

A Scalable CXL Memory Pooling Solution with Use of CXL Switches

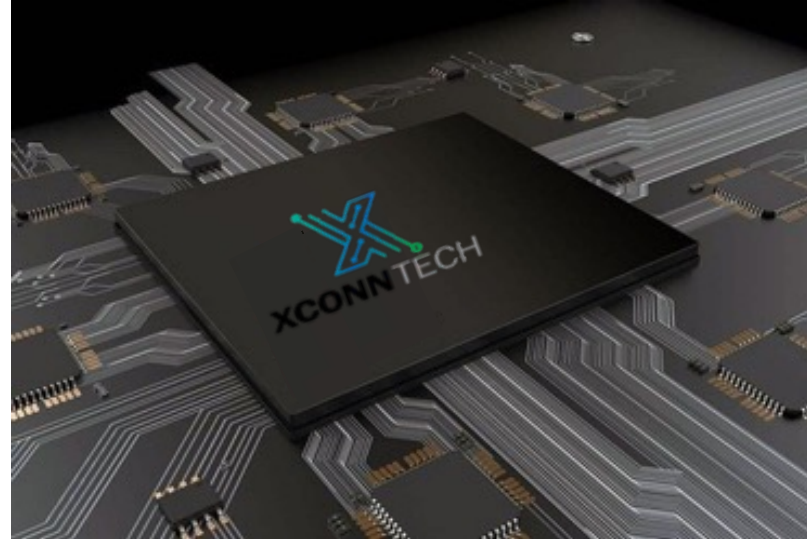
Presenter: JP Jiang

VP, CXL Product and Business Operations, Xconn Technologies Inc.

Xconn's CXL 2.0+ Switch

World's First CXL2.0
& PCIe 5.0 switch IC

2,048 GB/s total
BW with 256 lanes



Lowest port-to-port latency

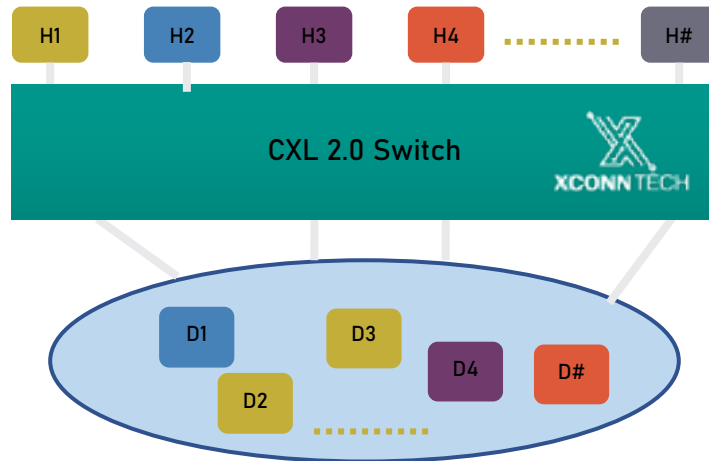
Lowest power consumption/port

Reduced PCB area
Lower TCO

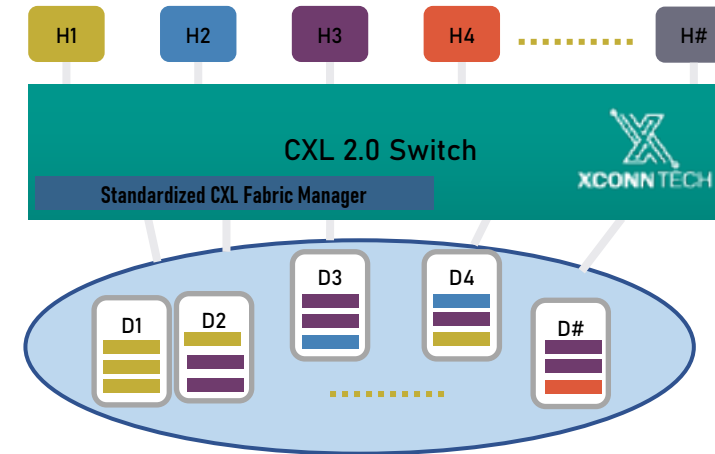
- Works with CXL 1.1 server processors, CXL memory devices
- Future compatible with the upcoming CXL 2.0 processors
- Works in hybrid mode (CXL/PCIe mixed)
- ES(engineering samples) available now, MP 1H 2024

