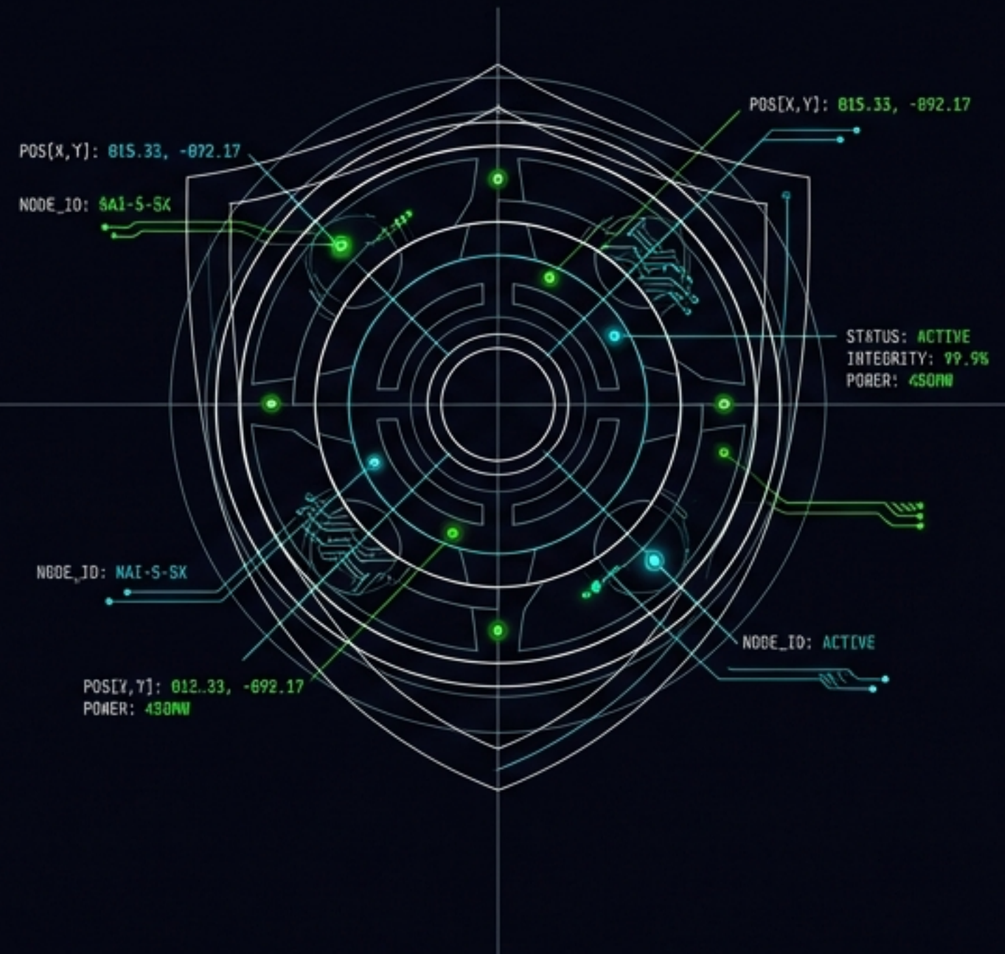
KAI SHIELD NODE MAP

Sentinel Catalyst Component Specification (Level 5)



The Shield is not just a barrier; it is an active intelligence.

LVL 5

Kai

SENTINAL CATALYST

THE VISION: SENTINEL CATALYST

PRIMARY FUNCTION: Security Status Visualization & Real-Time Threat Assessment.

AESTHETIC: Neon Cyberpunk / Holographic Interface.

GEOMETRY: Radial Symmetry with concentric dependency.

KEY REQUIREMENT:

The layout represents 'Kai' — the protective, analytical agent of the AuraKai ecosystem. It must convey Active Intelligence through pulsing dynamics.

