

Microsoft 'Oslo' DSLs

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Objectives

- What is OSLO?
- Examine Tools
 - Intellipad
 - M.exe – M compiler
 - MG.exe – Mgrammar compiler

What is OSLO?




What is "Oslo"?

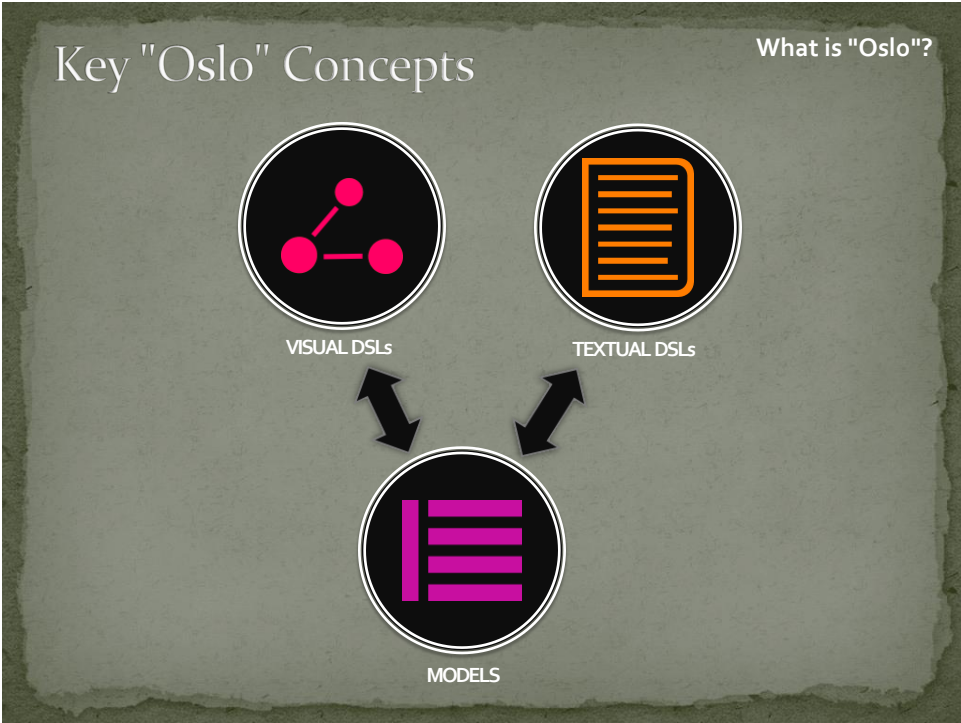
Version 0.x

- The only thing written in stone is this slide deck!
- Nobody has this in production
- My only work has been play
- Getting attention from even non MS platform people

What is "Oslo"?

THE PLATFORM FOR MODEL-DRIVEN APPLICATIONS

-  **"M"**
The language for authoring models & DSLs
-  **"Quadrant"**
The tool for interacting with models & DSLs
-  **Repository**
The database for storing & sharing models



