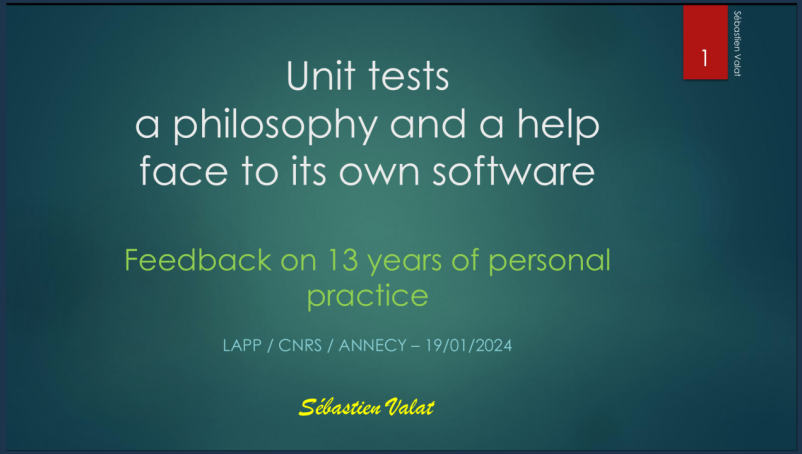
LAPP
Laboratoire d'Annecy de Physique des Particules

Se mocker (enfin)
Du Hardware

Vincent Pollet, Pierre Aubert

ESCAPE
cta cherenkov telescope array
cnrs
UNIVERSITÉ SAVOIE MONT BLANC

Introduction



Seminar on Unit Tests

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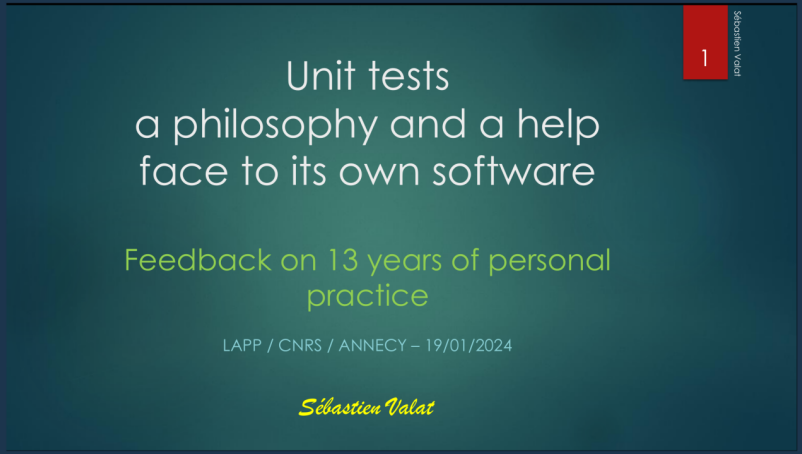

Seminar on Unit Tests

Possibility to **Mock network**

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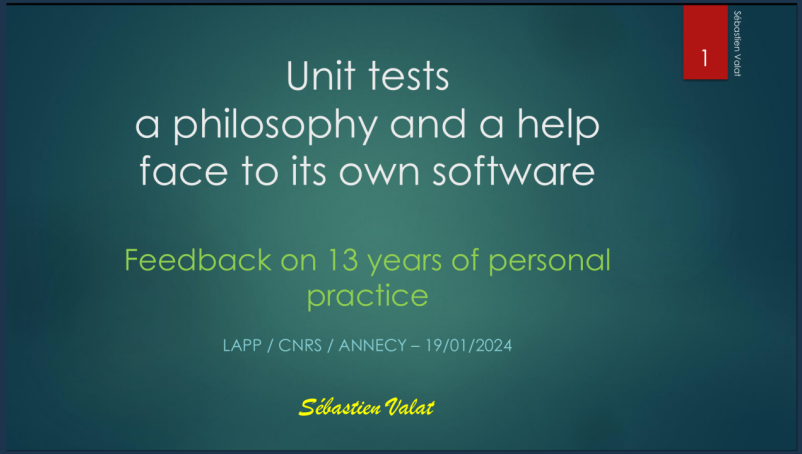

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Mock **LHCb DAq** on a **laptop**

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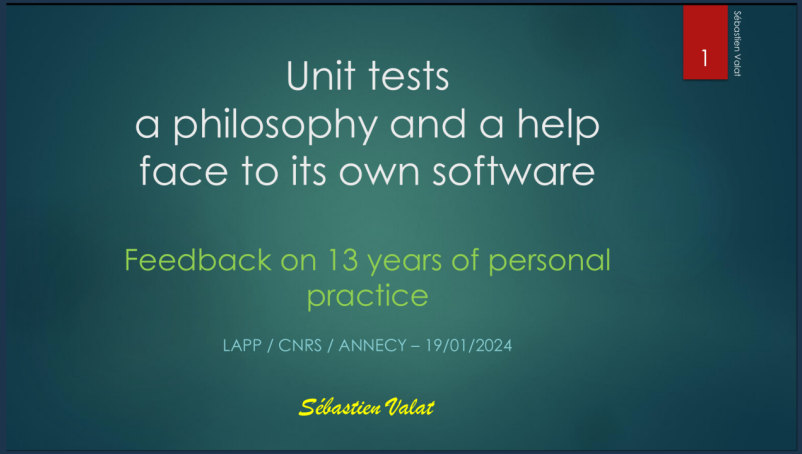

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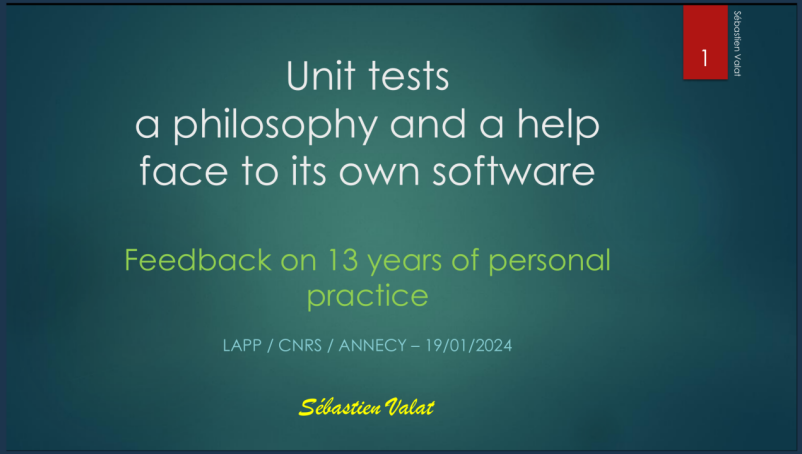

