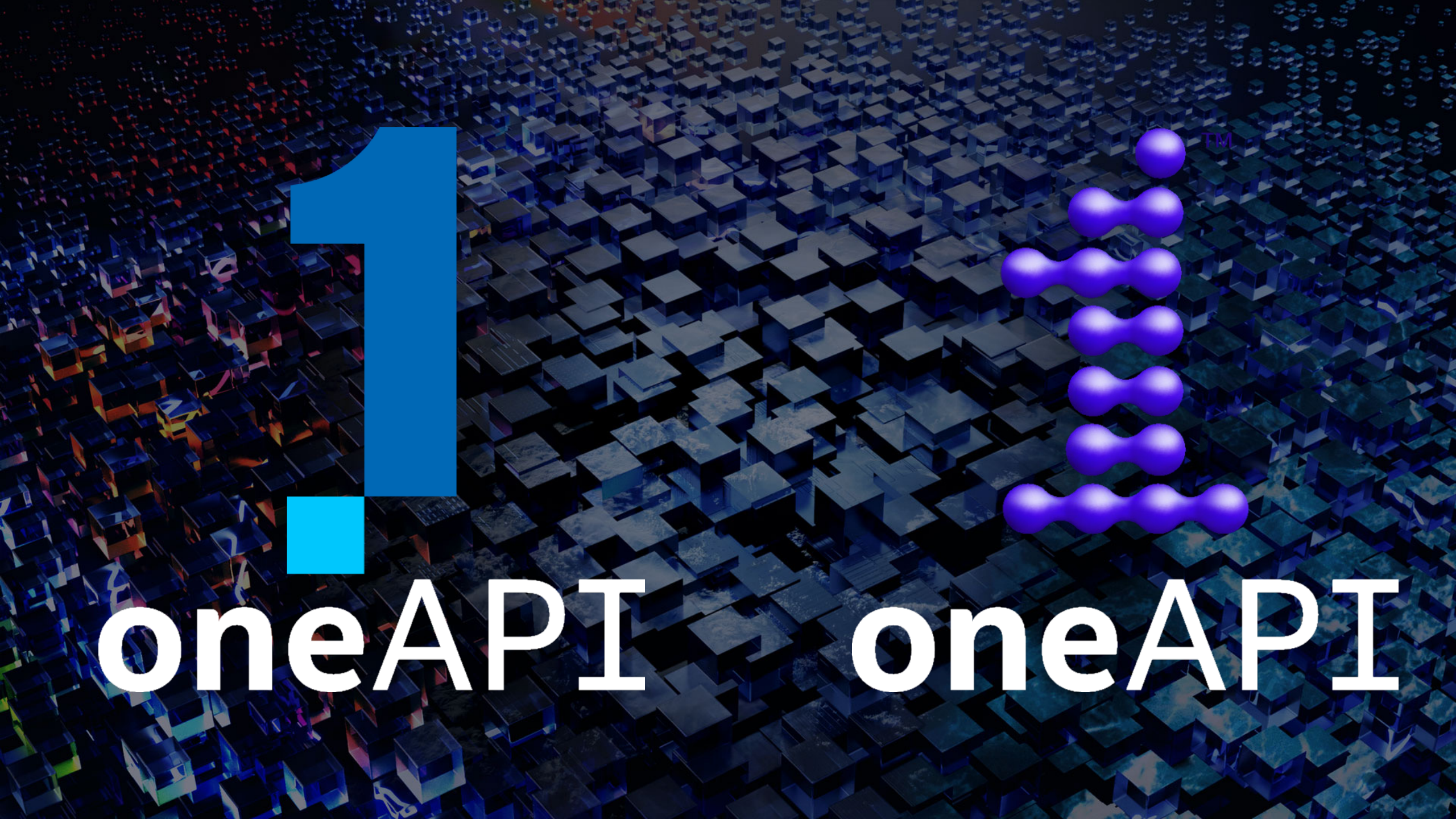
oneAPI: Enabling Consistent and Effective Developer Workflows

