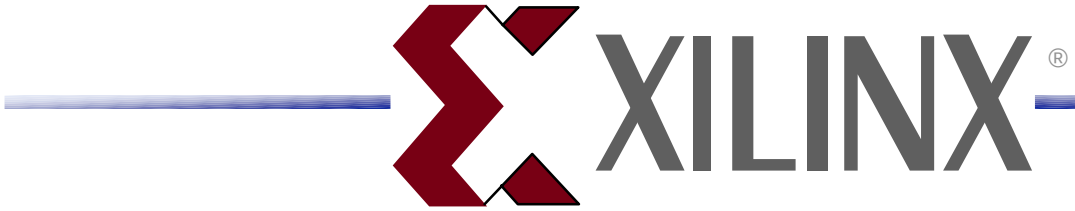
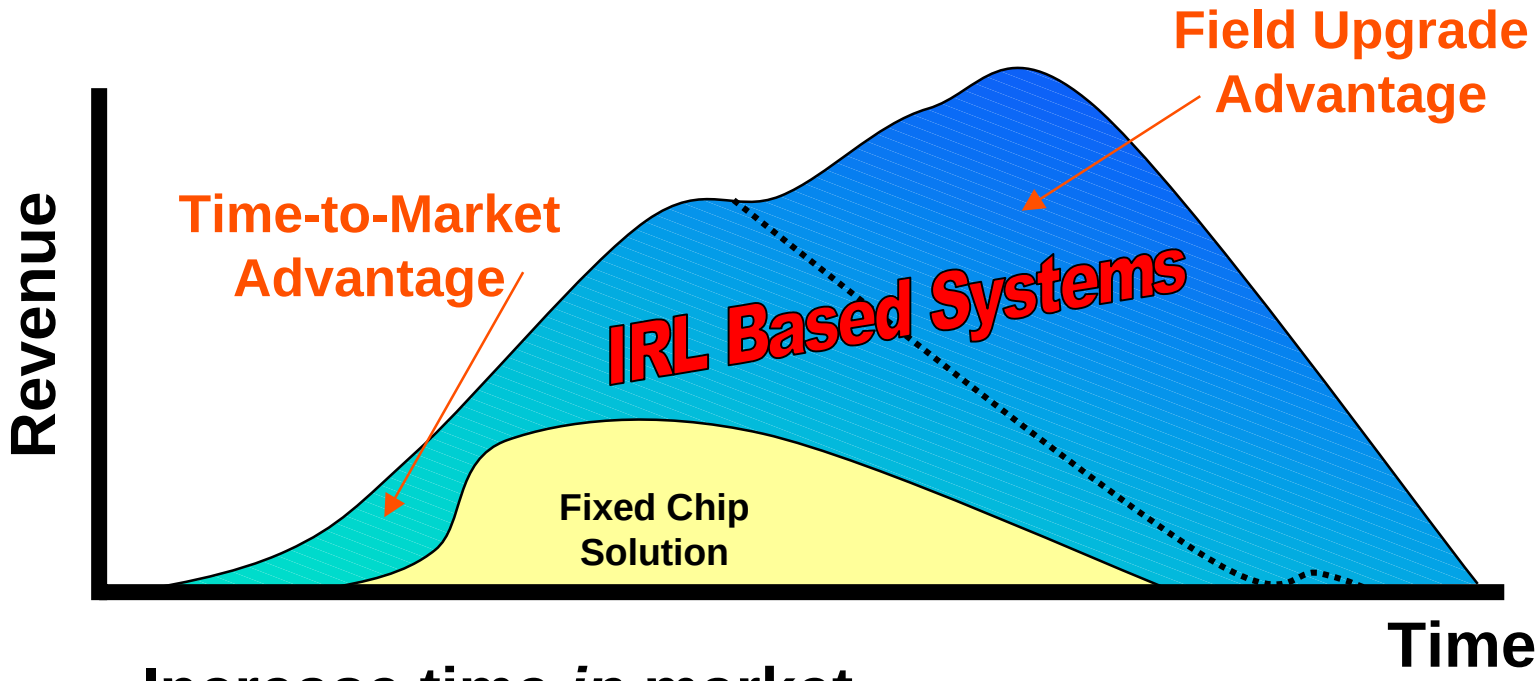


