



PP VERSUS2

Extension and Test phases outcome Maintenance plan and Future of VERSUS software

Roberto Bove
C.O.Met.





Versus2 PP extension: COSMO year 2015-16

Tasks list of the VERSUS extension phase:

Task 0 Help Desk, User Support

Task 1 Implementation of VERSUS functionalities to ingest GRIB2

Task 2 Refinements of functionalities in VERSUS





Task 0: Help Desk, User Support

Help Desk PL TEAM and RHM collaboration

Documentation updates

Technical Manual is on line

User Manual collected from the HNMS

New VERSUS releases

Two official versions: December VERSUS 5.0 and July 5.1

Further information

Two orders of problems were found in 5.0 and solved in 5.1

- loading multistep files

- verifications of total cloud cover



Task 1: Implementation of VERSUS functionalities to ingest GRIB2

Creation New FE in VERSUS

Update VERSUS Code,
GUI Update;
Plots adaptation.

Connection with existing Tables GRIB1

Code and GUI adjustment

Test phase

Test performed by DWD and NMA, completed by NMA in December



Task 2: Refinements of functionalities in VERSUS

Main activities:

Task 2a

EPS accuracy of the scores

Task 2b

Implementation XML ingestion test phase

Task 2c

Report of loading performance

Task 2d

Test on all system functionalities (VERSUS AND VAST)



Task 2a: Refinements of functionalities in **VERSUS**

Accuracy of EPS scores

In collaboration of ARPA-SIMC EPS scores were tested with good results about all scores except for RPSS

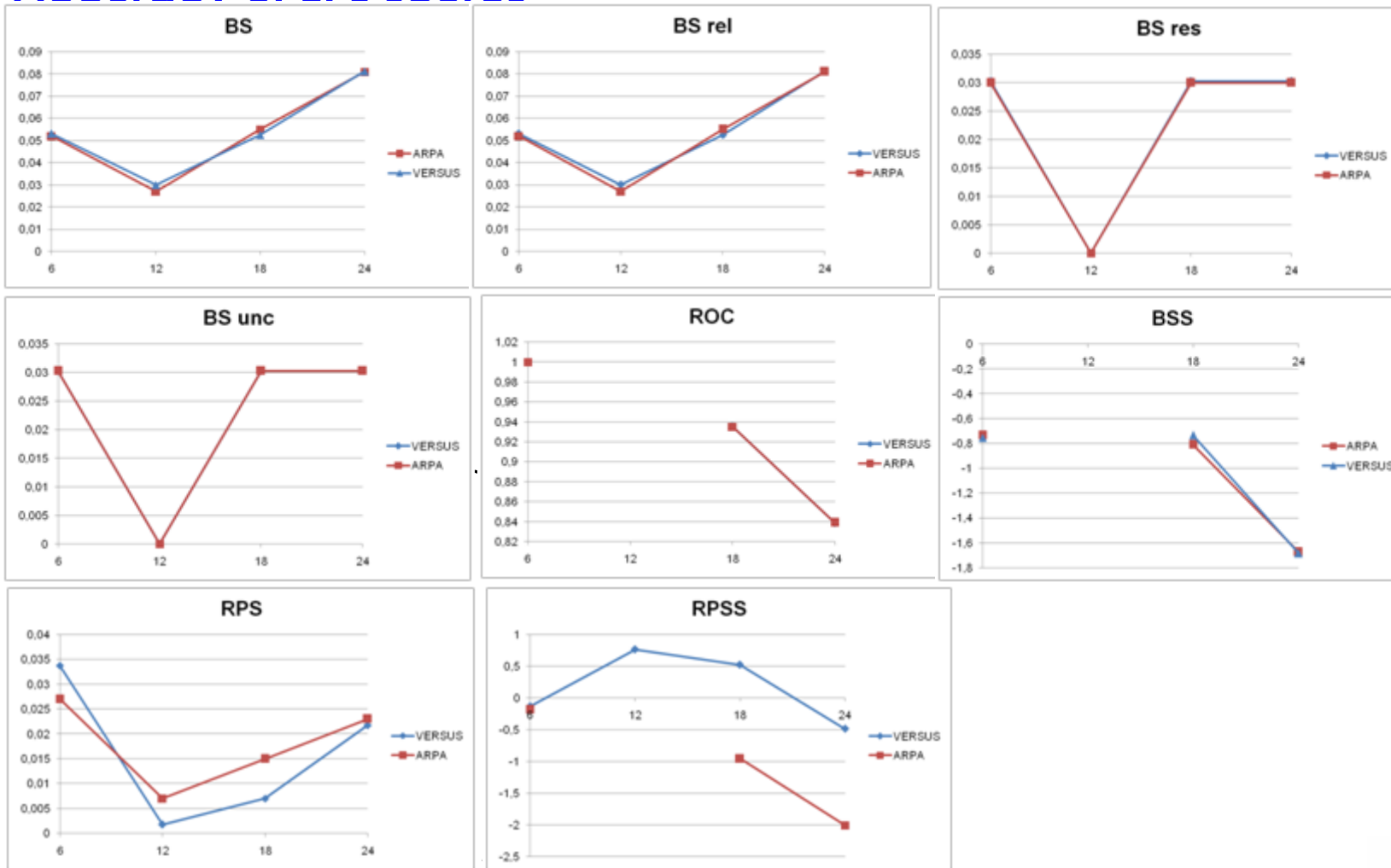
Scores	BRIER, BRIER-CI.high, BRIER-CI.low, BRIER.reliability, BRIER.reliability.CI.high, BRIER.reliability.CI.low, BRIER.resolution, BRIER.resolution.CI.high, BRIER.resolution.CI.low, BRIER.SKILL, BRIER.SKILL.CI.high, BRIER.SKILL.CI.low, BRIER.uncertain, BRIER.uncertain.CI.high, BRIER.uncertain.CI.low, CRPS, CRPS-CI.high, CRPS-CI.low, CRPSS, ROC area, RPS, RPS-CI.high, RPS-CI.low, RPSS, RPSS-CI.high, RPSS-CI.low, RPS.dim, RPS.dim-CI.high, RPS.dim-CI.low, ERROR, SPREAD, OUTLIERS
Diagrams	ROC, Reliability, Cost-Loss, Rank