Software and Advanced Technology Group
Intel Corporation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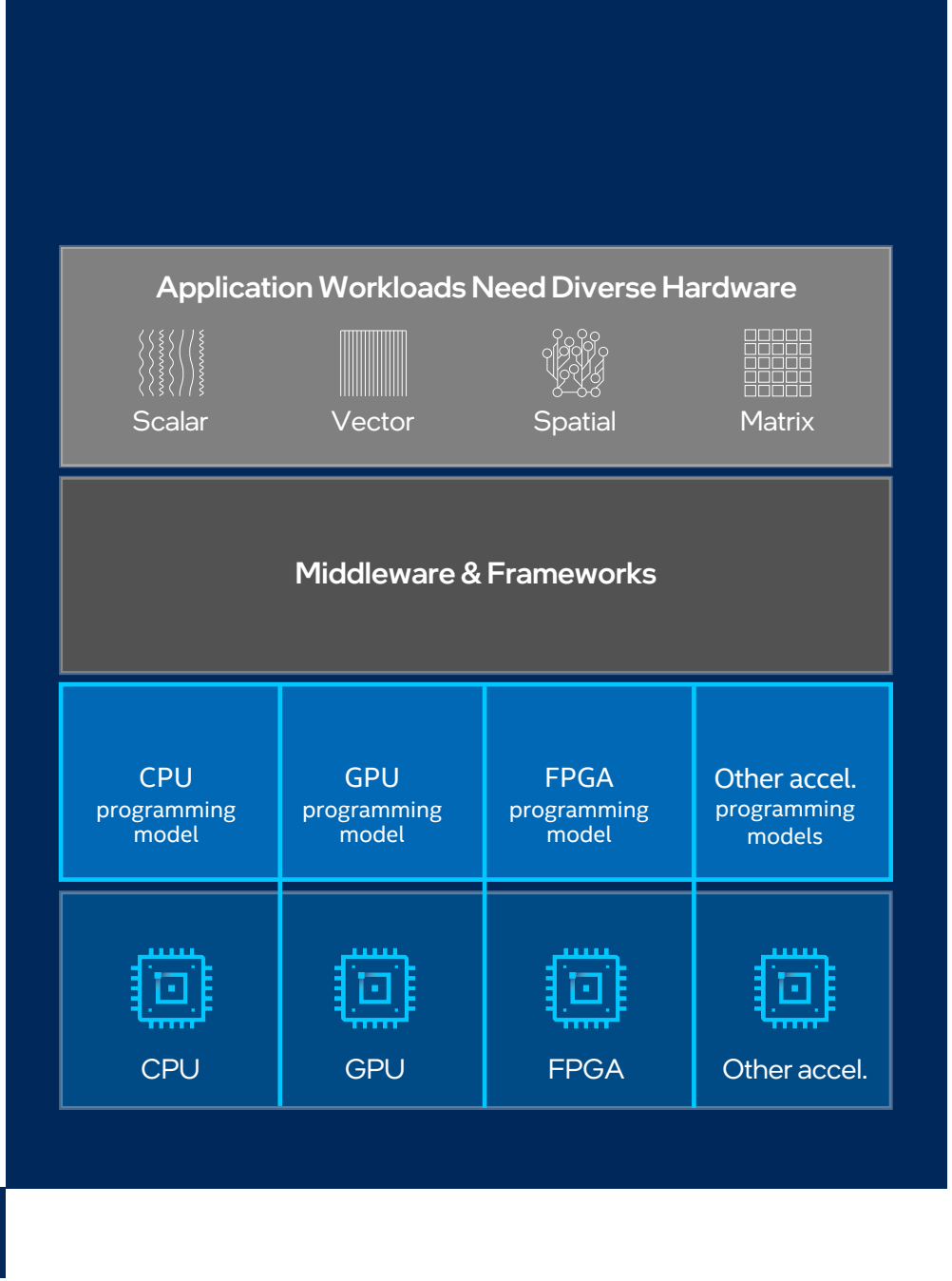
Programming Challenges
for Multiple Architectures

