

InstallHub: Enterprise Package Architecture



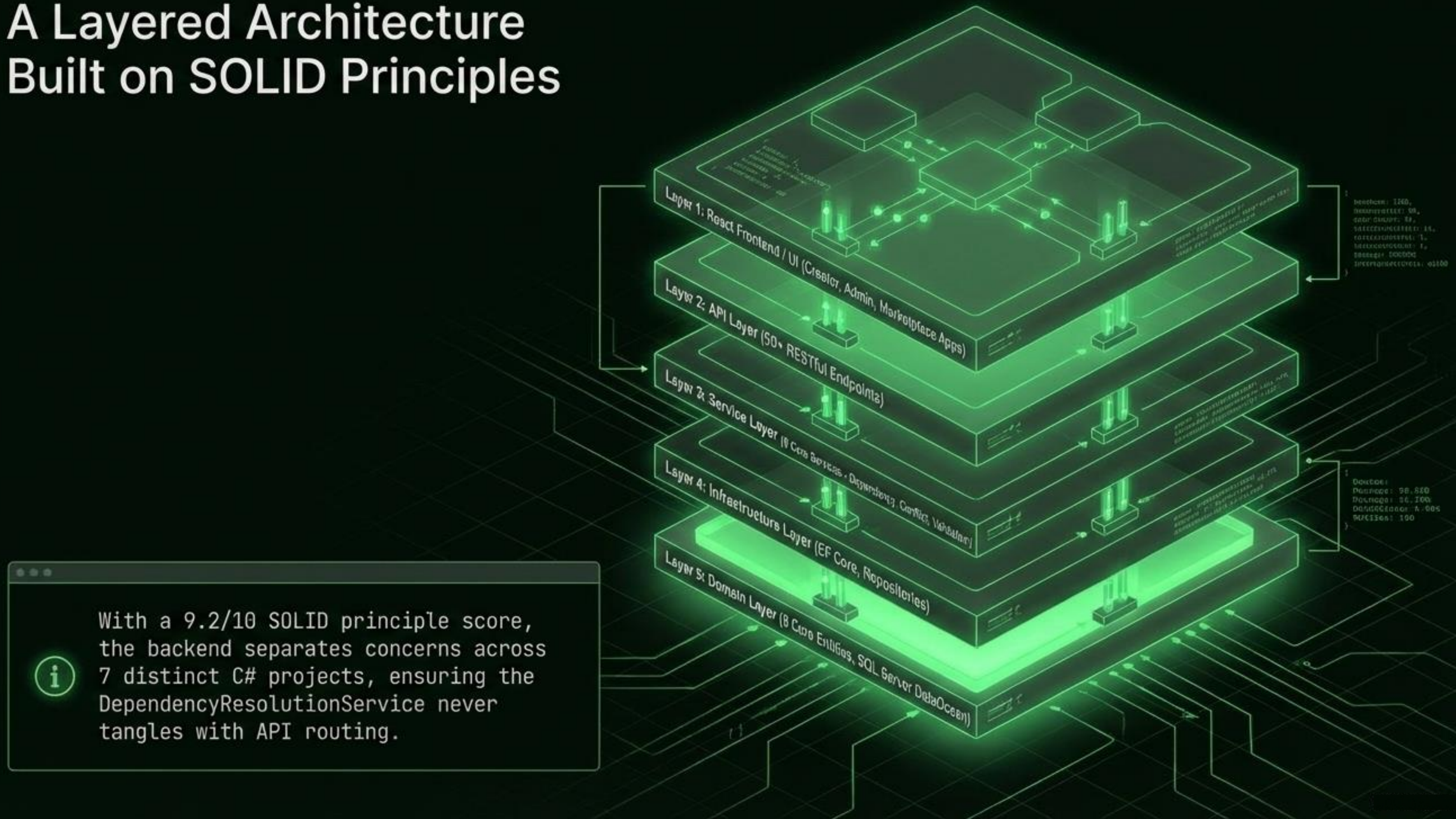
BizFirstAi




> Execution context: Technical Showcase & System Blueprint

SOLID_SCORE: 9.2/10
CODE_BASE: 15,000+ LOC
TEST_COVERAGE: 86%

A Layered Architecture Built on SOLID Principles



 With a 9.2/10 SOLID principle score, the backend separates concerns across 7 distinct C# projects, ensuring the DependencyResolutionService never tangles with API routing.

