**Question – Difference Between NSA/SA Call Flow And Steps of SA Call Flow.**

**Answer -** The call flow in 5G differs between Non-Standalone (NSA) and Standalone (SA) architectures due to the different levels of integration with existing LTE infrastructure.

**NSA(Non-Standalone) :** 5G NSA uses the existing LTE Evolved Packet Core (EPC) along with the new 5G New Radio (NR) to deliver 5G services. This means that the 5G NR relies on LTE for control plane functions and anchor bearer functionality.

**SA(Standalone) :** 5G SA architecture utilizes a fully 5G network, including the 5G Core Network (5GC) and 5G NR. This provides a more advanced and flexible 5G environment but requires new infrastructure.

**Key Differences**

1. **Network Architecture:**
   * **NSA:** Relies on the LTE EPC for control plane functions and data anchoring. Integration is with both LTE and 5G components.
   * **SA:** Utilizes a complete 5G Core Network (5GC) which includes AMF, SMF, and UPF, operating independently of LTE EPC.
2. **Session and Bearer Management:**
   * **NSA:** Involves LTE components (MME, SGW, PGW) for bearer management. The call setup includes coordination between 5G and LTE components.
   * **SA:** Fully managed by 5G Core elements (AMF, SMF, UPF) for session and bearer management without reliance on LTE.
3. **Service Requests:**
   * **NSA:** Service requests involve LTE and 5G interfaces and their respective elements.
   * **SA:** Service requests are managed entirely within the 5G Core Network using the new 5GC interfaces.
4. **Registration and Initial Context Setup:**
   * **NSA:** Involves the LTE MME and additional integration with 5G components.
   * **SA:** Directly involves 5G Core elements like AMF and SMF for registration and context setup.
5. **Call Flow Complexity:**
   * **NSA:** Generally more complex due to the interaction between LTE and 5G components.
   * **SA:** Simplified as it operates within the pure 5G ecosystem.

By understanding these differences, network operators and engineers can better plan and manage the transition from NSA to SA, and leverage the benefits of a fully 5G-native architecture.

**Steps of SA Call Flow**

1. **Initial Connection Setup:**
   * **UE to gNB:** UE initiates an RRC connection request to the gNB.
   * **gNB to UE:** gNB responds with RRC connection setup.
   * **UE to gNB:** UE completes the RRC connection setup.
2. **Registration and Service Request:**
   * **UE to gNB:** UE sends a registration request to the gNB.
   * **gNB to AMF:** gNB forwards the request to the AMF.
   * **AMF to gNB:** AMF responds with a registration accept.
3. **Session Management:**
   * **AMF to SMF:** AMF sends session management requests to SMF for creating sessions.
   * **SMF to UPF:** SMF requests session creation from UPF.
   * **UPF to SMF:** UPF responds with session creation response.
   * **SMF to AMF:** SMF responds to AMF with session creation response.
4. **Bearer Management:**
   * **AMF to gNB:** AMF sends bearer resource commands to gNB.
   * **gNB to AMF:** gNB responds with bearer resource setup response.
5. **Call Setup Completion:**
   * **UE to gNB:** UE initiates the call setup.
   * **gNB to AMF:** gNB forwards the call setup request.
   * **AMF to gNB:** AMF processes and responds with call setup response.
   * **gNB to UE:** gNB completes the call setup with the UE.
6. **Call Teardown:**
   * **UE to gNB:** UE requests to release the call.
   * **gNB to AMF:** gNB forwards the release request.
   * **AMF to SMF:** AMF instructs SMF to delete the session.
   * **SMF to UPF:** SMF requests UPF to release resources.
   * **SMF/AMF to gNB:** Confirm release of session and bearers.
   * **gNB to UE:** Complete the release procedure.

Top of Form

Bottom of Form