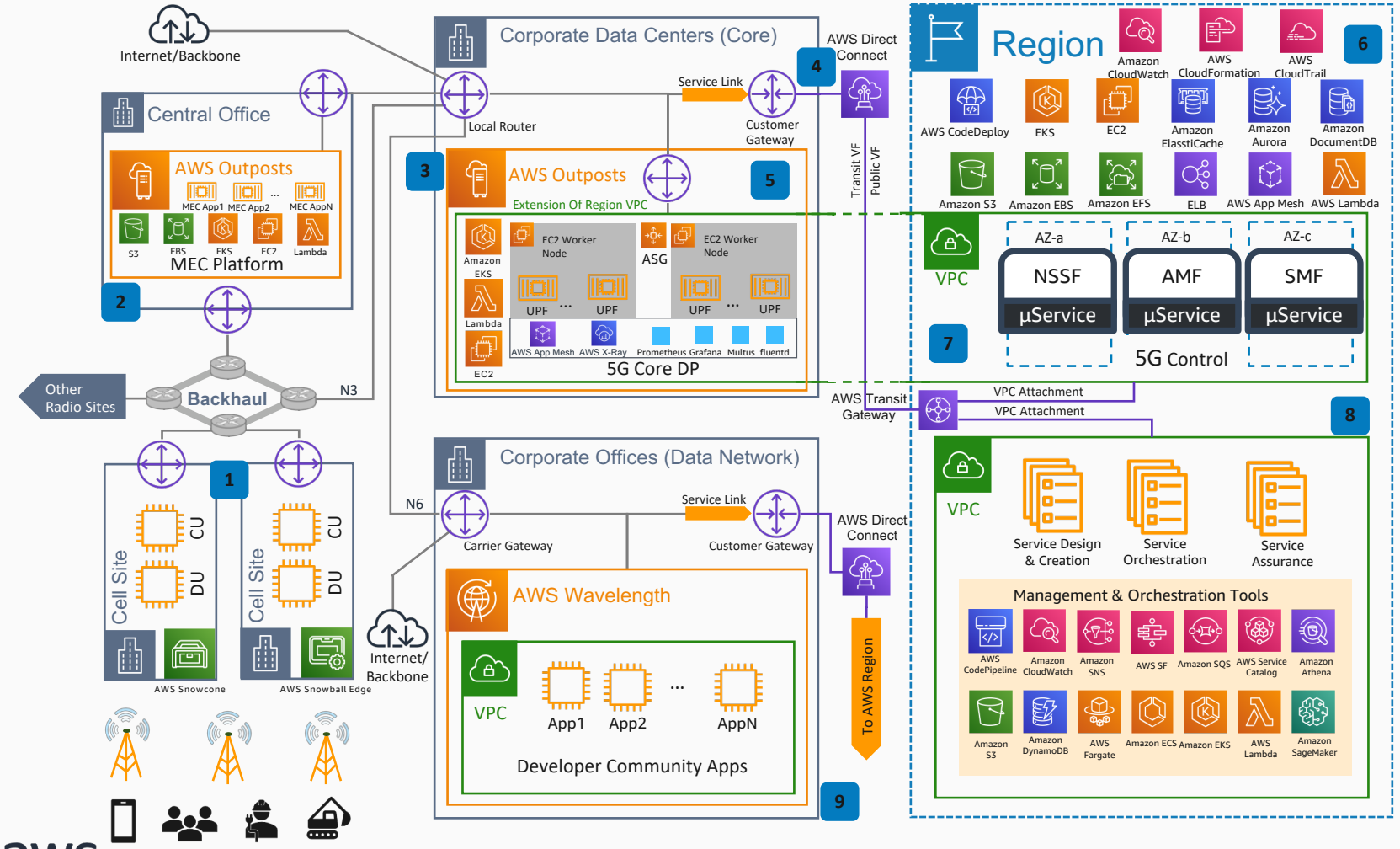
Deploying E2E 5G Network with AWS

5G RAN, Edge, Core, and Data Network

This reference architecture explains how different AWS Services can be used together to deliver an end-to-end 5G network.



AWS Reference Architecture

1. Based on throughput requirement, **AWS Snowcone** (up to 100mbps) or **AWS Snowball Edge** (up to 10Gbps) can be used for OpenRAN (Distributed Unit (DU) and Centralized Unit (CU)).
2. Multi-Access Edge Computing (MEC) capabilities are built using **AWS Outposts** with Services such as **Amazon Elastic Compute Cloud (Amazon EC2)**, **Amazon Elastic Container Service (Amazon ECS)**, **Amazon Elastic Kubernetes Service (Amazon EKS)**, and **Amazon Simple Storage Service (Amazon S3)**.
3. 5G Core User Plane Function (UPF) is deployed on **AWS Outposts** on-premises to provide high throughput.
4. Use **AWS Direct Connect** to connect on-premises 5G Core components to an AWS Region for control and management.
5. 5G Core user plane function (UPF) is implemented as micro-services on **Amazon EKS** taking advantage of Single-root input/output virtualization (SR-IOV), Data Plane Development Kit (DPDK), and dual homing capabilities.
6. The Control Plane runs on the AWS Region on the same virtual private cloud (VPC) as on-premises. Control plane functions are implemented on **Amazon ECS** or **EKS**.
7. VPC expansion to on-premises allows UPF instances to expand to AWS regions via Network Load Balancer (NLB) if needed.
8. Other VPCs can be interconnected via **AWS Transit Gateway** and host management and orchestration services.
9. **AWS Wavelength** is used to allow the developer community access to the communication service provider (CSP) environment, and to provide low latency apps to subscribers.