

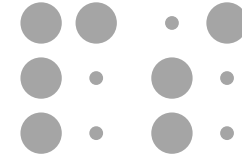
# High Availability & Scalability in Azure

Praveenkumar Bouna, [CodeWithPraveen.com](https://CodeWithPraveen.com)

# Deployment in Cloud Environment



High-availability



Scalability

**High availability:** The ability of a system or application to remain operational & accessible even in the event of hardware or software failures

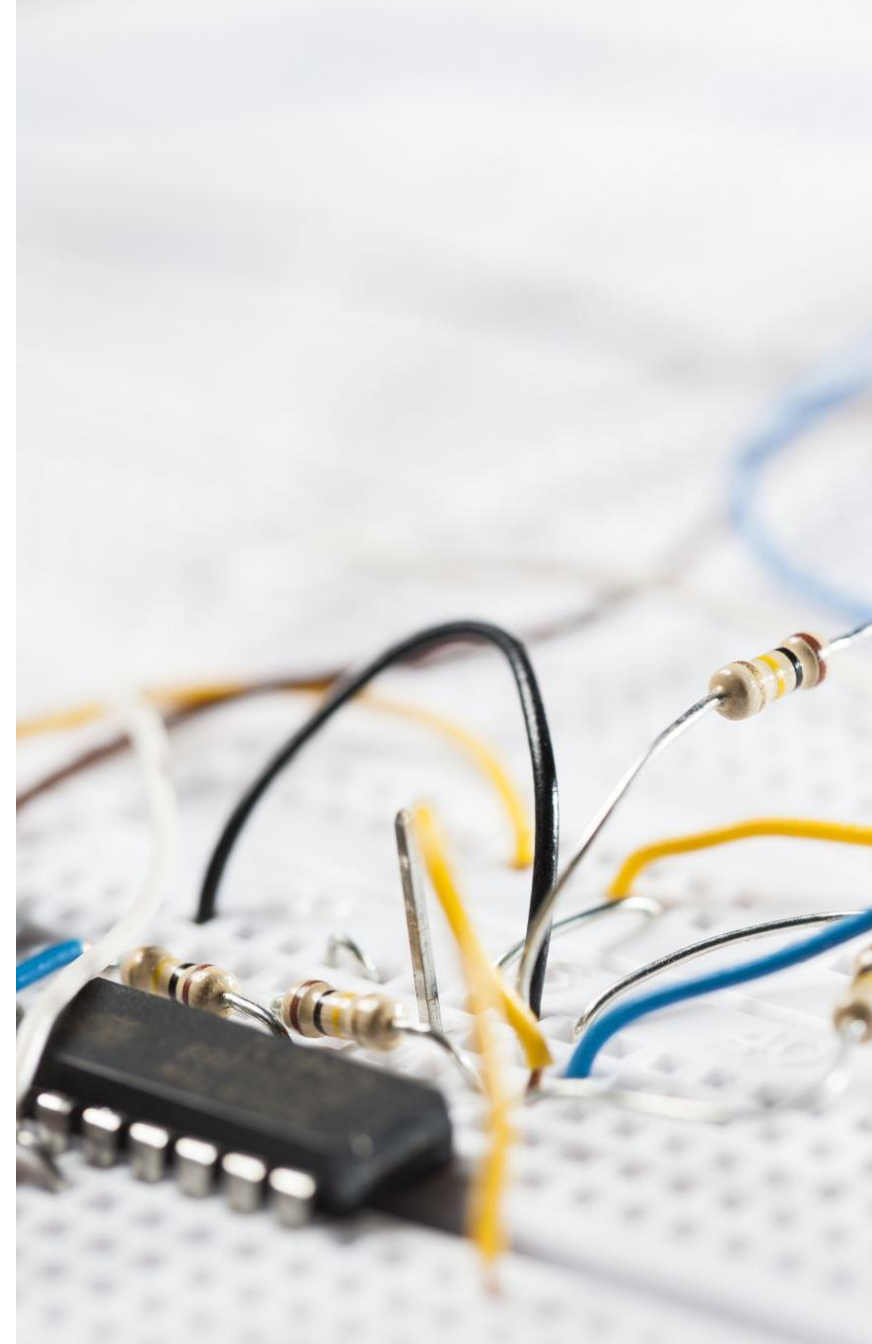


