Reflex: C++ Reflection Database

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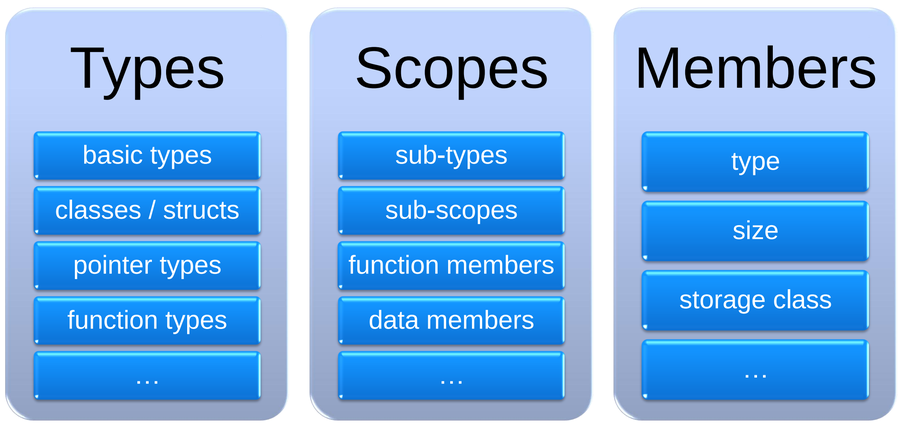
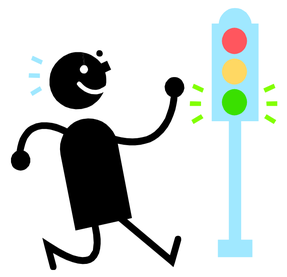
Reflection data



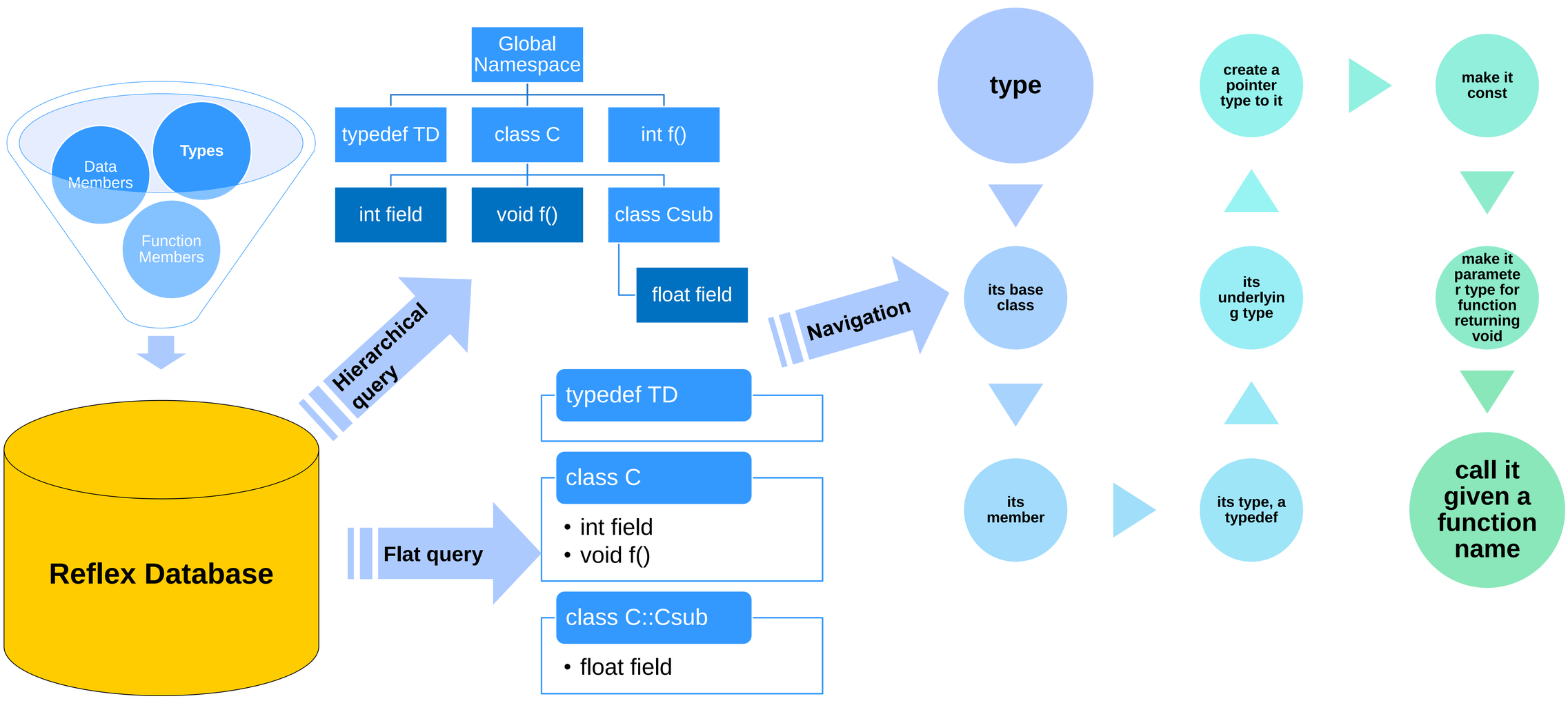
Reflex API stores properties as defined by C++ standard

