



OAI UE Project 1B Achievements

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OAI 1B OBJECTIVES

- Project 1B = Basic UE LTE Rel9-10 Functionalities
- Enable the community to use the UE in e2e projects
- Necessary steps:
 - Stability and minimum R8 / R10 features completion
- Targetting:
 - Interoperability with commercial NW in SISO mode : FDD/TDD, 5/10/20 Mhz
 - MIMO support : MIMO DL 2x2
 - Carrier Aggregation : CA DL only, 2 CCs
 - TDD : at least 2 configurations, SISO, MIMO, CA

OAI 1B CONSTRUCTION KEY DATES

- 2016 May 17-18: Eurecom OAI Workshop
 - Presentation of UE required features and call for contributors
- 2016 May 30-31: TCL 5G Workshop Shanghai
 - Internal Roadmap and Ressource Estimation
- 2016 July 12 : Official Project 1B Kick-Off to the community
 - Project Management Commitee (PMC) constitution
 - Feature roadmap proposal
 - Test and Integration Process proposal
 - July 20 : First OAI 1B periodic dev meeting
- 2016 Oct 16 : Project Management Commitee
 - New Feature roadmap to adapt to current needs and ressources
 - Interoperability test targets

OAI UE ACHIEVEMENT SUMMARY

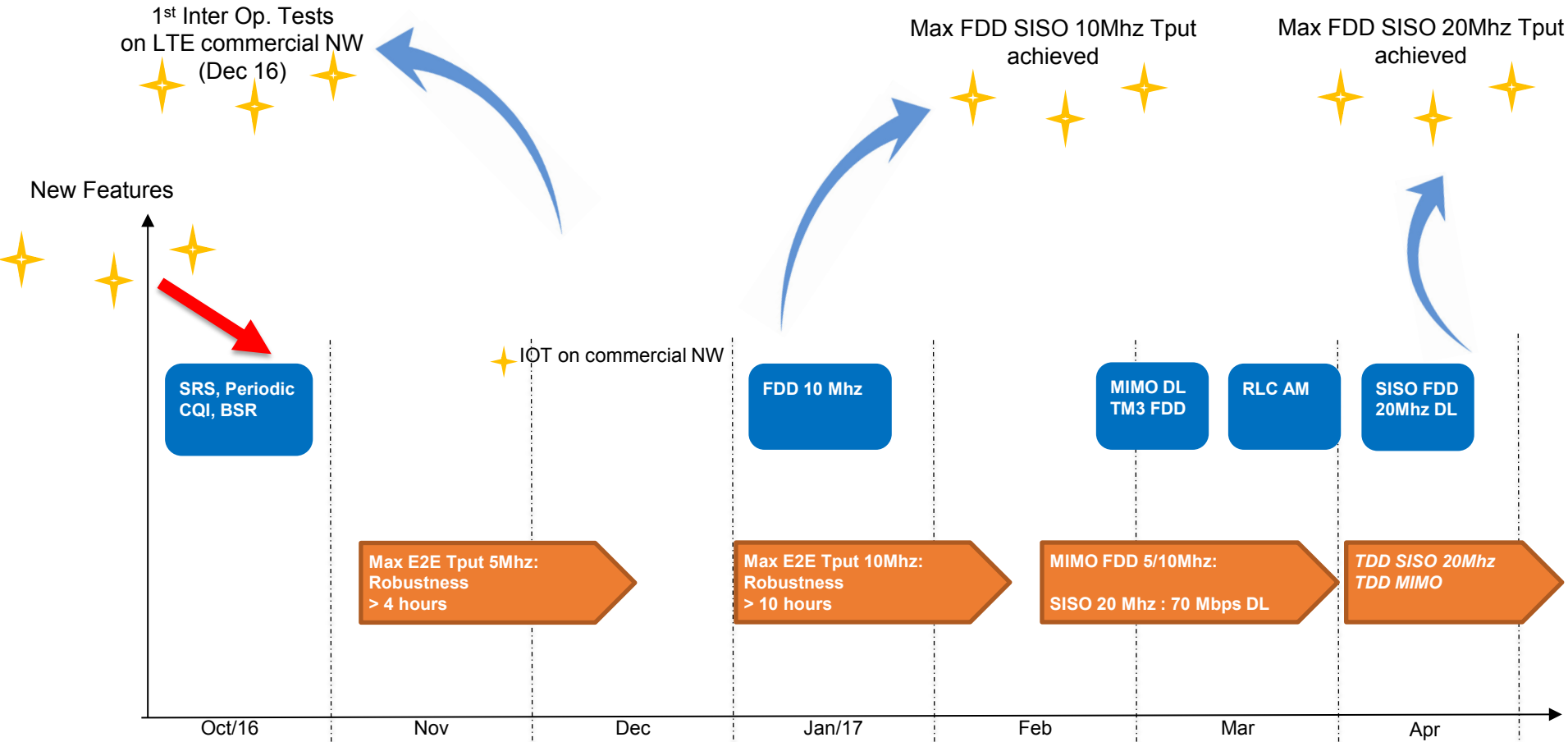
- Better Performances (status on 2017 week16)