- Growth in specialized workloads
- Variety of data-centric hardware required
- Separate programming models and toolchains for each architecture are required today
- Software development complexity limits freedom of architectural choice



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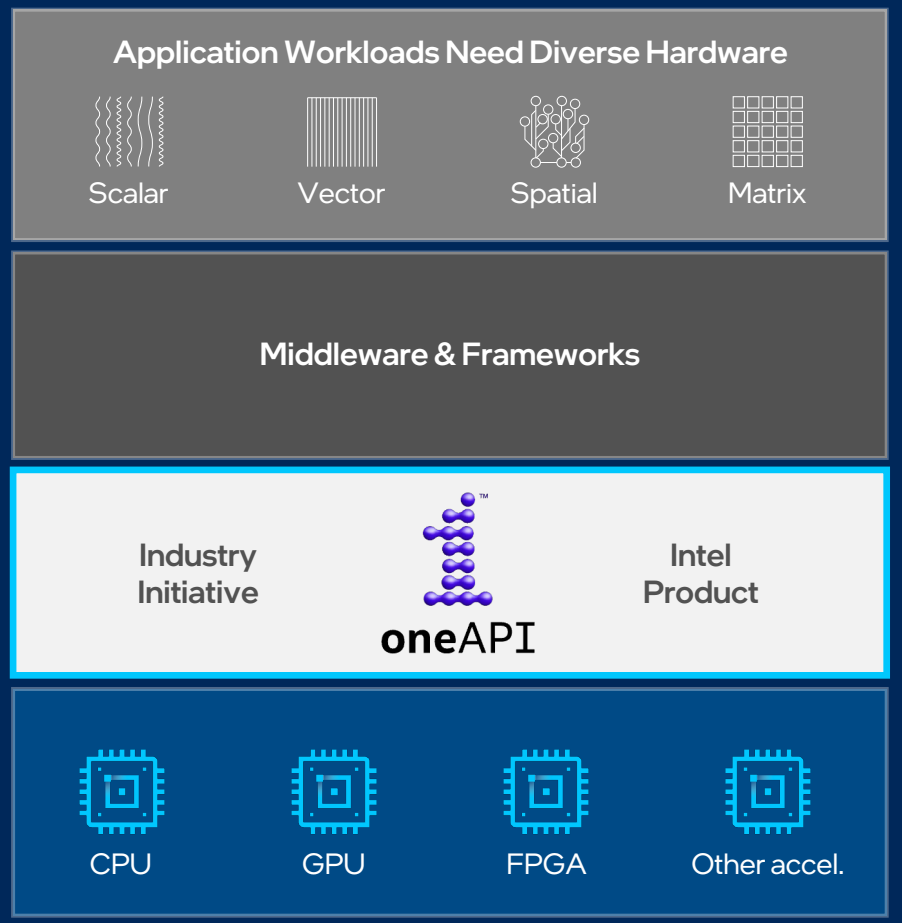
One Programming Model for Multiple Architectures and Vendors

- Freedom to Make Your Best Choice
- Choose the best accelerated technology the software doesn't decide for you
- Realize all the Hardware Value
- Performance across CPU, GPUs, FPGAs, and other accelerators
- Develop & Deploy Software with Peace of Mind
- Open industry standards provide a safe, clear path to the future
- Compatible with existing languages and programming models including C, C++, Python, SYCL, OpenMP, Fortran, and MPI



