

# Away from prying eyes

Running code in secure hardware or  
cloud environments

**SECURITY  
LICENSING**

**PERFECTION IN PROTECTION**



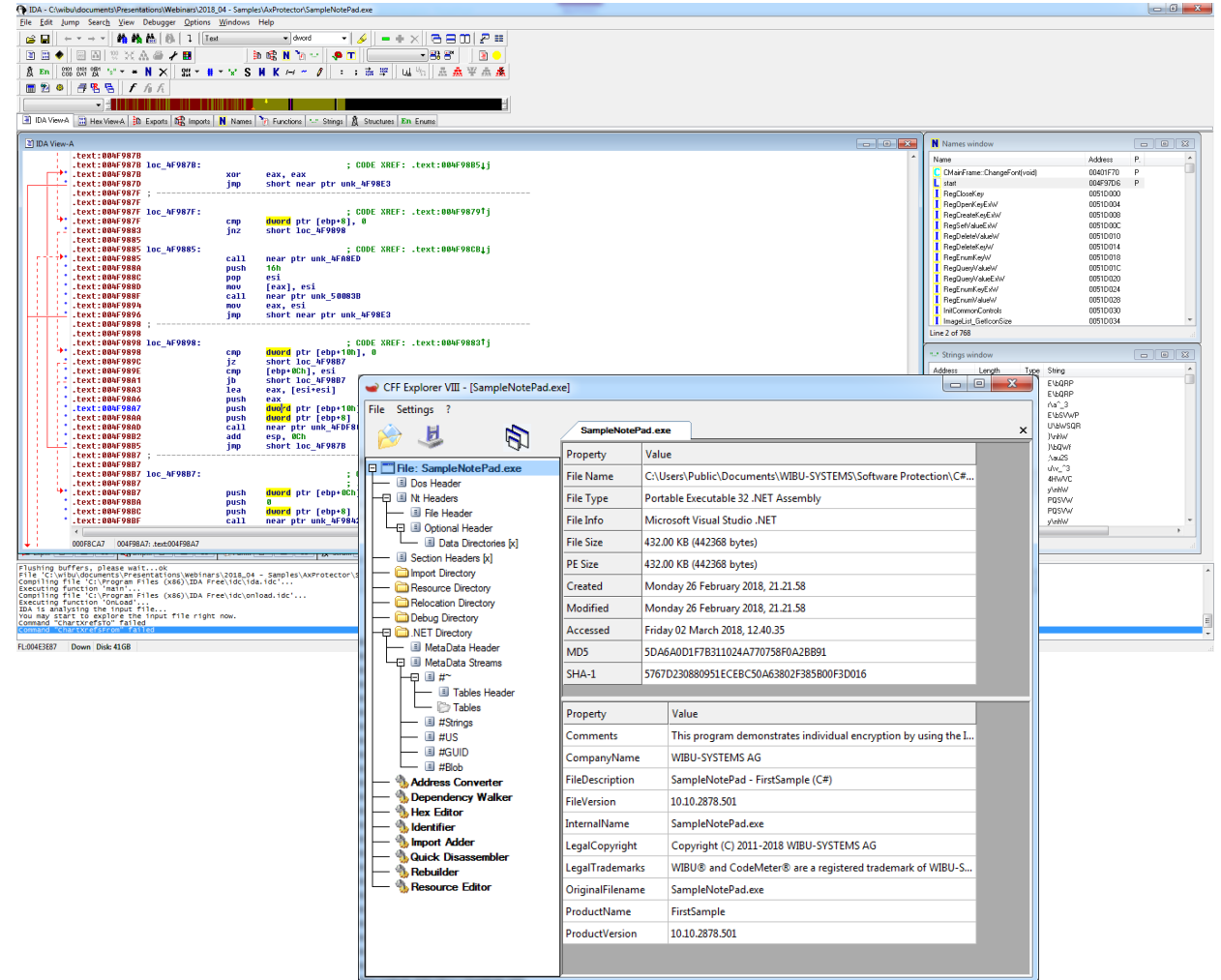
**Ruediger Kuegler**  
VP Sales & Professional Services

