

# Operating AKS Clusters

---



**Ben Weissman**

Data Passionist

@bweissman   [www.solisyon.de](http://www.solisyon.de)



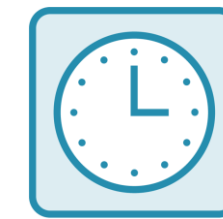
# Overview



**Automatic Scaling**  
**Upgrading an AKS Cluster**  
**Deleting an AKS Cluster**



# Automatic Scaling



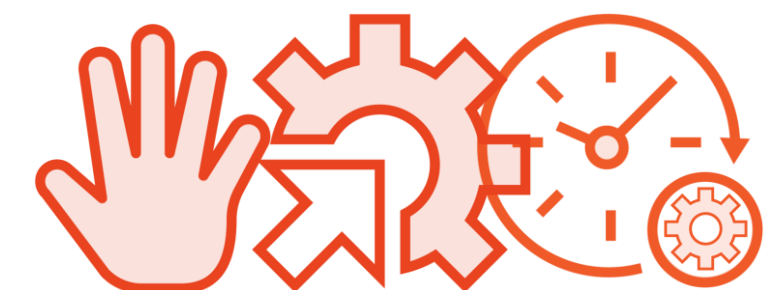
Work  
Hours



Scheduled  
Events



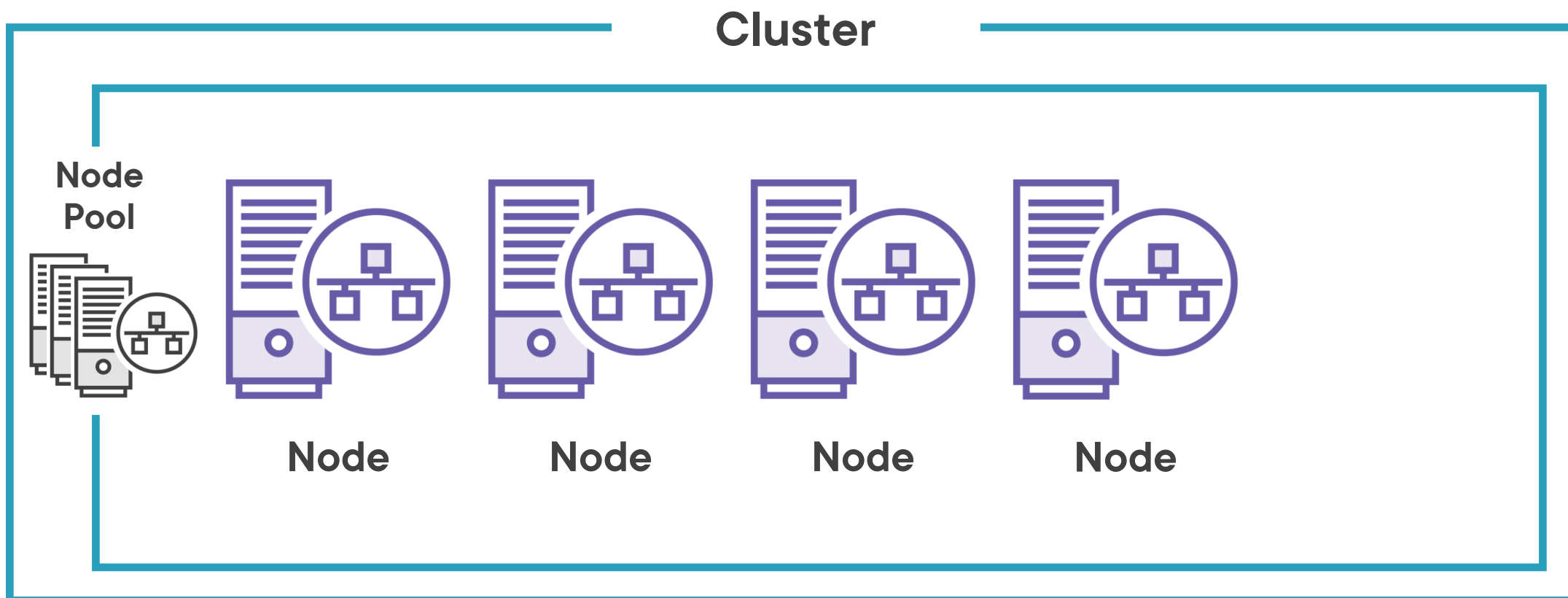
Unforeseeable  
Effects



Manual Automation Scheduled



# Automatic Scaling: Cluster Autoscaler



## Autoscaler Profile



10 Sec Check



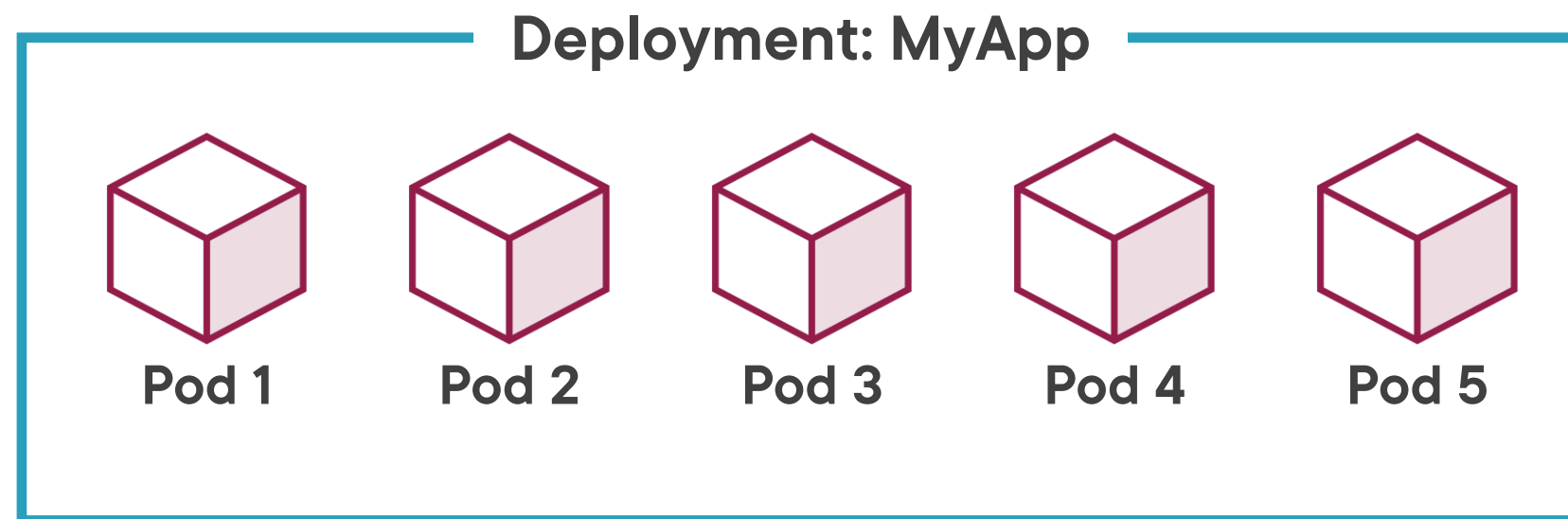
10 Min Wait

```
az aks update \  
  --resource-group myResourceGroup \  
  --name myAKSCluster \  
  --enable-cluster-autoscaler \  
  --min-count 2 \  
  --max-count 5
```

<https://docs.microsoft.com/en-us/azure/aks/cluster-autoscaler>



# Automatic Scaling: Horizontal Pod Autoscaler



## AVG CPU Usage



resources:

requests:  
cpu: 250m  
limits:  
cpu: 500m

## Imperative

```
kubectl autoscale deployment MyApp \  
--cpu-percent=50 --min=2 --max=5
```

## Declarative

```
apiVersion: autoscaling/v1  
kind: HorizontalPodAutoscaler  
metadata:  
  name: myapp-hpa  
spec:  
  maxReplicas: 5  
  minReplicas: 2  
  scaleTargetRef:  
    apiVersion: apps/v1  
    kind: Deployment  
    name: MyApp  
  targetCPUUtilizationPercentage: 50
```

