

# Azure Arc – Data Services

Your journey into hybrid Azure SQL

Björn Peters

Data Saturday #14 – Oslo 2021





**redgate**



**Microsoft**



**dbWatch**



# Björn Peters

Kramer&Crew

Senior Consultant

Microsoft Data-Platform & Azure

SQL Server since Version 6.5

Azure Meetup Hamburg Organizer

PASS Deutschland e.V. Member

Volunteer, Speaker, MVP

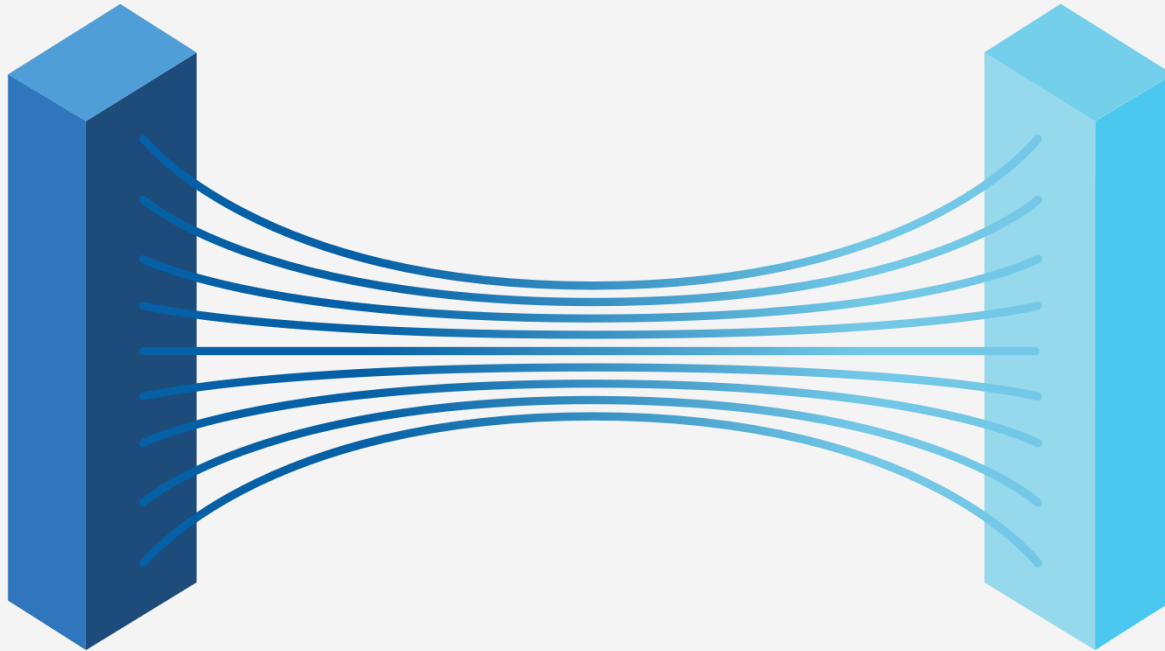
Father, Husband, Snowboarder, Cyclist, Geek

[www.sql-aus-hamburg.de](http://www.sql-aus-hamburg.de)

[bjoern@sql-aus-hamburg.de](mailto:bjoern@sql-aus-hamburg.de)

