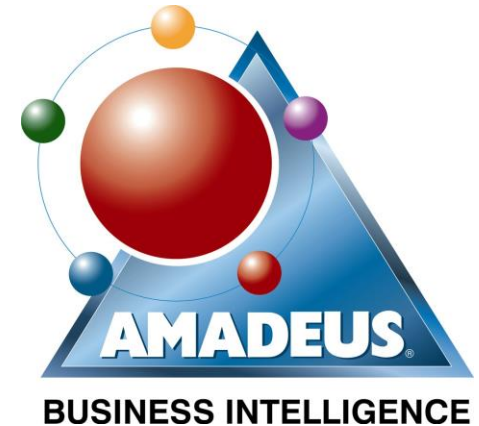




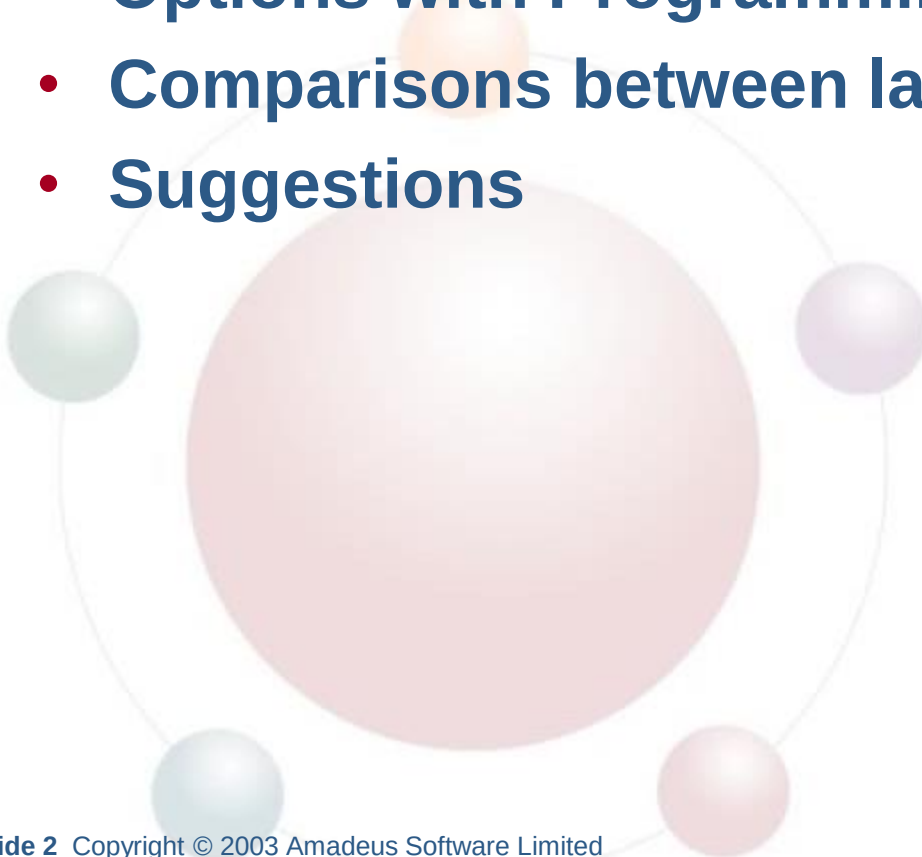
Design Considerations When Developing Applications Using SAS

