Microsoft®

Technology Associate

Student Study Guide

EXAM 98-365

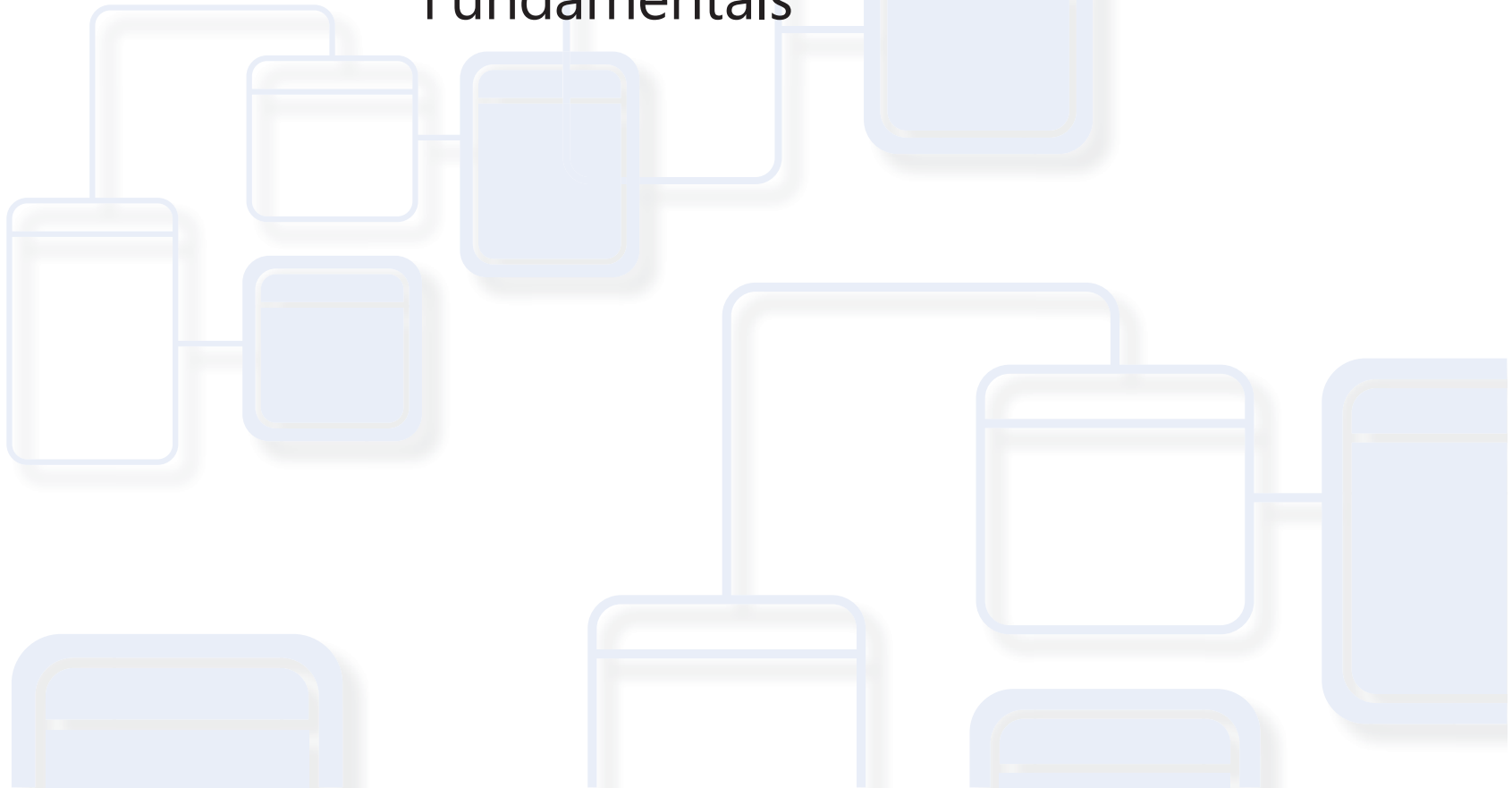**Windows Server Administration Fundamentals**

Microsoft®

Preparing for MTA Certification

98-365 Windows Server Administration Fundamentals

Authors

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Contents

98-365   WINDOWS SERVER ADMINISTRATION FUNDAMENTALS

Introduction

MTA validates building-block technology concepts and helps students explore, discover and pursue successful careers in Information Technology (IT) in an exciting and rewarding way! As the first step in the Microsoft Technology Certification Series, this new, entry-level certification provides students with confidence, credibility, and differentiation.

Explore IT career options without committing a lot of time and resources   MTA exams validate the core technology knowledge that is in demand today by businesses around the world. Whether you want to explore becoming a network administrator, software engineer, web developer, or database analyst, MTA gets you started on the right path.

Prepare to compete   A little investment in IT can go a long way in today's job market. Becoming MTA certified helps you build a solid foundation to prepare for intermediate technology studies and for Microsoft Certified Technology Specialist (MCTS) certifications. It can also help you compete on college admissions and jumpstart your IT career planning!

Empower yourself   As the first step toward becoming an MCTS, MTA shows your commitment to technology while connecting you with a community of more than five million Microsoft Certified Professionals. Learn from them and show them what you know by becoming MTA certified!

This MTA Student Study Guide serves as a study tool to help students prepare for their MTA certification exam. Students are challenged with real-life situations for each of the major topics covered in the exam. Although successful completion of the study guide exercises does not guarantee that you will pass your MTA exam, it is an excellent way to gauge your readiness to take the exam and build confidence that you know your stuff on exam day.

I wish you all the best as you prepare for a successful career in technology!

Victoria Pohto

Victoria Pohto
MTA Product Marketing Manager

Career Planning

Most IT solutions or infrastructure built on Microsoft technologies require proficiency with one or all of the following products, often referred to as "The Microsoft Stack."

- Microsoft Windows® Server® as the data center or development platform
- Microsoft SQL Server® as the data and business intelligence (BI) platform
- Microsoft Visual Studio® as the suite of application life-cycle management tools

MTA is the starting point of Microsoft technology certifications, providing aspiring technologists with the fundamental knowledge essential to succeed with continued studies and a successful career with technology.

Preparing for and becoming MTA certified helps you explore a variety of career paths in technology without investing a lot of time and money in a specialized career path. When you find a path that is right for you, Microsoft learning products and certification can help you prepare and guide your longer-term career planning.

If you already know that you want to start building a career in technology, MTA preparation and certification is the recommended entry point. Becoming MTA certified shows that you have a firm working knowledge of the fundamental IT concepts critical for success with intermediate learning and certifications such as Microsoft Certified Technology Specialist (MCTS). Moreover, Microsoft certifications demonstrate an individual's commitment of self-investment and confidence to take his or her knowledge and skills to the next level with an industry-recognized credential.

MTA is not a "career certification," meaning that employers recognize you as "job ready," but it is the first step toward that career goal and can help differentiate you for an internship or to college admissions committees. As you prepare for your first job focusing on technology, be sure that you are equipped with an MCTS credential—the intermediate level certification that validates Microsoft product and technology skills.

The MTA Certification path on the next page shows you the MTA exams that are recommended prior to taking on some of Microsoft's intermediate technology certification, MCTS.

Microsoft Technology Associate Certification Paths

MTA is the recommended first step in the Microsoft IT Certification Program, and does not require pre-requisite exams. MTA certifications are not a pre-requisite for MCTS exams. *One MTA exam = One certification.*

IT PRO

CAREERS — *Entry Level Jobs in:* Network Administration Server Administration	*Entry Level Jobs in:* Security Administration Identity and Access Management
SPECIALIST — **MCTS** Windows Server 2008, Network Infrastructure **EXAM 72-642**	**MCTS** Windows Server 2008, Active Directory **EXAM 72-640**

ASSOCIATE

MTA
Windows Server Administration Fundamentals
EXAM 98-365

MTA
Security Fundamentals
EXAM 98-367

MTA
Networking Fundamentals
EXAM 98-366

DEVELOPER

Entry Level Jobs in: Windows Development Software Engineering	*Entry Level Jobs in:* Web Development Software Engineering
MCTS .NET Framework 4, Windows Applications **EXAM 72-511**	**MCTS** .NET Framework 4, Web Applications **EXAM 72-515**
MTA Windows Development Fundamentals **EXAM 98-362**	**MTA** Web Development Fundamentals **EXAM 98-363**

MTA
Software Development Fundamentals
EXAM 98-361

DATABASE

Entry Level Jobs in: Database Administration Database Engineering	*Entry Level Jobs in:* Database Development Business Intelligence Development
MCTS SQL Server 2008, Implementation and Maintenance **EXAM 72-432**	**MCTS** SQL Server 2008, Database Development **EXAM 72-433**

MTA
Database Administration Fundamentals
EXAM 98-364

For full Microsoft Certification roadmaps, visit **http://www.microsoft.com/learning/certification**

Exploring Job Roles

Choosing a career path is a big decision and it's not always easy, but you're not alone! Microsoft created a career site to help students understand the options and possibilities of pursuing a career in IT. The site also connects you with learning resources, student techie communities, and much more to help you prepare for a career in technology.

