Foundations in the Cloud: Getting Started with Azure PaaS

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aMP Hammamet
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Upcoming aMP Events – 2nd Half of 2025

Why Platform as a Service Matters Today ?

Operations Engineering, Dead?!

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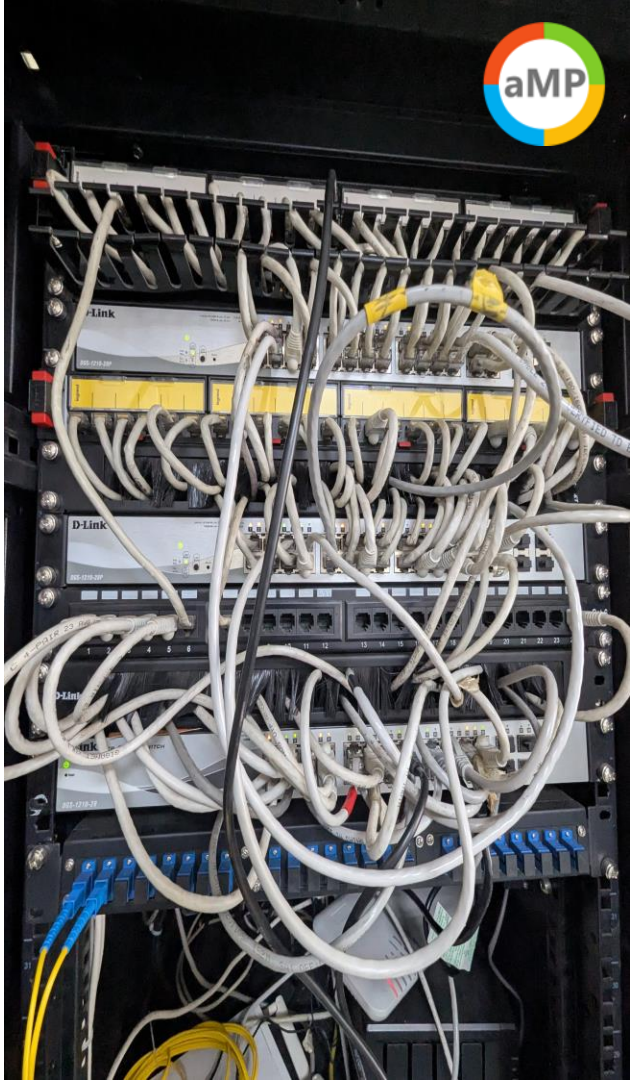
Agenda

1. PaaS Fundamentals & Trade-Offs
2. Core Azure PaaS Services
3. Security & Operations
4. Cost & Business Value

PaaS Fundamentals & Trade-Offs

What PaaS Removes

- Physical Hardware
- Operating System Management
- Capital Cost



What PaaS Enables

PaaS Caveats (1/2)

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12 Factor App

Code Base	Dependencies	Configuration	Backing Services
Build/Release	Stateless Processes	Port Binding	Concurrency
Disposability	Dev/Prod Parity	Logs	Admin Processes

PaaS Caveats (2/2)

- **Dependencies**
  - Don't assume dependencies
  - Use dependency management tool (apt, NuGet, npm...)
- **Configuration**
  - Don't assume local files
  - Use a configuration store
- **Backing Services**
  - Don't assume a specific instance
  - Make it configurable
- **Stateless Processes**
  - Don't assume 1 stateful
  - Keep services stateless and share nothing
- **Disposability**
  - Apps must start and gracefully stop fast

PaaS Trade-offs

- Less Flexibility compared to VM/Physical Machines
- Vendor Lock-in
- Requires up skill


Core Azure PaaS Services

Azure App Service

- Web Application Hosting
- Simple Slot Model
- Supports multiple development stacks
- Supports advanced deployment patterns

Azure Functions

- Serverless Functions
- Pay per use down to the call
- Supports durable functions
- Ideal for background services & short running jobs

Azure SQL

- Cloud Based Relational Database
- Vertical Scaling elasticity
- Many flavors:
  - Database
  - Managed Instance
  - SQL VM

Azure Cosmos DB

- Geo Distributed Multi-Model Database
- Horizontal Scaling
- Support many models:
  - Document
  - MongoDB API
  - Graph (Gremlin API)
  - Relational

Azure Service Bus

- Enterprise grade messaging system
- Supports advanced messaging patterns
- Reliable message delivery

