



Features and Benefits

Toolkit	Libraries	Feature	Benefit
All Toolkits	All libraries	Consistent and intuitive API across supported platforms	Applications run on multiple operating systems with minimal or no code changes
		Higher-level object-oriented interface to complex underlying APIs	Handles many of the intricacies of the C++ language so developers can focus on solving business problems Most system programming APIs are C-level APIs. Higher-level APIs are easier to use and understand and result in less code to write and maintain
Database Toolkit	Database Server Database Client	Full object oriented, cross platform C++ solution for programmatic access to a wide range of ODBC compliant databases. Comprised of a client and server. The server makes use of the native operating system's ODBC environment to respond to the requests of various database clients. The client exposes APIs to database applications which are portable to a wide variety of platforms.	* reduces the need to have multiple ODBC drivers for different databases installed on the client machines. * reduces software configuration complexity because you are only required to configure and maintain your ODBC drivers in one location at the server. * a full object-oriented, cross-platform C++ solution for programmatic access to a wide range of ODBC-compliant databases. * easy to understand C++ API that abstracts away low-level complexity, allowing for fast project ramp-up. * powerful built-in C++ streaming capabilities that allow client/server interaction across multiple platforms, without the need for any vendor specific code on the client side.
STL Toolkit	Containers, Iterators, Algorithms, String, Exceptions	Robust implementation of the ANSI/ISO C++ Standard Library specification	Extensible interface in the C++ Standard Library
		Multiple, extensive sets of collection classes	Flexibility to select the classes that best meet specific technical needs
ETL Toolkit	Sorted Vector, Dynamic Array, Hash Table, Heap, List, Stack, Queue, Set	Unique enhancements not found in open source or other commercial STLs	Additional features to STL; optimized data retrieval; simplifies users code implementations



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Foundations Toolkit	Helper	Set of helpful, non-intrusive add on elements to enhance the C++ Standard Library	Simplifies the use of common C++ Standard Library operations, reducing the likelihood of errors
	Time	Extensive set of classes to model time, date, time period, time zone, and stopwatch	Provides full functionality for time and date representations and computations with accuracy to the microsecond
	Thread	C++ encapsulations of key multithreading concepts such as thread creation, control, and synchronization	Insulates developers from the low-level complexities of dealing with the native C threading library implementations Allows applications to utilize multiple processor machines
		Advanced threading abstractions like futures, future threads, traps, and thread pools	Extends the basic threading functionality, offering an added advantage when creating multithreaded applications
Communications Toolkit	File	C++ encapsulations of key concepts such as path, directory, file and file systems	Portable interfaces that address the inconsistent implementation of path names, file handles, file locking and the creation and use of directories across operating systems Simplifies problems like manipulating path names in C++, accessing a list of files in a directory or determining if a file exists
	Framework	Implementation of common and not-so-common design patterns	Provides framework that increases the robustness, scalability, and stability of applications. Flexible architecture that is not so intrusive.
		Advanced networking abstractions like acceptor/connector strategies and dispatching mechanisms	Extends the basic networking functionality, offering an added advantage when creating networked applications.
	IO	Collection of common Input/Output (IO) facilities	Insulates developers from the low-level complexities of dealing with the native C IO library implementations



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Communications Toolkit	Pipe	C++ encapsulations of thread/process communication facilities	Insulates developers from the low-level complexities of dealing with the native C inter-process communication (IPC) implementations Enables separate threads/processes to communicate and exchange data with one another	
	Network	C++ encapsulations of key networking concepts such as socket, socket address, host, service, and IO multiplexer	Portable interfaces that address the difficulty of learning and safely using the native C networking library implementations Provides simplicity for common use, but not at the expense of low-level control	
	Security	Set of mechanisms to manage users and groups	Provides the ability to manipulate users and groups in an object-oriented way	
	Streaming		Portable services to make objects persistent or send them across communication mechanisms through a variety of extensible virtual stream classes	Developers can utilize various types of data streams as well as extend specialized versions
			Non-intrusive streaming mechanism	Intuitive API makes it possible to stream nearly any C++ class with minimal code changes
UNIX	C++ encapsulations of Unix processes, resources, signals, timers, System V IPC, pipes, and other classes	Provides a clean, consistent C++ interface to UNIX systems calls		
Web Toolkit	C++ Web Page Development - includes create text, hyperlinks, images, forms, lists, tables, frames; locate and modify elements; use constraints; and add applets	C++ library that contains classes for dynamically building HTML (Hypertext Markup Language) Web pages	Allows reuse of all existing C++ libraries and interfaces and eliminates the need to wrap existing interfaces to implement CGI programs in a scripting language No need to worry about special characters in HTML text or in form data and learn any of the HTML syntax, including cumbersome start and end tag rules Reduces common mistakes and allows you to focus on the tasks, rather than the tools Provides helpful diagnostic output to troubleshoot invalid Web page composition	



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Math Toolkit	Complex Numbers, Numeric Matrix, LU Factorization, Random Number Generator, Histogram, Number Vector, Number Array, Fast Fourier Transforms, Least Squares Approximation	High performance, cross platform C++ library for performing linear algebra computations	Provides high performance math routines to build computationally intensive applications. These advanced C++ objects allow you to build scientific-computing applications while focusing on your domain rather than the efficiency of the mathematical operations The classes and algorithms contained in Math Toolkit are quite easy to learn and simple to use, reducing the time taken to develop mathematical applications. In fact, some examples can be used as is for mathematical analysis