To chart your career with Microsoft technology, visit *www.microsoft.com/learning/career/en/us/career-org-charts.aspx*.

Database Administrator

As a database administrator, you are in charge of important databases that span multiple platforms and environments. You are a strong team player who thrives in a fast-paced environment. You build complex, highly scalable databases that meet business needs and security requirements. You are an expert in optimizing, maintaining, and troubleshooting databases, but also in designing archival, data distribution, and high-availability solutions.

Server Administrator

As a server administrator, you are in charge of implementing and managing some of the most important technology in your organization—the servers. You use extensive monitoring and profiling tools to manage the network and tune systems so they perform at optimal levels. You are an expert in Active Directory®, and you have an in-depth understanding of network protocols, and file and directory security.

Computer Support Technician

Consider starting your IT career by becoming a consumer support technician. You don't need any formal work experience, but a company might require that you know how to install, administer, and troubleshoot operating systems in a home network environment that has desktop computers, laptops, and printers. As a consumer support technician, you'll also handle network, virus, malicious software, and hardware support issues. You'll typically find this position in small to medium-sized organizations.

Exploring Job Roles

Web Developer

As a web developer, you are an expert in using the dynamic programming tools and languages that fuel the web. You might work independently or be part of a team that builds and integrates interactive web sites, applications, and services for both internal and public sites. Your role is to make it work, which means developing web applications and testing them on various browsers, enhancing and modifying them as necessary to ensure the best experience for the user. As a web developer, you might also architect websites, design data-driven applications, and find efficient client-server solutions. You must have an in-depth understanding of the software development life cycle and be able to communicate project status, issues, and resolutions.

Windows Developer

As a Windows client developer, knowing how to optimize Windows code and track bugs is a given. But you also know how to use Microsoft Visual Studio® and the Microsoft .NET framework to design, develop, test, and deploy Windows-based applications that run on both corporate servers and desktop computers. Your key talents include understanding multiple Windows application models and n-tier applications, and knowing how to work with object-oriented programming, algorithms, data structures, and multithreading. Windows Developers have an in-depth understanding of software engineering principles, software life cycles, and security principles.

Additional Online Resources for New Developers:

http://msdn.microsoft.com/beginner

http://msdn.microsoft.com/rampup

Imagine Cup

The Imagine Cup is the world's premier student technology competition where students from around the world can learn new skills, make new friends, and change the world. Competitions include Software Design, Embedded Development, Game Design, Digital Media and Windows Phone 7. The brightest young minds harness the power of technology to take on the world's toughest problems.

www.imaginecup.com

Value of Certification

Technology plays a role in virtually everything we do. In the 20-plus years since Microsoft has been certifying people on its products and technologies, millions of people have gained the knowledge, expertise, and credentials to enhance their careers, optimize business solutions, and create innovation within just about every business and social sector imaginable. Today's Information Technology (IT) hiring managers are more often using professional credentials, such as Microsoft certification, to identify properly skilled IT candidates. Certification becomes a way to easily differentiate qualified candidates in a sea of resumes.

The job outlook for IT professionals, as reported in a study prepared by the U.S. Department of Labor's Bureau of Labor Statistics (BLS), is positive! The BLS indicates an increase that will be "faster than the average for all occupations through 2014" for Computer Support Specialists, Systems Engineers, Database Administrators, and Computer Software Engineers. One significant message resulting from this study is that information and communications technology (ICT) skills are the entry ticket to the job market, regardless of the country, industry, or job function. Information Technology is clearly an area worth investing time, resources, and education in – and technology certification is a key part of the education process, validating product and technology expertise as a result of their learning experiences.

Microsoft IT Certifications provide objective validation of the ability to perform critical IT functions successfully for worldwide IT professionals, developers, and information workers. Microsoft certifications represent a rich and varied spectrum of knowledge, job roles, and responsibilities. Further, earning a specific certification provides objective validation of the candidate's ability to perform critical IT functions successfully. Embraced by industry professionals worldwide, Microsoft certification remains one of the most effective ways to help reach long-term career goals.

MTA 98-365

WINDOWS SERVER ADMINISTRATION FUNDAMENTALS

1

Understanding
Server Installation

Understand device drivers; Understand services

SCENARIO: Maurice Taylor is the network administrator for Fabrikam, Inc. A workstation that he plans to image and roll out to production is having issues with the video display. The display worked initially when he first set up the system. After applying several system and driver updates, the video has degraded to standard VGA 640x800 and performance has really stunk. He knows this won't be acceptable.

Maurice also is having an issue with the firewall service on his Windows® Server® 2008 R2 Web server. The service fails to start when the system starts; however, Maurice can start it manually after he logs in. Maurice does not want to manually start that service every time maintenance on the web server is required, and he realizes that he'll be in big trouble if he doesn't secure the web server by forgetting to turn on the firewall service.

1. **What could be a possible reason for Maurice's video problems?**
   a. Maurice installed the wrong video driver
   b. Maurice installed an incompatible or corrupted video driver
   c. the video adapter is not properly seated on the system board

2. **Where should Maurice check to verify if he has a proper driver installed?**
   a. Event Viewer
   b. Disk Management
   c. Device Manager

3. **What can Maurice do with the web service to ensure that it will start after the other system services finish their startup?**
   a. configure a delayed startup for the web service through the services.msc
   b. write a batch program to start the service as a scheduled task
   c. configure the service to restart after first failure

hint

Performance suffers if a service is failing to start.

Answers

1. Maurice's video problem occurred because:

   b. **Maurice installed an incompatible or corrupted video driver**

2. Driver problems can be found in the:

   c. **Device Manager**

3. The interim solution to the web service is:

   a. **configure a delayed startup for the web service through the services.msc.** Maurice can open services.msc and configure the service for a delayed start for the startup type. This will allow the remaining services to finish starting. Maurice should investigate what possible services would be causing these issues.

Essential details

- A **device driver** is a software component that permits an operating system to communicate with a device.
- A **service** is a long-running executable that performs specific functions and that is designed not to require user intervention.

FAST TRACK HELP

- **http://www.microsoft.com/whdc/driver/install/drvsign/default.mspx**
- **http://technet.microsoft.com/en-us/library/dd919230(WS.10).aspx**
- **http://technet.microsoft.com/en-us/library/cc732482.aspx**

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Understand server installation options

SCENARIO: On Thursday, Pat was tasked with setting up 10 servers and 20 workstations per specification. Pat is aware that if he sets up each one individually, he will be at work through the weekend, and he doesn't want to do that because he has plans to go to a concert with some friends. Pat knows the company uses Windows Deployment Services whenever a new workstation or server is rolled out. Pat would like to automate these installations with as little human interaction as possible.

1. **What can Pat do to make sure he can make it to the concert this weekend?**
   a. start his installations manually and hope they finish in time
   b. create one completed installation, setup and configuration of a server and a workstation and use those two copies to image the remaining systems using Windows Deployment Services and ImageX
   c. sell his tickets to his buddy—it's not going to happen

2. **What is ImageX?**
   a. a picture editing utility
   b. a personal image enhancement service
   c. a system imaging software that takes a "snapshot" of an existing, configured server or workstation and creates an "imaged" or "cloned" version of that system and saves it to a file

3. **What can Pat use to solve the last part of his problem, which requires as little human interaction as possible?**
   a. have a robot do the installations
   b. use Windows System Image Manager to create an answer file that will automatically provide the answers to the setup questions throughout installation as well as configure and install any necessary software during the installation
   c. create a DVD that will contain all of the necessary software that will be installed on the servers and workstations

hint

Answer files have a variety of features that can be used through Windows Deployment Services to create a custom installation DVD.

Answers

1. Pat can complete the installs if he:

   b. **creates one completed installation, setup and configuration of a server and a workstation and use those two copies to image the remaining systems using Windows Deployment Services and ImageX.** Creating the two images or clones will allow Pat to duplicate those installations by "pushing" those files (images) onto the hard drives of the remaining systems.

2. ImageX is:

   c. **a system imaging software that takes a "snapshot" of an existing, configured server or workstation and creates an "imaged" or "cloned" version of that system and saves it to a file.** ImageX can be copied to a bootable CD/DVD/USB and used to create image files of an existing system for duplicating or backup purposes.

