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<http://seal.cern.ch>

What is Seal ?

- Applications Area Core Libraries and Services project
 - Foundation and Utility Libraries
 - Plug-in manager & Component model
 - Framework services
 - Math Libraries
 - Dictionary (C++ reflection / introspection)
 - Scripting services (Interactivity / productivity)
 - Documentation & Education

Use of Seal products

	ATLAS	CMS	LHCb	PI	POOL
Base	I	D	I	D	D
Zip	I	D	I	D	D
I/O	I	D	I	D	D
Plugin Manager	I	D	I	D	D
Component Model	P		P		P
Framework Services	I	I	I		D
Minuit	D	D		D	
Reflection	D	D	D	D	D
Prepared dictionaries	D	D	D	D	
LCGdict	D	D	D	D	
PyRoot	D	P	D	D	
PyLCGDict	P	IP	D	D	
PyBus	P		P		
Python Course	D	D	D		

Direct

Indirect

Planned

Foundation

Plug-in Manager

Component model

- These are essentially stable now

Foundation: about 100 classes

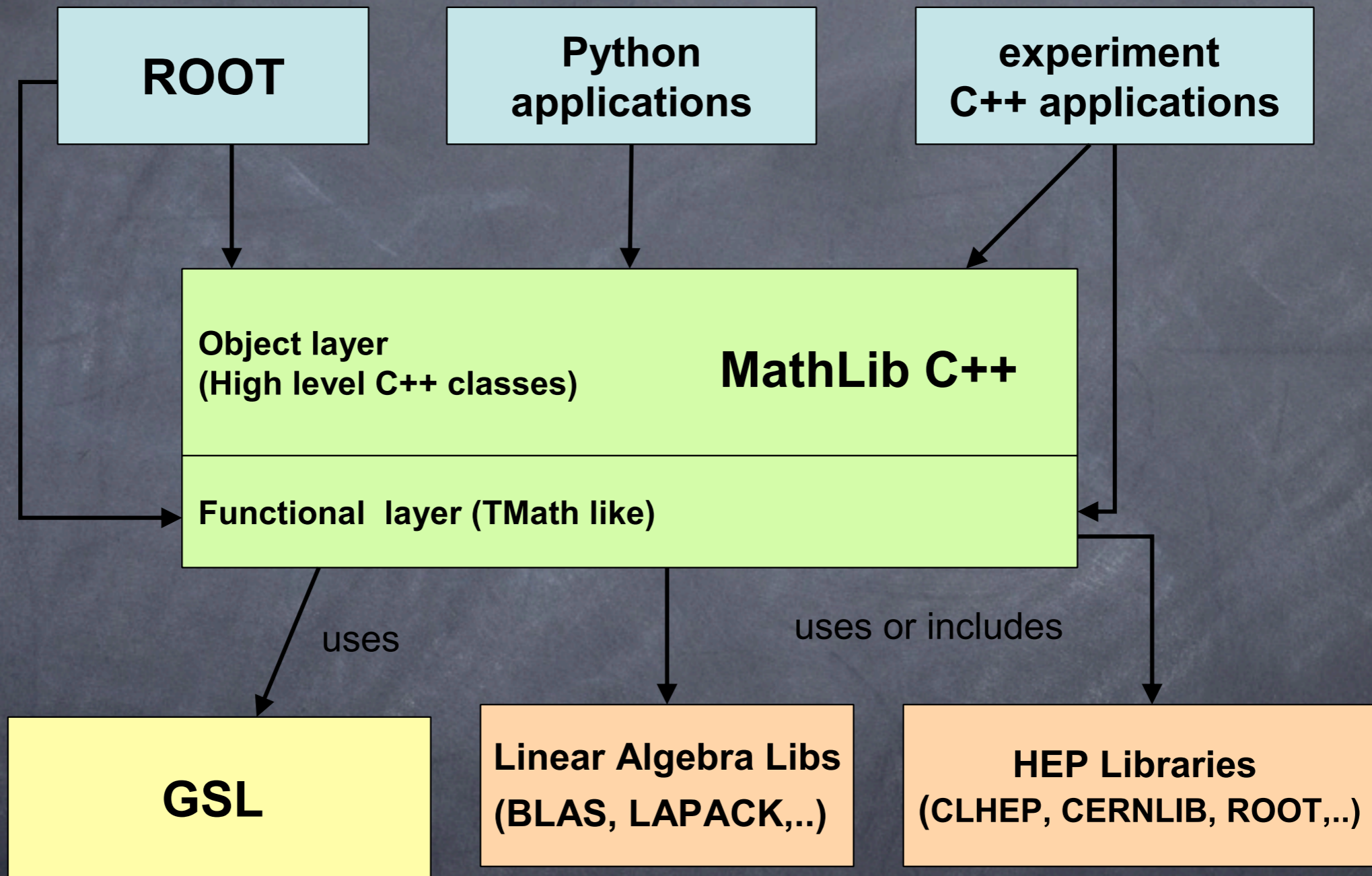
Argz	IOSelectCB	SharedLibrary	FileAcl
BitIterator	IOSelectEvent	SharedLibraryError	FileLock
BitOps	IOSelector	ShellEnvironment	FileMapping
BitPattern	IOStatus	Signal	FileNameLock
BitTraits	InetServerSocket	Socket	Filename
Callback	InetSocketAddress	SocketConst	HostInfo
DebugAids	IntBits	SocketPair	IOChannel
DirIterator	IntTraits	Storage	IOChannelTransfer
Environment	LocalServerSocket	StringFormat	IOPlatformData
Error	LocalSocket	StringList	IOStatus
File	Log	StringOps	IOTypes
FileAcl	LongLong	SubProcess	InetSocketAddress
FileError	LowMemoryPool	SubProcessError	LocalSocket
FileLock	Macros	SysErr	NamedPipeServer
FileMapping	MapIterator	SystemError	Pipe
FileMappingError	MultiMethod	SystemInfo	PipeCmd
FileNameLock	NamedPipeServer	TempFile	ProcessInfo
FileSystemError	NetworkError	Time	ResourceInfo
Filename	PODVector	TimeConst	SharedLibrary
FilenameError	Pipe	TimeInfo	Signal
Hook	PipeCmd	TimeSpan	Socket
HookList	ProcessInfo	UUID	SocketPair
HostInfo	Range	UUIDError	SubProcess
IOBuffer	Regex	Unwind	SystemError
IOChannel	RegexError	UserInfo	SystemInfo
IOChannelPair	RegexMatch	XTypeInfo	TempFile
IOError	ResourceInfo	DebugAids	Time
IOFlags	SaveErrno	DirIterator	TimeInfo
IOInput	SearchPath	ElfAbi	UserInfo
IOOutput	Sequence	File	Windows
			WindowsIO

