

VMWare Launch - Working with Cloud

Application Options - Hosting



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Class Roadmap

More Application
Options Than
Ever Before





What Do We Mean by Hosting?

- The target infrastructure and runtime platform that will be employed for deployment and execution of an application or system
- Can include compute (CPU and server resources), storage, network, data and operating system



Application Hosting – An “Interesting” Example?



Here's an example of someone thinking “outside-of-the-box” when it comes to application hosting!

<https://mashable.com/article/pregnancy-test-doom/>



What Are the Hosting Options with Cloud?

- IaaS
- PaaS
- Serverless / FaaS
- SaaS
- Containers

What do they all mean?



- Involves the building out (and management) of virtual instances of:
 - Compute
 - Network
 - Storage
- Akin to spinning up a server (physical or virtual) in your location or data center complete with disks and required network connectivity
- The difference is in the where – instead of in your data center, it is created in a data center managed by one of the public Cloud providers
- Your organization is responsible for patching the OS, ensuring all appropriate security updates are applied and that the right controls are in place to govern interaction between this set of components and other infrastructure



- Involves leveraging managed services from a public Cloud provider
- With this model, an enterprise can focus on management of their application and data vs. focusing on management of the underlying infrastructure
- Patching and security of the infrastructure used to back the managed services falls to the CSP (Cloud Service Provider)
- Many managed services support automatic scale up or down depending on demand to help ensure sufficient capacity is in place
- Part of what is often termed the “Shared Responsibility Model”



Serverless / Functions-as-a-Service (FaaS)

- Also represents a type of managed service provided by the CSP
- Cost structure is usually consumption-based (i.e. you only pay for what you use)
- Supports many different coding paradigms (C#/.NET, NodeJS, Python, etc.)
- Typically with Serverless (and PaaS), the consumer is only concerned with the application code and data – elements of the CSP's “backbone” used to support are managed by the CSP
- Includes more sophisticated automated scaling capabilities – built for Internet scale

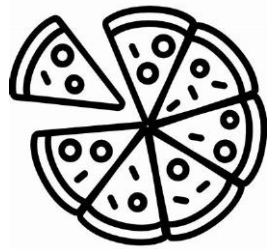


Software-as-a-Service (SaaS)

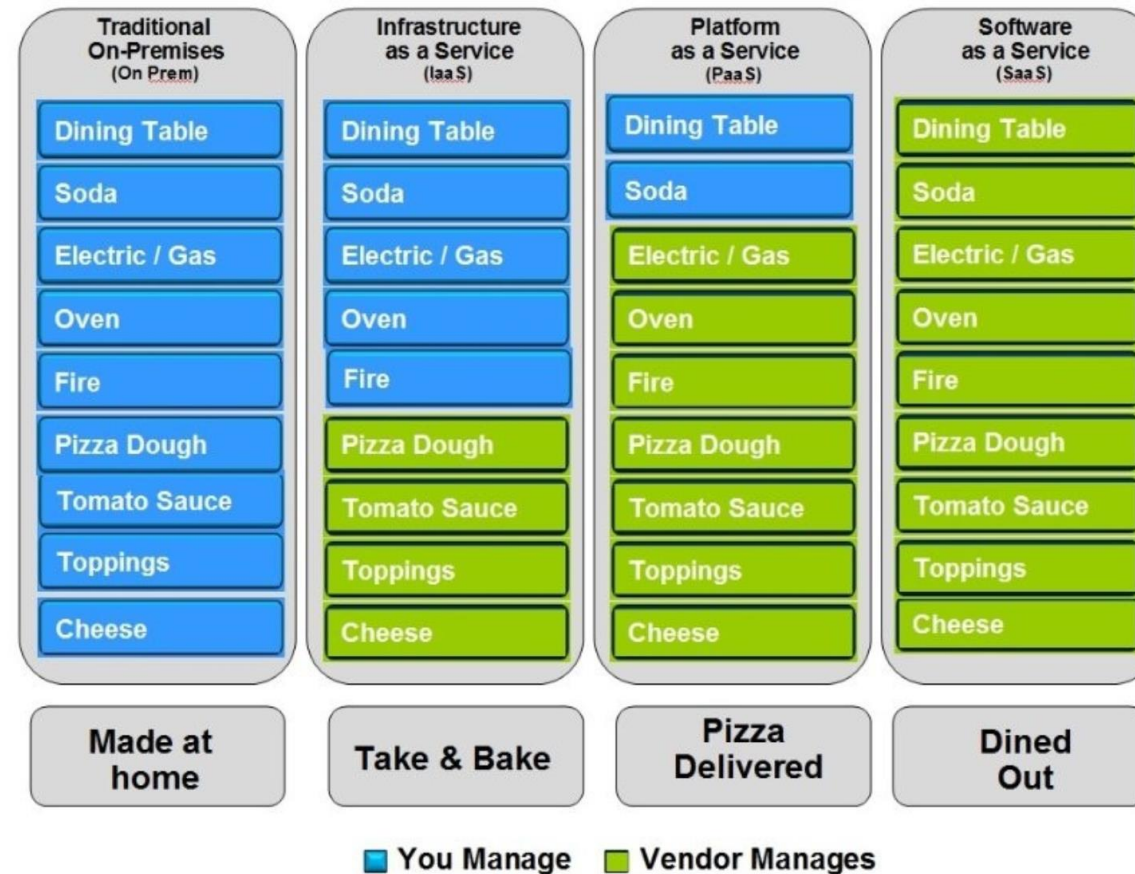
- Subscription-based application services
- Licensed for utilization over the Internet / online rather than for download and install on a server or client machine
- Fully-hosted and fully-managed by a 3rd party
- Of those discussed, often the cheapest option for service consumers
- However, also offers minimal (or no) control, outside of exposed configuration capabilities