Tooling

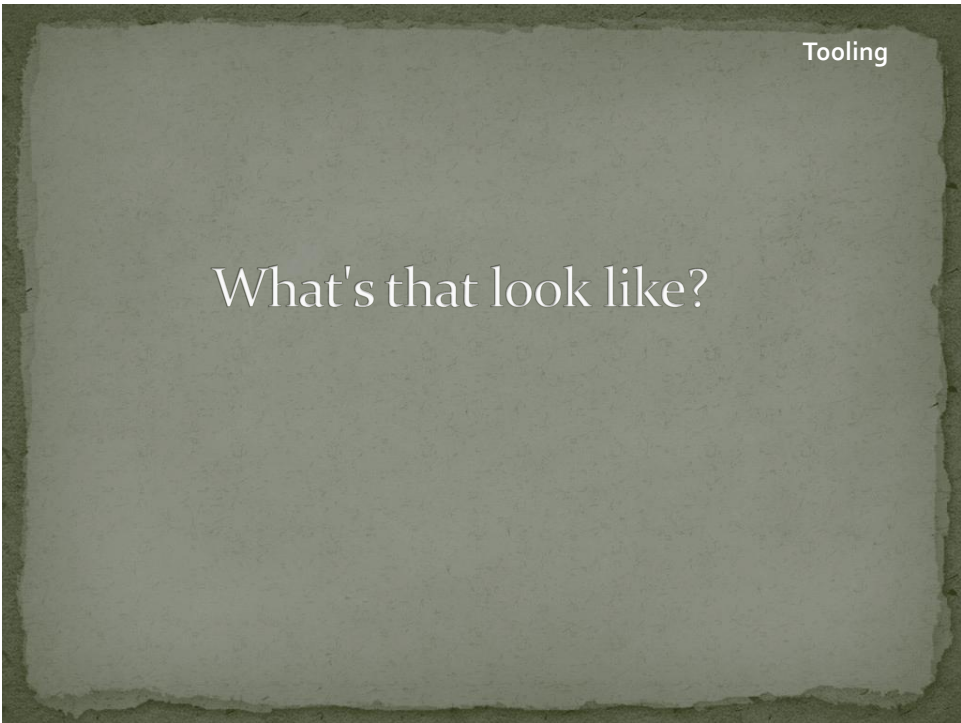
Intellipad 1.0

- **New IDE**
- **Extensible with MEF**
- **Dynamic menus based on file extensions**
- **Dynamically shows different views of the same data**

Tooling

Remember when Scott said SQL was a perfect DSL...?





Tooling

MGrammar

- DSL for writing DSLs
 - Language
 - Syntax
 - Token
- GLR parser generator
- MGraph - .NET accessible AST output

Tooling

Show me code!

Tooling

What do you do with the output?

Tooling

```
using System.Dataflow;
// Custom graph builder class
public class MyGraphBuilder : IGraphBuilder { ... }
public class MyCompiler {
    static void Main(string[] args) {
        // Specifying the custom IGraphBuilder
        ParserBase.TermAdapter =
            new TermGraphAdapter { GraphBuilder = new MyGraphBuilder() };
        ... }
    ... }
```

Compare to ANTLR

Tooling

```

lexer grammar PELexer;
// These are extra tokens recognized by the NUMBER_OR_RANGEOP rule.
tokens
{
    // Read a property or invoke a method.
    DEREFF;
    // Establishes a range between two ints.
    RANGEOP;
    // Integer constant
    INTEGER;
    // Decimal constant
    DECIMAL;
}
fragment LETTER : (a..z|'A'..'Z');
fragment DIGIT : '0'..'9';
fragment SIGN : ('+'|'-');
LPAREN : '(';
RPAREN : ')';
fragment QUOTE : '"';
// Clumsy, but effective approach to case-insensitive identifiers.
fragment ID : (~|T);
NULL : NULL;
TRUE : TRUE;
FALSE : FALSE;
THIS : THIS;
IDENTIFIER : LETTER (LETTER|DIGIT|'_')+;
STRING : QUOTE (options {greedy=false;}:)* QUOTE {setText(getText().substring(1,getText().length()-1));};
NUMBER_OR_RANGEOP :
    SIGN? DIGIT+
    (
        {input.LA(2)!='.'?=>'DIGIT' {stpe=DECIMAL;}
        | {stpe=INTEGER;}
    )
    SIGN? DIGIT+ {stpe=DECIMAL;}
    |
    DIGIT+ {stpe=DECIMAL;}
    | {stpe=RANGEOP;}
    | {stpe=DEREF;}
}

```

Resources

- Oslo MSDN Developer Center
 - <http://msdn.microsoft.com/en-us/oslo/default.aspx>
 - Oslo SDK
 - PDC 2008 Videos and Slides
- The Oslo Modeling Language: Draft Specification

