

IEEE Hot Interconnects 32 2025

Artem Y. Polyakov
General Chair



HOTI 2025

IEEE Symposium on High-Performance Interconnects
20-22 August 2025 • Virtual, United States

“Hotl-est” topics through years

Year - 20XX

02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
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Topologies, routing switching & packet processing

S4		KS2	S3	S2		S2					P			S3									T
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On-chip and chip-to-chip communications

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Network acceleration, offloads & SmartNICs

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Optical interconnects, silicon photonics

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Collective communication

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Infrastructure: virtualization, cloud, large-scale

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Artificial Intelligence

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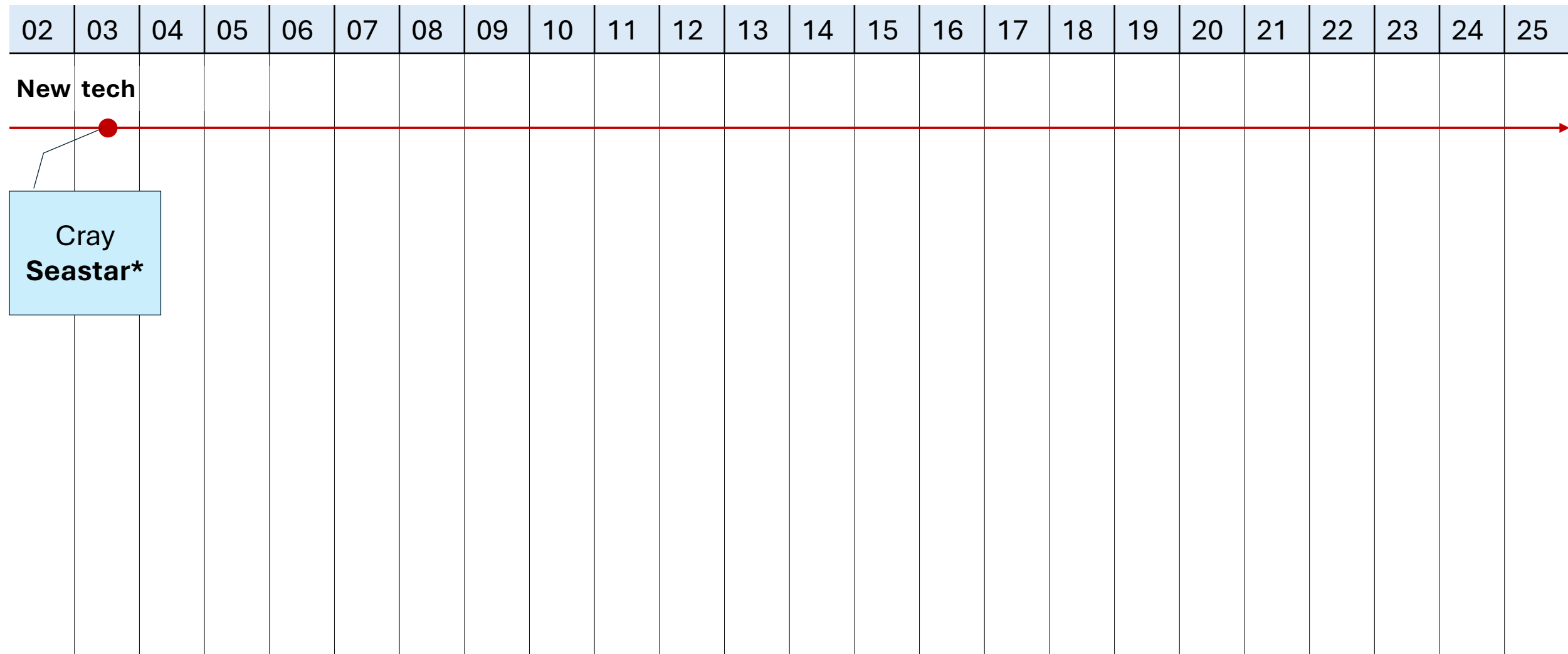


