Akraino Release 7 Review of IEC Type 5

LEO
li@socnoc.ai

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AKRAINO

Integrated Edge Cloud Overall Introduction

Integrated Edge Cloud for Small Size Networked Cluster

- New networking
- New management
- Cloud native architecture
- Cost-effective
- Green and scalable
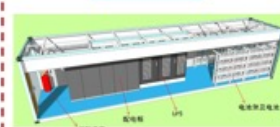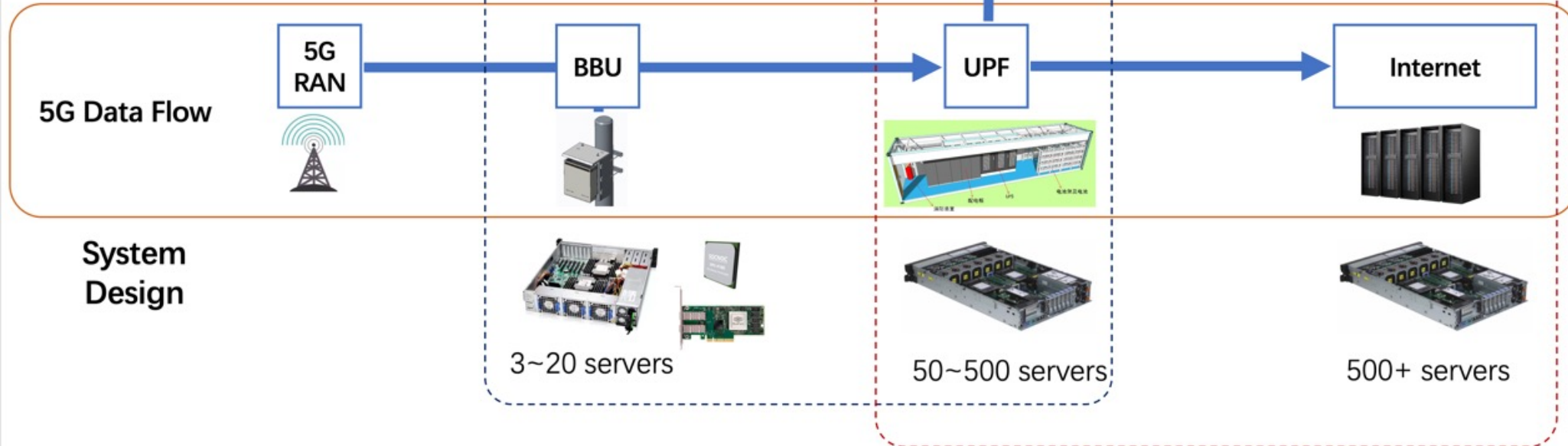
Integrated Edge Cloud Road Map

Introduce the VPX cluster design for IEC
Backplane networking
Consolidate ethernet switch

Release 8

Release 7

More general server design for *edge cluster*
OCP?
UCIe?

