

Unleash the Power of CodeMeter

CodeMeter Basics



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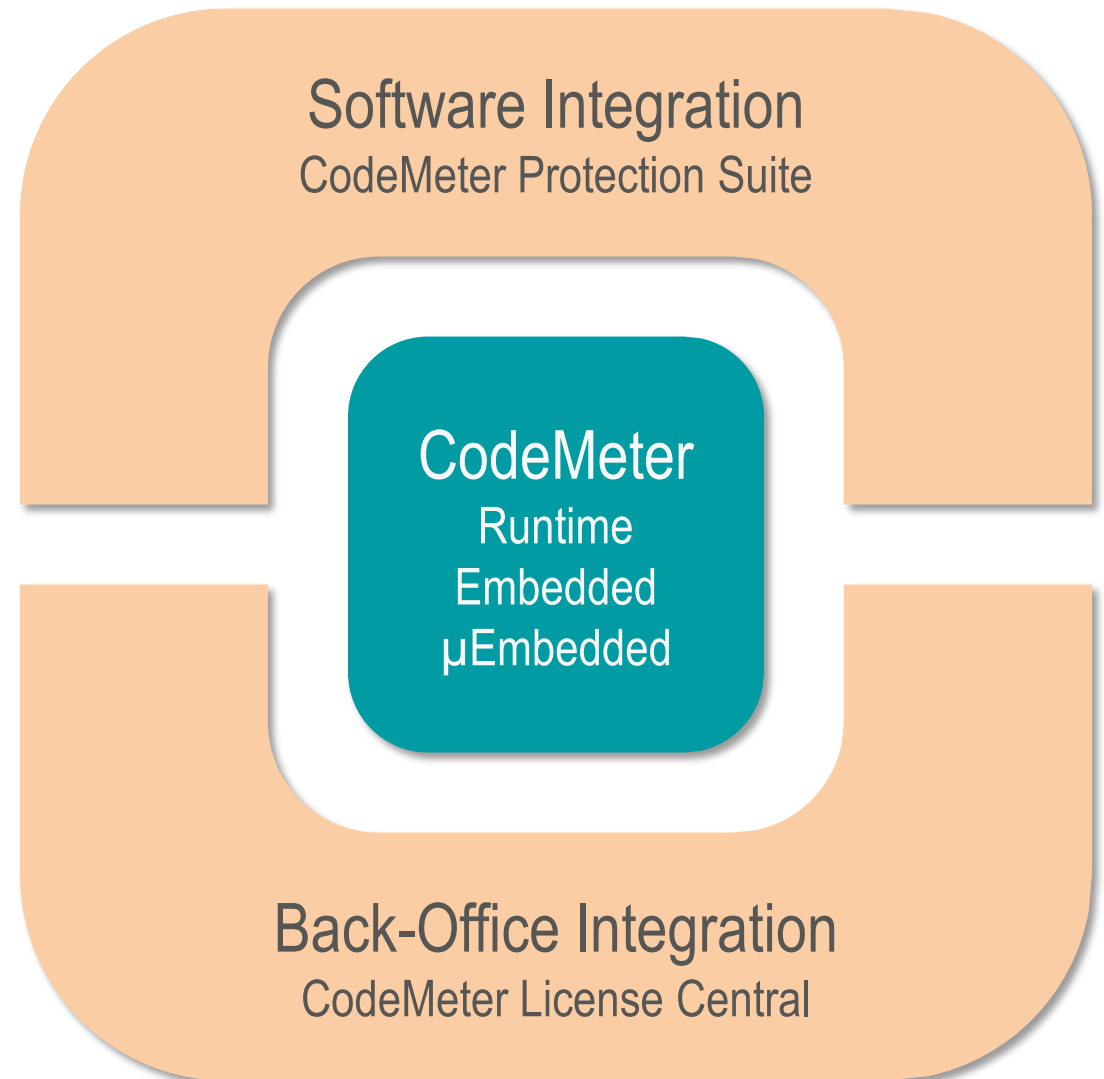
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To access the on-demand replay of this masterclass,
please visit

<https://www.wibu.com/access-unleash-the-power-of-codometer.html>

The Overall Picture of Protection and Licensing

- CodeMeter
 - License Models
 - CodeMeter Variants
- Software Integration
 - Automatic Encryption
 - API Calls
- Back-Office Integration
 - ERP / e-commerce / MES / CRM
 - Software Activation



Integrate Once – Deliver Many (1)