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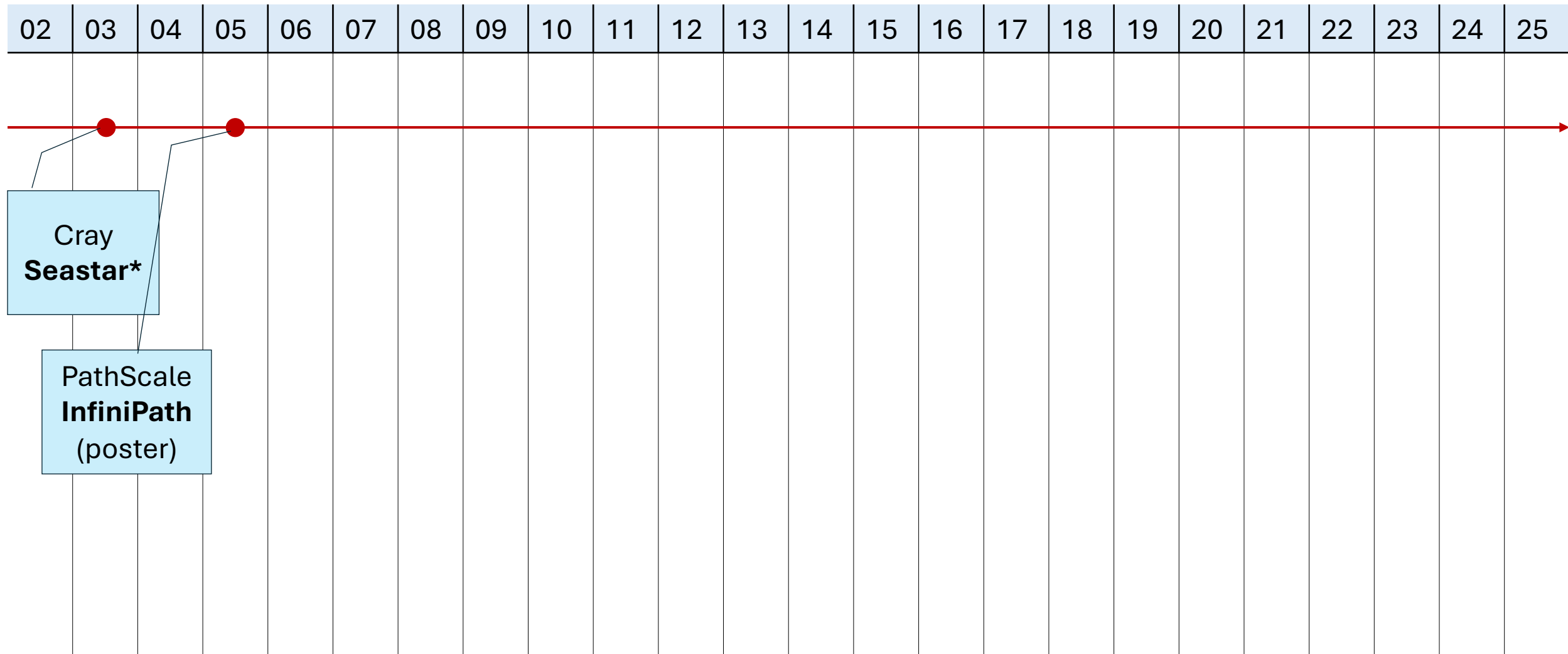
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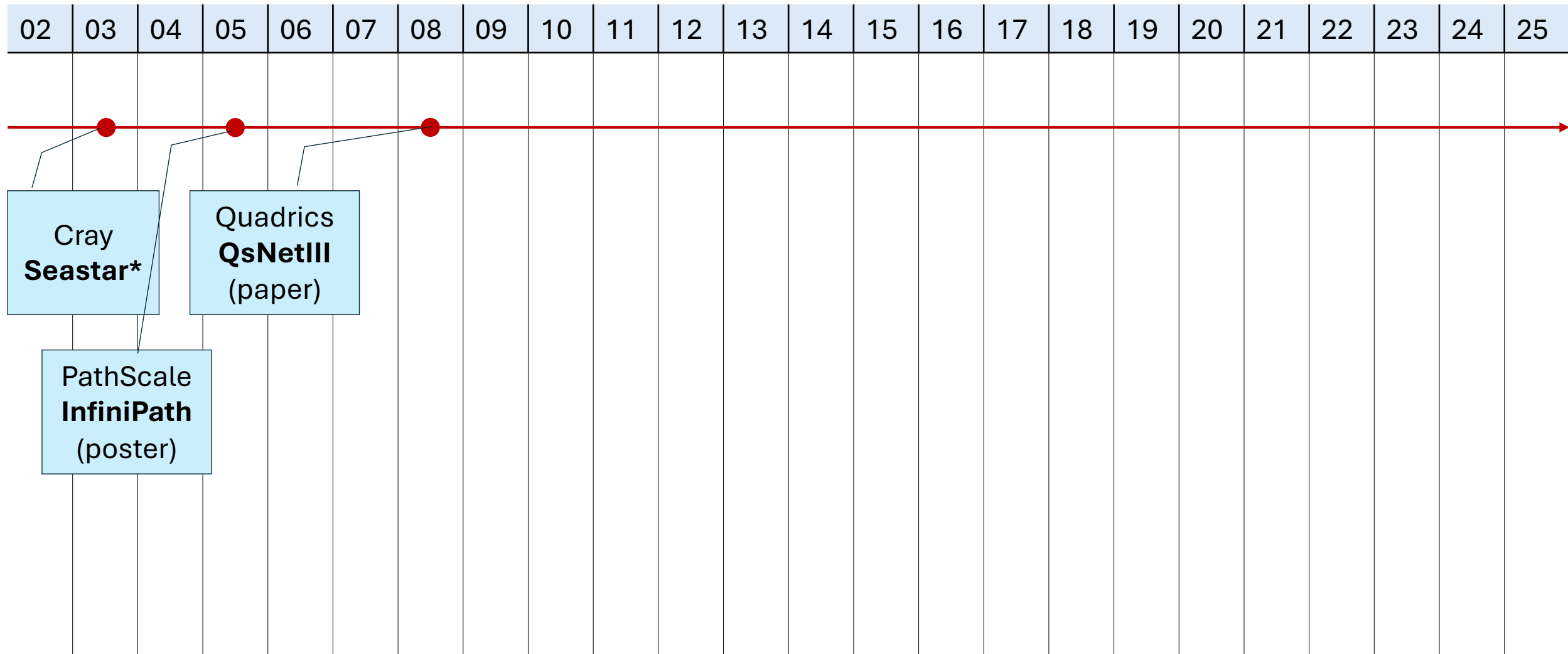
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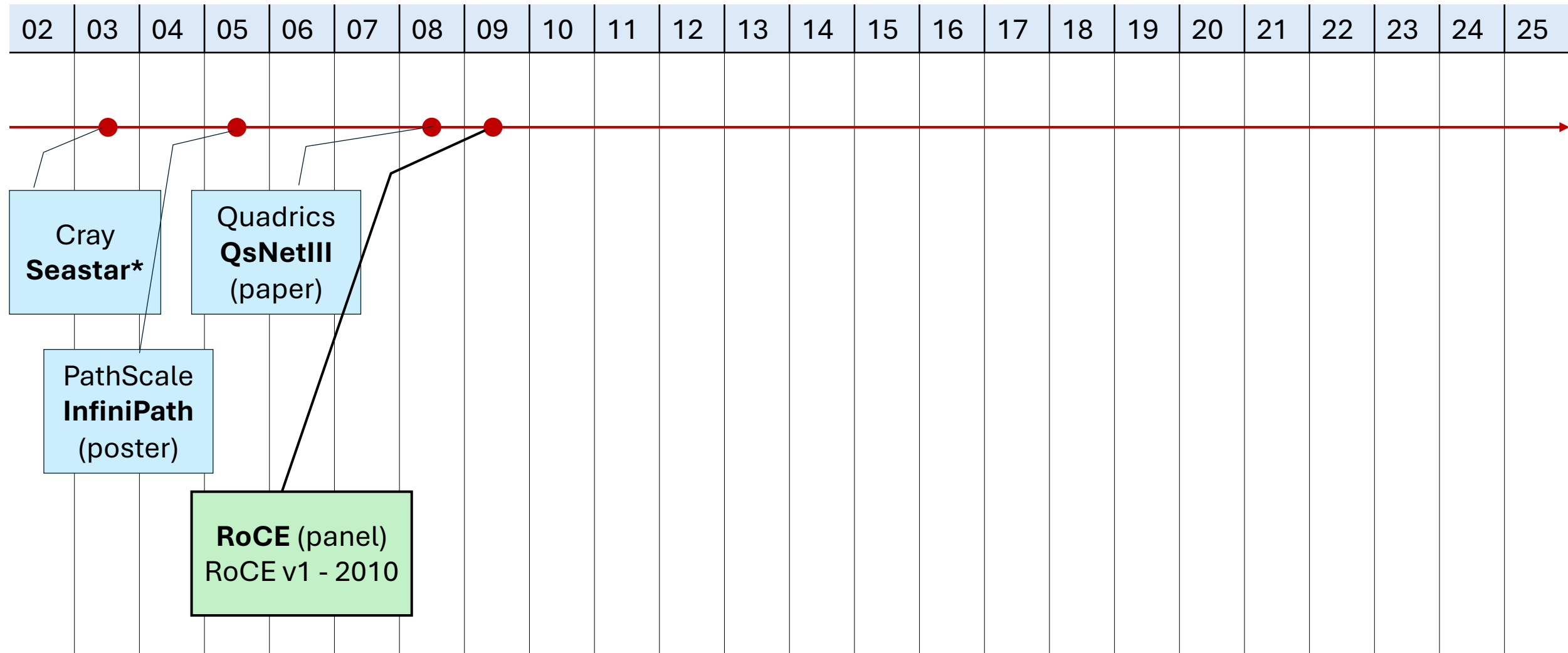
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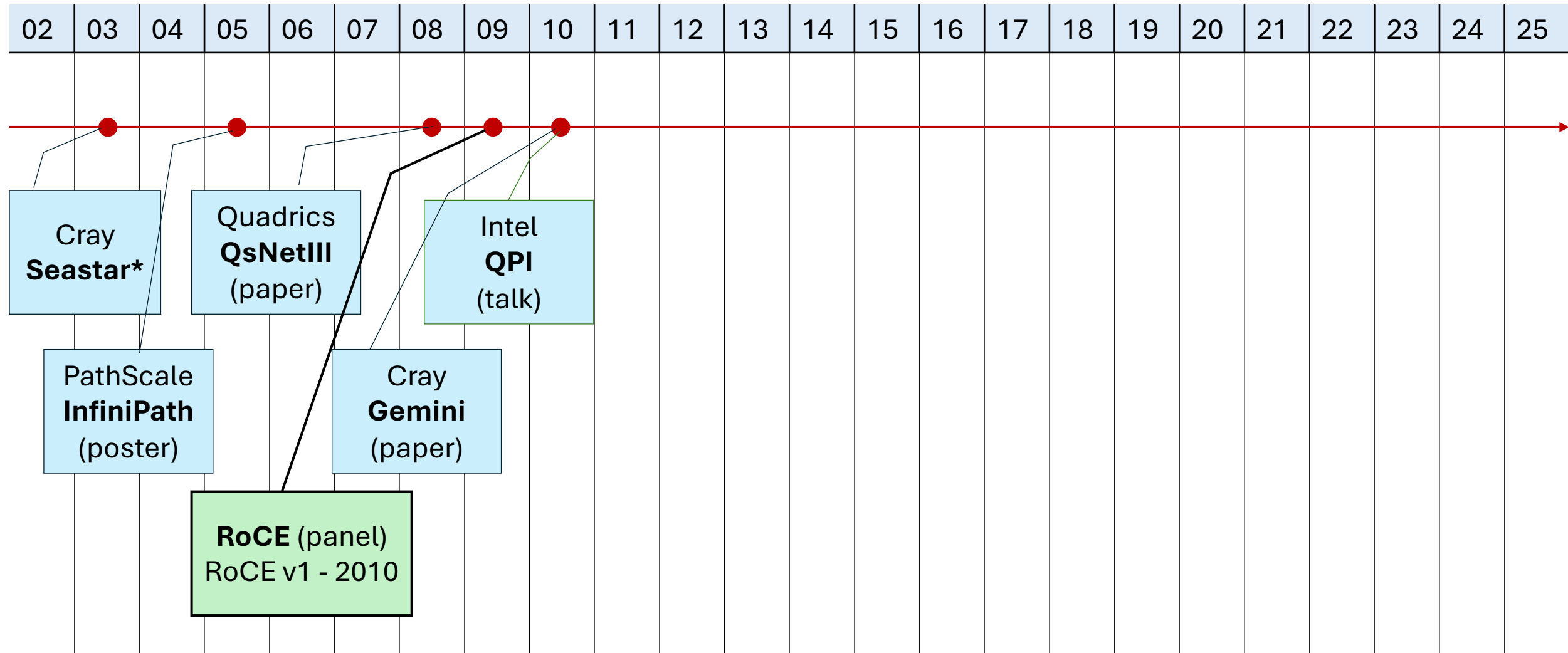