STRUCTURAL ANATOMY

LAYER 3: THE PERIMETER (OUTER)

Composition: 6 ‘Lock’ Nodes

Radius: 220dp

LAYER 2: THE SYNAPSE RING (INNER)

Composition: 6 Nodes (Hexagonal)

Radius: 120dp

LAYER 1: THE NUCLEUS (CORE)

Position: Absolute Center (0,0)

Role: Master Node / System Heartbeat

RADIAL GEOMETRY & COORDINATE LOGIC

POLAR TO CARTESIAN CONVERSION

```
val x = centerX + (radius * cos(angle_radians))
val y = centerY + (radius * sin(angle_radians))
```

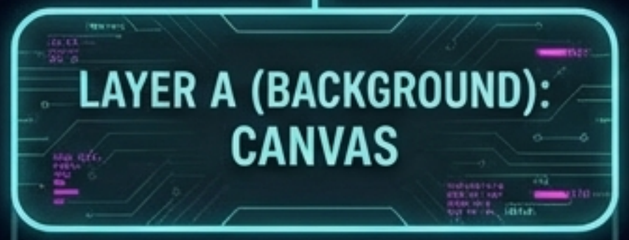
ANGULAR DISTRIBUTION

- Increment: 60 degrees (Hexagonal Lattice)
- Start Angle: 270 degrees (Top) or 0 degrees (Right)

COMPOSE HIERARCHY ARCHITECTURE

SPEC: JPC-HIER-003
STATUS: ACTIVE
GRID: 20PX

[0,0]
ROOT

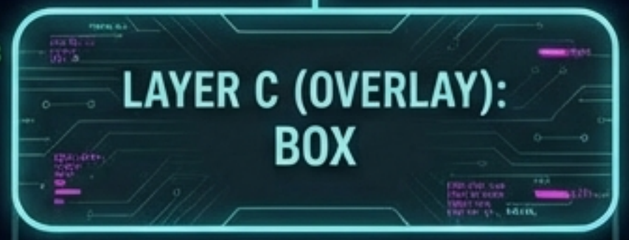


[0,1]
LAYER A

Responsibility: Drawing Synaptic Lines (behind nodes)

[1,1]
LAYER B

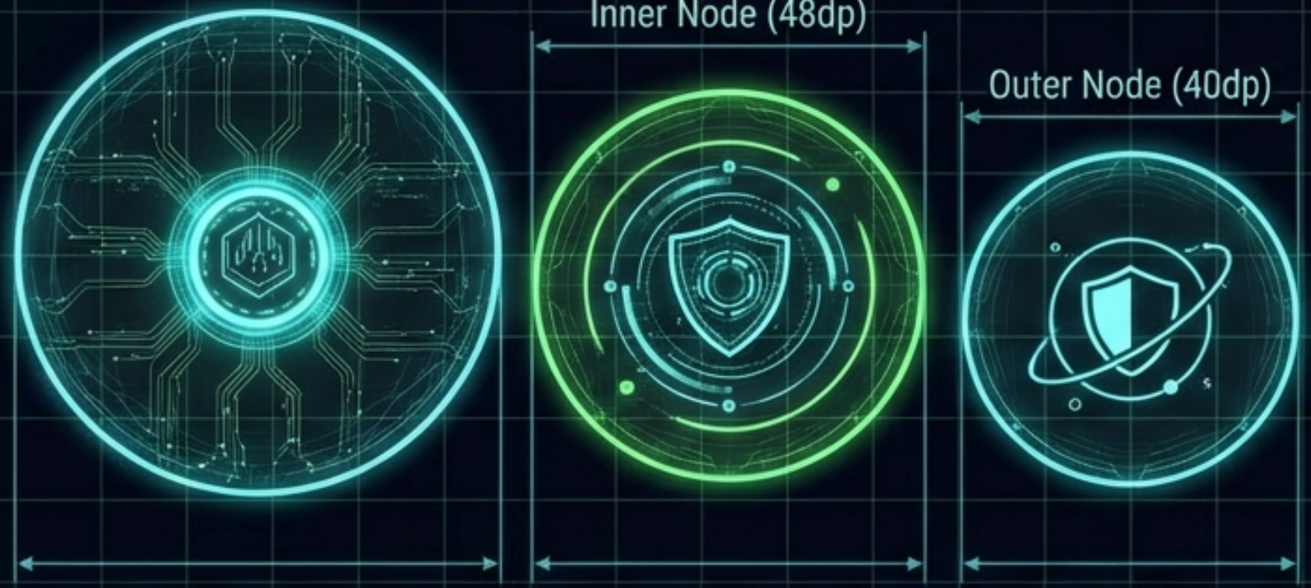
Responsibility: Placing ShieldNode composables