Vijay Rajandram
Amadeus Software Ltd



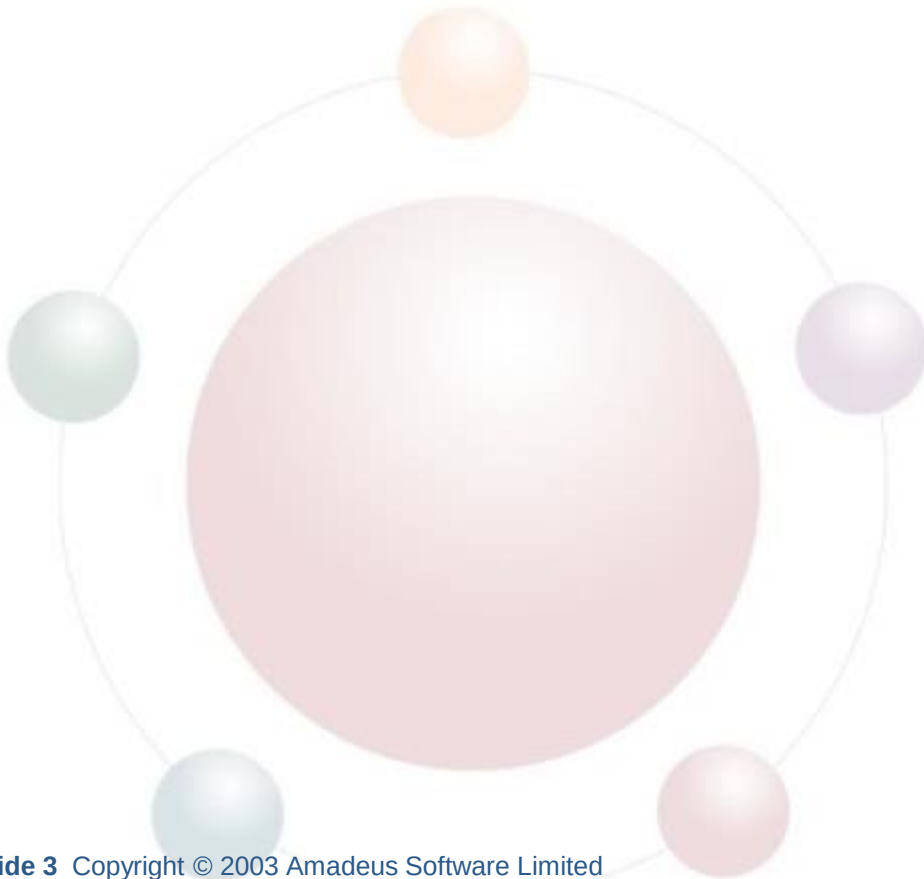
What this presentation is about

- **Tiered Design in Applications**
- **Options with Programming Languages**
- **Comparisons between languages**
- **Suggestions**

