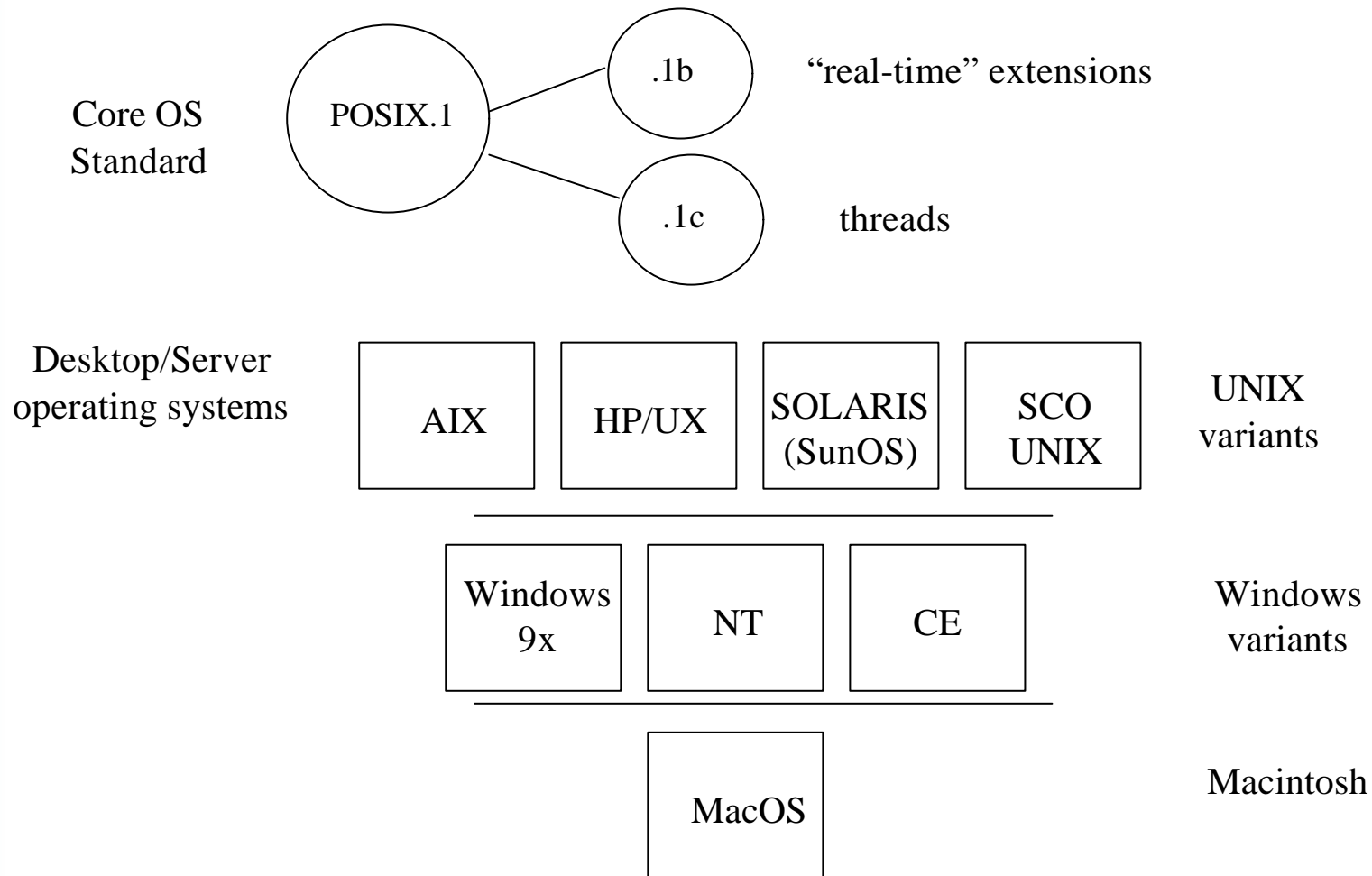
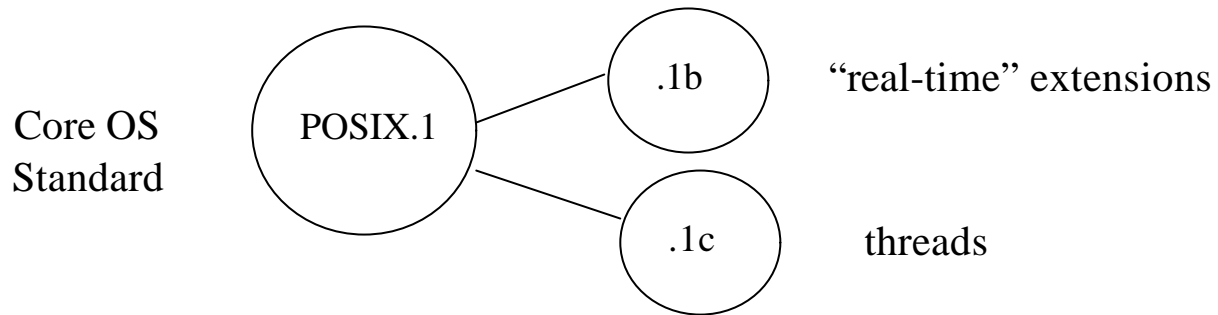