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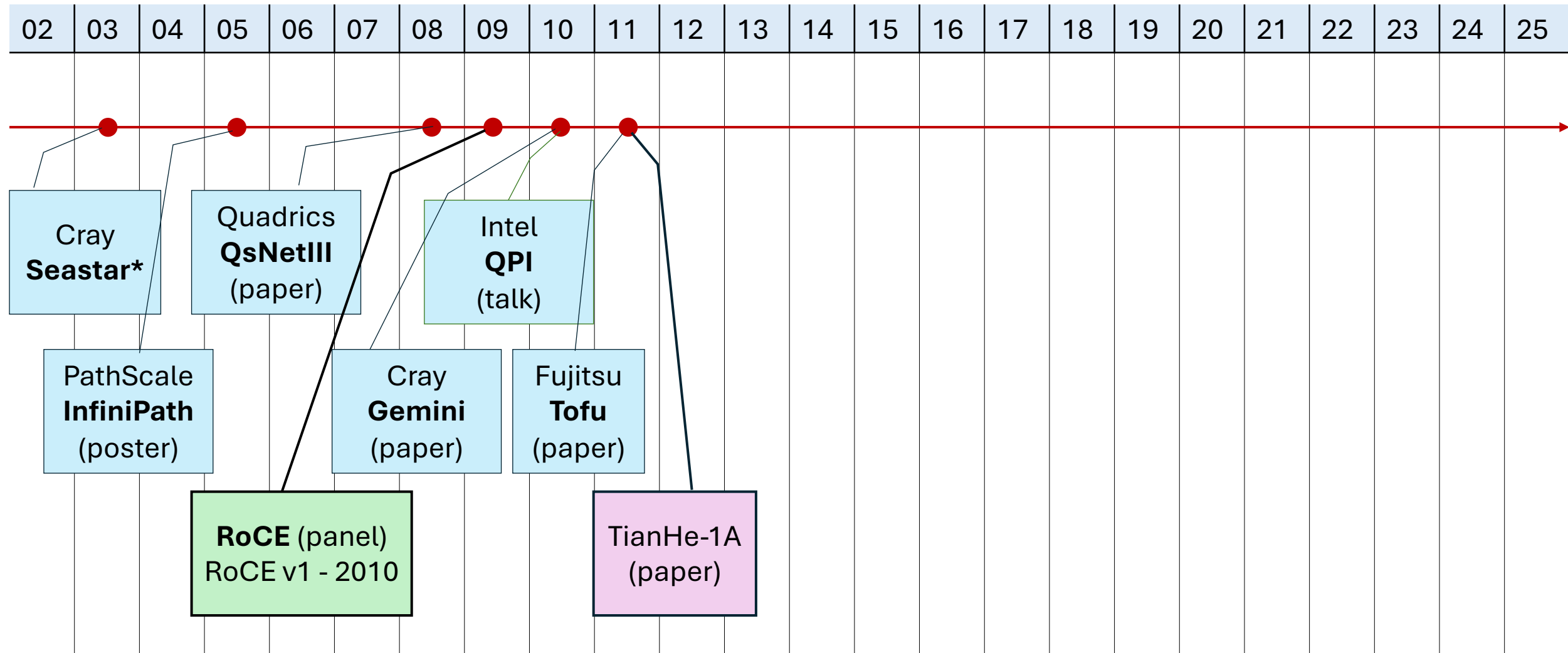
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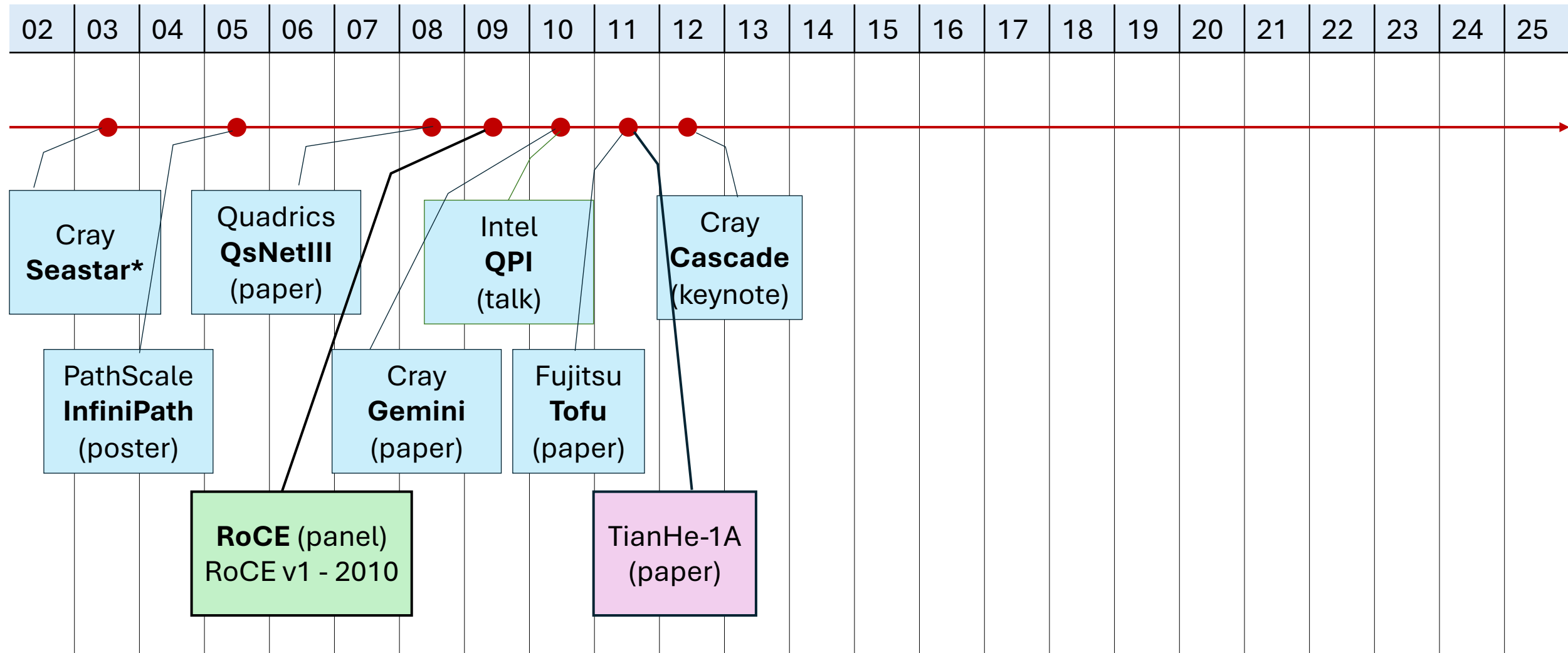
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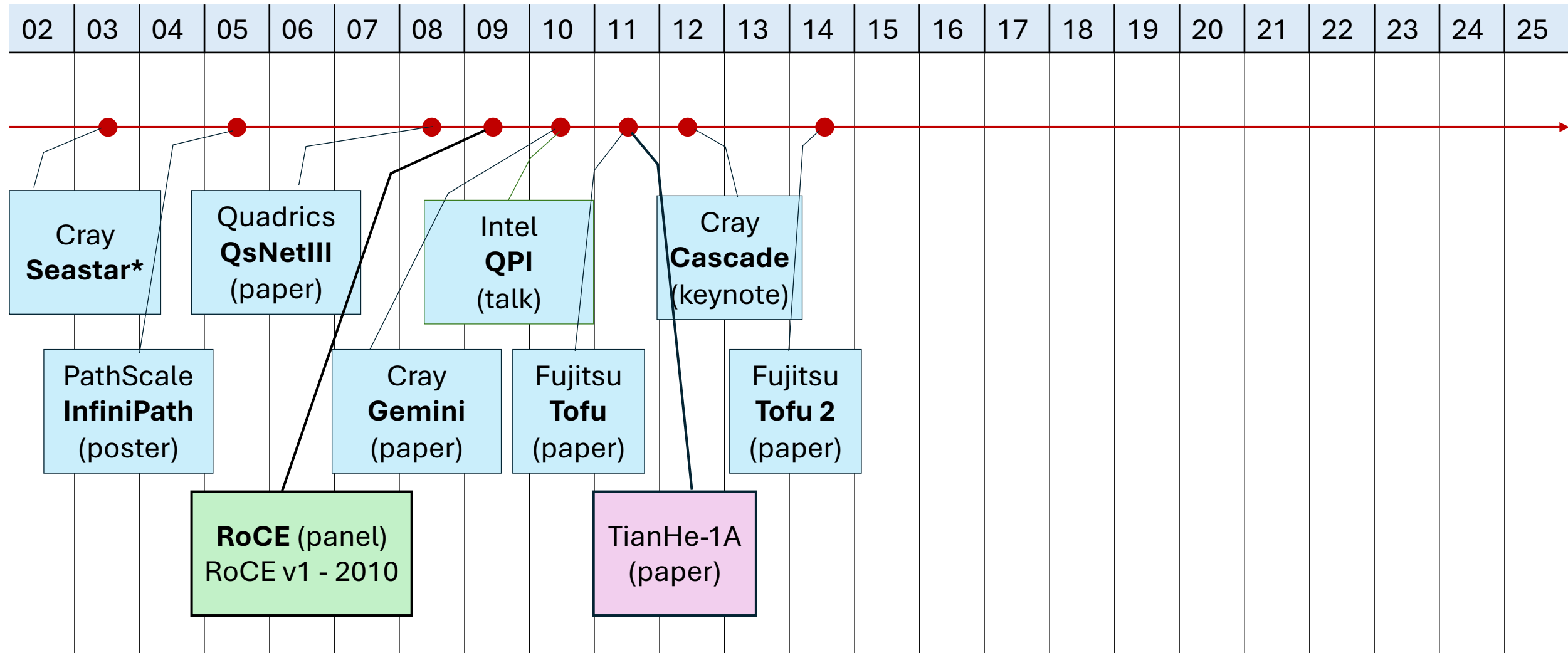