IRL Solutions

Outline

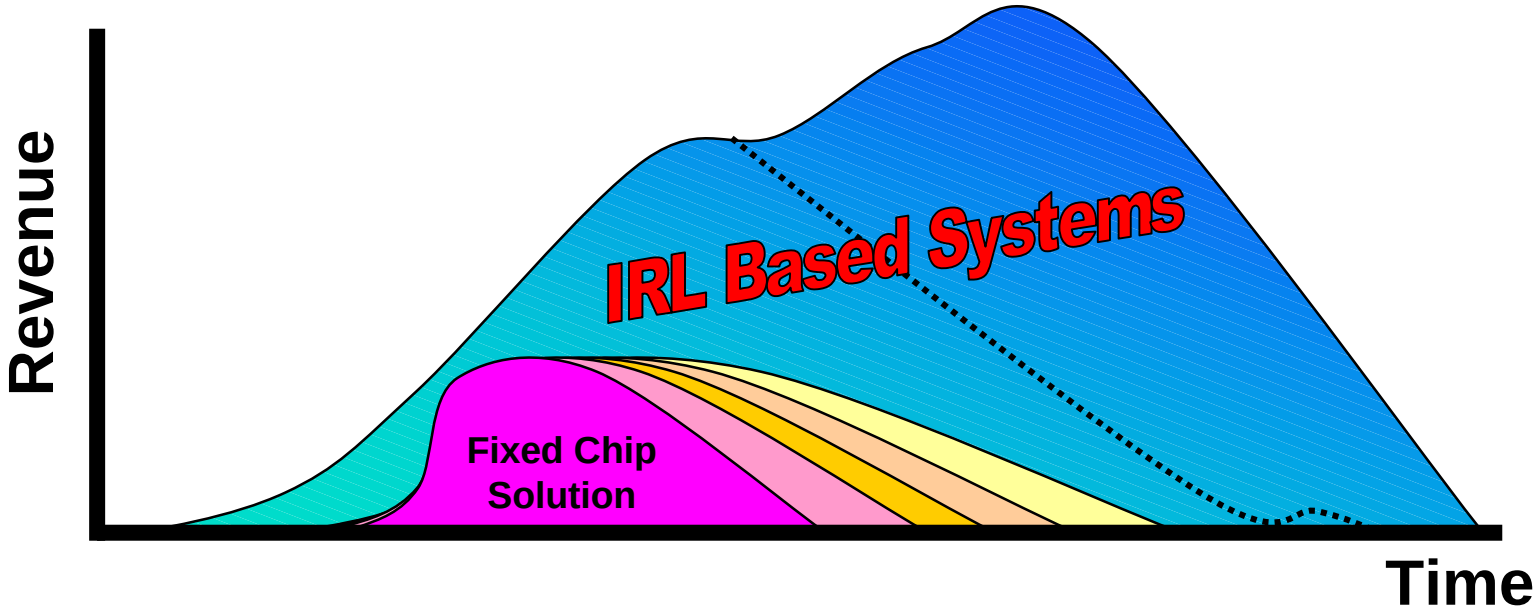
- The Value of IRL
- Creating an IRL System
  - Bitstream Delivery
  - Remote Reconfiguration
- Where to go for more information

Increasing Need for Upgradable Hardware



- **Increase time *in* market**
- **Reduce cost of ownership**
- **Opportunity for new *usage*-based revenue**

Useful Life of ASIC Based Product is Decreasing



- End-users driving more feature upgrades
- Need protection from “evolving” standards
- ASIC vendors no longer doing long life support

Why Field Upgradability?