Linux+POSIX = Real-Time, Embedded UNIX

Mitchell Bunnell
CTO LynuxWorks

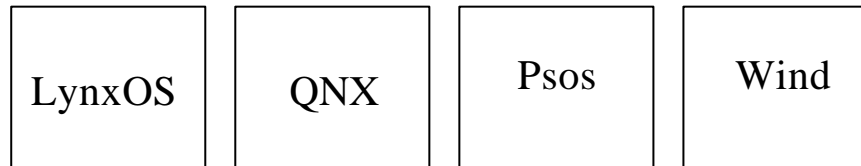
Commercial OS Market



Commercial OS Market



real-time
operating systems
(RTOS)



Others (> 100)

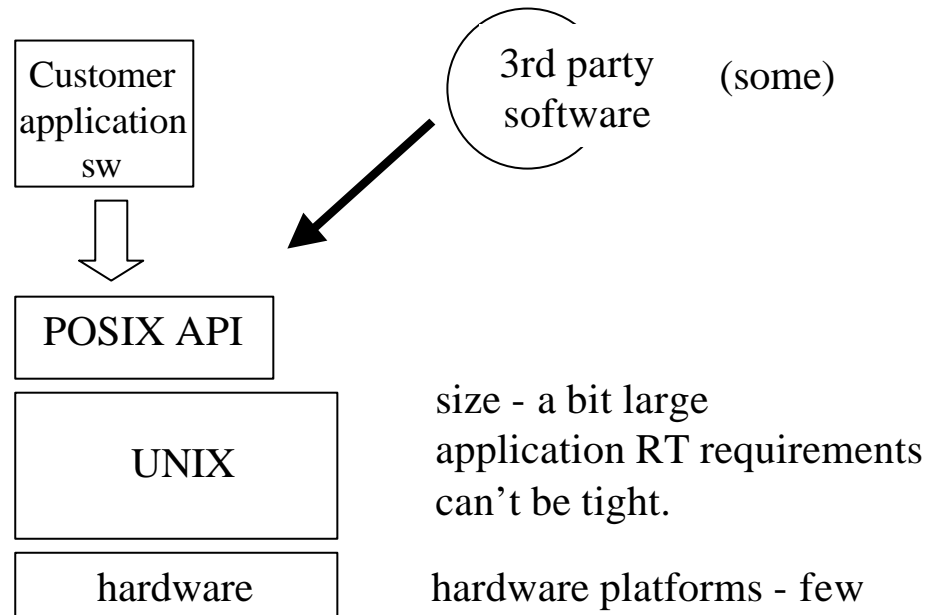
POSIX compliance varies

Embedded OS decision process

- Does the OS run on my hardware?
- Can I live with the resource usage?
- Can I get the protocols, middleware, application software I need?
- Do its features support my application?
- Is the OS reliable? Can I get support?
- Does it meet my real-time requirements?

