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AWS Certified Advanced Networking – Specialty (ANS-C01) is one of AWS's toughest specialty certifications. It focuses entirely on **networking design, implementation, and troubleshooting** in AWS and hybrid environments.

Here's a **detailed breakdown** of the exam, domains, skills measured, and key AWS services you'll need to master.

🌐 AWS Certified Advanced Networking – Specialty (ANS-C01) — Detailed Overview

📜 Exam Details

Aspect	Details
Exam Code	ANS-C01
Level	Specialty
Format	Multiple-choice & multiple-response
Duration	170 minutes
Cost	$300 USD
Passing Score	750 / 1000
Recommended Experience	5+ years of networking experience + 2+ years designing & implementing AWS network solutions
Delivery	Pearson VUE / PSI (testing center or online proctored)

📚 Exam Domains & Weightage

Domain	Weight	Focus Areas
Domain 1: Network Design	**30%**	Design scalable, secure, and highly available cloud/hybrid networks. VPC architecture, IP addressing, subnetting, overlapping IPs, hybrid topologies.
Domain 2: Network Implementation	**26%**	Build & configure VPCs, TGWs, VPNs, Direct Connect, routing, load balancing, firewall rules, hybrid DNS setups.
Domain 3: Network Management & Operation	**20%**	Monitor, optimize, and troubleshoot network performance, use CloudWatch, VPC Flow Logs, Reachability Analyzer, Route Analyzer.
Domain 4: Network Security, Compliance & Governance	**24%**	Secure networks using NACLs, SGs, WAF, Firewall Manager, Security Groups referencing, encryption in transit, governance policies.

🛠 Key Knowledge Areas

You need **deep knowledge** of AWS + networking fundamentals:

1 VPC Design & Routing

- VPC CIDR sizing, overlapping IP resolution
- Multi-VPC architectures: VPC Peering, Transit Gateway, PrivateLink
- Route table design, propagation, blackholing routes
- Subnetting best practices

2 Hybrid Connectivity

- **Direct Connect (DX):** Public/private virtual interfaces, LAGs, resiliency models
- **VPN:** Site-to-Site VPN, VPN over DX, Accelerated VPN, BGP failover
- **SD-WAN integrations**
- Hybrid DNS (Route 53 Resolver Inbound/Outbound endpoints)

3 Network Security

- Security Groups, NACLs, and Stateful vs Stateless filtering
- AWS Network Firewall, AWS WAF, Shield Advanced, Firewall Manager
- PrivateLink vs NAT Gateway for secure connectivity
- Data encryption (TLS, IPsec, MACsec)

4 Load Balancing & Global Networking

- ALB, NLB, Gateway Load Balancer (GWLB)
- Global Accelerator for global workloads
- Route 53 routing policies (latency, failover, geolocation, weighted)
- Cross-region architectures with low latency

5 Monitoring & Troubleshooting

- VPC Flow Logs analysis
- Reachability Analyzer, Route Analyzer, Traffic Mirroring
- CloudWatch metrics & alarms for networking services
- Performance optimization (MTU size, ENA, TCP tuning)

AWS Services You Must Master

- **Core Networking:** VPC, Subnets, Route Tables, NAT GW, IGW, TGW, VPC Peering
- **Hybrid Connectivity:** Direct Connect, VPN, Route 53 Resolver
- **Security:** AWS Network Firewall, SGs, NACLs, Shield Advanced, WAF, Firewall Manager
- **Traffic Distribution:** ALB, NLB, GWLB, Global Accelerator, CloudFront
- **DNS & Name Resolution:** Route 53, Hybrid DNS, Resolver Rules
- **Monitoring:** VPC Flow Logs, CloudWatch, Reachability Analyzer, Traffic Mirroring

Difficulty & Question Style

- **Difficulty:** ★★★★★ (Most challenging AWS exam for networking professionals)
- **Question Style:** Heavy **scenario-based**, often with **multiple correct answers**. Expect to see:
  - Overlapping CIDR resolution questions
  - Hybrid failover design scenarios
  - Troubleshooting network reachability issues
  - Secure multi-account network architecture problems

Recommended Study Resources

- **AWS Whitepapers:**
  - *AWS Well-Architected Framework – Networking Pillar*
  - *Hybrid Connectivity Whitepaper*
  - *AWS Transit Gateway Reference Architecture*
  - *Security Best Practices for VPC*
- **Re:Invent Sessions:** Networking & Hybrid Architecture deep-dives
- **Practice Exams:** Tutorials Dojo / Jon Bonso, ExamPro

Who Should Take This Exam

- **Network Architects / Engineers** designing hybrid & multi-VPC environments
- **Cloud Infrastructure Engineers** managing multi-account networking
- **Security Engineers** focusing on network security controls
- **Solutions Architects** who design enterprise-level network topologies

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7-Day Structured Study Checklist for the **AWS Certified Advanced Networking – Specialty (ANS-C01)** exam.
This plan is **intense but focused**, covering all exam domains with **hands-on labs** to reinforce learning.