- Support Emerging and Evolving Standards
  - Ship product prior to completion of specifications
- Ship functional subset today
  - Xilinx customer starts product integration earlier

- Algorithm Performance Upgrades
  - Use the software release/revenue model
- Bug fixes
  - Reduce or eliminate the need for Field Service Technician visits

IRL Value Table

Customer	Customer's Customer
Product Life Cycle Control	Future Proofing
Reduce Maintenance Costs	Quick Updates
Time To Market	No Wait for Fulfillment
Release Optimized Algorithms After Deployment	Product Gets Better Over Time
Develops Customer Loyalty	Stands by Its Product

Agenda

- The Value of IRL
- Creating an IRL System
  - Bitstream Delivery
  - Remote Reconfiguration

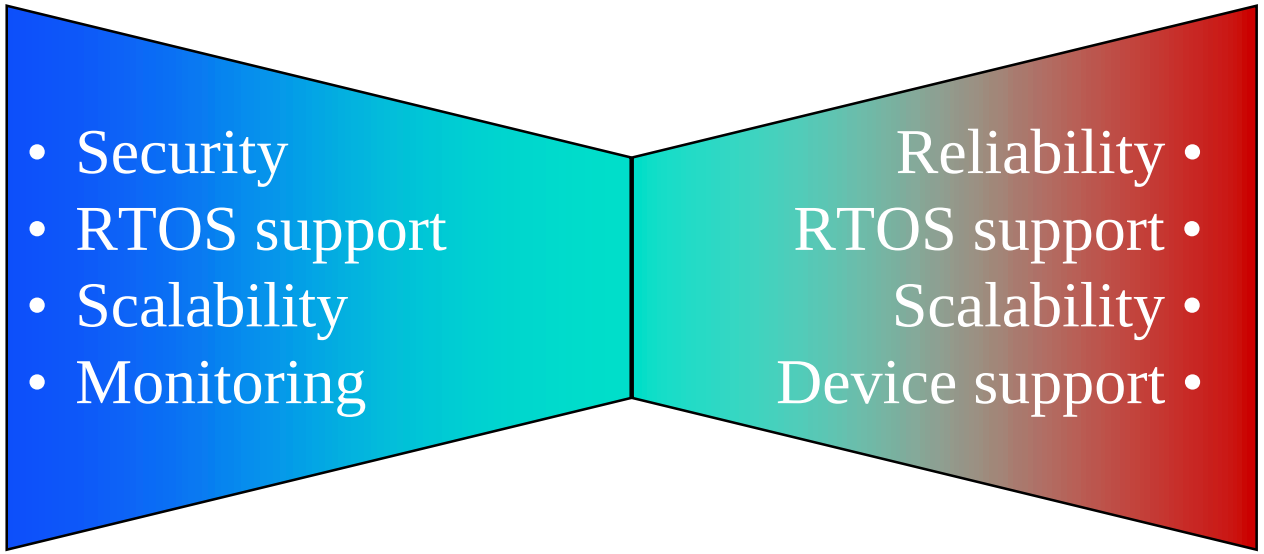
Upgradable System Markets

Infrastructure	High Volume Applications / Appliances	
Big Iron	***Thick***	***Thin***
• Routers • Gateways • Switches	• Set Top Boxes • Serial I/O Cards	• Vending Machines • Network Appliances
• Multiple Processor • Proprietary OS	• Microprocessor • Commercial OS	• Microcontroller • OS design dependent
• Reduce Service Costs • Value Added Service	• Reduce Service Costs • Upgrade Revenue • Usage Revenue	• Reduce Service Costs • Upgrade Revenue • Usage Revenue

