

Azure Integration, IaC, Migration - Detailed Reference

Azure Integration, IaC, and Migration (Topics 53-61)

Topic 53: Azure Service Bus

Enterprise message broker. Queue and pub/sub. vs Storage Queue: Larger messages (256KB-100MB), FIFO, transactions, sessions, dedup, dead-letter. Premium: Dedicated messaging units, exactly-once, AZ support. ~\$900/month.

Topic 54: Azure Event Grid

Event routing. Reactive. Fire-and-forget. No retention. vs Service Bus: Event Grid = events (reactive). Service Bus = commands (reliable delivery). vs Event Hubs: Event Grid = routing. Event Hubs = streaming (millions/sec, retain for days).

Topic 55: Azure Event Hubs

Big data streaming. Millions of events/sec. Partitions. Consumer groups. Capture to Storage/Data Lake. Kafka-compatible. Tiers: Basic (dev), Standard (prod), Premium (enterprise, 90-day retention), Dedicated (massive scale).

Topic 56: Azure API Management

Publish, secure, analyze APIs. Components: API Gateway (routing, policies), Developer Portal (self-service), Management Plane (admin). Policies: Rate limit, JWT validation, IP filter, CORS, cache, transform, quota. SKUs: Consumption (serverless), Developer (\$50/mo), Basic (\$150), Standard (\$500), Premium (\$2,800, VNet, multi-region).

Topic 57: Azure Logic Apps

Workflow automation. 400+ connectors. Trigger-based. vs Power Automate: Logic Apps = developer/IT, B2B, complex. Power Automate = business user, Office 365, simple.

Topic 58: Azure Resource Manager (ARM)

Deployment and management service. Every resource operation goes through ARM. Resource providers: Microsoft.Compute, Microsoft.Network, Microsoft.Storage, Microsoft.KeyVault, etc. ARM Template Structure: \$schema, contentVersion, parameters, variables, resources, outputs.

Topic 59: Bicep

Domain-specific language for Azure IaC. Compiles to ARM. Cleaner than JSON. Microsoft recommended. vs Terraform: Bicep = Azure only, no state file, lower learning curve. Terraform = multi-cloud, state file, larger community. Features: Loops (for), Conditions (if), Existing resource reference, Outputs, Modules, Parameter files.

Topic 60: Azure DevOps

Services: Repos (Git), Pipelines (CI/CD), Boards (Agile), Test Plans, Artifacts (packages). Pipeline Concepts: Agent, Stage, Job, Step, Environment, Variable group, Service connection, Approval.

Topic 61: Azure Migrate

Unified migration platform. Discovery and Assessment: Deploy appliance on-prem, discover servers, assess readiness, right-size, cost estimate. Server Migration: Agentless (VMware, Hyper-V) or agent-based (physical, AWS/GCP). Minimal downtime. Database Migration: DMA (assessment), DMS (migration with minimal downtime).