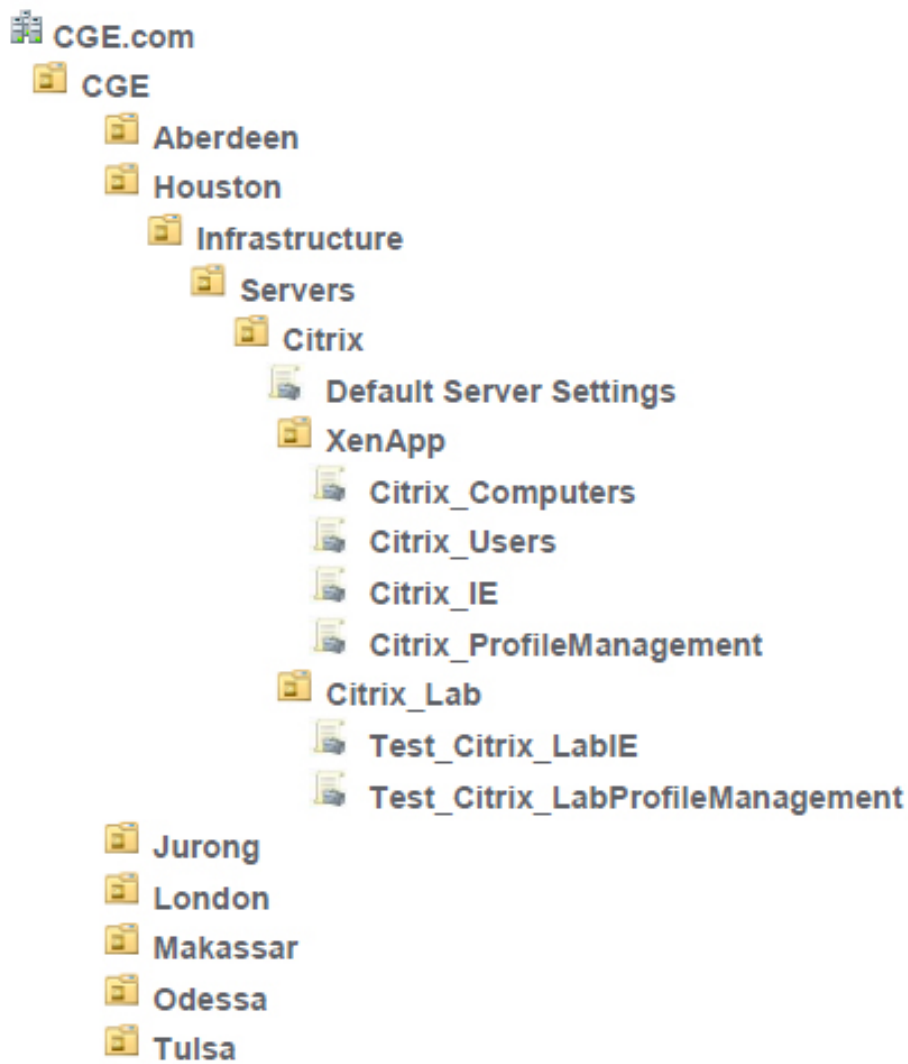Image Design OverviewThe following table outlines current application specifics. All servers are Windows 2008 R2 running XenApp 6.5, and all are virtual machines. Applications are delivered based on grouping. For example, Office Suite is installed on a dedicated set of servers.

Application Group	Location	Image Size	vCPU	Memory	Maximum Number of End Users per Server
Office Suite	All	40 GB	4	16 GB	50
Salesforce	Houston, London, Jurong	50 GB	2	16 GB	50
SAP	All	40 GB	2	12 GB	30
Proprietary Energy Application	Houston, Odessa, Tulsa, Aberdeen, Jurong, Makassar	60 GB	4	32 GB	20
Desktop - Research	Houston, Aberdeen	60 GB	4	32 GB	10
Desktop - Back Office	Houston, London	40 GB	2	16 GB	25
OpenGL (CAD)	Odessa, Tulsa, Aberdeen, Jurong, Makassar	60 GB	4	32 GB	5

Control LayerInfrastructure ServicesActive DirectoryAs the solution integrates with Active Directory, resources must be easy to manage and maintain within the directory structure. The following details CGE's typical organizational unit (OU) structure for the XenApp environments.
Overview

CGE.com
  CGE
    Aberdeen
    Houston
      Infrastructure
        Servers
          Citrix
            Default Server Settings
            XenApp
              Citrix_Computers
              Citrix_Users
              Citrix_IE
              Citrix_ProfileManagement
            Citrix_Lab
              Test_Citrix_LabIE
              Test_Citrix_LabProfileManagement
    Jurong
    London
    Makassar
    Odessa
    Tulsa

Databases OverviewCGE manages seven XenApp 6.5 farms—one for each region. A variety of SQL server versions host the farm databases. Some databases are located on a shared SQL cluster, while others are standalone.

The following table provides an overview of each environment, the database location, and the database configuration.