Design Issues for IRL System

Bitstream Delivery Domain

Board Level Domain



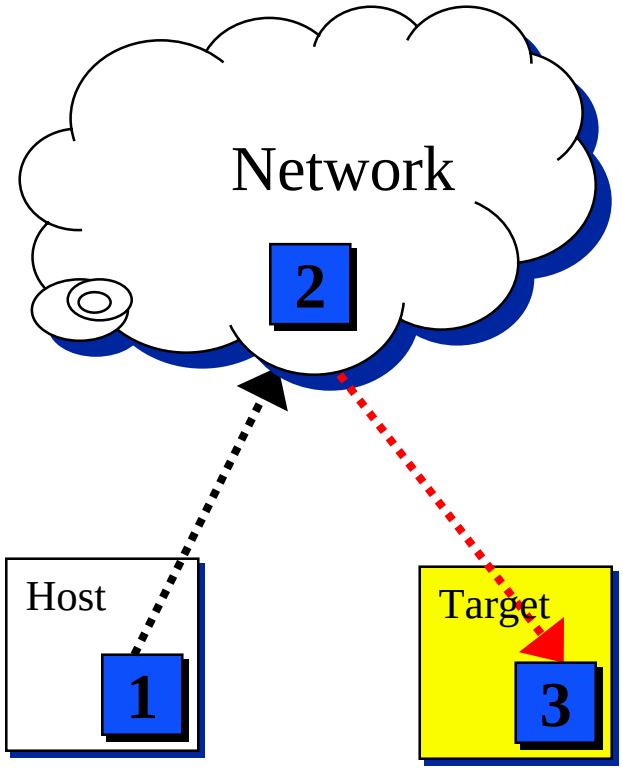
GOAHEAD

PAVE

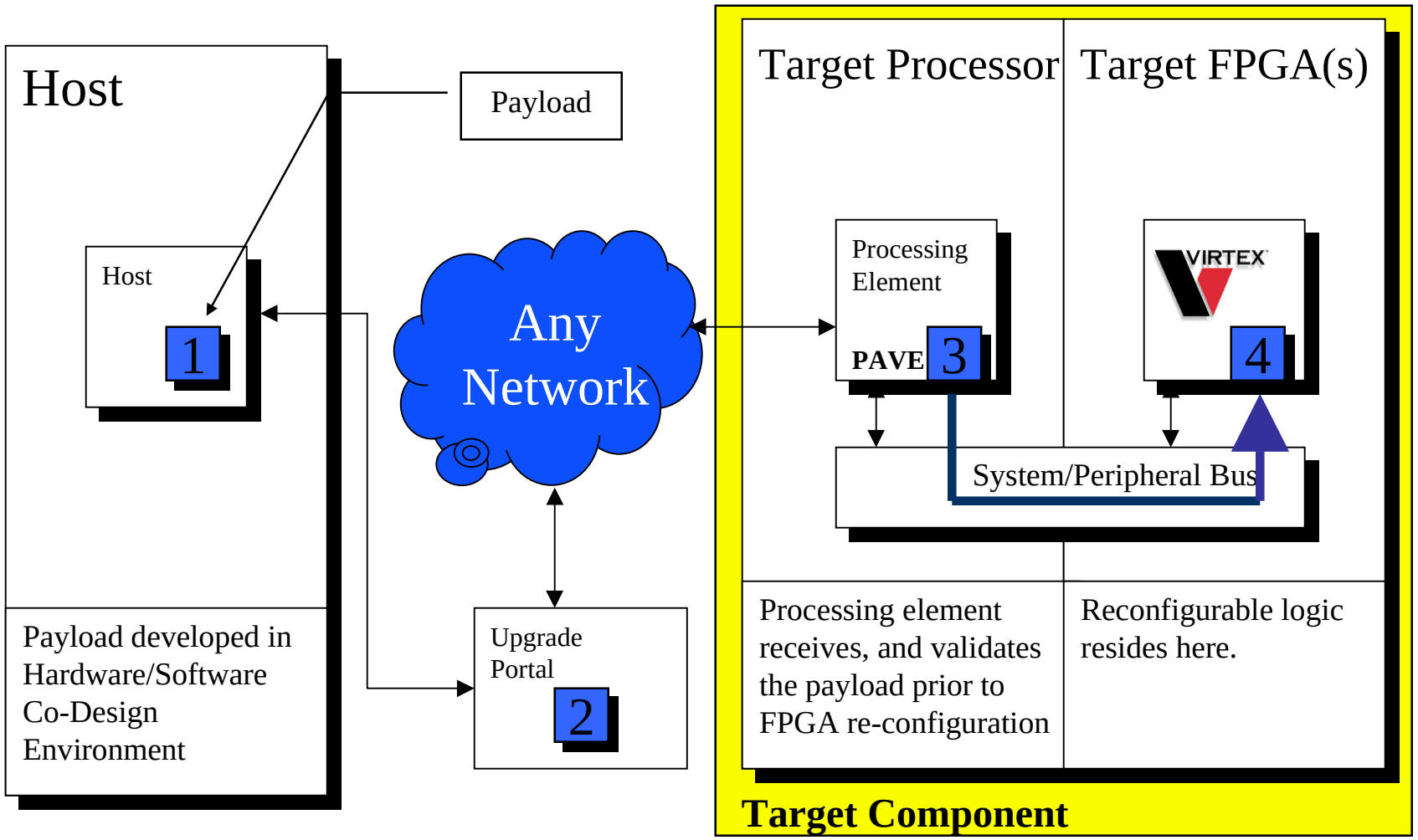
XILINX® WindRiver

Components of IRL System

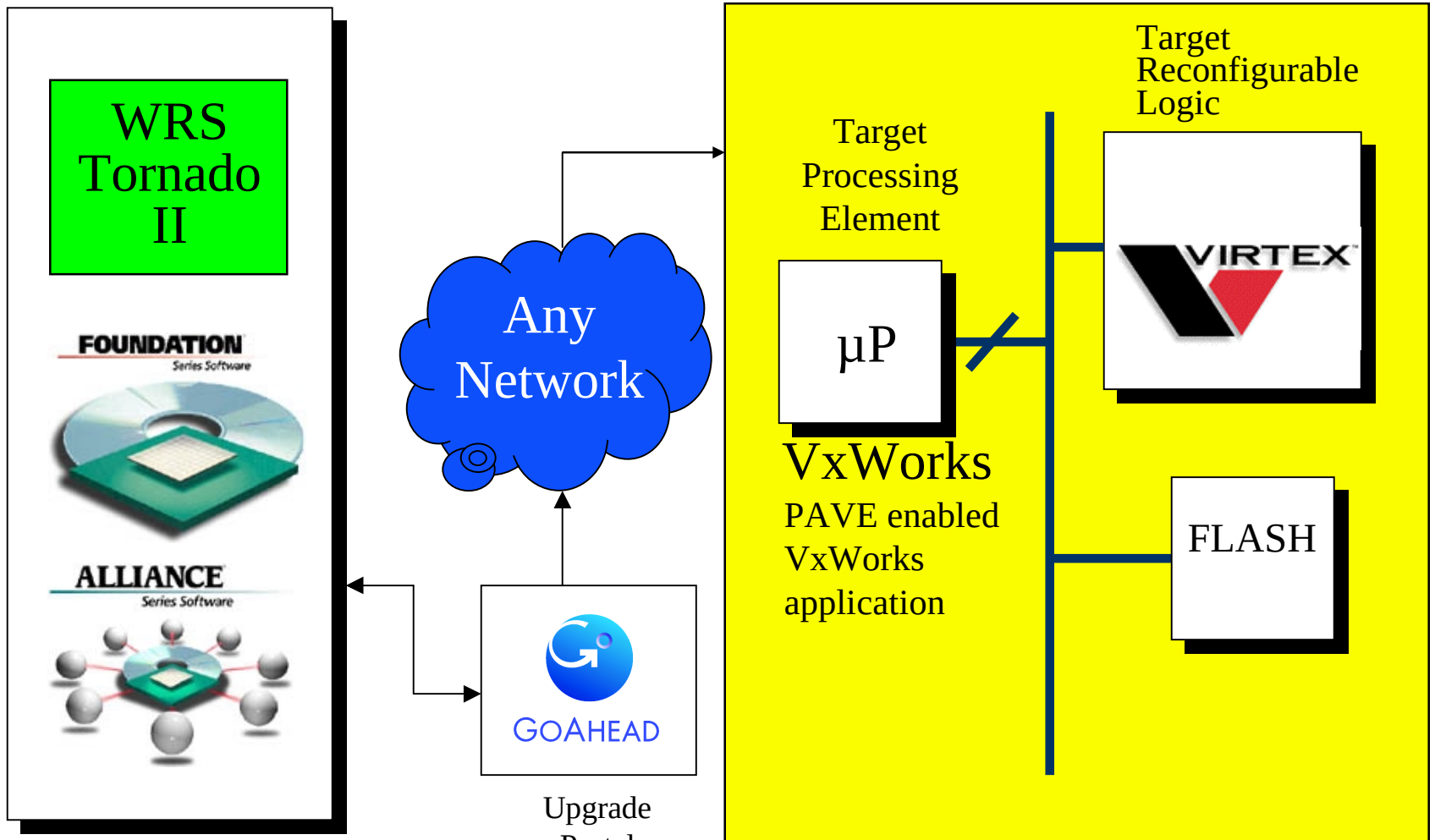
- Internet Reconfigurable Logic provides an API (PAVE) and specifies a set of XILINX design guidelines that define how remote devices can be updated via a network in a non-proprietary manner.
- There are four main components in the IRL system model. These are the
  - Host
  - Network
  - Target
  - Payload