Different behaviour in the R-function “brier (Obs, Prob, bins = FALSE or TRUE)”



Task 2a: Refinements of functionalities in VERSUS

Accuracy of EPS scores





Task 2b: Refinements of functionalities in **VERSUS**

XML ingestion test phase

An adjustment to load the XML file has been described in the document report

A screenshot of the Versus GUI interface. The background is a dark blue textured surface. A central white panel displays the following content:

- A list of station names: SCUOL, BERN / BOLLWERK, CHAUMONT / BOSSET, DAVOS / SEEHORNWALD, DUEBENDORF / GIESSEN, HAERKINGEN, LAEGEREN / ZINDELEN, LAUSANNE, RIGI / SEEBODENALP, ZUERICH.
- A section titled 'Parameter: TEMPERATURE AT 2M' containing a table with three columns: 'Count', 'Data Validity', and 'BUFR CODE'. The table has three rows of data.
- Below the table are four buttons: 'Delete', 'Download Text', 'Download Excel', and 'Back'.
- Text below the buttons: 'Time spent in second =1'.
- Footer text: 'Servizio meteorologico dell'Aeronautica Militare - All rights reserved' and 'Versus GUI is optimized for 1280x1024 resolution and works best with Internet Explorer 7.0 and Mozilla Firefox 3.0 and up.'



Task 2c: Refinements of functionalities in VERSUS

PERFORMANCE - LOADING TEST

NUMBER OF GRIB FILES: 1472

INTERPOLATION METHOD: NEAREST POINT DISTANCE (number 5 in Versus)

CONTENT OF 1 GRIB FILE : 22 Grib messages (6 hours precipitation from 6h to 132h step 6 hrs)

Report of loading phase ARPA ER

AVERAGE TIME FOR 1 GRIB 1.57 minutes

TOTAL TIME FOR 1472 GRIB FILES: 49.11 hours

Report of loading phase C.O.MET

AVERAGE TIME FOR 1 GRIB 20 seconds

TOTAL TIME FOR 1472 GRIB FILES: 07.30hours



Task 2c: Refinements of functionalities in VERSUS

		EPS Diagrams	ROC, Reliability, Cost-Loss, Rank
Criteria Type	Surface	Scores	BRIER BRIER-reliability BRIER-resolution BRIER-SKILL BRIER-uncer CRPS CRPSS ERROR Outliers ROC area RPS RPS.dim RPSS SPREAD
Dichotomic	No		
Run	12		
Frequency	Seasonal		
Period Based	Forecast		
Steps	START: 6 END: 132 INTERVAL: 6		
Stratification	EPS_35_-10_58_30		
Geographical Distribution	No		
OBS			
Parameter	TOTAL PRECIPITATION - KG/M*	Members	
Suspect Value	..		
FCS			
Model			
Grid			
Method			
		01) Nearest point 3D optimized Algorithm: id_order=1	