Scalable Memory Pooling Enabled by CXL Switch

Memory/Accelerator Pooling with
CXL 1.1 Hosts and Single Logical Devices



Memory Pooling with CXL 2.0 Hosts and
Multiple Logical Devices

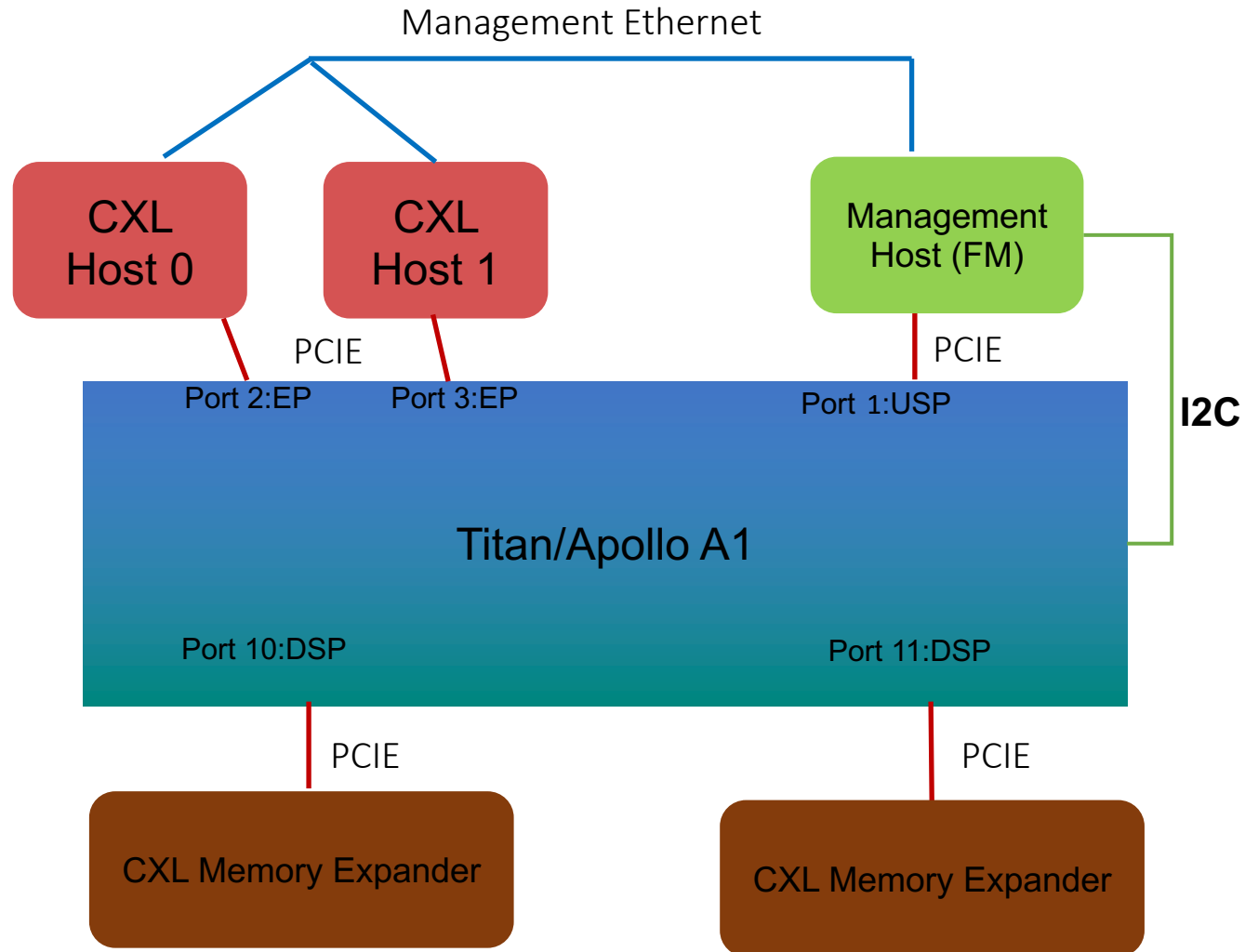