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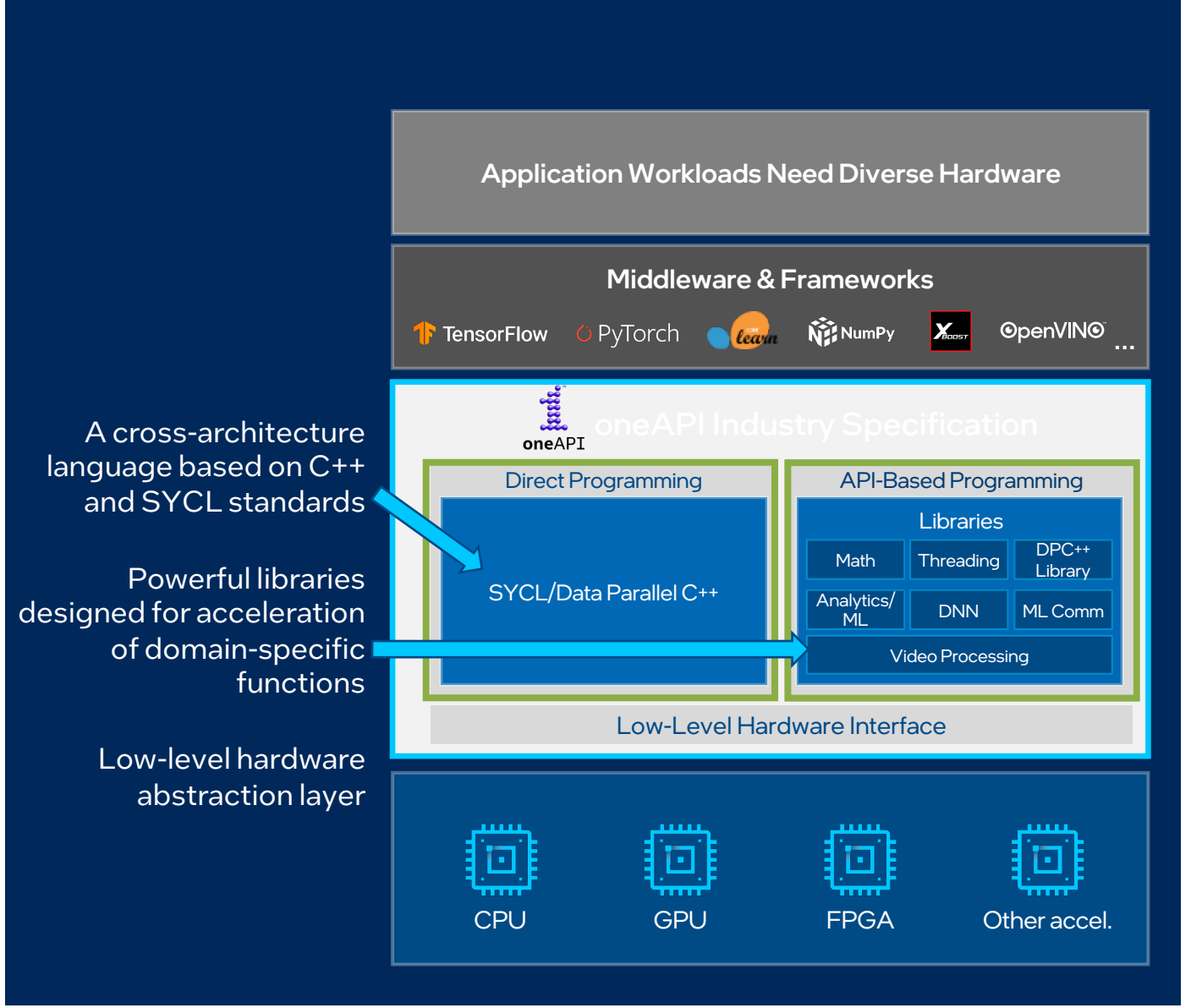
oneAPI Industry Initiative

Break the Chains of Proprietary Lock-in

- Open to promote community and industry collaboration
- Enables code reuse across architectures and vendors



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The productive, smart path to freedom for accelerated computing from the economic and technical burdens of proprietary programming models

