

- Color Legend:**
- Blue = People/Actors
 - Dark Blue = NovaRetail Systems
 - Grey = External Systems
 - Light Blue = Data/Event Platforms

Pain Points

1. No unified identity
2. Manual product ops
3. Batch latency
4. High ops cost

Customers & Channels

- Web browsers
- Mobile apps
- Partner portals

Country-Specific Commerce Platforms

Monoliths per market (Java, PHP, .NET, Node.js)

Country 1
Java monolith

Country 2
.NET Framework

Country 3
PHP monolith

Countries 4-12
Mixed stacks

Point-to-Point Integrations
Tightly coupled REST/SOAP calls

8 Customer Databases
Isolated schemas
No master record

Product Data
Spreadsheets & manual uploads

Shared Batch Services

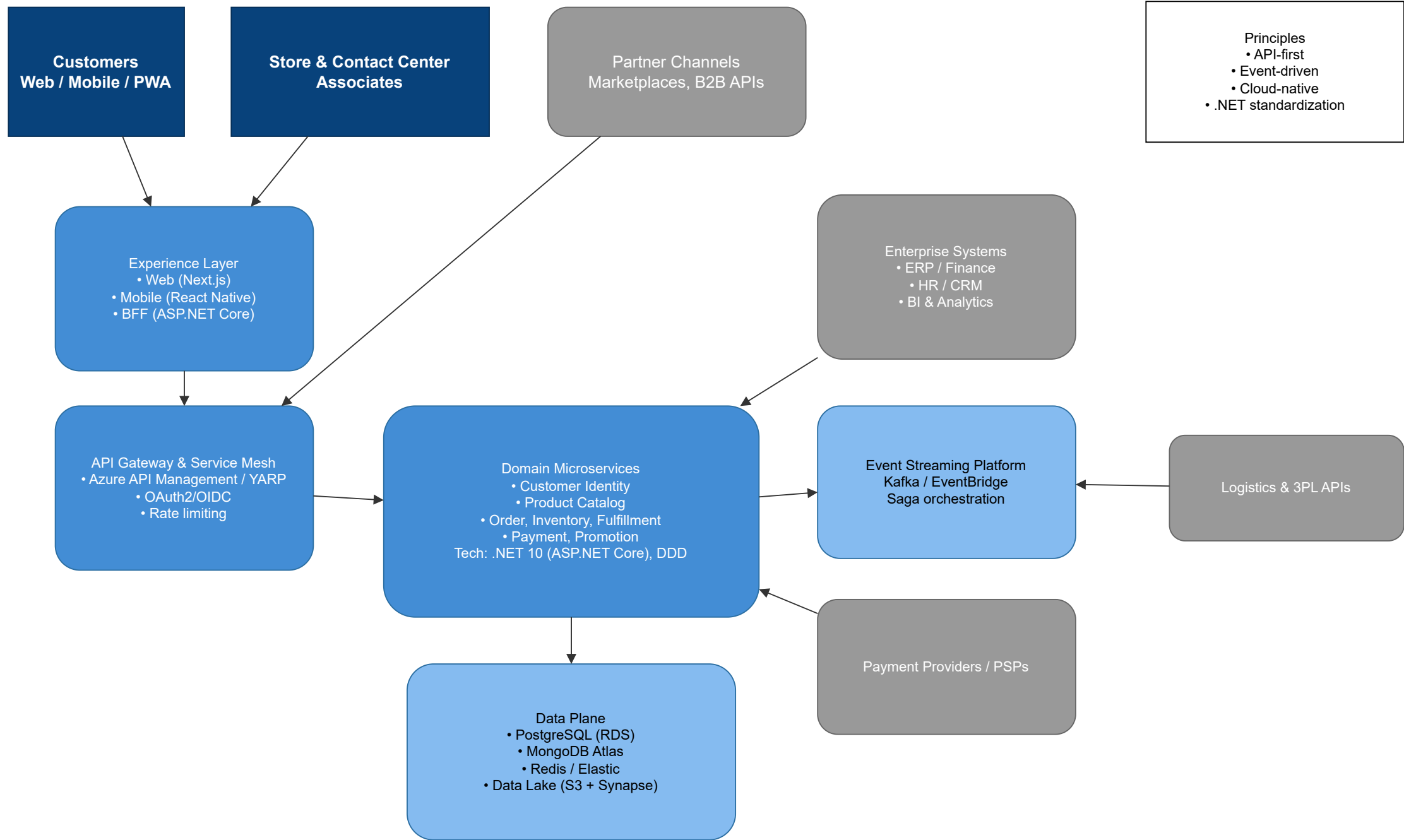
- Order consolidation (nightly)
- Payment reconciliation