# Demo



**Configure Cluster Autoscaler**

**Configure Horizontal Pod Scaling**



# Upgrade an AKS Cluster

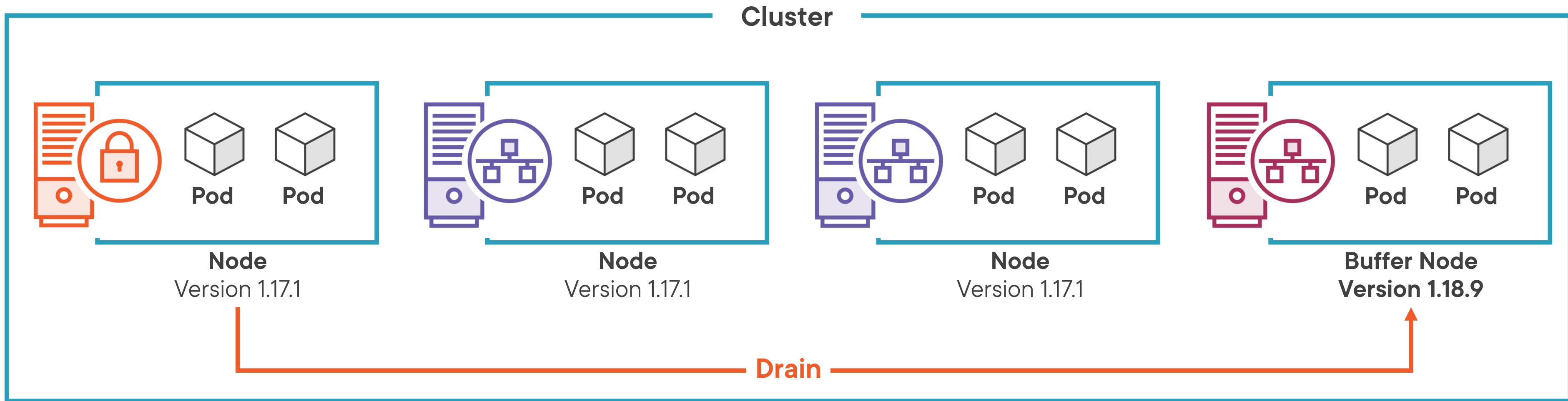
**Cluster**



Number of buffer nodes depends on MAX SURGE



# Upgrade an AKS Cluster



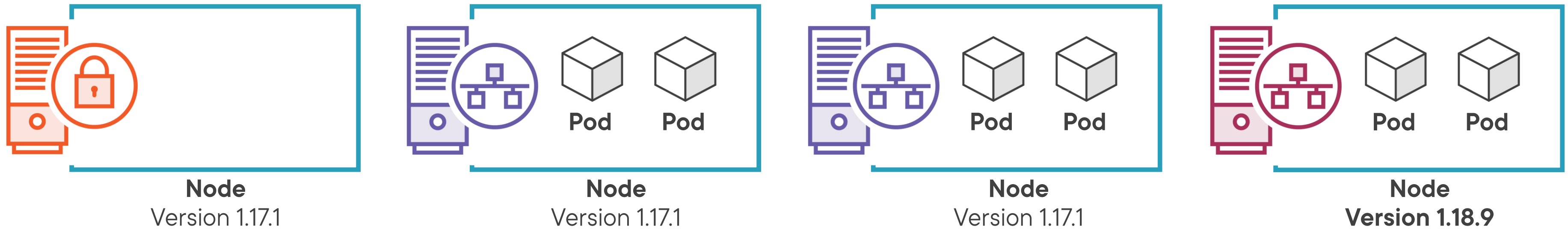
Number of buffer nodes depends on MAX SURGE





