

Azure Arc Enabled Data Services Fundamentals

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Agenda

- **The Challenge**
- **Azure Arc Overview**
- **Azure Arc Enabled Data Services**
 - **Architecture and Data Services**
 - **Deployment Scenarios**

The Challenge

Cloud benefits
everywhere

Enable consistency and
controls

Homogenize
management services
and tooling

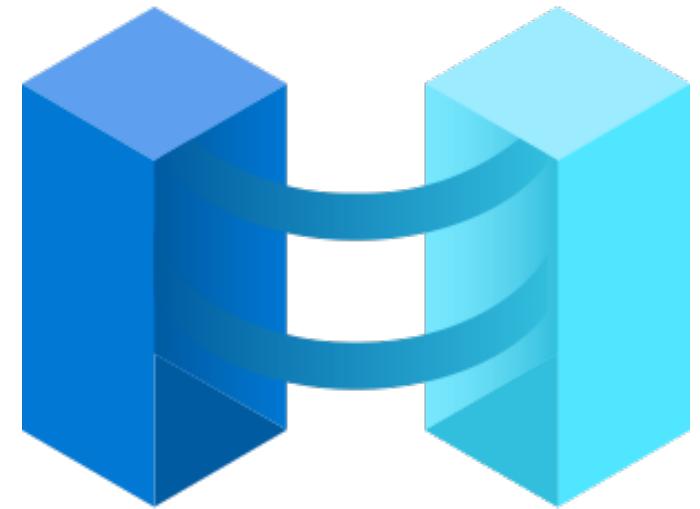
Hybrid cloud

AWS/GCP/Azure
On Prem

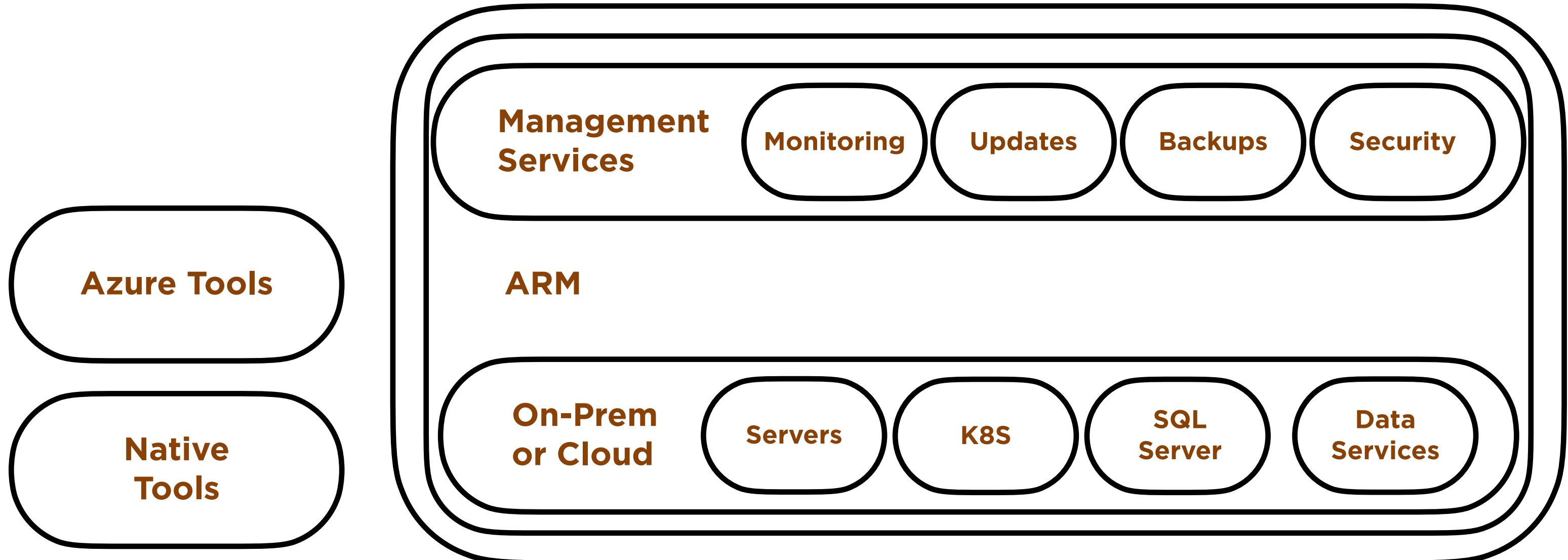
Manage this at scale?