Legacy Infrastructure

- On-prem servers
- AWS + Azure (non-standard)
- Manual deployments

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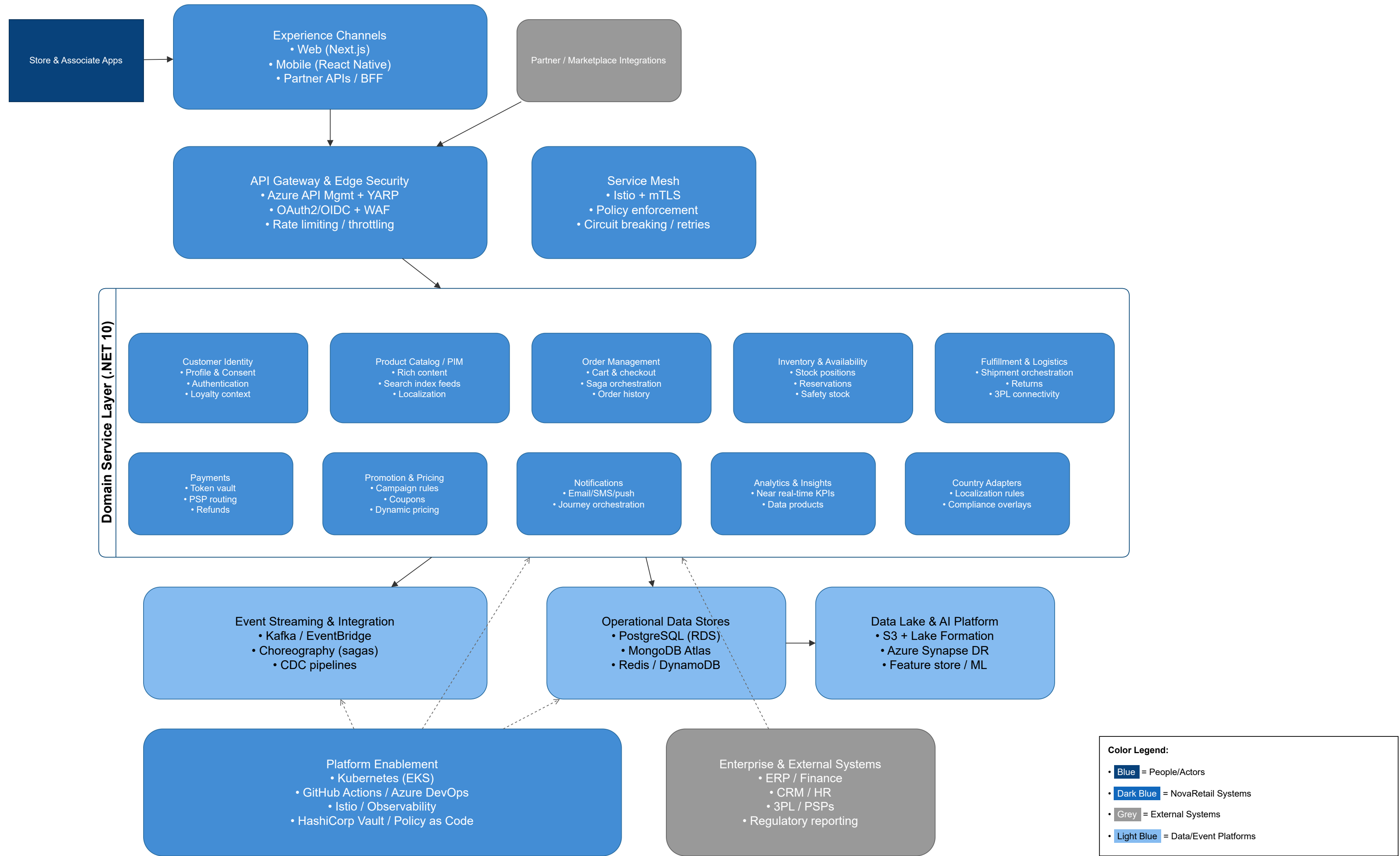
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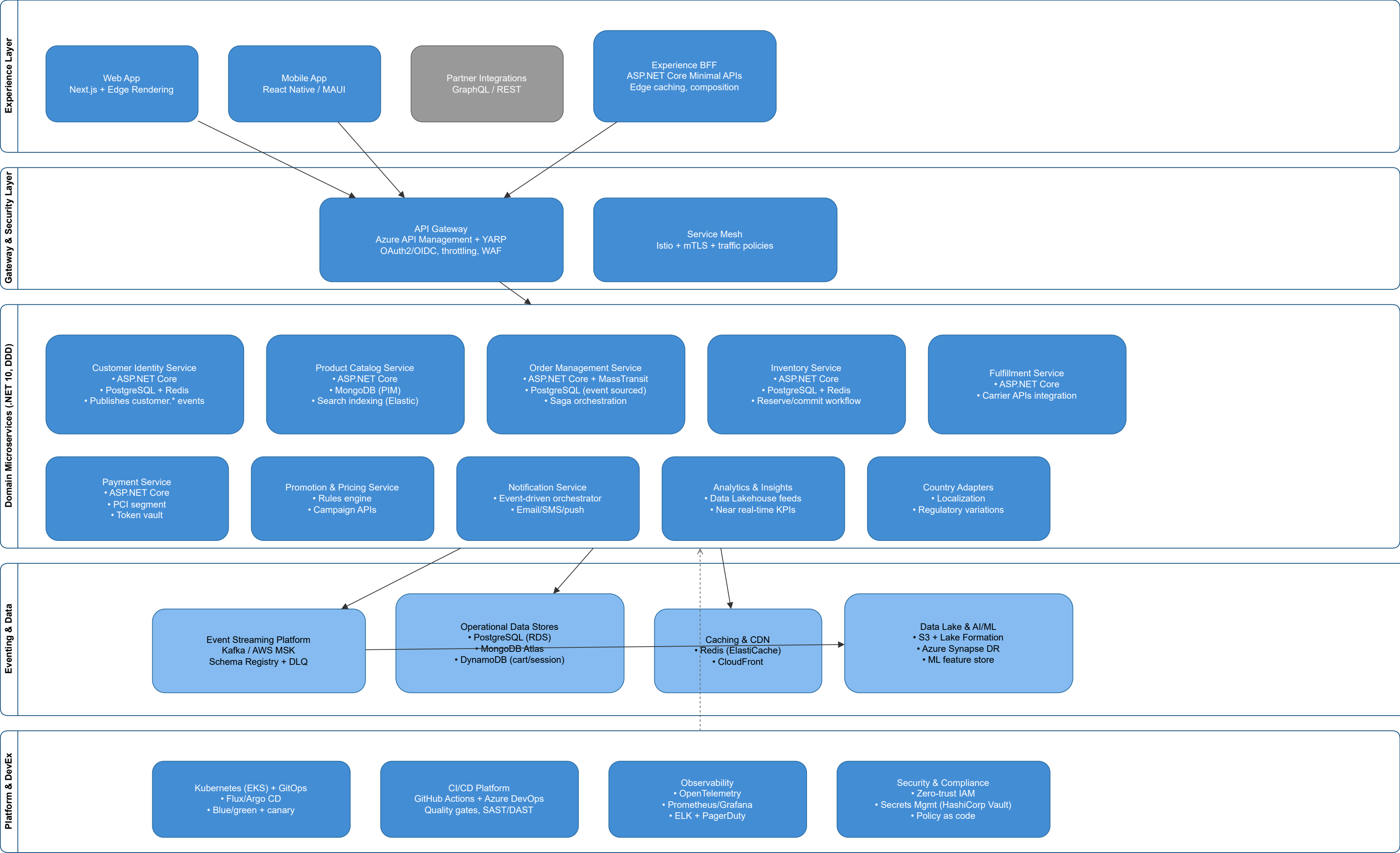


