## **System Architecture Document**

### **1. System Overview**

The system provides a set of services for users. The users are grouped into types with different access levels and features and are associated with specific partners (providers). Each partner has unique configuration settings, including functionality and permissions.

#### **Key Concepts:**

* **Partners**: External providers of services to their users.
* **Partners Statuses:** A partner can be in one of two states: **Active**, indicating they are operational, or **Stopped**, indicating they are not currently active.
* **Serrvice Plan**: Users can subscribe to a service plan. The available plans are provider-specific and are configured individually for each partner. The set of available plans can be modified through the API.
* **Users**: A person who accesses the system's services.
* **User Types**: Each user can be classified into one of the following types. The set of user types is unique for each partner.
  + **Guest** — the default user type upon registration. They have limited access and are restricted by session time and operation limits. Guest annot be assigned to any service plan.
  + **Basic** — a user who completes the KYC process. They have limited access and are restricted by session time and operation limits.
  + **Advanced** — a user who meets specific conditions may transition to the Advanced status.
  + **Company** — a user who meets specific conditions may transition to the Company status.
  + **Admin** — a user who has full access to all aspects of the system, including user management, plan configuration, and system-wide settings. It is a fixed role within the system and does not participate in user status transitions. An **Admin** cannot be assigned to any service plan.
* **User Statuses:** Users can have different statuses in the system, such as:
  + **Active** — a user is actively using the system.
  + **Inactive** — a user is not using the system (due to suspension or long inactivity).
  + **Idle** — a user (of **Guest** or **Basic** type) has exceeded their session or operation limits and is temporarily inactive.
  + **Signing** — a user has subscribed to a plan and is awaiting confirmation to finalize the subscription.
* **User Sub-statuses:** Users can have different sub-statuses in the system, such as:
  + **Signed** — the subscription to a plan is confirmed.
  + **Unsigned** — a user does not have a subscription to any plan.
  + **Absent** — the user subscription has been temporarily paused or suspended.

### **2. User Types and Limits**

The user types and their limits are as follows:

| **User Type** | **Session Limit** | **Daily Operation Limit** | **7-Day Operation Limit** | **State Change Criteria** |
| --- | --- | --- | --- | --- |
| **Guest** | 20 minutes | 5 operations | 20 operations | Moves to **Idle** after exceeding limits |
| **Basic** | No time limit | 20 operations | 50 operations | Moves to **Idle** after exceeding limits |
| **Company** | No time limit | No limits | No limits | No restrictions; no automatic state change |
| **Advanced** | No time limit | No limits | No limits | No restrictions; no automatic status change |
| **Admin** | No time limit | No limits | No limits | No restrictions; no status change |

### **3. Key Components**

The architecture consists of the following key components:

1. **User Management Service**:
   * Manages user accounts, types, service plans, and state transitions.
   * Enforces limits based on user types (limits on daily and weekly operations).
2. **Session Management Service**:
   * Tracks session durations for guest users and applies session time limits.
   * Manages idle states and transitions based on session behavior.
3. **KYC Service**:
   * Handles the Know Your Customer (KYC) process for users transitioning from **Guest** to **Basic**.
   * Manages identity verification and status updates.
4. **API Gateway**:
   * Provides access to the system’s functionality for users.
   * Interacts with all internal services (User Management, Session Management, etc.).
5. **Configuration Service**:
   * Allows each partner to configure the set of features and limits available to their users.
   * Defines the rules for user state transitions, limits per partner, and available services.

### **4. System Workflow**

#### **User Registration and Type Transition**

1. A user who registers through the system is initially assigned as a **Guest** by default.
2. The system validates the registration and assigns limits based on the **Guest** profile (session time and operation limits).
3. The user may proceed with the KYC process if they choose to move to **Basic** status. Once completed, they are upgraded to **Basic**.
4. The user can continue to perform operations and can eventually upgrade to **Advanced** depending on the conditions set by the partner.
5. From **Advanced**, the user can transition to **Company** or **Basic** based on conditions.
6. From **Company**, the user can transition to **Advanced** based on conditions.
7. From **Basic**, the user can transition to **Guest** based on conditions.

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**Subscription to a Plan:**

1. A registered user is initially assigned the sub-status **Unsigned** by default.
2. Upon selecting a plan, the user initiates the subscription process.
3. The status changes to **Signing** to indicate the subscription is in progress but not yet confirmed.
4. The system checks if the user is eligible to subscribe to the selected plan.
5. Once the user confirms their subscription, their sub-status changes to **Signed**, indicating that the subscription is confirmed and active.
6. The user gains access to the features and services of the selected plan.
7. Users can manage their subscriptions, including changing or deleting plans.
8. If the user decides to delete or if the subscription ends due to the provider's policies, the user’s sub-status may change to **Unsigned**.
9. The user’s sub-status may change to **Absent** if the subscription is suspended or unavailable.