A Fielded IRL System



IRL Application



For More Information

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- wallace.westfeldt@xilinx.com
- http://www.xilinx.com

Appendix:
PAVE Details

PAVE

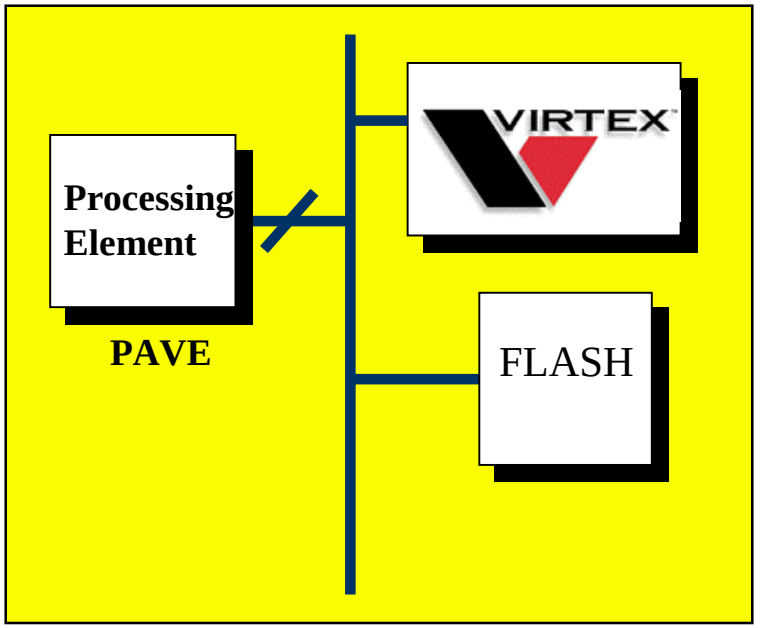
PLD

API

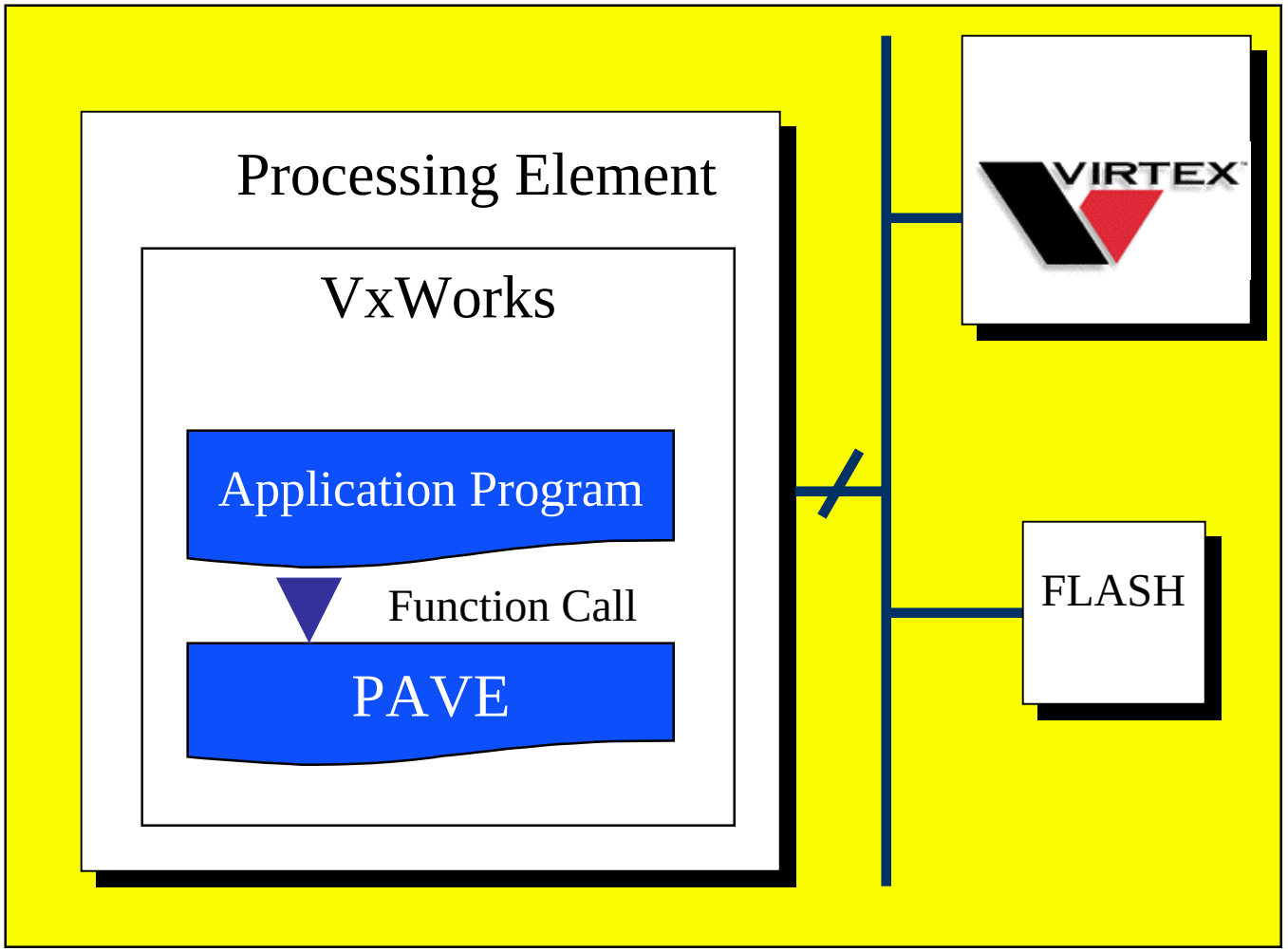
VxWorks

Embedded systems

Provides a standard interface to VxWorks-based applications for the programming of Xilinx PLDs