- Principles**
- API-first
 - Event-driven
 - Cloud-native
 - .NET standardization

NovaRetail OmniCommerce Platform
.NET 10 Microservices on AWS + Azure DR
Event-driven, API-first

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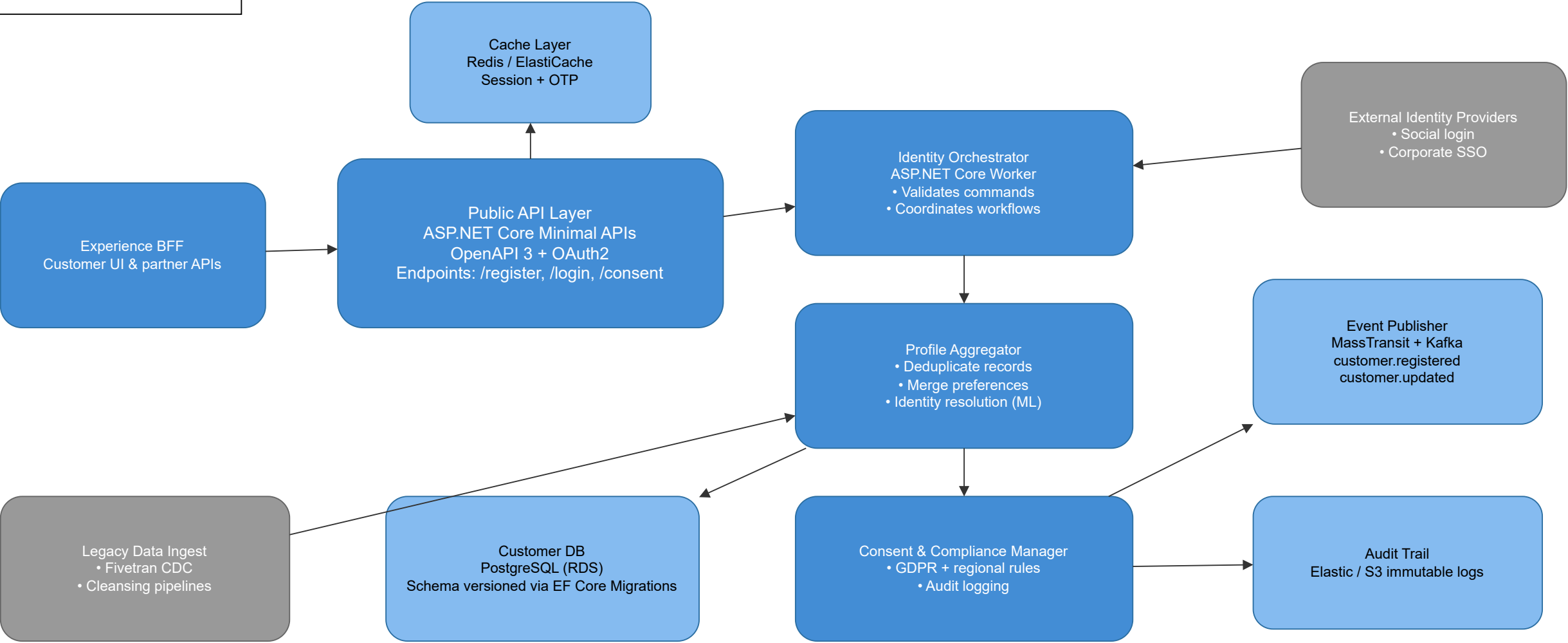
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Quality Attributes

- Availability 99.9%
- P95 latency <150ms
- Geo-fenced data residency

C3 - Customer Identity Service
Version: 1.0 | Creator: Nithin Mohan T K | Date: 2025-11-22



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Flow

1. Place order (command)
2. Saga emits order.created
3. Inventory reserve
4. Payment capture
5. Saga confirms/compensates
6. Fulfillment + notifications

C3 - Order Saga Flow
Version: 1.0 | Creator: Nithin Mohan T K | Date: 2025-11-22

Customer UI / BFF
(.NET BFF)

API Gateway
Azure API Mgt

Order Service API
ASP.NET Core
Commands: PlaceOrder, CancelOrder

Order Saga Coordinator
MassTransit + Kafka
State machine

Order DB
PostgreSQL + Event store

Inventory Service
ASP.NET Core
Reserves stock

Payment Service
ASP.NET Core
PCI enclave

Fulfillment Service
ASP.NET Core
Carrier orchestration

Notification Service
Event-driven communication

Event Bus
Kafka / EventBridge
Topics: order.*, inventory.*, payment.*

Inventory DB
PostgreSQL + Redis

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Process Flow:

1. Order Created
2. Inventory Reserved
3. Payment Processed
4. Order Confirmed
5. Fulfillment Initiated

order.created

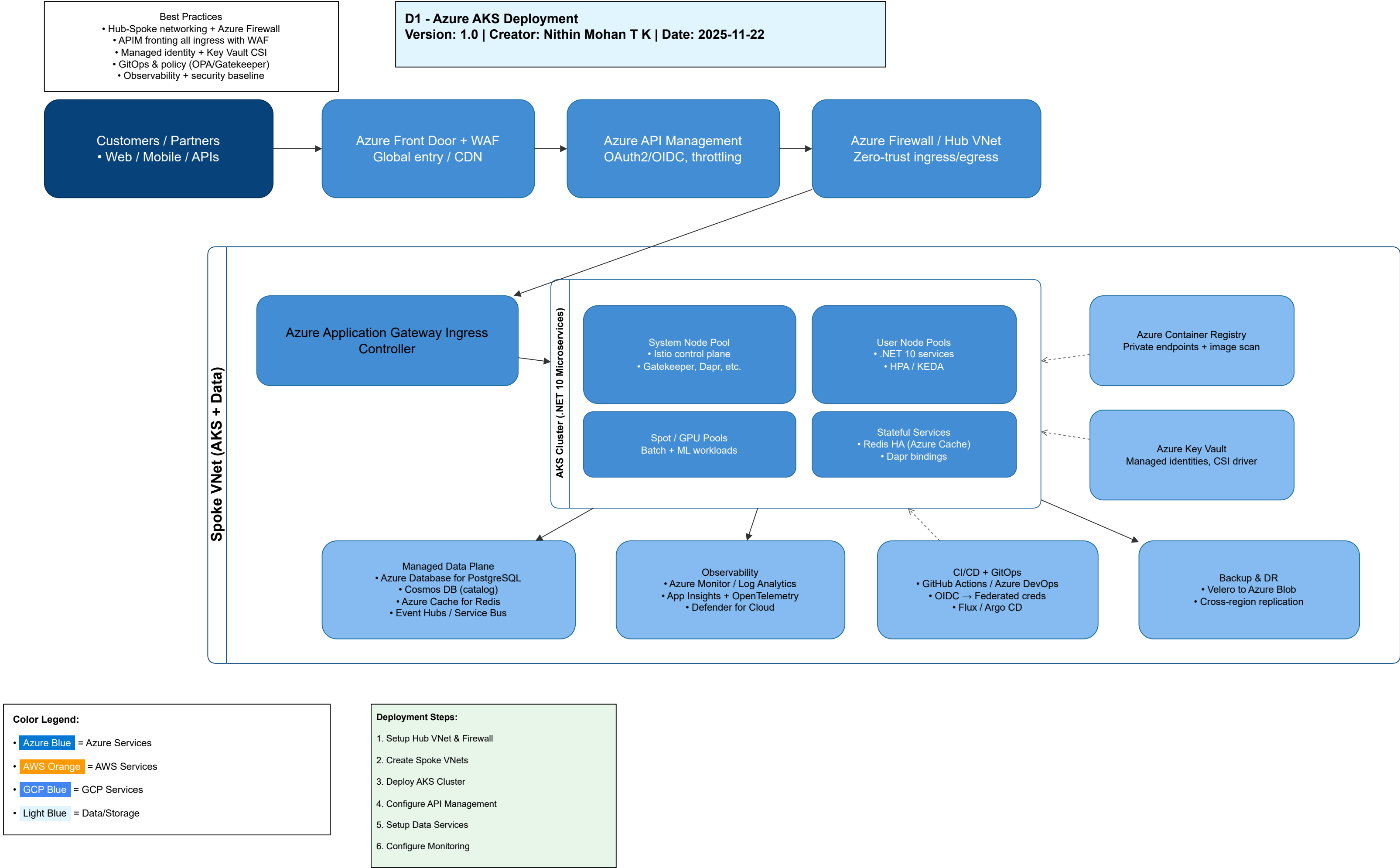
payment.completed

invresponse

order.confirmed

events -> analytics

order.shipped / notifications

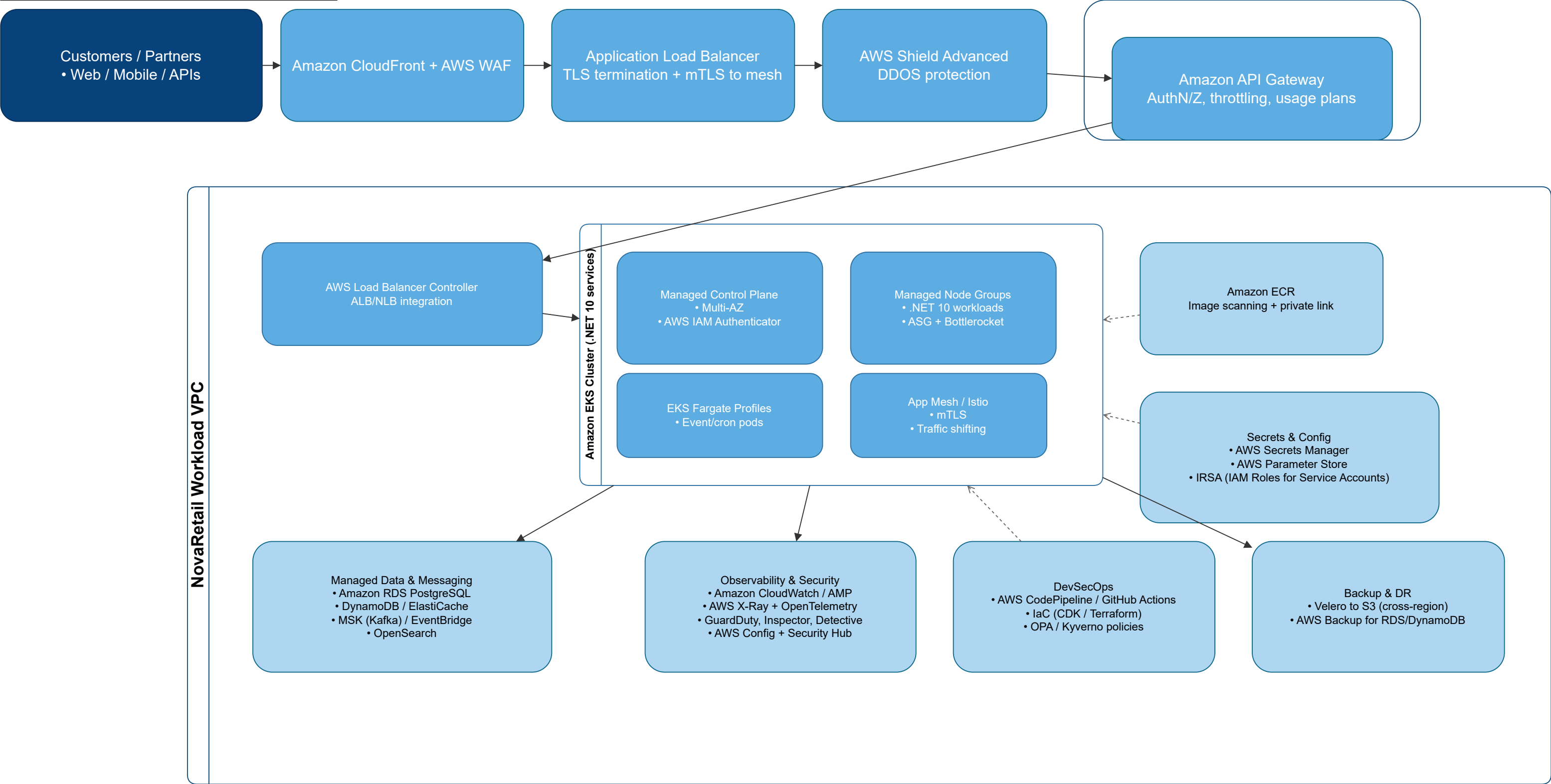


AWS Best Practices

- Multi-AZ EKS + private subnets
