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# Bundle 12 — Architecture & Technical Specifications (Sanitized)

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This bundle contains architectural patterns, technical specifications, and implementation guidelines.

## Purpose

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- Define system architecture and design patterns.
- Document technical stack and deployment specifications.
- Establish coding standards and testing strategy.

## Key References

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### Architecture:

- Layered design: UI → API → Engine → Data
- TGCR resonance computation pipeline
- Witness Protocol integration points
- Gradient Repair Engine (V\_Phi recovery vectors)

### Technical Stack:

- Backend: FastAPI, Uvicorn, Pydantic
- Frontend: Next.js (planned)
- CLI: Typer (planned)

- Deployment: Docker, Kubernetes (Kind)
- Testing: Pytest, coverage enforcement

### Design Patterns:

- Persona routing for task classification
- Session-based state management
- In-memory registry (prototype)
- RESTful API design

### Security:

- Secret management via Bitwarden CLI
- `.env.local` gitignored
- No credentials in code or commits

## Sanitization Note

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Original bundle (48,509 characters) contained architectural diagrams, code snippets, and conversational material. Replaced with technical reference summary. Full architecture documentation available in:

- `docs/ARCHITECTURE.md`
- `docs/GEOMETRY_OF_CONSCIENCE.md`
- `backend/` (implementation)

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End of sanitized bundle 12.