**Axel Engelmann**  
Architect Protection Technologies

To access the on-demand reply of this masterclass, please visit  
[www.wibu.com/wibu-systems-webinars/running-code-in-secure-containers/access.html](https://www.wibu.com/wibu-systems-webinars/running-code-in-secure-containers/access.html)

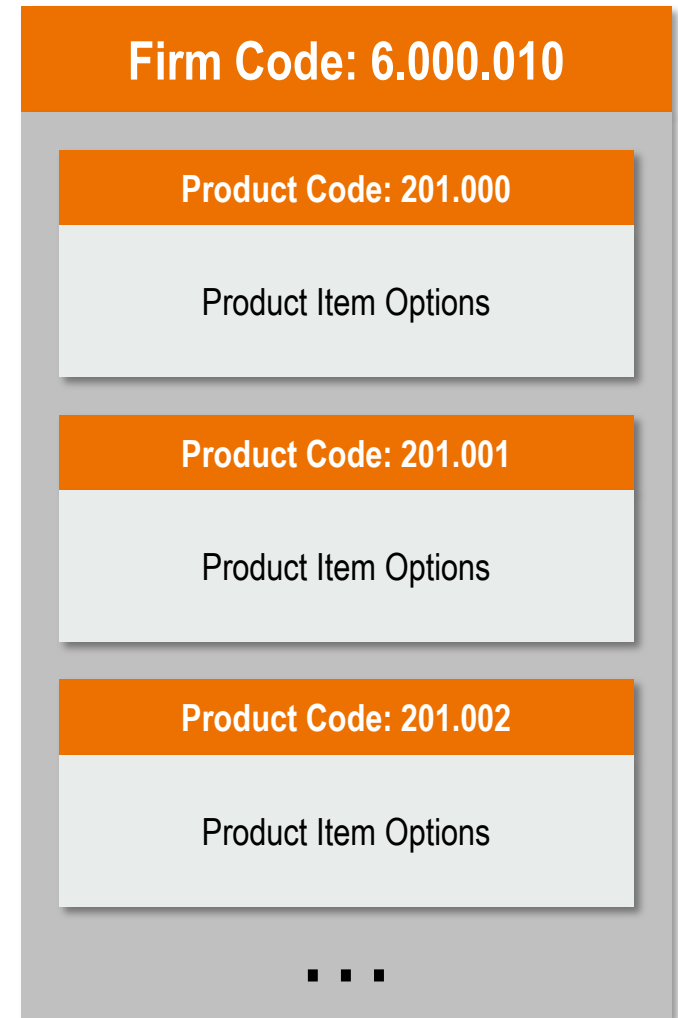
# The Hacker's Perspective






















- Reflector
  - Reflexil
- Just Decompile
- ILDASM
- IDA Pro
- OllyDebug
- Hex Editor (e.g. UltraStudio)
- CFF Explorer