From a LinkedIn post by Albert Barron from IBM (<https://www.linkedin.com/pulse/20140730172610-9679881-pizza-as-a-service/>)

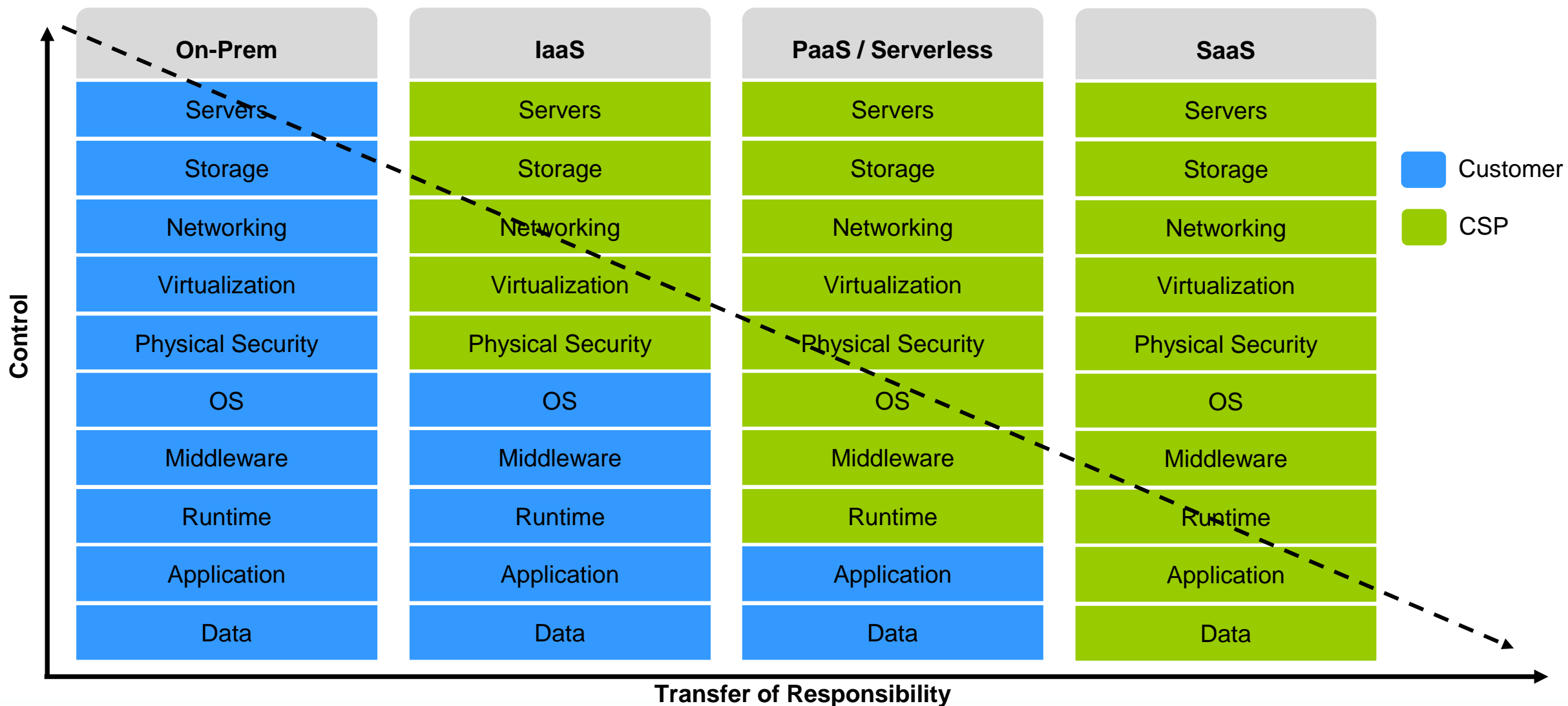


Pizza as a Service





Side-by-Side Comparison





- Form of virtualization at the app packaging level (like virtual machines at the server level)
- Isolated from one another at the OS process layer (vs VM's which are isolated at the hardware abstraction layer)
- Images represent the packaging up of an application and its dependencies as a complete, deployable unit of execution (code, runtime and configuration)



