
Part 1

Introduction to Infrastructure

Learn how a few core tools & ideas are used manage all infrastructure.

- Look at different parts that make up enterprise infrastructure and start to list what we'll build.
- Explore day-to-day tools used to manage & support large IT systems including documentation and management apps.
- Review common workflow tools used to keep track of daily tasks.

Project: Create a place to save all project items and publish your first document to it using Github.

Part 2

Data Center Locations

Explore most common choices for where to build infrastructure from physical buildings to cloud offerings.

- Review basic hardware used to begin building a data center.
- Compare physical hardware concepts to options provided by vendors.
- Consider requirements for making data center choices about geography, size, and cost.

Project: Detail data center location(s) in an architecture diagram. Include placeholders for common services expected in your data center.

Part 3

Networks and the Internet

Begin to configure connections between things. This includes internal and external connectivity.

- Explore core network requirements including IP addresses and Internet access.
- Configure and test external access by using gateway information.
- Make it easier to find stuff on the network with name resolution services.
- Create rules about which connections are allowed, and which are blocked – hackers !!

Project: Define and implement the network setup you want to use in your data center. Add this IP address configuration by using management tools, and include changes on your architecture document.

Part 4

Servers and Virtualization

Install and configure Windows and Linux servers that other services will eventually run on. Understand how using virtualization technologies lets you build servers faster.

- Run install steps on a physical server (if available). An ideal test device is a RaspberryPi
- Perform the same server install steps using virtualization instead.
- Build a new server within your datacenter using common management tools and readily available install media.
- Configure baseline server settings to enable and secure access to and from your new server.

Project: Deploy multiple servers into your datacenter by using standard management tools. Include validation of system health and confirmation that new servers can communicate with each other.

Part 5

User Accounts

Create and test different ways for managing user accounts and access to your datacenter. Make this easier by building a centralized user account service.

- Compare options for providing user access to servers and explore ways for consolidation, automation, and secure provisioning.
- Explore common setup and configurations for Active Directory services.
- Configure existing servers to work with one or more identity domains.
- Demo using other, external identity providers by reviewing common SaaS applications (including MS Online, and OAuth tools).

Project: Install Active Directory services within your datacenter as initial Identity source. Create basic accounts and validate authentication and authorization services are performing to provide access to network and application resources.

Part 6

Web Applications

Get familiar with what is needed to host websites & web apps.

- Install several demo web applications
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- Add identity integration so web services can leverage central user database
 - Manage and monitor remote access rules so web services can be made publically available
 - Experiment with common web service enhancements including load balancers and TLS certificates

Project: Combine multiple infra service to support the install and use of a modern web application. Connect the new app to identity services and test user experience by provisioning, logging in, and interacting with the hosted application. Once completed, your datacenter is now providing final, end user experiences to people.

Part 7 Microsoft 365 Integration

See how to extend infrastructure to achieve hybrid offerings by integrating with other leading cloud provided features and applications.

- Establish Azure tenant, subscription & admin access model.
- Connect several items to Microsoft cloud including DNS domain and identity services.
- Turn on single sign-on functionality for Azure and M365 environments.
- Enable and test Microsoft Office suite of applications for one or more user accounts including enterprise class e-mail.

Project: Configure environment to allow using services from Microsoft. Begin with synchronizing user accounts. Then enable, test, and manage email and office applicaitons via the web.

Part 8 User's Computers

Evalute different options for giving people computers, or other ways to access infrastructure and applications with various computer devices & environments.

- Install and configure standard computing devices that are network joined and manged
 - Preview tools commonly used for maintaining security & control over these devices such as Anti-Virus, remote support access, etc.
 - Evaluate and rank different options for building user compute devices such as providing physical hardware, virtual desktop infrastructure, and bring your own device (zero-trust) options.
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Project: Setup laptops and other computers to be able to connect to and use services and applications in your datacenter. Make use of identity tools and remote access rules to quickly and securely add the new devices to your environment.
