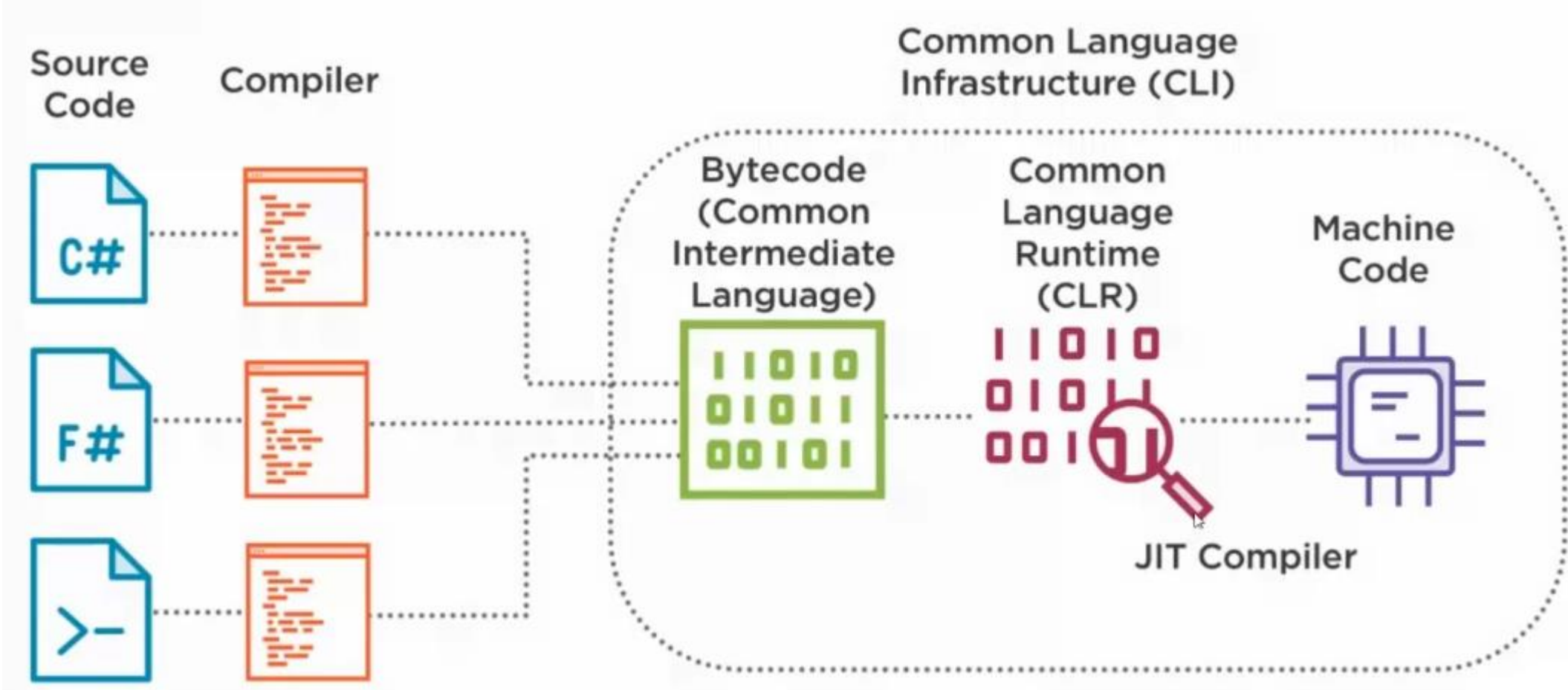


# Principles of .NET Analysis

# How the .NET Framework works



# Versions of .NET



.NET framework is the original version released in 2000



.NET Core is similar, but supports cross-platform development



.NET Standard is the set of core libraries in .NET Core



Mono is a non-Microsoft open source .NET Framework

# CIL, IL, MSIL and CLR

CIL = Common Intermediate Language

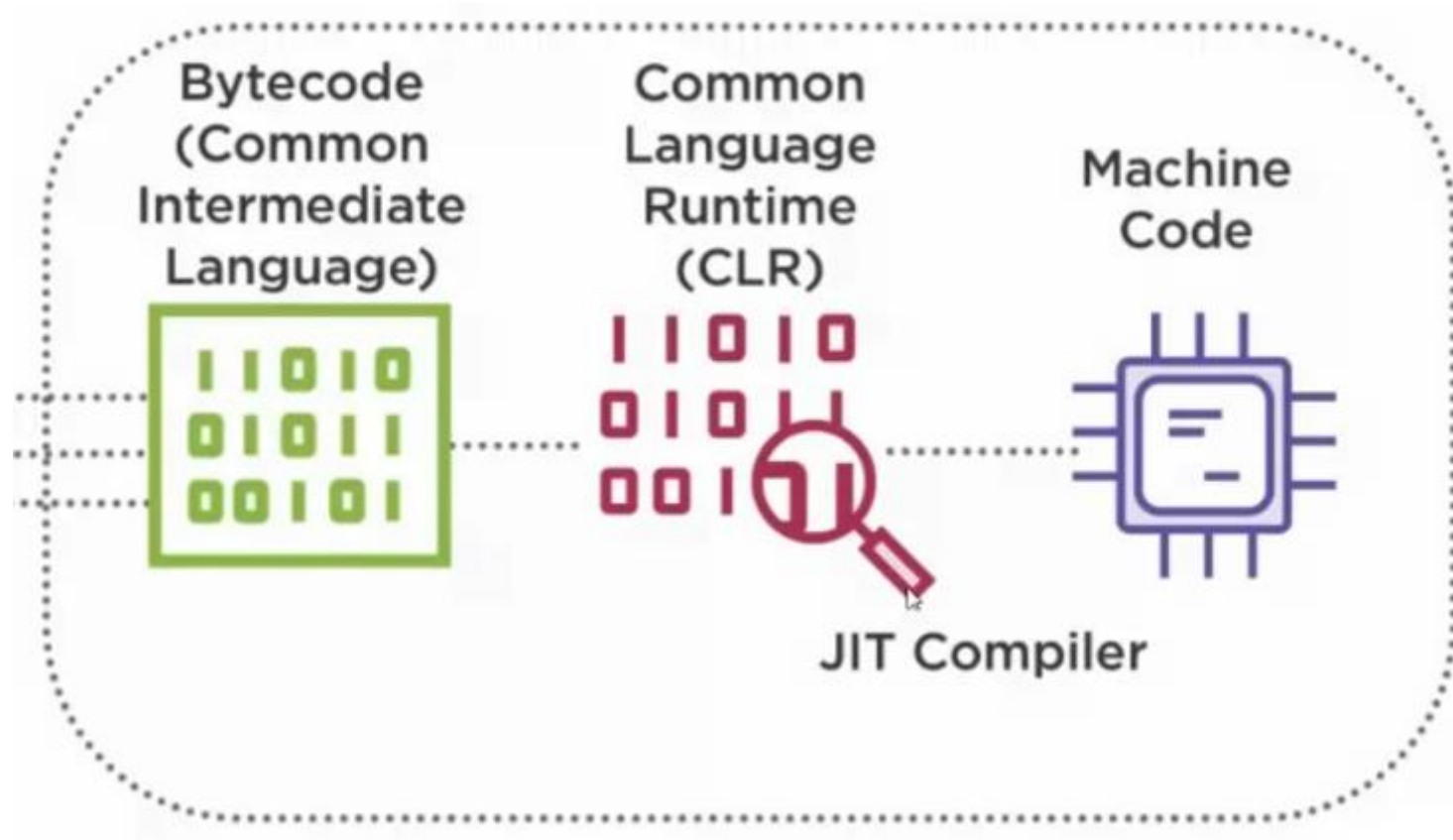
IL = Intermediate Language

MSIL = Microsoft Intermediate Language

CLR = Common Language Runtime

CIL = IL = MSIL = ByteCode

# CLR Interprets ByteCode to Machine Code on the fly



# CIL Instructions

```
x86 Architecture:  
mul eax, ecx
```

```
CIL Equivalent:
```

```
ldloc.0  
ldloc.1  
mul  
stloc.0
```

CIL uses the stack (RAM memory) instead of register (CPU)

ldloc : loads local variable at index onto the stack

stloc : pops value from stack into local variable

# How CIL call functions

```
ldstr "Hello World"  
call void [mscorlib]System.Console::WriteLine(string)
```

In CIL, methods (functions) reside in a class and can be called whenever they are needed

# Tools

dnSpy : a decompiler and debugger. Used to convert bytecode to source code

ildasm: a CIL **dis**assembler. Used to convert binary (byte code) to CIL

ilasm: a CIL assembler. Used to generate executable binary (byte code) from CIL



Thank you