Seminar on Unit Tests

Possibility to **Mock network**

Mock **LHCb DAq** on a **laptop**

We could **mock only server interactions**

No implementation of a mock server **needed**

Motivation

Motivation

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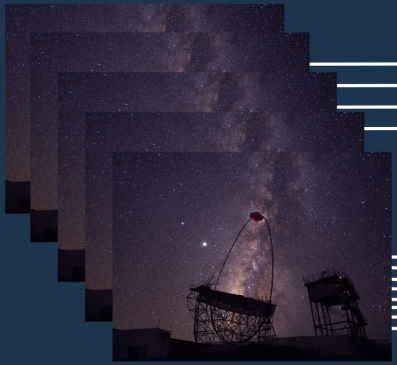
hipeRTA

Motivation



hipeRTA

x19 telescopes North Site
x100 Telescopes South Site

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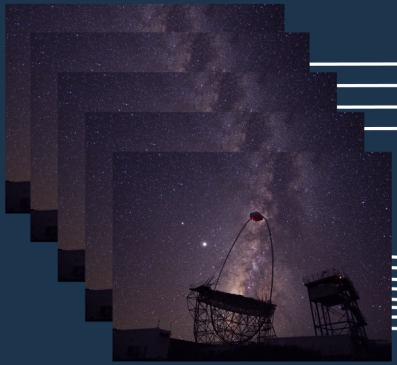

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How To **Unit Test** It ?

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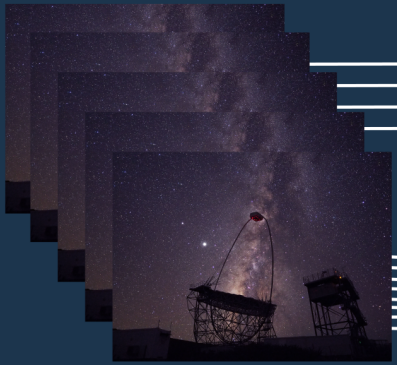

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hipeRTA

How To **Unit Test** It ?

- On our **laptops**
- On **Gitlab CI**

Mock of Sockets ?

Mock of Sockets ?

Camera

Mock of Sockets ?

Mock of Sockets ?

Mock of Sockets ?

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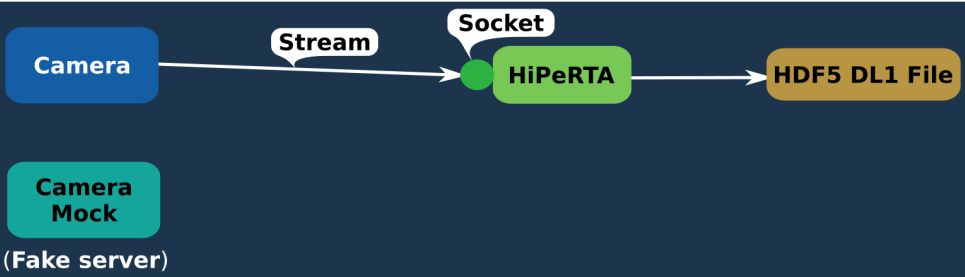

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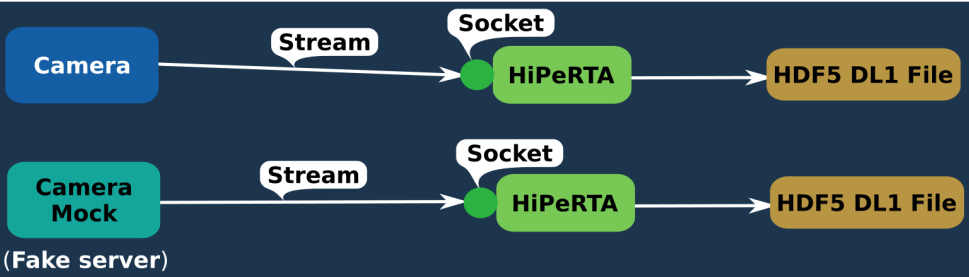

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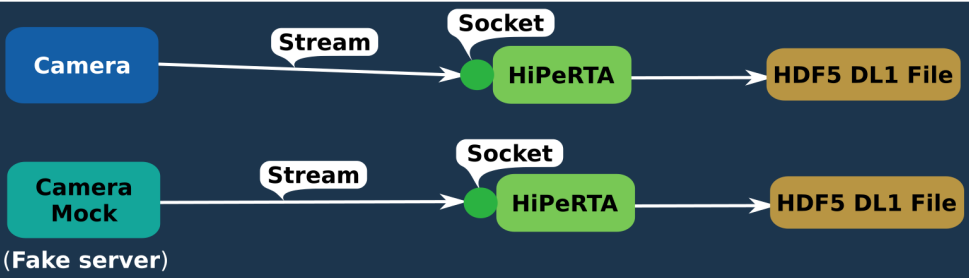

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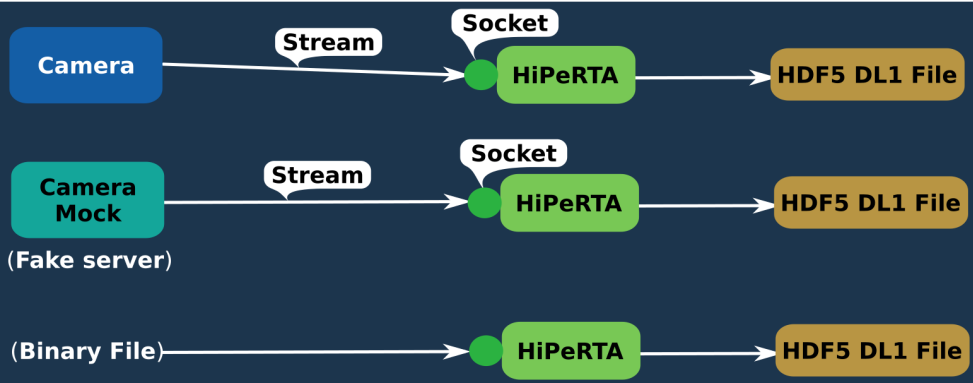