Framework Services

- Services built atop the component model
 - Message (intelligent diagnostics/logging)
 - Options (configuration)
 - Name (identification of components within an application)
- Further developments awaiting adoption of component model in production code by at least 2 LHC experiments

Mathlibs

- Minuit is mostly finished
 - Still requires rigorous testing
- Provide coherent math library to end users
 - Coordinate needs of ROOT & LCG
 - C++ thin wrapper around existing code
 - Some new functionality



Dictionary

- Learn from experience with original implementation
 - More complete C++ coverage
 - Friendlier API
- New implementation to be shared between LCG and ROOT

Scripting

- PyLCGDict

- How complete a coverage of C++ can we afford?
- How best to map C++ ugliness to Python elegance?
- Work with physicists to cater for their needs
- Analysis in Python course / solutions

- PyBus

- Python-based component model
- PyROOT has been donated to ROOT

Education & Documentation

- Now that development of new functionality is slowing down, interfaces are stabilizing, it is high time to document what is there
- Documentation is essential
 - This is often underestimated
 - Particularly by authors, when busy implementing code !
 - The code's author is likely to write bad documentation : must solicit help

Summary

- Most of the Seal products are already being used by experiments and other LCG projects
- Some packages are stable: mostly maintenance and documentation foreseen
- Remaining development activity mainly in
 - Mathlibs
 - Dictionary
 - Scripting
 - Documentation