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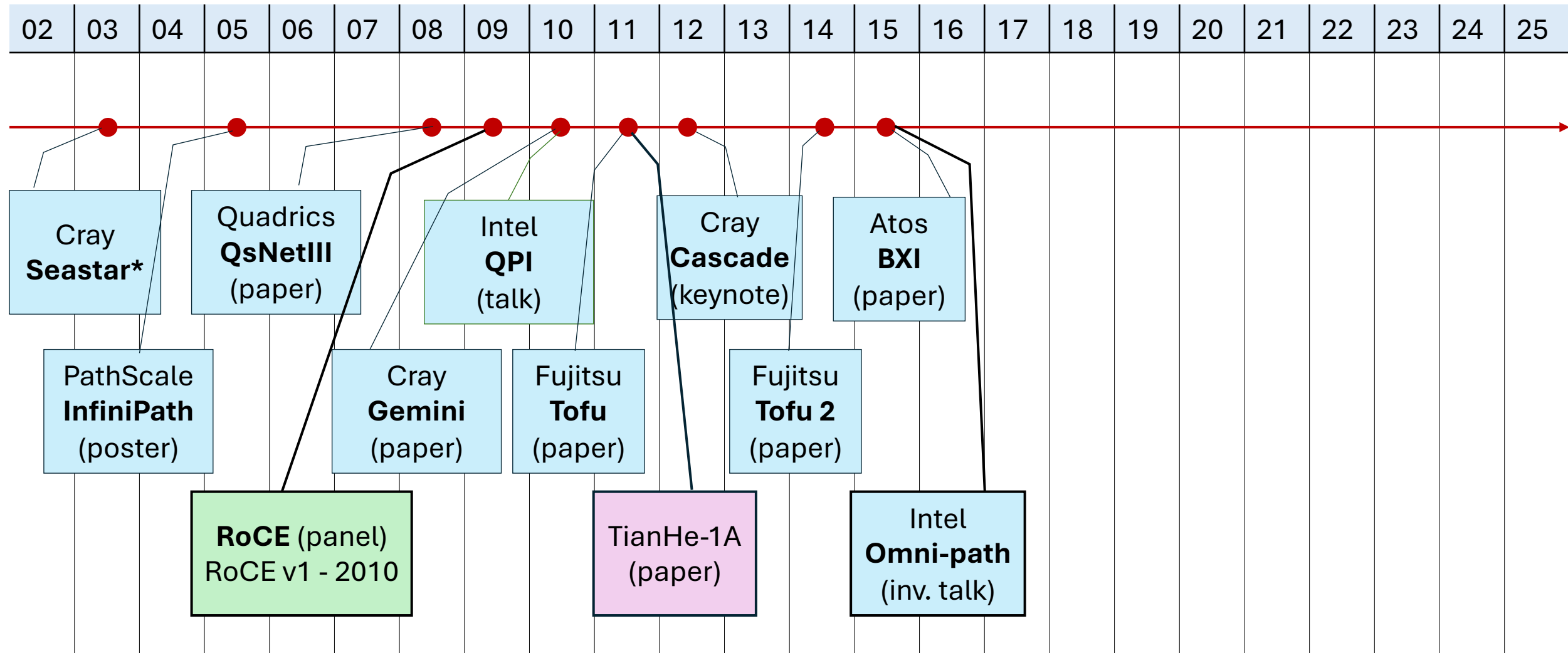
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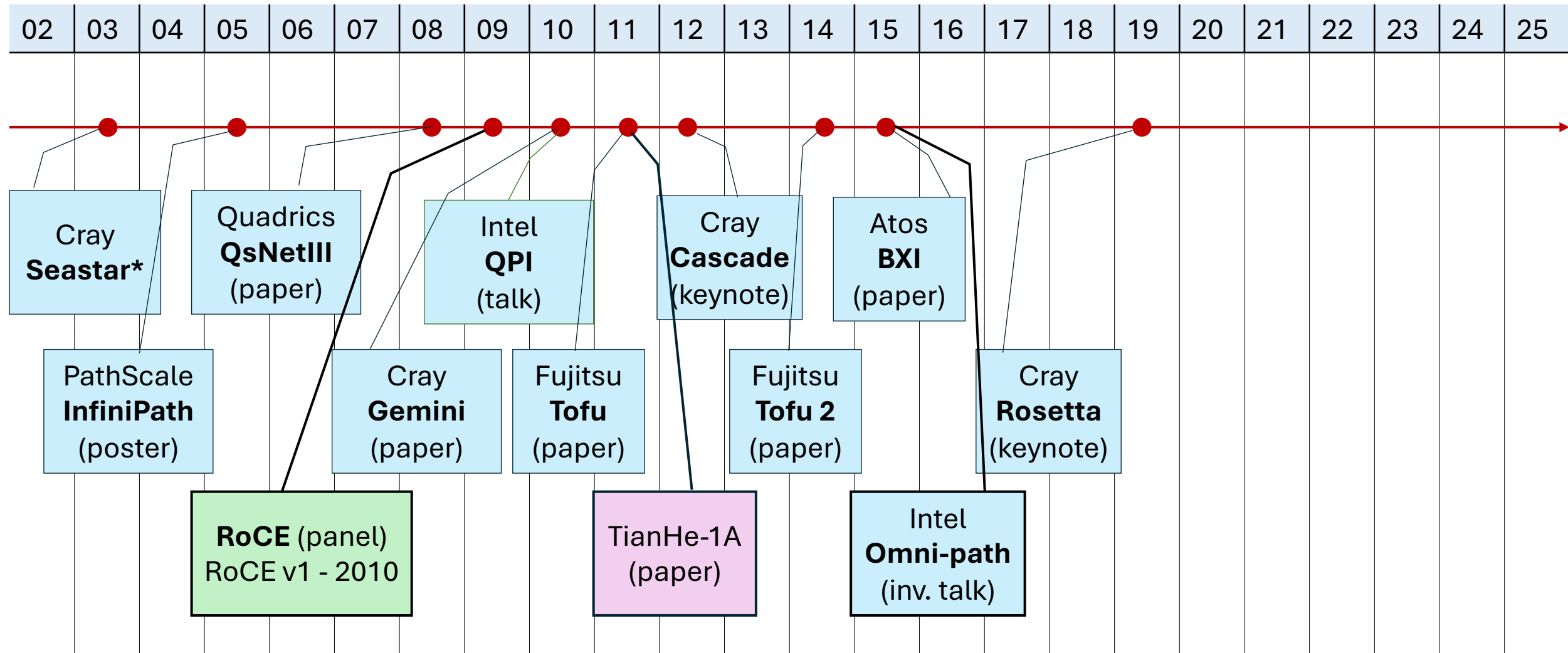
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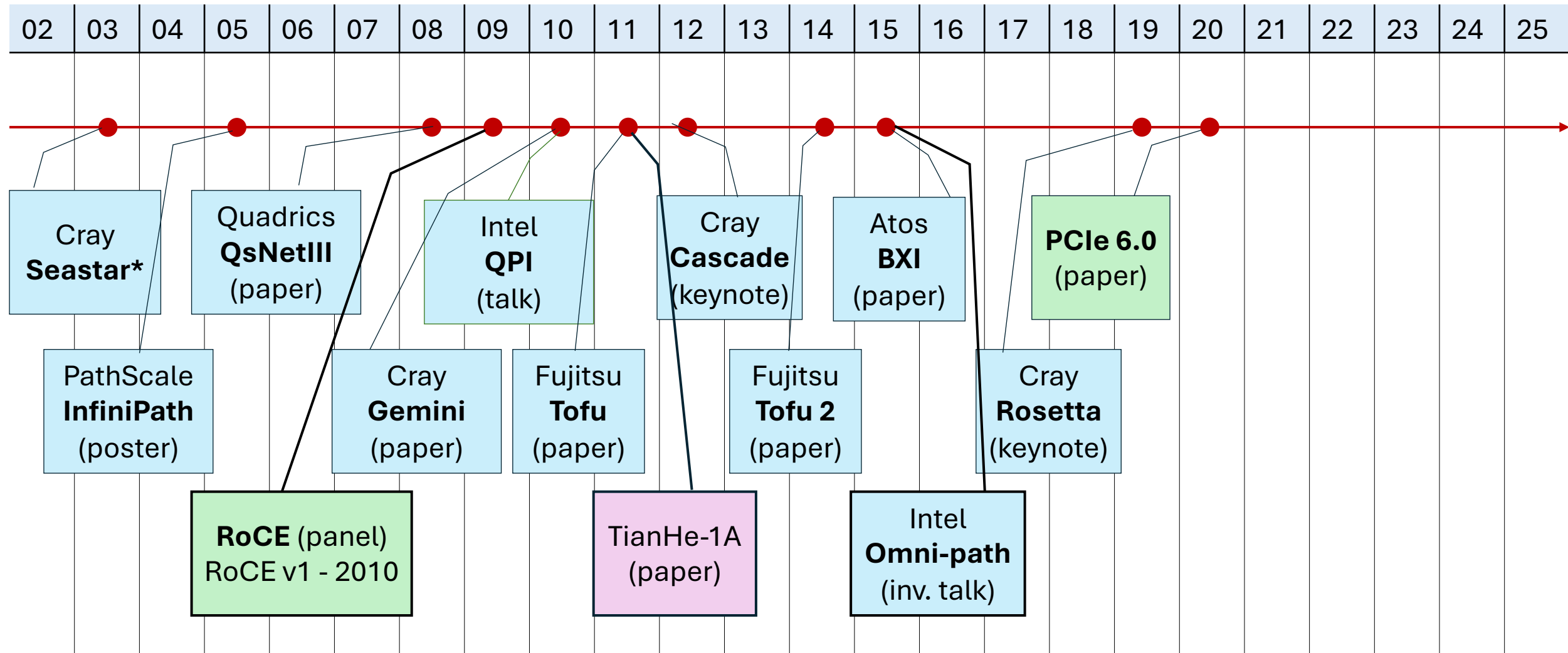
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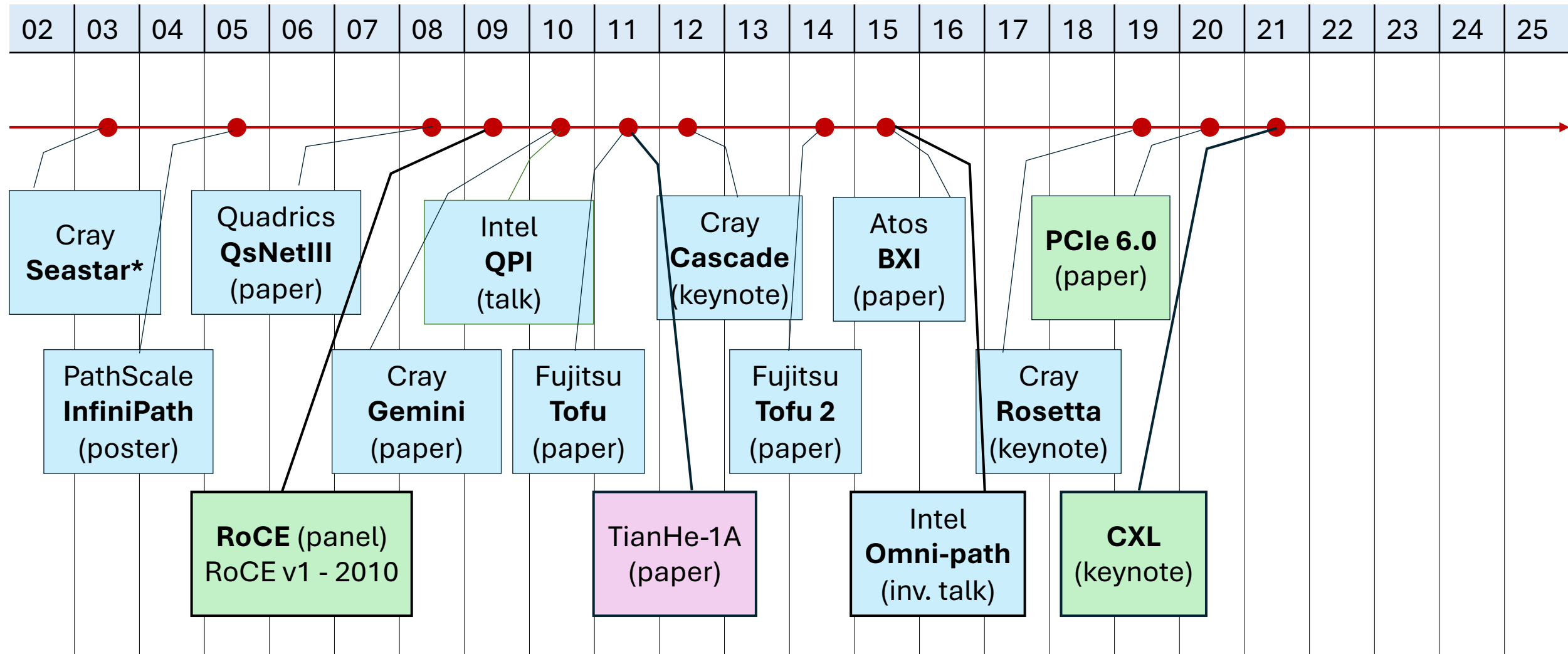