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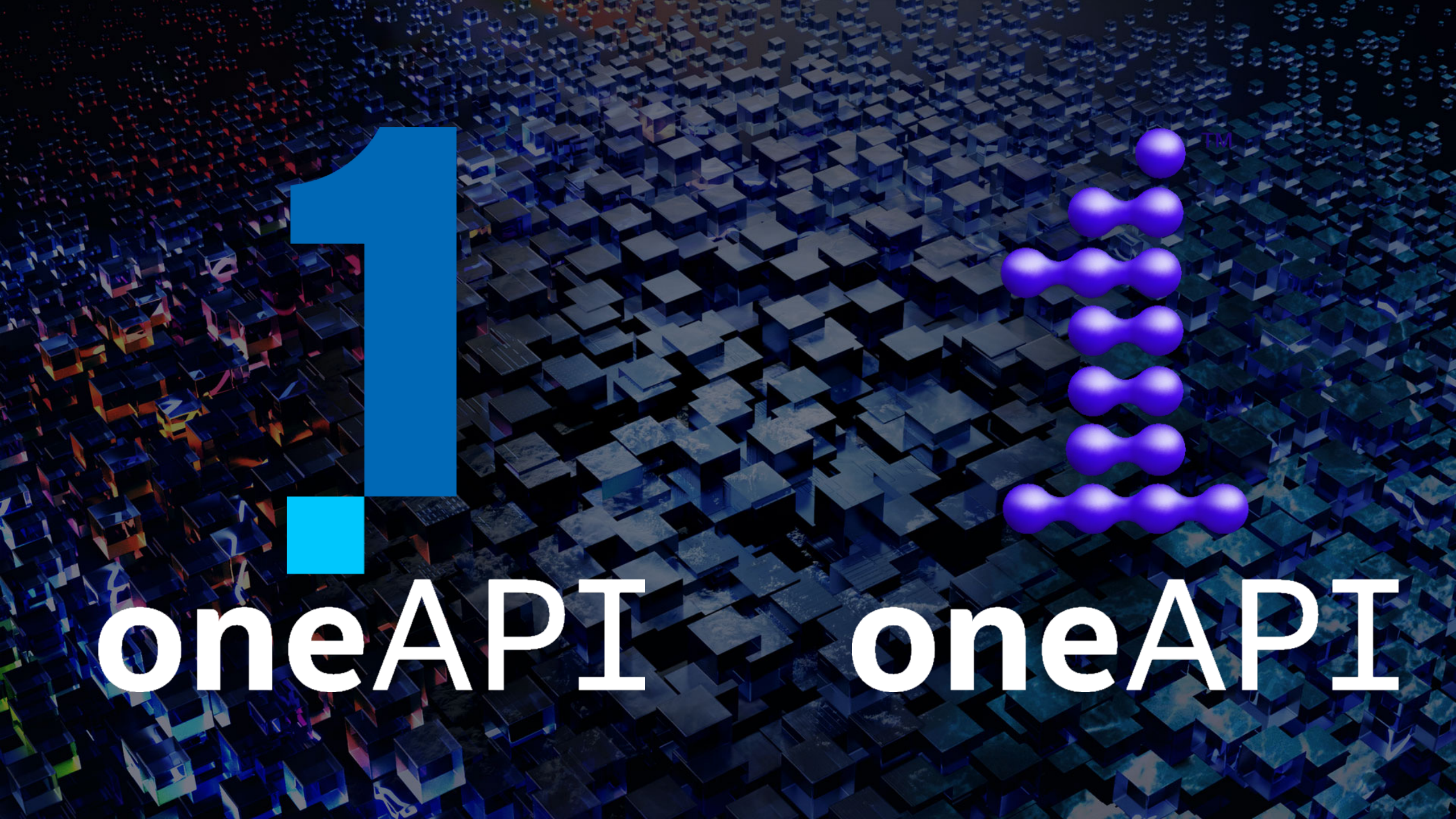