The Package Lifecycle Defines the System Architecture

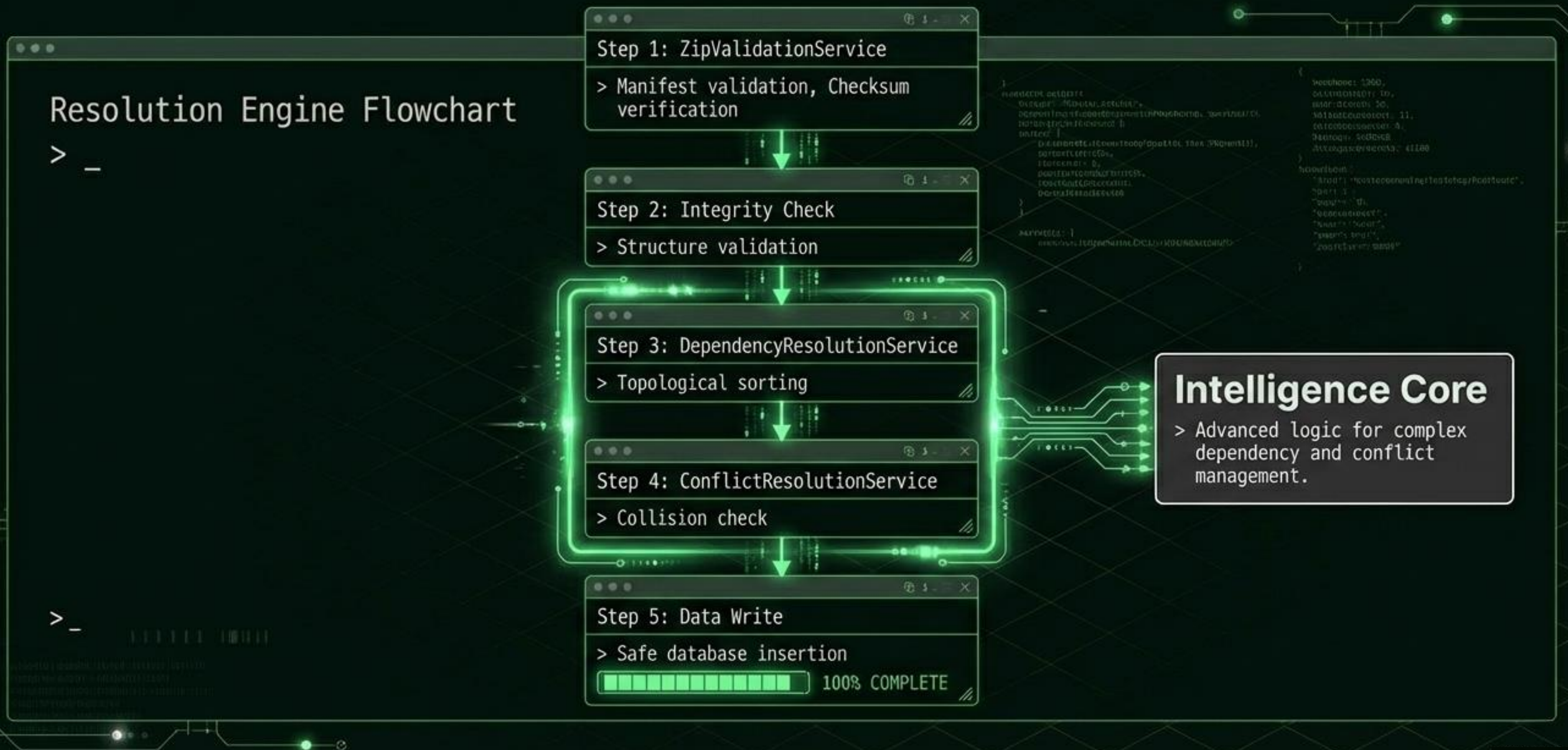


Phase 1: Generating the Versioned Package

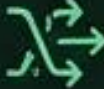



- > Analyzing dependencies...
- > Packaging Form Definitions...
- > Assigning Semantic Version: MAJOR.MINOR.PATCH
- > Export Complete. Payload encrypted.