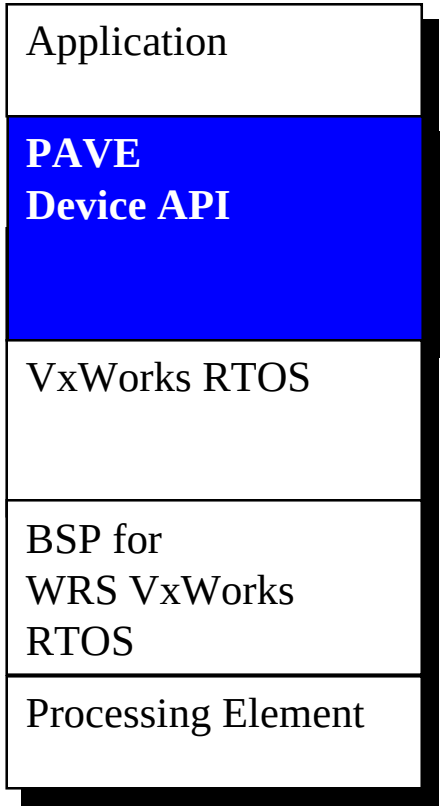


Interface to VxWorks

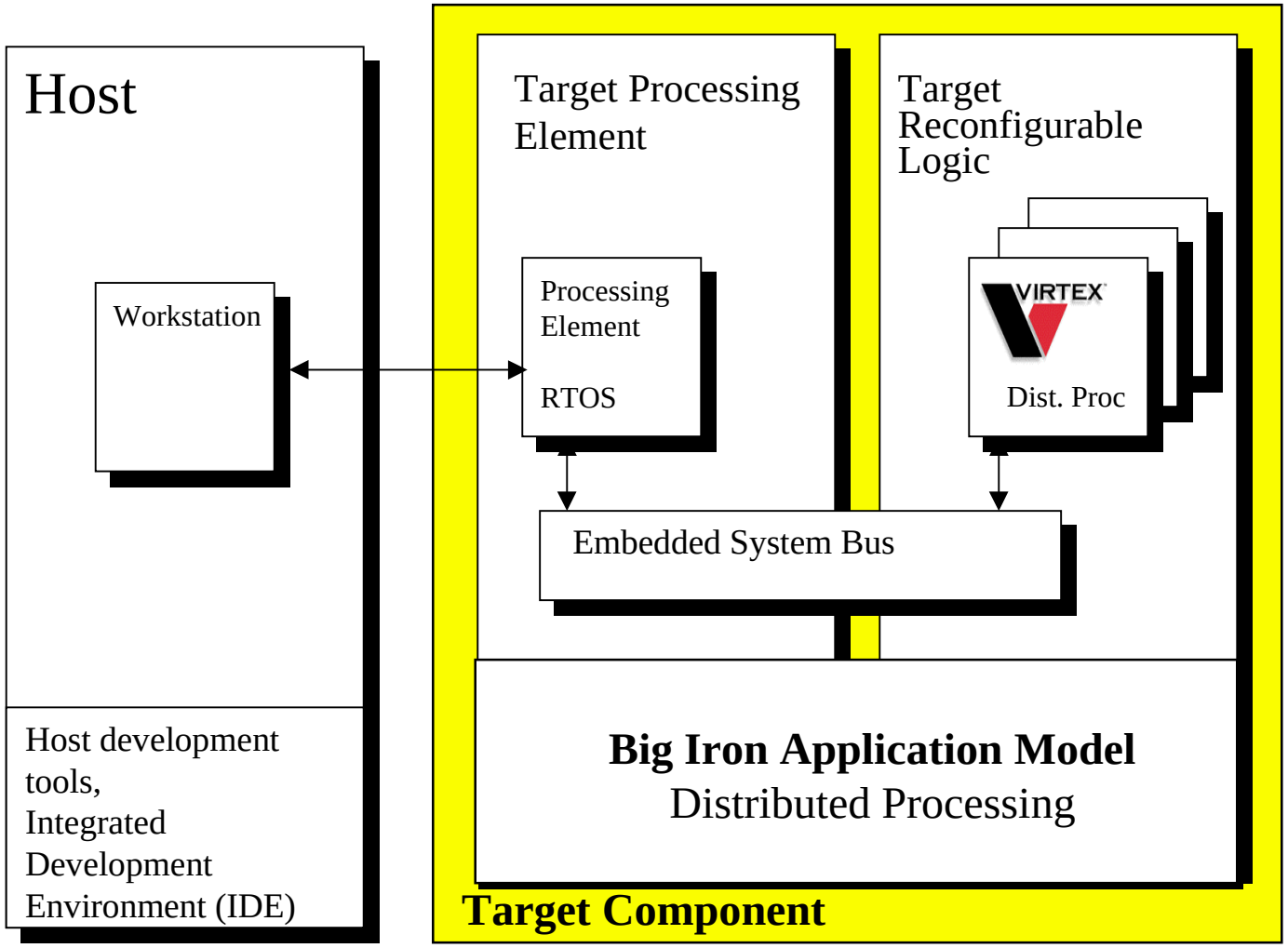


PAVE Features & Support

- Programmable Methods
  - JTAG
  - SelectMap
- Available for C, C++ or Java applications
- Design Guidelines



Provide a Scalable System Solution



Payload System Component

- The payload system component is a composite element that encapsulates the re-configurable functionality of the system.
- The payload can consist of a header, bitstream, and associated dynamically linkable software module.