

5G NSA ARCHITECTURE: 5G NSA (Non-Standalone) architecture refers to an initial deployment approach for 5G networks that relies on leveraging existing 4G LTE infrastructure for certain functions. Here's an overview of the key components and characteristics of 5G NSA architecture:

1. ****Dual Connectivity****: In 5G NSA, both 4G LTE (Long Term Evolution) and 5G NR (New Radio) radio access networks are utilized simultaneously. This allows devices to connect to both networks concurrently, leveraging the coverage and reliability of LTE while also gaining the higher data rates and lower latency promised by 5G NR.
2. ****LTE as the Anchor****: The LTE network serves as the anchor for control plane signaling and mobility management. This means functions such as session management, mobility management, and paging are handled by the LTE network, ensuring seamless integration with existing LTE deployments.
3. ****5G NR Data Offload****: While LTE manages the control functions, 5G NR is primarily used for data offload, providing higher throughput and lower latency for data-intensive applications. This offloading capability is essential for delivering the enhanced mobile broadband (eMBB) services promised by 5G.
4. ****Deployment Flexibility****: 5G NSA allows for a gradual rollout of 5G services without requiring a complete overhaul of the existing 4G infrastructure. Mobile network operators can upgrade their networks in phases, starting with the deployment of 5G NR radios and gradually transitioning to Standalone (SA) 5G architecture as standards and technology mature.
5. ****Interworking between LTE and 5G****: Seamless interworking between LTE and 5G NR is crucial in NSA architecture to ensure uninterrupted service continuity for users as they move between coverage areas served by LTE and 5G NR. This interworking is managed through standardized interfaces and

protocols defined by organizations such as 3GPP (3rd Generation Partnership Project).

6. ****Evolution Path to Standalone 5G (SA)****: NSA architecture is considered an interim solution on the path to full Standalone (SA) 5G networks. SA 5G networks do not rely on LTE infrastructure and have a more simplified and streamlined architecture designed specifically for 5G capabilities.

Overall, 5G NSA architecture enables operators to introduce 5G services more quickly by building upon their existing 4G LTE networks while also preparing for the eventual transition to standalone 5G networks in the future.