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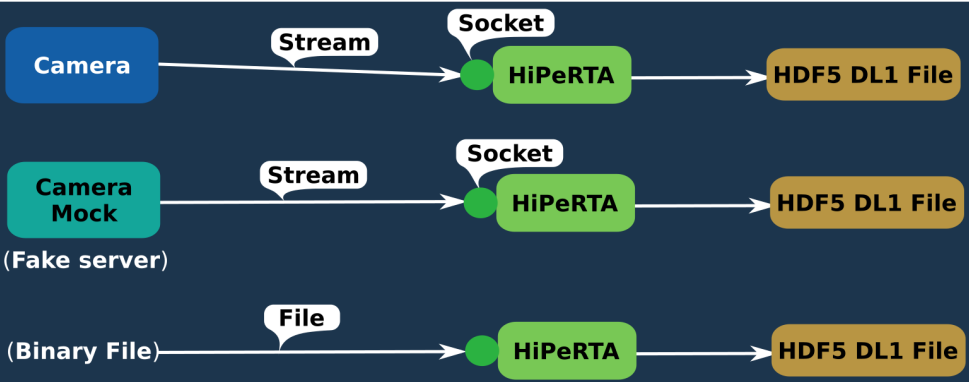

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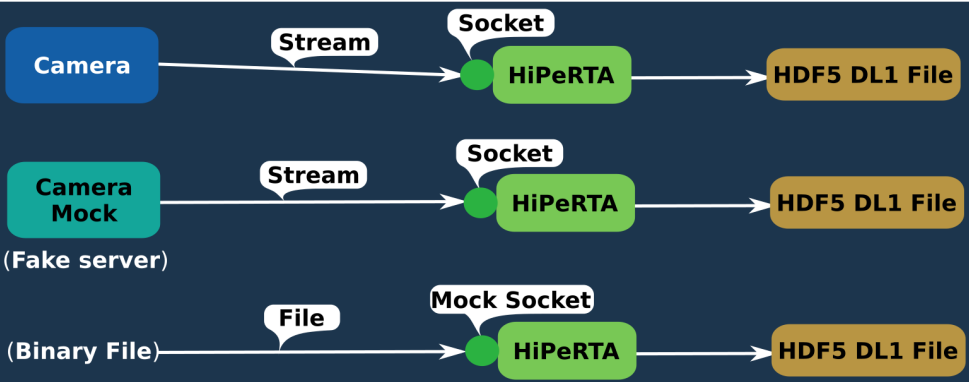

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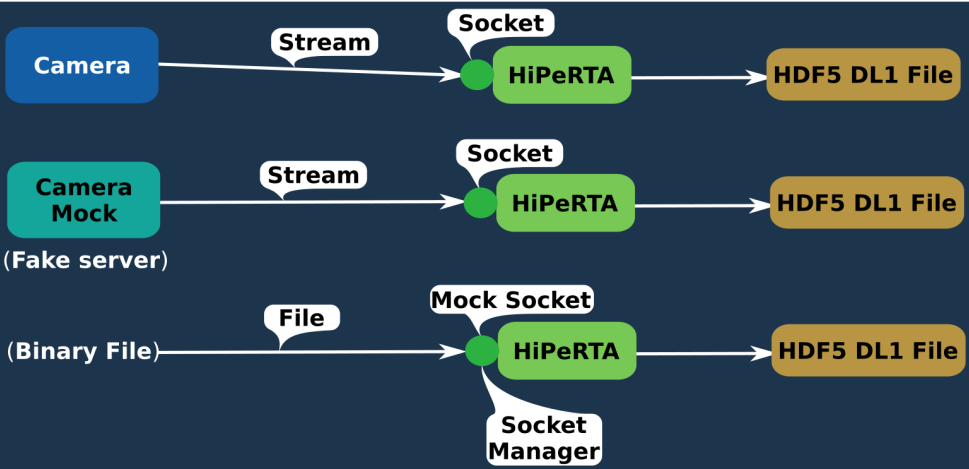

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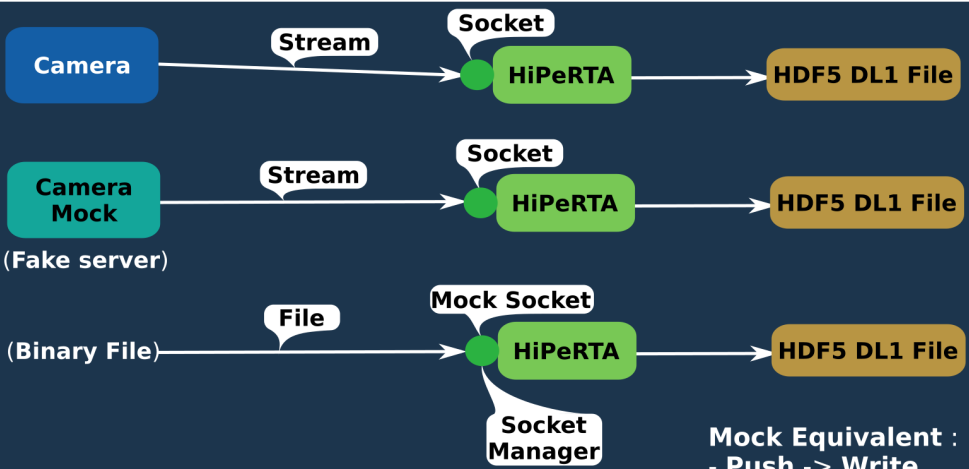

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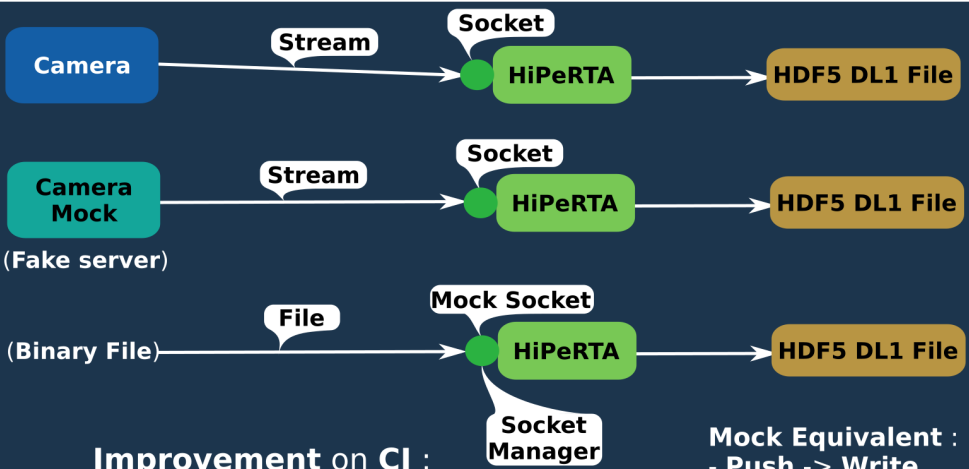