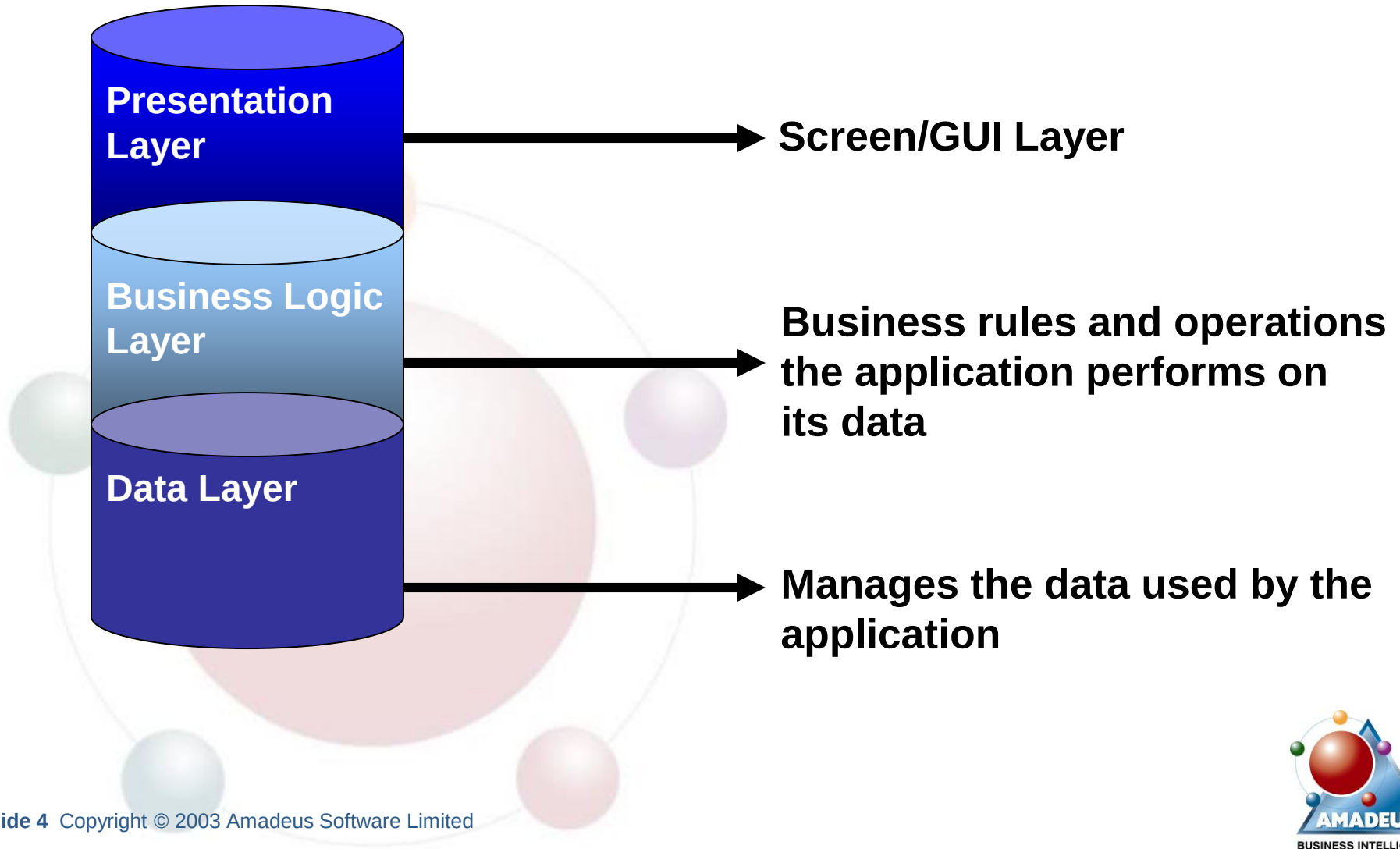


What this presentation is not about

- **Actual Codes**
- **Code Efficiency**

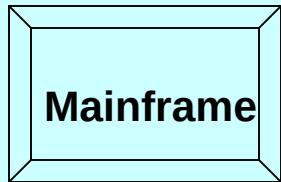


What are tiers?