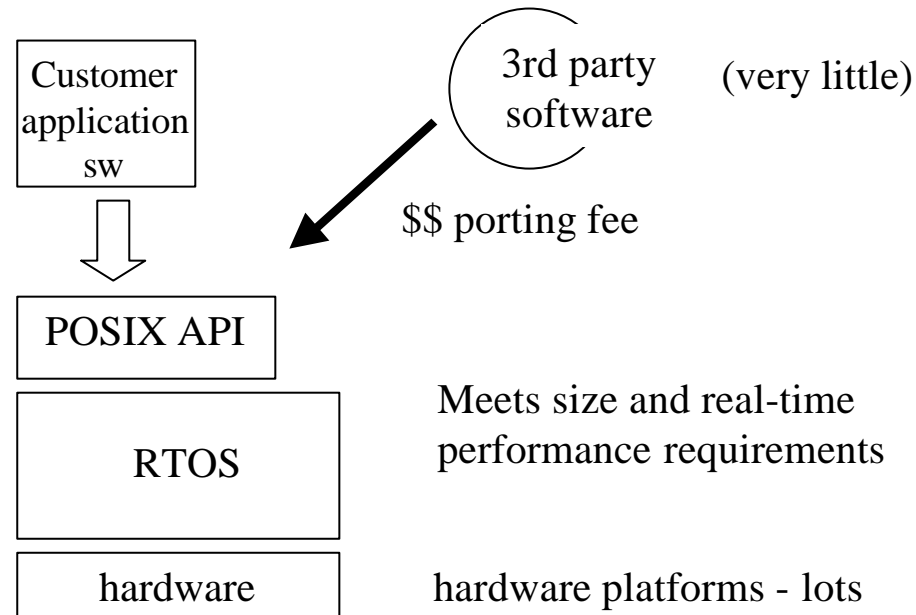
Embedded Software Platform Choices - UNIX

“Buy into POSIX”



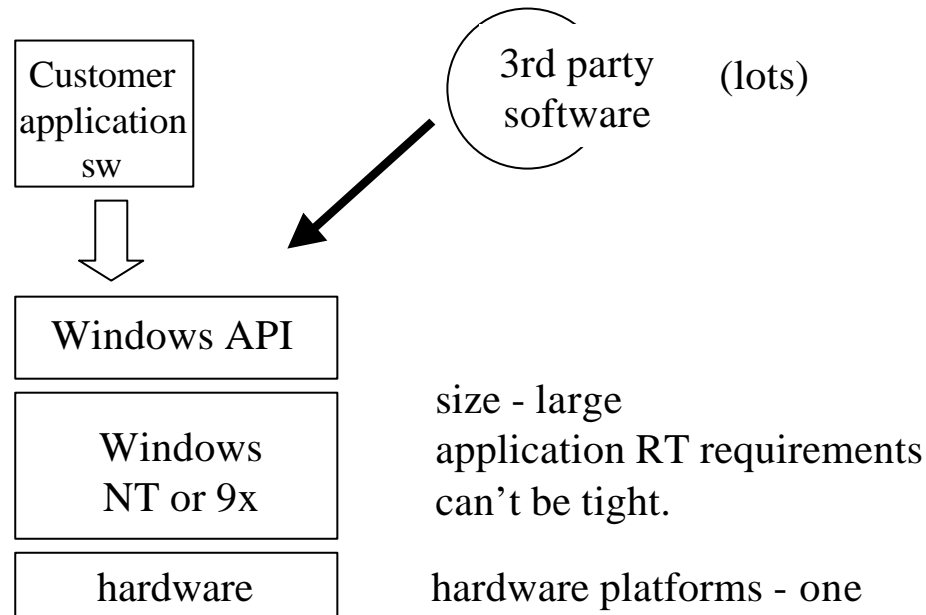
Embedded Software Platform Choices - POSIX RTOS

“Buy into POSIX”



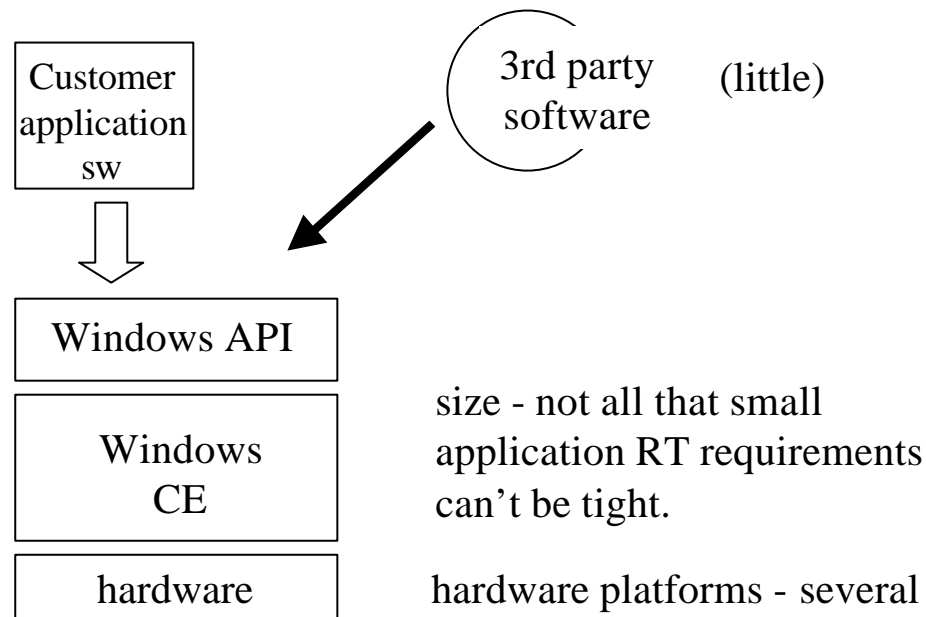
Embedded Software Platform Choices - Microsoft