Azure Arc

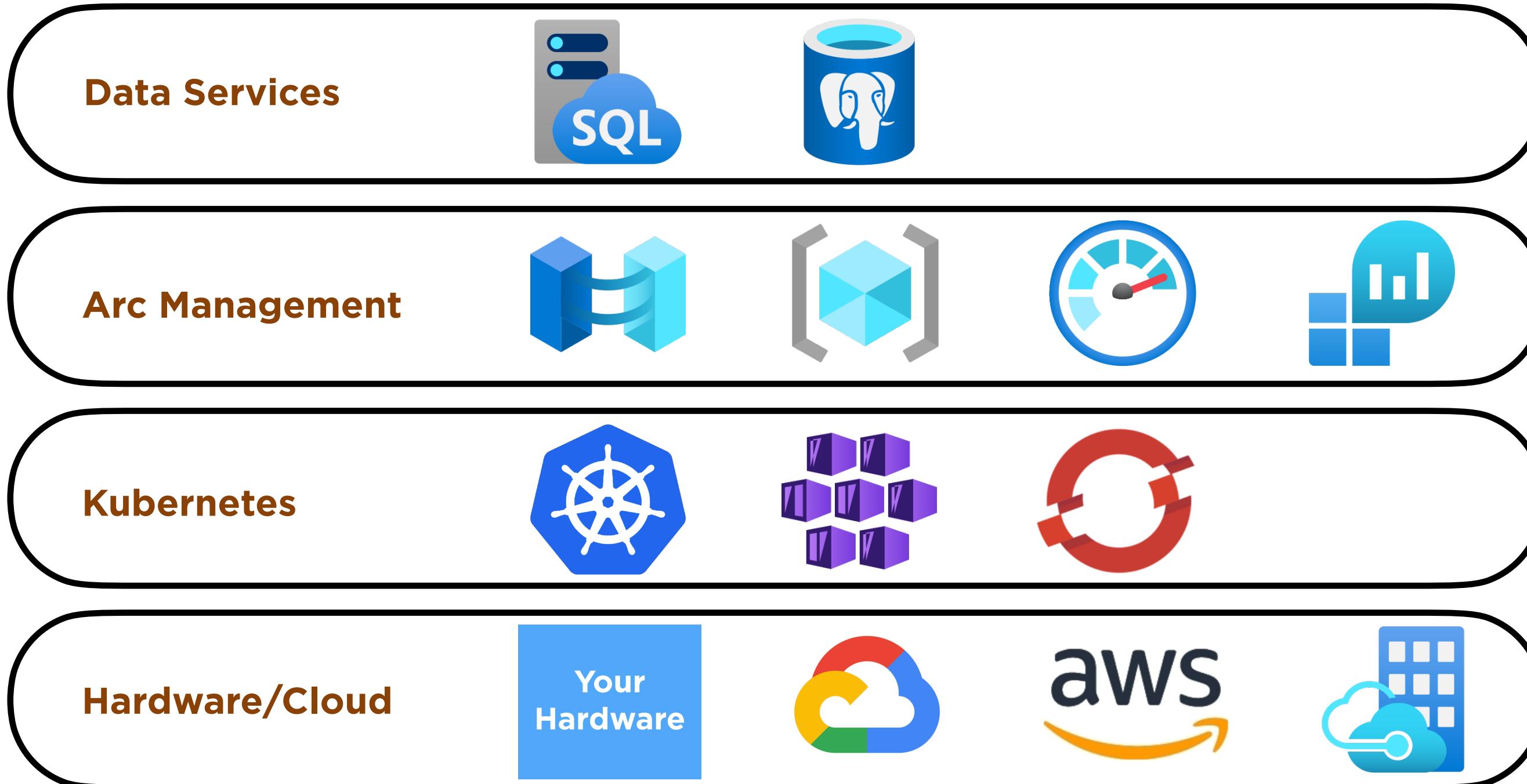
- Provides Azure management services wherever **YOU** are
- Deployment and operations
- Access controls and security
- Inventory and organization
- Unified experience across on-premises and hybrid-cloud