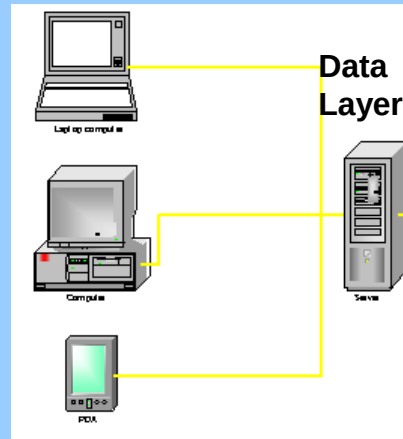


Tiered Application Design

Data+Presentation
+Business Layer



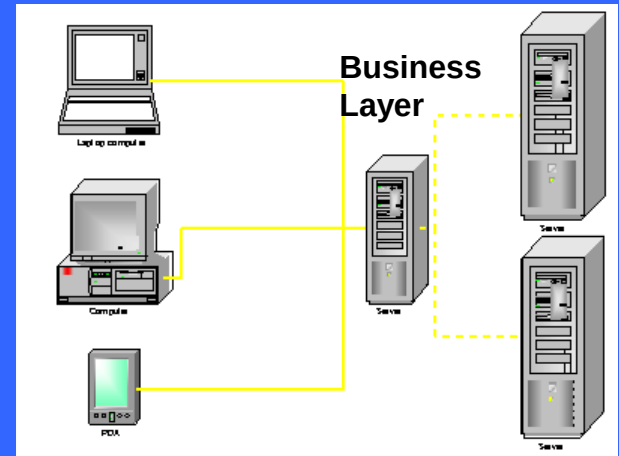
Presentation+
Business Layer



- Data Separated
- Broader range of skill set

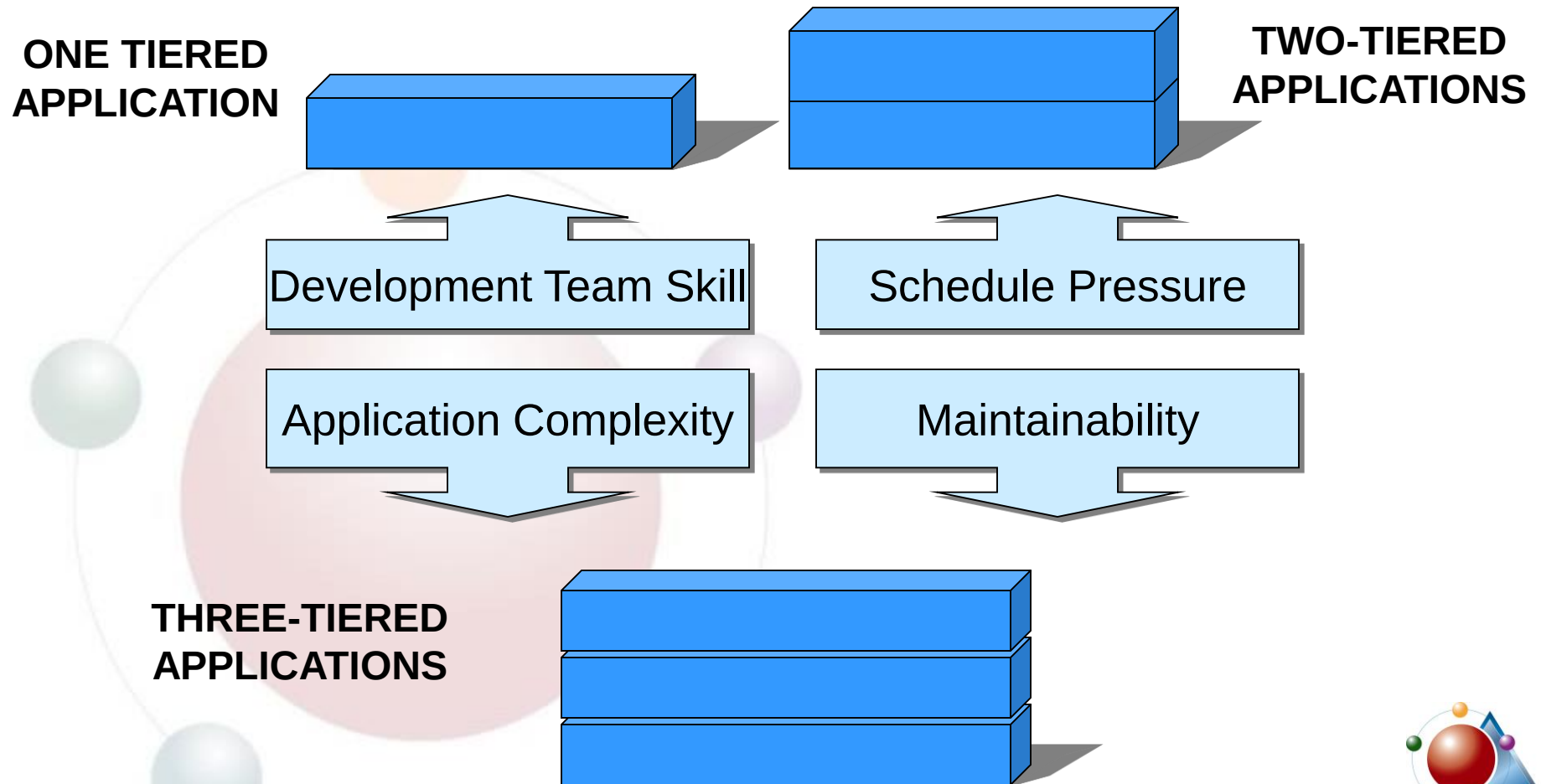
Presentation
Layer

Data
Layer

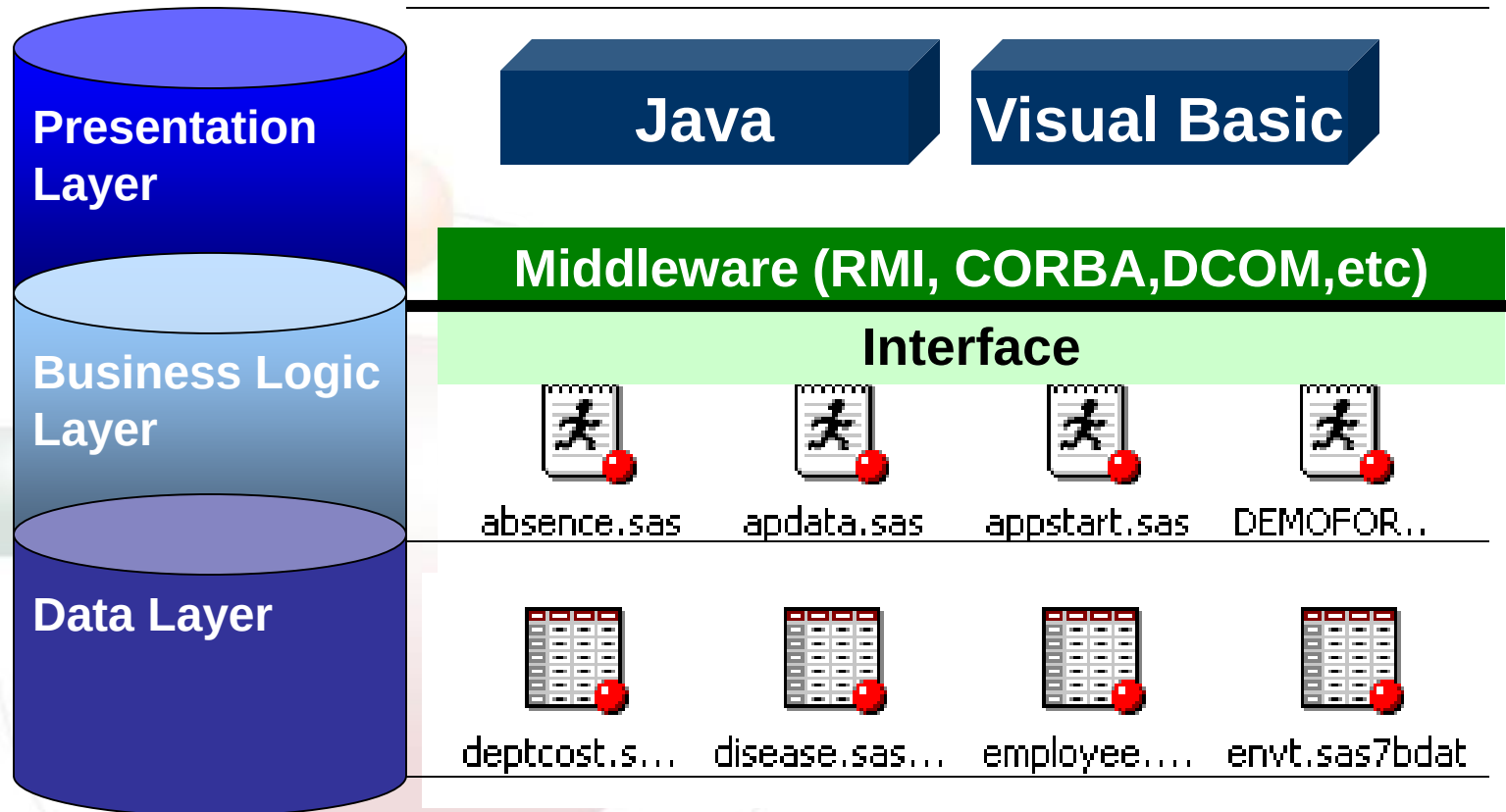


- Separated All Layers
- Development Environment had to distinct GUI and Server Coding
- Coding Complexity was reduced
- Larger groups of developers

The choice between Tiers



Current trends amongst SAS users



Java

- **OOP Language**
- **Portable – write once run everywhere!**
 - Interpreted – transformed into byte code by compiler
- **Java Virtual Machine (JVM)**
 - Reads byte code and transforms to machine/native code at run time
- **Possible Route to Developing Application**
 - JSP
 - Java Applets
 - Rich Client and Client Server Java Applications

Visual Basic

- **Overview**

- **Visual Basic developed in the early 90s**
 - VB, VBA, VBScript
- **RAD tool**
- **Plenty of resources and skills**
- **Architecture change as .NET arrived (2002)**
- **VB.NET and many other supported languages**
- **Fully OOP**

- **Mainly Confined to Windows**

- **Support for many languages**

- **Possible Route to Developing Application**

- **ASP**
- **Rich Client and Client Server Applications**



Classic JSP Vs Classic ASP Vs. ASP.NET

	JSP	Classic ASP	ASP.NET
Interface/Code	Separable	Combined	Separable
Debugging & Error Handling	Comprehensive	Limited	Much Improved
Development Tools	Good	Low/Moderate	Good for RAD
Deployment	Easy with XML & war files	Cumbersome	Easy with XML ASPX files
Access to server side libraries	Full access	Limited	Full access
Platform	Independent	Dependent	Possibility of Independency
Compilation	Compiled into Servlets when 1st called. Then executed by JVM.	Code is interpreted.	Compiled into Intermediate Language (IL) when 1st called.

