FROM RESEARCH TO INDUSTRY

# SPACK USAGE AT CEA

Marc Pérache

CEA, DAM, DIF, F-91297 Arpajon, France

www.cea.fr

# CONTEXT

## Multiple Software

- Open Source (linear algebra, GCC, LLVM, …)
- Proprietary (compilers, math libraries, …)
- In house libraries (linear algebra, MPI, IO framework, …) and few products (simulation code, visualization tools, …)
- Multiple configuration flags

## Multiple Sites

- Different Linux distributions
- Different configurations (compilers, libraries, MPI, …)
- No shared network between sites

## Needs

- Ability to rebuild a previous version with all the dependencies
- Continuous integration
- Ability to build a test version of a product with beta version dependencies
- Need a validated environment with all the dependencies

# OUR SPACK USAGE (1/2)

## Library development

- A repository of SPACK recipes validated for our products/usages
  - Mainly the standard SPACK recipes
  + specific compilation options
  + our libraries/tools
- Automatic concretization validation for each modification

## Product development

- Rebuild a simulation code with new (or beta) version of libraries prior to the official library distribution
- Easier in advance validation

## Integration with Environment Modules

- Used for site dependent libraries (MPI, …)
- http://modules.sourceforge.net/
- Enriched with user defined products/libraries
- New flexible modulefile dependency management introduced in Modules v4.2

# OUR SPACK USAGE (2/2)

## Software distribution

- Use the ability of SPACK to deal with unconnected networks

## Future work

- Binary distribution
- On demand software distribution
- All CEA software managed by SPACK (system, middleware, products)

Commissariat à l'énergie atomique et aux énergies alternatives
Centre DAM-Île de France – Bruyères Le Châtel
91297 Arpajon Cedex

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