

Spack Grows the Commons

Scientific Achievement

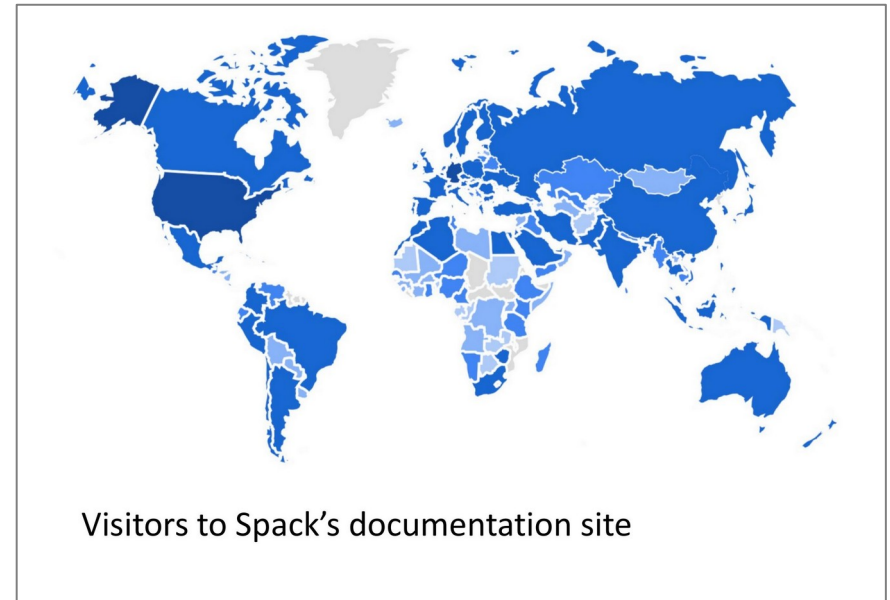
- **Spack 1.2** adds a parallel installer, concretization groups/caching, and SBOM generation
- Concretization caching: 3 solves down to 1; spec resolve time 6.21 s to 1.79 s
- **Contributors: 1,400 to 1,600+; packages: 8,200 to 8,800** across four releases
- Joined the Linux Foundation; set up neutral, community-run governance

Significance and Impact

- Spack underpins DOE's E4S stack, a shared dependency for open computational science
- SBOMs give every research group a standard, auditable record of its software stack
- **One open toolchain serves academia, industry, and government labs alike**

Technical Approach

- Concretization groups let solved spec subsets reuse each other's results
- Cached concretization stores solver output by hash to skip re-solving
- SBOMs follow SPDX 2.3 with NTIA minimum elements for security tooling



Documentation-site visits from nearly every country trace the reach of an open, community-governed package manager: Spack now has over 1,600 contributors spanning academia, industry, and government labs, with research software engineers, developers, and computational scientists all drawing on the same open toolchain.

That global, cross-sector user base is exactly what Spack's 1.2 features are built to serve: faster concretization and SBOMs make the shared stack easier to run and easier to trust at any scale, from a laptop to a leadership-class system.



<https://pesoproject.org>

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Stewarding and advancing the current and future ecosystem of HPC-AI computing software

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ASCR Program: Next-Generation Scientific Software Technologies

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Spack website: <https://spack.io>, <https://github.com/spack/spack>

PESO website: <https://pesoproject.org>