Task 2c: Refinements of functionalities in **VERSUS**

PERFORMANCE – TIME EXECUTION TEST

Report of execution phase ARPA SIMC

- Problem with myconnect limit
- Problem with memory size exhausted

The Test was performed with version 4.2 and 5.0 increasing the memory_limit 2GB to 4GB with success for monthly verification but **no success for seasonal verification**

Log and configuration missing



Task 2c: Refinements of functionalities in **VERSUS**

COMET physical machine:

	memory	processor	
VERSUS-BLADE	262144mb	4 amd opteron™ 6234 (12 cores)	Size Mounted on 133G / 127G /dev 127G /dev/shm 296G /var/lib/mysql 493G /versus

MACHINE FEATURES:

RAM 256 G - **48 processors** with cpu MHz: 2400

OS: opensuse openSUSE 11, Kernel: x86_64 Linux 3.0.76-0.11-default

The results of verification executed was provided in the log file
homelog_eps_score.txt_2016-15-Mar_159_20140301-20140531



Task 2c: Refinements of functionalities in **VERSUS**

PERFORMANCE – TIME EXECUTION TEST

Report of execution phase C.O.MET

Test 1

Memory_limit =3G

Innodb_buffer_pool_size=32G

48 core 100 R processes in parallel

Time of execution: 420 seconds

Test 2

Memory_limit =2G

Innodb_buffer_pool_size=2G

48 core 100 R processes in parallel

Time of execution: 430 seconds

Test 3

Memory_limit =2G

Innodb_buffer_pool_size=2G

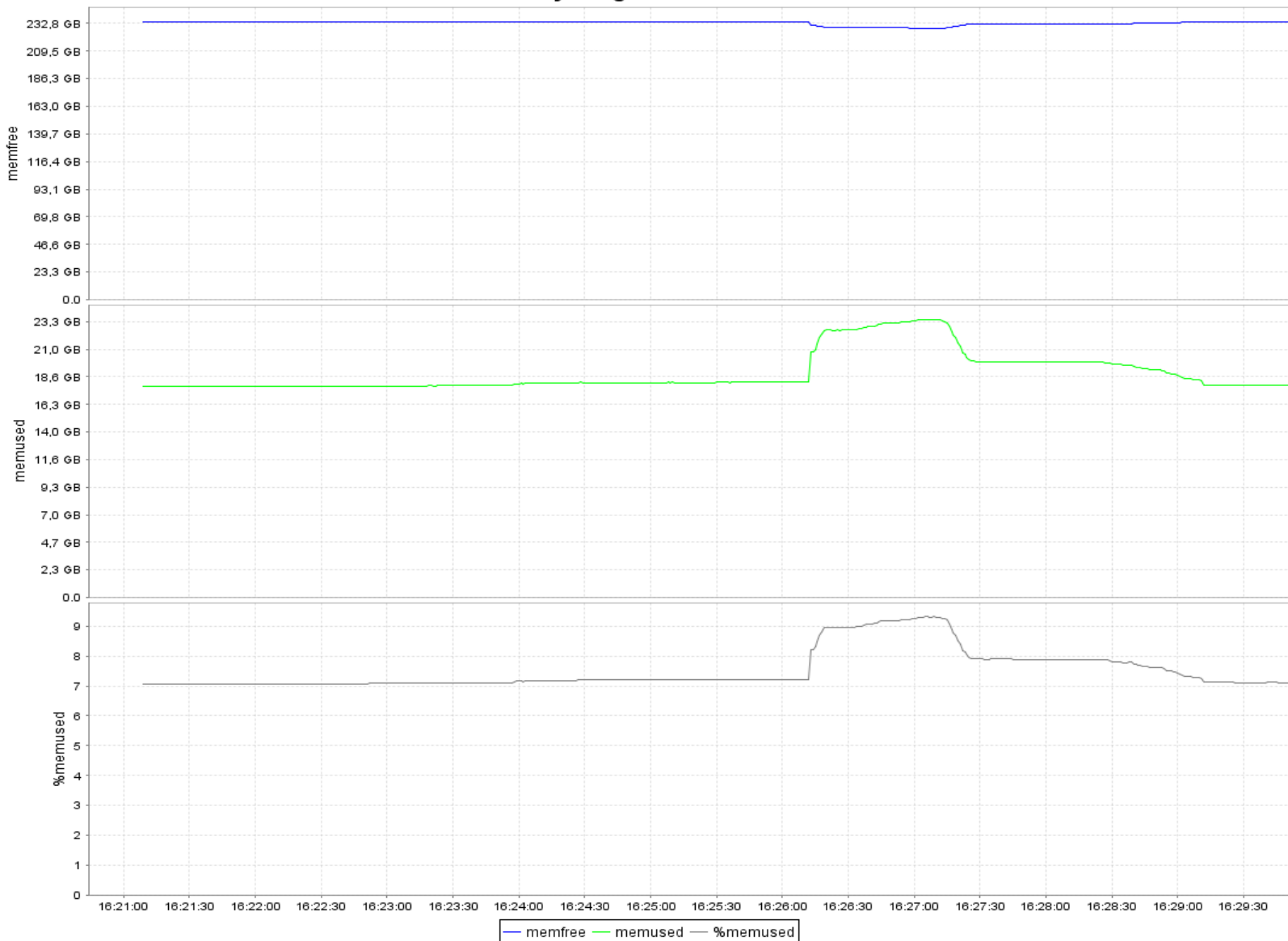
48 core 4 R processes in parallel (...escapeshellarg(4))