Azure Arc



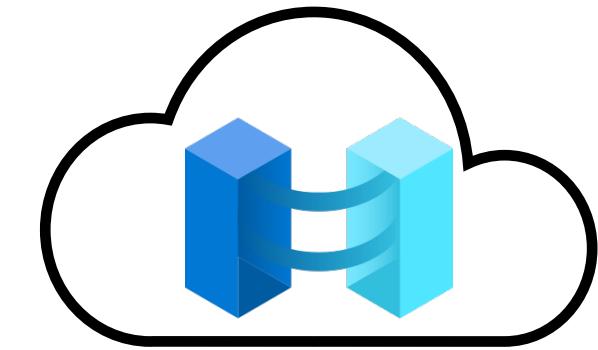
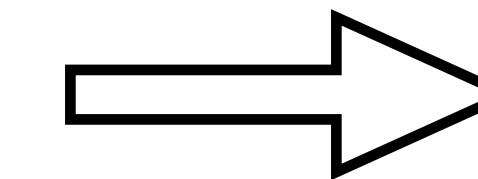
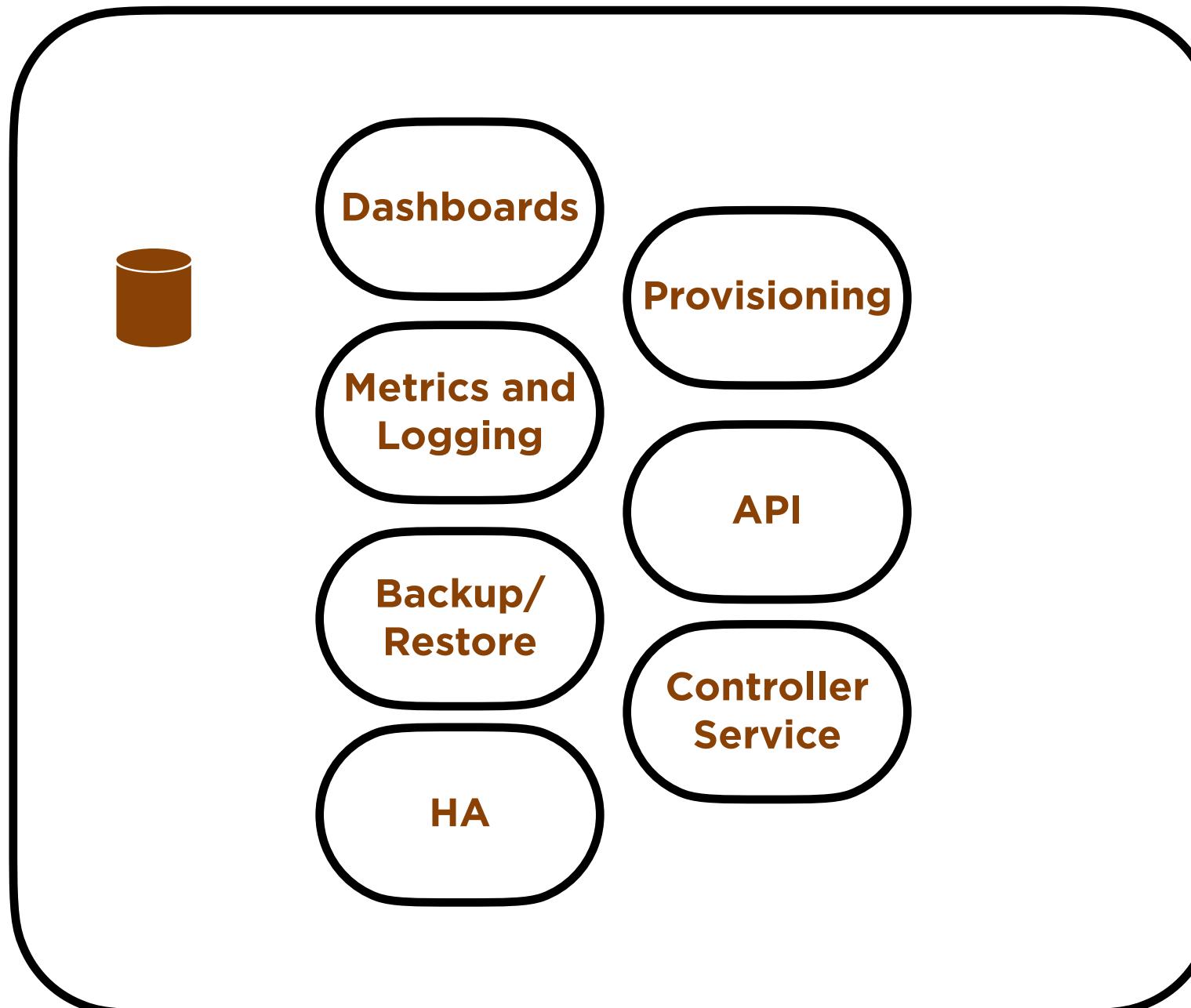
Azure Arc Enabled Data Services



