Networking for AI Cloud – Why do we need a different network

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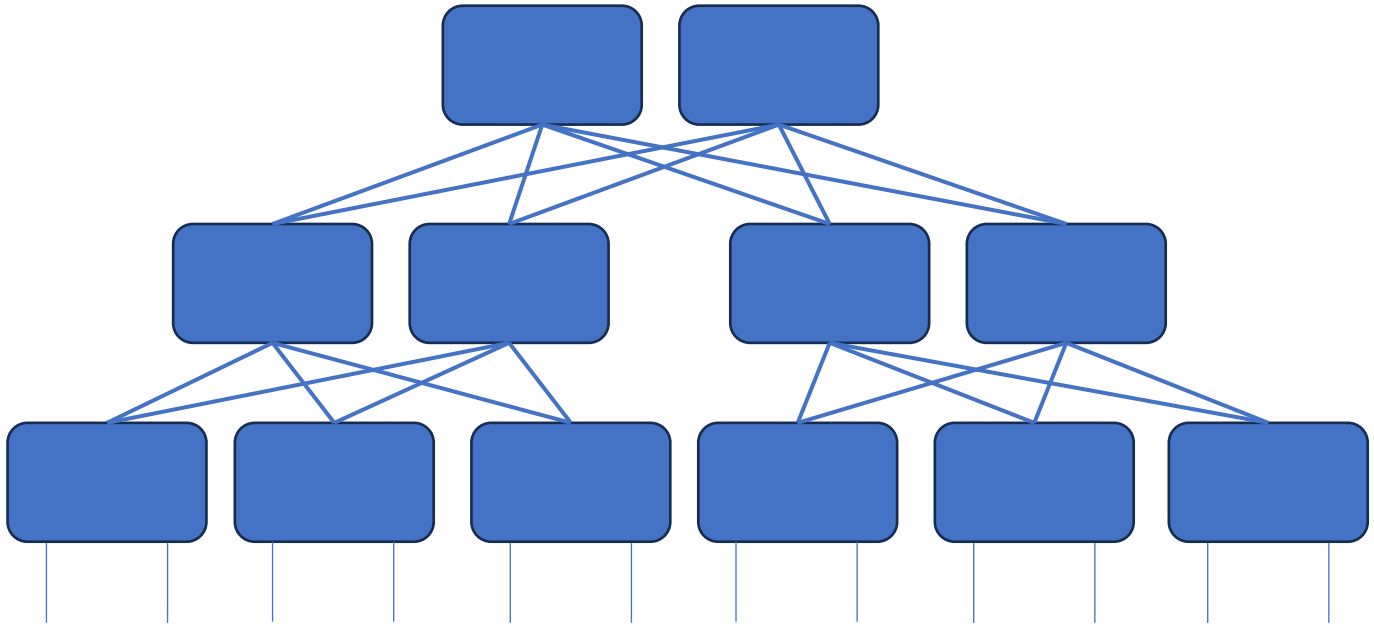
IETF-117

