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**ExamInsight  
For**

**Designing a Microsoft Windows 2000  
Directory Services Infrastructure**

**Examination 70-219**



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## Chapter 1: Analyzing Business Requirements

**The objective of this chapter is to provide the reader with an understanding of the following:**

- How the various business models can accommodate Active Directory.
- How existing and planned organizational structures facilitate Active Directory.
- How various enterprise factors influence company the overall deployment strategy.
- How the existing and planned IT structures facilitate deployment.
- The priorities to consider.
- The factors influencing the potential for success and failure

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### Getting Ready - Questions

- 1) Name the geographic models of most enterprises?
  - 2) What are the two key business models used by most large companies?
  - 3) What determines that a company operates as a multinational?
  - 4) What is the most popular business model in use today?
  - 5) What would be the first thing you need to research before designing an Active Directory Infrastructure?
- 



### **Getting Ready - Answers**

- 1) Regional, National and International Models.
  - 2) Subsidiary Model and Branch Office Models.
  - 3) It's IT/IS infrastructure extends beyond national borders.
  - 4) Departmental
  - 5) How the enterprise is administered.
- 



## I Introduction

Active Directory is one of the hottest technologies introduced by Microsoft for enterprise networking. It is a bold leap into the realization of the dream of a truly distributed IT/IS environment. Microsoft's entire product line depends on Active Directory, either directly or indirectly, and no network driven by Windows 2000 can be properly installed and maintained without sufficient understanding of the directory service.

The introduction of Active Directory into the enterprise is no simple matter. It requires you to become familiar with the practice of enterprise analysis, change management and administrative practices. This can be daunting for many network administrators who have not had any prior training or college courses in business administration. Business administrators find themselves at a similar disadvantage as network administrators because networking and computer science is not usually something with which they are familiar.

Microsoft has thus introduced this first collection of exam objectives to level the playing field and provide network administrators with sufficient understanding of enterprise analysis and business administration to successfully complete and deploy Active Directory in any enterprise or organization. Part I of this guide "Analyze the Existing and Planned Business Models" is designed to test your knowledge in this area.

This chapter ensures that you have the necessary background as a network administrator or IT manager to look at a business, and then investigate and determine from your research the technical solutions needed to implement Active Directory.



## II Technical Terms and Enterprise Analysis Concepts

There are a lot of different terms and acronyms that you will be learning in this book. It must be assumed that you have a certain amount of networking experience or you may find it necessary to supplement this material with some other books on the subject of networks in general. Before we go very far we will need to define some of the common network terms that we will be using often throughout our text.

- LAN - Local Area Network, defined as a group of computers located in contained geographical area such as an office building or campus that share services, resources and data.
- WAN - Wide Area Network, defined as a group of computers on LANs located in different geographical area and connected for the purpose of sharing services, resources and data. Usually these utilize remote connectivity methods such as Frame Relay, ATM, ISDN, or leased lines.
- Bridging - The connecting of two separate network segments so that packets may be transmitted between them.
- Switching - The connecting of multiple network segments so that packets may be transmitted between any two segments at a particular time. Usually implemented by the segmenting of a network rather than the joining of networks.
- Routing - Transmitting of packets across segments based on their Network layer address.
- Protocols - A set of standards or rules that control data transmission and other interactions between network devices, computers and operating systems. Protocols cover such things as framing, transparency, error control, and the line control.
- Network - A grouping of computers for the purpose of sharing resources.
- Centralized IT Management – A management philosophy in which IT staff work from a central location and make decisions and support the entire enterprise from this one headquarters. All funding is managed from a single location.
- Decentralized IT Management – A management philosophy in which IT staff work from a number of regional or local locations, which are responsible for local decisions and support. Local entities usually have their own IT budgets.
- Change Control/Management – An IT management procedure to manage and control technical changes.
- Return on Investment or ROI – The time it will take for new technology to pay itself off in reducing costs.



### III Analyze Existing and Planned Business Models

The practice of enterprise analyses is essentially enterprise “land surveying” and enterprise engineering combined to determine how best a company should be structured, managed, and directed for the good of its health and future. Enterprise analysts examine where a company is today, how it is run and structured and where it might be heading. Many business owners, CEOs and administrators, are often responsible for the downfall of their organizations because their businesses were not being properly administered. And many business failures occur because the CEO and the shareholders are misguided on exactly what their businesses are and how they should be managed.

Enterprise analysis helps suggest changes at all levels of the enterprise. The actionable data provided to management by the practice of these individuals is what keeps the business alive.

#### Analyze Company Model and Geographical Scope

Microsoft requires you to assess the business model and geographical scope of an Active Directory design project. These include the following:

- Regional
- National
- International
- Subsidiary
- Branch offices

To facilitate your efforts you need to have some models against which to evaluate your own analysis subjects. We talk in terms of the business models when referring to the interrelationship of entities within a business. And we refer to the geographical scope when determining the physical lay of the company, with respect to IT/IS systems and networks.



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Let's kick off with the geographic scope. There are three geographical models that you need to understand before you can begin creating an Active Directory deployment plan: The regional model, national model, and international model.

### A Regional Model

The regional model for your IT infrastructure is one in which the enterprise network is either contained within a single location, or, at the minimum, over several sites within a city or between closely related cities. A local area network that supports an entity in say Miami, and that connects over a WAN or VPN link to say Tampa, might be considered a network along the regional model of geographic scope, as illustrated in Figure 1-1.



Figure 1.1: A regional network.

Regional networks typically only run over a single vendor's lines. In Figure 1-1 for example that vendor may be Bellsouth, or Sprint's Managed Network Services (MNS). Once you leave the region, the traffic will likely transfer to AT&T or Qwest.

