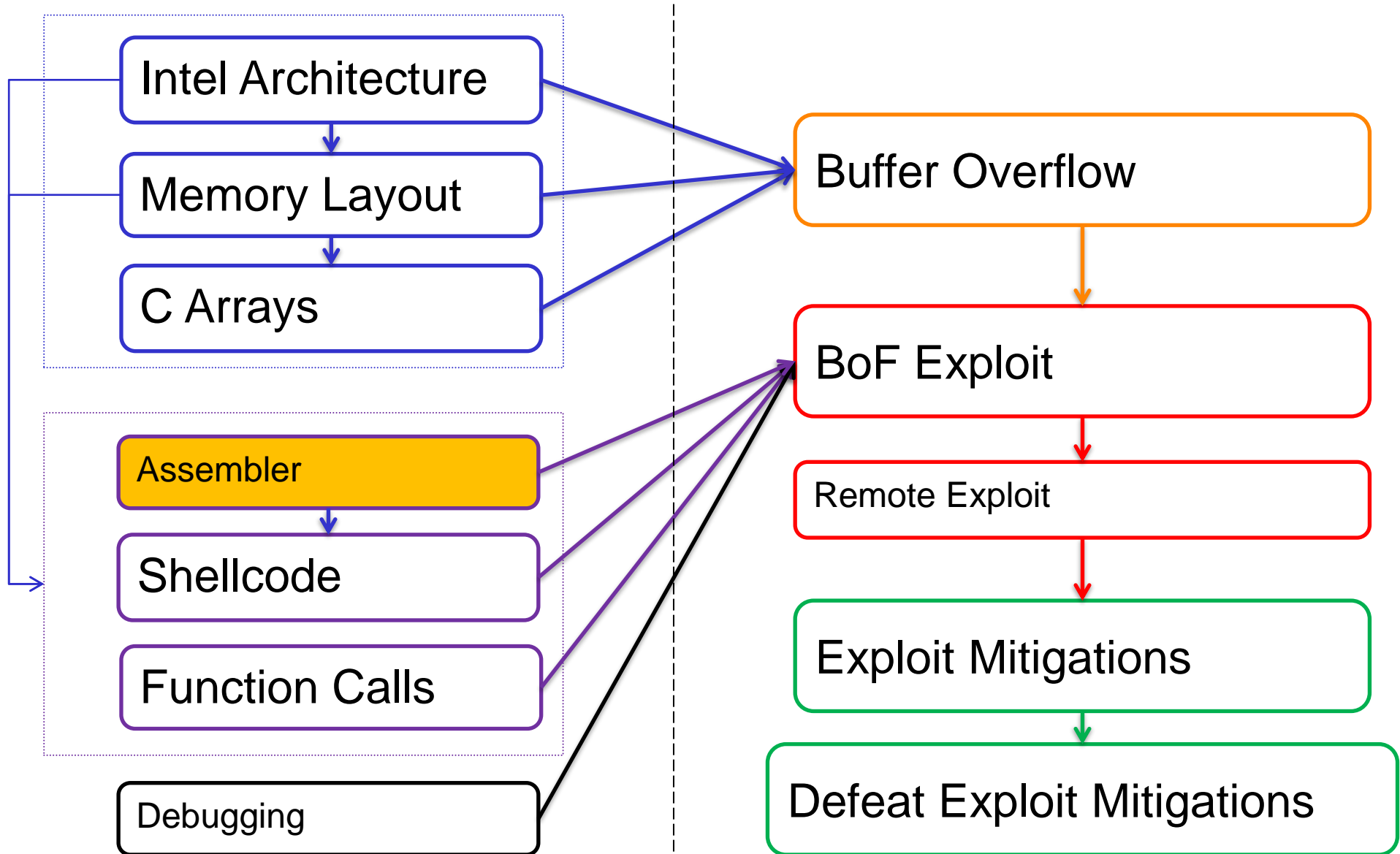

Assembler 101

Content



Short Assembler Intro

Assembler Intro

Initialize a variable

```
int number;
```

```
number += 1
```

```
number dw 0
```

```
mov number, eax
```

```
inc eax
```

```
mov eax, number
```

Assembler Intro

Array on the stack

```
char test[5];
```

```
test[0] = 1;
```

```
test[3] = 9;
```

```
sub    $0x10,%esp
```

```
movb   $0x1,-0x5(%ebp)
```

```
movb   $0x9,-0x2(%ebp)
```

Assembler Intro

Array on the heap

```
char *test = malloc(5);
```

```
test[3] = 9;
```

```
sub    $0x28, %esp
movl   $0x5, (%esp)
call   8048300 <malloc@plt>
mov    %eax, -0xc(%ebp)
mov    -0xc(%ebp), %eax
add    $0x3, %eax
movb   $0x9, (%eax)
```

Assembler Intro

Conditional statement

```
if (number < 0) {  
    <smallerzero>  
}  
  
<restofcode>
```

```
number dw 0  
  
mov number, eax  
  
cmp eax, 0  
  
jge label    # jump greater equal  
  
<smallerzero>  
  
label:  
  
<restofcode>
```

Assembler Intro

Loop

```
int n;
```

```
for(n=0; n<12; n++)
```

```
{
```

```
    printf("A");
```

```
}
```

03	sub	\$0x28,%esp
06	movl	\$0x0,-0xc(%ebp)
13	jmp	0x8048403 <bla+31>
15	movl	\$0x41,(%esp)
22	call	0x8048320 <putchar>
27	addl	\$0x1,-0xc(%ebp)
31	cmpl	\$0xb,-0xc(%ebp)
35	jle	0x80483f3 <bla+15>

Online Assemblers

Compile Online with NASM

- ✦ <https://www.idoodle.com/compile-assembler-nasm-online>
- ✦ https://www.tutorialspoint.com/compile_assembly_online.php

Decompile C source Code:

- ✦ <https://godbolt.org/>
- ✦ <https://retdec.com/decompilation-run/>