3. Pat can eliminate interactions during the installs if he:

   b. **uses Windows System Image Manager to create an answer file that will automatically provide the answers to the setup questions throughout installation as well as configure and install any necessary software during the installation.**

Essential details

- An **unattended installation** is a process of automating operating system installations by providing the setup/install file with a configuration file or "answer file" to perform and answer normal install tasks and questions.

- An **answer file** is an XML-based file that contains setting definitions and values to use during Windows Setup. In an answer file, you specify various setup options, including how to partition disks, the location of the Windows image to install, and the product key to apply.

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FAST TRACK HELP

- **http://technet.microsoft.com/en-us/library/cc785644(WS.10).aspx**
- **http://technet.microsoft.com/en-us/library/cc771670(WS.10).aspx**
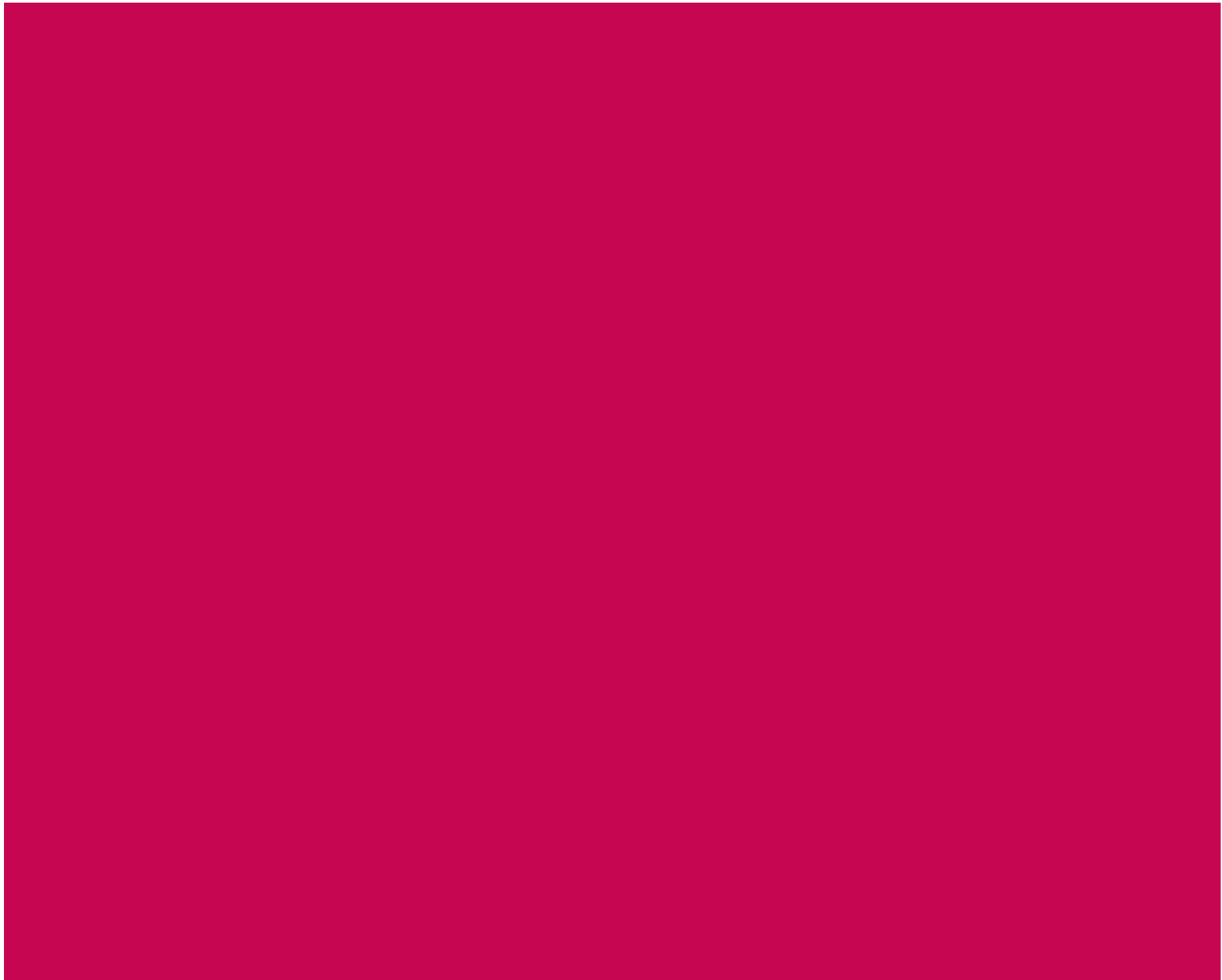- **http://technet.microsoft.com/en-us/library/cc749317(WS.10).aspx**
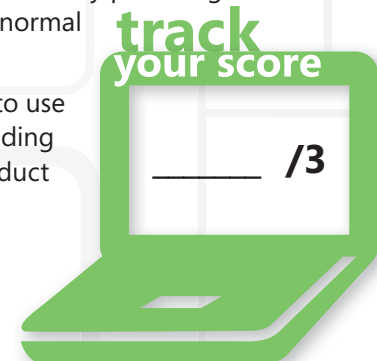
2

Understanding Server Roles

Identify application servers

SCENARIO: Cari is a systems administrator for Contoso, Ltd. She needs to develop a systems design so her company can use an email messaging system that allows for message and calendar collaboration. Contoso, Ltd. uses Microsoft® Office 2010 as their mainline office production suite. Her company also wants a collaboration server for their intranet. The collaboration server should support dynamic updating from the employees of Contoso, Ltd. Company officers would like to have the intranet monitored and protected with a threat management solution.

1. **What would be Cari's best solution for their messaging system?**
   a. use a third party email provider and a custom developed calendaring program
   b. include Microsoft Exchange Server 2010
   c. not recommend any solution because of the potential loss of production with an email messaging system

2. **What can meet the needs of the Contoso. Ltd. Intranet collaboration server?**
   a. implement SharePoint® Portal Server 2010 which uses Microsoft SQL as an option to support dynamic updating
   b. solicit bids from various web development firms to meet their intranet needs
   c. create a Microsoft Word document and send a link to it throughout the company and call it their messaging board

3. **What would be the best fit to meet the company's needs so that they can manage their employees' internet access through Active Directory?**
   a. have all employees sign an internet usage contract and document the sites they visit and promise not to install any malicious software onto their systems
   b. recommend Microsoft's Threat Management Gateway, which provides integration with Microsoft Forefront® antivirus and can grant or deny various types of internet behavior either by user name or group
   c. only allow internet access from one computer that employees can sign up to use in 30-minute increments

hint

Providing integrated solutions that will also integrate with existing applications provides fewer potential compatibility issues.

Answers

1. The best solution for their messaging system is to:
   b. **include Microsoft Exchange Server 2010.** Microsoft Exchange will integrate with the Contoso, Ltd. Existing core production suite with reduced learning curves for their employees.

2. The collaboration server needs can be met by:
   a. **implementing SharePoint Portal Server 2010 which uses Microsoft SQL as an option to support dynamic updating**

3. The best fit to meet the company's needs so they can manage their employee's internet access through Active Directory is:
   b. **Microsoft's Threat Management Gateway, which provides integration with Microsoft Forefront antivirus and can grant or deny various types of internet behavior either by user name or group**

Essential details

- **Active Directory®** is the central location for configuration information, authentication requests, and information about all of the objects that are stored within your forest.

- **SharePoint** provides a turnkey solution that will integrate with the existing core production suite as well as a communications server. Data will be stored with the inherent SQL application incorporated.

FAST TRACK HELP

- **http://www.microsoft.com/exchange/2010/en/us/default.aspx**
- **http://sharepoint.microsoft.com/en-us/Pages/default.aspx**
- **http://www.microsoft.com/forefront/threat-management-gateway/en /us/overview.aspx**
- **http://office.microsoft.com/en-us/sharepoint-server-help /CH010030543.aspx**

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Understand Web services

SCENARIO: Alicia is a server administrator for Tailspin Toys. Security personnel have contacted her to provide them with security information regarding her web exposed servers. They want to know which servers will have access from beyond the perimeter security appliance so that they can accommodate the incoming and outgoing traffic. Alicia responds that two of her three servers require perimeter access: First, the intranet server, which is running SharePoint, will need SSL access for the remote toy salespeople. Her second server is the company's web server, where online customers can buy their toys from the comfort of their own homes. Customer transactions must be secured in some fashion. Their web developers also request FTP access to the web server so that they can upload and download updated content.