Integrate Once

Integration into software

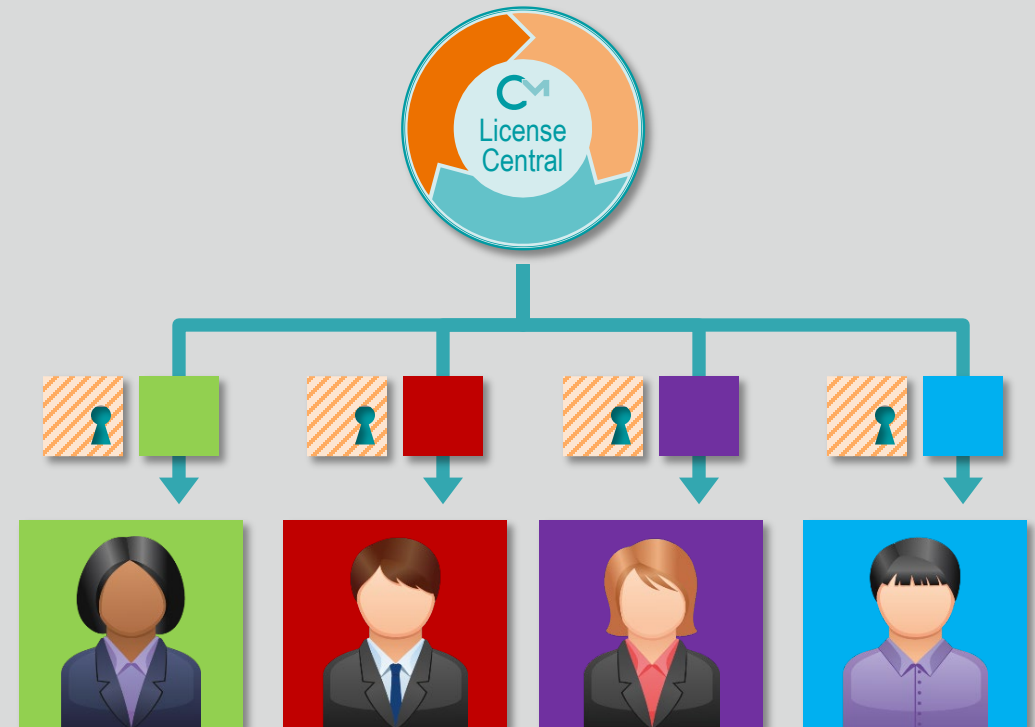


Integration into processes











Deliver Many

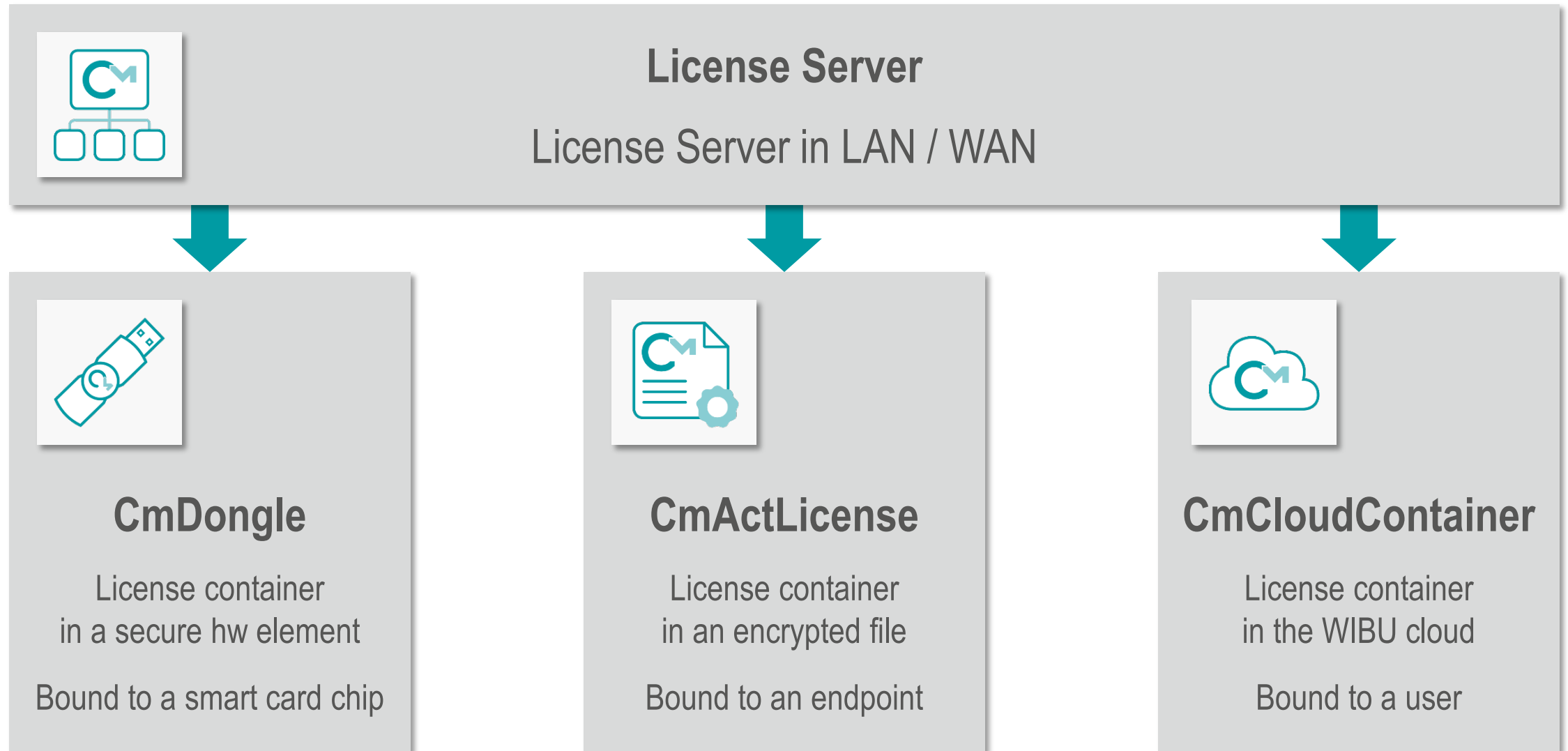
Delivery to the user



Integrate Once – Deliver Many (2)

			
Software	Software	Software	Software
			
License <ul style="list-style-type: none">• Basic Module<ul style="list-style-type: none">• Single User• Additional Module<ul style="list-style-type: none">• Single User• 30 days	License <ul style="list-style-type: none">• Basic Module<ul style="list-style-type: none">• Subscription• Additional Module<ul style="list-style-type: none">• Subscription	License <ul style="list-style-type: none">• Basic Module<ul style="list-style-type: none">• 7 Users• Additional Module<ul style="list-style-type: none">• 5 Users	License <ul style="list-style-type: none">• Basic Module<ul style="list-style-type: none">• Single User• Pay-per-Use

