

.NET Micro Framework Development Kit for Device Servers

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Agenda

- Background of Device Drivers, Ltd.
- What is .NET Micro Framework from Microsoft ?
- Introducing .NET Micro Framework Development Kit for Device Servers



Background of Device Drivers, Ltd.

- Solution
- History Highlights
- Products



Solution of *Device Drivers*

- Custom Development
 - Device Driver for Linux, Unix, Embedded OS, and Windows
 - Custom embedded board development
 - Firmware development and Porting Operating System
- Original Embedded Products
 - XPort series device server evaluation boards
 - Embedded Linux boards
- Education
 - Articles for technical magazines and web columns
 - Seminars



History Highlights of *Device Drivers*

- Established in 1999
- **LANTRONIX** distributor in 2003
- Original XPort evaluation board in 2003
- Microsoft MVP award in 2006
- Japanese satellite adopted Embedded Linux board in 2009
- Introducing .NET Micro Framework to Japanese Market in 2009
- Microsoft Windows Embedded Partner in 2009

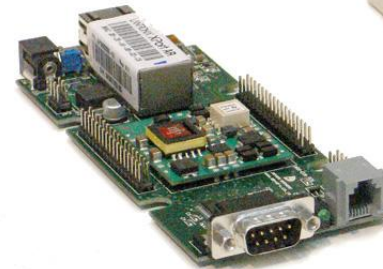


Products of *Device Drivers*

- Device Server Boards



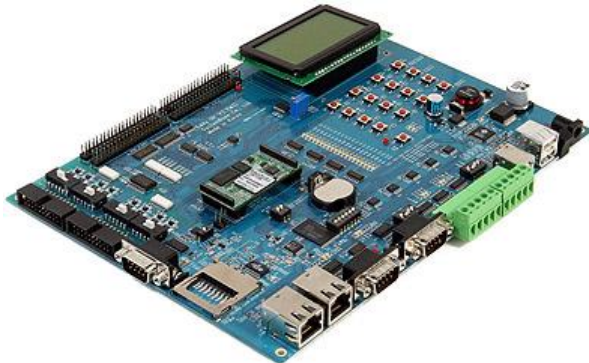
XPEVA-wow



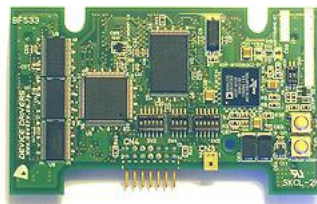
ARX-EVA



- Embedded Linux Boards



Eddy-DK2.1



E!Kit-BF533



E!Kit-1100



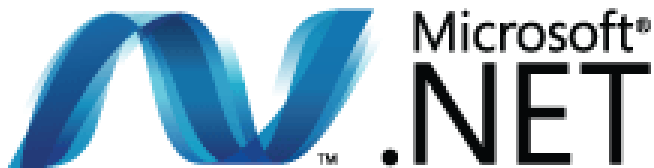
What is .NET Micro Framework ?

- History
- Features
- Architecture

Messages

.NET Micro Framework is original Operating System from Microsoft Research.

.NET Micro Framework is quite different things from Windows CE and Windows Embedded.



Micro
Framework



History of .NET Micro Framework

- V 1.0 for SPOT Watch and MSN Direct Service in 2001
- V2.0 for Windows SideShow Device in 2006
- V3.0 in 2008
- **V4.0 for Open Source in 2009**