1. **The security people have asked for the ports Alicia wants available for the intranet server running Microsoft SharePoint. What will her response be?**
   a. 445
   b. 443
   c. 80

2. **Alicia wants all transactions to the storefront on their web server to be encrypted. What security protocol encrypts web traffic?**
   a. Secure Socket Layer, SSL
   b. Point to Point Tunneling Protocol, PPTP
   c. Central Intelligence Agency, CIA

3. **What does is FTP and what port(s) does it communicate on?**
   a. FTP is File Transport Protocol, a fast, application-level protocol widely used for copying files to and from remote computer systems on a network using TCP/IP, such as the internet. It communicates on ports 20 and 21
   b. FTP is File Tuning Package, which tunes the file packages and communicates on port 3399.
   c. FTP is a proprietary file protocol that only allows the transmission of encrypted files to and from remote systems and uses port 20.

hint

You can assume you are using SSL if your web address starts with https://, which is typical when performing any online transactions or authentications.

Answers

1. The port Alicia needs open for SharePoint is:

    b. 443

2. The security protocol that encrypts web traffic is:

    a. Secure Socket Layer, SSL

3. FTP is:

    a. File Transport Protocol. It is a fast, application-level protocol widely used for copying files to and from remote computer systems on a network using TCP/IP, such as the internet. It communicates on ports 20 and 21.

Essential details

- A **port** is an application-specific communications endpoint used by Transport Layer protocols of the Internet Protocol Suite. A specific port is identified by its number, commonly known as the **port number**, the IP address with which it is associated, and the protocol used for communication.

- **SSL** supports authentication of client, server, or both, as well as encryptions during a communications session.

FAST TRACK HELP

- **http://www.iis.net**
- **http://sharepoint.microsoft.com/en-us/Pages/default.aspx**

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Understand remote access

SCENARIO: Craig works for Fourth Coffee as their network administrator. Fourth Coffee provides coffee and coffee-making products throughout the United States. Fourth Coffee wants their salespeople, who manage their own regions of the country, to be able to have access to their enterprise resource management application so that they can update their sales numbers regardless of where they are located. This access needs to be secured. Craig also needs to provide remote support for their sales force. Fourth Coffee's server infrastructure is predominantly Microsoft Server® 2008 R2 and their salespeople use Microsoft Windows® 7 Professional on their laptops.

1. **What is the most cost-effective and efficient method to provide remote support for their sales force?**
   a. enable Remote Assistance for all of the salespeople, which will enable Craig to remote into their systems while they are logged on and simultaneously troubleshoot or monitor their activities. Remote Assistance is already a feature of Windows 7 at no additional cost.
   b. make sure all salespeople have their own mobile phones so that Craig can provide phone support for the salespeople
   c. purchase a third-party remote support software license for each laptop. This would require Craig to retrieve all remote laptops for installation and training purposes.

2. **What can Craig do to provide secure access to Fourth Coffee's enterprise software?**
   a. have their sales people email all sales data three times a day to the corporate headquarters where the data can be input
   b. enable and configure Remote Desktop Services for Microsoft Windows Server 2008 R2 through Virtual Private Network (VPN) tunnel and push the enterprise software as a Remote Application
   c. install a third-party remote server on top of Windows Server 2008 with additional licensing

hint

Remote Desktop Services is an inherent application in Microsoft Windows Server 2008 R2 and the Remote Desktop Client is an inherent service on Microsoft Windows 7 Professional.

3. **By default, what communication port does Remote Desktop Protocol communicate on?**
   a. 443
   b. 445
   c. 3389

Answers

1. The most cost-effective and efficient method is to:

   a. **enable Remote Assistance for all of the salespeople, which will enable Craig to remote into their systems while they are logged on and simultaneously troubleshoot or monitor their activities**

2. To provide secure access Craig can:

   b. **enable and configure Remote Desktop Services for Microsoft Windows Server 2008 R2 through Virtual Private Network (VPN) tunnel and push the enterprise software as a Remote Application**

3. By default, Remote Desktop Protocol communicates on port:

   c. **3389**

Essential details

- **Remote Desktop** is used for administration. Remote desktop is available on Windows 7 and Server 2008 R2 by enabling it through Advanced System Settings. It allows a user to remote into a system when enabled and take control.

  - Right-click Computer->Properties
  - Select Remote Settings on the left
  - Click the radio button to Allow Connections Only From Computers Running Remote Desktop With Network Level Authentication as shown here:

- **Remote Assistance** is a technology in Windows that enables Windows users to help each other over the internet.
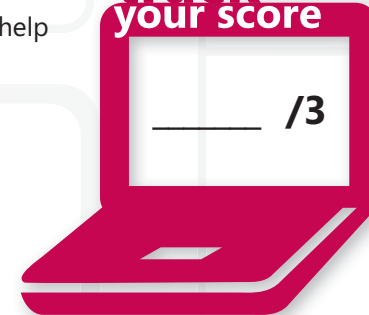
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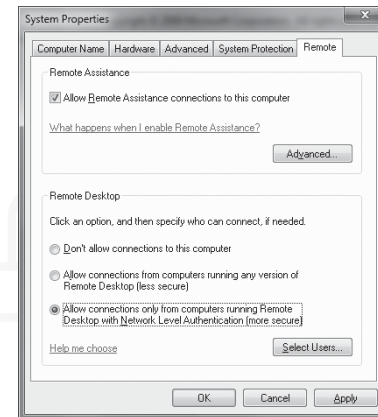
Understand file and print services

SCENARIO: Kern Sutton is the regional systems administrator for Wingtip Toys. The company has asked Kern to upgrade their existing file server to Microsoft Windows Server 2008 R2. They also want Kern to configure the new server to support print sharing as well. Kern eagerly accepts the challenge as he is excited to work with the new operating system. Kern must secure both the shares and folders using the appropriate rights and permissions. Kern discovers that this isn't an old-time Windows Server!

1. **What Role(s) are required for Kern to accomplish his task?**
   a. Microsoft File and Printer sharing
   b. File Services Role and Print and Document Services Role
   c. File Services for MacIntosh

2. **Is there an alternate method to install the File Services Role?**
   a. No, the role *must* be installed through the Add Roles Wizard
   b. Yes, when Kern initially shares a folder, the Role will be added automatically
   c. Yes, through a separate download from Microsoft

3. **What tasks can be accomplished through the Print Management console?**
   a. deploy printers and print servers, manage printers, update drivers, and manage print queues
   b. manage print queues only
   c. remove a printer from a user's desktop

hint

The Print Management console is a single landing zone for all print management needs.

Answers

1. Required Roles include:

    b. **File Services Role and Print and Document Services Role**. Microsoft File and Printer service has now been split into separate roles.

2. There is an alternate method:

    b. **yes, when Kern initially shares a folder, the Role will be added automatically.** Adding the Role through the Add Role Wizard is a preferred method of installation

3. The tasks that can be accomplished include:

    a. **deploy printers and print servers, manage printers, update drivers, and manage print queues**

Essential details

- A **print server** is a workstation that is dedicated to managing printers on a network. The print server can be any station on the network.

- NTFS rights apply to a folder or file regardless of how it is being accessed. Share permissions apply to the resource when it is being accessed over the network.

- The effective right of a resource being accessed over the network is based on the most restrictive permission or right that is applied.

FAST TRACK HELP

- **http://technet.microsoft.com/en-us/library/cc770906(WS.10).aspx**

- **http://technet.microsoft.com/en-us/library/dd759058.aspx**

track your score

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Understand server virtualization

SCENARIO: Molly Dempsey's company, Northwind Traders, has more than 50 servers that are due to be upgraded. Molly must determine the most cost-effective method of upgrading these servers. She has several options that she must consider to make her decision. Northwind Traders has several older applications that are part of the problem because they are only supported on the existing legacy operating systems. Molly also has a desire to simplify her backup and disaster recovery procedures. Molly is considering virtualization to address these various needs.

1. **What appears to be Molly's best solution for the legacy applications?**
   a. only upgrade the hardware the applications are running on and install the legacy operating system
   b. virtualize the legacy systems by performing a physical to virtual migration and run these systems on a host Microsoft Hyper-V solution
   c. keep the legacy systems running on their legacy operating systems on the legacy hardware, which would ensure her legacy at this current, soon-to-be legacy employer

2. **How can virtualization help simplify Molly's disaster recovery needs?**
   a. allows for application portability and flexibility across hardware platforms
   b. can't help simplify her situation—it will only complicate her procedures
   c. can help simplify her procedures—there isn't a need for disaster recovery when utilizing virtualization technologies because they perform virtual backups

3. **What are the additional benefits that Northwind Traders will realize when they implement virtual technologies?**
   a. no additional benefits will be realized by using server virtualization
   b. they will not benefit from server virtualization but rather lose out as the costs of virtualization are dramatically underestimated
   c. they will be able to consolidate their servers and reduce the number of physical computers they will have to support

hint

Most entry-level server virtualization platforms are free to the end user. Costs are added if the user requires additional management features.