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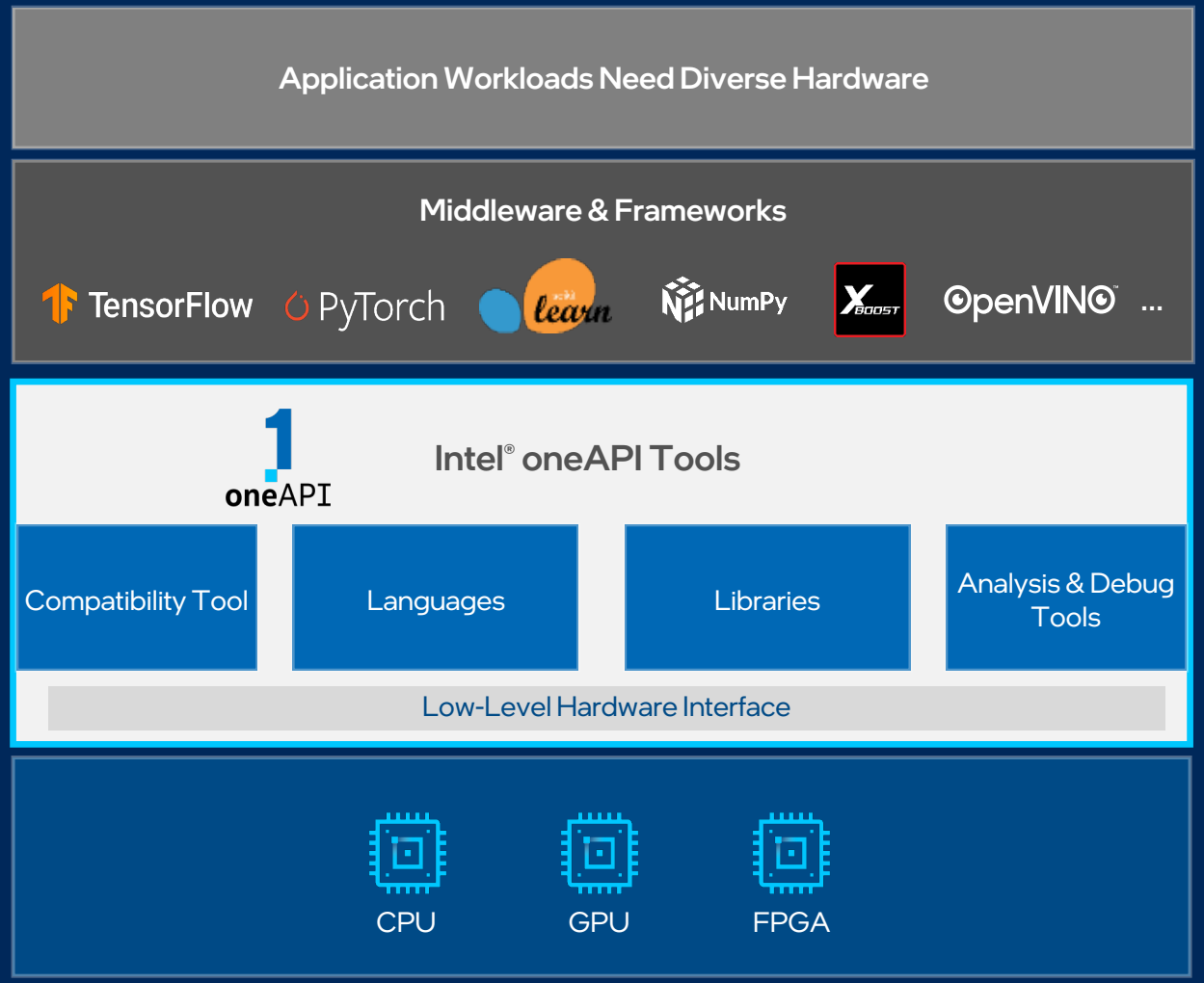
Intel® oneAPI Tools