- One single XC50256 connects to 32 combined hosts/devices
- Fully support CXL Fabric Manager
- Support switch cascading for a larger size memory pool

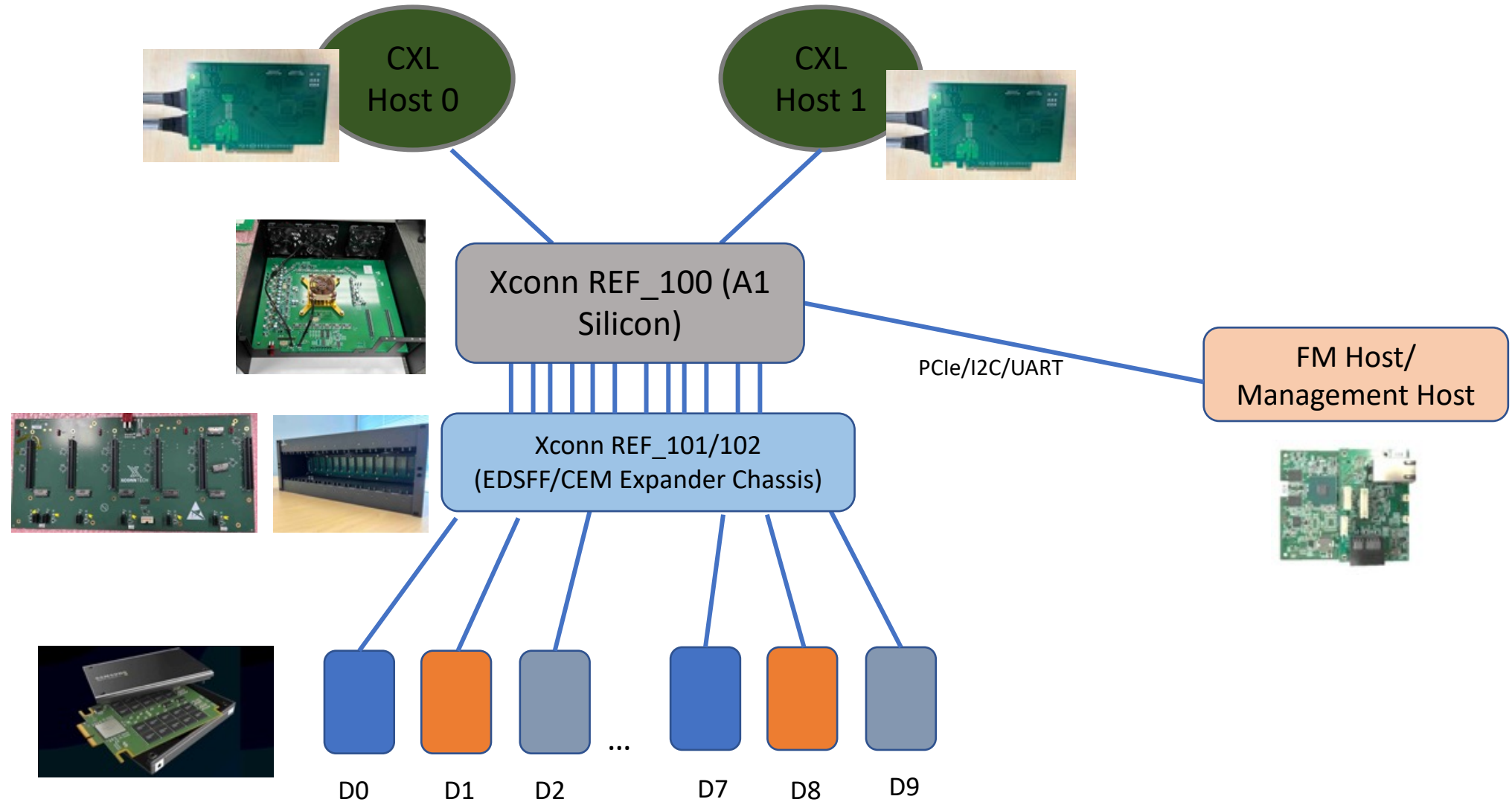
Xconn Apollo-I Silicon and Reference Design Boards