Improvement on **CI** :
- Unit tests use to take **40s**
- Now only **5s**

Mock Equivalent :
- **Push** -> **Write**
- **Pull** -> **Read**

Mock Sockets Design

Mock Sockets Design

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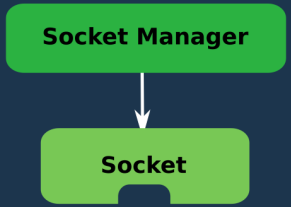

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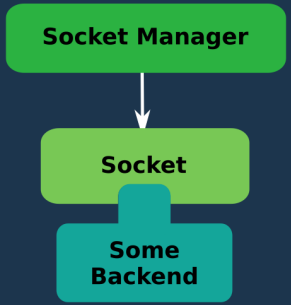

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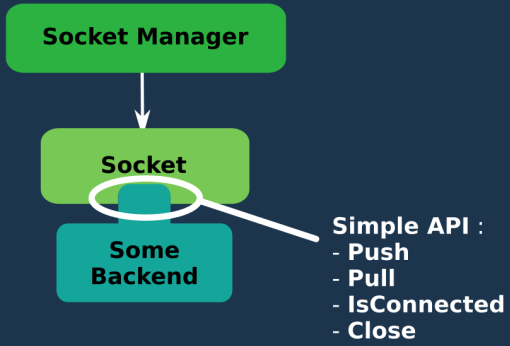

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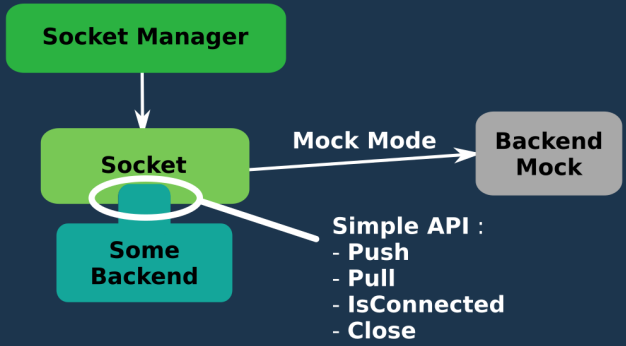

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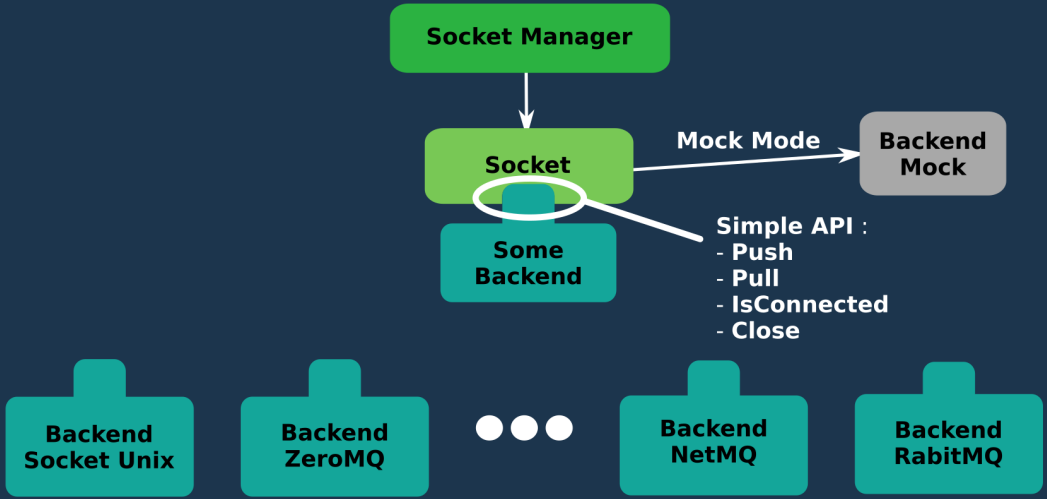
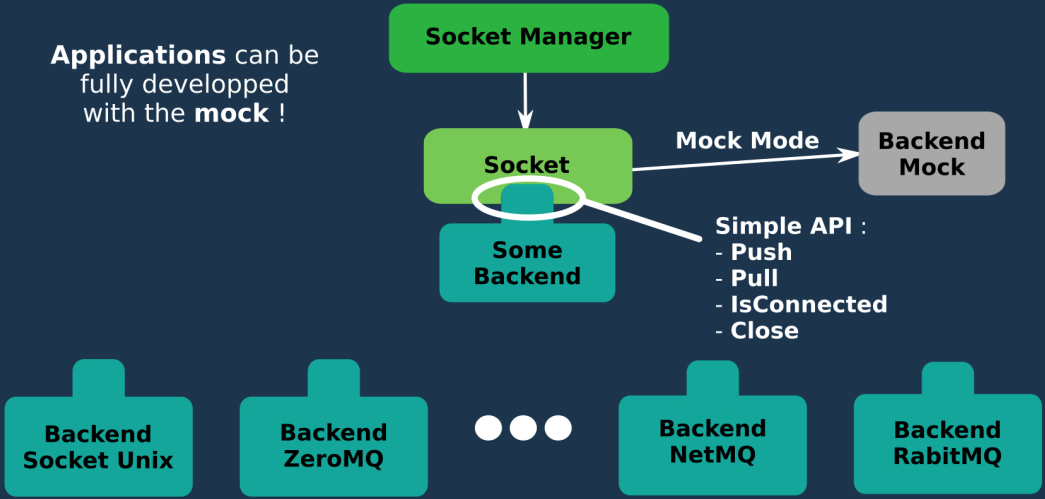


Mock Sockets Design

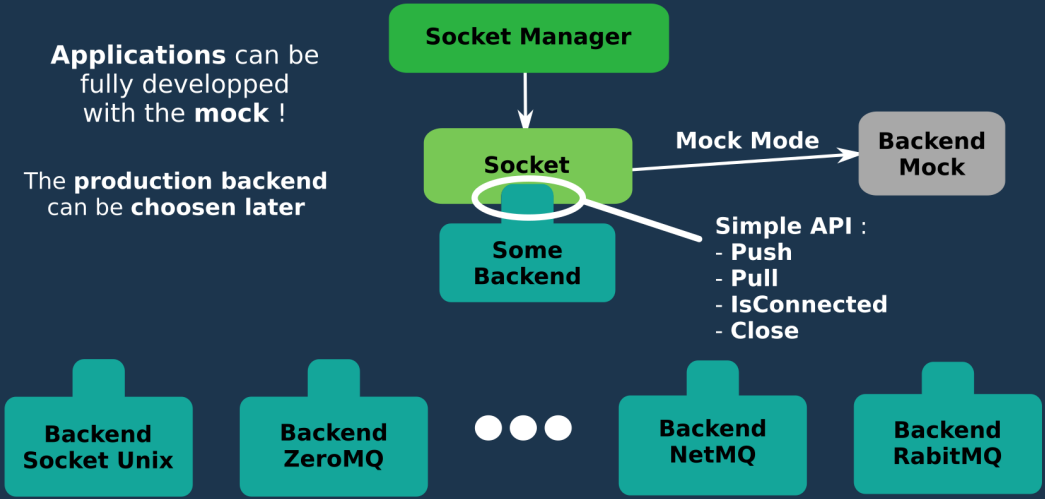
Applications can be fully developped with the **mock** !