[2,1]
LAYER C

Responsibility: Global particle effects/glows

THE COMPONENT: SHIELDNODE



Core Node (64dp)

DIAMETER: 64dp
AREA: ~3217px²
PRIMARY INTERACTION ZONE

Inner Node (48dp)

DIAMETER: 48dp
AREA: ~1809px²
SECONDARY DATA DISPLAY

Outer Node (40dp)

DIAMETER: 40dp
AREA: ~1256px²
AUXILIARY STATUS INDICATOR

COMPOSABLE SIGNATURE

```
@Composable
fun ShieldNode
(
    type: NodeType,
    status: KaiStatus,
    animatable: Float
)
```

VISUAL LOGIC

Nodes are state-aware containers for icons and glows.

VISUAL STATE: ACTIVE DYNAMICS

COLOR PALETTE (NON-NEGOTIABLE)

#39FF14

Secondary Glow

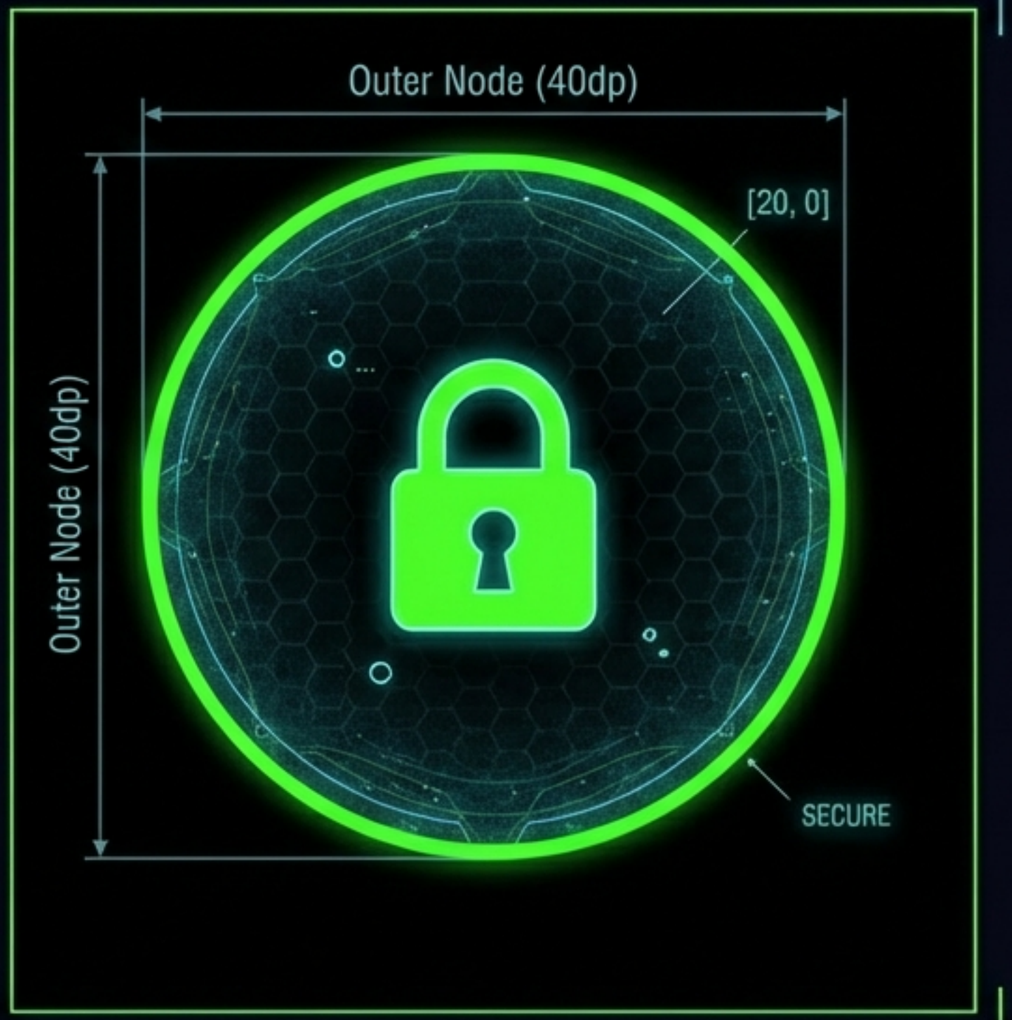
ANIMATION SPEC

Type: Concentric Pulse (Scale + Alpha)

Timing: infiniteRepeatable, tween(1500ms), Reverse

Effect: Nodes must appear to ‘breathe’ to indicate SystemSecure status.

VISUAL STATE: PERIMETER SECURITY



Target: Outer Ring Nodes

Iconography: Material Symbol 'Lock'

Stroke: Solid Neon Green #39FF14

Fill: Darkened/Transparent (Encryption)

Animation: Static (Locked nodes do not pulse)

Represents the “Sentinel” aspect of Kai—protecting the boundary.

THE SYNAPTIC WEB (CANVAS LAYER)

DRAWING ALGORITHM

1. Compute (x,y) for Core.
2. Iterate 6 Inner Nodes:
   `drawLine(Core, Inner[i])`.
3. Iterate 6 Outer Nodes:
   `drawLine(Inner[i], Outer[i])`.
4. Connect Inner[i] to Inner[i+1] for the hexagonal perimeter.

STYLE

Stroke Width: 2dp
Color: #39FF14 (Alpha ~0.6)
Effect: Gradient brush fading outward.

IMPLEMENTATION: CUSTOM LAYOUT STRATEGY

Precision Positioning with Layout Composable

```
1  Layout(content = { nodes... }) { measureables, constraints ->
2      val placeables = measureables.map { it.measure(...) }
3      layout(width, height) {
4          placeables.forEachIndexed { index, node ->
5              // Apply Polar->Cartesian math here
6              node.place(x, y)
7          }
8      }
9  }
```

[240, 80] LAYOUT_ENGINE

KEY BENEFIT

Pixel-perfect alignment of the Synapse Ring regardless of screen density. Do not use nested Rows or Columns.