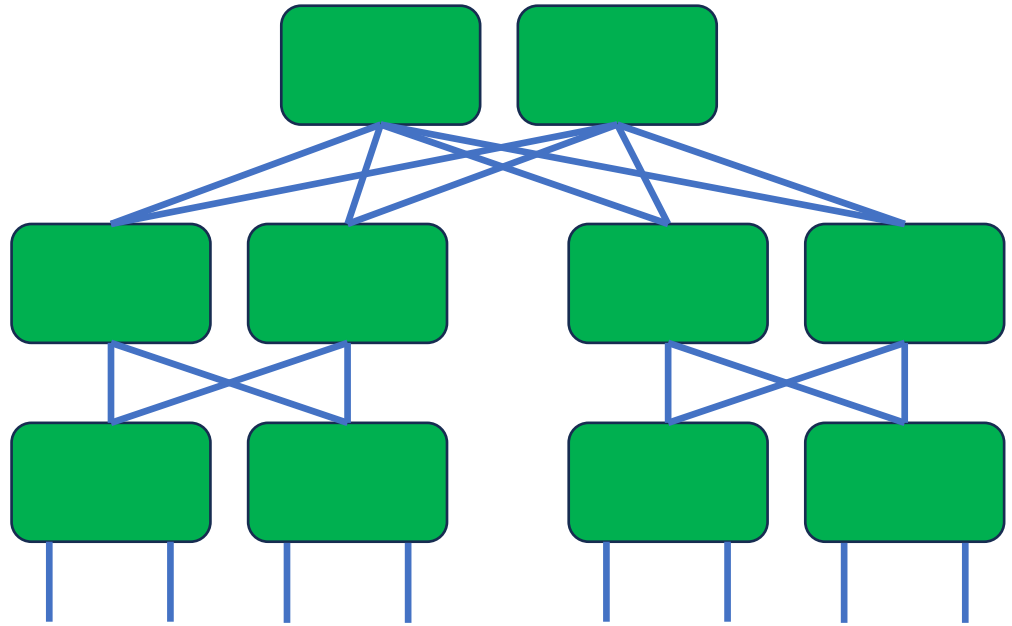
July 2023

AI Cloud Networking Requirements

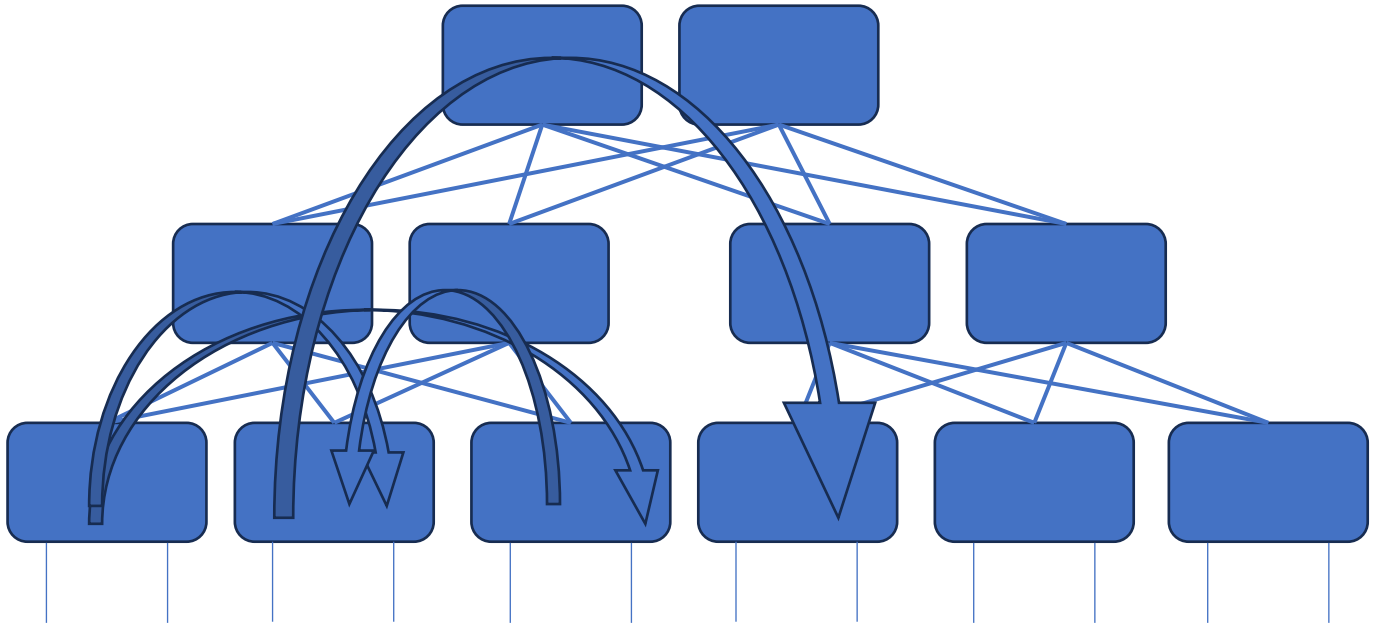
- High BW
- Low latency
- Lossless network
- Predictable performance
- Robust network