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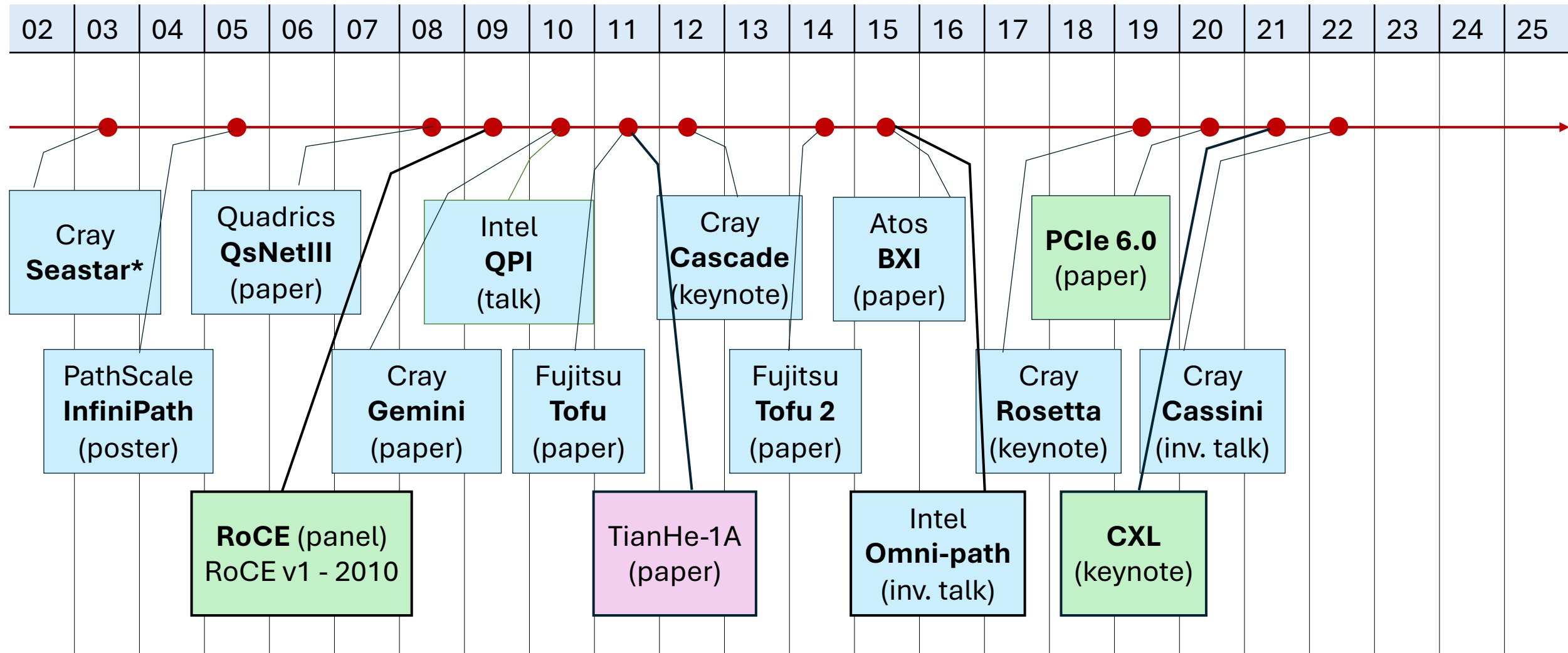
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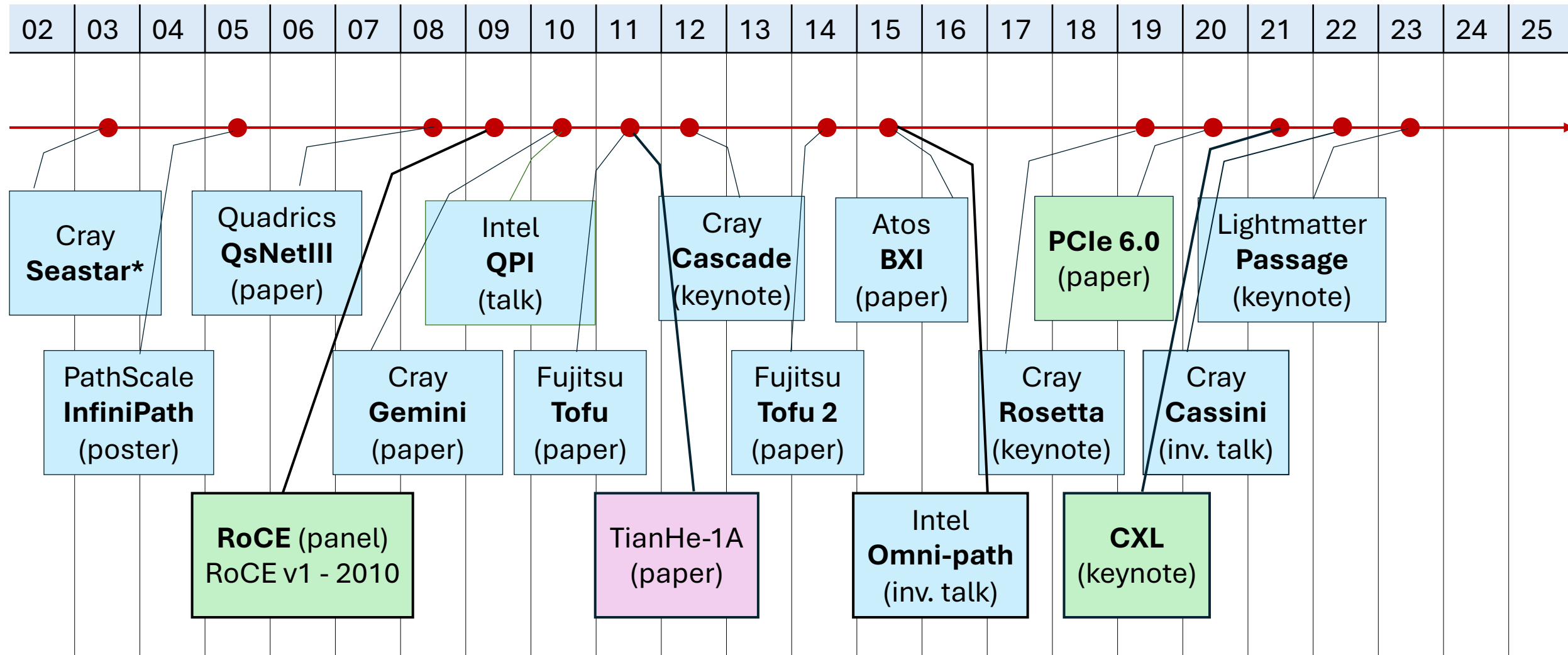
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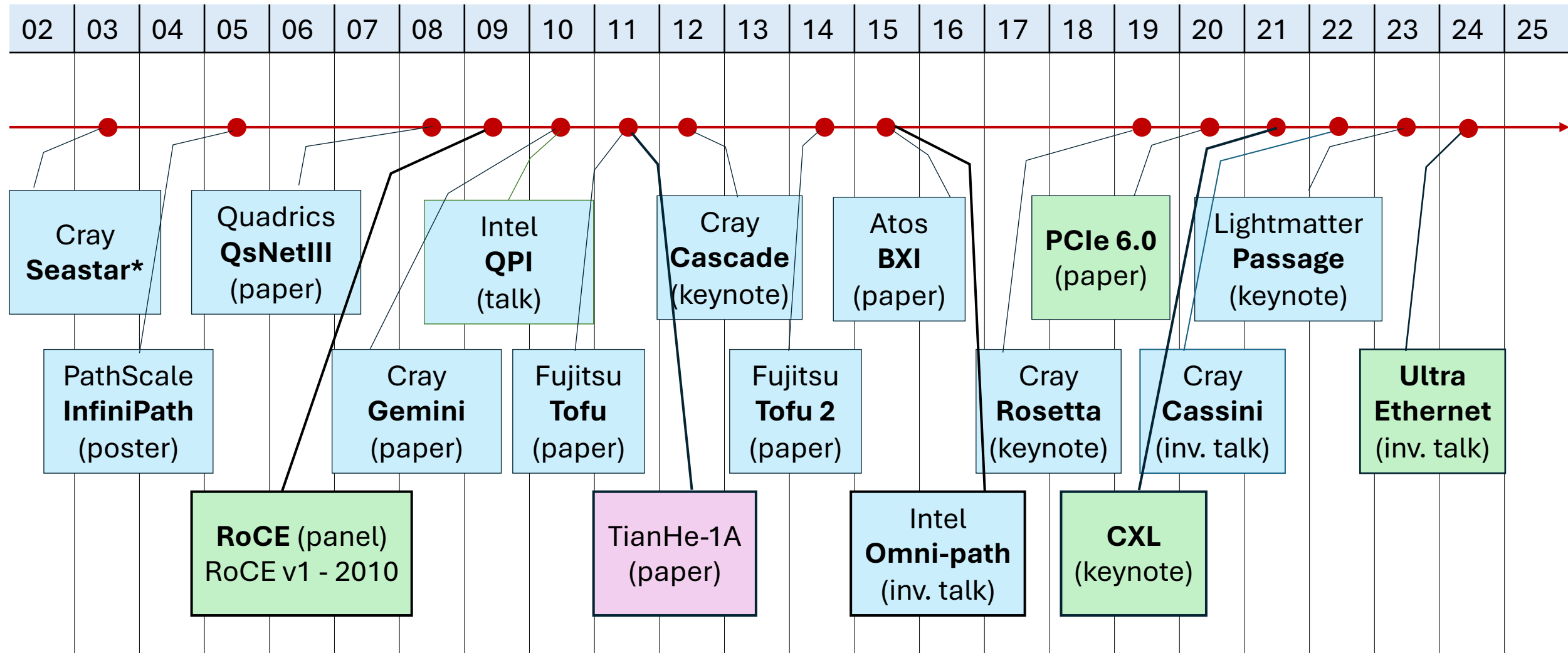
