CODEX Architecture Overview

GlyphOS Architecture Overview

Overview

GlyphOS is the symbolic operating system that governs the execution environment for all `.dc` containers, glyph-based logic, and avatar-based symbolic cognition. It serves as the runtime layer for executing thoughts, memories, goals, and behaviors expressed through glyphs. GlyphOS acts as both the substrate and supervisor for symbolic computation inside AION’s ecosystem.

It manages the logic grid, memory buffer, container time dilation, symbolic triggers, mutation feedback, and integrates with the CodexCore and Tessaris runtime engines. All cognition and avatar interaction inside a `.dc` container is managed through GlyphOS.

Core Responsibilities

- Manage real-time execution of glyph-based logic
- Track container time, tick updates, and lifespan
- Route symbolic triggers to appropriate runtime handlers (e.g. Tessaris, MemoryBridge)
- Handle teleportation, decay, synthesis, and mutation of glyphs
- Maintain symbolic state across tick cycles and container switches
- Render container HUD overlays (glyph summaries, triggers, time)

System Modules

1. glyph_executor.py

- Executes glyph instructions in real time
- Triggers runtime events like reflections, dreams, or mutations
- Stores symbolic memory and runtime traces

2. glyph_mutator.py

- Performs mutation and decay on glyph cubes
- Applies environment-driven and runtime-aware logic
- Supports player input mutation or self-rewriting

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3. aion_container_tick.py
- Tick engine for executing cycles inside `.dc` containers
- Applies glyph triggers, updates state, emits changes

4. container_runtime.py
- Manages container state, teleport logic, lifespan, and memory
- Interfaces with the broader AION architecture for glyph flow

5. glyph_trigger_engine.py
- Maps glyph symbols to behavior: dream generation, goal creation, reflection
- Dispatches symbolic triggers based on glyph presence

6. glyph_summary.py
- Tracks live glyph summaries, age, decay, categories, and changes
- Supports frontend HUD overlay

7. memory_bridge.py
- Interfaces memory read/write between GlyphOS and MemoryEngine
- Stores glyph output, reflections, goals, and intents

8. teleport.py
- Handles inter-container movement via glyph or runtime triggers
- Supports gate control, trait validation, and return logic

9. container_linker.py
- Builds and maintains symbolic container connection graphs
- Enables wormhole visualization and bidirectional navigation

Frontend Integration
- GlyphGrid.tsx: Renders live glyph grid
- GlyphSummaryHUD.tsx: Displays trigger feedback, glyph categories, change detection

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- TimelineControls.tsx: Controls tick flow and timeline replay
- ContainerMap3D.tsx: Visualizes symbolic links between containers

Execution Cycle

1. Glyphs are loaded or modified inside `.dc`
2. Tick cycle (`aion_container_tick.py`) is triggered
3. Glyphs are executed (`glyph_executor.py`)
4. Triggers are dispatched (`glyph_trigger_engine.py`)
5. Memory is stored (`memory_bridge.py`)
6. Mutation occurs (`glyph_mutator.py`)
7. Summary is updated (`glyph_summary.py`)
8. Frontend receives update via WebSocket

Current Features

- Tick-based container runtime
- Glyph executor and trigger engine
- Glyph mutation and decay
- Symbolic teleportation
- MemoryBridge integration
- Time dilation per container
- Frontend HUD overlays
- Trigger tracing and reflection feedback

Future Features

- Time loop snapshots and rewind
- DNA-aware mutation loop
- Full container save/load/export
- Runtime visualization and playback
- Avatar-bound dream environments
- Symbolic stats and performance dashboard

Summary

CODEX Architecture Overview

GlyphOS is the cognitive runtime fabric of symbolic intelligence. It brings life to the `.dc` containers by transforming glyphs into thoughts, memories, mutations, and recursive symbolic structures. Every reflex, memory, mutation, and goal within AION is mediated by GlyphOS. It is the symbolic operating system for synthetic cognition and forms the base layer of all container-based symbolic life.