

# Linux and C++

# About Me

- Software Analyst – Citi Alternative Investments
- Chief Operations Officer – Zinkk, Inc.
- Education
  - *Associates in Computer Science (OCC)*
  - *Bachelors in Computer Science (NJIT)*

# Brief C++ History

- 1972 – C was developed by Dennis Ritchie at Bell Labs (AT&T)
- 1979 – Bjarne Stroustrup begins work on C++ at Bell Labs
- 1992 – Alexander Stepanov begins research into generic programming
- 1994 – First version of Standard Template Library appears
- 1998 – ISO committee officially publishes C++98 (with Standard Library)
- 201X – The next ISO standard, *C++0X*, due out very soon

# What C++ Is (and Isn't)

- C++ is compiled
- C++ *is not* C
- C++ is free form
- C++ *is not* interpreted
- C++ is platform independent
- C++ *does not run* on a virtual machine
- C++ is a multi-paradigm programming language
- C++ features *may be* different depending on the compiler

# C++ vs. The *Other* Brands

- **C#, Java, Python** are compiled into an intermediate byte code which is executed on a virtual machine
- **C#, Java, Python's** virtual machine must be compiled and tested for individual platform configurations
- *C++ is compiled into native machine code and executed for the specific CPU and architecture*
- *C++ only requires the platform to have an ISO standard compliant compiler and linker*

# C++ Specifics

- Generics
- Object-oriented
- Procedural
- Modular

# Brief GNU/Linux History

- 1983 – Richard Stallman starts the GNU open source project
- 1985 – Stallman creates the Free Software Foundation
- 1991 – Linus Torvalds releases first version of `Linux` kernel
- 1991 – GNU General Public License version 2.0 released
- 1994 – First version of Red Hat Linux
- 2004 – Ubuntu first release

# What GNU/Linux Is

- Linux *is a Unix-like* operating system kernel; GNU *is* the userland tools and compiler libraries
- GNU/Linux *is* completely open source under GPLv2, Apache, LGPL and MIT
- GNU/Linux software is primarily written in C (about 71%) and various languages (Shell scripting, Perl, and assembly languages)



# Fun Facts about Linux

- Estimated that around 60 percent of the world's servers run a flavor of Linux
- Linux is used inside appliances, set-top boxes, phones and medical equipment
- In Debian GNU/Linux 4.0 the distribution contains over 283 million lines of source code which would cost an estimated \$7.37 billion dollars to develop conventionally
- The TiVo video device uses a custom version of Linux

# Shell Scripting

# GNU Build System

# GNU Compiler Collection

# GNU C/C++ Compiler and Linker

# URLs and References

- Wikipedia (<http://wikipedia.org>)
- My Startup (<http://zinkkinc.com>)
- My Twitter (<http://twitter.com/johnbellone>)
- My E-mail ([jb@thinkbrightly.com](mailto:jb@thinkbrightly.com))
- Questions (<http://stackoverflow.com>)

# Linux and C++

# About Me

- Software Analyst – Citi Alternative Investments
- Chief Operations Officer – Zinkk, Inc.
- Education
  - *Associates in Computer Science (OCC)*
  - *Bachelors in Computer Science (NJIT)*



# Brief C++ History

- 1972 - C was developed by Dennis Ritchie at Bell Labs (AT&T)
- 1979 - Bjarne Stroustrup begins work on C++ at Bell Labs
- 1992 - Alexander Stepanov begins research into generic programming
- 1994 - First version of Standard Template Library appears
- 1998 - ISO committee officially publishes C++98 (with Standard Library)
- 201X - The next ISO standard, *C++0X*, due out very soon

## What C++ Is (and Isn't)

- C++ is compiled
- C++ *is not* C
- C++ is free form
- C++ *is not* interpreted
- C++ is platform independent
- C++ *does not run* on a virtual machine
- C++ is a multi-paradigm programming language
- C++ features *may be* different depending on the compiler

## C++ vs. The *Other* Brands

- **C#, Java, Python** are compiled into an intermediate byte code which is executed on a virtual machine
- **C#, Java, Python's** virtual machine must be compiled and tested for individual platform configurations
- *C++ is compiled into native machine code and executed for the specific CPU and architecture*
- *C++ only requires the platform to have an ISO standard compliant compiler and linker*

## C++ Specifics

- Generics
- Object-oriented
- Procedural
- Modular

# Brief GNU/Linux History

- 1983 – Richard Stallman starts the GNU open source project
- 1985 – Stallman creates the Free Software Foundation
- 1991 – Linus Torvalds releases first version of `Linux` kernel
- 1991 – GNU General Public License version 2.0 released
- 1994 – First version of Red Hat Linux
- 2004 – Ubuntu first release

## What GNU/Linux Is

- Linux *is a Unix-like* operating system kernel; GNU *is* the userland tools and compiler libraries
- GNU/Linux *is* completely open source under GPLv2, Apache, LGPL and MIT
- GNU/Linux software is primarily written in C (about 71%) and various languages (Shell scripting, Perl, and assembly languages)

## Fun Facts about Linux

- Estimated that around 60 percent of the world's servers run a flavor of Linux
- Linux is used inside appliances, set-top boxes, phones and medical equipment
- In Debian GNU/Linux 4.0 the distribution contains over 283 million lines of source code which would cost an estimated \$7.37 billion dollars to develop conventionally
- The TiVo video device uses a custom version of Linux

# Shell Scripting

- Click to add an outline



# GNU Build System

- Click to add an outline

# GNU Compiler Collection

- Click to add an outline

# GNU C/C++ Compiler and Linker

- Click to add an outline

## URLs and References

- Wikipedia (<http://wikipedia.org>)
- My Startup (<http://zinkkinc.com>)
- My Twitter (<http://twitter.com/johnbellone>)
- My E-mail ([jb@thunkbrightly.com](mailto:jb@thunkbrightly.com))
- Questions (<http://stackoverflow.com>)