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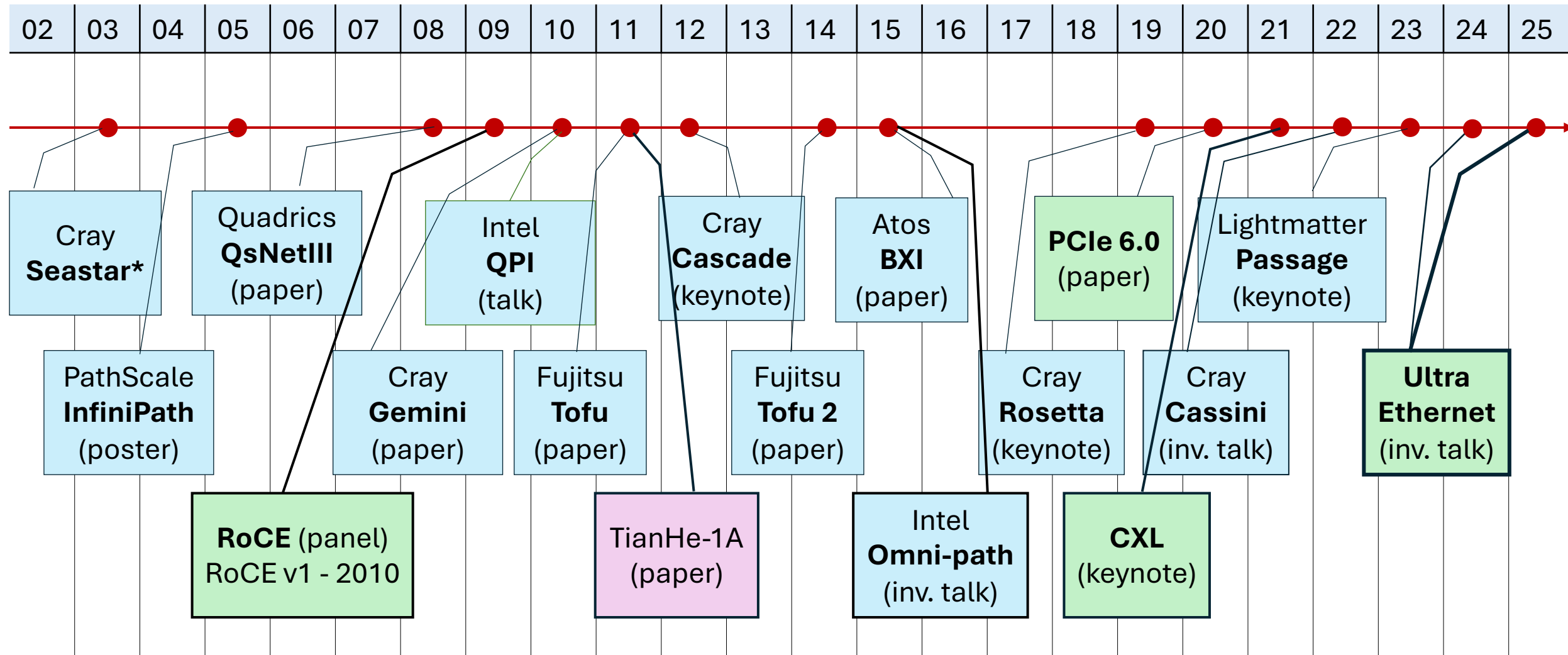
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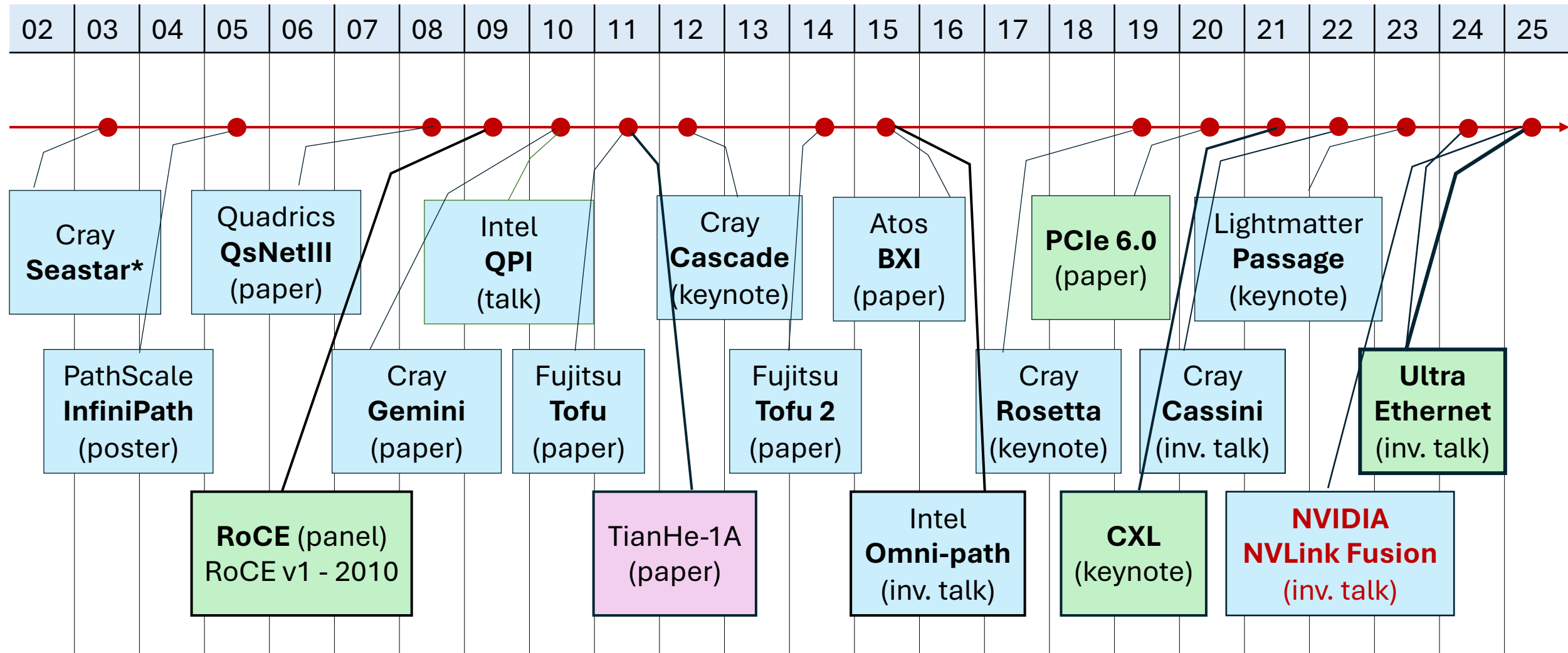
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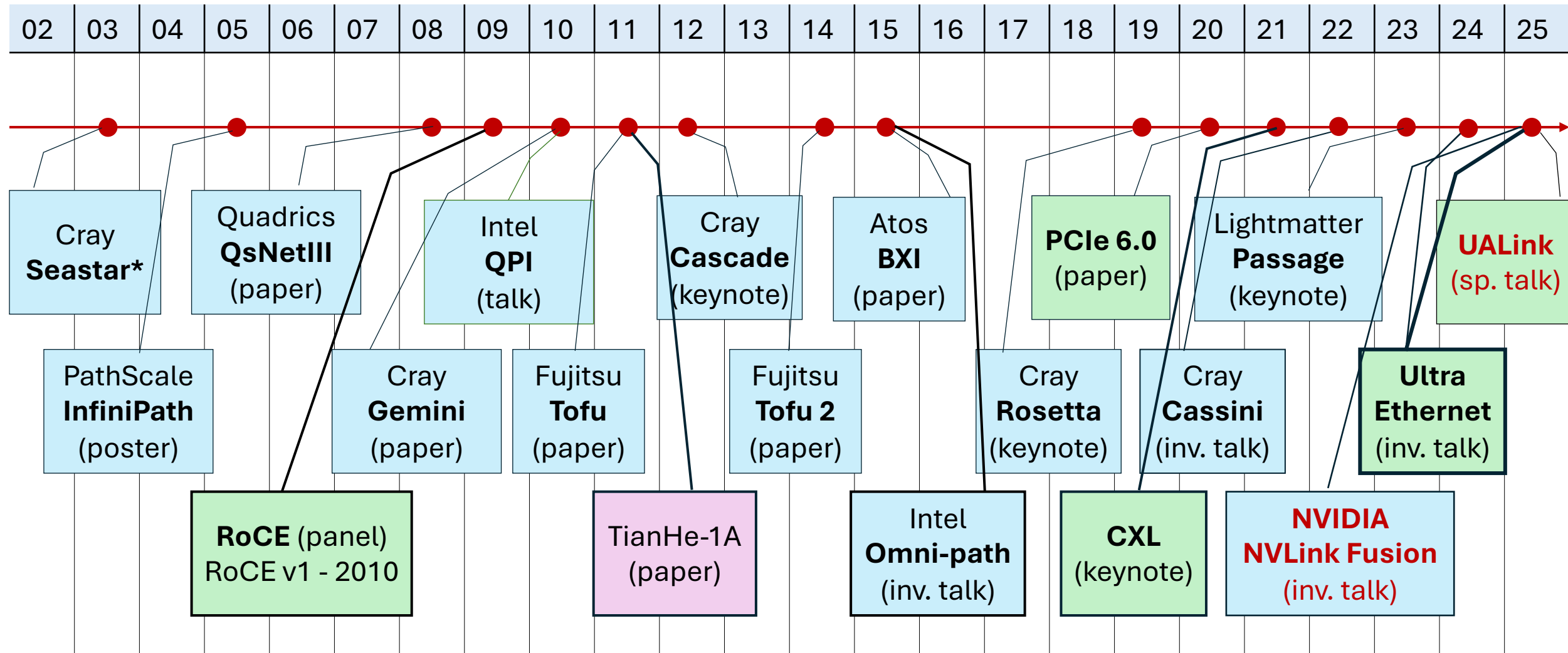
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HotI'25 topic – “Software”