# Upgrade an AKS Cluster

## Cluster

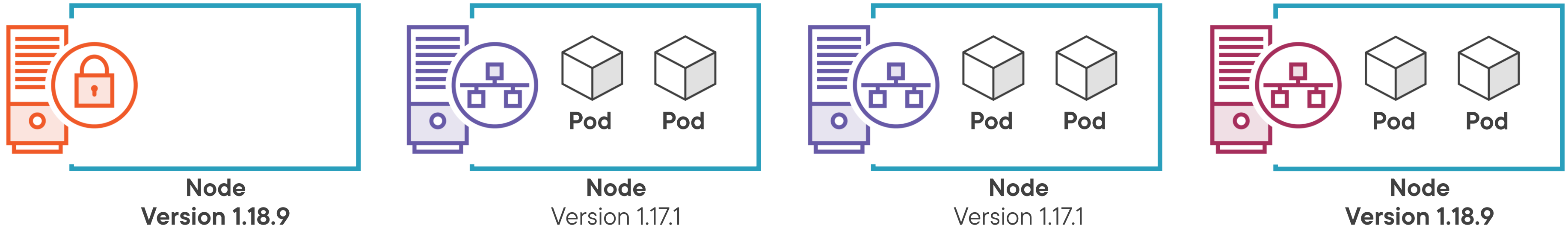


Number of buffer nodes depends on MAX SURGE



# Upgrade an AKS Cluster

## Cluster

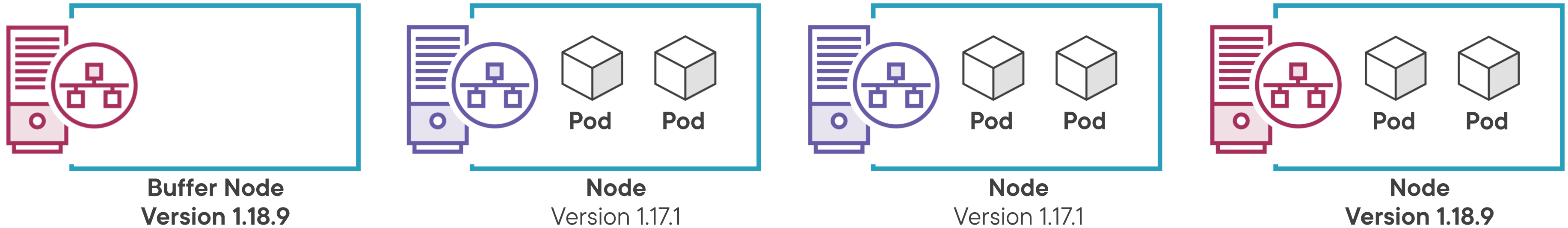


Number of buffer nodes depends on MAX SURGE



# Upgrade an AKS Cluster

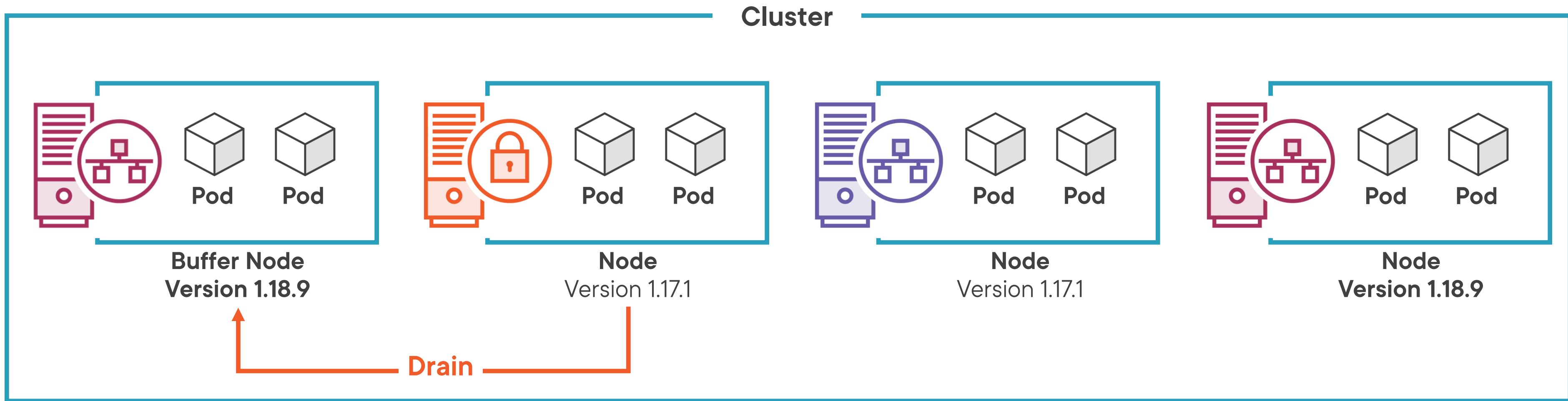
## Cluster



Number of buffer nodes depends on MAX SURGE



# Upgrade an AKS Cluster



Number of buffer nodes depends on MAX SURGE



# Upgrade an AKS Cluster

## Cluster



Number of buffer nodes depends on MAX SURGE



# Upgrade an AKS Cluster

## Cluster



Number of buffer nodes depends on MAX SURGE