Getting Azure Arc Data Services

Persistent Storage	Any Kubernetes	Management Services	Kubernetes Native Tools
Linux	Any cloud	Arc Integration	Azure Tools
Physical and VMs	On Prem	Controller API	Azure Data Studio and azdata
Hardware	Kubernetes	Deploy a Data Controller	Deploy workloads

Azure Arc Data Services Controller and Management



Connectivity Modes

- Connected (Planned)
- Disconnected

<https://docs.microsoft.com/en-us/azure/azure-arc/data/connectivity>

Azure Arc Enabled Data Services



Managed Instance



PostgreSQL
HyperScale

Azure Arc Enabled Managed Instance

- Your lift and shift version of SQL Server
- Works with existing versions of SQL on-prem
- Self-service provisioning (CLI, ADS, Portal, Kubernetes)
- Always Current/Evergreen
- Currently single instance
- Elastic by scaling up CPU or Memory
- Backup/restore automation (Planned)
- Disconnected scenarios monitoring
- Do you get a PaaS-like SLA? Nope...but...



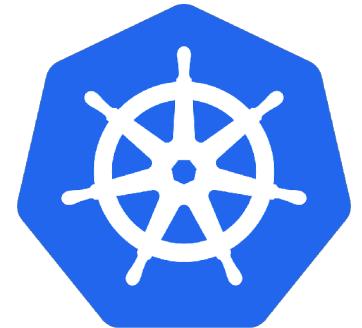
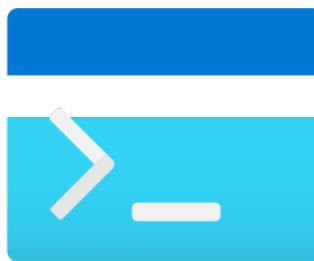
Azure Arc Enabled PostgreSQL HyperScale

- Open source database
- Works with existing versions of PostgreSQL
- Always Current/Evergreen
- Self-service provisioning (CLI, ADS, Portal, Kubernetes)
- Elastic scale
 - Scale out
 - Compute
 - Data
- Backup/restore automation

