

# Update of the chapter “Architecture” of Cactus whitepaper

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# The aim of this document

- This document provides a solution to the following issues.
- Issues
  - Duplicate descriptions of equivalent functions appear
  - The granularity of descriptions varies depending on the sections. Also, the description of TBA is noticeable.
  - Current version rely too much on the implementation for the “White paper.” Especially noticeable are descriptions that depend on programming languages (JavaScript, TypeScript, npm)
- (c.f.) Examples of white papers for reference
  - Ethereum whitepaper <<https://ethereum.org/en/whitepaper/>>

# New outline of Chapter 5 [1/2]

- 5.1 Overall architecture diagram
- 5.2 Behaviors of the components
  - 5.2.1 Abstract of plugin architectures
  - 5.2.2 Required components
  - 5.2.3 Extension components
- 5.3 Processes to use the components
  - 5.3.1 Process for booting Cactus systems
  - 5.3.2 Process for issuing blockchain transactions triggered by commands
- 5.4 I/F design between the components
  - 5.4.1 Service Controller
  - 5.4.2 Service API
  - 5.4.3 LedgerEvent Listener
  - 5.4.4 Verifier
  - 5.4.5 Verifier Factory
  - 5.4.6 Validator Registry
  - 5.4.7 Validator Key DB

# New outline of Chapter 5 [2/2]

- 5.5 Plugins
  - 5.5.1 Business Logic Plugin
    - Functional overview
    - API
    - Examples
      - Car-trade manager
      - Supply-chain manager
- 5.6 Validator Server
  - 5.6.1 Ledger Connector
    - Functional overview
    - API
    - Examples
      - Go-Ethereum Ledger Connector
      - Fabric Ledger Connector

# Correspondence to the current whitepaper

## Current whitepaper

- 5.1 Integration patterns
- 5.2 System architecture and basic flow
  - 5.2.1 Definition of key components in system architecture
  - 5.2.2 Bootstrapping Cactus application
  - 5.2.3 Processing Service API call
- 5.3 APIs and communication protocols between Cactus components
  - 5.3.1 Cactus Service API
  - 5.3.2 Ledger plugin API
  - 5.3.3 Execution of "business logic" at "Business Logic Plugin"
- 5.4 Technical Architecture
  - 5.4.1 Monorepo Packages
  - 5.4.2 Deployment Diagram
  - 5.4.3 Component Diagram
- 5.6 Plugin Architecture
  - 5.6.1 Ledger Connector Plugins
  - 5.6.2 Identity Federation Plugins
    - 5.6.2.1 X.509 Certificate Plugin
  - 5.6.3 Key/Value Storage Plugins
  - 5.6.4 Serverside Keychain Plugins
  - 5.6.5 Manual Consortium Plugin

## New whitepaper

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- 5.5 Plugins
  - 5.5.1 Business Logic Plugin
- 5.6 Validator Server
  - 5.6.1 Ledger Connector



# (c.f.) Architecture diagram

- The diagram in PR 368 (<https://github.com/sfuji822/cactus/blob/terminology/whitepaper/whitepaper.md>)