Use cases for reflection data

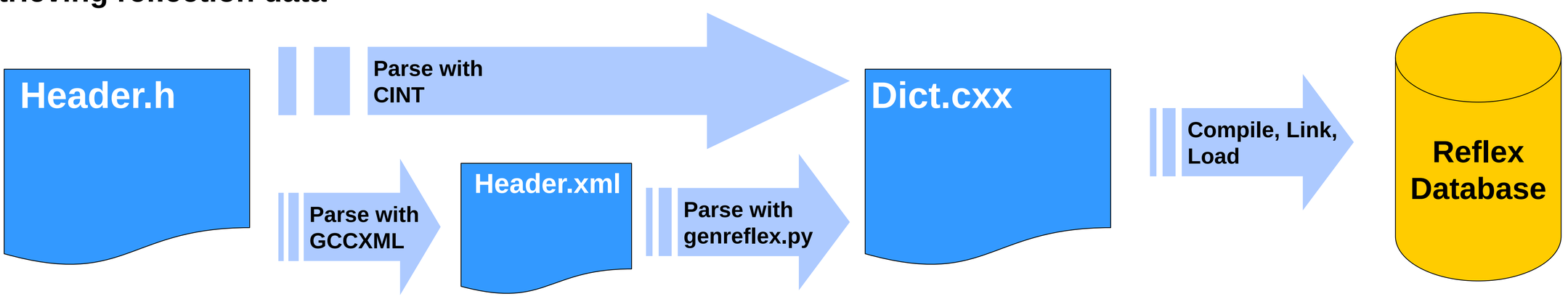


- Persistency: storing C++ objects
- Interpreter: calling C++ functions
- Plugins: extending C++ dynamically
- Documentation
- Code analysis / dependency tracking
- IDE, auto-completion
- Service oriented programming: discover C++ API at runtime
- And probably more!

Reflex allows to store and query reflection data



Retrieving reflection data



Features

- Aims at complete coverage of C++ standard
- Ingredient for data serialization for three LHC experiments
- Support for Linux, Windows, MacOS, Solaris, …
- Extensible: piggy-back user data
- Very simple API
- Supports invalidation of types (unloading)
- Robust: no exceptions, no asserts, no dangling pointers
- CMake-based build system
- CMake-based test suite, integrated into build system

Outlook

Waiting to be published

- Major speed improvements
- Thread safety
- Even simpler API
- Support for multiple databases, e.g. for multithreading
- Less STL: more performance, more platforms

Future plans

- Extensive test suite
- Simpler, more efficient generation of reflection data:
  build time, load time, memory use.
  E.g. use binary serialization instead of Dict.cxx