



INTER-OPERABILITY MADE EASY



MapuSoft is the global leader in software interoperability & reusability solutions that provide freedom, protection and stability to embedded applications





FREEDOM

Don't confine your
code to one platform



PROTECTION

Protect software
investment



STABILITY

Robust and
optimized platform







Cross-OS[®]

Development Platform

Develop Long-life code

C/C++ Applications

Application Programming Interfaces

| | | | | |
|---------------|---------|----------|---------|-------------|
| OS Abstractor | VxWorks | FreeRTOS | μITRON | Windows |
| Nucleus | pSOS | μC/OS | ThreadX | Linux/POSIX |
| | VRTX | QNX | RTLinux | |

Host Platform

Windows or Linux

Target Platform

| | | |
|----------|---------------|------------------|
| Android | μITRON | Nucleus |
| Linux | Freescale MQX | QNXNeutrino RTOS |
| LynxOS | μC/OS | RT Linux |
| Solaris | Unix | VxWorks |
| ThreadX | In-house | Windows |
| FreeRTOS | | |



Cross-OS Development Platform Contents

- Application Common Operating Environment (AppCOE): An eclipse based IDE for development of C/C++ applications
- Cross-OS Development Platform Interface(s)
 - OS Abstractor™ API
 - Linux®/POSIX API
 - micro-ITRON API
 - RTLinux® API
 - VxWorks® API
 - FreeRTOS™ API
 - µC/OS™ API
 - Windows® API
 - Nucleus® API
 - pSOS® API
 - ThreadX® API
 - VRTX API
 - QNX® API
- OS Abstractor Target Specific Module for the target OS
- Library Package Generator
 - Full source code libraries for the Cross-OS Development Platform Interface(s) and OS Abstractor Target Specific Module for your target platform
 - Sample demo applications
 - Project build files for supported tools and IDEs for your target environment



Cross-OS Development Platform Contents

- Optimized Target Code Generator
 - Generates the Cross-OS Development Platform Interface(s) and OS Abstractor Target Specific
 - Module source code, specifically optimized for your application and target environment
 - Creates project files for your target IDE
 - Includes the system settings you chose in the GUI-based Wizard
- OS Simulator for your chosen Cross-OS Development Platform Interface(s) for host development/simulation
- Profiler to view performance data regarding your application and Cross-OS Development Platform Interface(s) for your target



OS Abtractor Target Specific Module: Performance Features

- Not your typical wrapper
 - Provides most of the OS features by itself and does not depend on the OS, except for a few features (ex. priority scheduling, change priority, semaphore, messaging, thread suspend/resume)
- Quick support for a new OS
 - MapuSoft can easily add support to a new commercial or in-house OS, typically in two weeks
- Process support to any OS
 - Add software based process and shared memory functionality to an OS, even if they do not have those features
- Advanced process memory allocation scheme
 - Applications can allocate required system heap memory during process creation to ensure that they will always have the required system memory
 - Setting memory limits prevents an application from using up all system memory and impacting others



