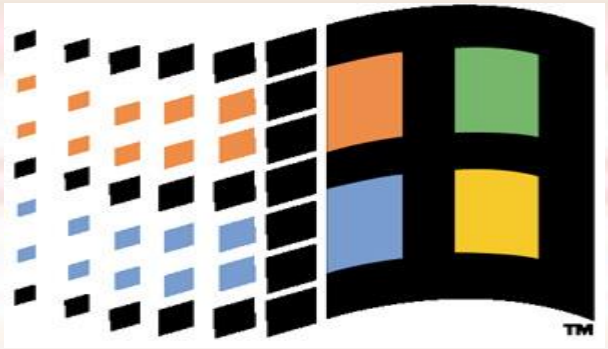
An Opportunity Lost? – How to exploit synergy between JVM and CLR

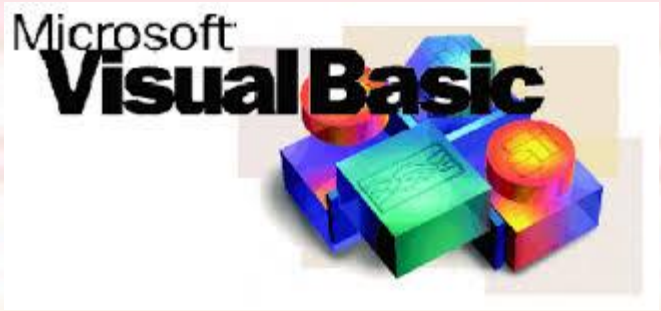
About the Presenter

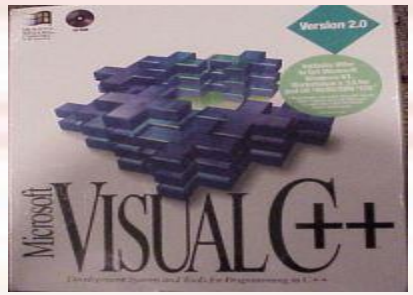
- A Seasoned Software Engineering Professional with more than twenty five years of Exposure
- Author of Two books on Computer Programming
- Explorer in “Philosophical Tools for Software Engineering” (Has Presented on it, Written one university accredited paper, Designed a Pattern based on Advaita Vedanta to transition from OOP to FRP)
- An Expert level professional in Cross Cultural Encounters (How to deal with a Russian/Eastern European? , Working with Racial stereotypes like Jews / Chinese / Latin Americans)
- A Critique of Digital Technology Fads (Programmers will be better off , if they stick to Programming. Do not run after so called AI/ML, BlockChain etc) - “Plumbing is preferred over Painting!”
- I also help Programmers eliminate their “Math-Phobia”