# Upgrade an AKS Cluster

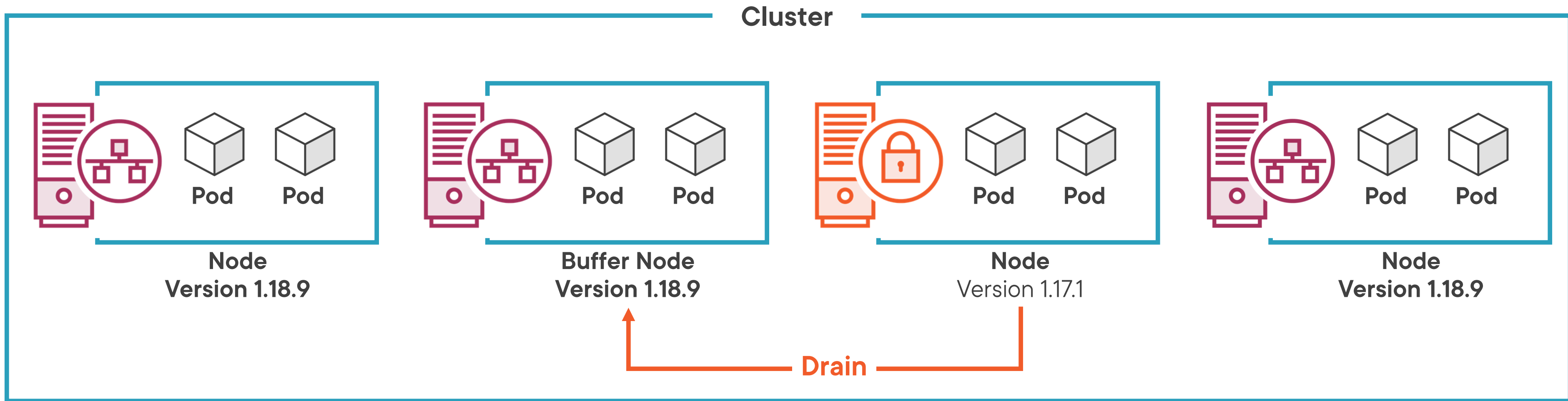
## Cluster



Number of buffer nodes depends on MAX SURGE



# Upgrade an AKS Cluster



Number of buffer nodes depends on MAX SURGE





# Upgrade an AKS Cluster

## Cluster



Number of buffer nodes depends on MAX SURGE



# Upgrade an AKS Cluster

## Cluster

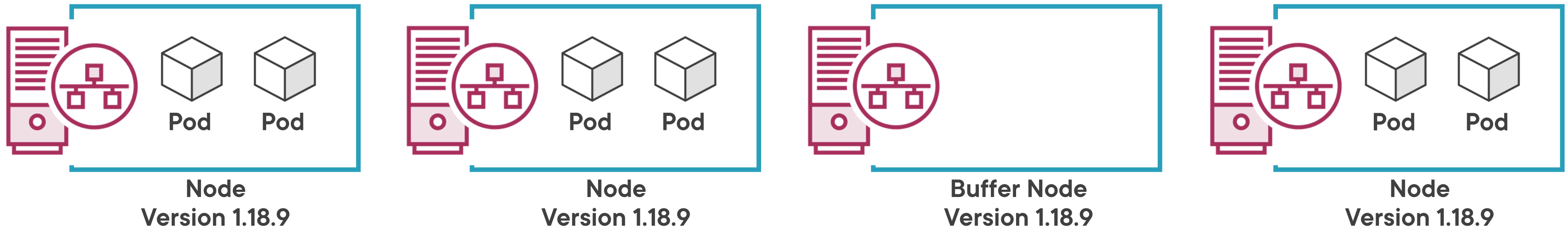


Number of buffer nodes depends on MAX SURGE



# Upgrade an AKS Cluster

## Cluster

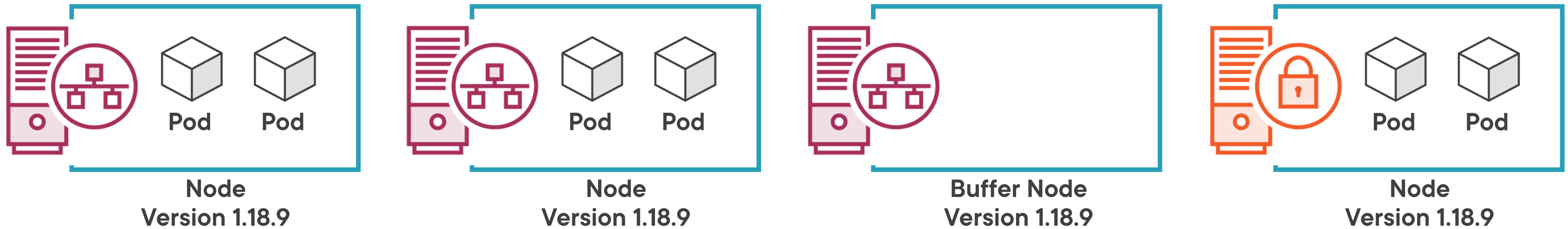


Number of buffer nodes depends on MAX SURGE