Built on Intel's Rich Foundation of CPU Tools Expanded to Accelerators

- A complete set of advanced compilers, libraries, and porting, analysis and debugger tools
- Accelerates compute by exploiting cutting-edge hardware features
- Interoperable with existing programming models and code bases (C++, Fortran, Python, OpenMP, etc.), developers can be confident that existing applications work seamlessly with oneAPI
- Eases transitions to new systems and accelerators—using a single code base frees developers to invest more time on innovation



Intel® oneAPI Toolkits

A complete set of proven developer tools expanded from CPU to Accelerators

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Intel® oneAPI **Base** Toolkit

A core set of high-performance libraries and tools for building C++, SYCL and Python applications

Add-on **Domain-specific** Toolkits

Intel® oneAPI Tools for HPC
Deliver fast Fortran, OpenMP & MPI applications that scale

Intel® oneAPI Tools for IoT
Build efficient, reliable solutions that run at network's edge

Intel® oneAPI Rendering Toolkit
Create performant, high-fidelity visualization applications

Toolkits **powered by oneAPI**

Intel® AI Analytics Toolkit
Accelerate machine learning & data science pipelines end-to-end with optimized DL frameworks & high-performing Python libraries

OpenVINO™

Intel® Distribution of OpenVINO™ Toolkit
Deploy high performance inference & applications from edge to cloud

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oneAPI Resources

software.intel.com/oneapi

Get Started

- software.intel.com/oneapi
- Documentation + dev guides
- Code Samples
- Intel® DevCloud

Industry Initiative

- oneAPI.io
- oneAPI open Industry Specification
- Open-source Implementations

Learn

- Training: Webinars & courses
- Intel® DevMesh Innovator Projects
- Summits & Workshops: Live & on-demand virtual workshops, community-led sessions
- Training by certified oneAPI experts worldwide for HPC & AI

Ecosystem

- Community Forums
- Intel® DevMesh Innovator Projects
- Academic Programs: oneAPI Centers of Excellence: research, enabling code, curriculum, teaching

oneAPI Resources

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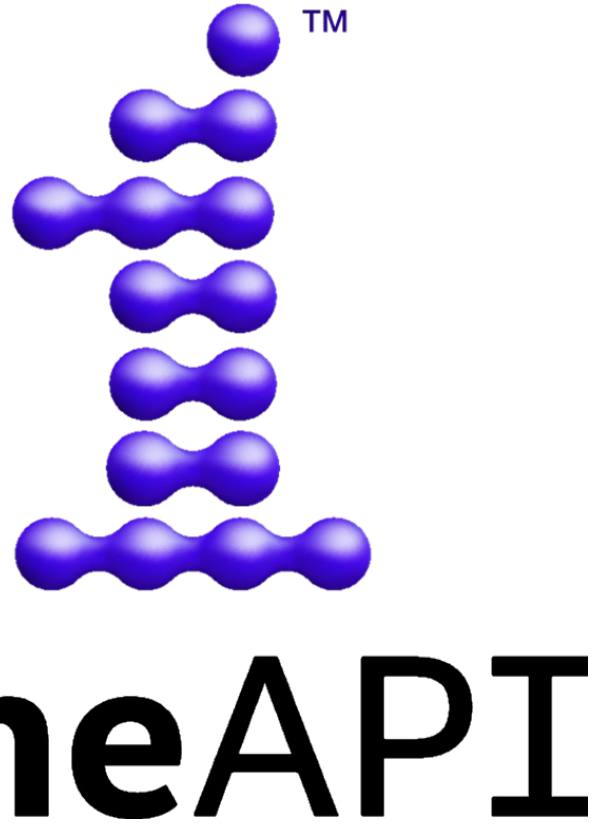