# High-availability

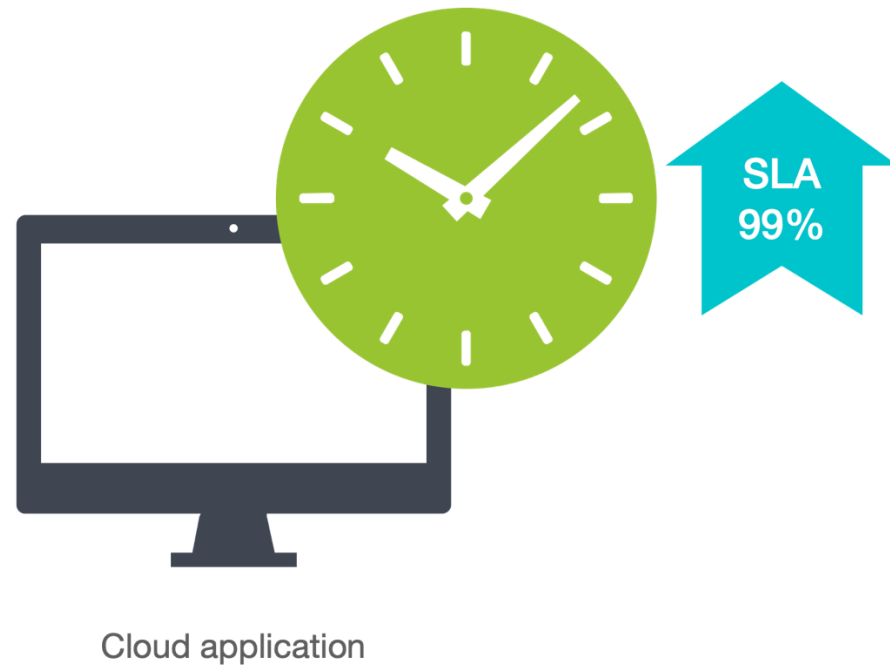


Cloud application

Azure provides service availability guarantee namely  
**Service Level Agreements (SLAs)**



# SLA



# Service Level Agreement (SLA)

- Represented as % (Eg., 99%)
- Azure credits back if SLA isn't met
- Common SLAs: 99%, 99.9%, 99.95%
- Higher SLAs are more expensive
- Each service has its own SLA





