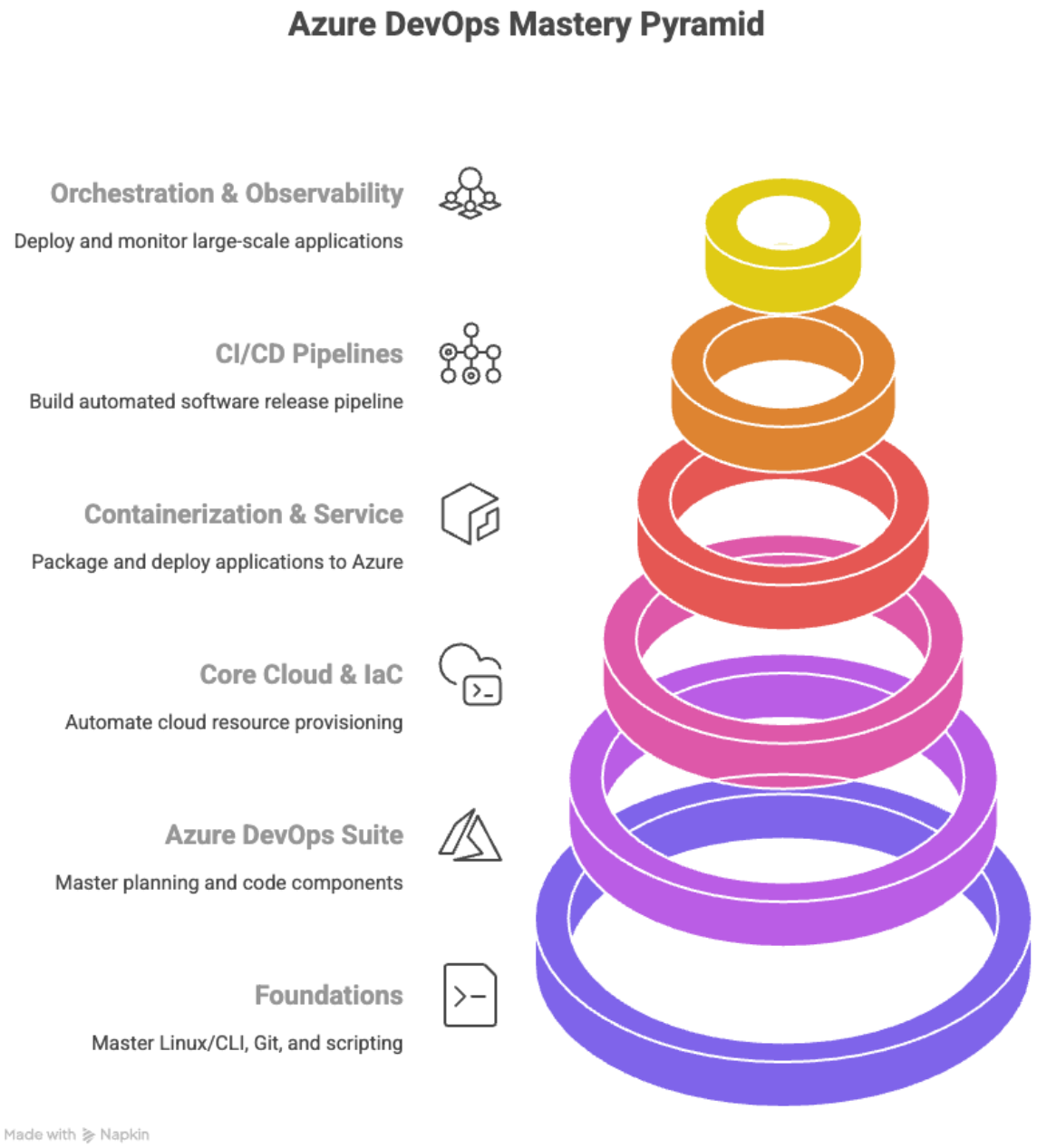

The 6-month roadmap for Azure DevOps relies heavily on mastering the integrated tools within the **Azure DevOps Services** suite and pairing them with essential open-source tools.

🚀 6-Month Azure DevOps Roadmap (Beginner to Job-Ready)

