

v3.4-STK-001 – Architecture Overview & Layer Mapping

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1. Purpose & Scope

This document defines the architectural structure of MaxOneOpen and explains how each functional layer interacts. It enables teams to understand, implement, and verify the system according to sovereign-by-design principles.

2. 3-Layer Stack Overview

Layer	Function	Execution Type	Examples
Application Layer	Solutions and interfaces	Edge / Local	Search UI, ChatOps, Dashboards
Framework Layer	Modular LLM, APIs, runtime	Distributed / Local	MetaLLM, MaxAPI, Tokenizer
Control Layer	Orchestration, security, twins	Distributed / Remote / Edge	MaxControl, ZKP Logic

3. Control Layer & MaxControl Logic

- MaxControl acts as dynamic scheduler for all specialized modules
- Twins are activated/deactivated per task, user, security policy
- Logic can run decentralized: no central coordination needed
- All lifecycle events (spawn, verify, terminate) are protocol-driven

4. Twin & Edge Role in Architecture

Every module in the MaxOneOpen system exists as an active or passive twin. These twins:

- Allow parallel execution and fallback switching
- Can be hosted at edge, remote, or redundant sites
- Are managed by the Control Layer without persistence dependency
- Enable the system to self-heal and avoid single points of failure

5. Mapping to Core System Components

Component	Assigned Layer	Execution Mode
MaxSearch / MaxOps / MaxChat	Application Layer	Local / Edge
MetaLLM / MaxAPI / Tokenizer	Framework Layer	Distributed
MaxControl / MaxTwin /	Control Layer	Decentralized

ZKP Core		
Monitoring / Cost Logger / Security Modules	Control Layer	Edge / Remote

6. Certification Relevance

This architecture document defines the base layer map for all future certifications. Any system claiming MaxOneOpen compliance must adhere to this structure or explicitly define justified deviations.