**Scalability** allows you to increase or decrease the resources allocated to your service based on demand

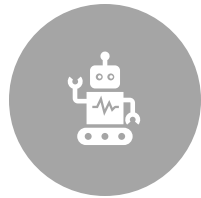




# Scaling Options



Manual



Automatic



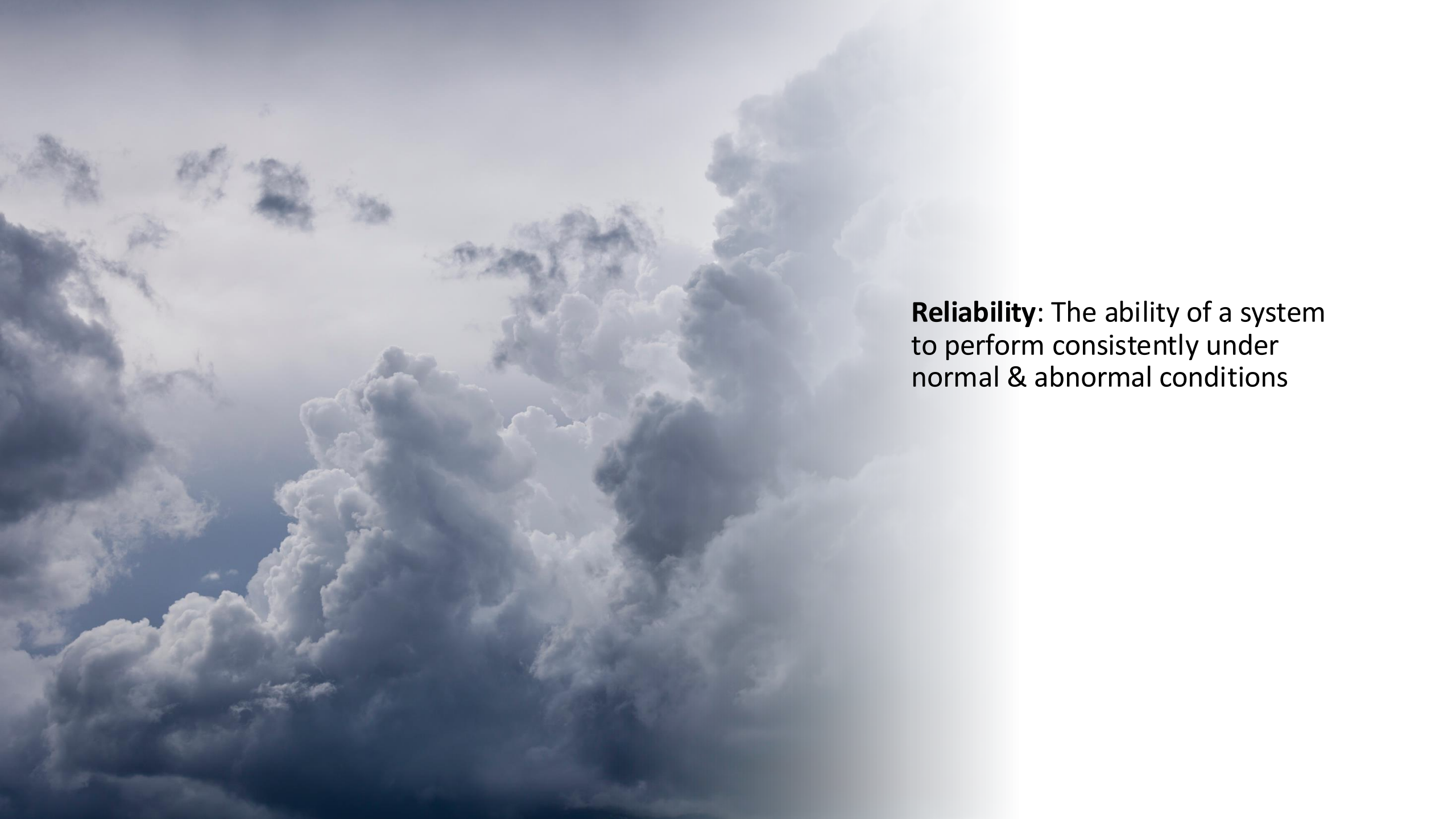
Scheduled

## Two Ways of Scaling

Vertical Scaling	Horizontal Scaling
Increase/decrease <b><u>size</u></b> of resources	Increase/decrease <b><u>number</u></b> of instances
Eg., add more CPU, more RAM	Scale out & scale in as per demand
	Eg., add more VM, containers

# Reliability & Predictability in Azure

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**Reliability:** The ability of a system to perform consistently under normal & abnormal conditions

# Reliability in Azure



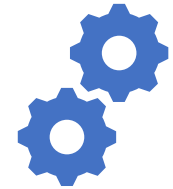
Foundation for Azure Well-Architected Framework