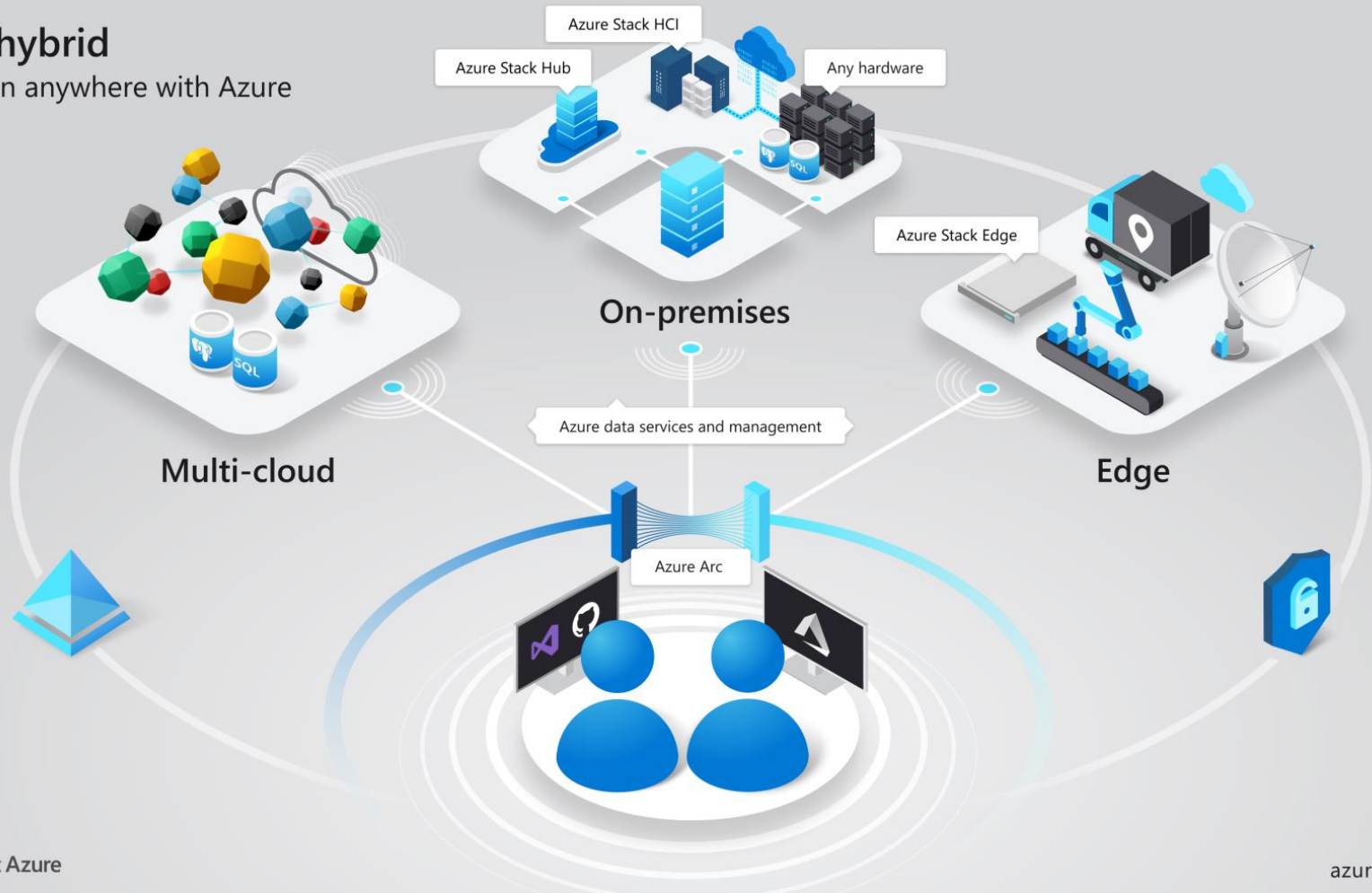
[@SQL\\_aus\\_HH](https://twitter.com/SQL_aus_HH)

# Azure Arc

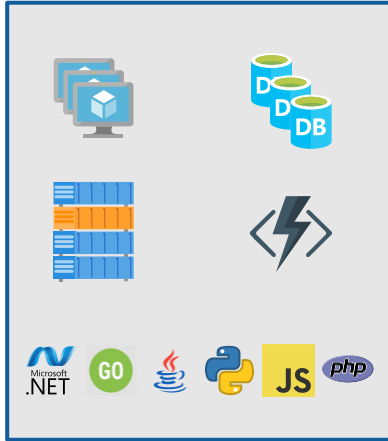


# Azure hybrid

Innovation anywhere with Azure



# Customer environment and requirements



**Single control plane with Azure Arc**

# Azure Arc

## Availability – GA and Preview

General Available

**Azure Arc  
enabled  
Servers**

**Windows and Linux  
Inventory and  
Organization  
Governance and  
Security  
Role-Based  
Operation**

General Available

**Azure Arc  
enabled  
Kubernetes**

**Always Current  
Elastic Scale  
Unified Management  
Support for  
disconnected mode**

General Available

**Azure Arc  
enabled data  
services**

**Azure SQL Managed  
Instance  
Azure PostgreSQL  
Hyperscale**

General Available

**Azure Arc  
enabled SQL  
Server**

**Inventory and  
Organization  
Governance and  
Security**

# Hybrid environment with Azure Arc

or how to benefit on-premise from Azure services



# Bring Azure services to any infrastructure


Azure management and control



The diagram illustrates the scope of Azure management and control. On the left, icons represent on-premises infrastructure: two server racks, a blue house, and a stack of server racks. In the center, logos for Google Cloud and AWS are displayed. On the right, a list of management actions is shown: Organize & Govern, Secure, Protect, Monitor, Automate, and Deploy. Below this list, a statement in orange text reads: 'At any location, at any scale with diverse resources in traditional AND public clouds'.