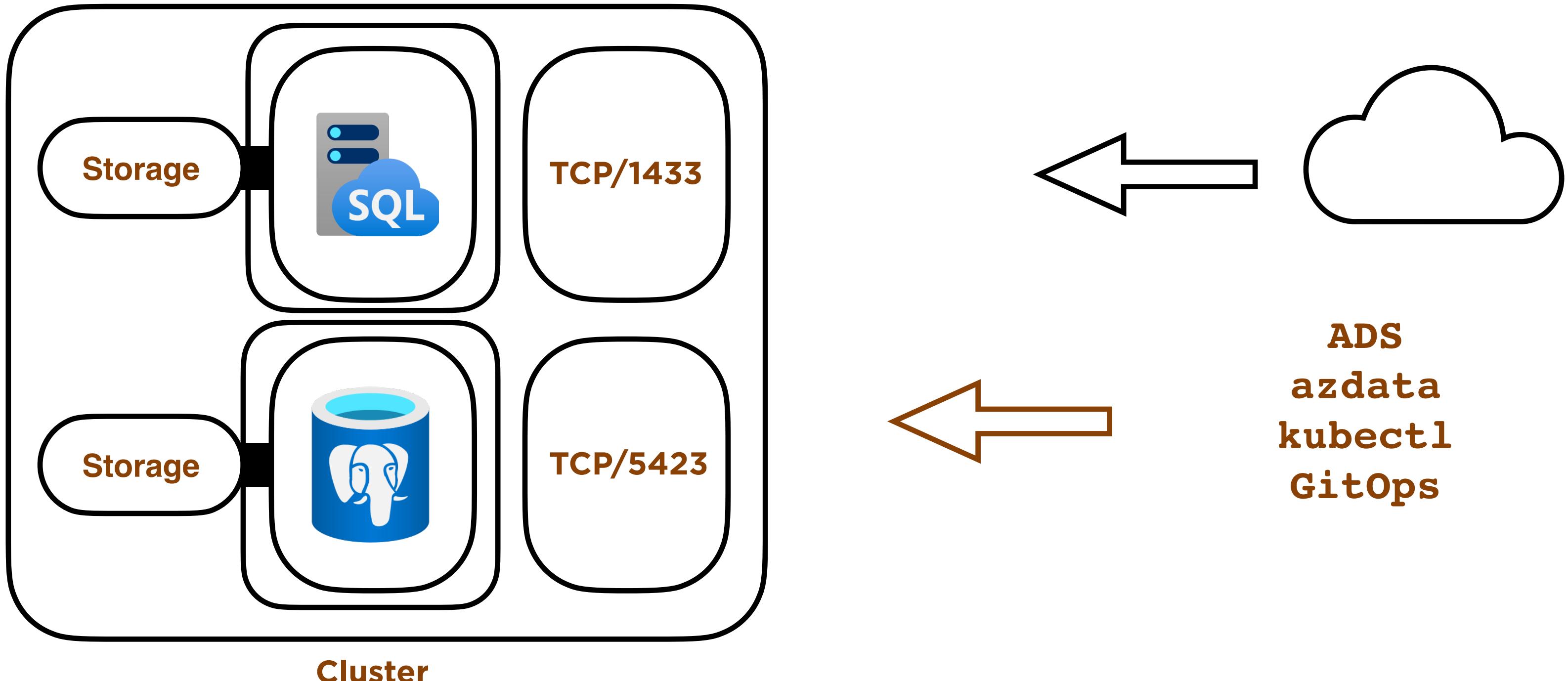


Deployment Models

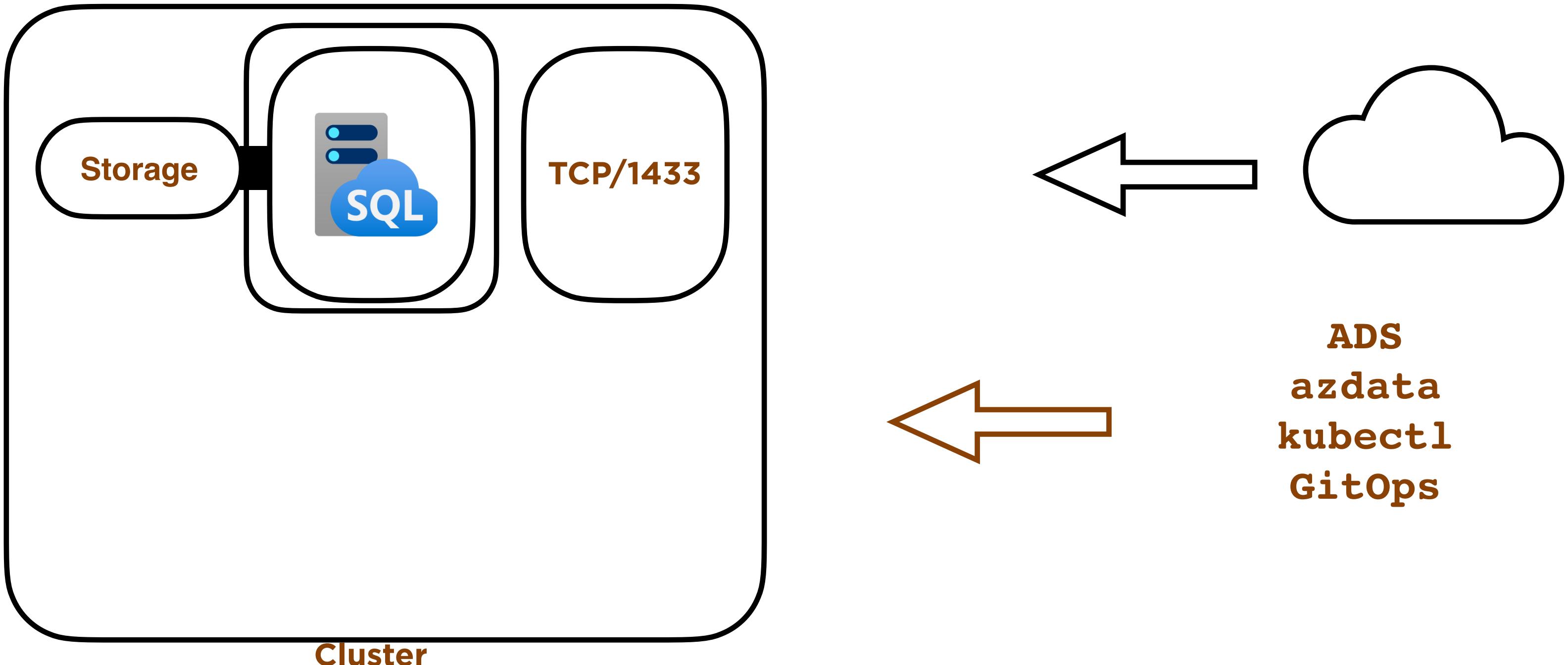
- Azure Data Studio
- Azure Data CLI (azdata)
- Kubernetes native
 - kubectl/oc
 - Custom Resource Definitions
- GitOps enabling CI/CD
- Azure Portal and CLI (Planned)