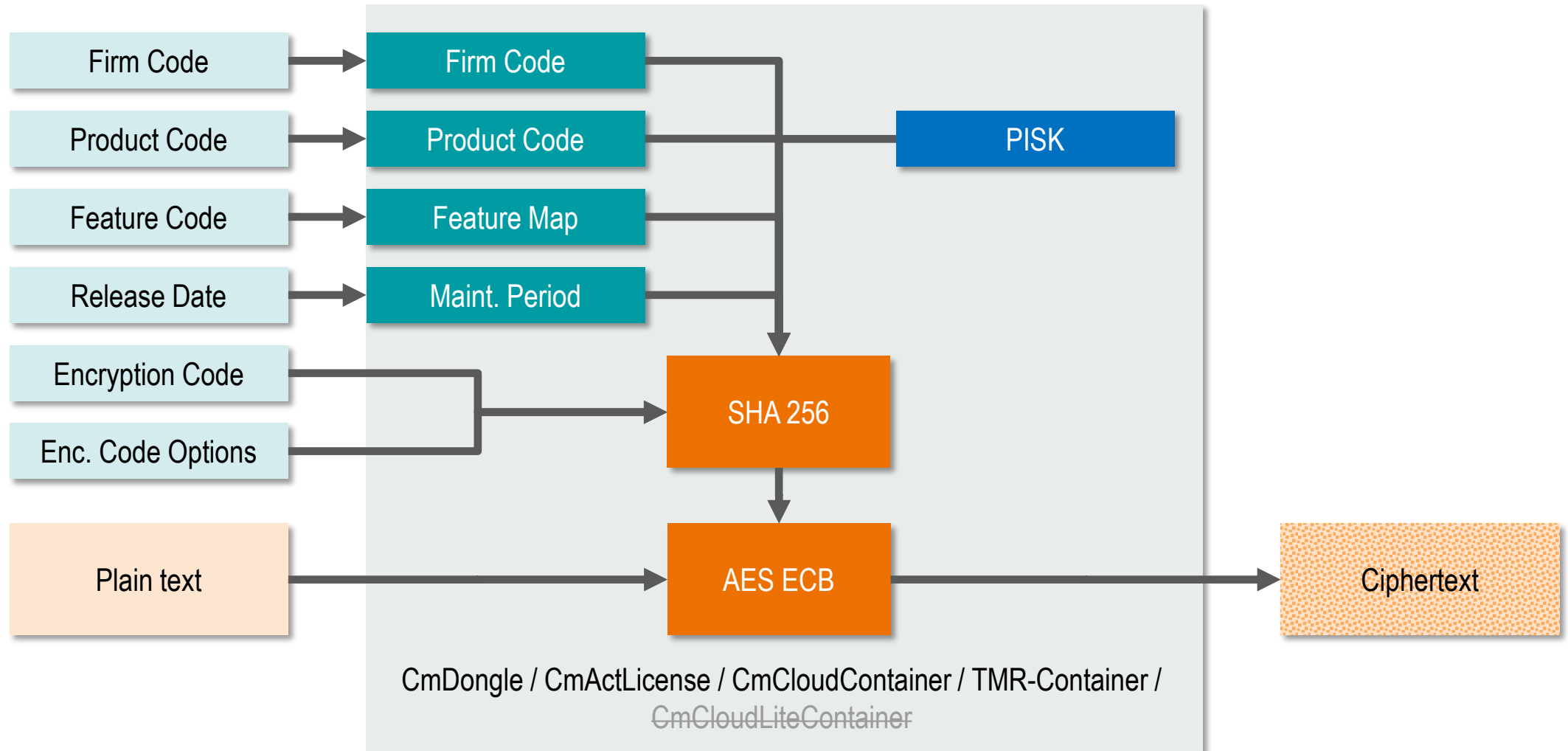
# Fundamentals of CodeMeter

- 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

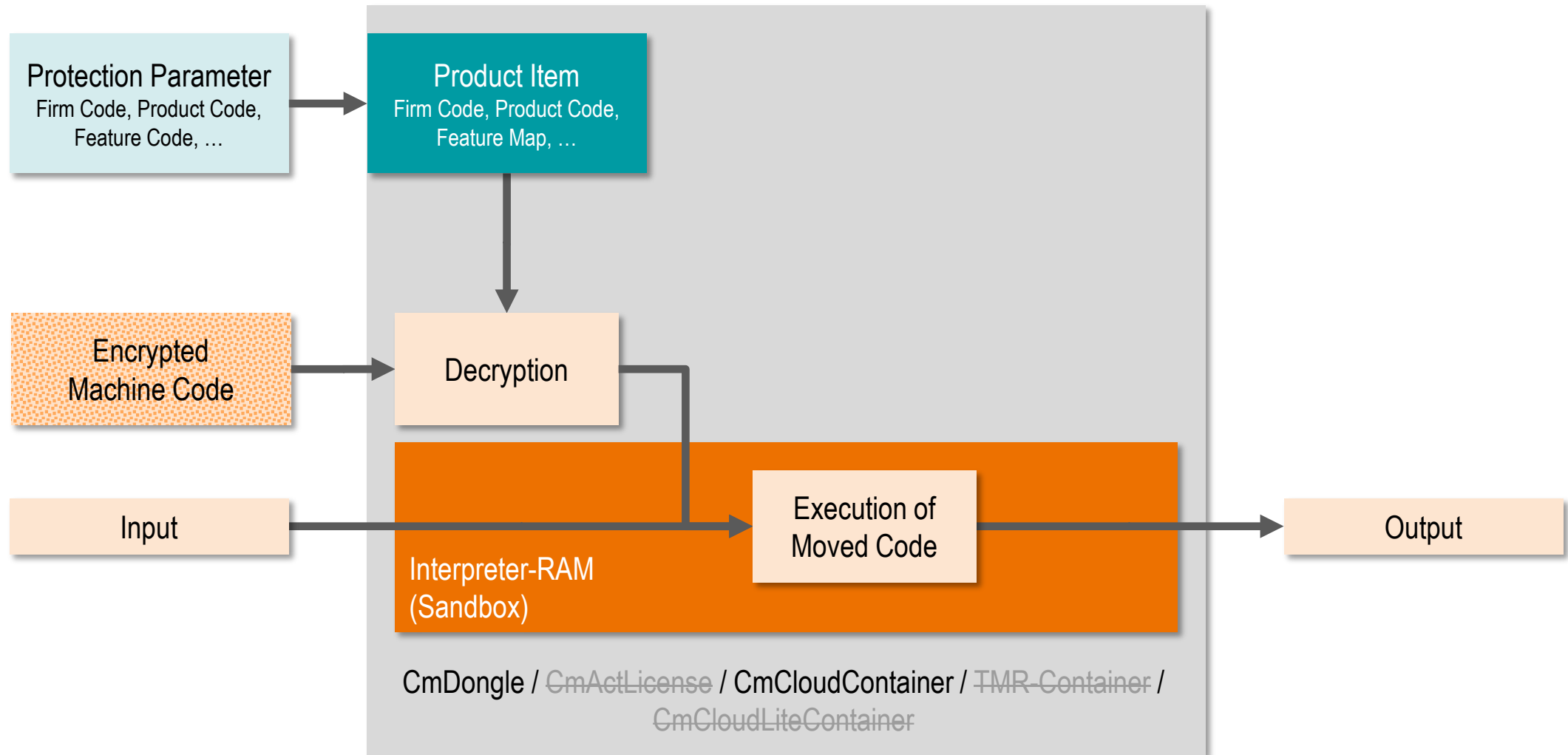


 Text	 Module Items	 License Transfer
 License Quantity	 Unit Counter	 User Data
 Activation Time	 Maximum Encryption Rate	 (Extended) Protected Data
 Expiration Time	 Access Password	 Customer Own License Information
 Usage Period	 Minimum Runtime Version	 Hidden Data
 Feature Map	 Named User License	 Secret Data
 Maintenance Period	 Linger Time	 Universal Data