# Bring Azure services to any infrastructure

Azure management and control



Google Cloud

aws

Azure Portal	Azure Resource Manager	Azure Lighthouse	Azure Backup
Azure Resource Graph	Azure Policy	Azure Cost Management	Azure Recovery Service
Azure Monitor	Powershell	Azure Functions	Azure Templates
Azure Automanage	Azure Update	Azure Blueprints	Azure Templates Specs

---

## SQL in a hybrid environment

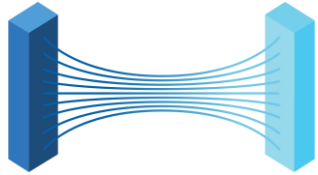
---

Azure Arc  
enabled  
**Data Services**

Azure Arc  
enabled  
**SQL Server**

# Starting with Azure Arc Data Services

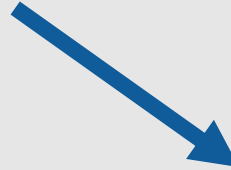
or how to deploy a SQL MI in your own datacenter



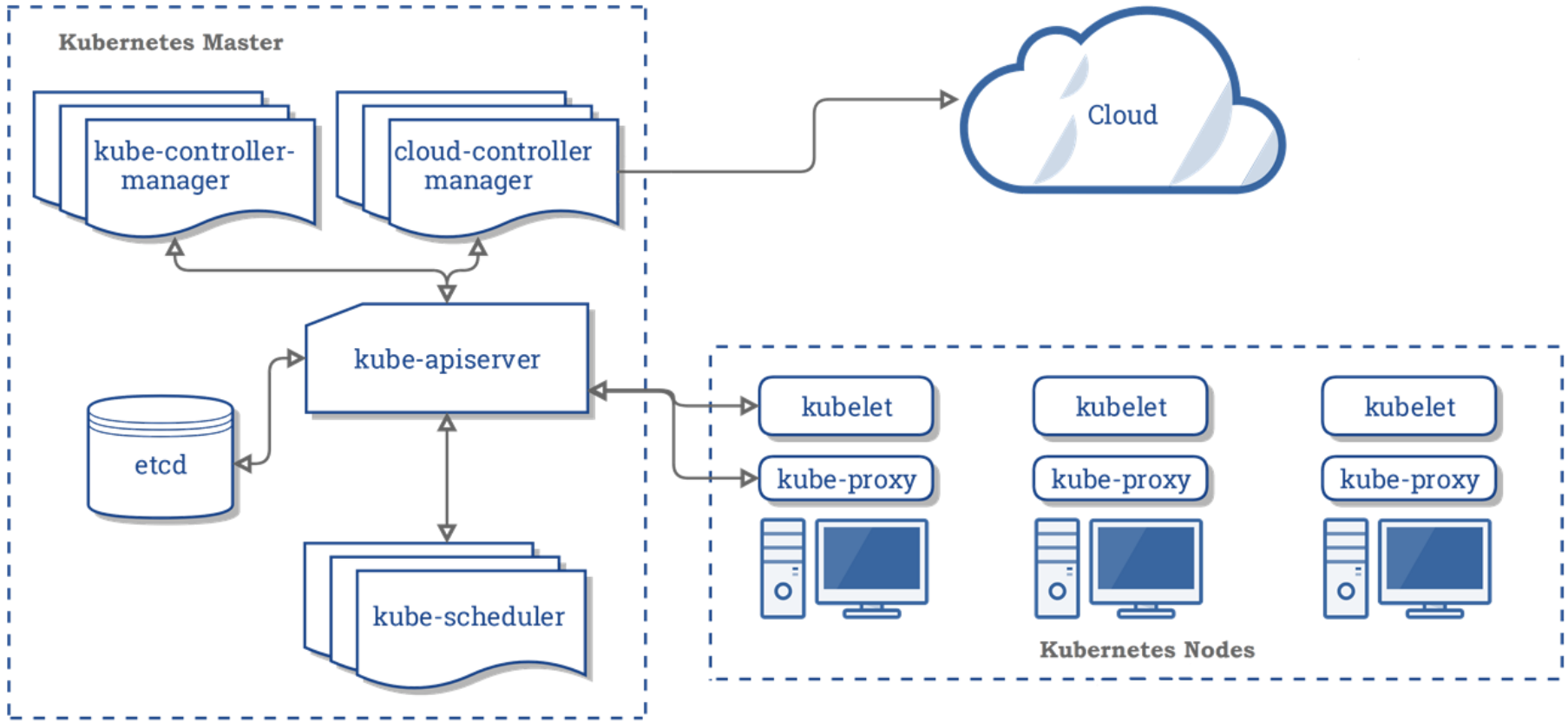
# kubernetes



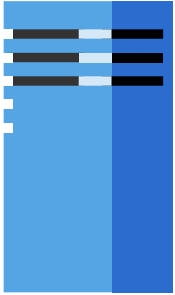
Azure Arc  
Data Controller



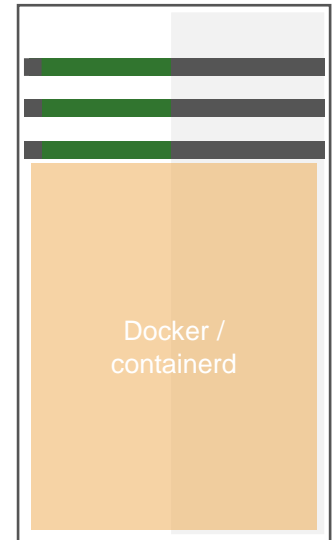
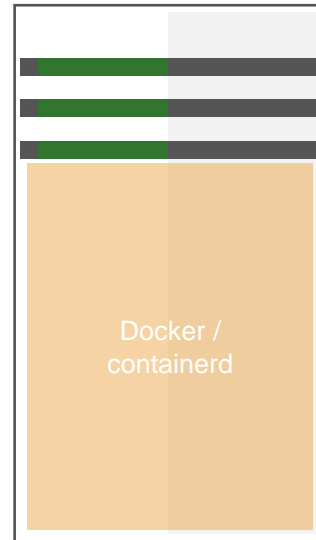
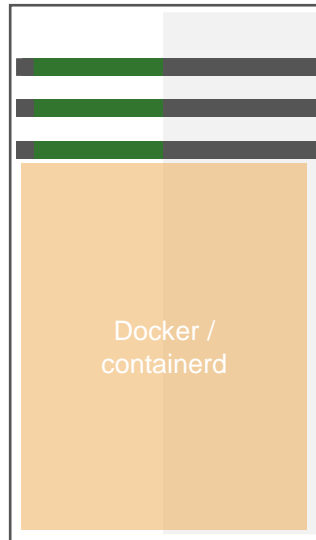
# Overview - Kubernetes



## Master-Server

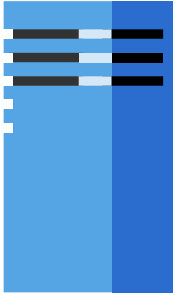


## Worker-Nodes

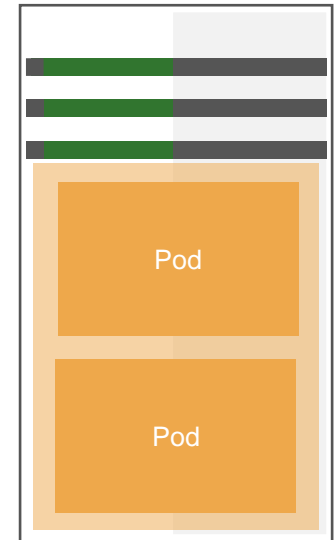
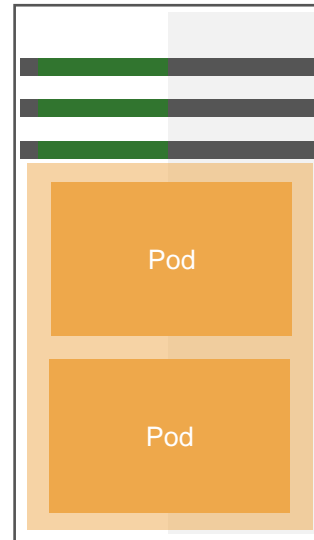
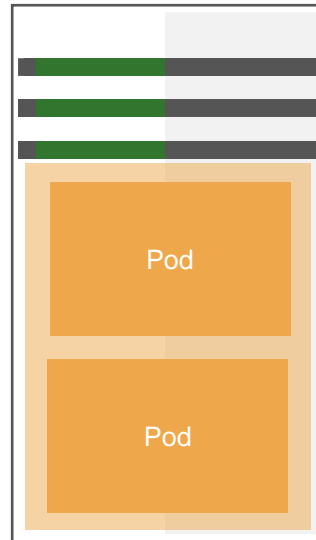