Answers

1. Molly's best solution is to:

    b. virtualize the legacy systems by performing a physical to virtual migration and run these systems on a host Microsoft Hyper-V solution

2. Virtualization can help simplify her disaster recovery needs by:

    a. allowing for application portability and flexibility across hardware platforms. The system archives the virtual system or file. The virtual system is not dependent on the hardware platform it is running on.

3. The additional benefits that Northwind Traders will realize when they implement virtual technologies include:

    c. they will be able to consolidate their servers and reduce the number of physical computers they will have to support. They will also reduce their carbon footprint because of reduced energy needs, making their company a greener company. They can also reduce the number of people needed to support their large number of servers.

Essential details

- **Server virtualization** is the ability to run a full operating system on a platform so that the operating system performs as though it were a real system.
- **Physical to virtual (P2V)** is a process in which an existing physical computer is converted into a virtual machine. **Virtual to physical (V2P)** is a process in which an existing virtual machine is converted or deployed to one or more physical computers.

FAST TRACK HELP

- **http://technet.microsoft.com/en-us/library/cc753637(WS.10).aspx**
- **http://technet.microsoft.com/en-us/library/cc816638(WS.10).aspx**

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3

Understanding Active Directory

Understand accounts and groups

SCENARIO: Sara Davis is the helpdesk manager for Wide World Importers (WWI). WWI has asked Sara to provide procedures and training for her helpdesk staff that will allow them to be more proficient at normal day-to-day administrative tasks, including creating domain and local user accounts, managing group memberships, and understanding what's "under the hood" as it relates to managing user accounts. This includes technical details such as the location of the user database for both local and domain systems, acceptable naming conventions, and what characters are not allowed.

1. **What is the name and location of the file that contains the local user and group objects?**
   a. userDB: c:\userdb.mdb
   b. Security Accounts Manager Database: %systemroot%\system32\config
   c. ntds.dit: c:\windows\ntds

2. **Which of the following is an unacceptable user account name?**
   a. Abercrombie?kim
   b. Mu.Han
   c. MPatten

3. **What is the rule related to nesting domain and local groups?**
   a. domain groups can contain local groups, but local groups cannot contain domain groups
   b. domain groups and local groups cannot be nested
   c. local groups can contain domain groups, but domain groups cannot contain local groups

hint

The local users and groups security boundary is limited to the system they are created on.

Answers

1. The name and location of the file that contains the local user and group objects is:

   b. **Security Accounts Manager Database: %systemroot%\system32\config.** The Active Directory Domain Services database is named ntds.dit. The file is located by default in %systemroot%\ntds.

2. An unacceptable user account name is:

   a. **Abercrombie?kim**

   " / \ [ ] : ; | = , + * ? < > @ are not accepted characters for user accounts.

3. The rule related to nesting domain and local groups is:

   c. **local groups can contain domain groups, but domain groups cannot contain local groups**

Essential details

- The **Security Accounts Manager (SAM)** is a database present on servers running Windows Server 2008 R2 that stores user accounts and security descriptors for users on the local computer.

- The following steps create a local user account and add it to the Power Users group through the command line:

  - Start->All Programs->Command Prompt
    Type: **net user WHarp myP@ssword /fullname:"Walter Harp" /comment:"A member of the Power Users Group" /logonpasswordchg:yes /add**

FAST TRACK HELP

- **http://technet.microsoft.com/en-us/library/cc756748(WS.10).aspx**
- **http://support.microsoft.com/kb/909264**

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Understand organizational units (OUs) and containers

SCENARIO: Victoria Flores is the Directory Services administrator for Humongous Insurance. Humongous Insurance is a large insurance company with offices throughout the country. The IT needs and wishes of various branches vary greatly and it is a challenge to manage it all.

The company wants to design its Active Directory structure to better suit these various needs and allow for easier management of the various computers and departments. They have asked Victoria to create an organizational unit design that will fit their goals. One of their main goals is to create a model with which they can maintain consistency and usability. They also want to be able to manage each department without granting particular users complete administrative privileges.

1. **What can Victoria do to solve the administration issue?**
   a. give the domain administrator password to the employee assigned to manage each departmental organizational unit
   b. simply perform all the administrative tasks herself
   c. delegate control to the employee assigned to manage each departmental organizational unit and grant specific administrative rights for that container

2. **How can an organizational unit be created?**
   a. Active Directory Users and Computers, PowerShell, command line, Active Directory Administrative Center
   b. User Manager for Domains
   c. organizational units can only be created through Active Directory Users and Computers

3. **Which command creates an OU called Marketing in the domain HUMONGOUS.LOCAL?**
   a. `dsadd ou "ou=Marketing,dc=humongous,dc=local"`
   b. `makeou=marketing.humongous.local`
   c. `"ou=marketing,dc=humongous,dc=local"`

hint

Delegation of control grants specific admini-strative tasks such as resetting passwords to individual users or groups without making them domain administrators.

Answers

1. Victoria can solve the administration issue if she:
   c. **delegates control to the employee assigned to manage each departmental organizational unit and grants specific administrative rights for that container**

2. An organizational unit can be created through:
   a. **Active Directory Users and Computers, PowerShell, command line, Active Directory Administrative Center**

3. An OU is created with the command:
   a. `dsadd ou "ou=Marketing,dc=humongous,dc=local"`

Essential details

- **Organizational units** are Active Directory containers into which you can place users, groups, computers, and other organizational units.
- **Organizational units** can be structured to meet various needs. They can be structured based on geographic location, business structure (departments), organizational need, specific role or function, operating system version, or platform and any combination mentioned.

FAST TRACK HELP

- **http://technet.microsoft.com/en-us/library/cc758565(WS.10)**
- **http://technet.microsoft.com/en-us/library/cc732524.aspx**

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Understand Active Directory infrastructure

SCENARIO: Andrew Ma is the systems administrator for Coho Winery. Recent changes in the business and in advertising strategies have increased the popularity of Coho wines beyond expectations. Because of the meteoric rise of Coho's sales, the company has decided to migrate from a workgroup network to a centrally managed domain model using Microsoft Windows Server 2008 R2 Active Directory Domain Services.

This IT change will allow Andrew to utilize several benefits of a domain, including organizing network objects, applying group policies to manage desktop computers, and managing security. Andrew has decided to have multiple domain controllers for redundancy, as well as to split operations roles. The new organization system will support future company growth.

1. **What is a benefit of having a domain model network as opposed to a workgroup?**
   a. there isn't any benefit—it is cost-prohibitive. It is easier to manage user accounts on 20 different computers than a centrally managed option
   b. it allows for a centrally managed system where employees authenticate to the domain rather than to each individual workstation
   c. the only benefit is that it is easier to secure than a workgroup model

2. **What should Andrew do to determine which domain controller maintains the operations role of RID master?**
   a. contact the previous system administrator
   b. open Active Directory Users and Computers, right-click his domain, and select Operation Masters
   c. create a batch file that will query each domain controller to determine who is responsible for the RID master

3. **What domain controller maintains all five operations roles by default?**
   a. the first domain controller in the forest
   b. operations roles are automatically transferred to subsequent domain controllers as they are added to the forest
   c. the domain controller is selected by the administrator when the system is being promoted

hint

Migrating from a workgroup model to a domain model allows for ease of administration. It creates a centrally managed database that can be replicated across domain controllers which adds fault tolerance.

Answers

1. The primary benefit of a domain model network is:

    b. having a centrally managed system where employees authenticate to the domain rather than to each individual workstation. This allows for better security policies and network management.

2. Andrew can determine which domain controller maintains the operations role of RID master if he

    b. opens Active Directory Users and Computers, right-clicks his domain, and selects Operation Masters

3. The domain controller that maintains all five operations roles by default is:

    a. the first domain controller in the forest. The operations roles have to be transferred manually when the additional domain controllers are promoted in the forest. NTDSUTIL is a command-line utility that can accomplish this task.

Essential details

- A **domain** is a unit of replication.
- A **domain controller** is a server that is running a version of the Windows Server operating system and has Active Directory Domain Services installed.
- In a **domain model,** the user authenticates once to the domain, which maintains all information about other objects in the domain. Compare this to a workgroup model in which the administrator has to duplicate user accounts on any workstation that is sharing resources. This means that a single user would have to have a user account created for on each computer she accesses.

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Understand group policy

SCENARIO: Benjamin Harris works for Wingtip Toys as their desktop administrator. Ben's primary function is desktop management and support of the company's desktop environment. His main goal is to have a quiet day at his desk so he can research new ideas for Wingtip Toys. He has several tools at his disposal to accomplish this but his most important tool is his use of group policies on their domain.

