

.NET/J2EE Interoperability

Harmonizing Skills, Unifying Platforms

March 2, 2005

Agenda

- Who is Mainsoft
- The .NET/J2EE divide
- Emerging interoperability solutions
- Demo: The PetStore blueprint revisited
- Q&A

Who is Mainsoft?

Founded: 1993

Vision: Open Microsoft development technologies to non-Microsoft platforms

Offices: San Jose, New York, Chicago and Israel

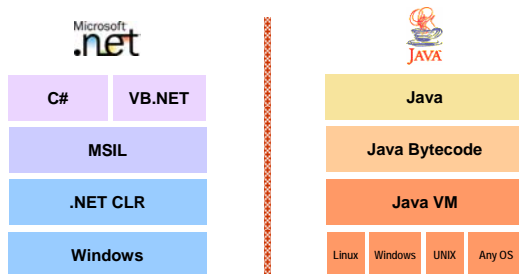
Business: Privately held, profitable company
Twice named to Deloitte & Touche Fast 50

Visual MainWin Customers



\$1B in software applications run on Mainsoft annually

The .NET/J2EE divide



Mixed .NET/J2EE architecture

ASP .NET Application .NET Front End

```
private void Page_Load(object sender,
System.EventArgs e){
    Label1.Text = username;
    this.sqlSelectCommand1.CommandText =
    "SELECT Stock_name, Number_of_shares FROM
    MyStocks WHERE Username='" + username+"'";
    SqlDataAdapter1.Fill(dataSet1);
    DataBind();
}
```

EJBs Components J2EE Back End

```
package cmrtest;
import javax.ejb.EntityBean;
public abstract class EJB2Bean implements
EntityBean {
    public String ejbCreate(String ID2, String
data) throws CreateException {
        setID2(ID2);
        setData(data);
        return "";
    }
    public abstract void setID2(String ID2);
}
```

95% of medium,
large-scale enterprises
run both .NET & J2EE

30% or more of new
AD will include both
.NET & J2EE by 2009

Gartner

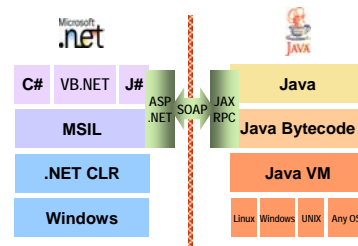
Business Needs



- Increase .NET and Java teams collaboration level
 - Sharing code
 - Sharing skills
- Lower the integration costs and the complexity of mixed .NET/J2EE deployments
- For ISVs, enable single source development & porting across .NET and J2EE

Interoperability solutions:

Web services



Interoperability solutions:

Web services

- ✓ Standards based solution
 - Massive industry momentum
 - Wide set of WS-* standards
 - JBoss WS-I BP support
- ✓ Wide choice of native tools
 - Major focus from all IDE's
- ✓ Broad interoperability solution
 - Beyond just .NET/J2EE
- ✓ Web aware technology
 - Firewall friendly technology

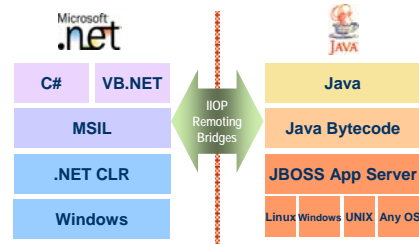
- ✗ Performance
 - SOAP/HTTP Overhead
- ✗ Development complexity
 - Programming model is not OO
 - Data types limitation
 - No code sharing
 - No co-debugging
- ✗ System maintenance costs
 - Dual server licensing
 - Complex tuning

Best suited for:

- ✓ Service Oriented Architecture
- ✓ Loosely coupled component interoperability
- ✓ Cross firewall application interoperability
- ✓ B2B integration

Interoperability solutions:

Bridging products



Interoperability solutions:

Bridging products

- ✓ Optimized communication
 - Binary and tcp/ip
- ✓ OO programming model
 - Client side life-cycle control
 - By reference semantics
 - Stateful components
 - Richer data types

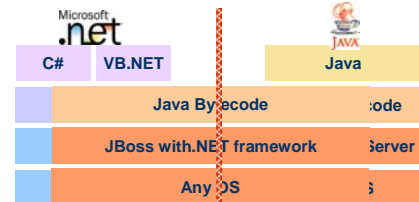
- ✗ Development complexity
 - No native tools
 - No code sharing
 - No co-debugging
- ✗ Not as fast as local invocation
- ✗ System maintenance cost
 - Dual server licensing
 - Complex tuning

Best suited for

- ✓ Fined grained interoperability
- ✓ Intra-firewall applications
- ✓ Binary application interoperability

Interoperability solutions:

Visual MainWin for J2EE



.NET/J2EE unified architecture

How Visual MainWin works

Byte code compilation

CIL to Java byte code compilation

- **Direct mapping:** flow statements, types, objects, classes, interfaces, (OOP).
- **.NET specific semantics:** unsigned, structs, enums, boxing, delegates, multi-dimensional arrays,
- **Native Java type system:**
`System.Object` maps to `java.lang.Object`,
`System.Exception` maps to `java.lang.Throwable`.

JBoss World 2005

How Visual MainWin works

J2EE architecture

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How Visual MainWin Works

Runtime stack

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Visual MainWin for J2EE

Open source strategy

Visual MainWin .NET class library is built on:

- Mono: The leading open source .NET implementation
- Led by Novell, it is a fast-growing community, w/300 contributors
- Mainssoft has been a major contributor since 2003

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Visual MainWin for J2EE

Interoperability Model

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Visual MainWin for J2EE

Porting and Single Source Code Development

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Visual MainWin for J2EE



Unified .NET/J2EE Architecture

- ✓ Optimized performance
 - Local VM calls
 - No communication pipe
- ✓ Increased development productivity
 - Single stack, cross-language debugging
 - Class library sharing across the .NET and J2EE teams
- ✓ Unified J2EE security model
- ✓ Reduced system maintenance costs
 - Server consolidation

- ✗ Only for tightly coupled systems
 - Not suited when Windows server is required
- ✗ Requires .NET source access

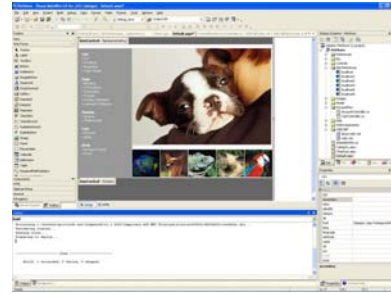
Best suited:

- ✓ For high throughput applications
- ✓ When development productivity is a priority
- ✓ If unified J2EE deployment is an advantage
- ✓ When interoperability can be contained at the development phase
- ✓ .NET source code access



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Demo: The blueprint revisited



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Conclusion:



Various solutions for various interoperability needs

- ✓ **Web Services:**
 - SOA, cross firewall XML based interoperability
- ✓ **Bridging solutions**
 - Fined grained, intra-firewall binary interoperability
- ✓ **Visual MainWin**
 - Interoperability at development time
 - Source level interoperability
 - Optimal .NET/J2EE co-development productivity
 - Consolidated J2EE deployment



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Q & A



**An innovative solution for the
.NET/J2EE Interoperability:
Harmonizing skills, Unifying platforms**



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