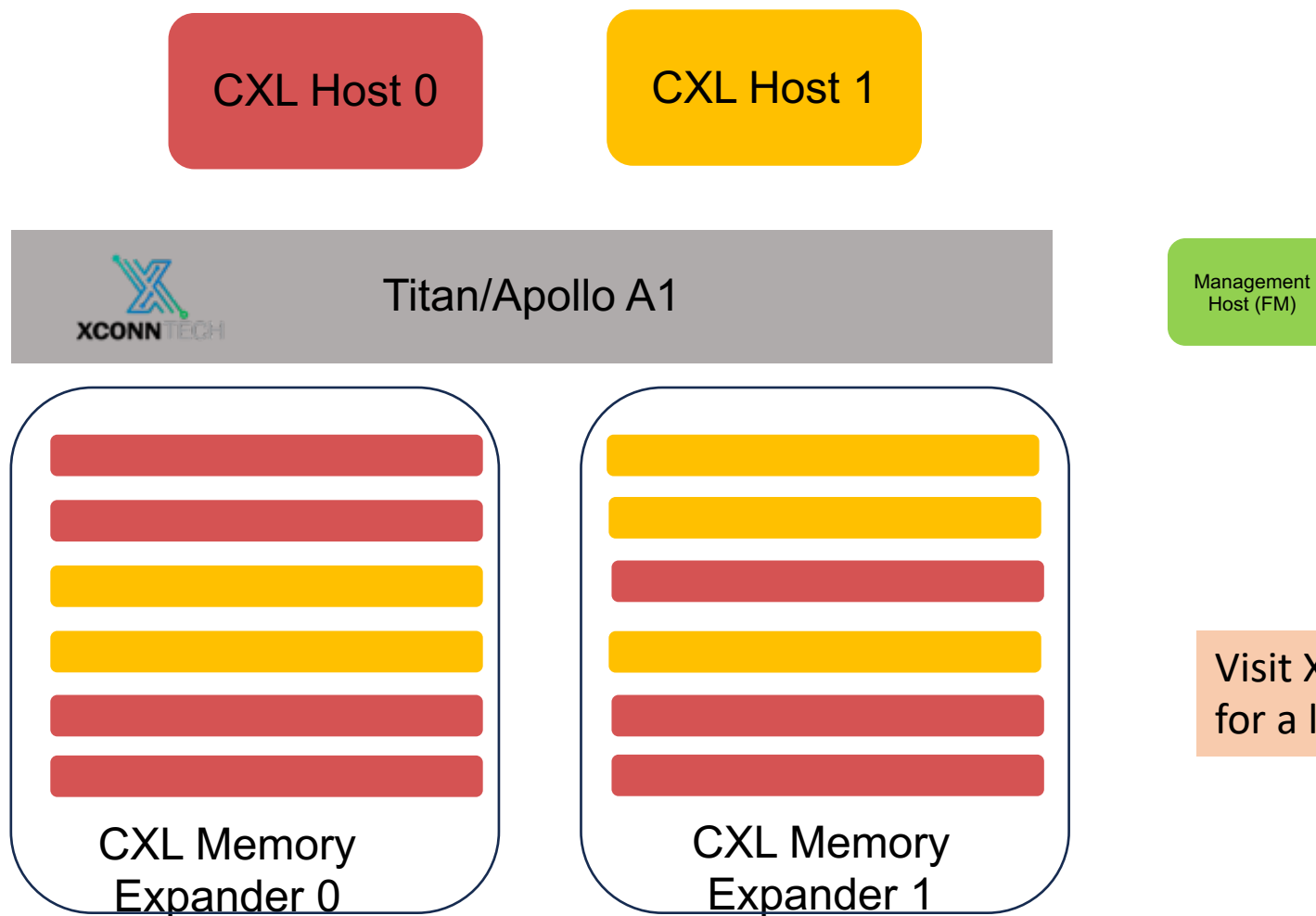
Memory Pooling PoC Topology



Memory Pooling System from XConn