Reliability is part of core Azure design



Resources deployed across various region



Manual & Automatic

# Tools for Reliability



Azure Monitor



Azure Service Health



Azure Advisor

**Predictability:** Move forward with confidence

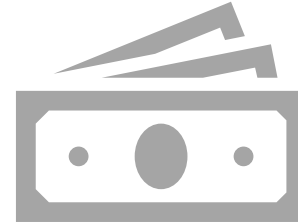




# Components of Predictability



Performance  
Predictability

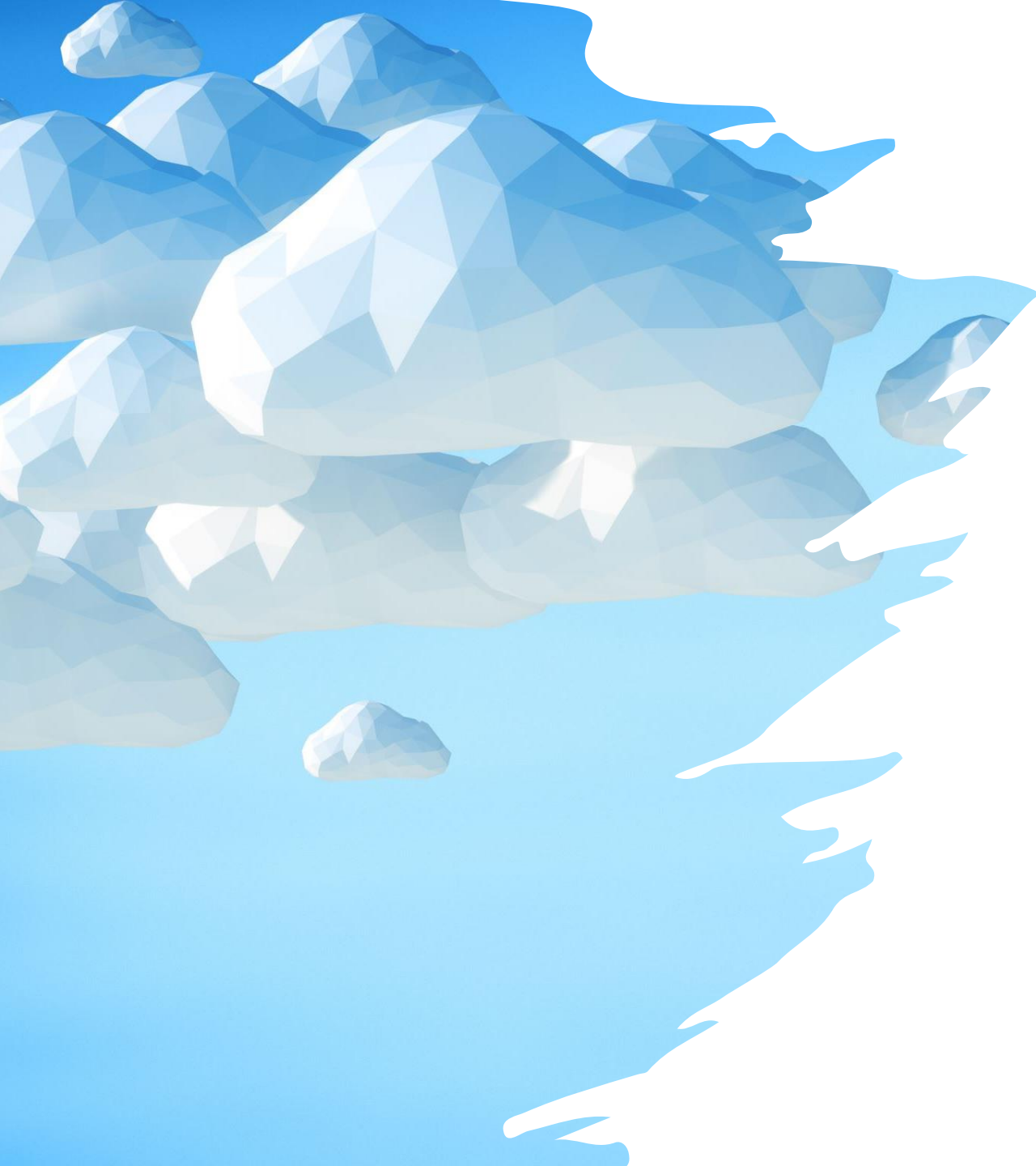


Cost Predictability



# Performance Predictability

- Predicting the resources needed to deliver a positive experience
- **Azure concepts:**
  - Auto scaling
  - Load balancers
  - High availability (SLAs)



# Cost Predictability

- Predicting or forecasting the cost of the cloud spend
- **Azure concepts:**
  - Track real-time usage
  - Monitor resources
  - Monitor trends

