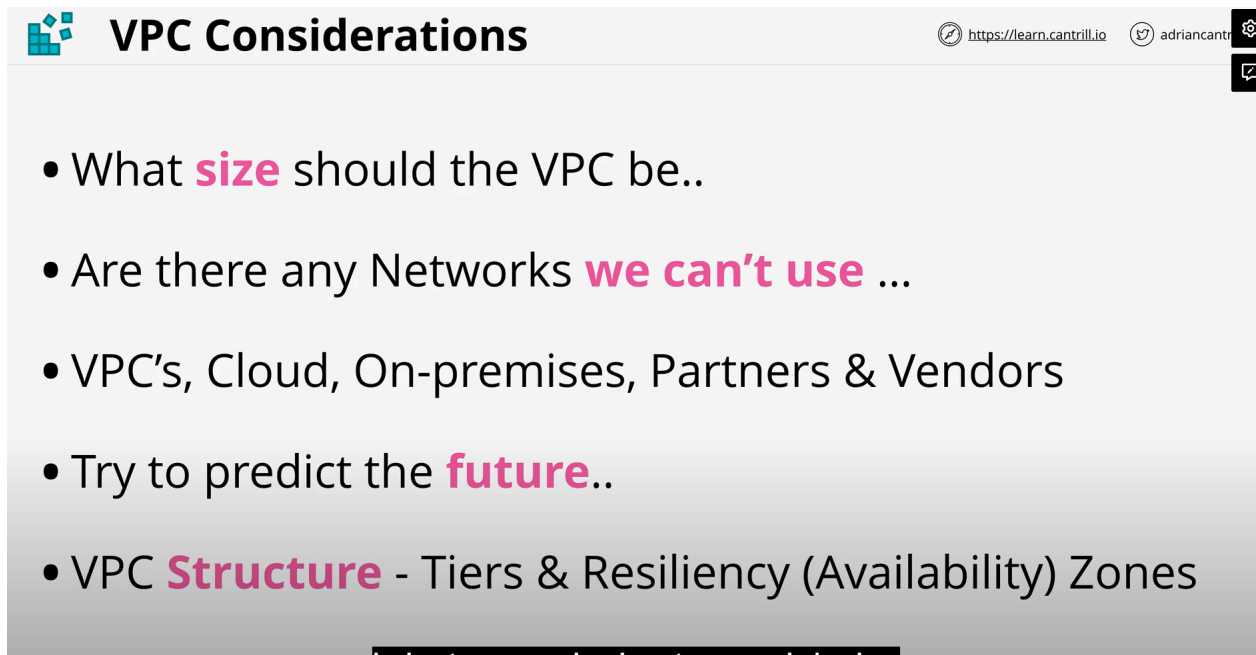


7. VPC

🕒 Created	@September 5, 2022 1:16 PM
▼ Class	
▼ Type	
🔗 Materials	
☑ Reviewed	<input type="checkbox"/>
☰ Property	
📅 Date	

VPC:



The slide is titled "VPC Considerations" and features a list of five bullet points. The text is primarily black, with key terms highlighted in pink. The slide has a light gray background with a subtle gradient. In the top right corner, there are social media links for "https://learn.cantrill.io" and "adriancantrill".

- What **size** should the VPC be..
- Are there any Networks **we can't use** ...
- VPC's, Cloud, On-premises, Partners & Vendors
- Try to predict the **future**..
- VPC **Structure** - Tiers & Resiliency (Availability) Zones

- **192.168.10.0/24** (192.168.10.0 -> 192.168.10.255)
- **10.0.0.0/16** (**AWS**) (10.0.0.0 -> 10.0.255.255)
- **172.31.0.0/16** (**Azure**) (172.31.0.0 -> 172.31.255.255)
- **192.168.15.0/24** (**London**) (192.168.15.0 -> 192.168.15.255)
- **192.168.20.0/24** (**New York**) (192.168.20.0 -> 192.168.20.255)
- **192.168.25.0/24** (**Seattle**) (192.168.25.0 -> 192.168.25.255)
- **Google 10.128.0.0/9** (10.128.0.0 -> 10.255.255.255)

is 10.128.0.0/9



More considerations

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- VPC minimum **/28** (16 IP), maximum **/16** (65536 IPs)
- Personal preference for the **10.x.y.z** range
- **Avoid common ranges** - avoid future issues
- Reserve 2+ networks per region being used per account
- 3 US, Europe, Australia (5) x2 - Assume 4 Accounts
- Total 40 ranges (ideally)

we're going to use the 10 range.