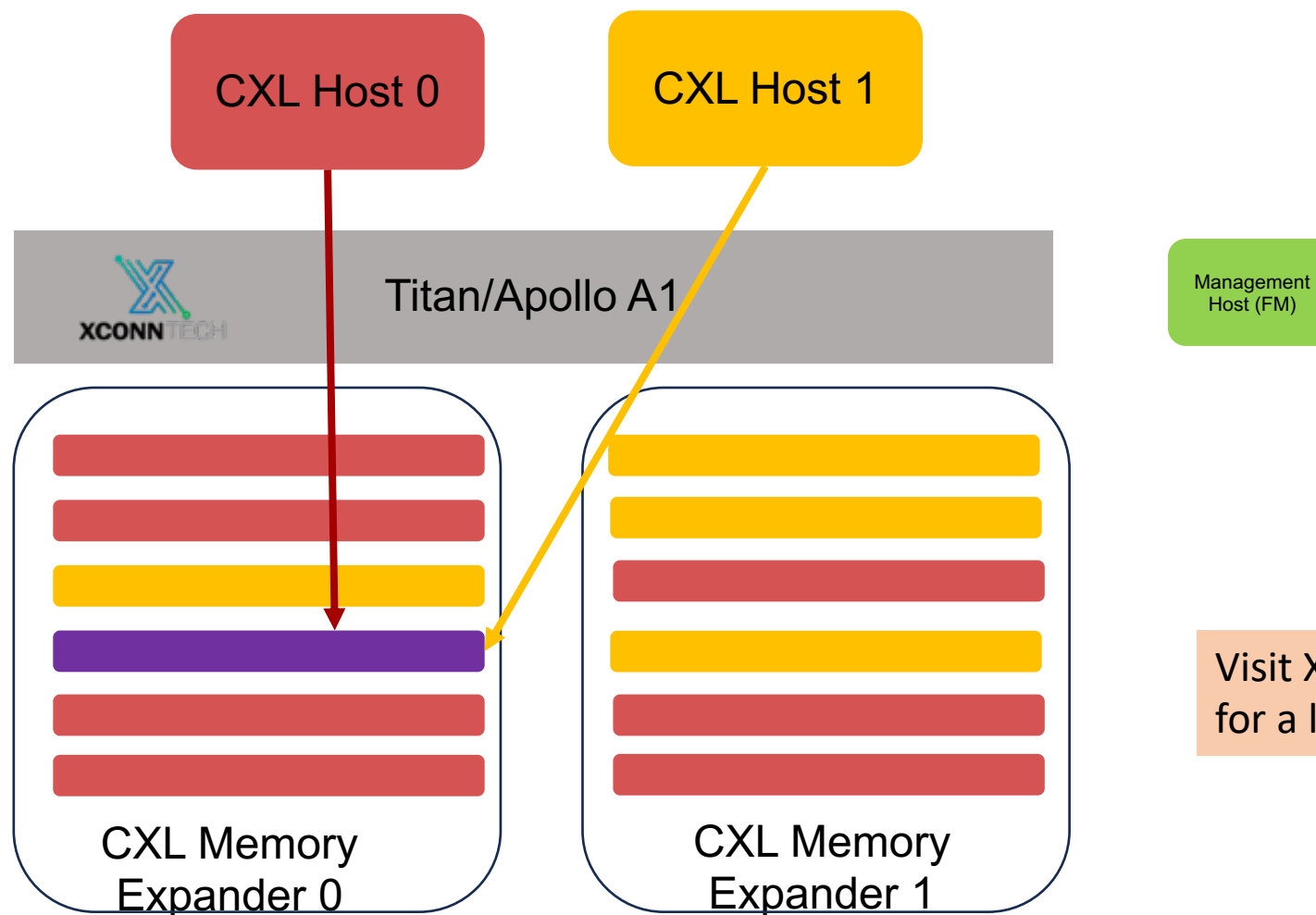


Demo of CXL Memory Pooling



Visit Xconn at Booth #751
for a live demo