Java Vs .NET

- **Java**

- Platform Independent
- Many organisations involved in creating technology
- Licensing - Free
- Mature - >7 years
- Future stability and direction sound as public discussions before finalising standards
- Programming only allowed in Java
- Truly Portable

- **.NET**

- Mostly Windows based
- Relies on Microsoft technology
- Licensing – Free
- Immature <2 years
- Future stability and directions controlled by one company
- Programming in VB,C#,J#, C++, etc
- Portability should increase with time

Further Considerations

- **Development Criteria**

- **Software Management features**

- Source Code Control
 - Software Version Change Management

- **Development Tools and Interface**

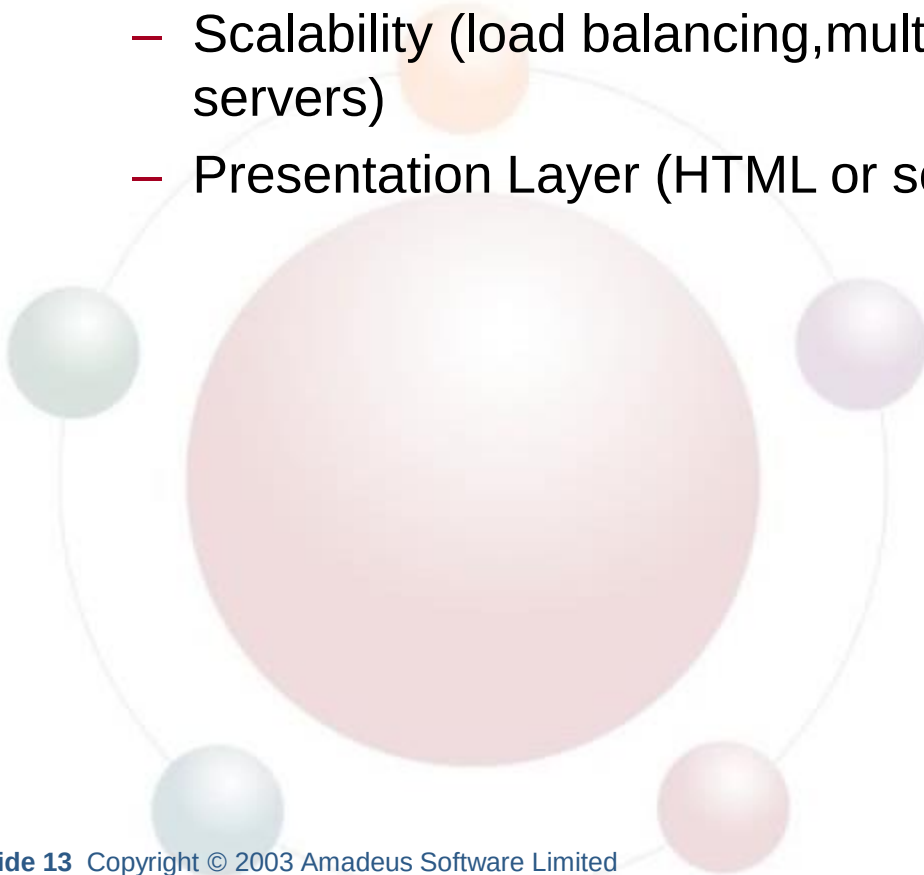
- RAD tools (Visual Editors,wizards,code repositories)
 - Useful predefined classes included
 - References (documentation,sample code,active development community,local training skills)
 - Useful Debugging tools
 - Support large development team



Further Considerations

- **Deployment Criteria**

- Language support(forward compatibility)
- Platform independency
- Scalability (load balancing,multi-threading,multi web and application servers)
- Presentation Layer (HTML or scripts that work across all browsers)



Further Considerations

- **Compatibility**

- Converting Existing Applications
- Integration with other required software

- **Cost Criteria**

- License
- Training
- Concept of Metadata can reduce long term development time

- **Post Implementation Updates**

- Ease of installation and configuration
- Performance and Load testing



Conclusion

- **Mix and Match application**
- **Choice between Java and Microsoft should be determined by**
 - Available skill set
 - IT infrastructure
- **Good design and plan will result in**
 - Saving Cost
 - Utilising all the available staff skills
 - Interoperability
 - Reuse of Software Systems
 - Maximise on ROI



Questions?

Vijay Rajandram

Vijay.Rajandram@amadeus.co.uk

Amadeus Software Limited
www.amadeus.co.uk

