Mediterra
s o f t w a r e

C++ portfolio

Secure Messaging Platform

Technologies: C++11, Couchbase, Sqlite, Boost.Asio, OpenSSL, Jenkins

Developed a platform for messaging with a security feature protecting user messages and data from any third party, including the owner of the servers and the platform itself. Utilized asymmetric cryptography to create this feature. Created a highly scalable multithreaded server for the platform and a distributed multiserver backend based on a Couchbase distributed NoSQL database cluster.

Casino Platform Backend

Technologies: C++, boost, ACE, gSOAP library, SOAP, JavaScript, Node.JS, G2S protocol, Ubuntu, NetBeans

Duration: 1 year

Developed a casino account management system that acted as a bank and fulfilled clients' requirements for high security, detailed reporting, and compliance with US standards.

Provided interfaces for casino games both in kiosks and mobile and web platforms. Implemented interface component establishing communications between Account Based Gaming System and Game Server. The Account Based Gaming System is the system that allows patrons to have a wagering account for a gaming system; Game Server is the game program, written in JavaScript and working on a Node.JS server.

C++ portfolio

Domain Registrar Backend

Technologies: VS 2012, C++, epp2, json, COM , GCC , boost, log4cpp, jsoncpp, cpp-netlib, openssl, MySQL

Duration: 6 months

Developed cross-platform backend system, including two main functional components:

An EPP protocol client communicating with top domain registrars such as Verisign to purchase and setup domains

A dropzone "catch" algorithm, allowing the system to catch the domain names getting into dropzone as quickly as possible, thereby competing with other domain registrars for them

Implemented both components in an asynchronous model, allowing multiple operations calling operation completion handlers to be executed simultaneously. Enabled the system to choose registrar, tune connection settings, and set up timeframes and interception mode.

3D modelling of chemicals packaging

Technologies: Unreal Engine 4, Coherent UI plugin for UE4, C++, JavaScript, React, jQuery, jQuery UI, Flat UI Free, MySQL

The project is for showing 3D models of packaging for chemicals. The project is ongoing and as fow now we've already implemented logic of packaging choice and generating text description for it.

We've also implemented option of random viewing 3D models of packaging. UE4 is used to show 3D models. Other things implemented using JavaScript (via Coherent UI).

C++ portfolio

Automotive Routing Quality Assessment Software

Technologies: Python, MySQL, sqlalchemy, geoalchemy, nosetests, git

Duration: 1 year

Developed a quality evaluation system used to make decisions about possible changes to the routing service. If the quality is found to have dropped, then the changes are not made; if the quality improves, then the deployment of the new data or software affecting the QoS is green-lighted. Aspects of the project included:

- Yandex's MapReduce cluster computations technology
- Statistical modeling, including analytical and computational approaches, bootstrapping, resampling and Monte-Carlo methods
- Sqlalchemy, geoalchemy ORMs

Web Crawler

Technologies: C++, gcc 4, ACE, boost, libcurl

Duration: 1 year

Designed web crawler (spider), which indexes the whole Internet and parses each web page to find phone numbers and associated information such as keywords and environment. Coordinated the system to work on a distributed network of computers with a dedicated master server managing task distribution, to provide a variety of filters to exclude specific URLs and URL patterns from parsing, and to manage a list of IP networks and countries to be processed.

C++ portfolio

Middleware Interaction and Data Transformation Platform

Technologies: C++, ACE, boost, openSSL, libcurl, libetpan, EasySoap++

Duration: 3 years

Analyzed, designed, coded and provided project management for the following portable multithreaded components:

- Distributed messaging system similar to JMS (http://java.sun.com/products/jms/) but with many additional features and strong performance

- BPEL (Business Process Execution Language) (http://www-128.ibm.com/developerworks/library/specification/ws-bpel/ engine), which validates parser with WSDL integration and supports XPath 1.0 expressions

- WS-ReliableMessaging protocol client and server based on SOAP 1.1 with WS-Addressing support and SQLite-based persistent storage for messages

- HTTP/1.1, HTTPS server component, based on the use of ACE cross-platform library for networking and multithreading

- SMTP protocol server implementing several concurrent strategies, supporting SSL and several authentication methods

- Several FireFox and Internet Explorer (IE) plugins

Qt Web Thin Client

Technologies: C++, Qt, WebSocket, Bash, WinAPI, WiX toolset.

Duration: 1 month

Designed a software application developed to serve as a thin client for an existing web application, along with installers and packagers for Windows, Mac, and Linux. Application uses the Qt Framework, version 5.4, using the QtWebEngine component to display the actual web application.