CodeMeter Licensing Systems

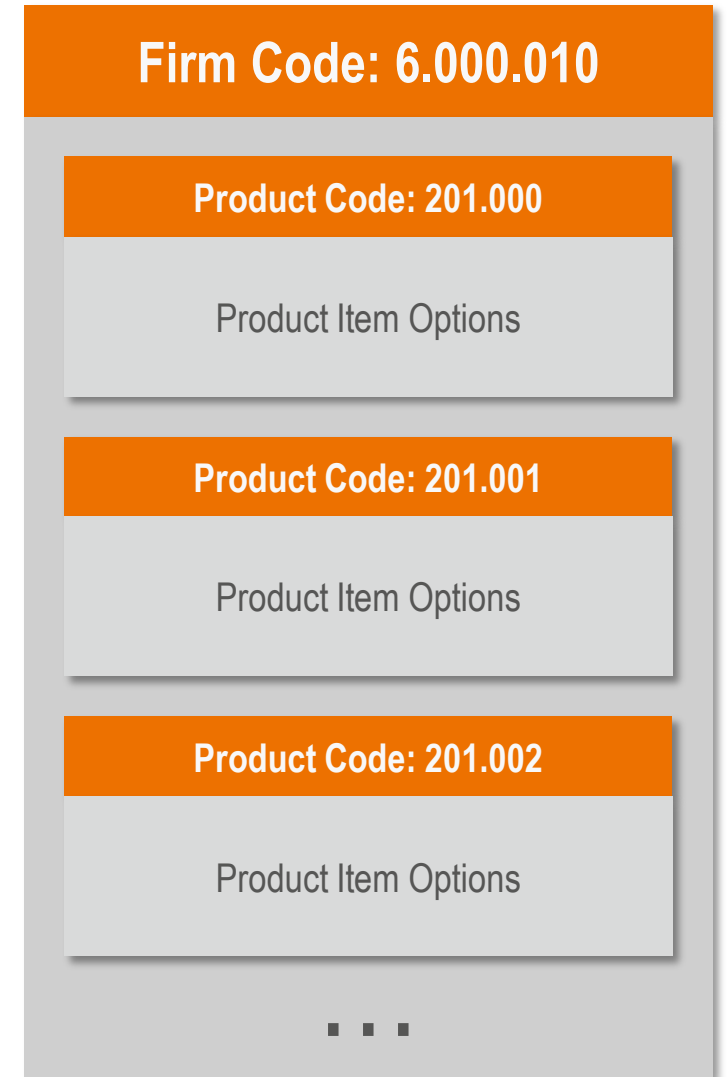


CodeMeter Core Features


The essential building blocks


License Entries


- License entry = **Firm Code** | **Product Code**
- **Firm Code**: issued by Wibu-Systems
- **Product Code**:
 - Defined by the software vendor
 - Per Option / Module / Feature
 - 4 bn. Product Codes (UInt32)
- Up to 2,000 Product Items per CmContainer
- **Product Item Options**: Each license can include combinable options





