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POCO

C++ Portable Components

Developer Training

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POCO Overview

An Overview and a Guided Tour of the POCO C++ Libraries

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"Without a good library, most interesting tasks are hard to do in C++; but given a good library, almost any task can be made easy."

Bjarne Stroustrup

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POCO is ...

- a collection of C++ class libraries, similar in concept to the Java Class Library, the .NET Framework or Apple's Cocoa
- focused on "internet-age" network-centric applications
- written in modern ANSI/ISO Standard C++ and based on the C++ Standard Library/STL
- highly portable and available on many different platforms
- Open Source, licensed under the Boost Software License

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Objectives and Mission

- POCO is a powerful, yet easy to use platform to build your applications upon
- POCO allows you to build highly portable applications (write once – compile and run anywhere)
- POCO is modular and scalable from embedded to enterprise applications (you only pay for what you use)
- POCO provides consistent, comprehensive and comprehensible programming interfaces

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Objectives and Mission (cont'd)

- POCO favors simplicity over complexity ("as simple as possible, but not simpler")
- POCO aims for consistency in design, coding style and documentation
- POCO emphasizes source code quality, in terms of readability, comprehensiveness, consistency, style and testability
- POCO aims to make C++ programming fun again

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Guiding Principles

- Strong focus on code quality, style, consistency and code readability –all code must satisfy our coding styleguide (and it works – we frequently get compliments on our code quality)
- Strong focus on tests (automated unit tests with high coverage)
- Favor pragmatic and elegant design over "solving all the worlds problems"
  (if we can satisfy 95 % of all use cases with an elegant solution, and the remaining 5 % would require an overly complex design, we focus on the 95 %)
- Build on top of solid foundations – re-use existing proven C libraries (e.g., expat, zlib, PCRE) where it makes sense

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Supported Platforms

- Windows 2000/XP/Vista
- Windows CE (partially, under development)
- Mac OS X
- (embedded) Linux
- Solaris
- HP-UX
- QNX

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History

- Summer 2004: Günter Obiltschnig started development
- February 2005: First release on SourceForge
  (Release 0.91 under Sleepycat license)
- May 2005: First contributions by Aleksandar Fabijanic
- January 2006: Release 1.0
- March 2006: Release 1.1
- July 2006: Moved to Boost license, POCO Community Website
- August 2006: Release 1.2
- May 2007: Release 1.3
- Summer 2008: about 20 contributors, used in 100s of projects

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POCO Usage Examples

- building automation middleware and devices
- industrial automation and industrial equipment
- traffic control systems
- healthcare applications
- measurement, data acquisition and test systems
- air traffic management systems
- VoIP
- ticketing and entrance-control systems
- shrink-wrapped applications

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Features

- Threads, thread synchronization and advanced abstractions for multithreaded programming
- streams and filesystem access
- shared libraries and class loading
- powerful logging and error reporting
- network programming
  (sockets and high-level protocols like HTTP, FTP, SMTP, etc.)

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Features (cont'd)

- XML parsing, based on SAX2 (Simple API for XML Version 2) and DOM (Document Object Model) interfaces
- Configuration file and options handling
- SQL database access
- Data encryption
- Regular Expressions
- ... and much more

