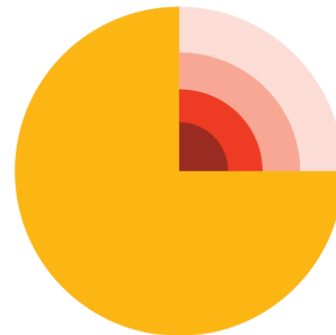


Overview T2.3 wrap-up and next steps

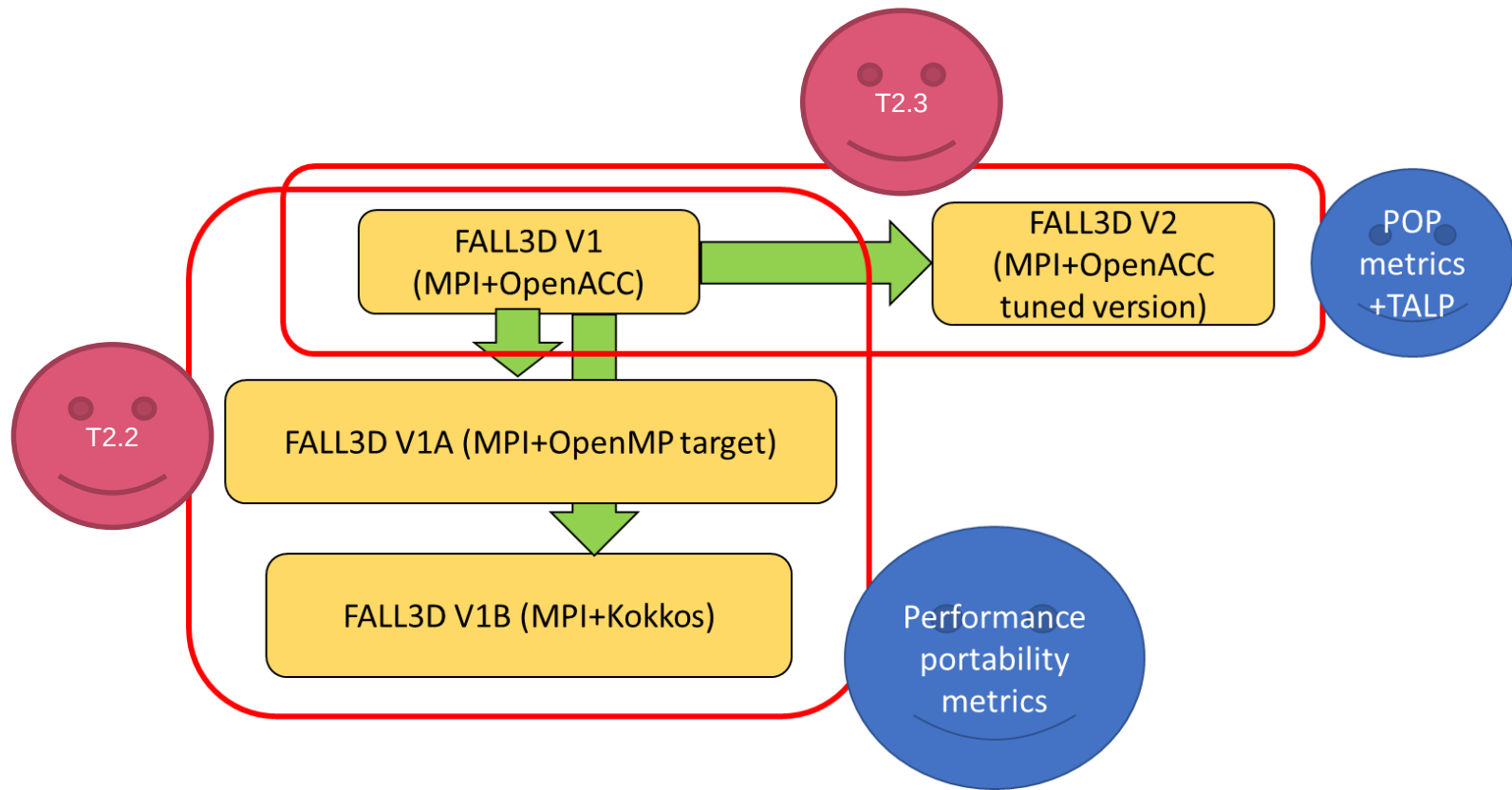
27/04/2023



ChEESE-2P



WP2 Big Picture



EFFORT (PMs)													
CIN	CSIC	BSC	INGV	HLRS	TUM	LMU	UMA	CNRS	IPGP	BULL	CSC	UM	SU
67	12	18	18	18	22	14	12	28	1	14	8	8	7