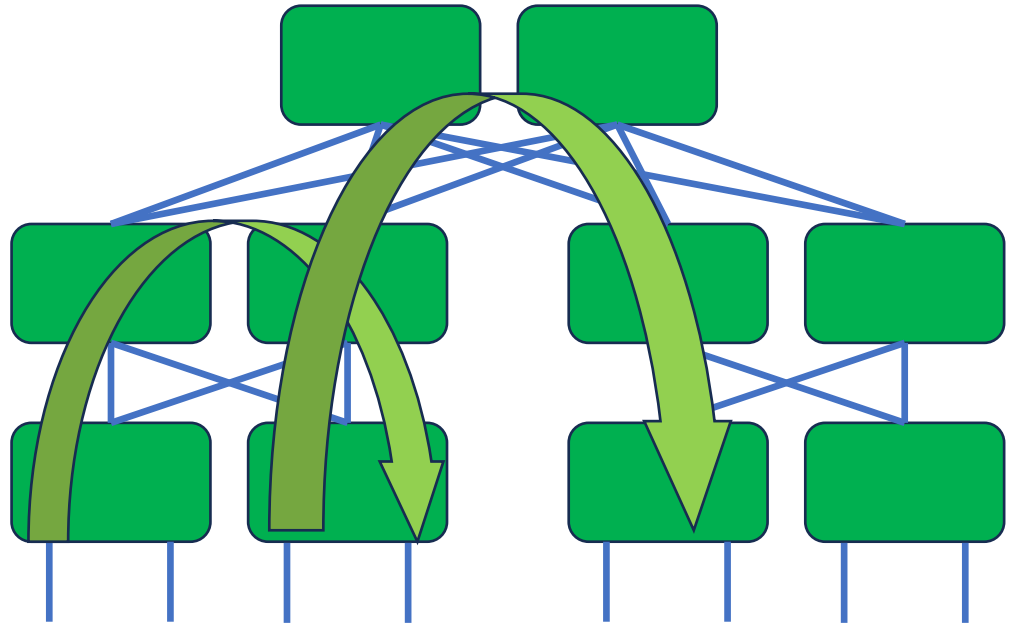
Oversubscribed vs non-blocking network



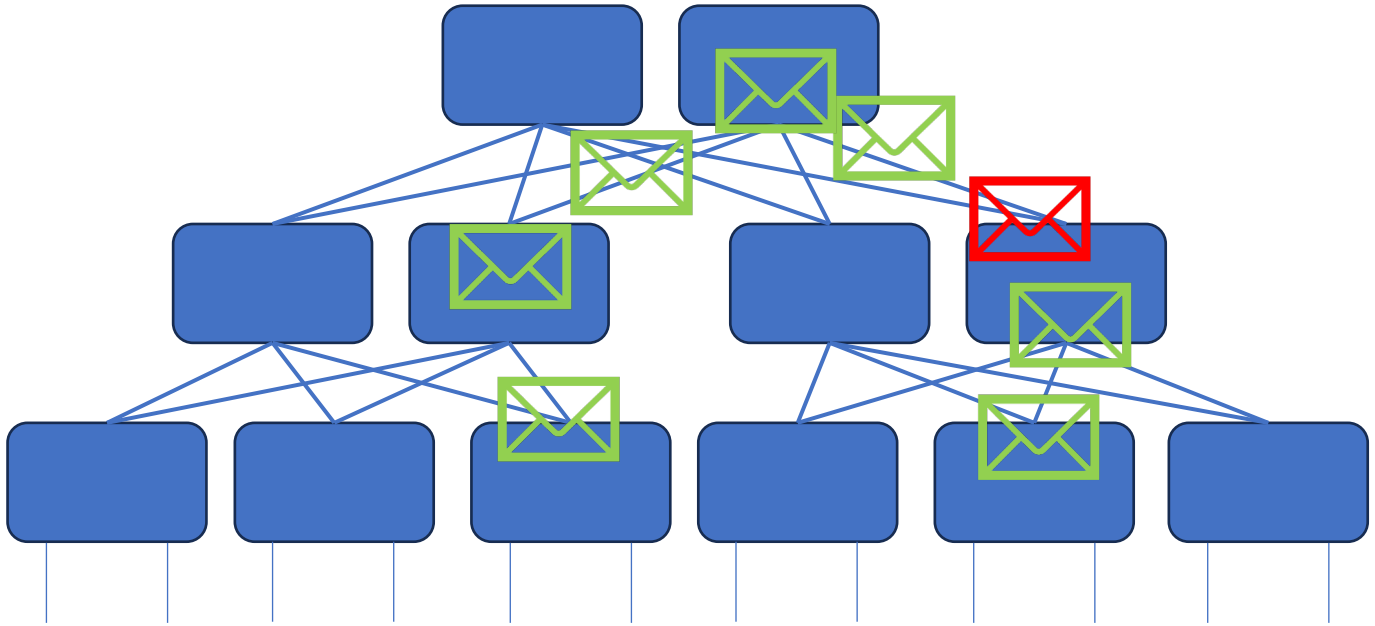


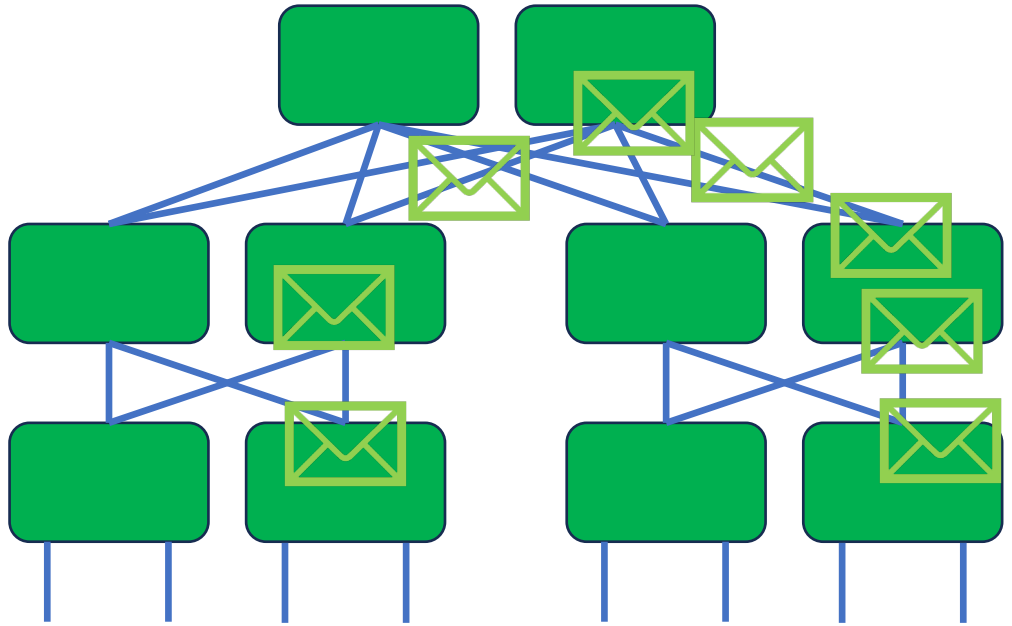
Low BW TCP/UDP vs High BW RDMA





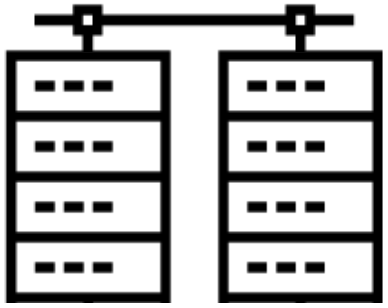
Lossy vs lossless





Additional observations on AI networking

General purpose cloud network	AI cloud network
Designed for Loosely-Coupled Applications	Designed for tightly-coupled distributed applications
TCP/UDP-Focused Network, Low Effective Bandwidth	Highly Effective RDMA Bandwidth
High Jitter Tolerance	Low Jitter Tolerance
Switch/Link failure impact is moderate	Switch/Link failure impact is dramatic
Designed for best effort	Designed for High Performance at scale, at load



Reminder, there are many networks to operate an AI cloud

- GPU Compute
- General compute
- Storage
- Management
- More…

Thank You