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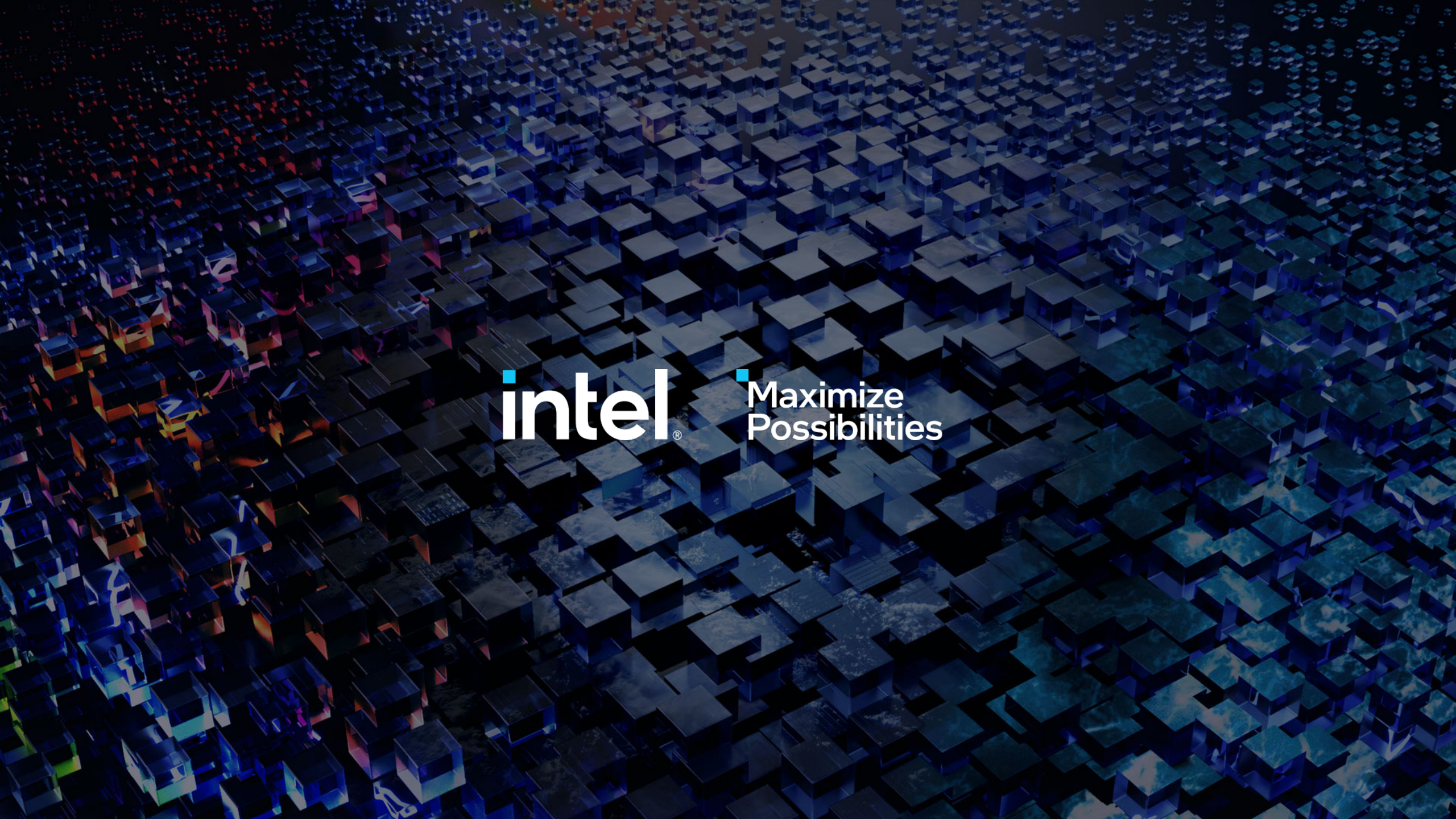
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