- CloudFront+WAF+Shield for edge
- API Gateway + App Mesh + IRSA
- GitOps/IaC + policy guardrails
- Full observability & backup

D2 - AWS EKS Deployment

Version: 1.0 | Creator: Nithin Mohan T K | Date: 2025-11-22

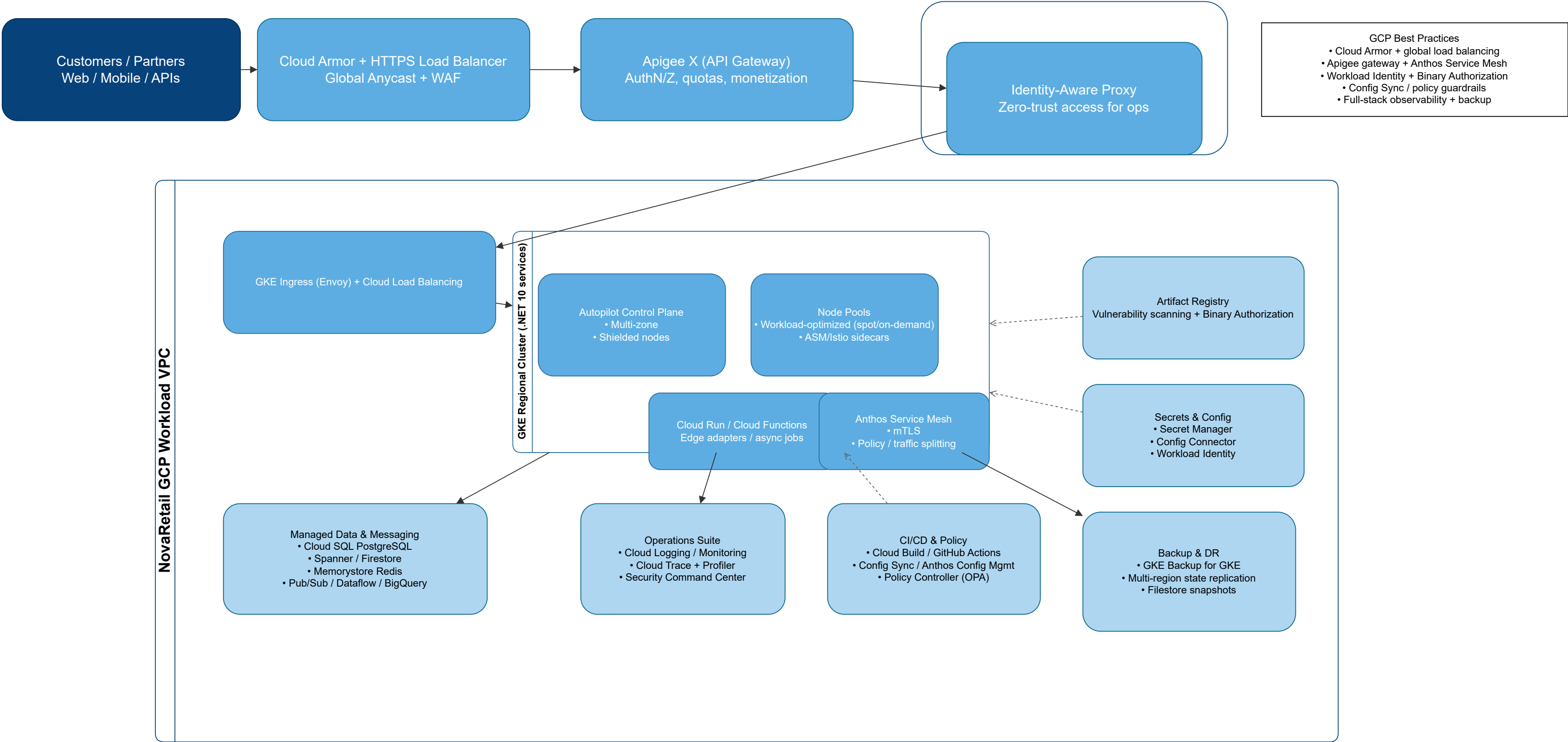


Color Legend:

- Azure Blue = Azure Services
- AWS Orange = AWS Services
- GCP Blue = GCP Services
- Light Blue = Data/Storage