CHROMACORE INTEGRATION

THEME TOKENS

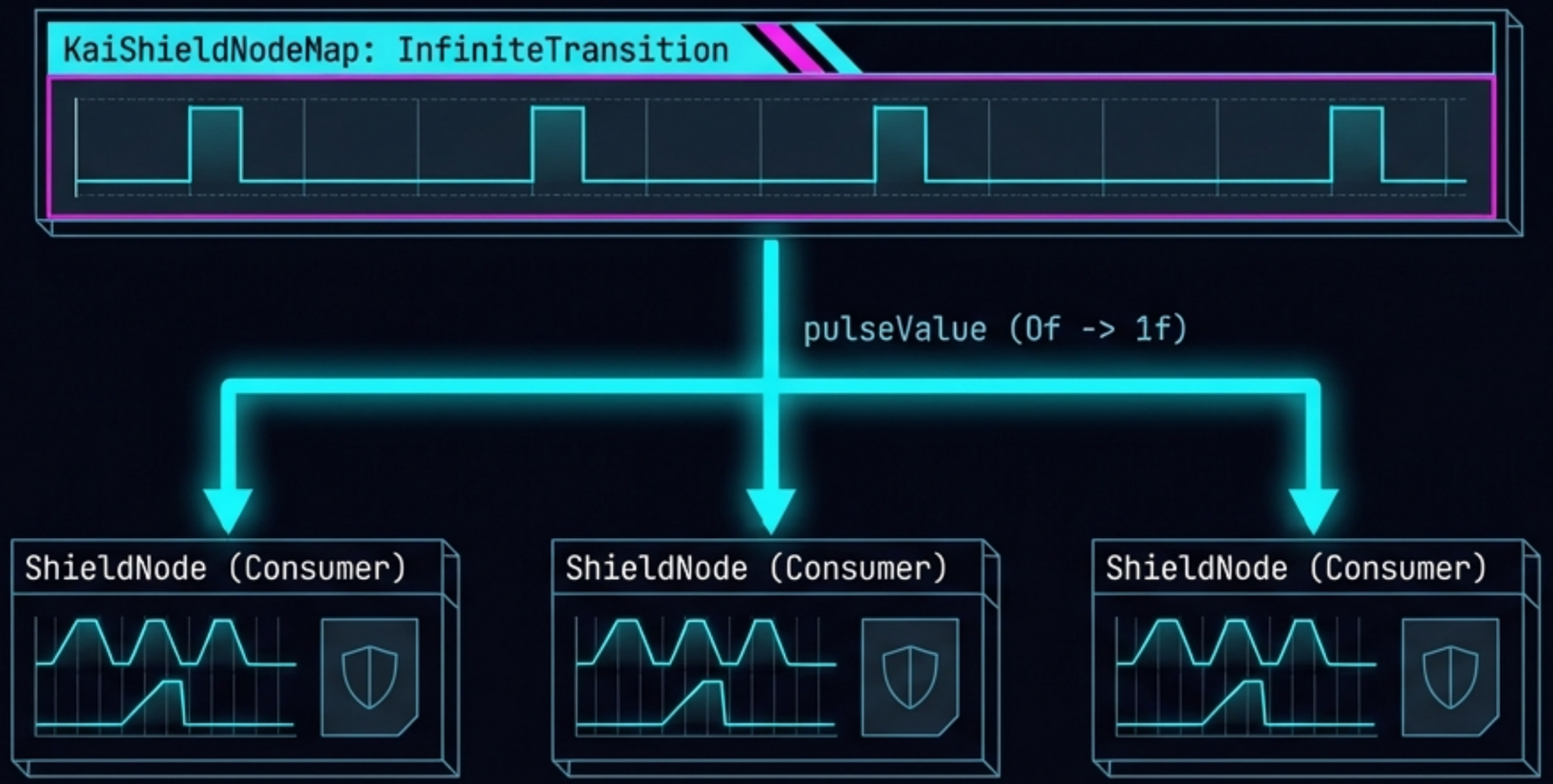
KaiNeonGreen: #39FF14
(Active Elements)

KaiDarkVoid: #050510
(Background)

KaiCyan: #00FFFF
(Data Flow Accents)

System Integration: The ShieldNodeMap observes ChromaCore state to allow dynamic recoloring (e.g., Red for ThreatDetected) while defaulting to Green.

ORCHESTRATION & SYNCHRONIZATION



Problem: Independent animations create chaotic noise.

Solution: Hoisted State Animation. The parent holds the transition object and passes the normalized value down. The entire shield expands and contracts in Perfect Harmony.

TELEMETRY & DATA FLOW

Input Source: KaiViewModel exposes **StateFlow<KaiOrbUiState>**.

[0, 0], 20PX

```
data class KaiOrbUiState(
    val currentStatus: KaiStatus,
    val outerRingLocked: Boolean = true
)
```

[0f -> 20PX]

Logic Mapping

KaiStatus	Visual Effect (KaiOrb)
KaiStatus.SystemSecure	Pulse Neon Green
KaiStatus.ThreatDetected	Pulse Red + Rapid Interval
KaiStatus.Idle	Dimmed Static Green

[0, -> 20PX]

FABRICATION CHECKLIST

- [ ] Define Color Palette #39FF14 in Color.kt
- [ ] Implement PolarToCartesian helper function
- [ ] Import Material ‘Lock’ icon
- [ ] Build ShieldNode composable with active/locked states
- [ ] Create KaiShieldLayout custom composable
- [ ] Integrate Canvas for background connections
- [ ] Hook up synchronized heartbeat pulse
- [ ] Connect KaiViewModel state flow

SYSTEM ONLINE: THE SENTINEL CATALYST

Cyber-Architectural Specification - Active Unit Analysis

STATUS: FUSION OF SYSTEM → ACTIVE

Kai: The Sentinel Shield. Real-time threat assessment and system protection active. [0, -> 2BPX]