🗓️ 7-Day AWS Advanced Networking – Specialty (ANS-C01) Study Checklist

Day	Topics & Services (Deep Dive)	Hands-On / Labs	Status ✅
Day 1 – VPC Core & Multi-VPC Design	• VPC basics: CIDR sizing, overlapping IPs • Subnetting best practices (AZ-aware) • Route tables, IGW, NAT Gateway, EIPs • Multi-VPC patterns: VPC Peering, Transit Gateway, PrivateLink • Hybrid DNS concepts (Route 53 Resolver endpoints)	🔧 Create Multi-AZ VPC with public + private subnets 🔧 Set up VPC Peering between 2 VPCs and test connectivity 🔧 Create PrivateLink for a service between VPCs	☐
Day 2 – Hybrid Connectivity & Routing	• VPN types: Site-to-Site, Accelerated VPN, VPN over DX • Direct Connect: Virtual Interfaces (Private/Public), LAGs, resilience models • Transit Gateway routing & propagation • Route prioritization: static routes vs propagated routes • Overlapping CIDR resolution strategies	🔧 Build Transit Gateway with 2 VPCs & configure route tables 🔧 Simulate overlapping CIDR and test route resolution 🔧 Configure Site-to-Site VPN (test failover)	☐
Day 3 – Load Balancing & Global Networking	• ALB, NLB, GWLB differences & use cases • GWLB for 3rd party firewalls • Cross-zone load balancing & stickiness • Route 53 routing policies: Weighted, Latency, Geolocation, Failover • Global Accelerator vs CloudFront (when to use which)	🔧 Deploy ALB & NLB in front of EC2 ASGs 🔧 Configure Route 53 failover policy with health checks 🔧 Deploy Global Accelerator with endpoints in 2 regions	☐
Day 4 – Network Security & Compliance	• Security Groups vs NACLs (stateful/stateless) • AWS Network Firewall rules & deployment models • AWS WAF, AWS Shield Advanced, Firewall Manager • Encryption in transit: TLS, IPsec, MACsec • Multi-account security governance	🔧 Deploy AWS Network Firewall and attach to VPC 🔧 Create Firewall Manager policy to enforce SG rules across accounts 🔧 Enable Shield Advanced protection on ALB	☐
Day 5 – Monitoring, Logging & Troubleshooting	• VPC Flow Logs (interface, subnet, VPC levels) • CloudWatch metrics for networking • Reachability Analyzer, Route Analyzer • Traffic Mirroring for deep packet inspection • Performance optimization: ENA, Jumbo Frames (MTU), TCP tuning	🔧 Enable VPC Flow Logs and analyze logs in CloudWatch Insights 🔧 Use Reachability Analyzer to detect blocked routes 🔧 Mirror traffic from EC2 instance to capture packets	☐
Day 6 – Complex Network Scenarios & Optimization	• Multi-Region architectures & failover • Hub-and-Spoke vs Mesh network topologies • Hybrid DNS with Route 53 Resolver rules • Multi-account network segmentation with TGW	🔧 Build TGW hub-and-spoke with 3 VPCs	☐

Day	Topics & Services (Deep Dive)	Hands-On / Labs	Status ✅
	• Cost optimization for DX, NAT, TGW, data transfer	🔧 Configure Route 53 Resolver inbound/outbound endpoints for hybrid DNS 🔧 Analyze TGW data processing costs	
Day 7 – Review & Practice Exams	• Review all weak areas from Days 1–6 • Read AWS whitepapers: Hybrid Connectivity, Security Best Practices, TGW Design Guide • Review FAQs: VPC, DX, TGW, Route 53, Global Accelerator • Take 2 full-length practice exams (Tutorials Dojo, Whizlabs, AWS Official)	🔧 Complete 2 timed practice exams 🔧 Review wrong answers & revisit labs for weak areas	☐

✅ **Study Approach & Tips**

- **4–6 hours/day** is recommended for this 7-day plan.
- **Draw network diagrams** as you go — the exam is very visual and architecture-driven.
- **Focus on trade-offs:** TGW vs VPC Peering, PrivateLink vs Transit Gateway, DX vs VPN, Global Accelerator vs CloudFront.
- **Hands-on is critical:** The exam will present troubleshooting and scenario questions that assume you've worked with these services.
- **Understand Route Priorities:** Static route > Propagated route, longest prefix match wins, blackhole route detection.
- **Know Pricing:** DX data transfer, NAT Gateway charges, TGW data processing — cost optimization questions are common.