Month	Focus Area	Goal	Key Tools & Azure Services to Master
1	**Foundations**	Master Linux/CLI, Git, and Python/PowerShell scripting.	**Linux (Bash/Shell)** or **Windows (PowerShell)**, **Git** & **GitHub**, **Python**
2	**Azure DevOps Suite**	Master the planning and code components of the integrated platform.	**Azure Boards**, **Azure Repos**, **Git** (Core commands)
3	**Azure Core Cloud & IaC**	Understand core cloud resources and automate their provisioning using code.	**Azure CLI**, **Azure Portal**, **Azure Virtual Machines (VM)**, **Azure VNet**, **Terraform** (or **Bicep**)
4	**Containerization & Service**	Package applications and deploy them to the main Azure container service.	**Docker** (Containerization), **Azure Container Registry (ACR)**, **Azure Container Instances (ACI)**
5	**CI/CD Pipelines (YAML)**	Build a complete, automated software release pipeline using **Azure Pipelines**.	**Azure Pipelines (YAML)**, **Azure Artifacts**, **Azure Key Vault**
6	**Orchestration & Observability**	Deploy a large-scale application using Kubernetes and implement deep monitoring. Build final portfolio projects.	**Azure Kubernetes Service (AKS)**, **Azure Monitor**, **Prometheus/Grafana**

🛠️ Essential Tools and Brief Descriptions

The Azure path emphasizes seamless integration using Microsoft's native services, supplemented by cloud-agnostic tools like Terraform.

I. Foundational & Scripting Tools (Month 1)

Tool	Category	Brief Description
Linux/PowerShell	**OS/Scripting**	Either **Linux (Bash)** or **Windows (PowerShell)** proficiency is essential. PowerShell is often required in enterprises running Windows Server on Azure.
Git & Azure Repos	**Version Control**	**Git** is the standard. **Azure Repos** provides unlimited, cloud-hosted private Git repositories, fully integrated with Azure DevOps.
Python	**Scripting Language**	Used for automation, managing serverless tasks (**Azure Functions**), and interacting with the Azure REST API via the Python SDK.
Azure CLI	**Cloud Management**	The command-line interface for managing all Azure resources (VMs, VNets, Storage) from the terminal. Must be mastered for scripting.

II. The Azure DevOps Suite (Month 2 & 5)

Tool	Category	Brief Description

Azure Boards	**Agile Planning**	Project management tool for planning, tracking, and reporting work using Agile methodologies (**Scrum, Kanban**).
Azure Pipelines	**CI/CD Automation**	The core automation engine. Used to automatically **Build, Test, and Deploy** code using **YAML-based definitions**. Supports deployment to any platform (Azure, AWS, On-Prem).
Azure Artifacts	**Package Management**	A repository service for hosting and sharing package feeds (e.g., NuGet, npm, Maven) used by various teams, simplifying dependency management.
Azure Test Plans	**Testing**	Tools for integrated manual, exploratory, and automated testing, allowing for comprehensive quality assurance within the DevOps cycle.

III. Infrastructure as Code (IaC) (Month 3)

Tool	Category	Brief Description
Terraform	**IaC (Cloud-Agnostic)**	The industry standard for defining and provisioning cloud infrastructure using HCL. Highly preferred in large, multi-cloud enterprises in India.
Bicep / ARM	**IaC (Azure Native)**	**Bicep** is the new, cleaner, declarative language from Microsoft (built on top of the original ARM JSON templates) to provision Azure resources. Essential for jobs that demand native Azure IaC.

Ansible	**Configuration Management**	An agentless tool used to automate software installation and configuration *inside* Azure VMs, ensuring environment consistency.

IV. Azure Compute & Orchestration (Month 4 & 6)

Tool	Category	Brief Description
Docker	**Containerization**	Packages applications and dependencies into standardized containers. Used locally and to create images for Azure deployment.
Azure Container Registry (ACR)	**Image Registry**	A private, secure, and scalable Docker image registry within Azure used to store and manage your container images.
Azure Kubernetes Service (AKS)	**Container Orchestration**	Azure's fully managed Kubernetes service. Simplifies the deployment, scaling, and management of large, containerized microservice applications.
Azure Functions	**Serverless Compute**	An event-driven, serverless computing platform. Used to run small, reactive code snippets (often Python or C#) for automation without managing VMs.

V. Monitoring & Security (Month 5 & 6)

Tool	Category	Brief Description
Azure Monitor	**Observability**	Azure's native tool for collecting metrics, logs, and events from all cloud resources. Used to set up alerts and gain insights into application health.

Azure Key Vault	**Secret Management**	A secure service for storing and tightly controlling access to sensitive data, such as API keys, passwords, and cryptographic certificates, used in pipelines.

🎯 6-Month Certification Strategy

- **Primary Goal: AZ-900: Microsoft Azure Fundamentals** (Optional, but good for building confidence).
- **Most Important Goal: AZ-104: Microsoft Azure Administrator**
    - **Why?** This is the **most crucial** associate-level certification. It proves you can provision, manage, and monitor Azure resources (VMs, networking, storage), which are the building blocks for any DevOps pipeline.
- **Stretch Goal (Highly Recommended): AZ-400: Microsoft Certified: Azure DevOps Engineer Expert**
    - **Why?** While typically for experienced professionals, preparing for the AZ-400 shows a commitment to the entire Azure DevOps methodology (Boards, Repos, Pipelines, IaC, Security), which is a massive advantage in the job market.