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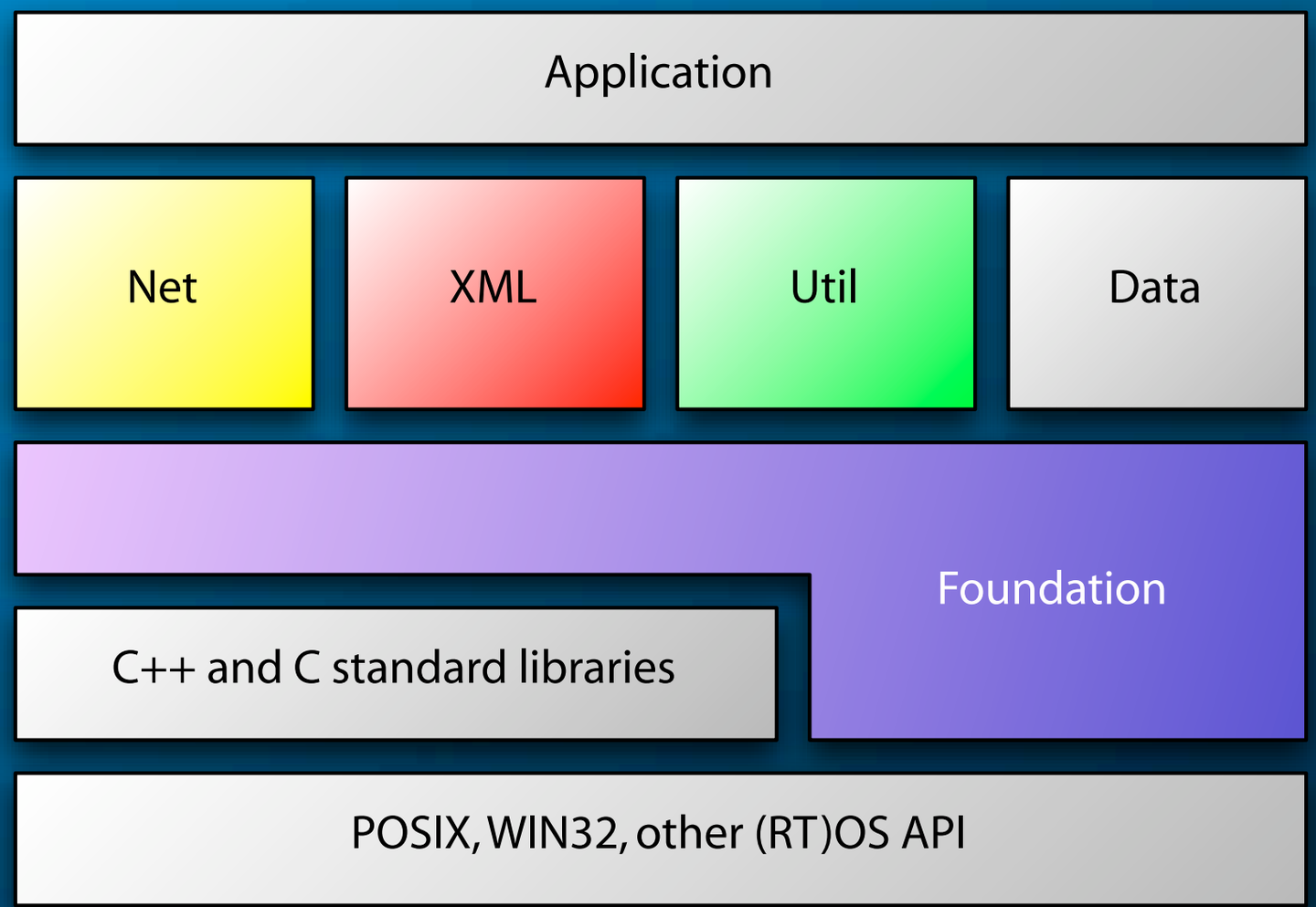
POCO Core Libraries



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POCO Foundation Library

Platform Abstraction • Threads • Date/Time

Streams • File System • Logging • Caching

Processes and IPC • Shared Library and Class Loading

Events • Notifications • URI and UUID Handling

Cryptographic Hashes • Random Number Generation

Text Encodings and Unicode • Regular Expressions

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POCO XML Library

- based on Expat 2
- SAX2 (Simple API for XML, Version 2) and DOM (Document Object Model, Level 1-3) interfaces
- XML Writer

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POCO Util Library

- Extensible client and server application framework
  (supports Windows services and Unix daemons)
- Configuration file handling
  (.INI, .properties, .XML, Windows Registry, etc.)
- Command line options handling and validation
- Logging configuration

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POCO Net Library

- Sockets
- DNS
- Network Interface information
- Reactor framework
- HTTP server and client
- FTP, SMTP, POP3
- MIME Messages, HTML form handling
- SSL/TLS support based on OpenSSL in NetSSL library

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POCO Data Library

- Provide ccess to SQL databases
- Integrate SQL and C++ in a natural way
- Database connector architecture (ODBC, SQlite, MySQL)
- Data binding support for basic types and STL containers
- Record Sets
- Session Pooling

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Additional POCO Libraries and Tools

- WebWidgets: create browser-based applications
- ApacheConnector: write Apache modules using POCO
- PageCompiler: JSP/PHP for C++
- CppParser: parse C++ header files
- Zip: create and manipulate Zip archives
- Crypto: data encryption based on OpenSSL*
- PDF: create PDF documents (based on Haru PDF library)*
- SSH: Secure Shell support based on libssh*
- Script: scripting language integration (Lua)*
- Servlet: a servlet engine/application server*
- POCO Doc: The POCO documentation generator

* Work In Progress

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www.appinf.com | info@appinf.com
T +43 4253 32596 | F +43 4253 32096