# Key Derivation (Universal Firm Code 6,00x,xxx)









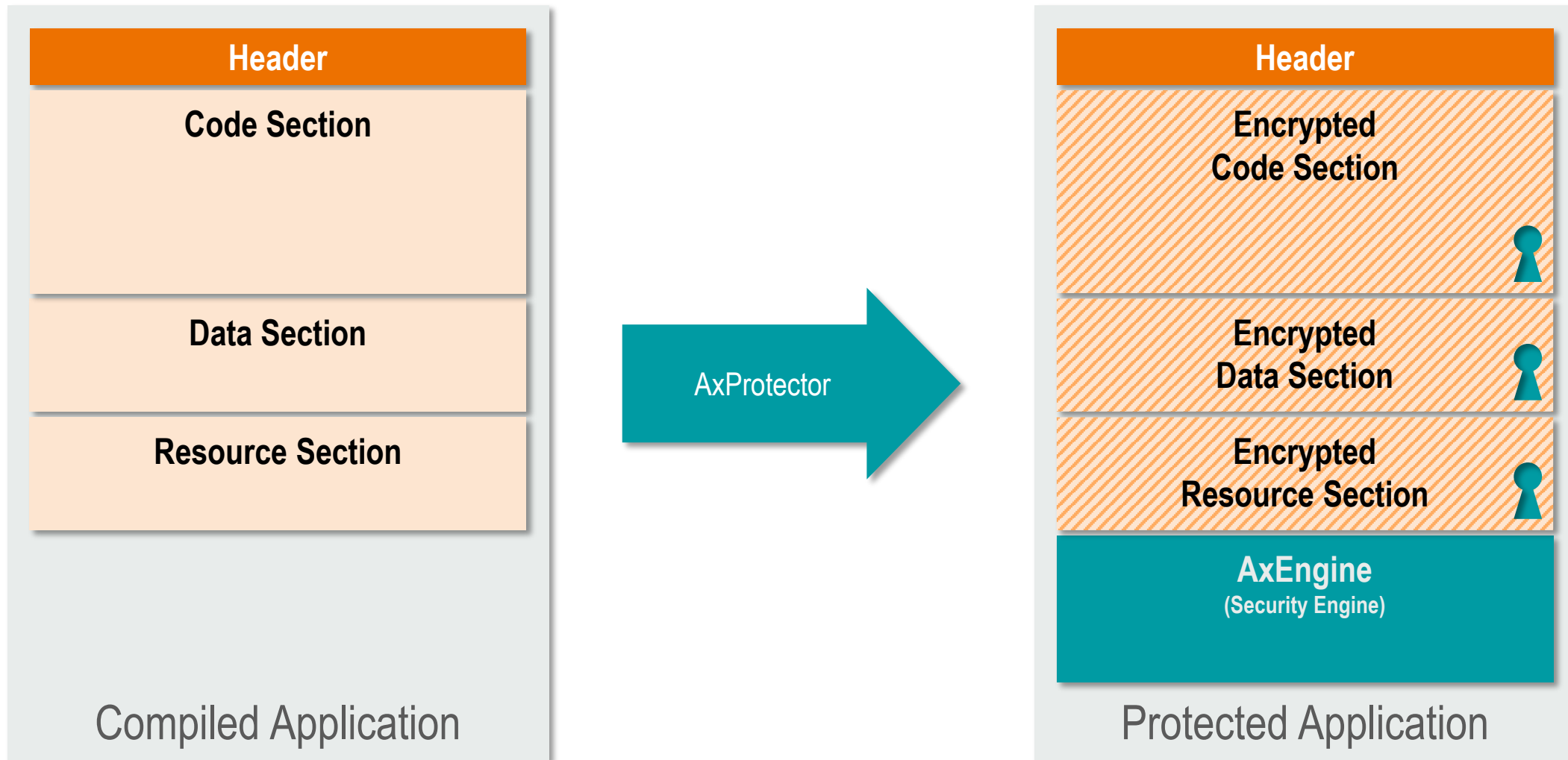


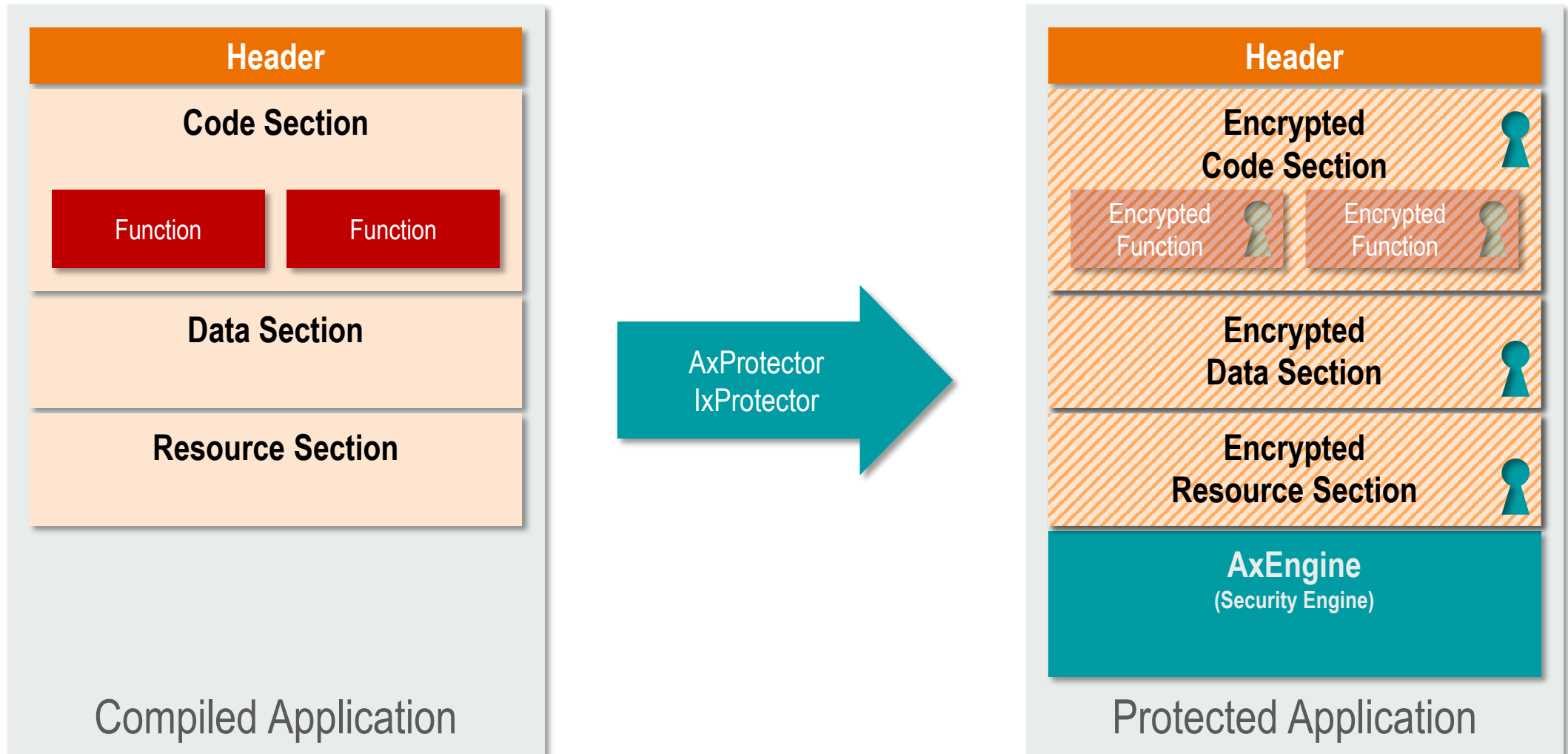
# CodeMeter Protection Suite

	Windows	macOS	Linux	Android	VxWorks	Java	.NET	Python	JavaScript
<b>AxProtector</b>	x	x	x	x	x	x	x	x	x
<b>Modular Licensing</b>	x	x	x	x	-	x	x	x	x
<b>IP Protection</b>	x	x	x	x	-	x	x	x	x
<b>CodeMoving</b>	x	x	x	x	-	x	Beta	x	x
<b>File Encryption</b>	Planned	Planned	Planned	Planned	-	Planned	Beta	x	x

-  Available in the basic version
-  Additional option
-  Not applicable
-  Planned / Beta Available