- [2010] Stuck with Sockets: Why is the network programming interface still from the 1980s? (**panel**)
- [2011] Partitioned Global Address Space (PGAS) (session)
- [2015] Two most popular communication libraries announced
 - [**libfabric**] A Brief Introduction to the OpenFabrics Interfaces - A New Network API (paper)
 - **UCX**: An Open Source Framework for HPC Network APIs and Beyond (paper)
- [2019] MPI and HPC (session)
- [2024] Focus on collective communication
 - Collectives for Deep Learning / Optimizing Collective Operations (sessions)
 - Unified Collective Communication (**UCC**): An Unified Library for CPU, GPU, and DPU
- **[2025] Main topic: “Interconnect software: You can’t touch it but you need it”**



HotI “What is the best?” panels

- [2002] Wi-Fi vs. GPRS vs. 3G
- [2005] EtherNET vs. EtherNOT
- [2011] Large Data Center Fabrics: Is There a Good Answer?
- [2017] Ethernet vs. HPC: Can the hyperscale ethernet data center handle all workloads?
- [2020] SmartNIC or DPU, Who Wins?
- [2023] EtherNET vs EtherNOT ... again?



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- **[2025] LLM Token Economy: How is networking going to play in the age of agents?**



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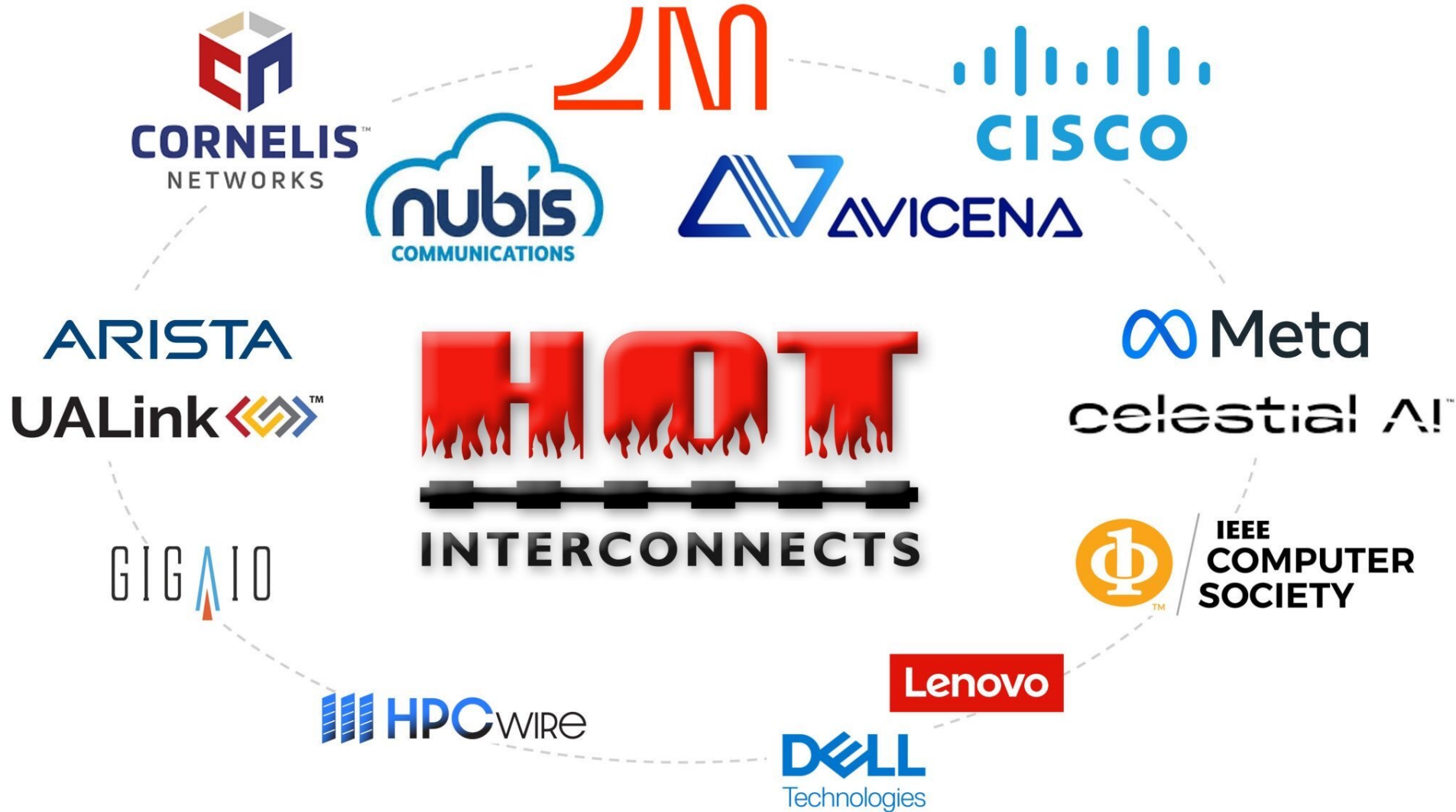
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HotI'25 Program

- **Keynotes**
 - “*Now in Focus: the Fifth, GenAI Epoch of Computing Infrastructure*”, **Amin Vahdat** (Google)
 - “*Evolving inter-connect fabric and SDN in the cloud to meet the needs of AI*”, **Deepak Bansal** (Microsoft)
- **Panel** “LLM Token Economy: How is networking going to play in the age of agents?”
- **Invited talks**
 - “*Ultra Ethernet for next-generation AI and HPC workloads*”, **Torsten Hoefler** (ETH)
 - “Building Custom AI Infrastructure with NVLink Fusion”, Krishnan Geeyarpuram (NVIDIA)
- **9 Technical talks**
 - Network Synchronization and Routing
 - Co-packaged Optics
 - Interconnect Software – Runtimes & Workloads
 - Scale-up Interconnects
- 10 Technical talks from HotI sponsors
- **Tutorials**
 - Principles and Practice of Scalable and Distributed Deep Neural Networks Training and Inference (OSU)
 - High-Performance and Smart Networking Technologies for HPC and AI (OSU)
 - Libfabric Communication Library (Intel)
 - GPU Communication Libraries for Accelerating HPC and AI Applications (NVIDIA)