Figure 1-1 demonstrates the network is local to the state of Florida, but in some cases the regional network may cater to the entire southeast, incorporating states like Georgia and South Carolina.



Another way to qualify a regional network is that it usually does not traverse any timezones. Granted, some countries are smaller than most US states, and thus what is regional to the US might be national to a country like Japan.

### **A National Model**

Building out Active Directory along national model lines means that your enterprise is a national company with data centers and branch offices in several states across the USA. If you are based in Europe, for example, your national model company might have offices in London, Paris, and Belfast.

National model companies have complex IT/IS infrastructure and complex networking services. Their WANs are usually supported by the long distance network carriers like Sprint and AT&T who specialize in managed network services (MNS).

National model networks might also be spread across several time zones in a very large country, like Canada. However, the above definition is open to debate because a national company in Israel might have a network spanning the length of the thin country in one time zone (and yet the entire country fits into south Florida).

A national network in the USA, especially for a large company, will also comprise many different types of a carrying technology. Older companies might still have 64K lines into older locations and warehouses. They probably have dial up services to smaller locations. Expect a hodgepodge of different technology such as Frame Relay, Asynchronous Transfer Mode and so on.

Some networks might end up in Ethernet hubs while others might end up in Token Ring hubs. Such scenarios can give you a headache managing different routers and switches and so on. In addition to the technology issues you need to prepare for, you also have social, economic and geographic structures in place that differ from region to region. These include divergent economic conditions, climate, terrain, laws and regulations, security issues and so on.



### An International Model

The International model company extends its IT/IS infrastructure beyond the borders of a single country. This is where IT/IS can become frustratingly complex. Networks typically traverse time zones; areas with different laws, languages and customs, areas with better or poorer telecommunications services, and so on.

Puerto Rico can be considered a national company if it swings a WAN between San Juan and an office in Miami. On the other side of the USA a company with offices on the so-called “continental” USA and Hawaii and Guam could be considered national enterprises with international model complexities as illustrated in Figure 1-2:

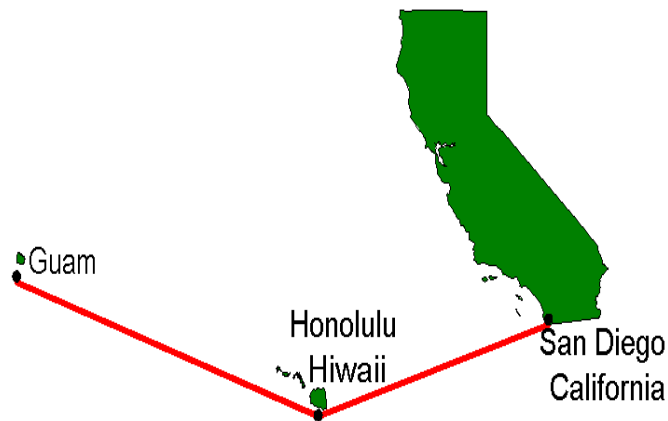


Figure 1.2: A complex international network.

There are two rules of thumb that you can use to decide if you are to build out your Active Directory Services according to international or national models:

1. The laws and regulations in the locations are different and different governments run the territories.
2. Your telecom providers will be un-related in each international territory.



Costs can be devastating when deploying across national boundaries. Telecom costs in Europe or Africa for example, are horrendous in comparison to similar costs in the USA.

In many cases you might be working with an office in a country that has no other reason to be in that nation other than the fact that it was much cheaper to setup a network infrastructure in that country, and telecom costs provided substantial savings.

Ireland is a good example where cost is the main reason companies have set up there. Not only do you save huge amounts on maintaining an international telecommunications infrastructure, but the government provides a significant tax break and other funding incentives to bring you there.

## Business Models

Understanding the physical infrastructure is just one side of the equation. No matter whether your company is a regional mom and pop with under 12 people or a multinational employing 60,000 Active Directory deployment cannot be undertaken without first analyzing the business administration processes in place for the enterprise. For any size enterprise you need to understand the following elements of a business:

- The number of departments and the interrelationships between them.
- Use of IT infrastructure (such as need for reports, database access, printing resources, email and so on).

The exam will focus on two business models you need to know about: The *subsidiary model* and the *branch office model*.

### A Subsidiary Model

The subsidiary model caters to subsidiary offices of the enterprise. These offices are essentially sites that belong to the owner enterprise but that are not directly controlled by it. The more subsidiaries owned by the parent organization, the more complex and thus daunting the roll out of the AD infrastructure.



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For the purpose of your plan you should also include partner companies, close affiliates, franchises, and other business divisions as subsidiary offices (or locations).

The subsidiary model can be extremely hard to manage when you have many different IT and IS departments that were once independent and which have recently been acquired.

A large national company I worked for from 1988 to 2000 acquired hundreds of subsidiary companies over a period of several years. At one stage we were expected to integrate so many domains that loading the Domain Manager in Windows NT was dreadfully slow.

Integrating more than 100 NT domains with the NetWare, UNIX and AS/400 systems in this large company spread over hundreds of subsidiaries was so complex it took years to settle down.

Often wars between the different network administrators would break out. There would be constant bickering about “who was trusting who.” I thought that it would be impossible to every get Active Directory to be a pervasive technology in the entire company, let alone just HQ.

Eventually the company collapsed under the weight of its own IT mess and filed for bankruptcy.

### **The Branch Office Model**

Branch offices are also remotely disbursed sites; however the IT/IS infrastructure is usually easier to work with because branch offices are defined as wholly owned facilities of their parent companies. A CIO or CTO and central IT or MIS department usually presides over the branch offices. For the most part the network and IT facilities for branch offices are created by a central or single IT authority and as such most branch offices run similar or the same technology as their parents. This makes for much smoother AD infrastructure planning and rollout.



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