# A Scalable Approach

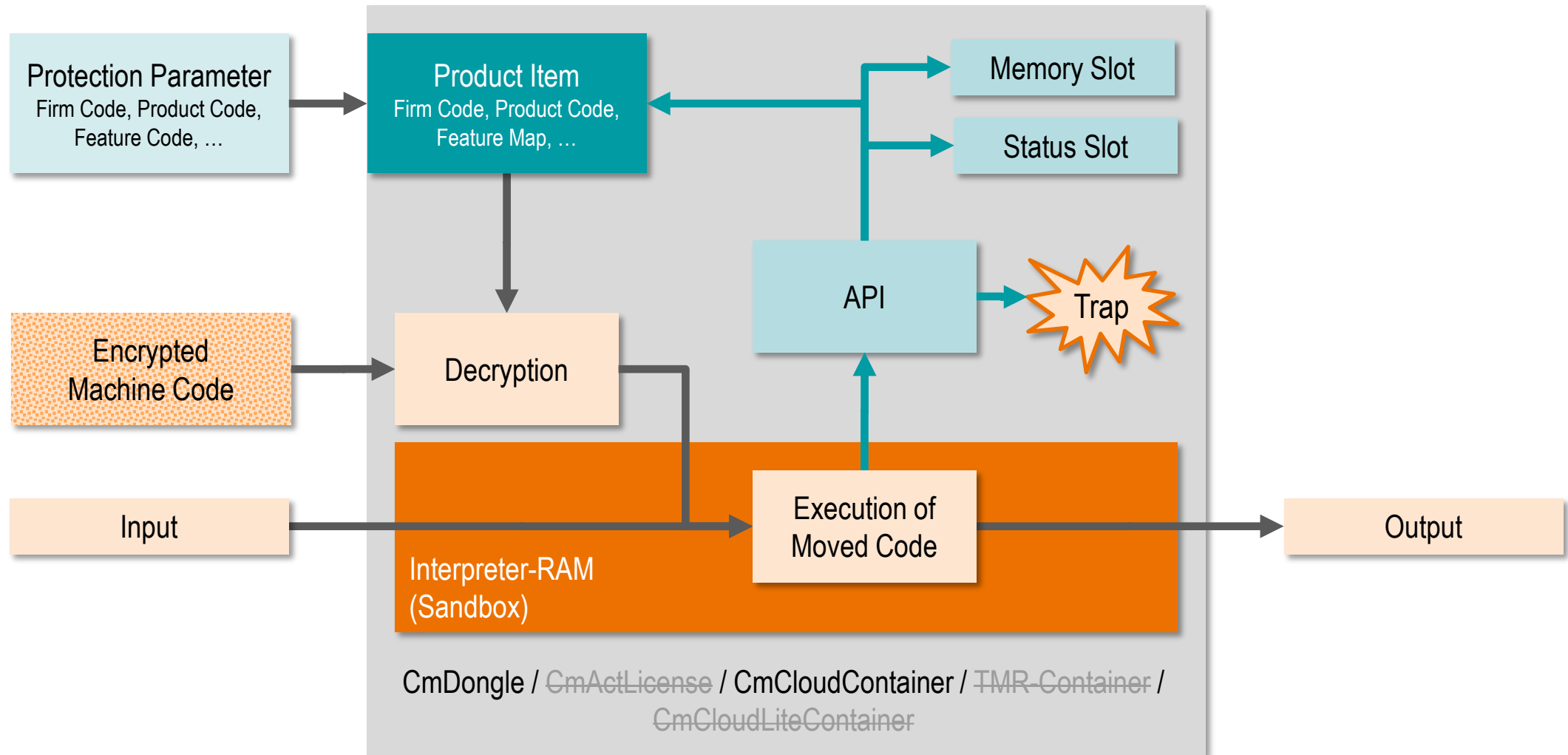




- Identify code to be moved
- Create separate c-file
  - Function void entry(const struct Input\* const input, struct Output\* output)
  - Can call sub-functions
  - No operating system API calls
- Replace original call with WupiExecuteMovedCodeId
- Create wbc/yaml-file
  - Access Password
  - Move = 1, SourceFile (c-file)

- Remove original code from the application
- Encrypt using AxProtector
  - Compiles separate c-file
  - Encrypts and stores encrypted machine code in encrypted application
- Create fitting license (Access Password)
- Recommended minimum versions
  - Firmware 4.01, CodeMeter Runtime 7.40, CodeMeter Protection Suite 11.00, CodeMeter License Central 4.01d





# Breakthroughs

- CodeMeter offers a scalable approach to software protection
  - Simple and cryptographic API calls
  - Automatic encryption of the code
  - Individual encryption of specific functions
  - Transfer of the code into a CmDongle/CmCloudContainer
  - Locking licenses
- You can choose the protection level that is right for you
- Our Professional Services Team is ready to assist you

Many thanks for your kind attention



Europe: +49-721-931720  
USA: +1-425-7756900  
China: +86-21-55661790  
Japan: +81-45-5659710

<https://www.wibu.com>  
[info@wibu.com](mailto:info@wibu.com)