Redmond, Seattle

Circa 1995

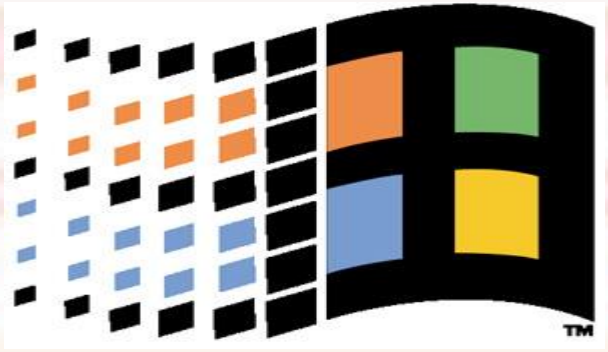




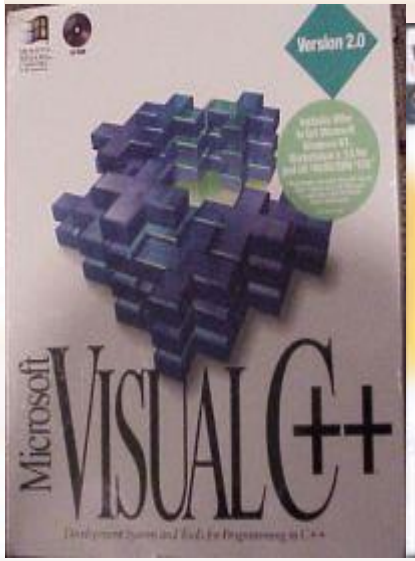


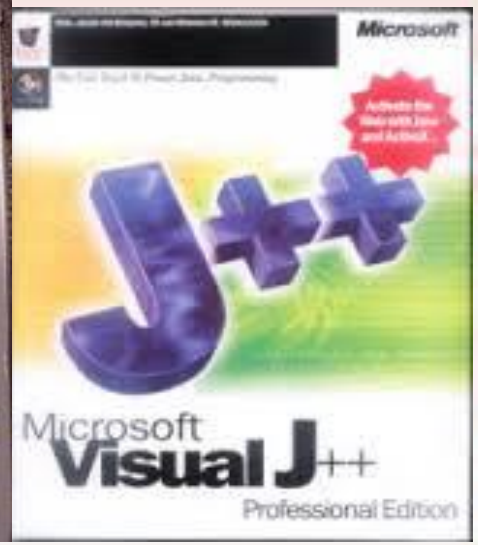
OLE/COM Programming

Circa 1997



OLE/COM
Programming





Legal Battle

Visual J++ compiler became the fastest Java compiler. The compiler was written by a team headed by Anders Hejlsberg, who also Wrote Borland's Object Pascal (Delphi) compilers

Microsoft brought J/Direct as a competitor to JNI for COM objects

Java had it's own distributed Programming Model based on RMI, EJB (RMI/IIOP) and support for CORBA

Microsoft did not comply to JCP process and JSR

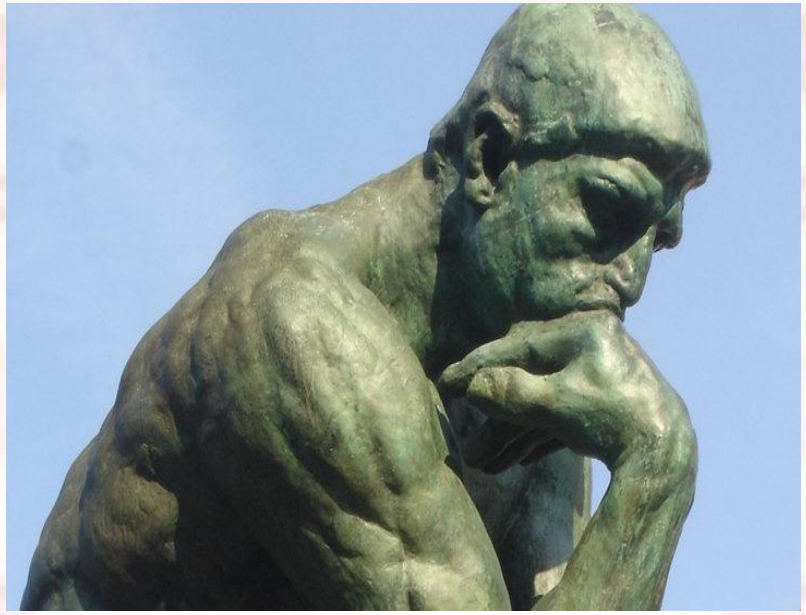
Sun sued and won the battle against Microsoft.

VS

How Java upstaged Visual C++/VB/COM?

COM was a technology solution and was supposed to rectify the short comings of C++.
    Java achieved all the benefits at the Language level
Systems became powerful enough to run a Virtual Machine
A Language well suited for writing Internet centric web applications
Support for distributed Objects using RMI/IIOP & Corba
Enterprise Java Beans and JSP
The Java language became “Internet C++”
Lot of people deserted “Visual Basic”
Linux + Java became a formidable platform

2000/2001- Back to the Basics for Microsoft



"Imitation is the sincerest form of flattery"

Java™

Microsoft .net

C# Microsoft ASP.net

How to Kill “Visual Basic” ?

BASIC Programming Language and Microsoft
Visual Basic battled with Delphi, PowerBuilder and Visual C++
A Virtual Machine to run all languages (CLR)
Visual Basic Programmers require VB.net (OOP extension) and a Web programming model which mimics VB’s desktop model
ASP 3.0 became ASP+ and mutated to ASP.net Webforms
Created a new language (C#) for the new platform
VB.net was not actively promoted.
Despite Microsoft’s attempt to kill the language, it still survives.