“Buy into Windows”



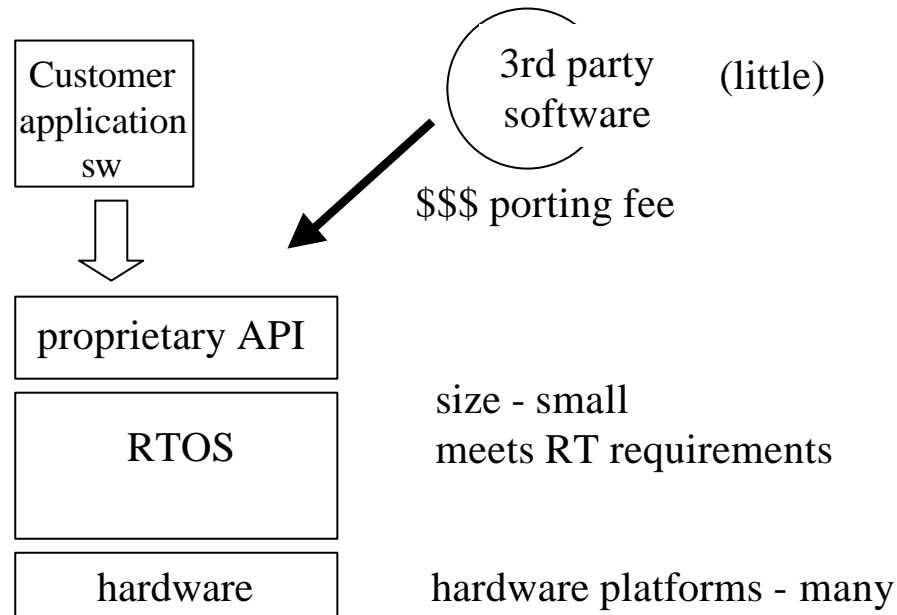
Embedded Software Platform Choices - Microsoft

“Buy into Windows”



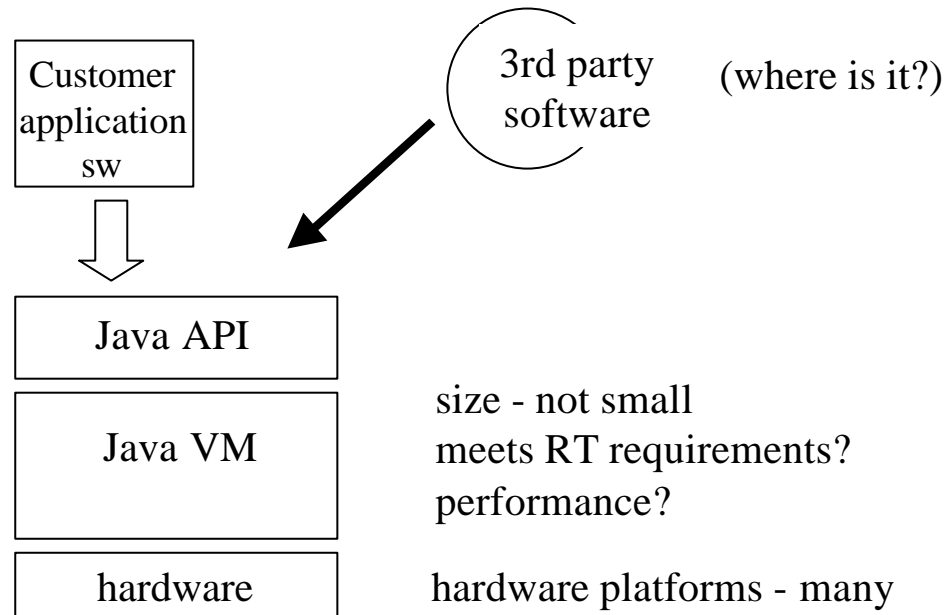
Embedded Software Platform Choices - proprietary