Mock Sockets Design

Applications can be fully developped with the **mock** !

The **production backend** can be **choosen later**



Extending Socket Backend

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We could make **Sockets more generic**

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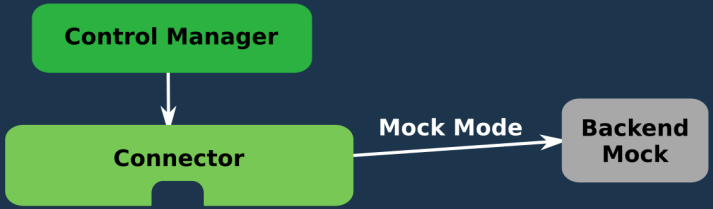

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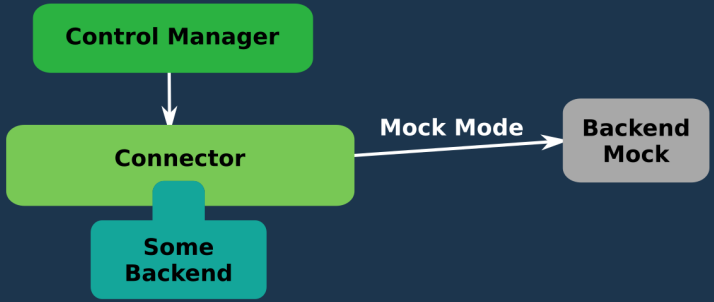

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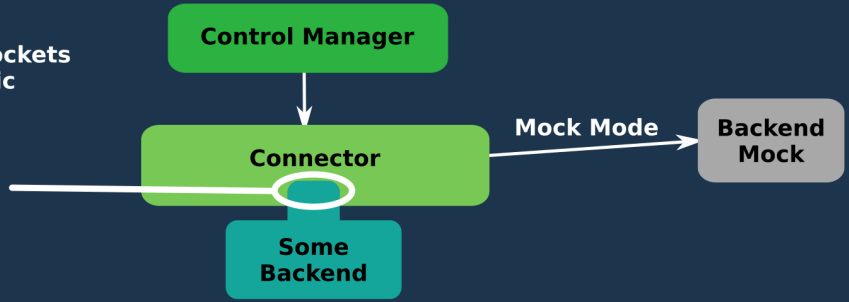

More Powerful API :
- **Push**, **Pull**
- **Call**, **DataPoint**
- **Close**
- **IsConnected**
- **Create Server/Client**

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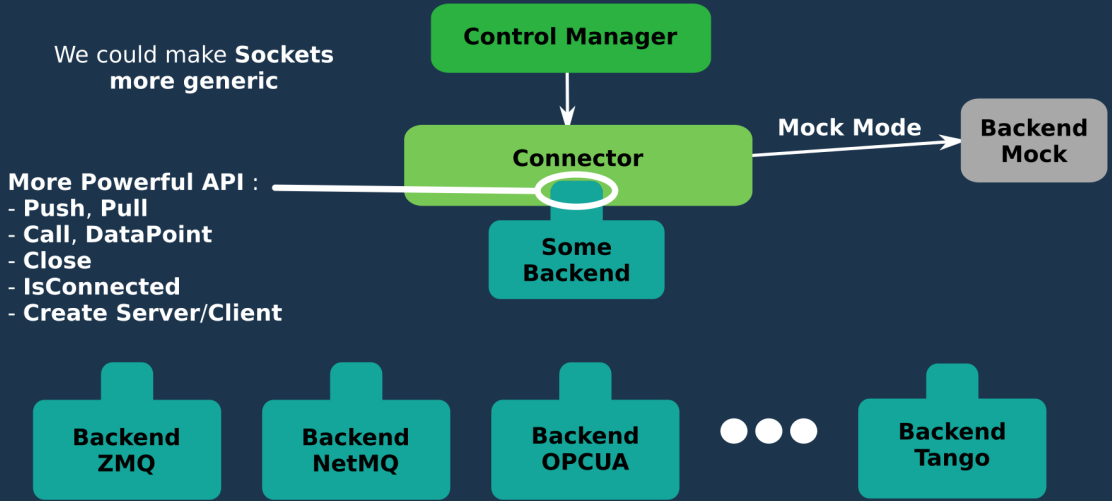

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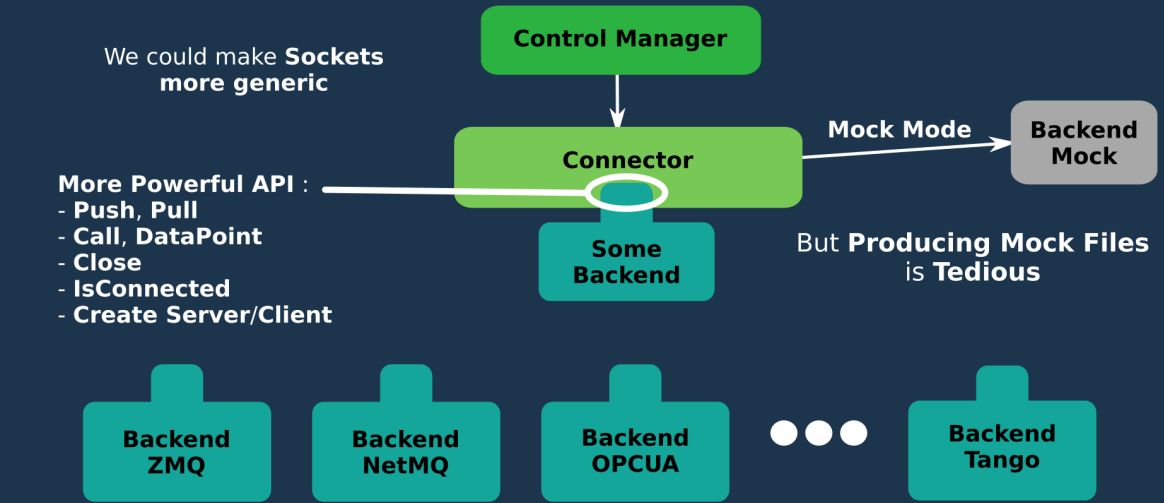