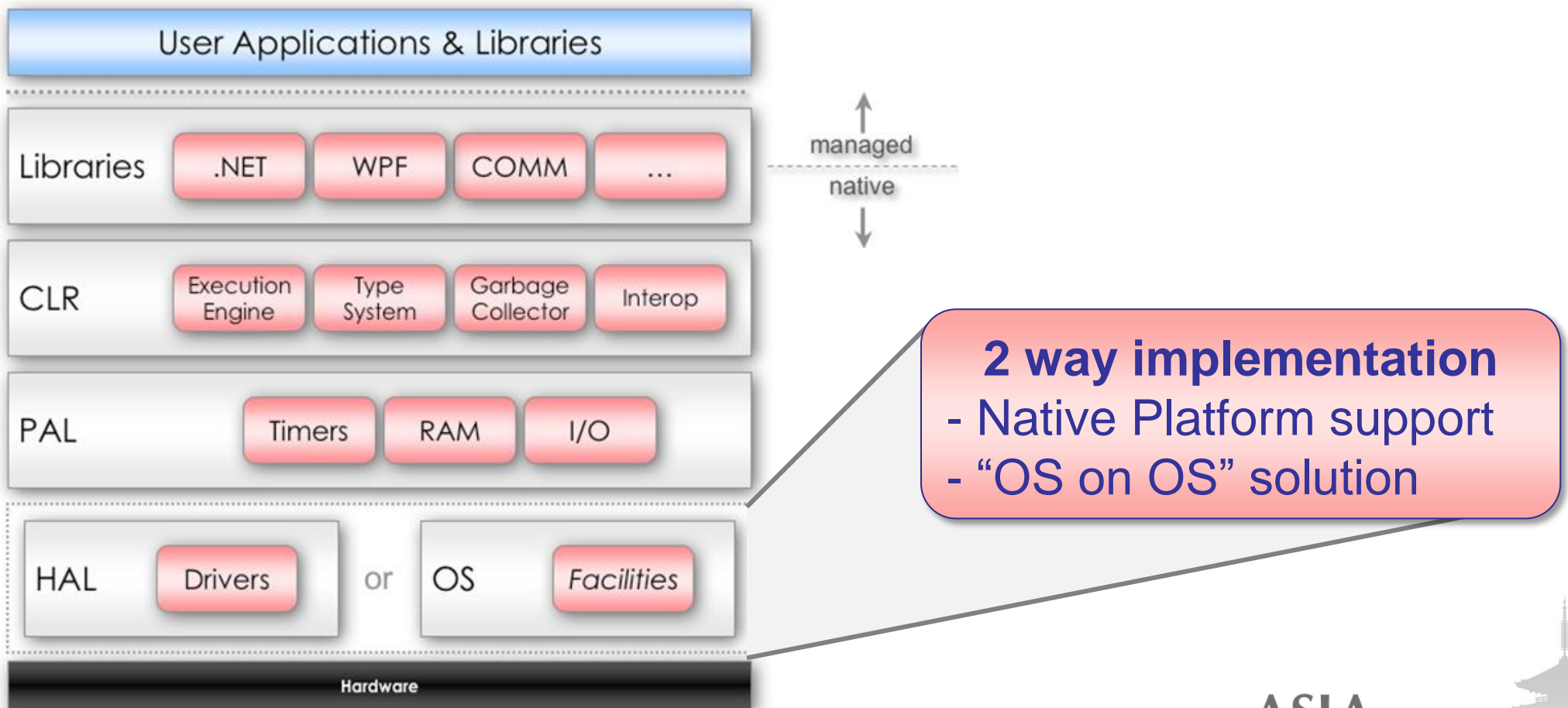
Features of .NET Micro Framework

- Runtime environment of CLR intermediate code
 - Timer, interrupt handler, and multi thread support
 - Including bootloader, device driver, and resource manager
- Multiple small resource environment support
 - No MMU needed
 - Minimum 256KB RAM and 512KB ROM
 - Supported Platform: ARM7/9/Cortex-M3, ADI blackfin, SH2
- Support Visual Studio with DNMF SDK
- New platform support with DNMF Porting Kit



Architecture of .NET Micro Framework

- Architecture Overview



.NET Micro Framework Development Kit for Device Servers

- Goal
 - Easy to develop with Windows environment
 - Featuring advanced network functions
- Architecture
- Schedule and Feature



Goal: Easy to Develop with Windows

- .NET Micro Framework SDK compatible
 - Development with Visual Studio and C#
 - Simulator and Debugger support
- LANTRONIX Evolution OS SDK compatible
- Firmware loading with Device Installer and Web Manager
- Original Firmware loader