Demo of CXL Memory Sharing

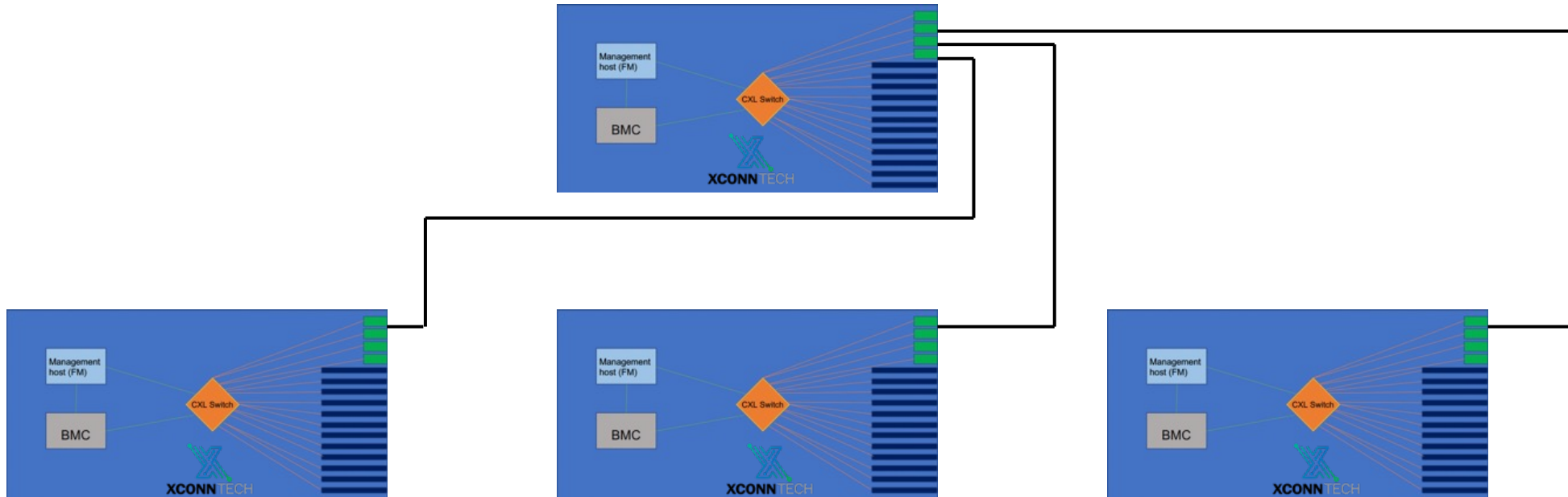


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