Introduce the PCIe Network
PCIe networking
Run TCP/IP over PCIe
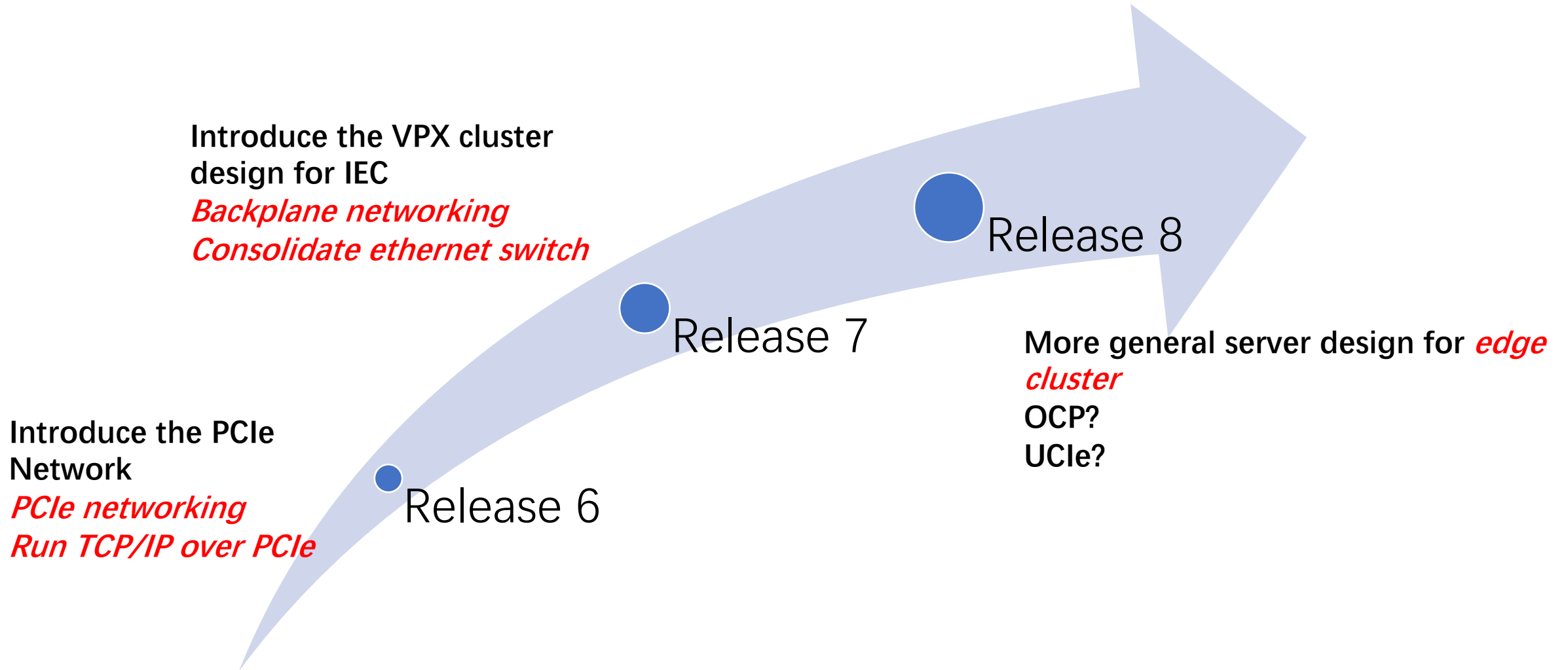
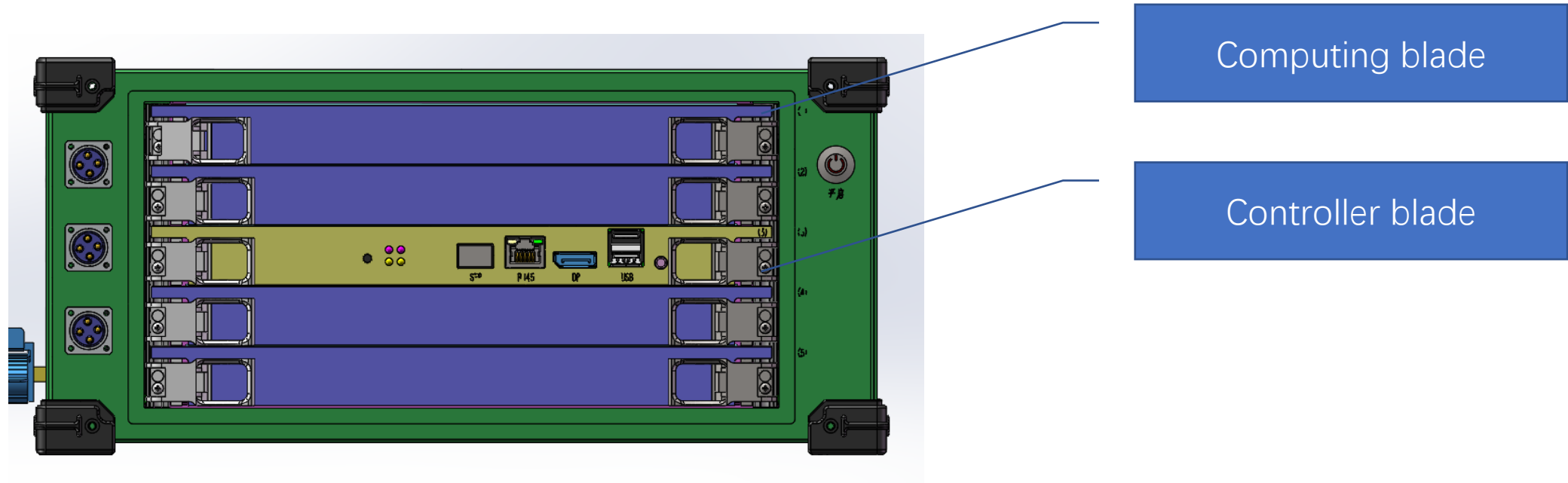Release 6