Phase 2: The Import Pipeline Orchestrates Safe Ingestion

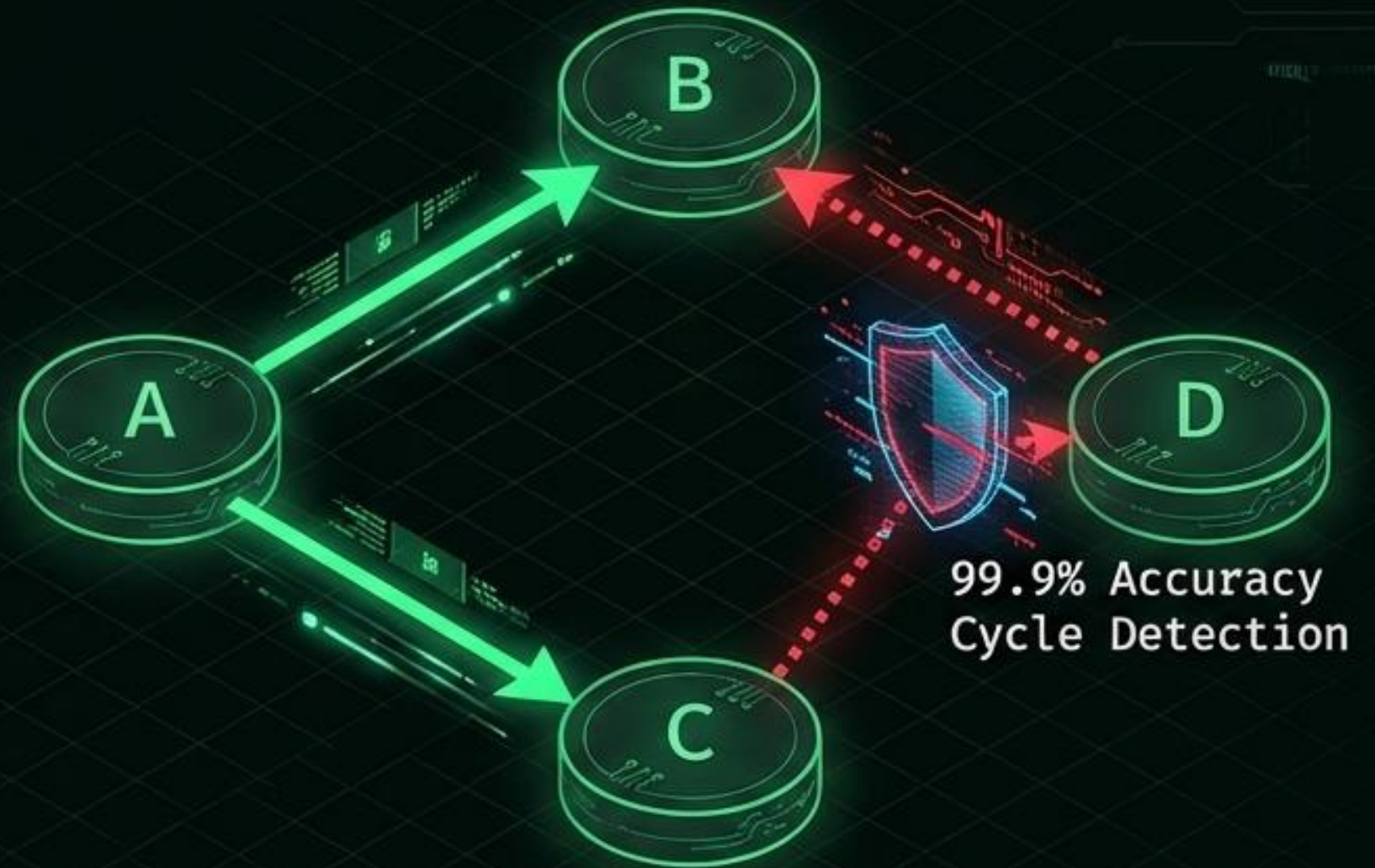


Topological Sorting Prevents Circular Dependencies

 **Algorithm:** Topological sorting for strict import execution order.

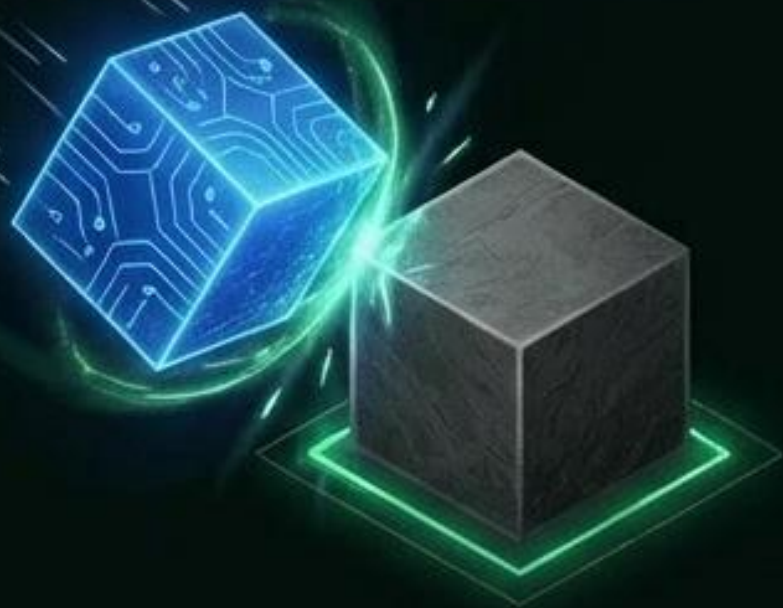
 **Validation:** Automatic detection of missing external dependencies.

 **UX Output:** Generates visual import preview graph for the admin before execution.



Algorithmic Conflict Resolution Protects Existing Data

Keep Existing



Logic: Incoming package data is ignored; target system data is preserved.

Overwrite



Logic: Target system data is completely replaced by package data (destructive).

Merge



Logic: Non-conflicting fields are updated; complex nested structures are reconciled.

20 Specialized Handlers Support Universal Data Portability

Database & Schema

- TableHandler, ViewHandler,
- IndexHandler,
- StoredProcHandler,
- SchemaHandler

Logic & Execution

- ScriptHandler,
- TriggerHandler,
- ConstraintHandler

Identity & Security

- RoleHandler,
- UserHandler,
- SecurityHandler,
- AuditHandler

Application & Forms

- FormHandler,
- TemplateHandler,
- ConfigHandler,
- MetadataHandler

All handlers inherit from BaseImportHandler, ensuring unified validation, lifecycle hooks, and dependency mapping across all data types.

Phase 3: MarketHub Enables Global Distribution

Discovery:

TF-IDF search,
trending algorithms,
tier-based ranking.

Monetization:

Publishers earn 70-80%
commission on package
distribution.

One-Click Install:

MarketHub consumers
trigger InstallHub Phase 2
directly from the browser.

InstallHub
(The Engine)



InstallHub
(The Engine)

MarketHub
(Marketplace)



MarketHub
(Marketplace)

The Central Nervous System of the BizFirst Ecosystem



InstallHub does not just move data; it unlocks the composability of the entire enterprise automation stack.