Product Item Options


 Text


 License Quantity


 Activation Time


 Expiration Time

 Usage Period


 Feature Map


 Maintenance Period


 Module Items


 Unit Counter


 Maximum Encryption Rate


 Access Password


 Minimum Runtime Version


 Named User License


 Linger Time


 License Transfer


 User Data

 (Extended) Protected Data

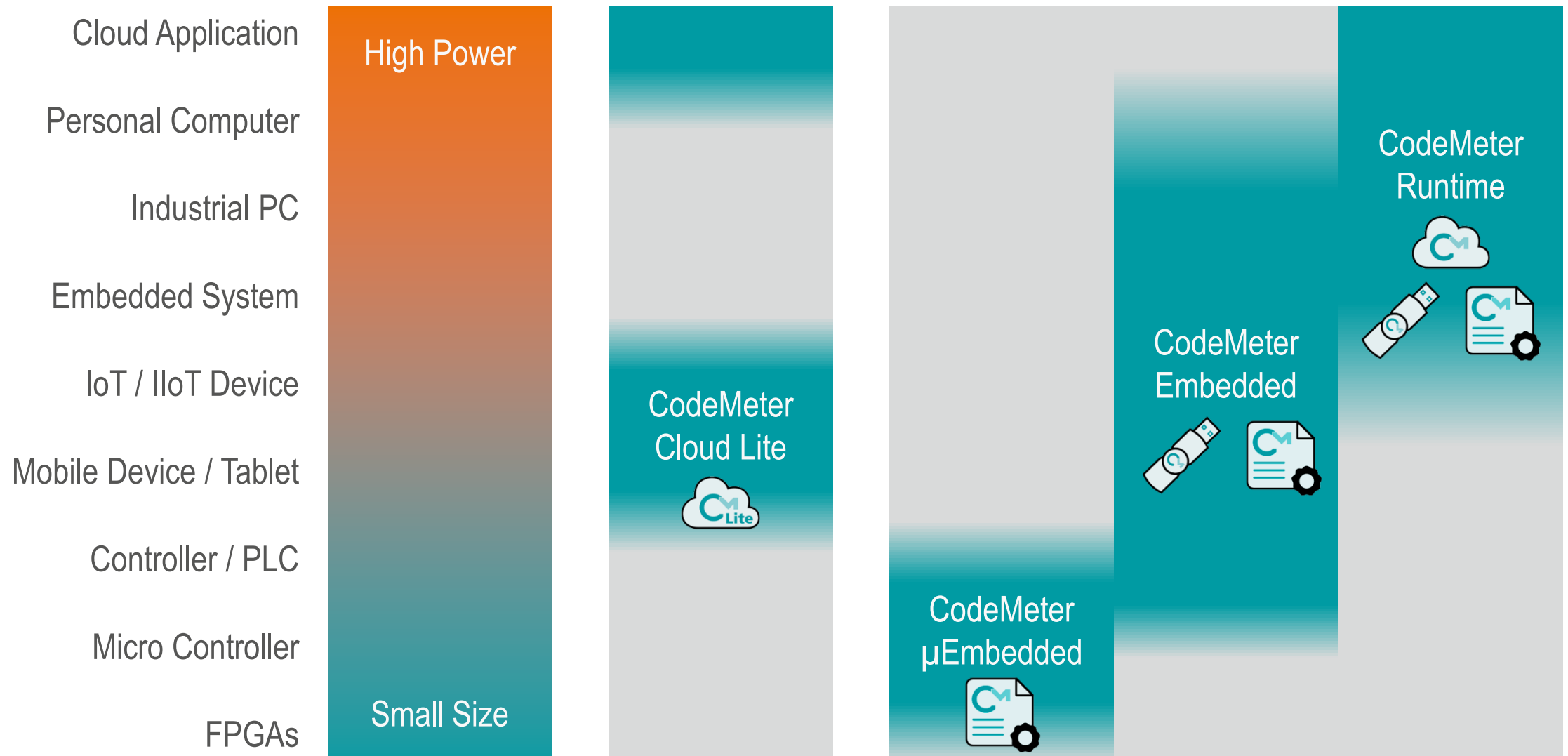
 Customer Own License Information

 Hidden Data

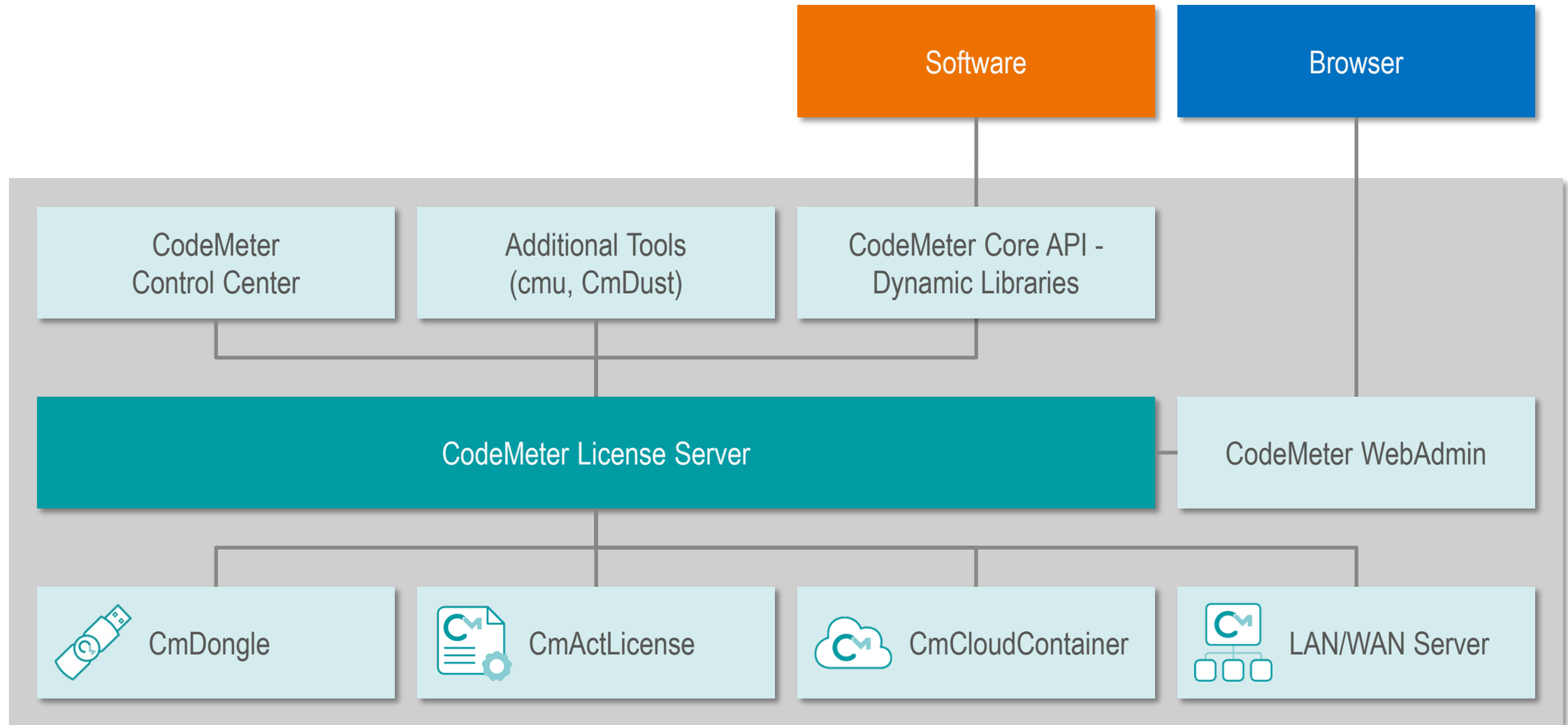
 Secret Data

 Universal Data

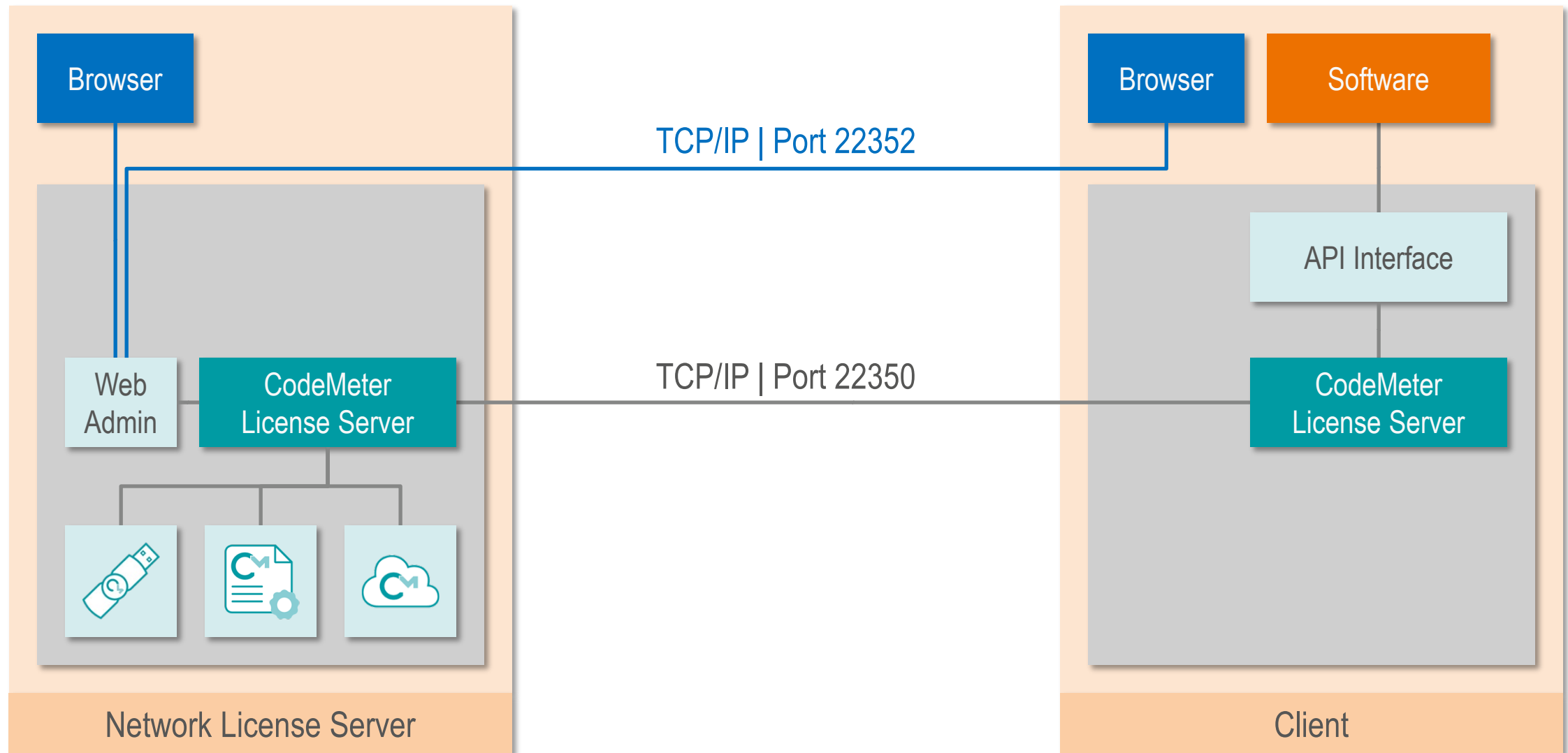
Scalable CodeMeter Variants



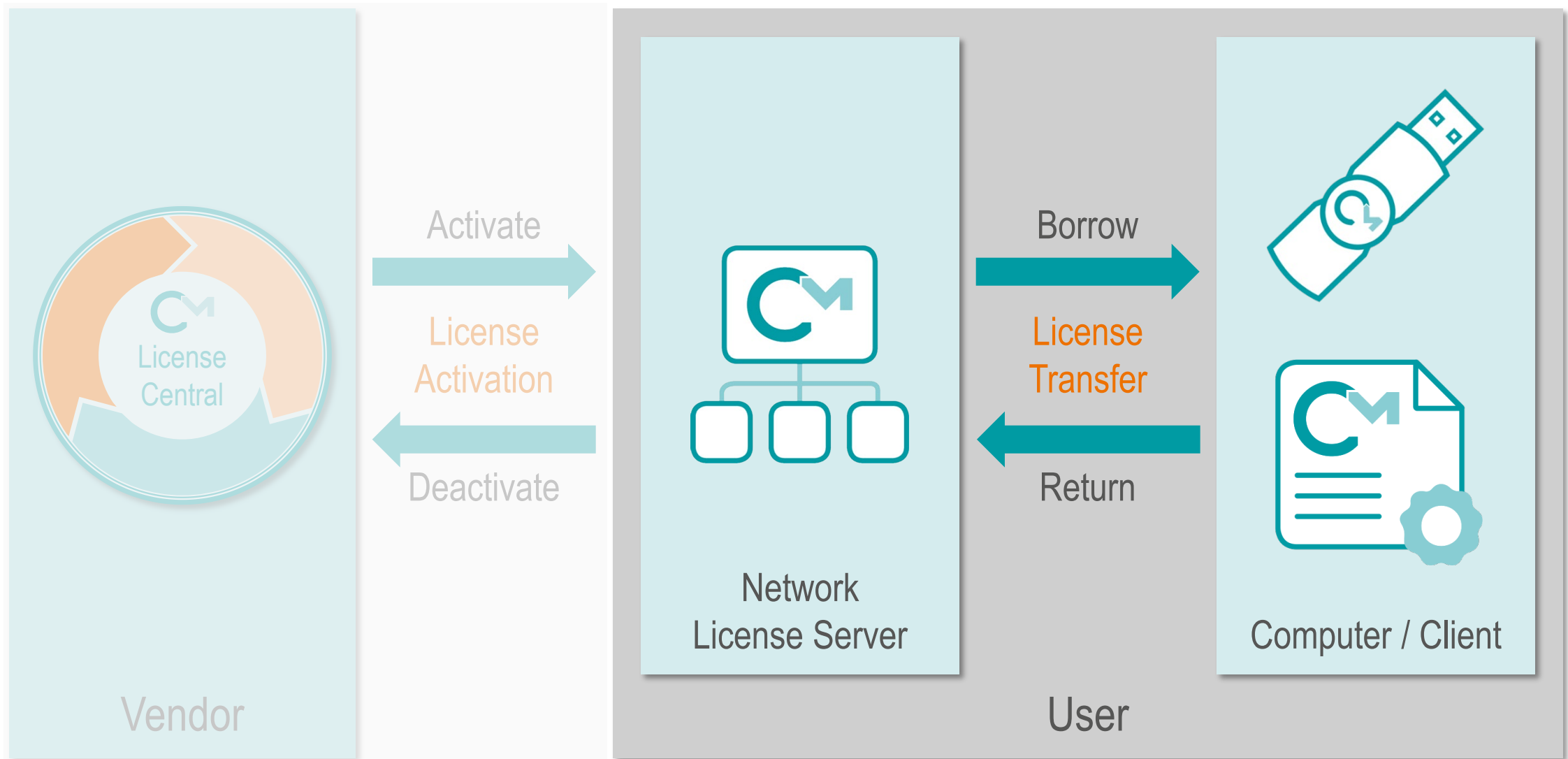
CodeMeter Runtime in Detail



CodeMeter in a Network (LAN)



License Transfer: License Borrowing



Software Integration

Different tools – Same purpose

Software Integration

- **Automatic Encryption**
 - CodeMeter Protection Suite
 - Windows, macOS, Linux, Android, .NET Assemblies, Java J2SE and J2EE, Python, JavaScript
- **Software Protection API**
 - Wibu Universal Protection Interface (WUPI)
 - Dynamic decryption and encryption of code parts at runtime
 - Adds cryptographic checks automatically
- **CodeMeter Core API**
 - Basic API; all other APIs and tools are based on it