Milestone No.	Milestone Name	Lead beneficiary	Means of verification	Due date (month)
MS5	Exascale code preparation	CINECA	Improvements in the flagship codes performance metrics after the second code audit round (D2.3)	36



Working plan: the CINECA WP2 team



Piero Lanucara



Giorgio Amati



Luca Ferraro



Alessandro
Masini



Michael Redenti Fabio Di Sante



Nitin Shukla

- Transversal expertise suitable to WP2. In particular:
 - T2.2, T2.3 tasks and WP2 leadership
 - Algorithmic improvements (T2.3)
 - Fortran, C, C++
 - MPI, OpenMP
 - Acceleration support: CUDA, HIP, OpenACC, OpenMP target, SYCL, GPU libraries among the others...



Working plan: the extended team creation (for a given flagship code)

- Extended team creation for driving development and overall WP2 activity. Composed by (TBD):
 - CINECA researchers
 - Main partner (as in [CODES - cheese2](#) link)
 - Others
- The key idea is that CINECA will drive the development in WP2 (differently from ChEESE1). Two CINECA persons in the loop
- 1 key person driving the development from a pure language perspective (e.g. C, C++, Fortran expert)
- 1 key person driving the development process together with the main partner

Codice	Main partner (WP2 contact)	CINECA 1	CINECA 2
FALL3D	Leonardo Mingari (CSIC)	Giorgio Amati	Fabio Di Sante



Working plan: macro-tasks for T2.3

- The key idea for T2.3 is to have a working plan in two steps, driving the overall activity:
 - First step: macro-tasks already expected from the beginning of the project and without taking into account the code-audit outcomes.
 - The work is expected to be realised using the full application. Same target machine/architecture of the code-audit (or at least a proxy)
 - An example:

Task	activity	Project month	Target machine (or proxy)
T2.3	Development #1...	M6	Leonardo
T2.3	Check of the quality of results according to a given test case(s)	M8	Leonardo



Working plan: macro-tasks for T2.3

- The key idea for T2.3 is to have a working plan in two steps, driving the overall activity:
 - Second step: macro-tasks expected from the code-audit outcomes.
 - The work is expected to be realised using the full application. Same target machine/architecture of the code-audit (or at least a proxy)
 - An example:

Task	activity	Project month	Target machine (or proxy)
T2.3	Development #1 from the code audit...	M13	Leonardo
T2.3	Check of the quality of results according to a given test case(s)	M15	Leonardo



Wrap-up and & Next Action items

The first WP2 targets are:

- ➡ ☐ Deliverable 2.1 (M12): First code audit report
- ☐ Milestone MS5 (M36): exascale code preparation

Action items (from the today's discussion)

- ☐ **T2.1**
 - ☐ **Main urgent actions**
 - ☐ Hardware for code-audit
 - ☐ Code-audit time schedule, code-by-code
 - ☐ ...



Wrap-up and & Next Action items

The first WP2 targets are:

- ➡ ☐ Deliverable 2.1 (M12): First code audit report
- ☐ Milestone MS5 (M36): exascale code preparation

Action items (from the today's discussion)

- ☐ **T2.2 & T2.3**
 - ☐ **Main urgent actions**
 - ☐ Workplan (code-by-code)
 - ☐ Extended team assignment (code-by-code)
 - ☐ Mini-apps selection for T2.2 (and WP3)
 - ☐ Hardware for T2.2 and T2.3
 - ☐ Training activities
 - ☐ Per code basis
 - ☐ Transversal topics already in the extended team skills (easy)
 - ☐ Transversal topics not in the extended team skills (not so easy)



No.	Code	Initial Level	Area	Lead
1	SeisSol	1	Computational seismology Tsunami modeling	LMU
2	SPECFEM3D	1	Computational seismology	CNRS
3	ExaHyPE	2	Computational seismology Tsunami modeling	TUM
4	Tandem	2	Computational seismology	LMU
5	xSHELLS	1	Magnetohydrodynamics	CNRS
6	HySEA	2	Tsunami modeling	UMA
7	FALL3D	2	Volcanology	CSIC
8	OpenPDAC	2	Volcanology	INGV
9	LaMEM	1	Geodynamics	UM
10	pTatin3D	1	Geodynamics	SU
11	ELMER/ICE	2	Glacier hazards	CSC