- A platform (e.g. Docker) running on a system can be used to dynamically create containers (executable instances of the app) from the defined image
- Typically much, much smaller than a VM which makes them lightweight, quickly deployable and quick to “boot up”
- An orchestration engine (e.g. Kubernetes) might be used to coordinate multiple instances of the same container (or a “pod” of containers) to enable the servicing of more concurrent requests (scalability)

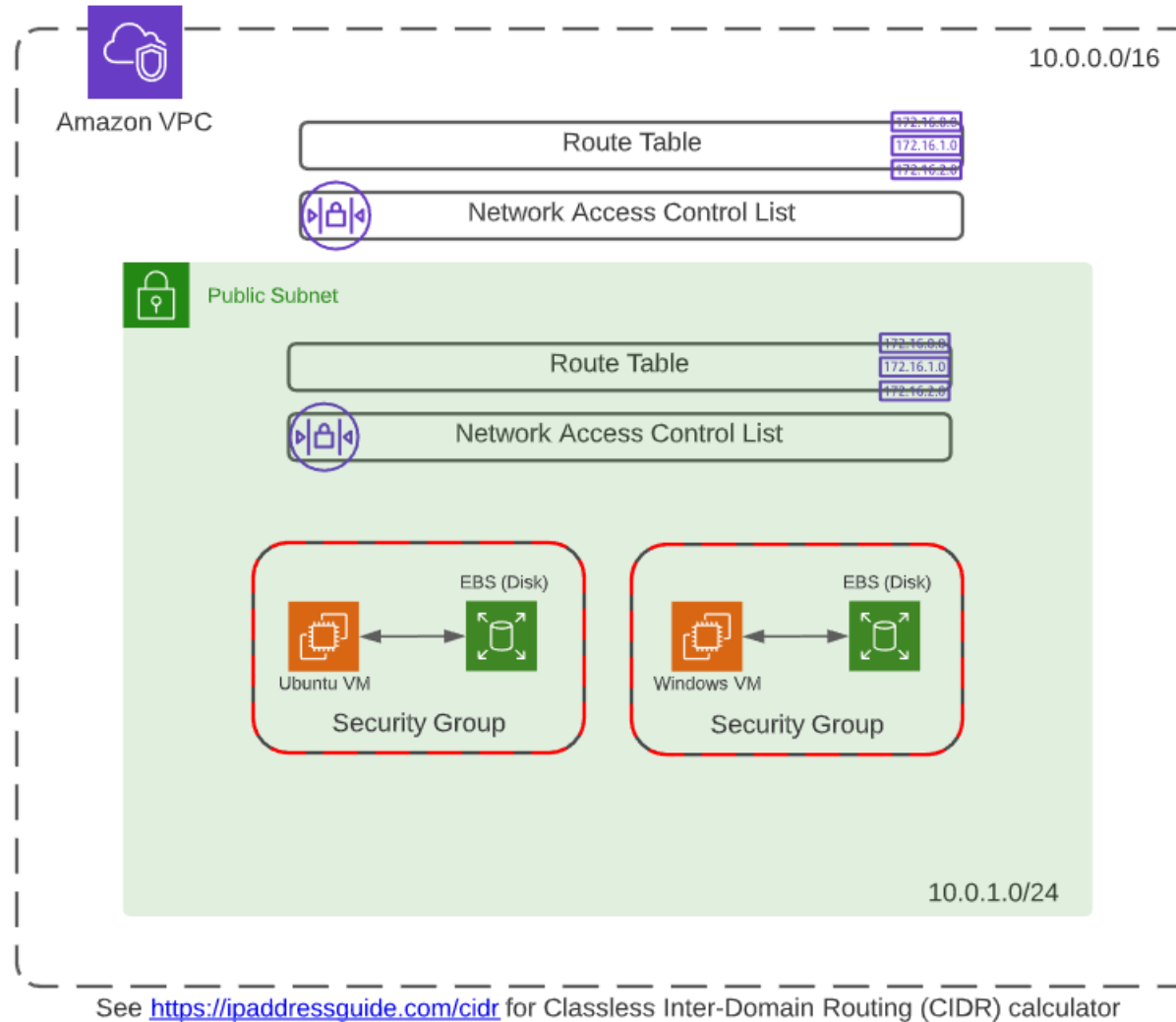


Which One is Better?