# Upgrade an AKS Cluster

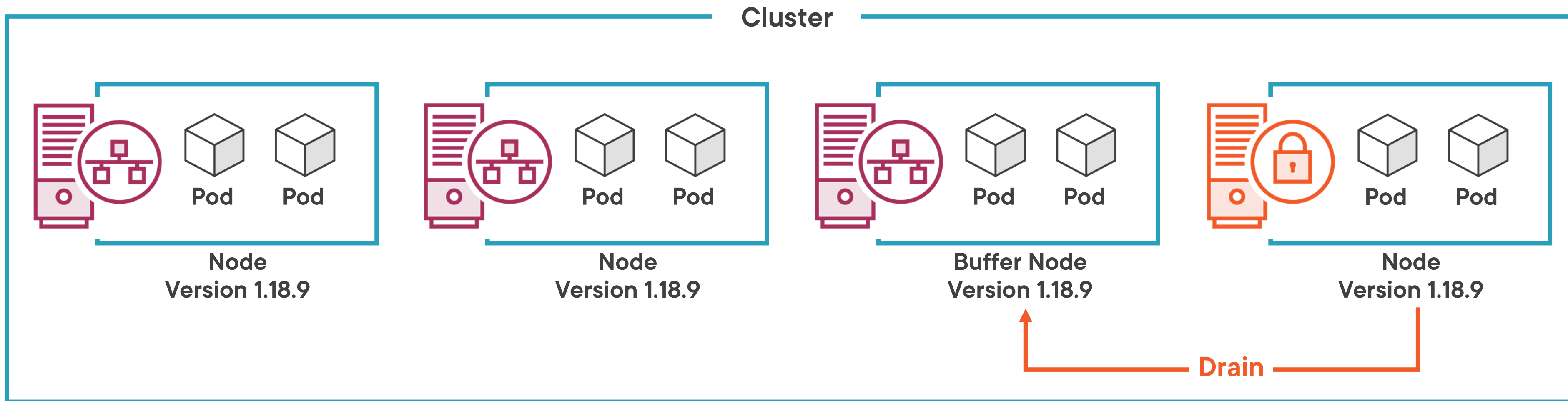
## Cluster



Number of buffer nodes depends on MAX SURGE



# Upgrade an AKS Cluster

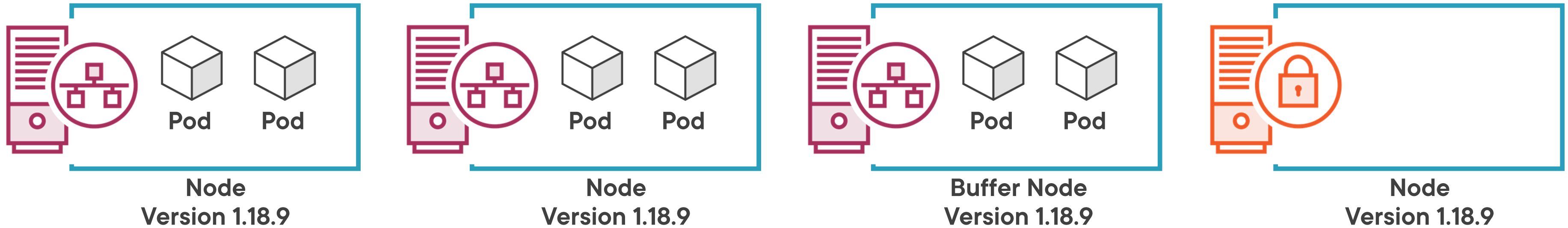


Number of buffer nodes depends on MAX SURGE



# Upgrade an AKS Cluster

## Cluster



Number of buffer nodes depends on MAX SURGE



# Upgrade Paths for AKS Clusters



**AKS Cluster**  
Version 1.17.1

## Available Versions

Version 1.17.9



Version 1.18.4



Version 1.18.6



Version 1.19.1



# Upgrade Paths for AKS Clusters

## Exception!



**AKS Cluster**  
Version 1.15.1

## Available Versions

Version 1.16.x (unsupported)