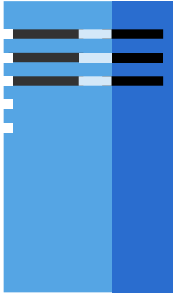
## Master-Server



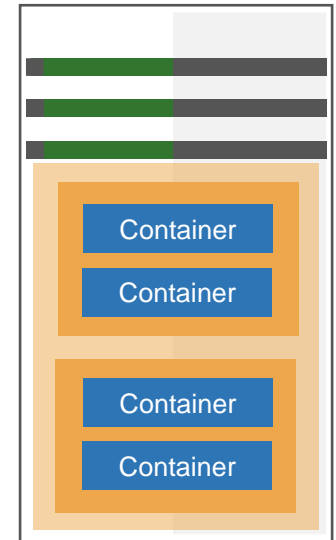
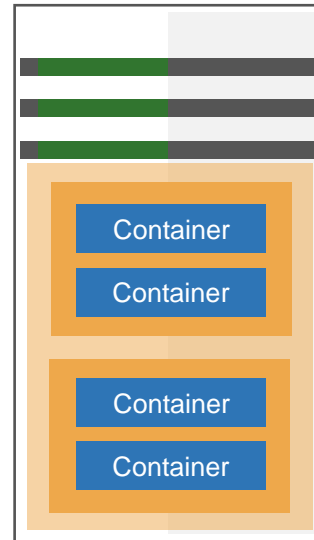
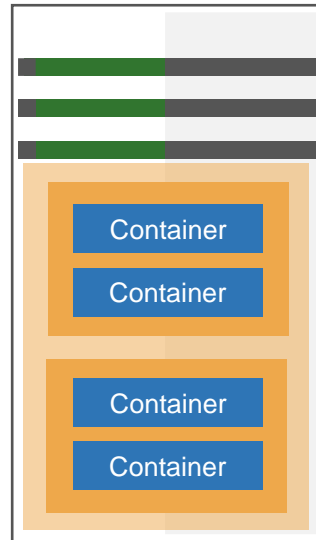
## Worker-Nodes



## Master-Server



## Worker-Nodes



# Overview – Requirements

## Data Controller – Connection Mode

**indirectly**

**directly**

Public Preview

# Installation requirements

Azure CLI (az)

arcdata extension for Azure (az) CLI

Azure Data Studio

Azure Arc extension for Azure Data Studio

PostgreSQL extension in Azure Data Studio

Kubernetes CLI (kubectl)

curl

oc

# Installation requirements – AZ CLI

az login

az ad sp create-for-rbac -n "http://AzureArcData" --role contributor

az group create --name Arc-Data-Demo --location "East US"

```
az deployment group create \  
  --resource-group Arc-Data-Demo \  
  --name arcdata \  
  --template-uri https://raw.githubusercontent.com/microsoft/.../.../azuredeploy.json \  
  --parameters azuredeploy.parameters.json \  
  --parameters templateBaseUrl="https://raw.githubusercontent.com/.../.../arm_template/"
```

# Installation requirements – kubectl

`kubectl create -f https://raw.githubusercontent.com/microsoft/.../custom-resource-definitions.yaml`

`kubectl create namespace arc`

`kubectl create --namespace arc -f https://raw.githubusercontent.com/microsoft/.../bootstrapper.yaml`

Create a credential yaml – username/password

`kubectl create --namespace arc -f .\controller-login-secret.yaml`

Create a webhook yaml

`kubectl create -n arc -f .\web-hook.yaml`

Create a datacontroller yaml

`kubectl create --namespace arc -f .\data-controller.yaml`

Let me  
show you





**redgate**



**Microsoft**



**dbWatch**



# Björn Peters

[www.sql-aus-hamburg.de](http://www.sql-aus-hamburg.de)  
[info@sql-aus-hamburg.de](mailto:info@sql-aus-hamburg.de)

[@SQL\\_aus\\_HH](#)