# Note 1

| Service | Application composition | Density | Minimum number of nodes | State management | Web hosting |
|---|---|---|---|---|---|
| Azure Virtual Machines | Agnostic | Agnostic | 1 2 | Stateless or stateful | Agnosti |
| Azure App Service | Applications, containers | Multiple apps per instance by using App Service plan | 1 | Stateless | Built i |
| Azure Functions | Functions, containers | Serverless 1 | Serverless 1 | Stateless or stateful 6 | Not applica |
| Azure Kubernetes Service | Containers | Multiple containers per node | 3 3 | Stateless or stateful | Agnosti |
| Azure Container Apps | Containers | Serverless | Serverless | Stateless or stateful | Agnosti |
| Azure Container Instances | Containers | No dedicated instances | No dedicated nodes | Stateless | Agnosti |
| Azure Red Hat OpenShift | Containers | Multiple containers per node | 6 5 | Stateless or stateful | Agnosti |
| Azure Spring Apps | Applications, microservices | Multiple apps per service instance | 2 | Stateless | Built i |
| Azure Service Fabric | Services, guest executables, containers | Multiple services per VM | 5 3 | Stateless or stateful | Agnosti |
| Azure Batch | Scheduled jobs | Multiple apps per VM | 1 4 | Stateless | No |

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Virtual Machines (VMs) can be configured to be either stateless or stateful based on how they handle and store data. Here's an explanation of both:

1. Stateless VMs:
    - Stateless VMs are designed in such a way that they do not retain any critical data or state information on the local VM itself.
    - They rely on external data sources or services for all the information they need.
    - Stateless VMs are often used in scenarios where high availability and scalability are essential.
    - When a stateless VM fails or needs to be replaced, it can be easily replaced with a new instance since there is no critical local state to preserve.
    - Stateless VMs are typically used for web servers, load balancers, and other applications that can distribute workloads evenly across multiple instances.

2. Stateful VMs:

- Stateful VMs, on the other hand, retain critical data or state information locally on the VM.
- They may store information such as session data, databases, and cached data directly on the VM's local storage.
- Stateful VMs are used in scenarios where data consistency and persistence are important. This is often the case with databases and applications that require access to locally stored data.
- When a stateful VM fails, recovering the state and data can be more complex, and typically, additional measures like replication or backups are used to ensure data resilience.

The choice between stateless and stateful VMs depends on the specific requirements of the application or workload:

- Stateless VMs are well-suited for applications where data can be easily replicated and distributed, and the focus is on load balancing and redundancy.
- Stateful VMs are used when the application relies on locally stored data, and maintaining data consistency and resilience is a priority.