“Buy into some vendor’s proprietary API”



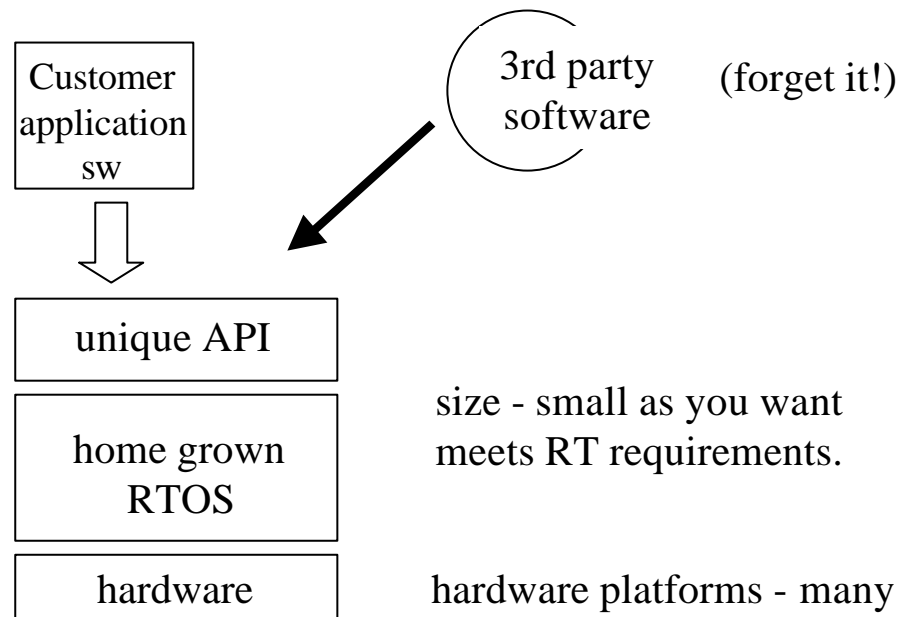
Embedded Software Platform Choices - Java

“Buy into Java”



Embedded Software Platform Choices - Home Grown

“Buy into nothing”

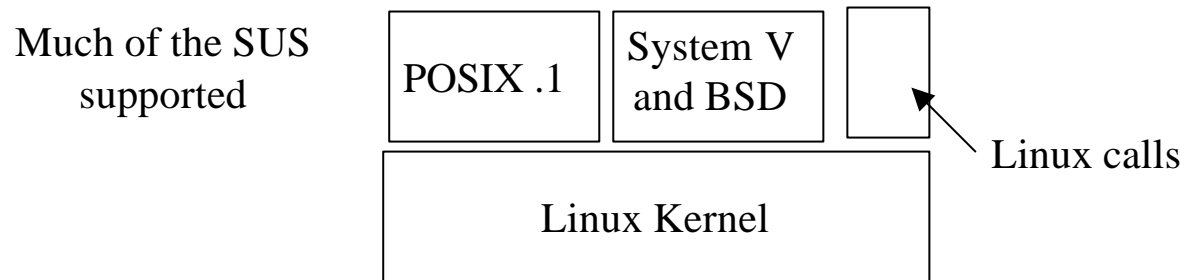


This is still > 60% of the embedded OS “market!”

Embedded Platform Problems

- Third party software vendors can't make money supporting a bunch of different UNIX variants despite a source level standard
- Third parties can't make money supporting any particular RTOS or set of RTOS's proprietary APIs
- Product development and software integration for the end customer is too expensive (even if the RTOS is free!)

Linux Arrives



- Open source UNIX compatible OS popular on PCs
- resurgence in the popularity of the UNIX interface
- Ported to many CPU platforms

Finally a Binary Interface Standard?

- Linux Standard Base
 - POSIX.1
 - POSIX.1b some
 - SUS sockets, other BSD and System V calls
 - X-windows GUI

Embedded Software Platform Choices - Linux

“Buy into Linux”