Mock Control Design

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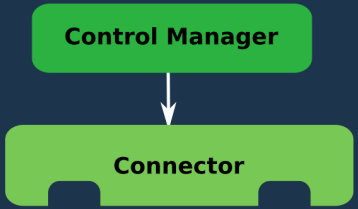

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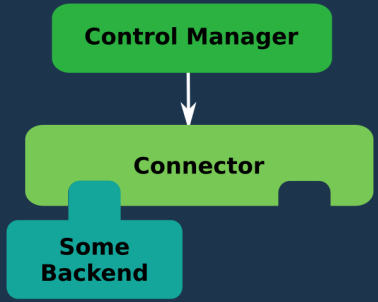

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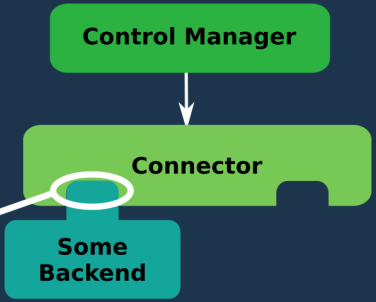

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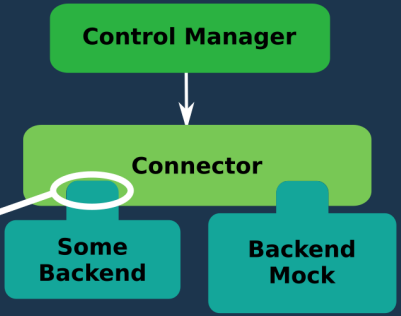

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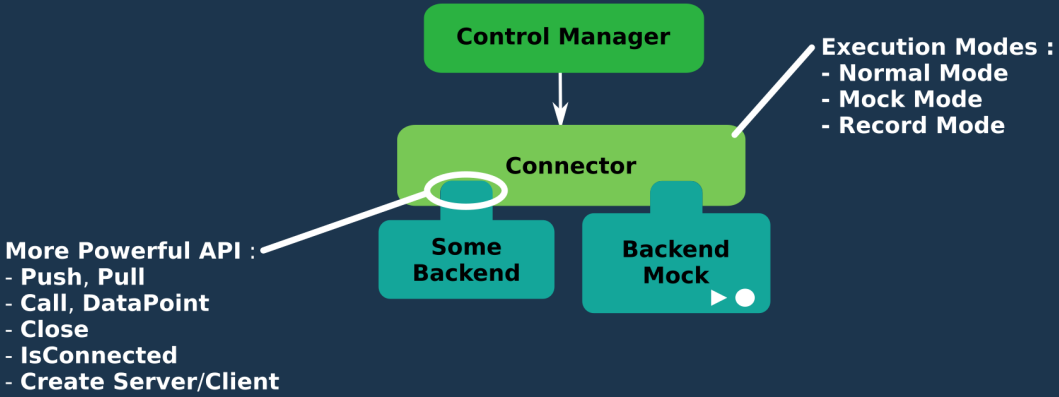

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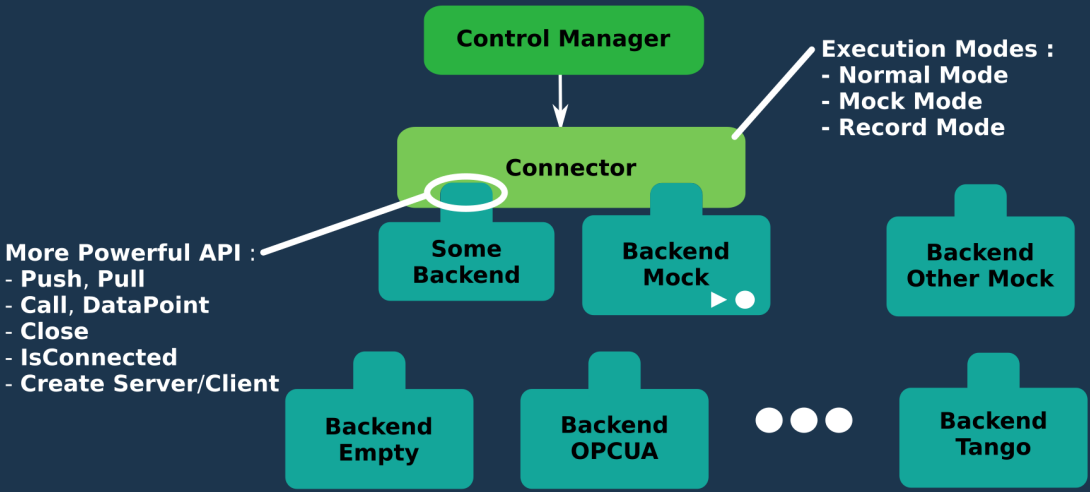

Normal Use and Mock

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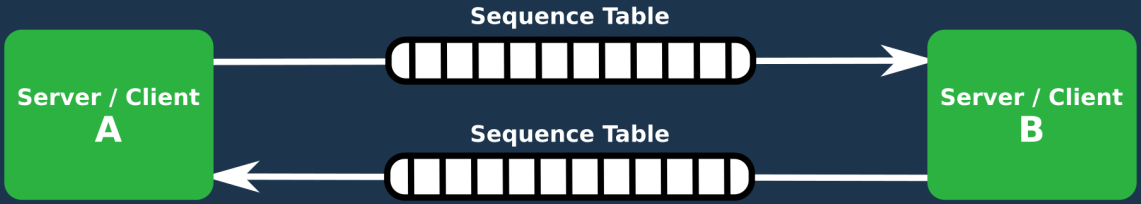

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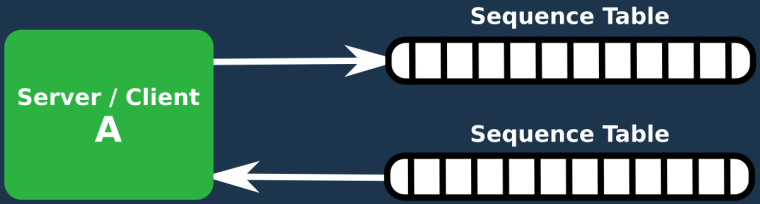