KPI (GPP 4 cores + SDR USRP B210)	SISO BW						MIMO 2x2 BW			
	5		10		20		5		10	
	FDD	TDD	FDD	TDD	FDD	TDD	FDD	TDD	FDD	TDD
DL Tput E2E (Mbit/s)	16	6.4 *	35	14	70	NA	30	NA	30	NA
UL Tput E2E (Mbit/s)	9	3.6	18	5	18	NA	NA	NA	NA	NA
Robustness (hours)	10	4	10	4	1	NA	10	NA	10	NA

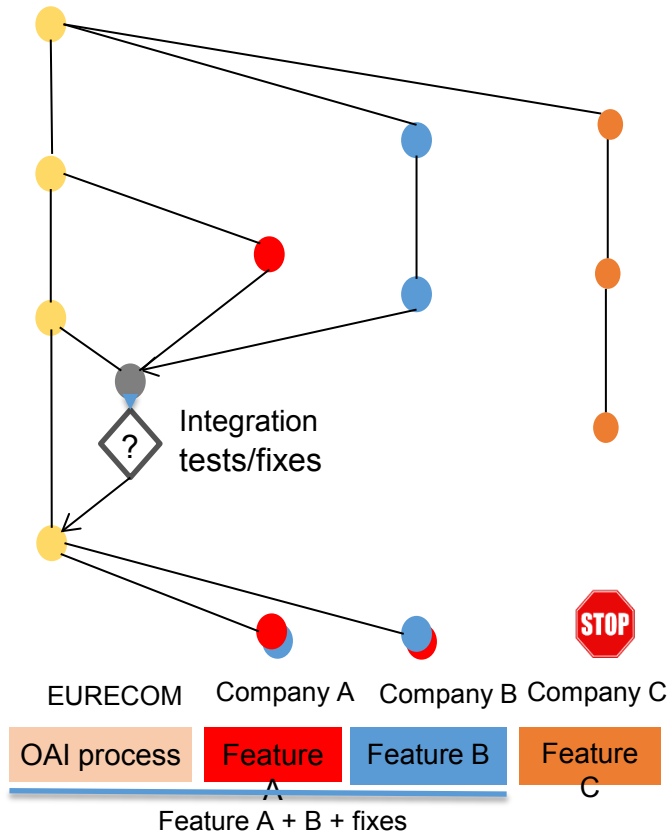
* TDD lower performances: aligning features, performances and stability on FDD is now on track

- New Features put to OAI UE : 10 & 20 MHz support, SRS, Periodic CQI, MAC BSR, MIMO, TDD configuration 1 & 3, DRB RLC AM
- Stability and minimum R8 / R10 features completion
- Interoperability with third-party eNB/EPC : R&S CMW500, Sunada eNB, Amarisoft ENB, Ericsson EPC+ENB live test NW
- Testing coverage extension : Automatic Tests UE
- Contribution to OAI SW quality and process integration improvement:
 - Set up new integration process & workflow
 - Project tracking
 - Documentation (UE Tutorials)
- More users of OAI UE within the OAI community !

OAI UE ACHIEVEMENTS



BENEFITS TO CONTRIBUTE TO OAI CODEBASE



- Companies *A* & *B* contribute their changes to the main development branch, they benefit from :
 - continuous integration tests
 - community bug-fixes
 - new community features
- Company *C* makes changes to private branch
 - no test & bug fix benefit
 - Unable to use new features
 => **dead end**