“Emperor” Strikes Back

- A new Virtual machine platform which adds features at the Platform level (In Java, features are added at the Lexical level)
- Projections of Platform features to Languages
- Better constructs for Event handling, properties, Indexers, unchecked exceptions, Delegates etc.
- Access to Windows API using P/Invoke (Java uses JNI)
- COM interoperability
- A Web Programming model which mimics desktop
- Attributed Programming and better Reflection Library

Stalemate!

- Both Java and C# did add support for Generics
- Java added support for Annotations to emulate Attributes
- People began to mix and match ideas from both platforms
- Better Concurrency primitives in Java to emulate .NET
- .NET came up with Windows Communication Foundation to avoid Application server deficiency
- Java people got rid of infamous EJB with the POJO based EJB because of pressure from “Spring Stack”
- All was well with the both camps and C# was just a Java Clone.

How C# became “better” than Java?

- Till 2005, both were going neck and neck
- Language Integrated Query (LINQ) was a watershed event in the battle. Microsoft did add lot of features to the language to support LINQ. Extension Methods, Lambda,Anonymous types,Type Intference got added to the platform
- Sun got acquired by Oracle and community viewed that with suspicion. Lambda support got only added by Java 8
- Microsoft did add Prototype OOP and Parallel programming framework to C#
- Java + Scala + Groovy could emulate C# to a large degree.

How Java (JVM) made a comeback?

- Lambda Support in Java 8
- Streams Support (which can emulate LINQ)
- Enhancement to VM to support Lambda
- Prominence of Scala , Kotlin , Jython and JRuby
- Big data offerings
    - Apache Spark/Flink , Kafka , Storm etc etc

Why should I care?

ENOUGH OF POLITICS & HISTORY – LET US GET INTO THE MEET OF THE STUFF

CLR/JVM Correspondence

- ASP.net MVC
- ASP.net Web Forms
- WCF
- ASP.net Web API
- EF/Nhibernate
- P/Invoke/COM-Interop
- ADO.net
- Unity

- Spring MVC/Struts
- JSF
- JAX-WS
- JAX-RS
- JPA/Hibernate
- JNI
- JDBC
- Spring DI/Java CDI

N* - Libraries

- Spring
- JUNIT
- ANT
- Hibernate
- Jmock
- Lucene
- iText

- Spring.NET (*)
- NUNIT
- NANT/MSBuild
- Nhibernate
- Nmock
- Lucene.net
- iText.net

Language Features

- OOP
- Functional Programming
- Generics
- Type Inference
- Dynamic Typing
- LINQ

- Java
- Java8/Scala/Groovy
- Generics
- Scala
- Groovy
- Limited form of Lambda Syntax supported by Java 8 Streams

X-Platform .Net!

- The Mono Project
- A Ground up implementation of .NET Platform
- The powerhouse behind Xamarin
- ASP.net support
- IKVM.net – The “Mozart” of Enterprise World
- Cross Platform .NET through .NET Core
- “.NET classic” vs “.NET Core” vs “.NET Standard”

Why should .NET developers learn Java?

- Most of the world's high net worth corporations use Java for their front facing site.
- Java people earn more respect and compensation than C# people
- Escape from the comfort of Microsoft's tools
- Good Libraries are available (Fine grained API as well)
- Can program Google's App Engine, Android and Amazon Beanstalk
- A Rich set of Tools for Micro Services Architecture based development
- Good Set of Big data tools like Hadoop, Spark, Kafka,Flink, Spark etc
- Easy to learn for .NET developers

Why should Java developers learn .NET?

- The Most advanced programming language in the world with support for Class based OOP, Prototype OOP(dynamic),Lambda Abstractions, LINQ, Generics, inline native code etc.
- The C# eco system can help you to program Windows, Xbox, Windows CE, Kinect, .NET MF (Netdiuno and Partial support for Rasberry Pi) and Xamarin etc.
- It is easy for Java developers to cross skill
- Understand the comfort of Visual studio editor (You are missing something)
- Cross Platform support

Why should Java developers learn .NET?

- Sun/Oracle Stack
- Apache Stack
- JBOSS Stack
- IBM Stack
- Spring Stack
- Check the article, “Your Java is not my Java” @ http://www.technoparktoday.com/java-java-paradox-choice/ (writtem in 2014)

Conclusion

Questions

- If any ?