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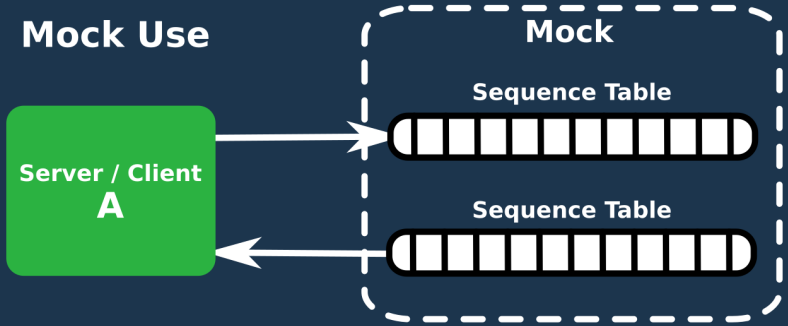

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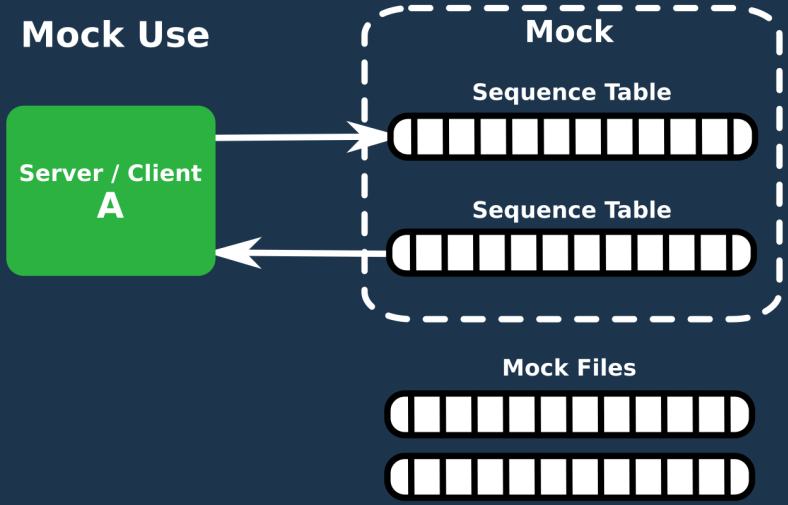

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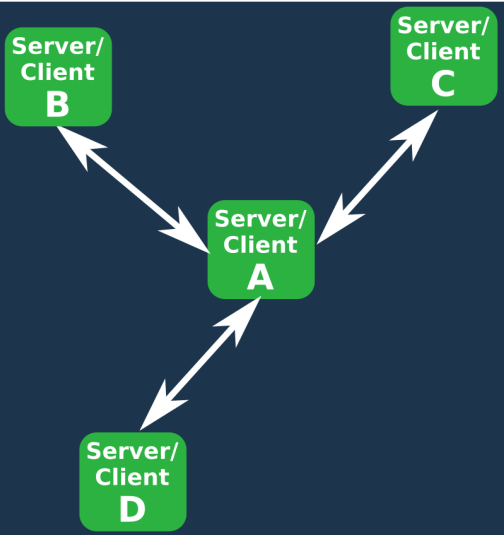

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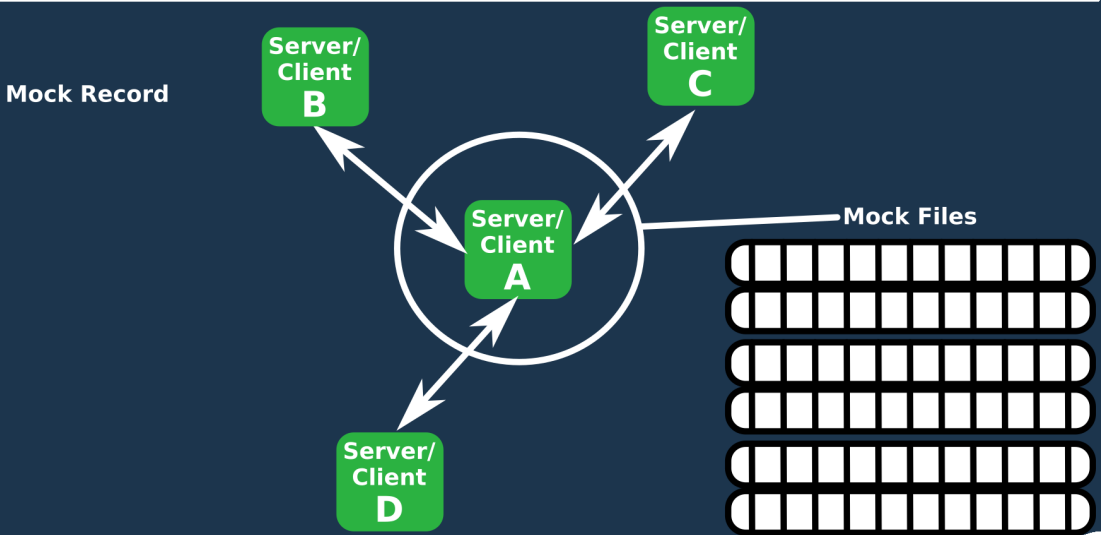