[Release7] System Architecture

The prototype consists of the main controller blade, compute blade, switching backplane, heat dissipation system, power supply, and chassis.

Computing blade

Controller blade

- Sturdy formfactor for outdoor scenarios, without datacenter environment
- Resilient design with two controller blade for high-availability
- Extendable with multiple computing blades, up to 15 nodes (14 with two controller blades)
- K8s ready (ubuntu/centos)

[Release7] Main Control Blade Architecture

[Release7] Compute Blade Architecture

1. To provide back PCle Gen 3 by 8 signal, can be configured to RC and EP;

2. To provide back 1 gbe MDI network signal;

3. To provide back IPMI management based on 12 c interface;To provide panel 1 gbe network, USES the RJ45 interface;

4. To provide panel debug serial port, using the DB9 interface;

5.Provide panel with two USB 3.0 interface, using the Type - A interface;Provide panel with six software programmable control indicator light;

6. CPU by PCle Gen3X4 mount NVME hard disk, hard disk capacity of not less than 256 gb;
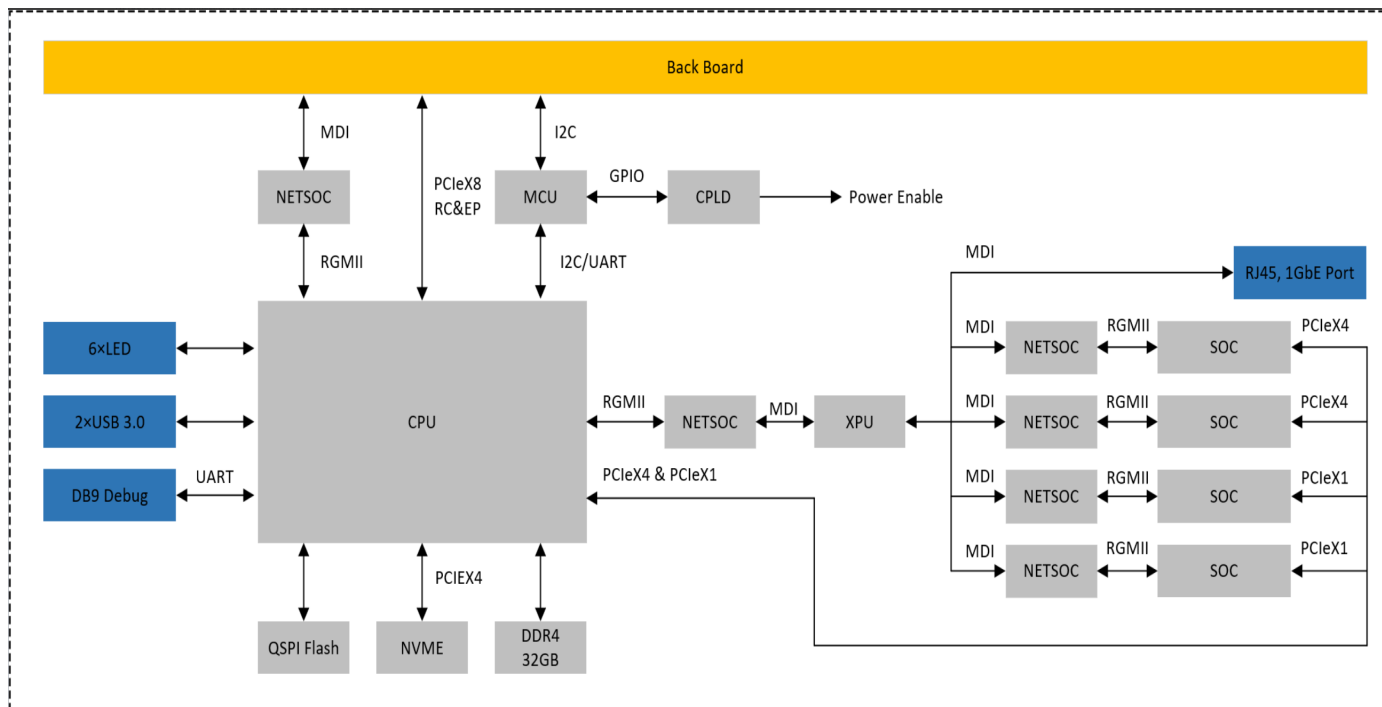
7. Using DDR4 as a memory, not less than 32 gb capacity, interface physical rate not less than 3200 MTPS;