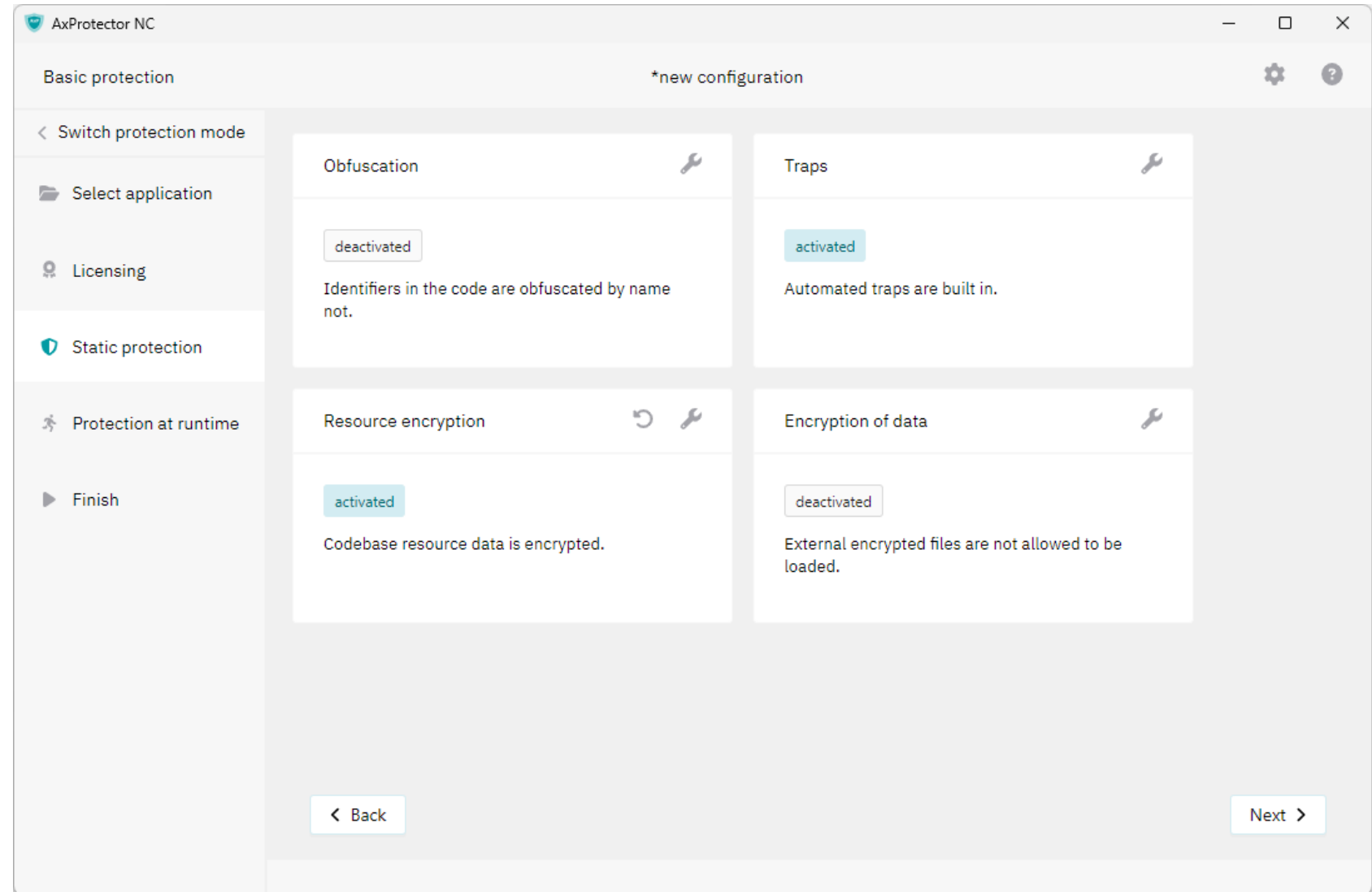
CodeMeter Protection Suite

Features	AxProtector Windows	AxProtector macOS	AxProtector Linux	AxProtector .NET	AxProtector Python	AxProtector JavaScript	AxProtector Java	AxProtector Android
Automatic Protection	✓	✓	✓	✓	✓	✓	✓	✓
Modular Licensing	✓	✓	✓	✓	✓	✓	✓	✓
IP Protection	✓	✓	✓	✓	✓	✓	✓	✓
CodeMoving	✓	✓	✓	✓	✓	✓	✓	✓
File Encryption	✓	✓	✓	✓	✓	✓	✓	✓
Compile Time Obfuscation	✓	✓	✓					

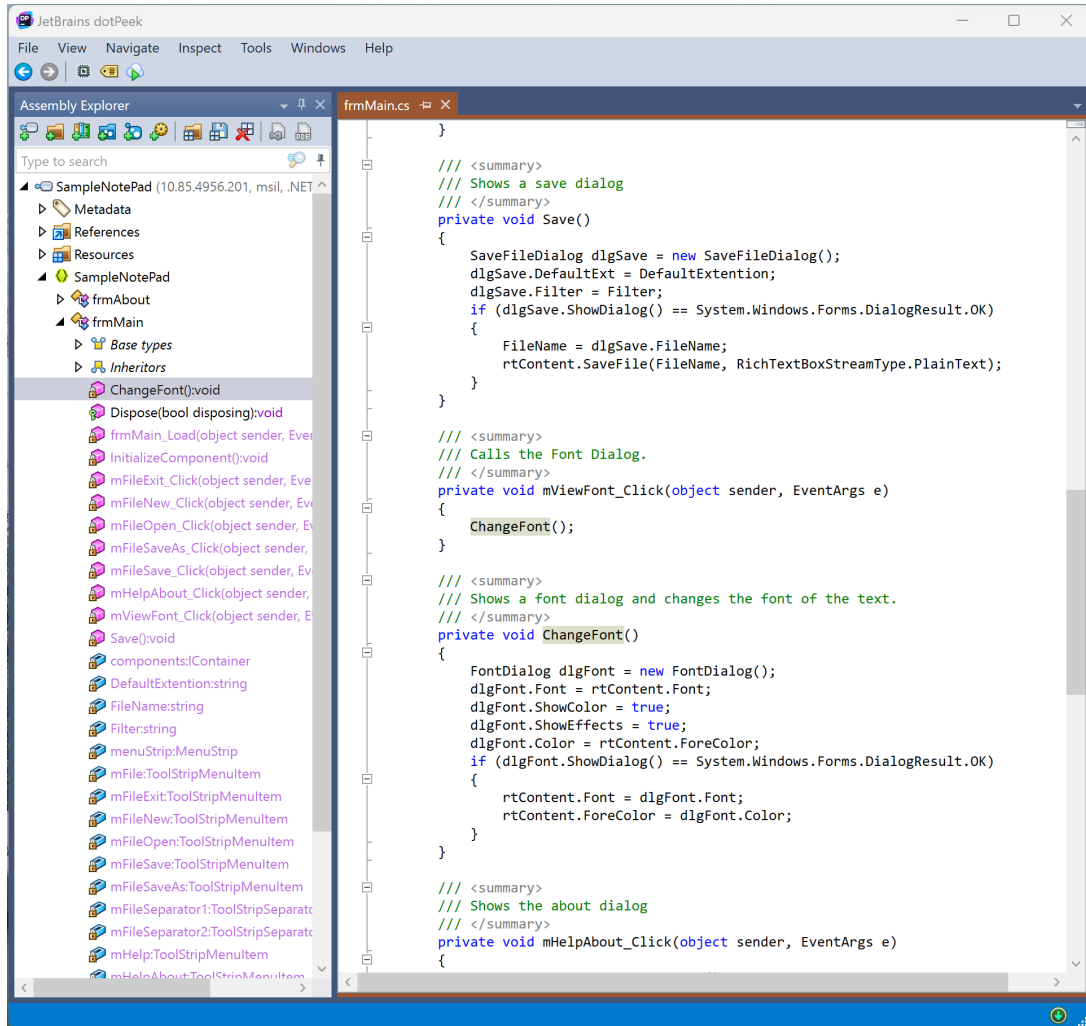
Basic version
 Optional feature
 Planned optional feature
 N/A

New Graphic Interface for AxProtector Configuration

- Several modes
 - Quick
 - Basic
 - Expert
 - License Free
- AxProtector .NET NC
- Further AxProtectors in near future