# Tools for Cost Predictability



TOTAL COST OF  
OWNERSHIP

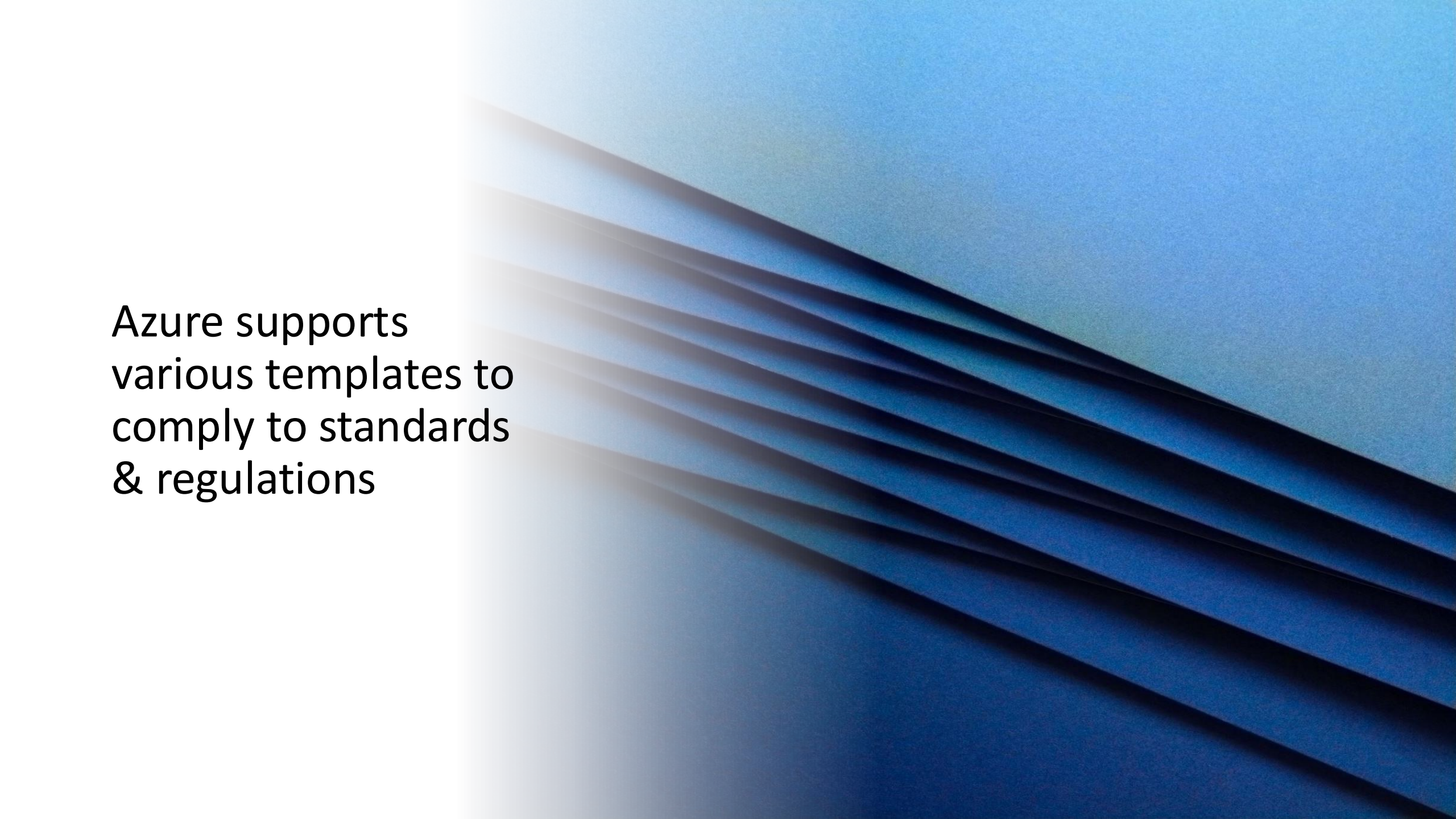


PRICING CALCULATOR

# Security & Governance in Azure

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The background of the slide features a series of overlapping, wavy, diagonal bands in various shades of blue, ranging from a light, almost white blue to a deep, dark navy blue. These bands create a sense of depth and movement, resembling layers of paper or a stylized landscape. The text is positioned on the left side, set against a white background that blends into the lightest blue of the wavy pattern.

Azure supports  
various templates to  
comply to standards  
& regulations





# Security & Governance in Azure

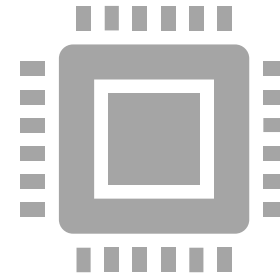
- Secured by design & default
- Provides multiple layers of security
- The amount of control depends upon cloud service type (IaaS, PaaS)



# How are Security & Governance Applied?



Audits



Software patches &  
updates

# Types of Security



Physical security



Network security



Identity & access  
security

# Azure Services

Security in Azure	Governance in Azure
Azure DDoS Protection	Azure Policy
Azure Firewall	Azure Blueprint
Azure Security Center	

# Manageability in Azure

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# Two Types of Management



Managing cloud resources



Managing cloud  
environment

# Manage Cloud Resources



Auto scale



Preconfigured  
template



Monitor health



Receive alerts in  
real-time

# Managing Cloud Resources: Azure Services

- Azure Monitor
- Azure Service Health
- Azure Advisor



# Manage Cloud Environment



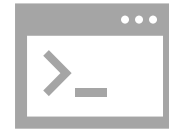
Azure portal



Azure API



Azure CLI



PowerShell