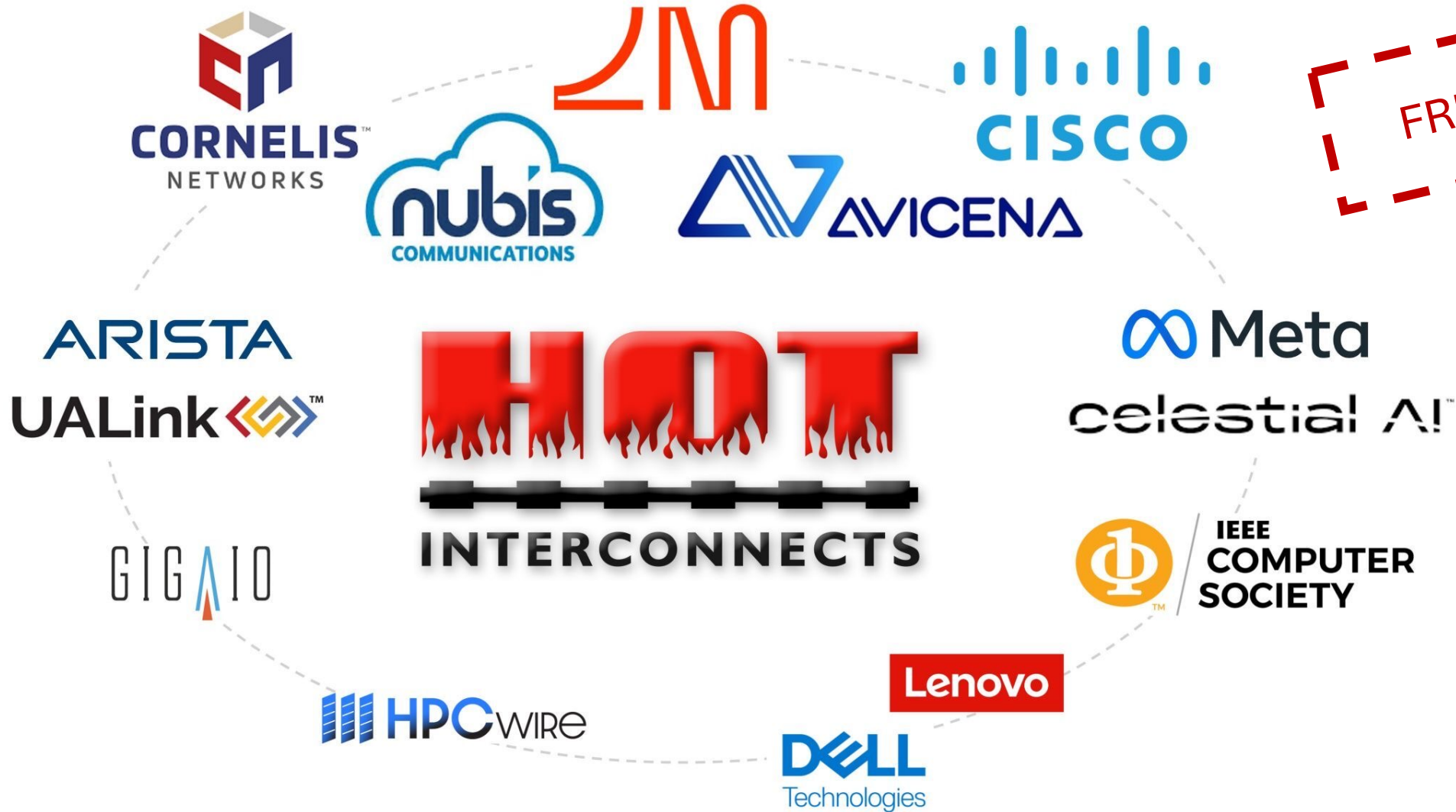
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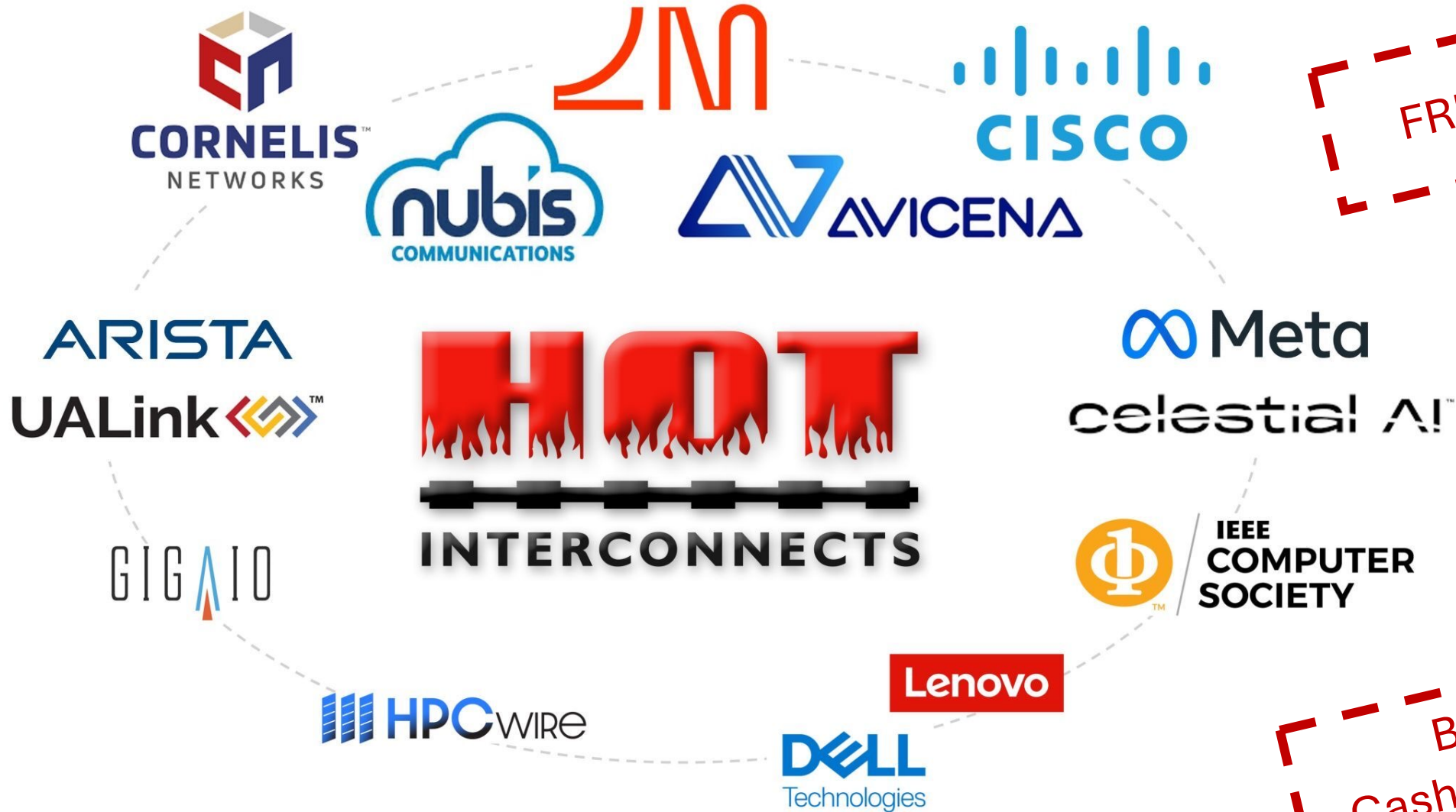
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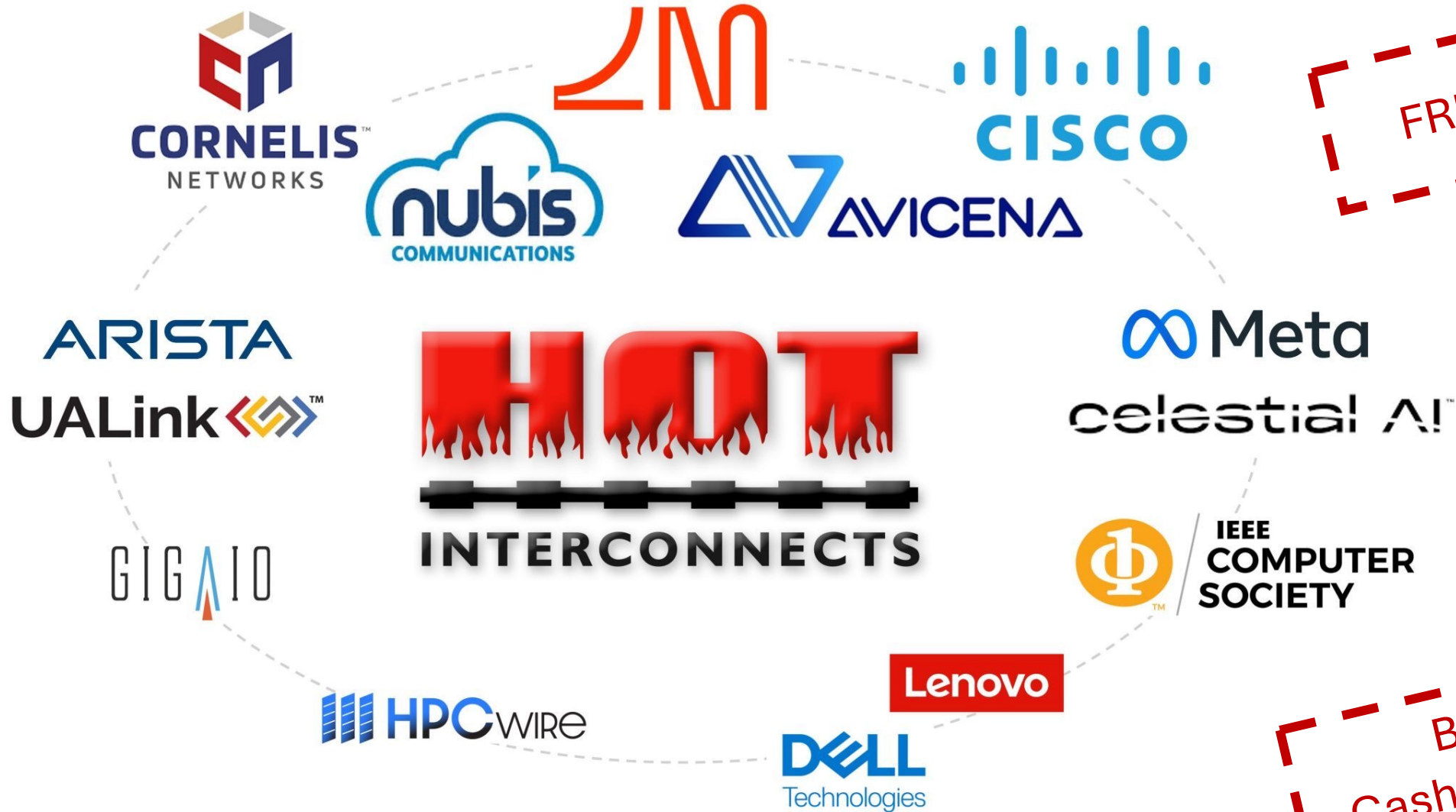
Best Paper
Cash Award - \$1000



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Art
Police

Mayfield
Park

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Cash Award - \$1000



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Attendee Information

Questions and Answers

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day1-09-30-keynote-1-now-in-focus-the-fifth-genai-ep...

day1-10-30-diamond-sponsor-talk-lightmatter-transfor...

day1-10-45-diamond-sponsor-talk-cornelis-reimagining-...

day1-11-00-p1-bittide-control-time-not-flows-2025

day1-11-00-p2-deadlock-free-routing-for-full-mesh-net...



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Keynote speaker



Amin Vahdat

Vice President of ML, Systems, and Cloud AI at Google

**Now in Focus:
the Fifth, GenAI Epoch
of Computing Infrastructure**



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