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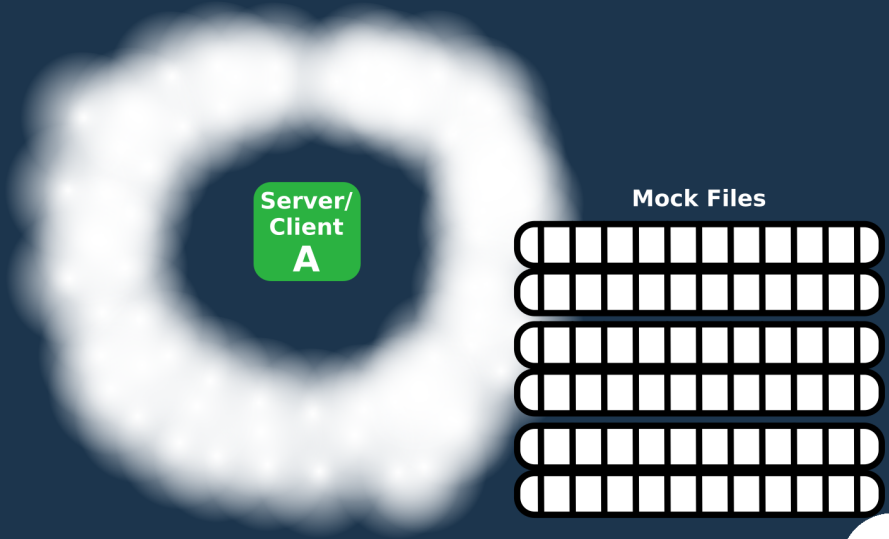
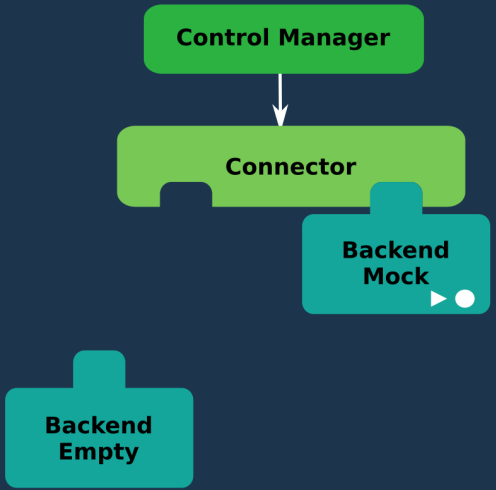


Sequence Table of A

Event Id and/or Time	State of A	Client/Sever : B			Client/Sever : C	
		Data Point B1	Calls From B of A1(X)		Calls From C of A2(X)	
			Params	Expected Result	Params	Expected Result
0	Waiting	-	-	-	-	-
1	-	B1 value	-	-	-	-
2	-	-	42	21	-	-
3	Ready	-	-	-	[63, 7]	[48, 12, 4]
28	-	-	-	-	-	-
56	Stop	-	-	-	-	-

Implementation and Backends



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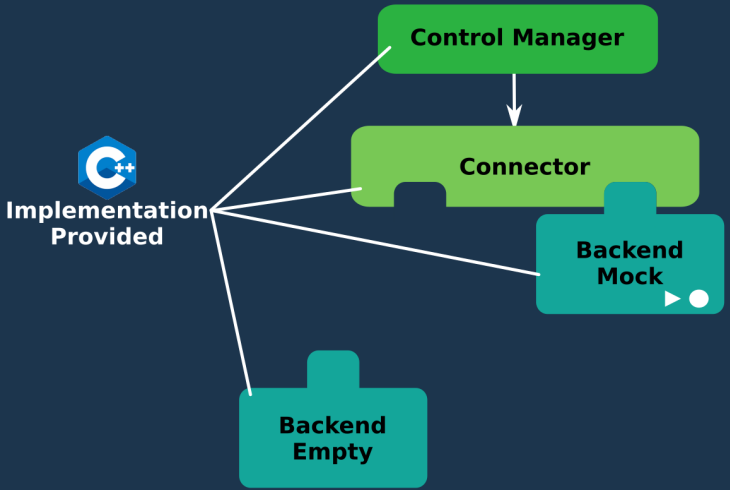

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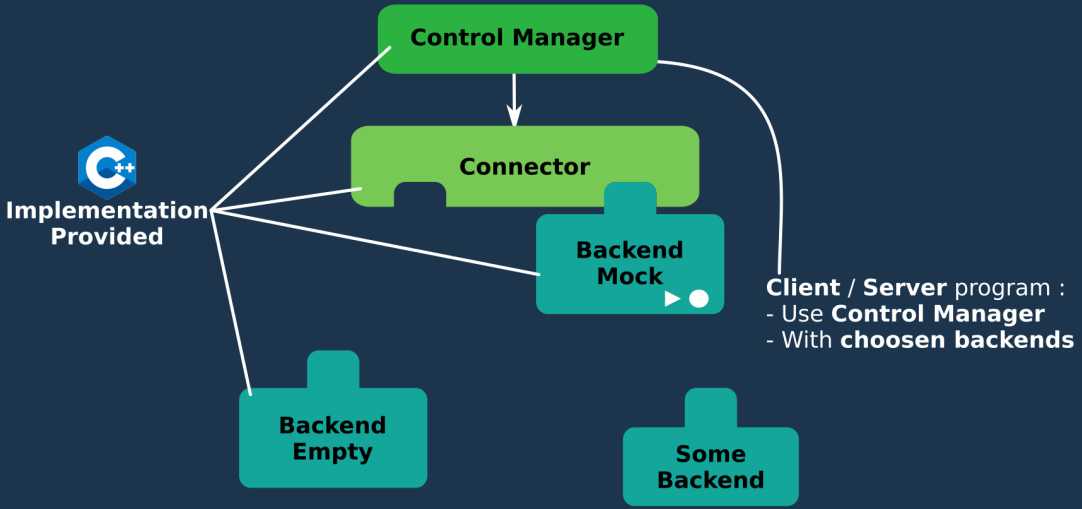

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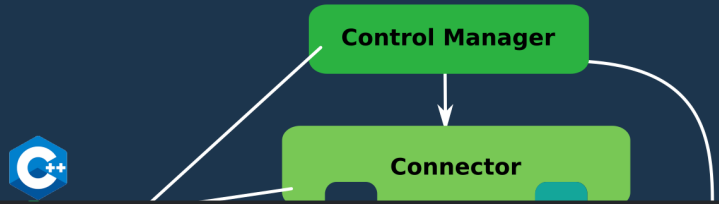


```cpp
#include "phoenix_control.h"

typedef PAbstractControlManager<std::string, PMockControlBackend, PMockControlBackend> ConnectorManager;

///Basic example using PAbstractConnectorManager
void exampleClient(){
	ConnectorManager manager;
	manager.addClientConnector("Alice", "localhost", phoenix_mockControlParam(false, "mock_push", PLog::DEBUG));

	manager.registerVar("Alice", phoenix_getComposeVar<size_t>("shadok"));

	for(size_t i(0lu); i < 10lu; ++i){	//Let's push 10 values
		manager.pushData("Alice", "shadok", i);
	}
}
```

Conclusion

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Why use **mocks** ?

- **Run tests** on **laptop**, small **CI worker**
- **No latency**, **no sleeps**, **no timeouts**

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- Still running in **1 process** on your laptop

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- **Create mock** files **automatically** with **record mode**
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What is **available now** :

- C++ Project : `https://gitlab.in2p3.fr/CTA-LAPP/PHOENIX_LIBS2/PhoenixSocket/`
- C++ Project : `https://gitlab.in2p3.fr/CTA-LAPP/PHOENIX_LIBS2/PhoenixClock/`