Deployment Steps:

1. Create VPC & Subnets
2. Setup CloudFront & WAF
3. Deploy EKS Cluster
4. Configure API Gateway
5. Setup RDS & Data Services
6. Configure CloudWatch



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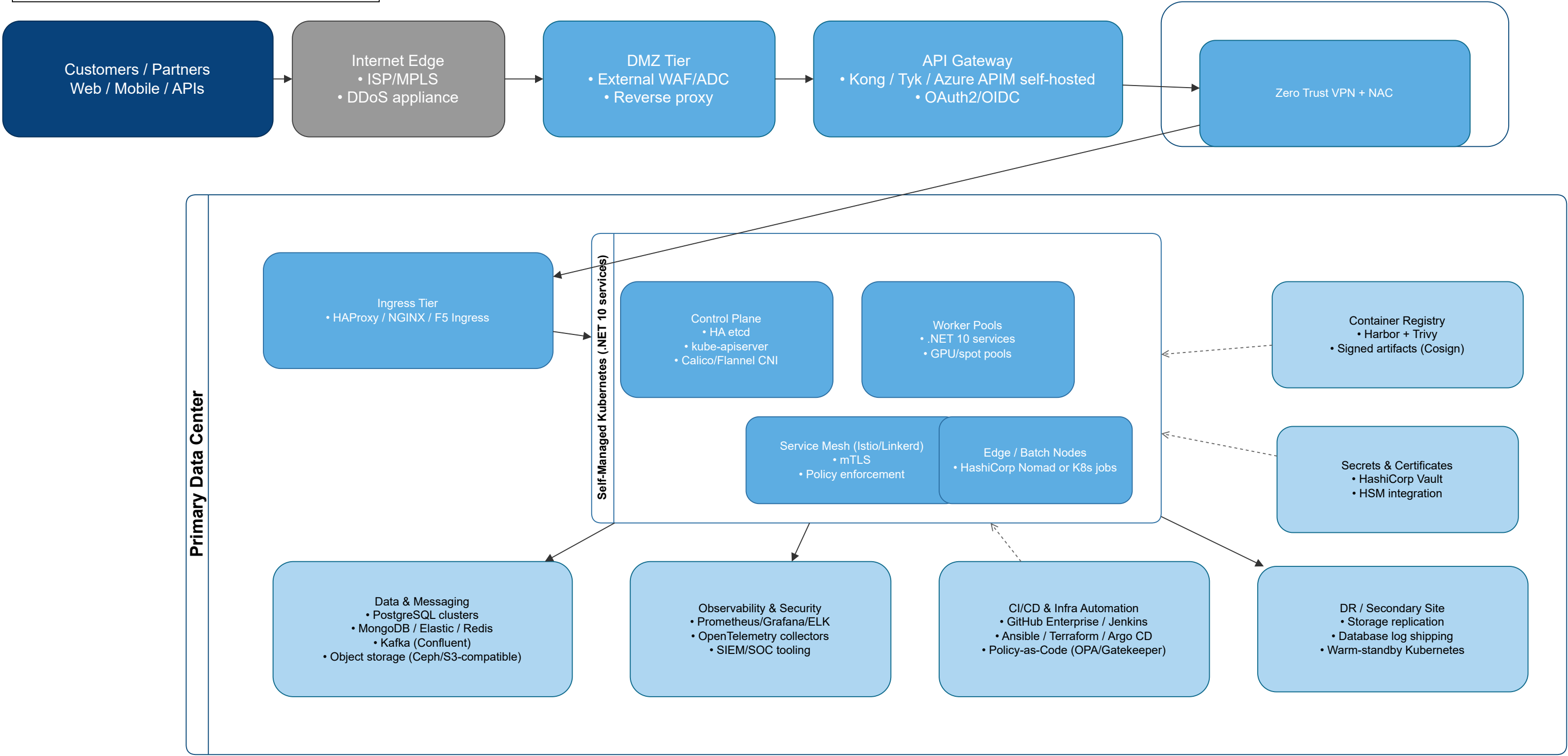
Deployment Steps:

1. Setup VPC Network
2. Configure Cloud Armor
3. Deploy GKE Cluster
4. Setup Apigee X
5. Configure Data Services
6. Setup Operations Suite

Self-Hosted Best Practices

- Layered DMZ / core segmentation
- Hardened Kubernetes + mesh security
- Vault-backed secrets & image signing
- Automated CI/CD + IaC + policy guardrails
- Dual-site DR with data replication

D4 - On-Premise DeploymentVersion: 1.0 | Creator: Nithin Mohan T K | Date: 2025-11-22



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Deployment Steps:

- Setup DMZ & Firewall
- Deploy Kubernetes
- Configure Service Mesh
- Setup Vault & Secrets
- Configure Data Stores
- Setup Monitoring Stack