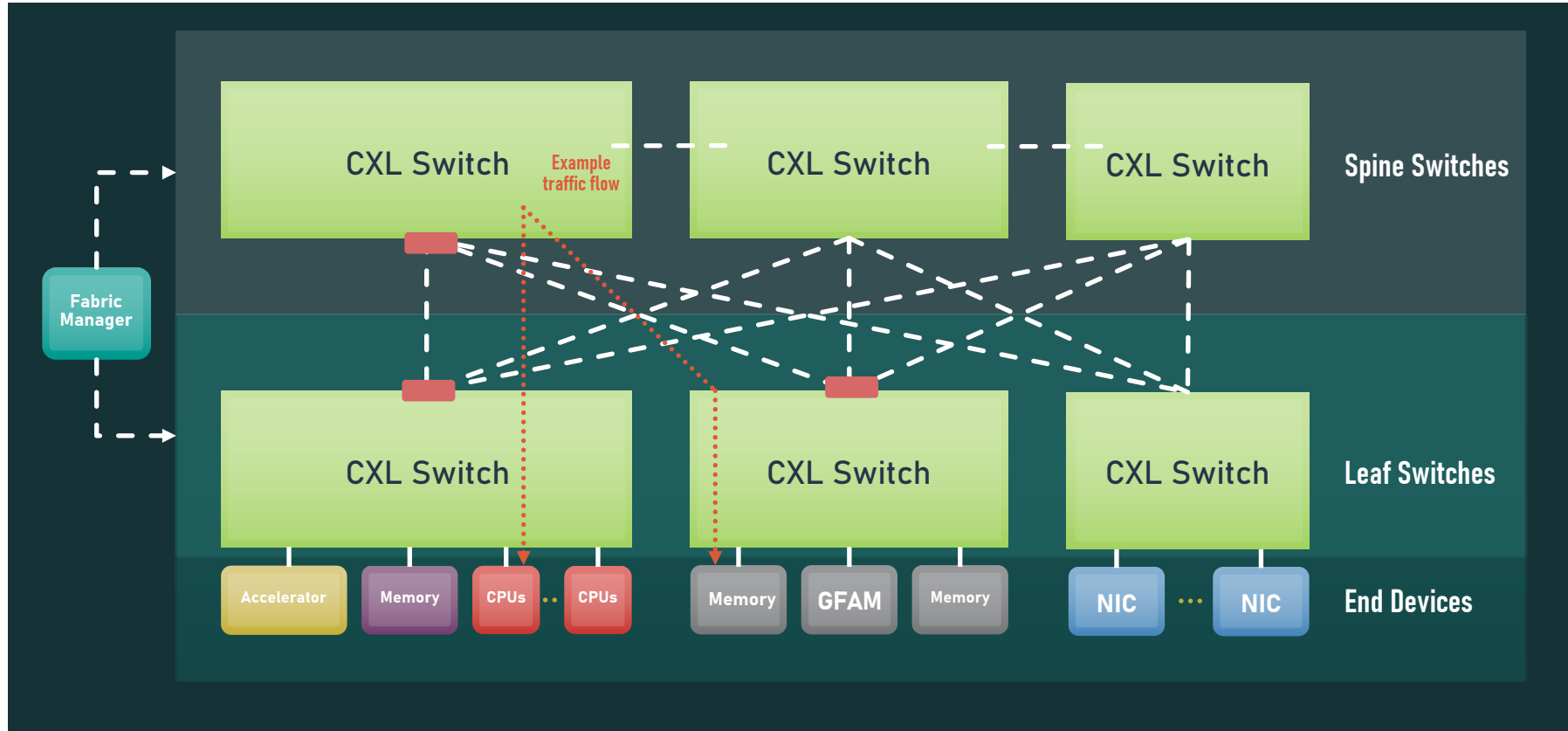
Memory Pooling System with CXL Switch – Design Diagram



