

Lecture 02

SA

What to Do When...

Mr. Mubashir Ali

Lecturer (Dept. of Computer Science)

dr.mubashirali1@gmail.com

1.1 Building a Site from scratch

- Think about the organizational structure you need—Chapter 30.
- Check in with management on the business priorities that will drive implementation priorities.
- Plan your namespaces carefully—Chapter 8.
- Build a rock-solid data center—Chapter 6.
- Build a rock-solid network designed to grow—Chapter 7.

Continued...

- Build services that will scale—Chapter 5.
- Build a software depot, or at least plan a small directory hierarchy that can grow into a software depot—Chapter 28.

Continued...

Establish your initial core application services:

- Authentication and authorization—Section 3.1.3
- Desktop life-cycle management—Chapter 3
- Email—Chapter 23
- File service, backups—Chapter 26
- Network configuration—Section 3.1.3
- Printing—Chapter 24
- Remote access—Chapter 27

1.2 Growing a Small Site

- Provide a helpdesk—Chapter 13.
- Establish checklists for new hires, new desktops/laptops, and new servers—Section 3.1.1.5.
- Consider the benefits of a network operations center (NOC) dedicated to monitoring and coordinating network operations—Chapter 22.

Continued...

- Think about your organization and whom you need to hire, and provide service statistics showing open and resolved problems—Chapter 30.
- Monitor services for both capacity and availability so that you can predict when to scale them—Chapter 22.
- Be ready for an influx of new computers, employees, and SAs—See Sections 1.23, 1.24, and 1.25.

1.3 Going Global

- Design your wide area network (WAN) architecture—Chapter 7.
- Follow three cardinal rules: scale, scale, and scale.
- Standardize server times on Greenwich Mean Time (GMT) to maximize log analysis capabilities.
- Make sure that your helpdesk really is 24/7. Look at ways to leverage SAs in other time zones—Chapter 13.

Continued...

- Architect services to take account of long-distance links—usually lower bandwidth and less reliable—Chapter 5.
- Qualify applications for use over high-latency links—Section 5.1.2.
- Ensure that your security and permissions structures are still adequate under global operations.

1.4 Replacing Services

- Be conscious of the process—Chapter 18.
- Factor in both network dependencies and service dependencies in transition planning.
- Manage your Dynamic Host Configuration Protocol (DHCP) lease times to aid the transition—Section 3.1.4.1.
- Manage your DNS time-to-live (TTL) values to switch to new servers—Section 19.2.1.

1.5 Moving a Data Center

- Schedule windows unless everything is fully redundant and you can move first half of a redundant pair and then the other—Chapter 20.
- Make sure that the new data center is properly designed for both current use and future expansion—Chapter 6.
- Back up every file system of any machine before it is moved.

Continued...

- Develop test cases before you move, and test, test, test everything after the move is complete—Chapter 18.
- Label every cable before it is disconnected—Section 6.1.7.
- Test the new environment—networking, power, uninterruptable power supply (UPS), heating, ventilation, air conditioning (HVAC), and so on—before the move begins—Chapter 6

1.6 Moving to a New Building

- Four weeks or more in advance, get access to the new space to build the infrastructure.
- Use radios or walkie-talkies for communicating inside the building— Chapter 6 and Section 20.1.7.3.
- Work with a moving company that can help plan the move.
- Designate one person to keep and maintain a master list of everyone who is moving and what is moving

1.7 Handling High Rate of Office Moves

- Establish a procedure and a form that will get you all the information you need about each person's equipment, number of network and telephone connections, and special needs. Have SAs check out nonstandard equipment in advance and make notes.
- Brainstorm all the ways that some of the work can be done by the people moving. Be careful to assess their skill level; maybe certain people shouldn't do anything themselves.

1.8 Assessing a Site

- Have a private document repository, such as a wiki, for your team. The amount of information you will collect will overwhelm your ability to remember it: document, document, document.
- Create or request physical-equipment lists of workstations and servers, as well as network diagrams and service workflows. The goal is to generate multiple views of the infrastructure.

1.9 Dealing with Mergers

- If mergers and acquisitions will be frequent, make arrangements to get information as early as possible, even if this means that designated people will have information that prevents them from being able to trade stock for certain windows of time.
- If you are the chief executive officer (CEO), you should involve your chief information officer (CIO) before the merger is even announced.

Continued...

- If you are an SA, try to find out who at the other company has the authority to make the big decisions.
- Establish clear, final decision processes.
- Start a dialogue with the SAs at the other company. Understand their support structure, service levels, network architecture, security model, and policies. Determine what the new model is going to look like.

