UVM Agent

Ethernet Frames

MII
RMII
GMII
XGMII
XAUI

Pin wiggles
Why Layering?

IPv4 Frames
IPv6 Frames

Agent
Sequencer
Sequence
Driver
Monitor

MII
RMII
GMII
XGMII
XAUI

IPv4 Frames
IPv6 Frames

UVM User Guide §6.5.2.3.1
BAD!
Why Layering?

IPv4 Frames

IPv6 Frames

Ethernet Frames
Why Layering?

IPv4
Agent
Sequencer
Sequence
Driver
Monitor

IPv6
Agent
Sequencer
Sequence
Driver
Monitor

MPLS
Agent
Sequencer
Sequence
Driver
Monitor

T3
Agent
Sequencer
Sequence
Driver
Monitor
Layering Sequence

UVM User Guide §6.5.2.6

Hmmmm...

Original higher-level agent

Disable

Original lower-level agent

seq_item_port on sequencer

New sequencer typedef

Access via p_sequencer

Layering sequence

Replace via factory

Agent

Sequencer

Sequence

Monitor

Driver

Agent

Sequencer

Sequence

Monitor

Driver
Layering Sequence

- Must know # of streams, higher protocols
- Not scalable

UVM User Guide §6.5.2.6

Sponsored By:
Layering Driver

Original higher-level agent

Replace via factory

Original lower-level agent

Layering Driver

Passthru sequence
Layering Driver

Scalable!
Layering Agent

Higher Layer

Layering

Lower Layer
But…

Layering hierarchy is STATIC!
Summary

• Layer agents
  - Layering Driver
  - Passthrus sequence

• Static protocol structure
Beyond UVM: Creating Truly Reusable Protocol Layering

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