Some issues have arisen in various departments:

- Employees want to have customized desktops and features on their systems and still maintain consistency with Wingtip Toys
- Administrators at Wingtip Toys want some primary settings to remain consistent on all systems in the company but want to allow each department to have individual settings that will help them perform their jobs more efficiently

1. **Wingtip Toys only want password policies applied to their Testing Division. Ben wants to create a Group Policy Object for the Testing organizational unit that sets these password policies. Will this accomplish what Wingtip Toys wants?**
   a. yes, the password policy set at the organizational unit level will only apply to the users and computers in that OU
   b. yes, the password policy will apply to the users in the Testing division no matter what computer they log onto
   c. no, password policies can only be applied at the domain level

2. **Ben wants to see if the policies he set are in effect. He does not want to reboot or wait for the system to refresh automatically in 90 minutes. What command can he issue to force the application of group policies?**
   a. `gpupdate /NOW`
   b. `gpedit.msc /update`
   c. `gpupdate /force`

3. **Ben has a policy that sets his homepage in Internet Explorer to open to http://wingtiptoys.com. The testing department has their homepage in IE set to open to http://testing.wingtiptoys.com. What will the homepage display when Ben logs into a testing department workstation?**
   a. http://wingtiptoys.com .User Policy settings follow the user
   b. http://testing.wingtiptoys .com. He is authenticating to a testing department station
   c. Internet Explorer default MSN homepage. He is not a Testing user and it's not his workstation

hint

Group Policy settings apply to users regardless of the workstation they authenticate to.

Answers

1. Wingtip Toys want password policies applied only to their Testing division:

   c. **No, password policies can only be set and applied at the domain level.** Password policies can only be set and applied at the domain level. The user has already authenticated by the time organizational unit policies are applied.

2. The command to force the application of group policies is:

   c. `gpupdate /force`

3. When Ben logs into a testing department workstation his homepage will display:

   a. **http://wingtiptoys.com. User Policy settings follow the user**

Essential details

- A **Group Policy** is an infrastructure that enables administrators to implement specific configurations for users and computers.
- **Winlogon** is a component of the Windows operating system that provides interactive logon support. Winlogon is the service in which the Group Policy engine runs.
- **Group Policy Preference** enables administrators to manage drive mappings, registry settings, local users and groups, services, files, and folders.

FAST TRACK HELP

- **http://technet.microsoft.com/en-us/library/cc779838(WS.10).aspx**
- **http://support.microsoft.com/kb/94372**
- **http://www.microsoft.com/downloads/details .aspx?FamilyID=18c90c80-8b0a-4906-a4f5-ff24cc2030fb&displaylang=en**

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4

Understanding Storage

Identify storage technologies; Understand RAID

SCENARIO: Howard Gonzalez is the systems administrator for Humongous Insurance. The company is responsible for protecting the property of hundreds of thousands of clients across 14 states. Because of the time-critical nature of the data stored by Humongous Insurance, Howard is researching his best alternative to ensure that the customer service representatives have access to their client's information whenever they need it. Server downtime is not an option for Humongous Insurance, where customer satisfaction is top priority. Howard is considering various form of Redundant Array of Independent Disks (RAID), possibly configured in a Network Attached Storage (NAS).

1. **What is the minimum number of hard drives required if Howard wants to configure a RAID 5 solution?**

   a. 5

   b. 2

   c. 3

2. **What is a benefit of NAS over Storage Area Network (SAN)?**

   a. There isn't any advantage; they are equal

   b. NAS provides file serving without the need for a server

   c. NAS benefits from being attached to a server on the network to provide file abstraction

3. **Howard is configuring a server with RAID 5. He is using four 750-GB hard drives in his RAID array. How much available free space will Howard have after RAID is configured?**

   a. 750 GB

   b. 2,250 GB

   c. 2,250 TB

hint

The amount of drive space used for redundancy is 1/n (total drive space) where n is the total number of drives in the array.

Answers

1. The minimum number for hard drives required to configure a RAID 5 solution is:

   c. 3

2. A benefit of NAS over Storage Area Network (SAN) is that:

   b. NAS provides file serving without the need for a server

3. After RAID is configured Howard will have:

   b. 2,250 GB of free space (3000-¼(3000)=2,250)

Essential details

- **Network-attached storage (NAS)** is file-level computer data storage connected to a computer network providing data access to heterogeneous clients.
- NAS does not require a server to provide services. SAN requires a server to provide file abstraction services. NAS reduces the number of servers on a network.
- A **Redundant Array of Independent Disks (RAID)** is a data storage method in which data is distributed across a group of computer disk drives that function as a single storage unit.
- Available free space after RAID 5 is configured =Total drive space-1/n (total drive space) 3000-¼(3000)=2,250

FAST TRACK HELP

- **http://msdn.microsoft.com/en-us/library/ms184252(SQL.90).aspx**

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Understand disk types

SCENARIO: Luka Abrus works for City Power and Light as a systems administrator. Luka wants to increase the data availability for three servers without having to rebuild them from scratch and without incorporating a great deal of cost by purchasing array controllers. Luka also would like to be able to use data on one system and transport it to another system and have it appear as another hard drive.

1. **What can Luka do to increase his server data availability without additional costs of an array controller or rebuilding each server?**
   a. make sure the servers are always on
   b. add another physical drive to each server, convert the drives from basic disks to a dynamic disk, and establish a mirror (RAID 1) between the two drives
   c. make sure that his backups are running every night to ensure that he can restore data in the event of a failure

2. **What can Luka do to be able to transport data from one system to another and have it appear as a separate drive?**
   a. create a virtual hard disk (VHD) to store the data
   b. carry an external drive and attach it from one system to another
   c. compress the data and email the data to himself

3. **What advantages will Luka experience when using self-healing NTFS in Microsoft Windows Server 2008 R2?**
   a. continuous data availability
   b. no concerns about physical drive failure
   c. no need to install antivirus software

hint

Self-healing NTFS does not protect against hardware malfunctions.

Answers

1. To increase his server data availability without additional costs of an array controller or rebuilding each server, Luka can:

    b. add another physical drive to each server, convert the drives from basic disks to a dynamic disk and establish a mirror(RAID 1) between the two drives

2. To be able to transport data from one system to another and have it appear as a separate drive, Luka can:

    a. create a virtual hard disk (VHD) to store the data. The vhd can be stored to a network share and then be utilized from one system to another and mounted as a virtual drive. A VHD can be mounted to any Windows system and appear as a separate physical drive

3. When using self-healing NTFS in Microsoft Windows Server 2008 R2, Luka will experience the advantage of:

    a. continuous data availability. Self-healing NTFS attempts to correct corruptions of the file system without requiring the use of chkdsk.exe

Essential details

- A **dynamic disk** is a physical disk that can use the master boot record (MBR) or GUID partition table (GPT) partitioning scheme and has the ability to create fault tolerant volumes (mirrored and RAID-5 volumes).
- A **mount point** is an association between a volume and a directory on another volume.
- Microsoft **virtual hard disk (VHD)** file format specifies a virtual machine hard disk that can reside on a native host file system encapsulated within a single file.

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5

Understanding Server Performance Management

IN THIS CHAPTER

- **5.1 Identify major server hardware components**

- **5.2 Understand performance monitoring**

- **5.3 Understand logs and alerts**

Identify major server hardware components

SCENARIO: Proseware Inc. has recently purchased land to expand their business center. A great deal of thought and research must go into planning for the technology needs of a business the size of Proseware.

Cari has been the server administrator at Proseware for several years and has a deep understanding of the technology needs related to the server components. Proseware has asked Cari to submit a plan for the redesigned datacenter that will ensure data redundancy and server availability. The overall business plan is dependent upon a dependable data system.

1. **What technology can Cari implement that will allow for the replacement of server components while the servers are still running?**
   a. the technology does not exist
   b. component live swappable
   c. hot swappable/pluggable

2. **What can Cari implement that will protect the servers from a power outage and allow the systems to be shut down gracefully in the event of a power loss?**
   a. uninterruptable power supply (UPS)
   b. a script that will shut down the server when the datacenter loses power
   c. several surge suppressors for the servers

3. **Why is it important for Cari to have climate control within the datacenter?**
   a. to be comfortable when she is working in the datacenter
   b. to prevent servers from overheating
   c. it is irrelevant— servers are configured with their own cooling systems

hint

ASHRAE recommends a temperature range of 61 to 75 degrees Fahrenheit and a humidity range of 40 to 55 percent.

Answers

1. To allow for the replacement of server components while the servers are still running, Cari can implement:

    c. hot swappable/pluggable. Various hot swappable components include hard disks and fans.