Attackers' View – Unprotected



dotPeek Decompiler (.NET)

```
import sys
from Caesar.Caesar import Caesar
from Transposition.Transposition import Transposition

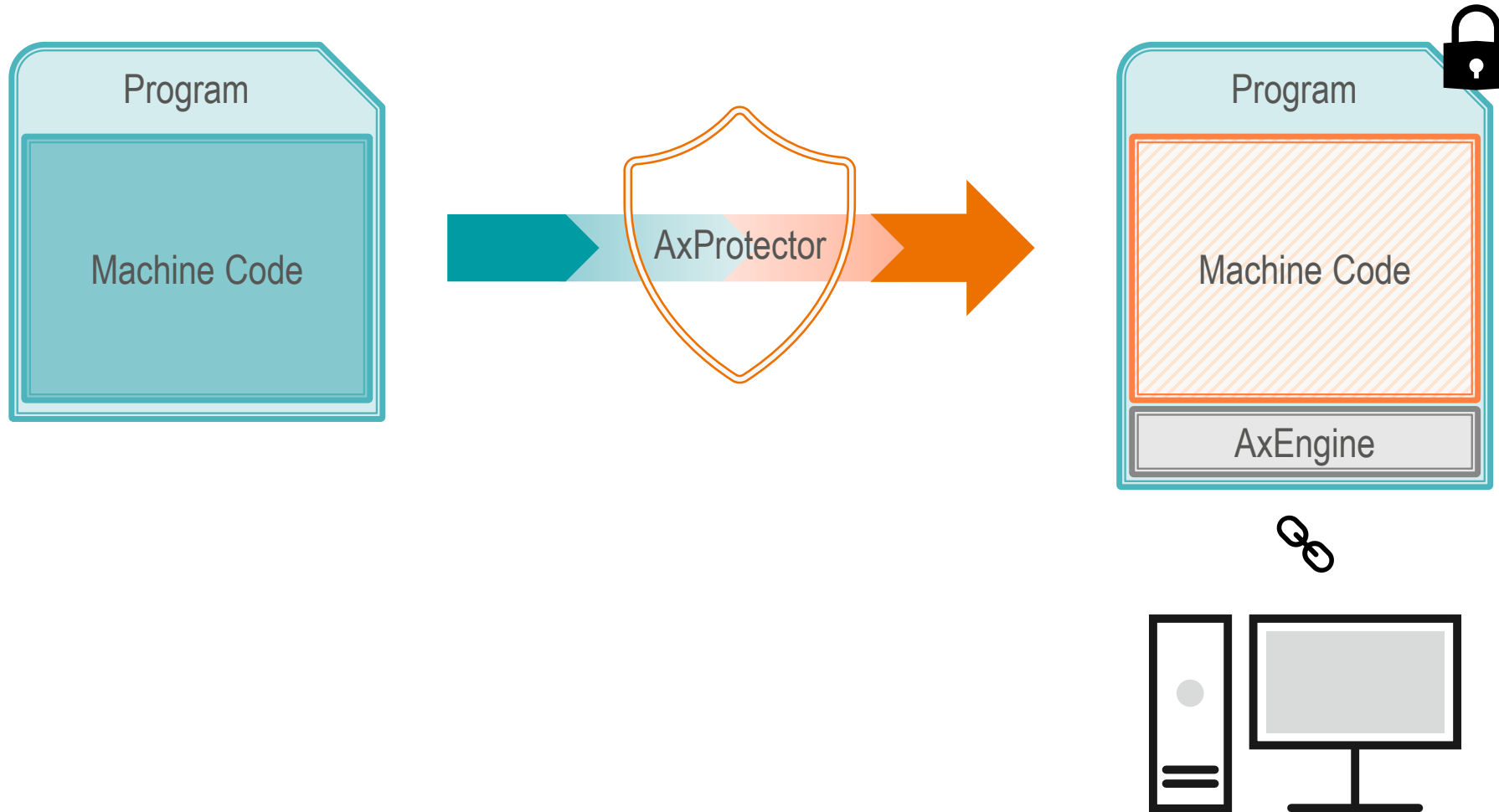
from wupiengine import *

def executeCaesar():
    try:
        print("Caesar encryption")
        txt = input('\nPlease enter text to encrypt\n')
        rot = int(input('\nPlease enter rotation (int), negative value means
            decrypt\n'))
        caesar = Caesar()
        encryptedText = caesar.encrypt(txt, rot)
        print("Encrypted Text: ", encryptedText)
        print()
    except:
        raise RuntimeError("Caesar Encryption failed")

def executeTransposition():
    try:
        print("Transposition encryption")
        txt = input('\nPlease enter text to encrypt\n')
        key = int(input('\nPlease enter the key (int) for encryption, negative
            value means decrypt\n'))
        transposition = Transposition()
        encryptedText = transposition.doTransposition(txt, key)
        print("Encrypted Text: ", encryptedText)
        print()
    except:
        raise RuntimeError("Transposition Encryption failed")
```

Text Editor (Python)

AxProtector for Native Applications

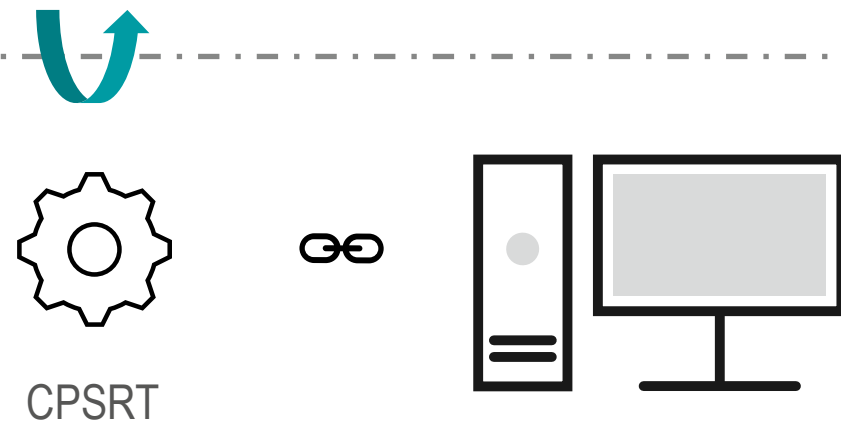


AxProtector NC & CPSRT

Platform independent



Platform dependent



Attackers' View – Protected

```
private void eahnuaouc(object A_2, EventArgs A_3)
{
    // ISSUE: unable to decompile the method.
}

protected override void Dispose(bool disposing)
{
    // ISSUE: unable to decompile the method.
}

private void smuppcesup(object A_2, EventArgs A_3)
{
    // ISSUE: unable to decompile the method.
}

private void xkceckcsue()
{
    // ISSUE: unable to decompile the method.
}

private void wqsrzpcjnm(object A_2, EventArgs A_3)
{
    // ISSUE: unable to decompile the method.
}

private void xbzsshacnq(object A_2, EventArgs A_3)
{
    // ISSUE: unable to decompile the method.
}

private void ylmwamjds(object A_2, EventArgs A_3) => this.aefcvnfqn();

public frmMain()
{
    // ISSUE: unable to decompile the method.
}

private void aefcvnfqn()
{
    // ISSUE: unable to decompile the method.
}

private void wworsfsauq(object A_2, EventArgs A_3) => this.aztbaldksa();

private void zmeayrebrv(object A_2, EventArgs A_3)
{
}

private void aztbaldksa()
```