- Deployment Steps:
1. Setup Hub VNet & Firewall

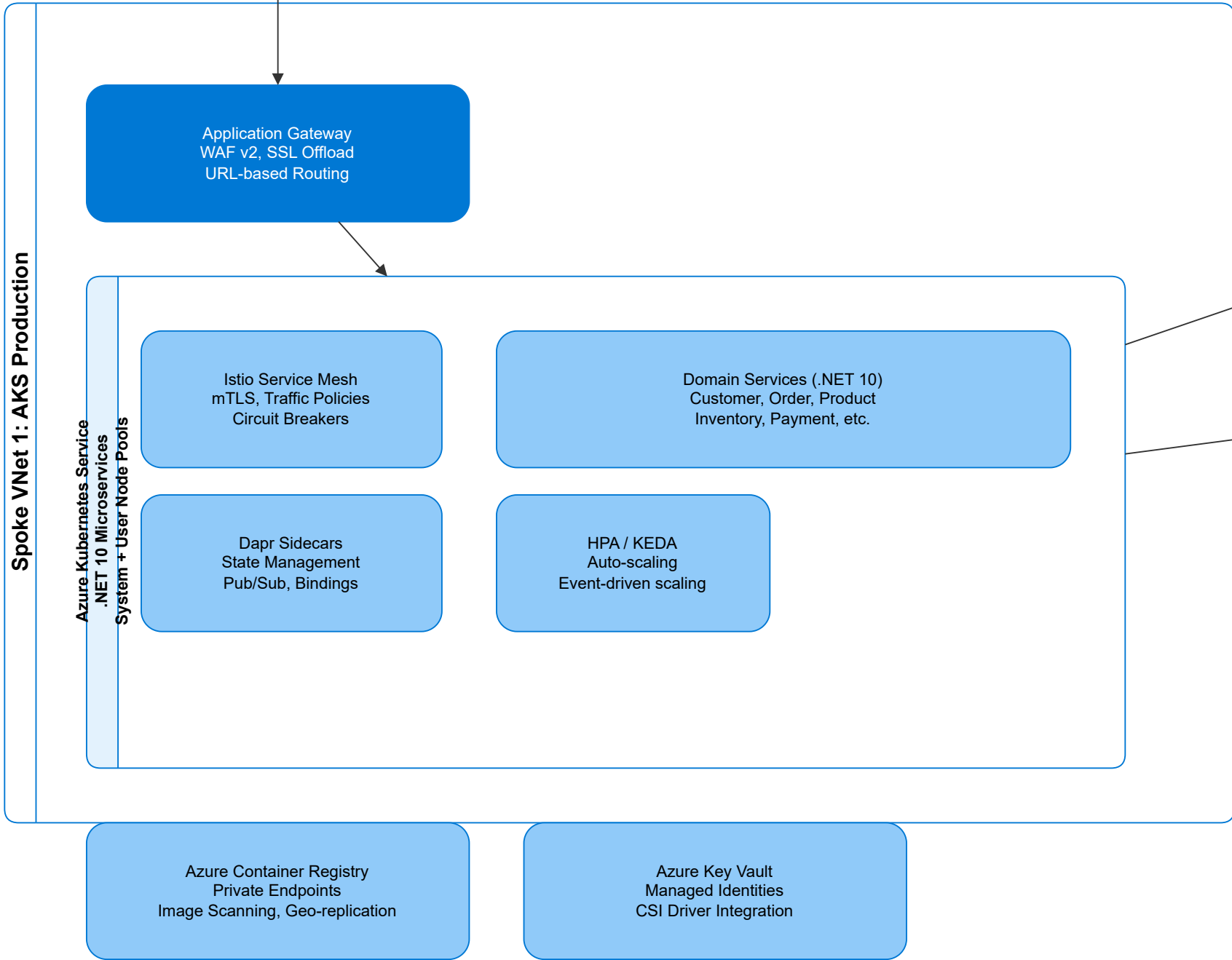
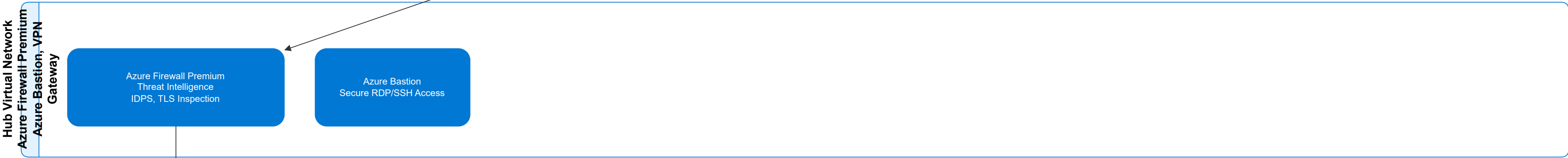
2. Create Spoke VNets