2. To protect the servers from a power outage and allow the systems to be shut down gracefully in the event of a power loss, Cari can implement:

    a. uninterruptable power supply (UPS). A UPS only protects against power outages and is used to gracefully shut the systems down in the event of an extended power loss

3. It is important for Cari to have climate control within the datacenter:

    b. to prevent servers from overheating

Essential details

- **Hot pluggable** technology includes replacing system components without shutting down the system.
- **Memory** is a hardware device where information can be stored and retrieved.
- A **Network Interface Card (NIC)** is a hardware device that handles an interface to a computer network and allows a network-capable device to access that network.

FAST TRACK HELP

- **http://en.wikipedia.org/wiki/Hot_swapping**
- **http://upload.wikimedia.org/wikipedia/en/2/29/Chassis-Plans-Rack.jpg**

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Understand performance monitoring

SCENARIO: Cliff Majors works for Southridge Video as a systems administrator. Southridge Video began as a start-up business in southern Georgia just a few years ago and its popularity has skyrocketed; Southridge has a unique ability to anticipate customer needs and provide services before customers are even aware that they would find the services valuable.

A while ago the company introduced a service for customers to rent videos over the internet and stream the movies to their computers or internet-capable devices. In spite of their best planning and anticipation of problems, calls have come in from the customers complaining that the quality of the video is poor or that the videos just aren't available.

1. **Cliff attempted to close a program on one of the video servers; however the application did not respond. What application can he open to end that process?**
   a. File Manager
   b. Task Manager
   c. Command Prompt

2. **Cliff wants to compare the performance reports he created when he initially deployed the video servers. What application does he need to launch to create a comparison report?**
   a. Network Monitor
   b. netstat
   c. Performance Monitor

3. **Cliff is analyzing Performance Monitor and adds a counter that tracks page file/usage and hits. Cliff notices that the page file is being accessed continuously. What can Cliff do to solve this issue?**
   a. add more RAM
   b. adjust the size of the page file
   c. move the page file to another physical drive on the system

hint

Continuous page file hits are a result of a system not having enough RAM.

Answers

1. To end a process that cannot be closed in the usual manner, Cliff can open the:

   b. Task Manager

2. To create a comparison report, he must launch the:

   c. Performance Monitor. It is important to create a baseline performance report using Performance Monitor when deploying a system. This allows the administrator to have a report to compare against. The reports can be overlapped within Performance Monitor to have a visual comparison.

3. To solve the problem of continuous page file hits, Cliff should:

   a. add more RAM

Essential details

- A **page file** is a hidden file on the hard disk that operating systems use to hold parts of programs and data files that do not fit in memory.
- A **process** is a program or part of a program.
- **Performance** is the measure of how quickly a computer completes application and system tasks.

FAST TRACK HELP

- **http://support.microsoft.com/kb/323527**
- **http://technet.microsoft.com/en-us/library/cc771692(WS.10).aspx**
- **http://technet.microsoft.com/en-us/library/cc755081(WS.10).aspx**
- **http://technet.microsoft.com/en-us/library/cc749249.aspx**

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Understand logs and alerts

SCENARIO: Walter Felhofer manages the network at Graphic Design Institute. He has been monitoring the network for several months to better understand the traffic variations. The network performance seems to vary greatly and Walter suspects a variety of causes ranging from the time-of-day use to events that coincide with special promotions and cyclical events. Walter keeps this historical data as it relates to the systems performance. He reviews this data on a regular basis as well as reviewing the data in comparison mode because he knows that it contains details that will be valuable for justifying future technology acquisitions and creating business plans.

1. **What benefit can Walter gain by maintaining a historical record of the system's performance?**
- **a.** use of the data to justify future upgrades as well as to identify performance trends throughout the year
- **b.** provide performance documentation if a supervisor asks for it
- **c.** there is no benefit to keeping a historical record of your systems performance because technology changes so frequently

2. **Walter's job keeps him very busy. He is unable to watch performance logs and data all day long. What can Walter do so he can perform his other day-to-day tasks and not miss any major performance issues?**
- **a.** hire an intern to watch performance monitor and page him whenever something goes wrong
- **b.** create a Performance Alert that will send a network message, write an event log, or run a program when certain criteria are met
- **c.** remote into the systems periodically to check performance logs, regardless of whether he is busy

3. **What is the default location for system performance logs?**
- **a.** %systemroot%\logs
- **b.** #system#\perflogs
- **c.** %systemdrive%\PerfLogs

hint

Performance monitoring is crucial for real-time system performance but is also important for scaling future systems and upgrades.

Answers

1. By maintaining a historical record of the system's performance, Walter can:

   a. use the data to justify future upgrades as well as to identify trends throughout the year.

2. To ensure that he doesn't miss any major performance issues, Walter can:

   b. create a Performance Alert that will send a network message, write an event log, or run a program when certain criteria are met.

3. The default location for system performance logs is:

   c. %systemdrive%\PerfLogs

Essential details

- **Objects** are specific resources in the Performance Monitor that can be measured.
- **Performance counters** are measurements of system state or activity.
- Use of the overlay mode is only available in the Performance Monitor when it is running in stand-alone mode with comparison enabled:
  - Click Start->click in the Start Search box, type **perfmon/sys/comp** and press Enter.
  - The Performance Monitor will open in stand-alone mode with comparison enabled.

FAST TRACK HELP

- **http://technet.microsoft.com/en-us/library/cc738564(WS.10).aspx**
- **http://technet.microsoft.com/en-us/library/cc722414.aspx#BKMK_alert**

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6

Understanding Server Maintenance

Identify steps in the startup process

SCENARIO: Fourth Coffee has expanded its business to 20 new stores in neighboring states. The expansion meant that the company had to expand its IT department and hire several new technicians. It is critical that all of the new hires have knowledge and skills in maintaining the company's technology infrastructure—the success of the company depends upon effective technology at every level of the business.

The CIO has asked the systems administrator, April Meyer, to provide training to her staff on Server 2008 R2. She wants everyone to have a fundamental understanding of the boot process as well as some troubleshooting techniques.

1. **What command-line utility can April demonstrate to modify the boot configuration database?**
   a. bcdedit.exe
   b. boot.ini
   c. ntloader.exe

2. **What does the Power-On Self Test (POST) do?**
   a. tests to see whether the power is on
   b. performs initial hardware checks, verifies devices, and retrieves system configurations from CMOS
   c. calls programs such as autoexec.bat, config.sys, and win.ini

3. **April want to demonstrate starting a computer in safe mode. What are the steps to start a computer in safe mode?**
   a. access the system BIOS and configure it to start in safe mode
   b. boot the installation media and select the safe mode option
   c. remove all media and then press and hold the F8 key before the Windows Logo appears

hint

Safe mode starts Windows with a limited set of files and drivers.

Answers

1. The utility that April can demonstrate to modify the boot configuration database is:

    a. bcdedit.exe

2. The Power-on Self Test (POST):

    b. performs initial hardware checks, verifies devices, and retrieves system configurations from CMOS

3. To start a computer in safe mode:

    c. remove all media and then press and hold the F8 key before the Windows Logo appears

Essential details

- **Power-On Self Test (POST)** is a set of routines stored in a computer's read-only memory (ROM) that tests various system components such as RAM, the disk drives, and the keyboard to see whether they are properly connected and operating.

- The **Master Boot Record (MBR)** is the first sector of the first hard disk; it is a physically small but critical element in the startup process on an x86-based computer.

  - To start a computer in safe mode remove all floppy disks, CDs, and DVDs from the computer and then restart the computer.

  - If your computer has a single operating system installed, press and hold the F8 key as your computer restarts.

FAST TRACK HELP

- **http://technet.microsoft.com/en-us/library/cc976730.aspx**

- **http://technet.microsoft.com/en-us/library/bb457123.aspx**

- **http://technet.microsoft.com/en-us/library/cc721886(WS.10).aspx**

- **http://windows.microsoft.com/en-US/windows-vista/ Start-your-computer-in-safe-mode**

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Understand business continuity

SCENARIO: Rachel Valdes is developing a strategic information technology plan for her company, Northwinds Traders. The main focus of this plan is to maintain business continuity by ensuring that critical business functions will be available for customers and business partners. Her plan must ensure that the needs and important activities of Northwinds customers, suppliers, regulators, and employees can be met in event of an unforeseen technology problem or a natural or human-induced disaster. She needs to plan for data redundancy as well as disaster recovery.