8. Through the network exchange chip 4 soc and XPU connection module, access rate to 1 GBPS;

9. Each SOC module USES LPDDR4X memory, not less than 8 gb capacity, rate of not less than 4266 MTPS;

10. CPU through two PCle Gen3X4 and 2 PCle Gen3X1 four SOC and connectivity;
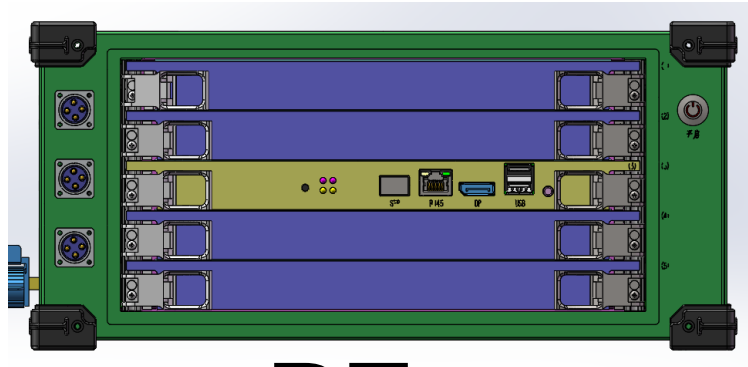
[Release7] Switching Backplane Architecture