Continued...

- Adopt the best processes of the two companies; don't blindly select the processes of the bigger company.
- Be sensitive to cultural differences between the two groups. Diverse opinions can be a good thing if people can learn to respect one another— Sections 32.2.2.2 and 35.1
- Make sure that both SA teams have a high-level overview diagram of both networks, as well as a detailed map of each site's local area.

1.10 Coping with Machine Crashes

- Find the real cause—Chapter 15.
- Fix the real cause, not the symptoms—Chapter 16.
- If the root cause is hardware, buy better hardware—Chapter 4.
- If the root cause is environmental, provide a better physical environment for your hardware—Chapter 6
- Replace the system—Chapter 18.
- Give your SAs better training on diagnostic tools—Chapter 15.

1.11 What Tools ?

- A laptop with network diagnostic tools, such as network sniffer, DHCP, encrypted TELNET/SSH client, TFTP server, and so on, as well as both wired and wireless Ethernet.
- A spare PC or server for experimenting with new configurations— Section 19.2.1.
- A variety of headache medicines. It's really difficult to solve big problems when you have a headache.
- A copy of this book!

1.12 Why Document System & Policies

- Good documentation describes the *why* and the *how to*.
- When you do things right and they “just work,” even you will have forgotten the details when they break or need upgrading.
- You will get a reputation as being a real asset to the company: raises, bonuses, and promotions, or when investors or auditors demand it on short notice.

1.13 Problem Identification

- Look at the Basics section of each chapter.
- Survey all customers.
- Identify what kinds of problems consume your time the most— Section 26.1.3.
- Ask the helpdesk employees what problems they see the most—Sections 15.1.6 and 25.1.4.

1.14 Getting Paid by Projects

- Do more with less: Make sure that your staff has good time-management skills—Section 32.1.2.
- Learn how your management communicates with you, and communicate in a compatible way—Chapters 33 and 34.
- Don't overwork or manage by crisis. Show management the “real cost” of policies and decisions.

1.15 Getting Projects Done

- Make sure that the SAs have the resources to succeed. (Don't guess; ask them!)
- Hold your staff accountable for meeting milestones and deadlines.
- Communicate priorities to the SAs; move resources to high-impact projects—Section 33.1.4.2.
- Make sure that the people involved have good time-management skills— Section 32.1.2.

Continued...

- Reduce the number of projects.
- Don't spend time on the projects that don't matter—Figure 33.1.
- Prioritize → Focus → Win.

1.16 Keeping Customers Happy

- Make sure that you make a good impression on new customers— Section 31.1.1
- Make sure that you *communicate more* with existing customers—Section 31.2.4 and Chapter 31.
- Create a System Status web page
- Create a local Enterprise Portal for your site
- Terminate the worst performers, especially if their mistakes create more work for others.

1.17 Keeping Management Happy

- Find out your manager's priorities, and adopt them as your own— Section 32.2.3.
- Be sure that you know how management communicates with you, and communicate in a compatible way—Chapters 33 and 34.
- Make sure that the people in specialized roles understand their roles— Appendix A.

1.18 System Speed Maintenance

- Define *slow*.
- Use your monitoring systems to establish where the bottlenecks are— Chapter 22.
- Look at performance-tuning information that is specific to each architecture so that you know what to monitor and how to do it.
- Recommend a solution based on your findings.
- Make sure that you understand the difference between latency and bandwidth—Section 5.1.2

1.20 Decrease Cost

- Decrease costs by centralizing some services— Chapter 21.
- Review your maintenance contracts. Are you still paying for machines that are no longer critical servers? Are you paying high maintenance on old equipment that would be cheaper to replace?—Section 4.1.4.
- Reduce running costs, such as remote access, through outsourcing— Chapter 27 and Section 21.2.2.

1.21 Adding Features

- Interview customers to understand their needs and to prioritize features.
- Know the requirements—Chapter 5.
- Make sure that you maintain at least existing service and availability levels.
- If altering an existing service, have a back-out plan.
- Test! Test! Test!
- Document! Document! Document!

1.22 What SA Provides to their Boss?

- Access to monitoring and reports so that the boss can update himself or herself.
- Budget information in a timely manner—
Section 33.1.1.12
- Pessimistic time estimates for requested projects—Section 33.1.2
- Honest status of milestones as projects progress—Section 33.1.1.8
- A reasonable amount of stability.