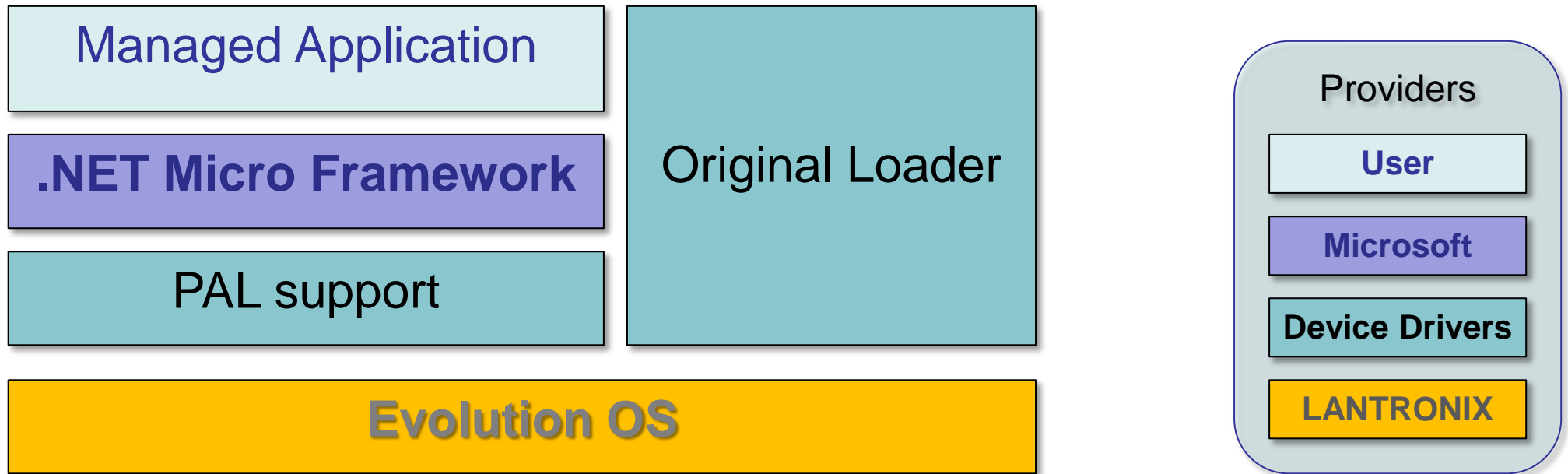
Goal: Featuring advanced network functions

- DPWS (Device Profile for Web Services)
 - Make it easier to support DPWS functions
- XML processing
 - Native XML parser support for Device communication
- Secure Network
 - ssh, ssl and https support

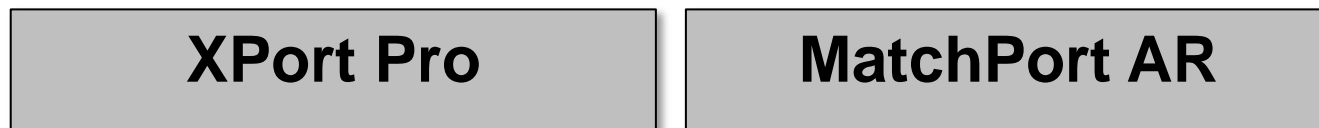


Architecture

Software Architecture



Hardware Platform



Schedule and Feature

- Release Schedule
 - Beta version: in May, 2010
 - Release version: in August, 2010
 - Backup project: DNMF Kit for uCLinux (planning now)
- Feature
 - Support for 1-wire sensors of XPEVA-wow for Windows 7 Sensor and Location Framework
 - DPWS Functions implementation samples



Preliminary Demo



Summery

- .NET Micro Framework Development Kit for Device Servers (beta) will be available in May, 2010
- .NET Micro Framework will support XPort-pro and MatchPort AR
- .NET Micro Framework makes it easier to develop “Device to Device” communications



Additional Resources

- .NET Micro Framework
 - <http://www.microsoft.com/netmf/> (Official homepage)
 - <http://www.netmf.com/> (Community page, not ready?)
- Devices Profile for Web Services (DPWS)
 - <http://docs.oasis-open.org/ws-dd/ns/dpws/2009/01>
- Device Drivers
 - <http://www.devdrv.co.jp/> (Japanese)
 - <http://www.devdrv.com/> (English)



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Thank you

