AICN Status

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March Plenary 2025

AICN study item Initiated

AICN study item website: https://1.ieee802.org/nendica-aicn/

IEEE 802 Nendica Initiating Motion (2024-03-14)

- To initiate a Nendica Study Item on AI computing network

Motivation of AICN Study Item

- To support the emreging AI workloads, high performance networking is required.
- Ethernet networking as the rich eco-system technology has opportunities to support AI clusters. However, it needs to be evolved in order to meet the requirements of AI computing network.
- How does IEEE802 networking fit for AI cluster?

Start from study item

- Analyzing network challenges for AI clusters
- Pointing out AI computing network technology trends
- Identifying IEEE802 standard gaps and opportunities

AICN Contributions and Report Draft

I. Understanding AI large model and its workload

Intial Analysis

- Surge of AI large Model
- Scale-up & scale-out network

AI Traffic Analysis

- Parallelism strategy
- Traffic characteristics

1-23-0031-04-ICne-requirements-for-ai-fabric.pdf
1-24-0001-00-ICne-network-for-ai-datacenters.pdf
1-24-0050-01-ICne-ai-traffic-analysis.pdf
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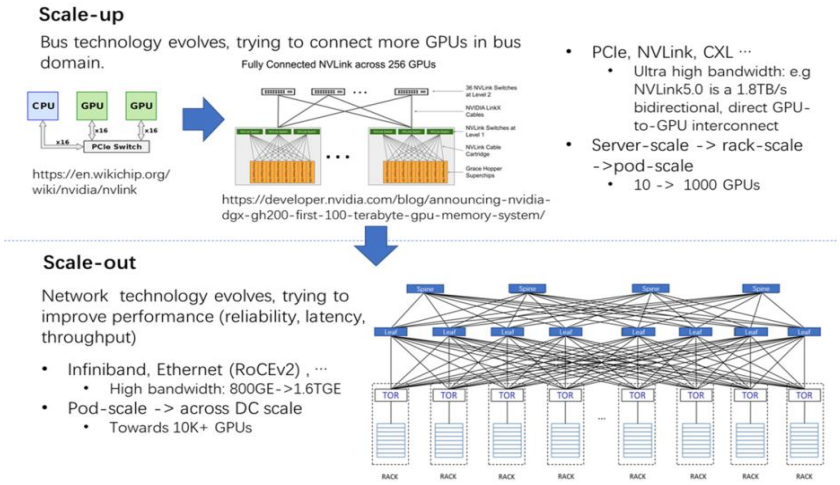

II. Potential requirements and challenges discussion

☐ Scale issues

- DCI interconnection challenges.
- New cost-effective topologies and their challenges.

1-24-0027-01-ICne-contributed-text-scale-requirements-and-challenges.pdf

☐ Availability issues

- Availability requirements
- Considerations on LLR and light weighted FEC

1-24-0031-00-ICne-availability-challenges-and-requirements-of-aicn.pdf
1-24-0057-00-ICne-quantized-benefit-of-ll-fec-and-llr.pptx
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☐ Load balancing issues

- Imbalance challenges under AI traffic
- Per-packet LB discussion

1-24-0004-05-ICne-load-balancing-challenges-in-ai-fabric.pdf
1-24-0060-01-ICne-reviewing-load-balancing-issues-in-ai-computing-network.pdf
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☐ Security issues

- Challenges of existing Link Security
- Considerations on PHY security

1-24-0036-01-ICne-new-requirements-and-challenges-of-network-link-security.pdf
1-24-0056-00-ICne-follow-up-discussion-of-link-security.pdf
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AICN report draft

Discussion

- Collaboration within IEEE802 working groups
  - Different focus, but potential for interaction
- Reach out to other industry organizations for collaboration through WG or IEEE802
  - WG/IEEE802's interest in this area
  - Relevant activities/projects within WG/IEEE802
  - Gather input from other organizations
  - Open to collaborating with other organizations

Thanks!