dotPeek Decompiler (.NET)

```
...
def __axe_init():
    ... import ctypes as _c

    ... class Interface(_c.Structure):
    ...     ... _fields_ = (('a', _c.c_uint), ('b', _c.c_uint), ('c', _c.c_char_p),
    ...     ... ('d', _c.c_longlong), ('e', _c.c_longlong)]
    ...     import base64
    ...     buffer = base64.b85decode(__axe_data)
    ...     interface = None
    ...     errorList = []
    ...     __axe_init.cpsrt = _loadCpsRT(errorList)
    ...     if __axe_init.cpsrt == None:
    ...         raise RuntimeError('Could not load cpsrt library:\n'+
    ...         ... _formatErrorList(errorList))

    ...
__axe_data = (
    ... b'5C8xG00UASc8-K2mLNK3IG5Acm}6e=mY=&10Na40{-R3Py+w}gaH5m10Na4!u<dL10Na4ZUF!QFoFSUFoFRXpaTK{
    ... 0s;hLrmTxF3I+%&hDgpm10oyvB{3B+69xLS1PTLcS4L!uEmK}jR7FiwF$^#Y1_M<D0}K09P).....
    ... jf#7Y#5LfLMOFfcGMFfdvd4Kp<{GBYtUGc`FiIa)
    ... P@iCAeM~bd|0aP5&GEe=ebPAbb{tF@?qM!x+UrrqUT*DkB0qyD9b}ZehgsZDP!D#%k5n0zuQ)-<Rz;PGxXF>n~'
    ... )
__axe_init()
__axe_run(1, globals())
```

Text Editor (Python)

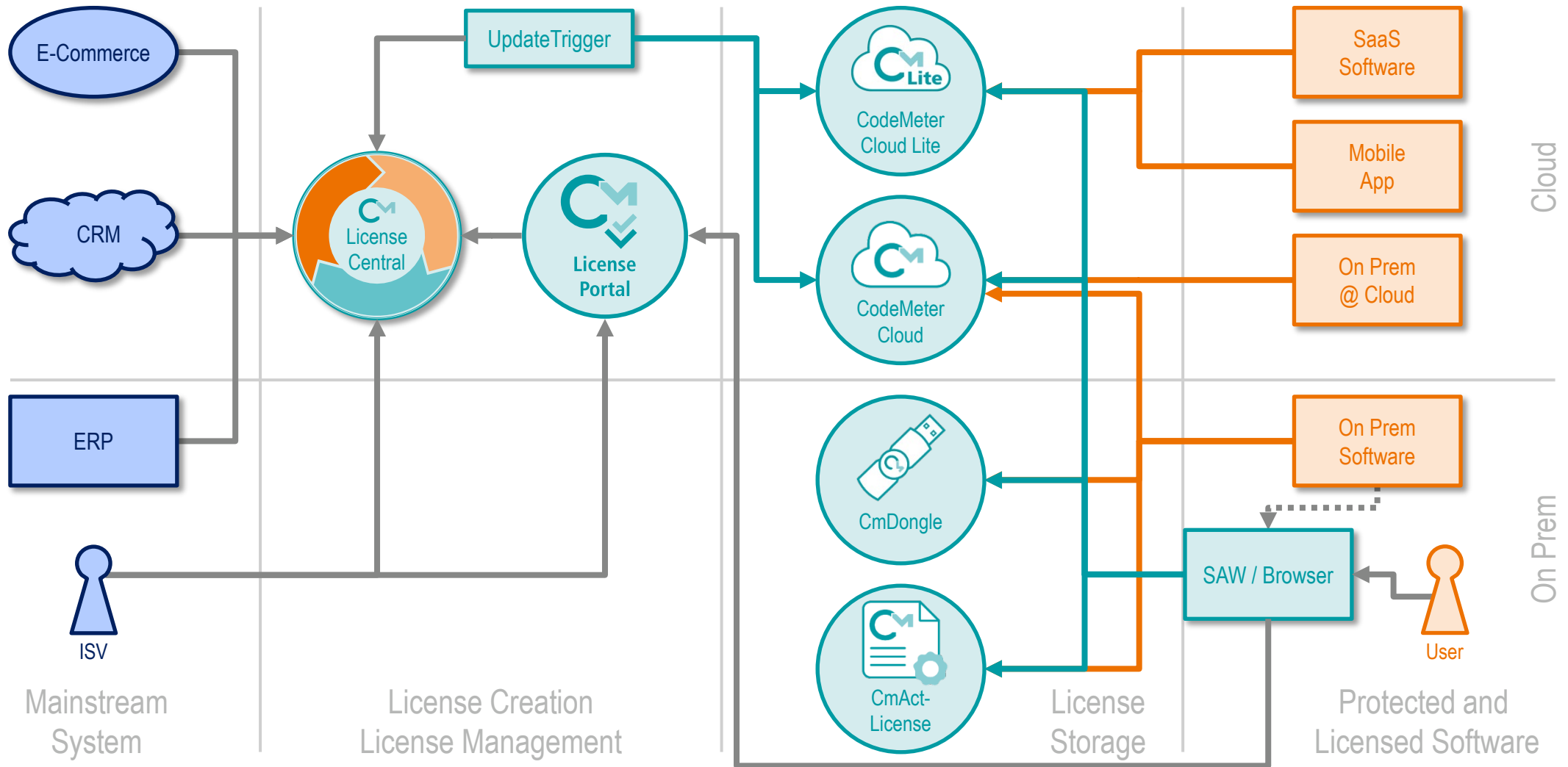
CodeMeter Protection Suite Runtime – CPSRT

- Native Component
 - Protected with AxProtector CTP
 - Tamper-protected
- License check
- Content Decryption
- Anti-Reverse checks
- Execution of code in machine memory (Code Moving)
- Runtime checks

Back-Office Integration

Integrating CodeMeter with
ERP, CRM, and e-commerce platforms

CodeMeter Product Overview





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Type your questions in the chatbox

Thank You!

Let's keep in touch

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