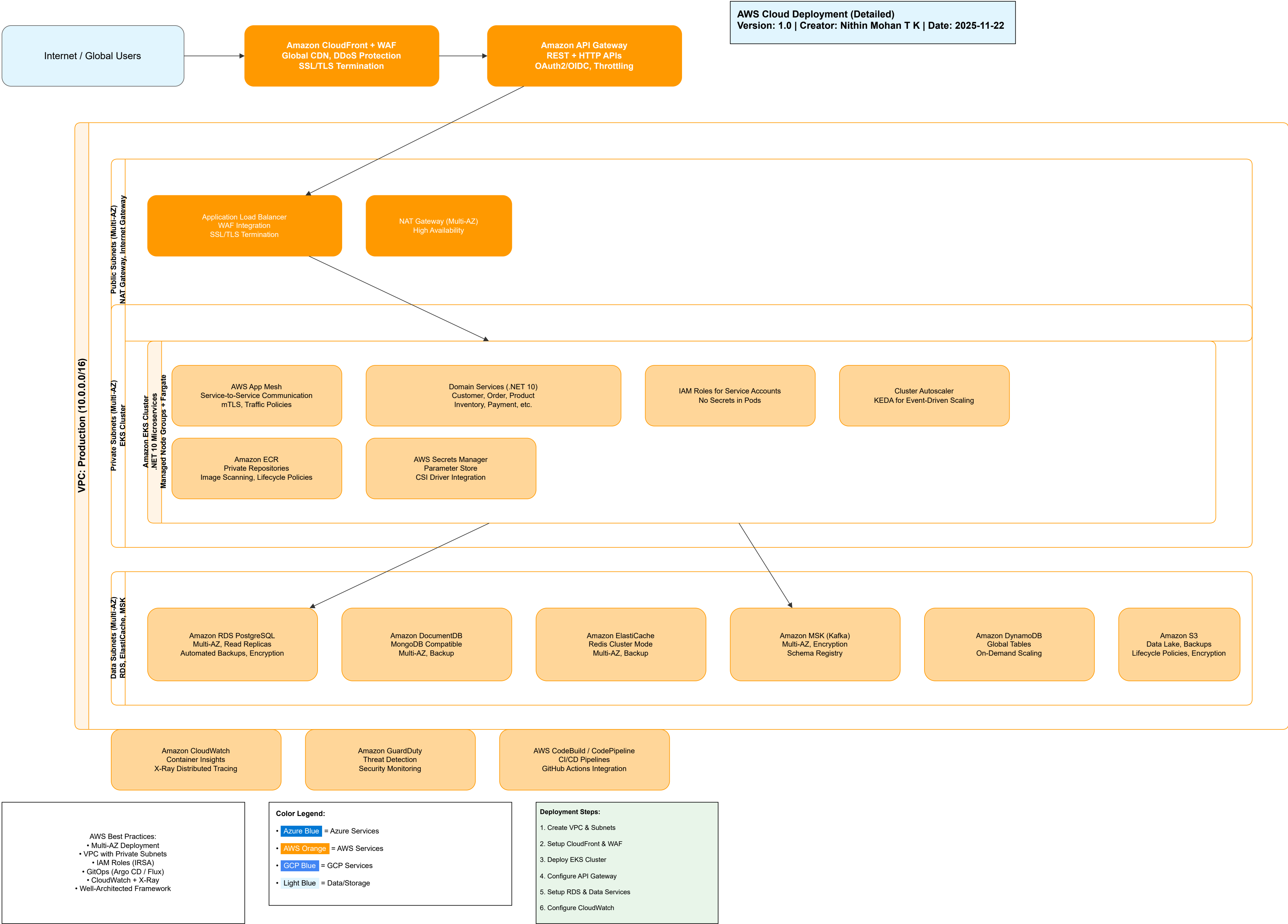
3. Deploy AKS Cluster

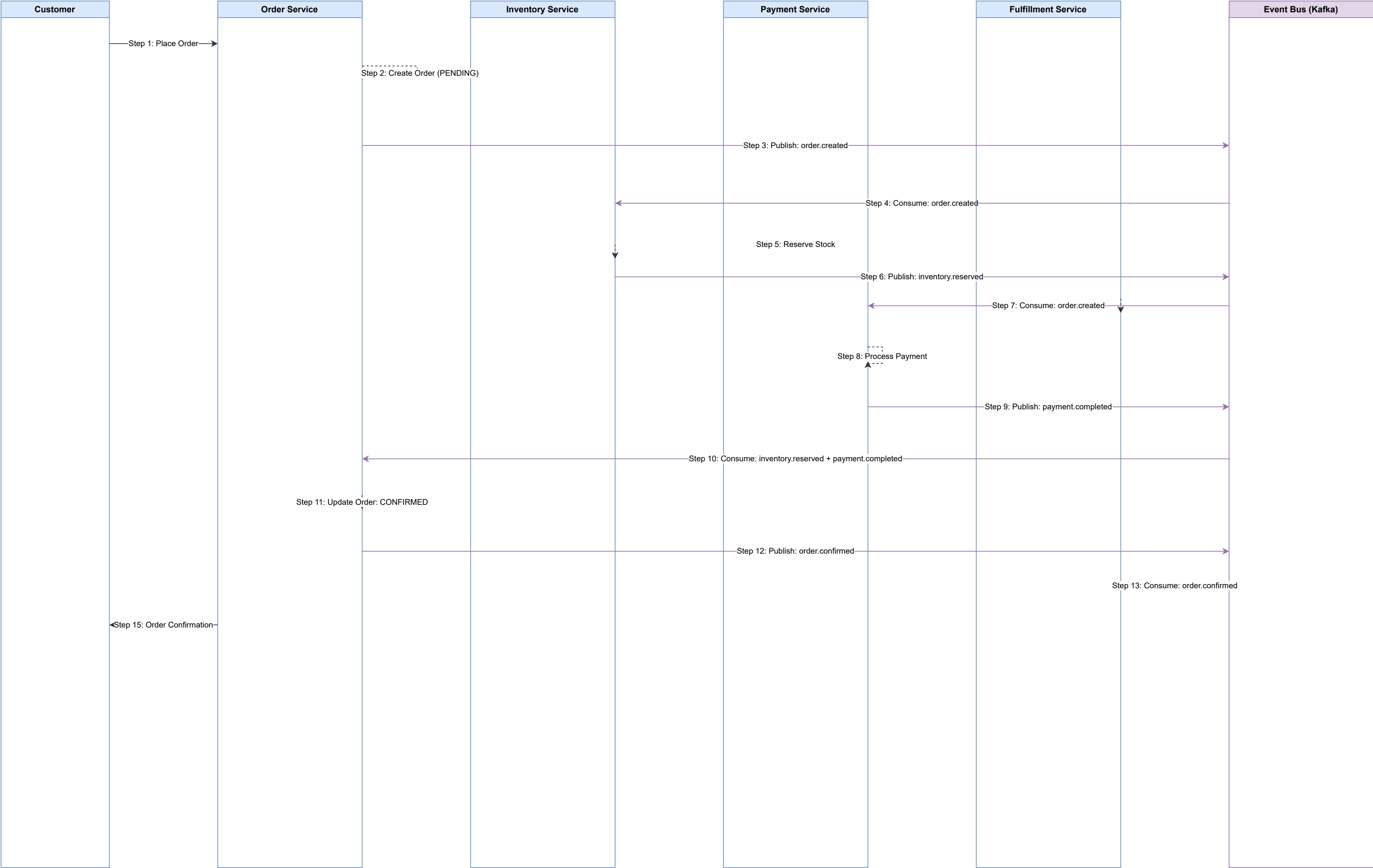
4. Configure API Management

5. Setup Data Services

6. Configure Monitoring







Color Legend:

- Blue = Services/Actors
- Purple = Event Bus
- Black Arrows = Synchronous Calls
- Purple Arrows = Events

SORRY COULDN't COMPLETE IT FULLY, just a draft.