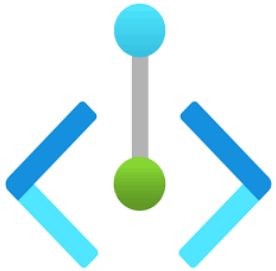
Azure Communication Service

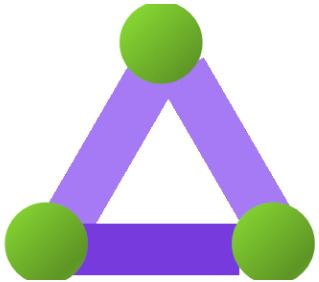
- E-Mails
- SMS/Chat
- Phone Calls

Security & Operations

Private Networking

- Virtual Networks & Private Endpoints
- VPN Gateways
- Express Route



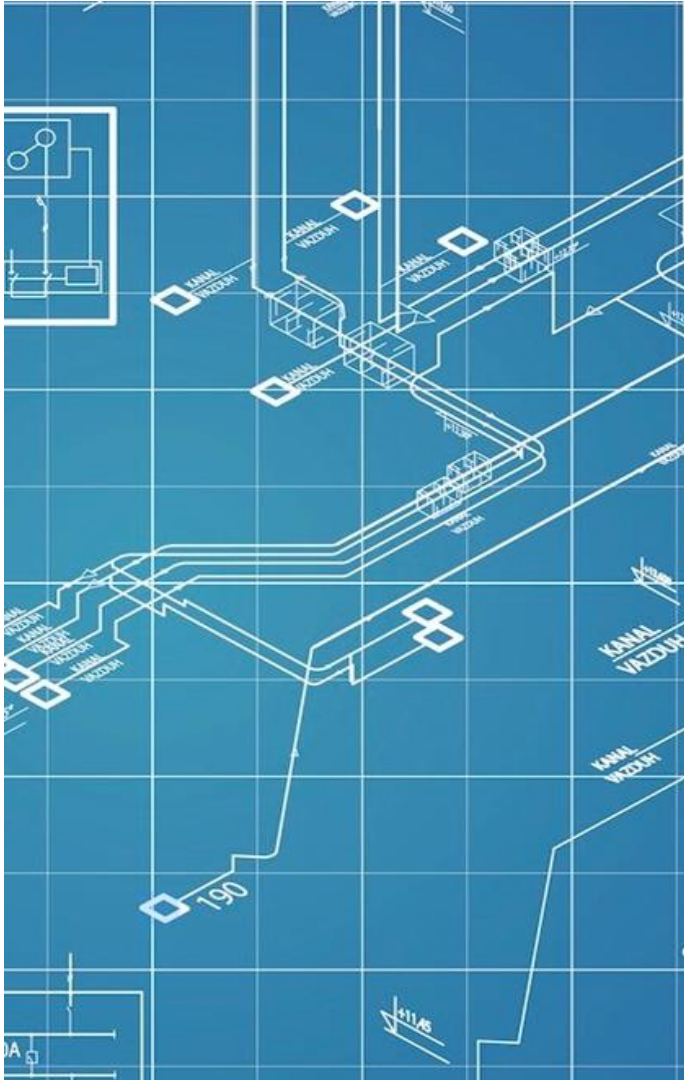


Identity & Access Management (Entra ID)

- Authentication & Authorization
- Internal & External Identity
- Employee and Customer Identity
- Conditional Access & Zero Trust

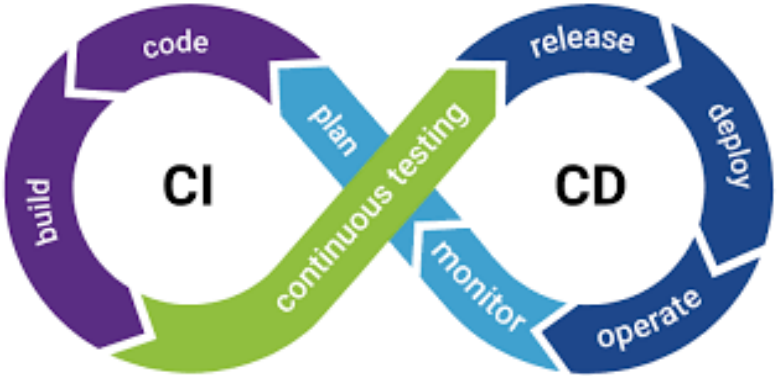
Infrastructure as Code

- Manage Infra as declarative Code
- Changes are applied automatically
- Apply Software Engineering principles & practices



CI/CD

- Integrate with Every Change
- Release with Every Change
- Deploy with Every Change
- Get Fast Feedback



Observability

- Logs
- Metrics
- Distributed tracing
- Alerts

Cost & Business Value

Managing Costs in PaaS

- Azure Cost Management
- Azure Cost Calculator
- Understand each service's cost model

When is PaaS worth it ?

- For New Apps → **Big Benefits**
  - Faster Time to Market
  - Scalability
  - Simplified Operations
- Existing Workloads → **Case By Case**
  - Lift-and-shift may increase costs
  - Re-architecting required
  - Evaluate ROI

Wrap-up

Key Takeaways

- Faster Innovation
- PaaS changes operations
- Scalability built-in
- Security is available
- Cost is manageable
- **Success with PaaS =** People + Process + Platform

"The important thing is not to stop questioning"

Albert Einstein


Thank You!