Commits since Jan 1st 2017 (3 months) : 897

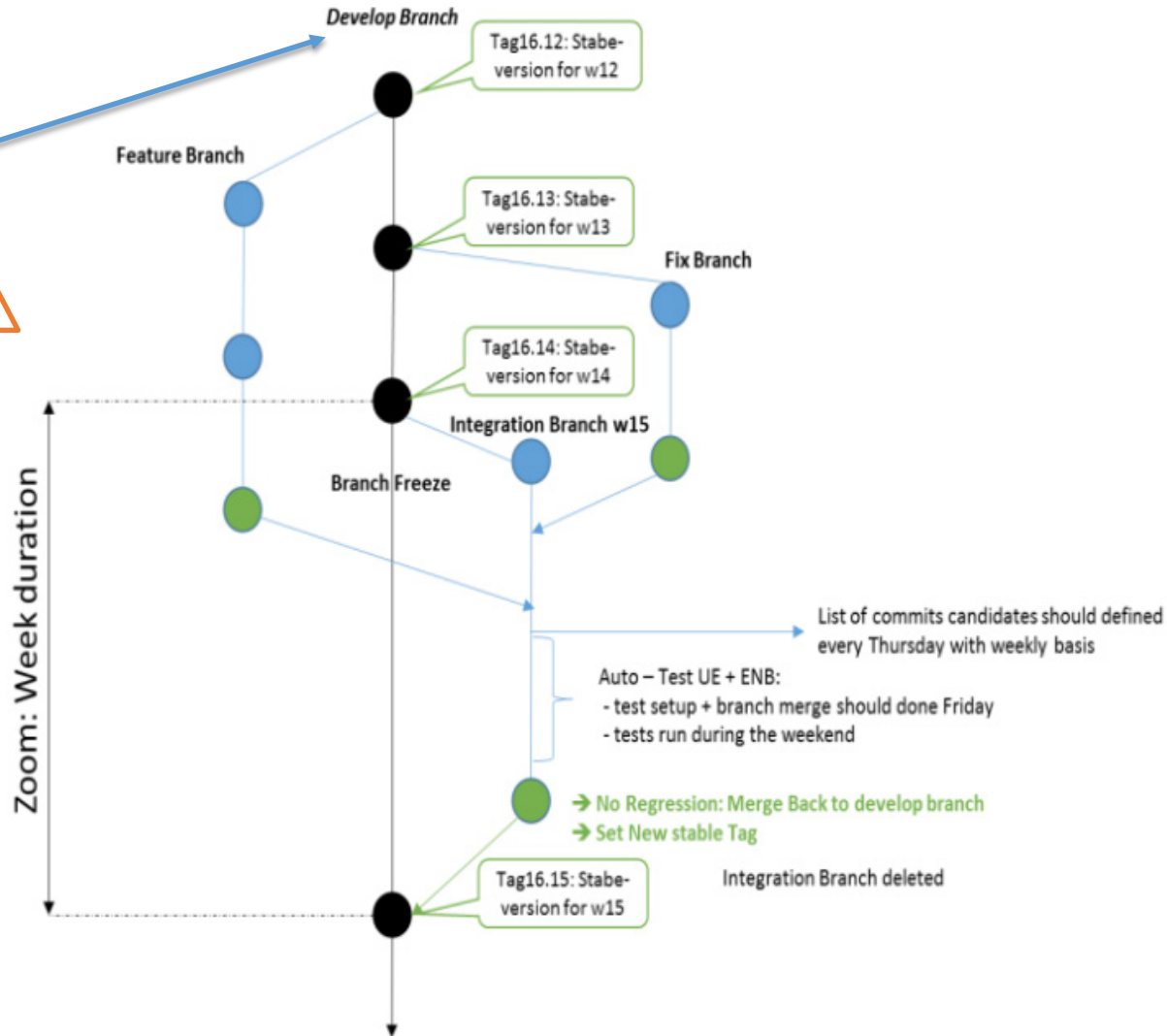
New & planned features: SRS, TM3, Paging, AM mode, 10MHz, 20MHz, NB-IoT, LAA, etc...

Open Source benefits start with contributions to the code base

OAI eNB / OAI UE WORKFLOW

- <https://gitlab.eurecom.fr/oai/openairinterface5g/wikis/GitLabWorkFlow>

!! Use develop instead of master !!!



CONCLUSIONS

- OAI UE is now fully mature and interoperable
 - Interoperable with test equipment and commercial eNodeB
 - Performances at theoretical limits
 - Stable up to 10h

- Framework for efficiently adding bugfixes or new features
 - OAI eNB/UE Workflow : easy and clean process
 - Minimum test coverage available

- → Ready for e2e projects & 5G !!!

谢谢

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