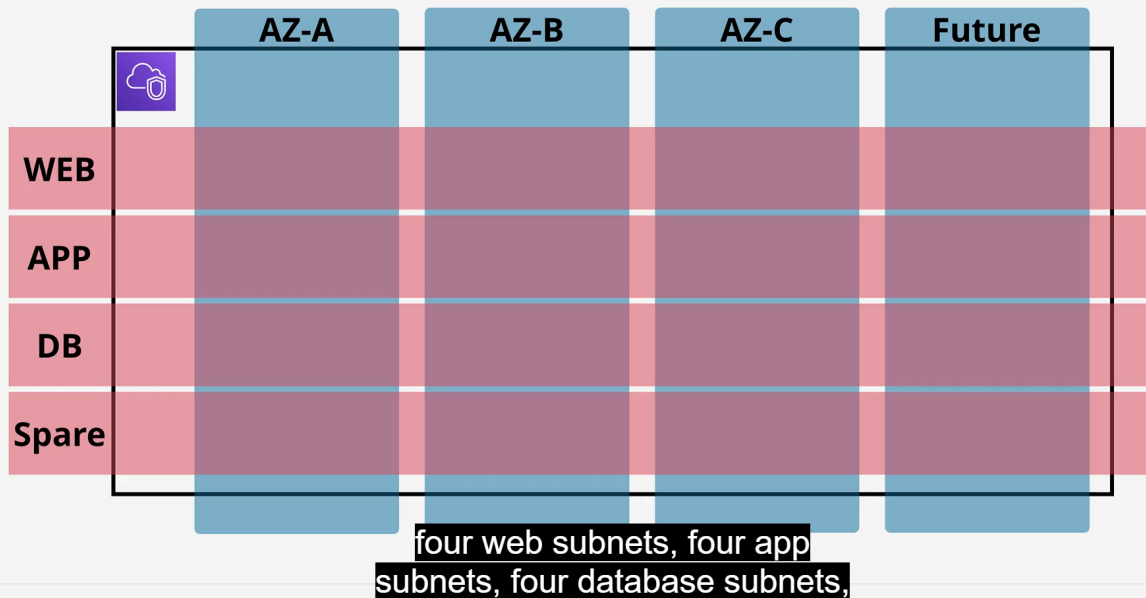
Best range is 10.16.0.0/16



VPC Structure

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Consider every region has 3 AZ and one spare so take 4 ac and consider 4 aws accounts per az so

4x4=16 total subnets to consider per region



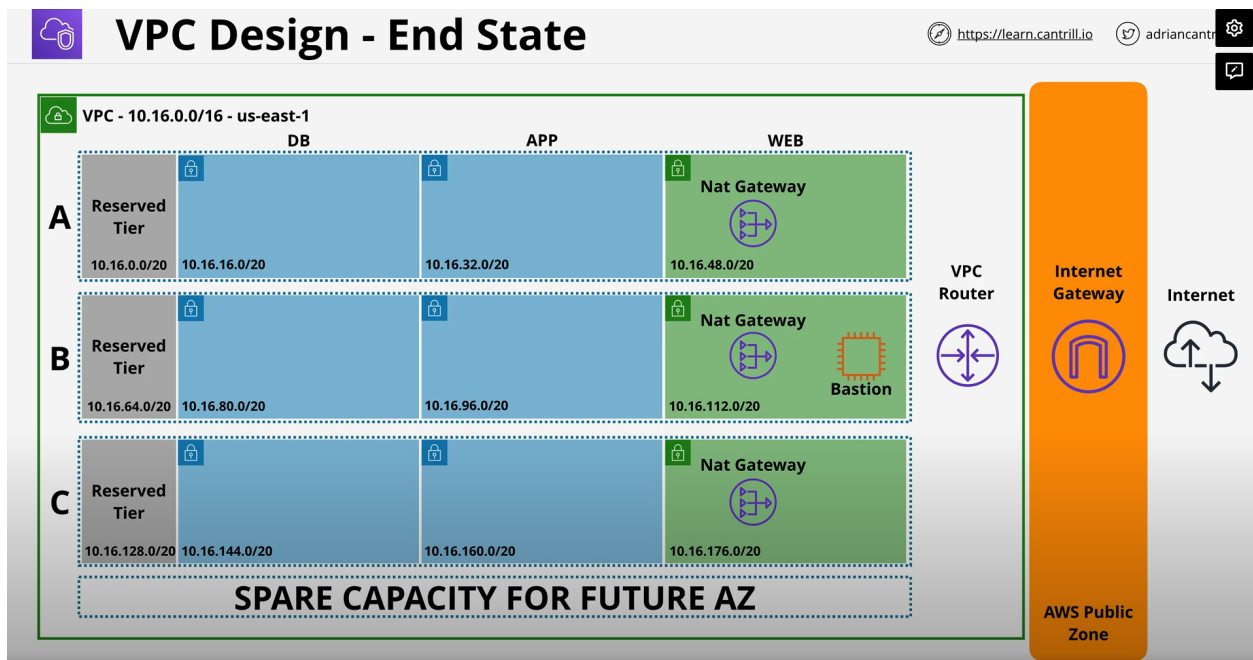
Proposal

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- Animals4life could become a **huge** global entity
- Use the **10.16 -> 10.127** range (avoiding google)
- Start at 10.16 (US1), 10.32 (US2), 10.48 (US3), 10.64 (EU), 10.80 (Australia) - each AWS account has 1/4th

VPC setup:



Custom VPCs

- Regional Service - All AZs in the region
- Isolated network
- Nothing **IN** or **OUT** without explicit configuration
- Flexible configuration - simple or multi-tier
- Hybrid Networking - other cloud & on-premises
- **Default** or **Dedicated Tenancy!**



DNS in a VPC

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- Provided by R53
- VPC `Base IP +2` Address
- **enableDnsHostnames** - gives instances DNS Names
- **enableDnsSupport** - enables DNS resolution in VPC

DEMO for VPC:

One subnet cannot be used in other AZ



VPC Subnets

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- **AZ Resilient**
- A subnetwork of a VPC - **within a particular AZ**
- 1 Subnet => 1 AZ, 1 AZ => 0+ Subnets
- IPv4 CIDR is a subset of the VPC CIDR
- Cannot overlap with other subnets
- Optional IPv6 CIDR (/64 subset of the /56 VPC - space for 256)
- Subnets can communicate with other subnets in the VPC



Subnet IP Addressing

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- Reserved IP addresses (5 in total)
- 10.16.16.0/20 (10.16.16.0 => 10.16.31.255)
- **Network** Address (10.16.16.0)
- **'Network +1'** (10.16.16.1) - VPC Router
- **'Network +2'** (10.16.16.2) - Reserved (DNS*)
- **'Network +3'** (10.16.16.3) - Reserved Future Use
- **Broadcast** Address 10.16.31.255 (Last IP in subnet)