- The answer is “it depends”
- It depends on the type of application
- It depends on the enterprise
- It depends on the skillset and expertise within the organization
- It depends on whether you have budget and opportunity to modernize an application environment (in some cases)
- The best option might be a combination of multiple approaches – right tool for the right job



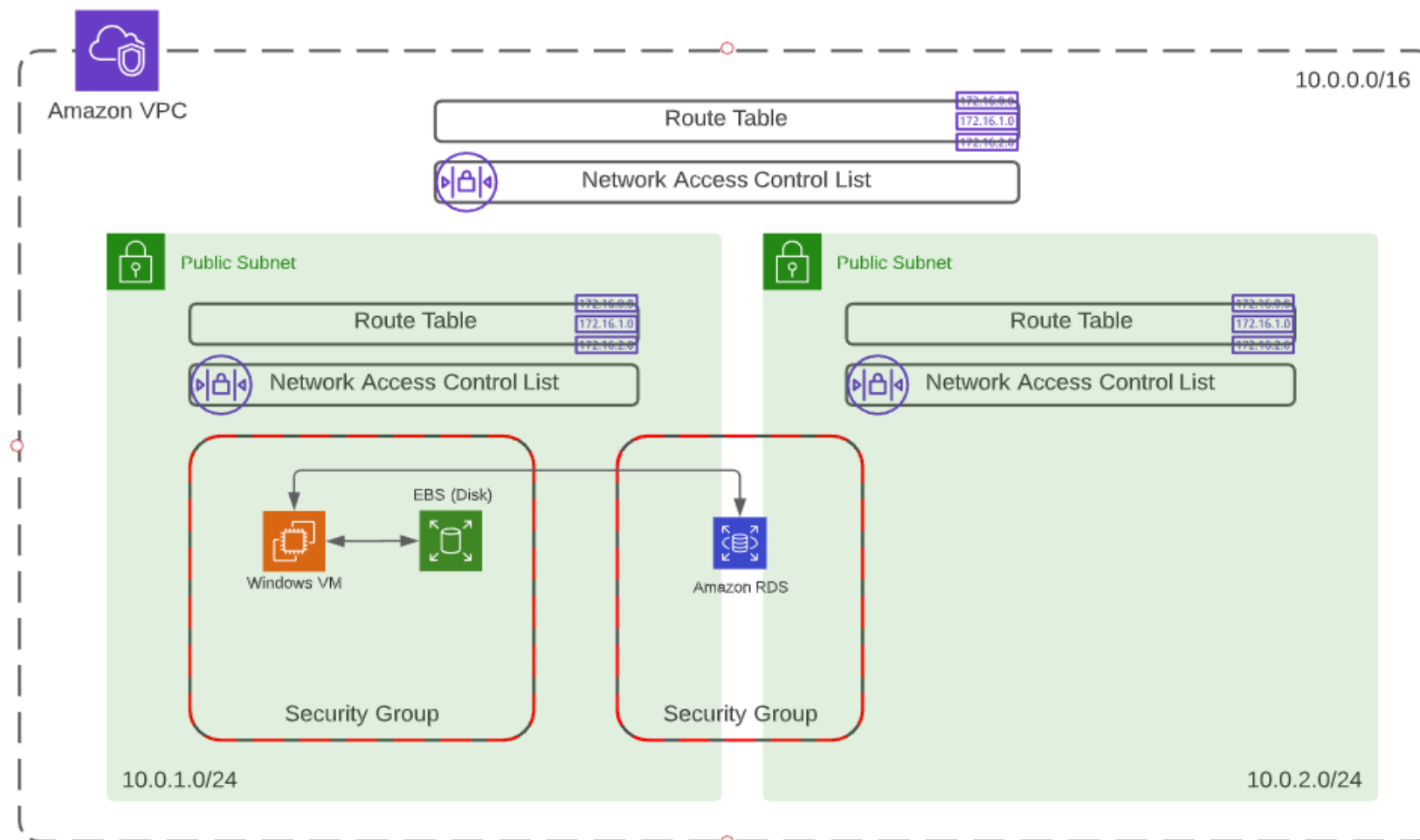
Demo





PaaS – Create an RDS Instance in AWS

Demo



See <https://ipaddressguide.com/cidr> for Classless Inter-Domain Routing (CIDR) calculator



Demo



Demo



Break (10 min.)

THANK YOU