1. **Northwinds Traders core infrastructure runs on Microsoft Windows Server 2008 R2. What inherent application can they use to implement the data redundancy portion of their strategic plan?**
   a. Windows Server Backup
   b. Active Directory Restore Mode
   c. NTBackup.exe

2. **What benefit does folder redirection offer?**
   a. allows administrators to direct folders to perform data backups and migrations
   b. allows users and administrators to redirect the path of a folder to a new location that can provide backup on a network share
   c. converts a folder from one file system to another

3. **Part of Rachel's plan is to develop a disaster recovery plan. What is a disaster recovery plan?**
   a. the process, policies, and procedures related to preparing for recovery or continuation of critical technology after a natural or human-induced disaster
   b. a plan that dictates how to recover data and financial loss after a theft
   c. a procedure meant solely for recovering lost data

hint

A disaster recovery plan is related to any technology infrastructure and should be updated on a regular basis.

Answers

1. To implement the data redundancy portion of Northwinds' strategic plan they can use:

   a. Windows Server Backup

2. The benefit offered by folder redirection is to:

   b. allow users and administrators to redirect the path of a folder to a new location that can provide backup on a network share. Folder redirection is a method that helps prevent users from keeping important information on their local hard drives by redirecting it to another location where it can be backed up for data redundancy.

3. A disaster recovery plan includes:

   a. the process, policies, and procedures related to preparing for recovery or continuation of critical technology after a natural or human-induced disaster

Essential details

- **Data redundancy** is a property of some disk arrays that provides fault tolerance so that all or part of the data stored in the array can be recovered in the case of disk failure.

- **Disaster recovery** is the process, policies, and procedures related to preparing for recovery or continuation of technology infrastructure critical to an organization after a natural or human-induced disaster.

- **Business continuity** is the activity performed by an organization to ensure that critical business functions will be available to customers, suppliers, regulators, and other entities that must have access to those functions.

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your score

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FAST TRACK HELP

- **http://technet.microsoft.com/en-us/library/cc778976%28WS.10%29.aspx**
- **http://technet.microsoft.com/en-us/library/cc770266(WS.10).aspx**
- **http://technet.microsoft.com/en-us/library/cc753201.aspx**
- **http://technet.microsoft.com/en-us/library/cc785306(WS.10).aspx**
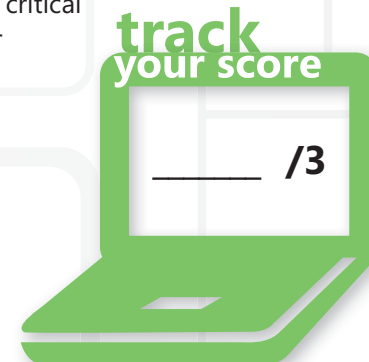
Understand updates

SCENARIO: Mark Patten is a network engineer with Tailspin Toys. Tailspin Toys has asked Mark to find a way to ensure that all of the systems on their network are updated on a regular basis. They also want Mike to discuss updates with their software development team because developers sometimes run into issues with updates conflicting with their custom software while they are in development process. Tailspin Toys' desktop systems range from Windows XP to Windows 7, both 32-bit and 64-bit. They also have a mix of server operating systems running Windows Server 2003 R2 through Windows Server 2008 R2. This variety of computers and systems within a single organization is not unusual, but requires strong network administration skill on Mark's part!

1. **What can Mark do to streamline update management for Tailspin Toys?**
   a. configure Windows Software Update Services (WSUS) to download and deploy updates based on his needs
   b. arrive early every Wednesday before Tailspin Toys opens and perform Windows Updates
   c. allow the users to run the updates whenever they see fit

2. **What can Mark do to solve the issues he will run into with the software development team?**
   a. disable updates for the software development team
   b. configure a separate WSUS group and put all of the software development computers and servers in that group
   c. isolate the software development team on a separate segment and allow them to manage their own updates

3. **What tool can Mark use to determine the security state in accordance with Microsoft security recommendations?**
   a. Qchain.exe
   b. Network Monitor
   c. Microsoft Baseline Security Analyzer (MBSA)

hint

Use MBSA to detect common security misconfigurations and missing security updates on computer systems.
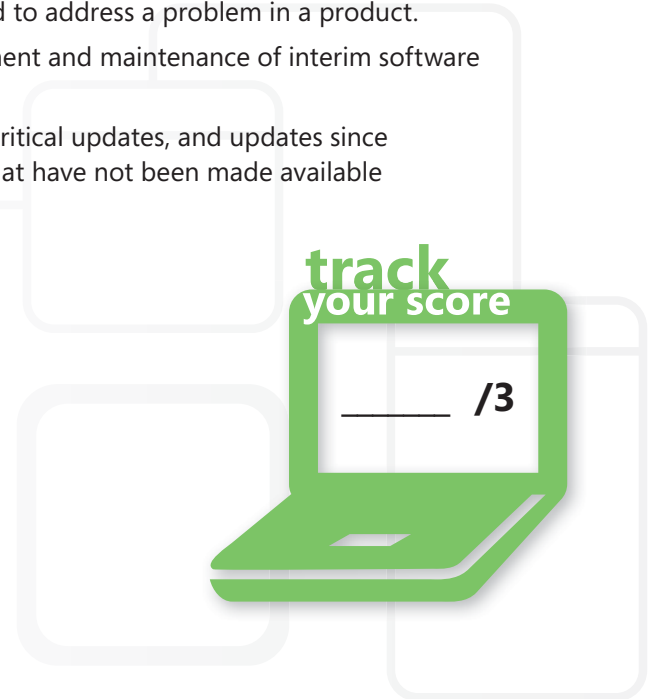
Answers

1. To streamline update management for Tailspin Toys, Mark can:

    a. configure Windows Software Update Services (WSUS) to download and deploy updates based on his needs

2. To solve the issues with the software development team, Mark can:

    b. configure WSUS to have a separate group and put all of the software development computers and servers in that group. He can schedule updates to be selectively applied to their system.

3. To determine the security state in accordance with Microsoft security recommendations, Mark can use:

    c. Microsoft Baseline Security Analyzer (MBSA)

Essential details

- A **hotfix** is a single package composed of one or more files used to address a problem in a product.

- **Update management** is the process of controlling the deployment and maintenance of interim software releases into production environments.

- **Service packs** are cumulative set of hotfixes, security updates, critical updates, and updates since the release of the product, including many resolved problems that have not been made available through any other software updates

FAST TRACK HELP

- **http://technet.microsoft.com/en-us/wsus/default.aspx**
- **http://technet.microsoft.com/en-us/library/cc700845.aspx**

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your score

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Understand troubleshooting methodology

SCENARIO: Recent changes in the network configurations at Coho Winery have been successfully implemented. Andrew Ma, the systems administrator, is pleased with his ability to organize network objects, apply group policies to manage desktop computers, and manage security, but the changes have brought about the need to refresh the skills of the helpdesk team.

Jeff Wang is responsible for updating the skills of the current team and training the new helpdesk hires at Coho Winery. The helpdesk team is in charge of troubleshooting various issues that come in on a day-to-day basis from the local winery and their remote winery locations located on both the east coast and the west coast. Troubleshooting methodology is imperative for the success of the helpdesk team.

1. **What is an example of a systemic problem?**
    a. a hard disk fails on a user's computer
    b. a worm propagates through the entire network
    c. a user's monitor will not turn on

2. **What is the first tool in a Microsoft environment that should be used to determine the time and type of problem a particular system may be having?**
    a. resource Monitor
    b. task Manager
    c. event Viewer

3. **What application allows you to view all processes and either selectively end a single process or the entire process tree?**
    a. resource Monitor
    b. task Manger
    c. msconfig.exe

hint

Windows Resource Monitor allows you to view a process wait chain and to end processes that are preventing a program from working properly.

Answers

1. An example of a systemic problem is when:

   b. **a worm propagates through the entire network.** Answers A and C are specific to a single system's problems, not systemic.

2. The first tool in a Microsoft environment that should be used to determine the time and type of problem is:

   c. **Event Viewer**

3. To view all processes an either selectively end a single process or the entire process tree, use the

   a. **Resource Monitor**

Essential details

- **Event Viewer** maintains logs about program, security, and system events on your computer.

- **Resource Monitor** is a system tool that allows you to view information about the use of hardware (CPU, memory, disk, and network) and software (file handles and modules) resources in real time.

- Event viewer can be accessed through Start->Programs->Administrative Tools->Server manager-> Diagnostics->Event Viewer.

- Default location for event logs:
  - %systemroot%\system32\config

FAST TRACK HELP

- **http://www.microsoft.com/resources/documentation/windows/xp/all/ proddocs/en-us/snap_event_viewer.mspx?mfr=true**

- **http://technet.microsoft.com/en-us/library/cc766042.aspx**

- **http://technet.microsoft.com/en-us/library/dd883276(WS.10).aspx**

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