Scalable Memory Pooling with CXL Switch Cascading



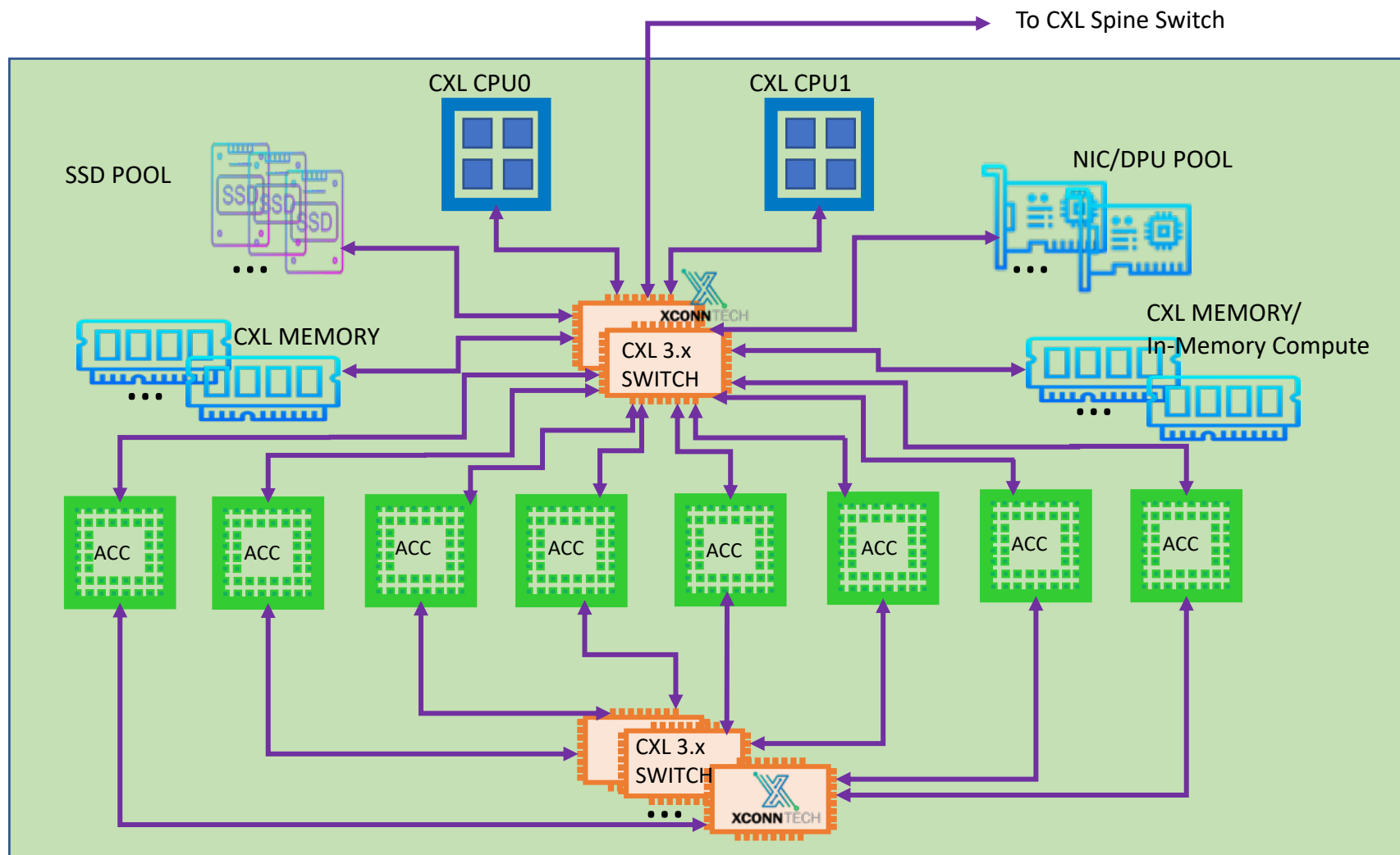
Composable Systems with Spine/Leaf Architecture at Rack/Pod Level



- CXL 3.0 Fabric Architecture
- Interconnected Spine Switch System
- Leaf Switch NIC Enclosure
- Leaf Switch CPU Enclosure
- Leaf Switch Accelerator Enclosure
- Leaf Switch Memory Enclosure



CXL 3.x Switch for AIML Systems



- Memory pooling/sharing/expansion
- Supports All-to-All with scalable large switching capacity
- Fit for All-reduce, All-gather with super low latency, super high bandwidth switching
- Scalable fabric network with up to 4,096 CXL devices
- Hybrid CXL/PCIe mode to connect CXL and PCIe devices
- Works with emerging CXL devices, e.g. In Memory Compute
- Lower total power consumption to reduce energy cost

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