Version 1.17.9



Version 1.18.4



Version 1.18.6



Version 1.19.1

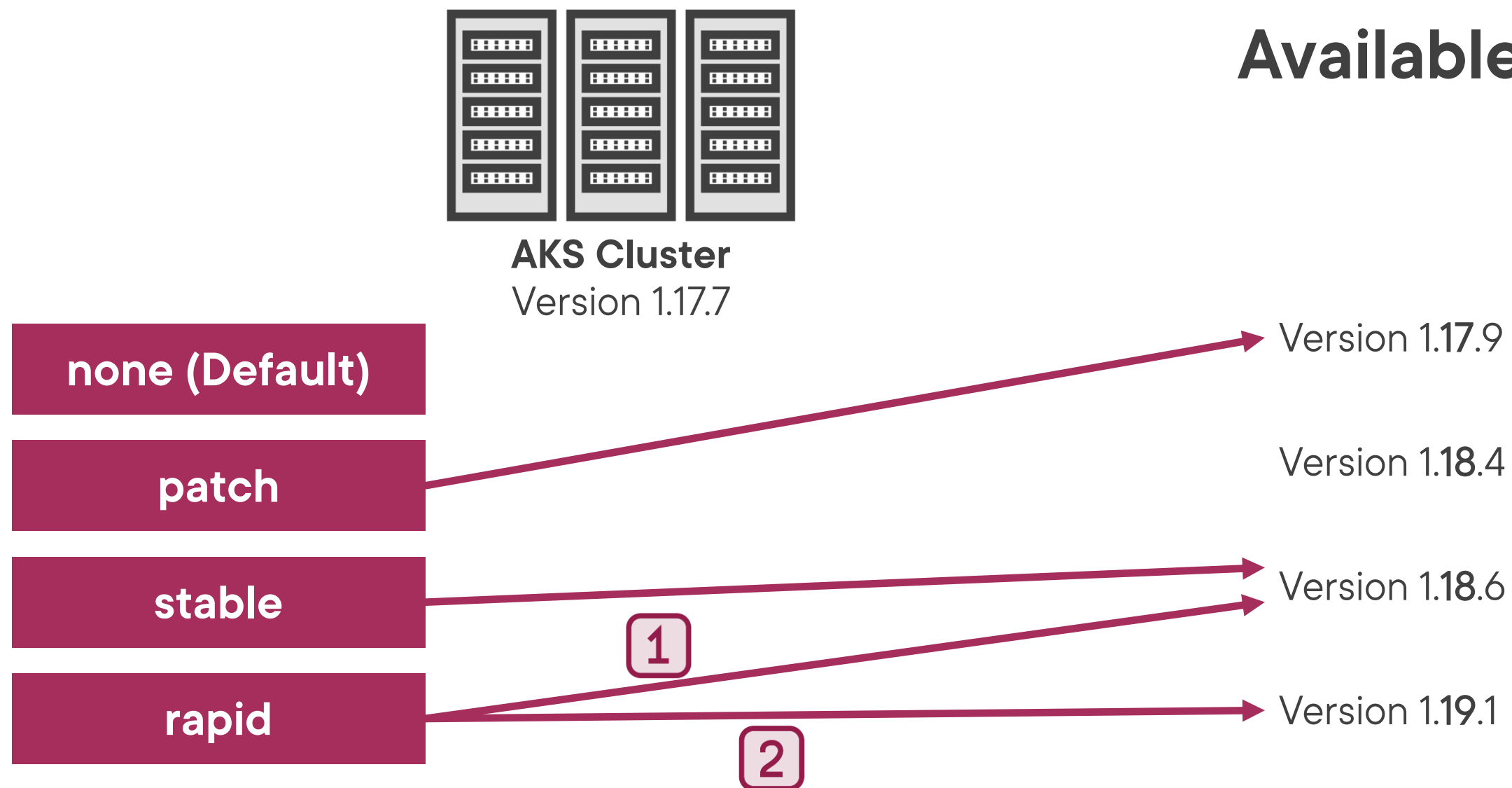


Minor versions can be skipped when upgrading back to a supported version





# Automatic Upgrades for AKS Clusters



Automatic upgrades will only roll out Kubernetes versions that are GA



# Demo

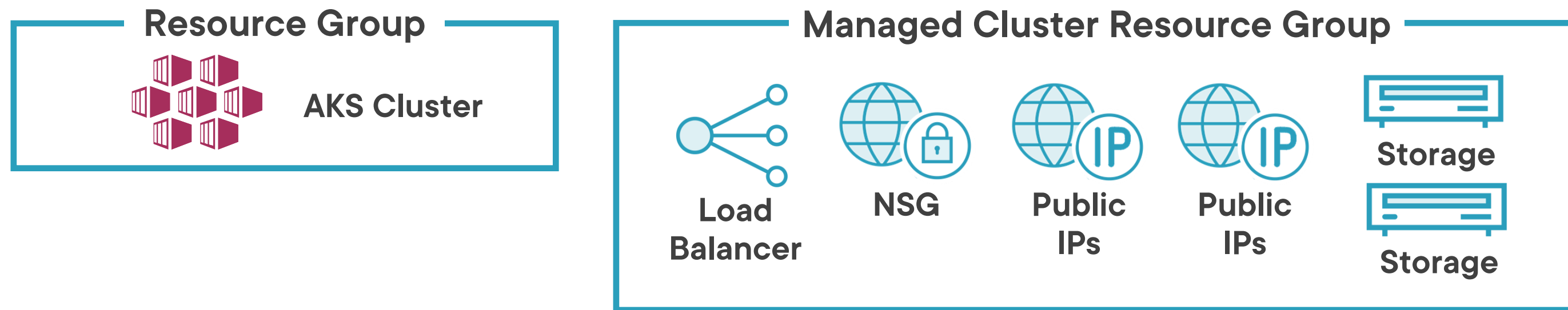


**Manually Upgrade Through Azure CLI**

**Configure Auto Upgrade Through Azure CLI**



# Deleting an AKS Cluster



Delete AKS Resource Group or AKS Cluster

Do NOT delete the MC Resource Group



# Demo



**Stopping an AKS Cluster**

**Deleting an AKS Cluster**



# Summary



**Support for Automatic Scaling of Pods and Nodes**

**Minor Versions Can't Be Skipped for Upgrades**

**Upgrades Can Be Automated**

**When Deleting a Cluster, Don't Delete the MC Resource Group**