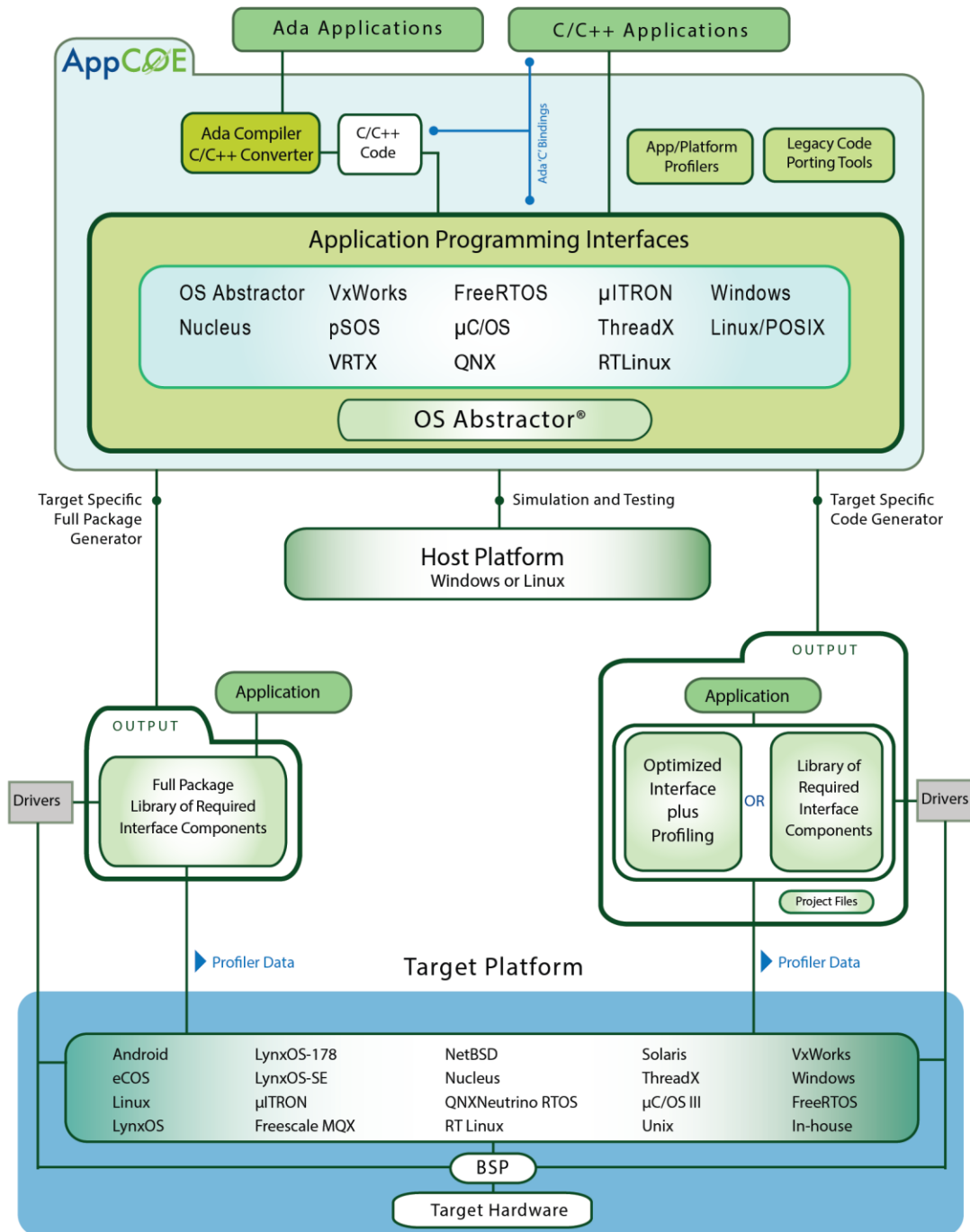
OS Abstractor Target Specific Module: Performance Features

- Thread pooling
 - Applications can pool threads to increase platform robustness & performance by eliminating the overhead associated with actual task creation & deletion at run-time
- Mission Critical Features
 - Applications have the ability to recover from software fatal errors through a soft reset by rolling the stack back to the start of the application
- API Flexibility
 - Use one or more of the Cross-OS Development Platform Interface(s)
 - Cross-OS Development Interface(s) can also be used within a single or across multiple applications
 - Combine applications written with different OS APIs and run them on one or many OS



OS Abtractor Target Specific Module: Performance Features

- Zero copy message queues
 - Cross-OS Queue APIs will not introduce data read and copy overhead
- API and application profiling, plus API optimization
 - Profile applications and the Cross-OS Interface(s) functions on your target
 - Optimize individual Cross-OS Interface functions based on profiler data
- Scalability specific to your application during code generation
 - AppCOE reads your application to custom generate Interface code that is specific to your application to increase the performance with reduced memory footprint



AppCOE™

Application Common
Operating Environment