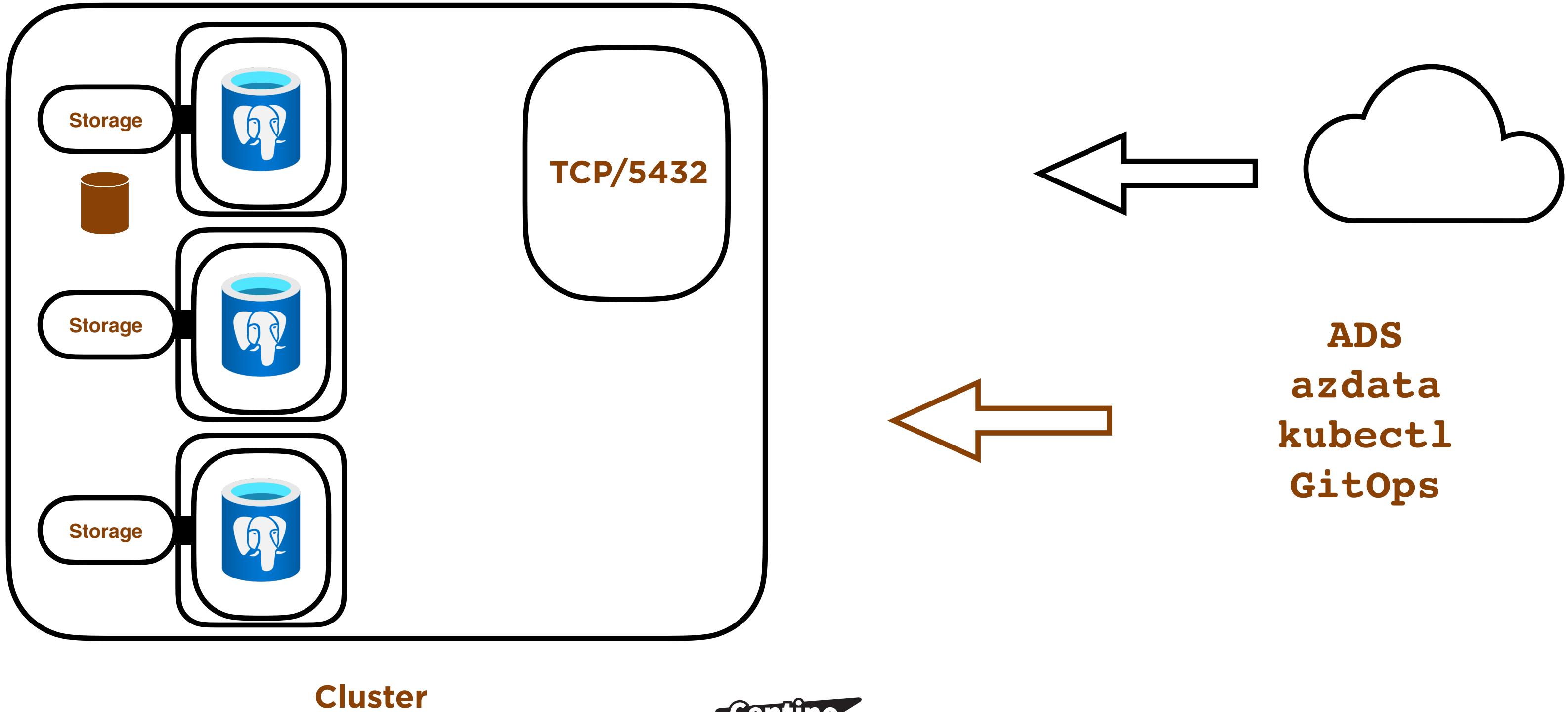
Hybrid Cloud and Self Provisioning



Elastic Scale - Managed Instance



Elastic Scale - PostgreSQL HyperScale



Deployment Considerations - Compute

- **Cluster Sizing**
 - Bare bones test environment - 16GB RAM and 4 cores (but really 32GB)
 - Control plane resources (Data Controller, Metrics, and Logging)
 - Deployed workload and their side car containers
 - Total resources should allow for node failure without impacting workload
 - Node allocatable on Kubernetes
- **Workload Sizing**
 - **Managed Instance** - 2GB and 1 core
 - **Postgres HyperScale** - 256MB and 1 core

Deployment considerations - Storage

- Persistent storage is allocated from a StorageClass
- Specify which StorageClass you want data and log
- Decouples the state of the database from the lifecycle of the pods
- Local storage - on the Node
- Remote Storage - SAN, NAS, Cloud block, Cloud file

Configuring and Managing Kubernetes Storage and Scheduling

Demo!

- Azure Arc enabled SQL Managed Instance
- Azure Arc enabled Postgres Hyperscale
- Management Tools

Review

- **The Challenge**
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More Resources

- **Azure Arc enabled Servers**
 - <https://docs.microsoft.com/en-us/azure/azure-arc/servers/overview>
- **Azure Arc enabled Kubernetes**
 - <https://docs.microsoft.com/en-us/azure/azure-arc/kubernetes/overview>
- **Azure Arc enabled SQL Servers**
 - <https://docs.microsoft.com/en-us/sql/sql-server/azure-arc/overview>
- **Azure Arc enabled Data Services**
 - <https://docs.microsoft.com/en-us/azure/azure-arc/data/overview>
 - Storage - <https://docs.microsoft.com/en-us/azure/azure-arc/data/storage-configuration>
 - Compute - <https://docs.microsoft.com/en-us/azure/azure-arc/data/sizing-guidance>
- **Pluralsight**
 - <https://app.pluralsight.com/profile/author/anthony-nocentino>

Need more data or help?

<http://www.github.com/nocentino/presentations>

Links to resources

Demos

Presentation

Pluralsight

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Solving tough business challenges with technical innovation



Thank You!