Using XPU in exchange for chips, two pieces of XPU are redundant;
Each XPU can provide up to eight 1 gbe port, each slot P2 side provide 2 road 1 gbe interface to be redundant XPU;
Each XPU can provide up to two 10 gbe port, the P1 end of the slot number 3 and 4 provide 2 road 10 gbe interface to the XPU are redundant
Back to the slot provides IPMI management interface based on 12 c, located in each slot P0 end;
Back to the slot provides auxiliary power AUX + 5 v and + 12 v power supply, is located in each slot P0 end;
The backplane provides the engine fan power supply and control.
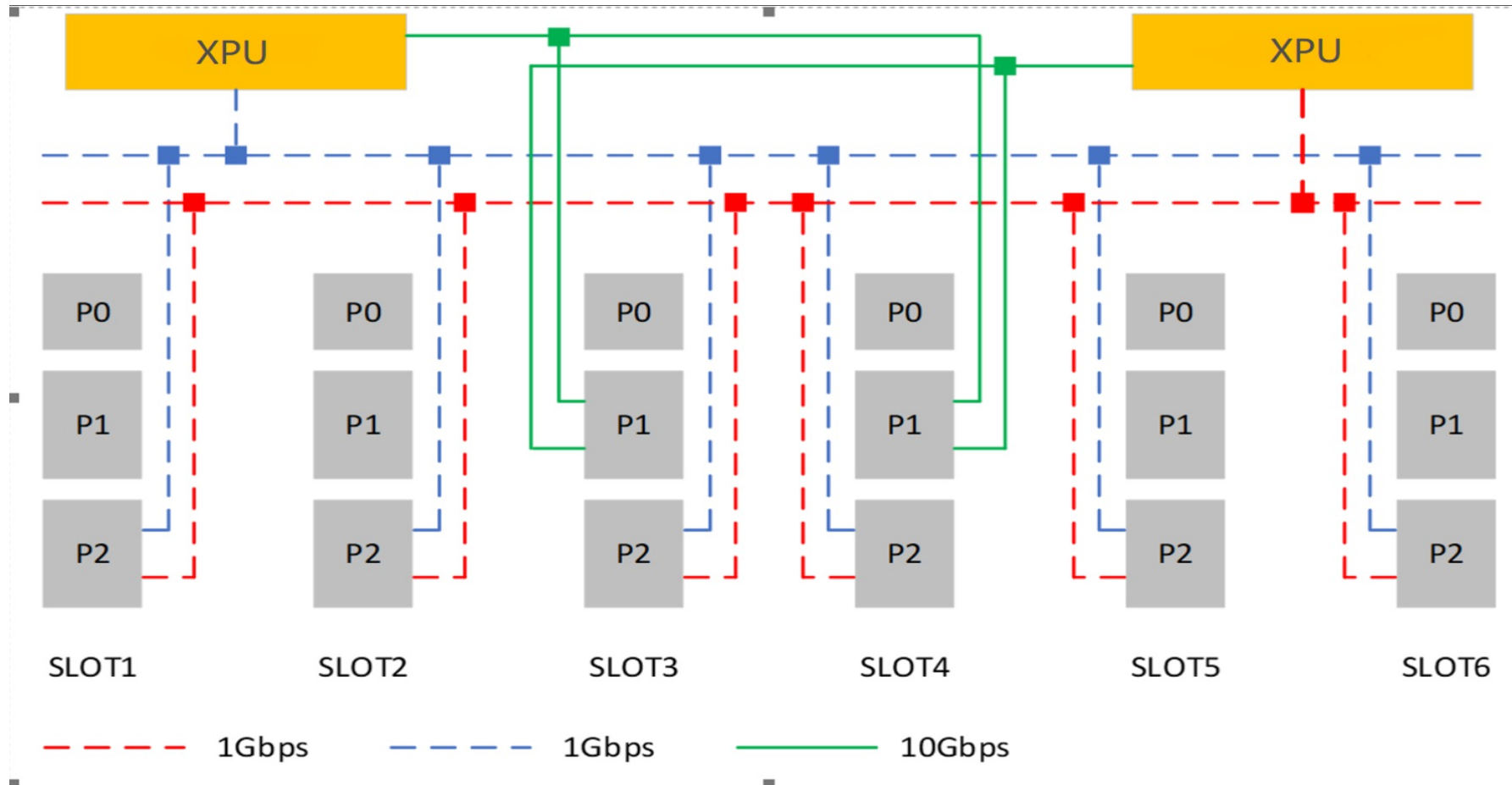
[Release 6 + 7] Continuous Evolving of Networking on Edge System

R6
server

R7
cluster

R8
UCIe?

Thank You!