Time of execution: 1200 seconds



Task 2c: Refinements of functionalities in VERSUS

Memory Usage for versus-blade





Task 2c: Refinements of functionalities in VERSUS

Criteria: Test_MAM-Seasonal_132h

Index: BRIER (ID: 29)

Frequency: Seasonal - From: 2014-03-01 To: 2014-05-31

Step	Index Value	Number Value	Start Threshold	End Threshold
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From: 2014-03-01 To: 2014-05-31

6	0.063703	4073	1	9999
6	0.0120654	4073	10	9999
6	0.00530874	4073	20	9999
6	0.00370795	4073	25	9999
12	0.0519351	3328	1	9999
12	0.00974159	3328	10	9999
12	0.0039363	3328	20	9999
12	0.00314303	3328	25	9999
18	0.0505506	3242	1	9999
18	0.00964991	3242	10	9999
18	0.00436305	3242	20	9999
18	0.00423967	3242	25	9999
24	0.0594713	4213	1	9999
24	0.00752255	4213	10	9999
24	0.00397638	4213	20	9999
24	0.00333076	4213	25	9999
30	0.0589814	4013	1	9999
30	0.0123679	4013	10	9999
30	0.00540556	4013	20	9999
30	0.00385061	4013	25	9999
36	0.0586499	3309	1	9999
36	0.0102486	3309	10	9999
36	0.00393246	3309	20	9999
36	0.00325552	3309	25	9999
42	0.0504839	3224	1	9999
42	0.0101737	3224	10	9999
42	0.00435484	3224	20	9999

126	0.0244925	3772	[-9999, 1] [1, 10] [10, 20] [20, 25] [25, 9999]
132	0.0209502	3128	[-9999, 1] [1, 10] [10, 20] [20, 25] [25, 9999]

Index: RPSS (ID: 35)

Frequency: Seasonal - From: 2014-03-01 To: 2014-05-31

Step	Index Value	Number Value	List Thresholds
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From: 2014-03-01 To: 2014-05-31

6	0.1818	4073	[-9999, 1] [1, 10] [10, 20] [20, 25] [25, 9999]
12	0.143356	3328	[-9999, 1] [1, 10] [10, 20] [20, 25] [25, 9999]
18	0.150887	3242	[-9999, 1] [1, 10] [10, 20] [20, 25] [25, 9999]
24	0.124123	4213	[-9999, 1] [1, 10] [10, 20] [20, 25] [25, 9999]
30	0.215756	4013	[-9999, 1] [1, 10] [10, 20] [20, 25] [25, 9999]
36	0.0323442	3309	[-9999, 1] [1, 10] [10, 20] [20, 25] [25, 9999]





Task 2d: Refinements of functionalities in **VERSUS**

Report on feedback for **VERSUS**

Test on major system functionalities

In this test participated RHM, HNMS, NMA, IMGW

Most of important bugs have been fixed

Minor bugs will be faced during the long term maintenance

Bach execution of cross correlations have been solved in August!

An updated version of VERSUS 5.1 is on ftp server



Long term maintenance in VERSUS

The Long-Term Maintenance services are planned to be assured by C.O.Met (the new Operational Meteorological Center Of the Italian Air Force) for 2016/2017 COSMO year , conditionally to the available resources

The Source Code Administrator for VERSUS is appointed from C.O.Met staff as a focal point
(Antonio Vocino)

The SCA reserves the right to define the time/modus operandi of the support activity.



Long term maintenance in *VERSUS*

For the concept of "Maintenance Service" it is to be intended:

1. Bug fixing and related patch release (*Communication of bugs will be reported by email to be defined*);
2. minor adjustments of the software with prioritization under SCA responsibility;
3. Any further maintenance activity according to SCA



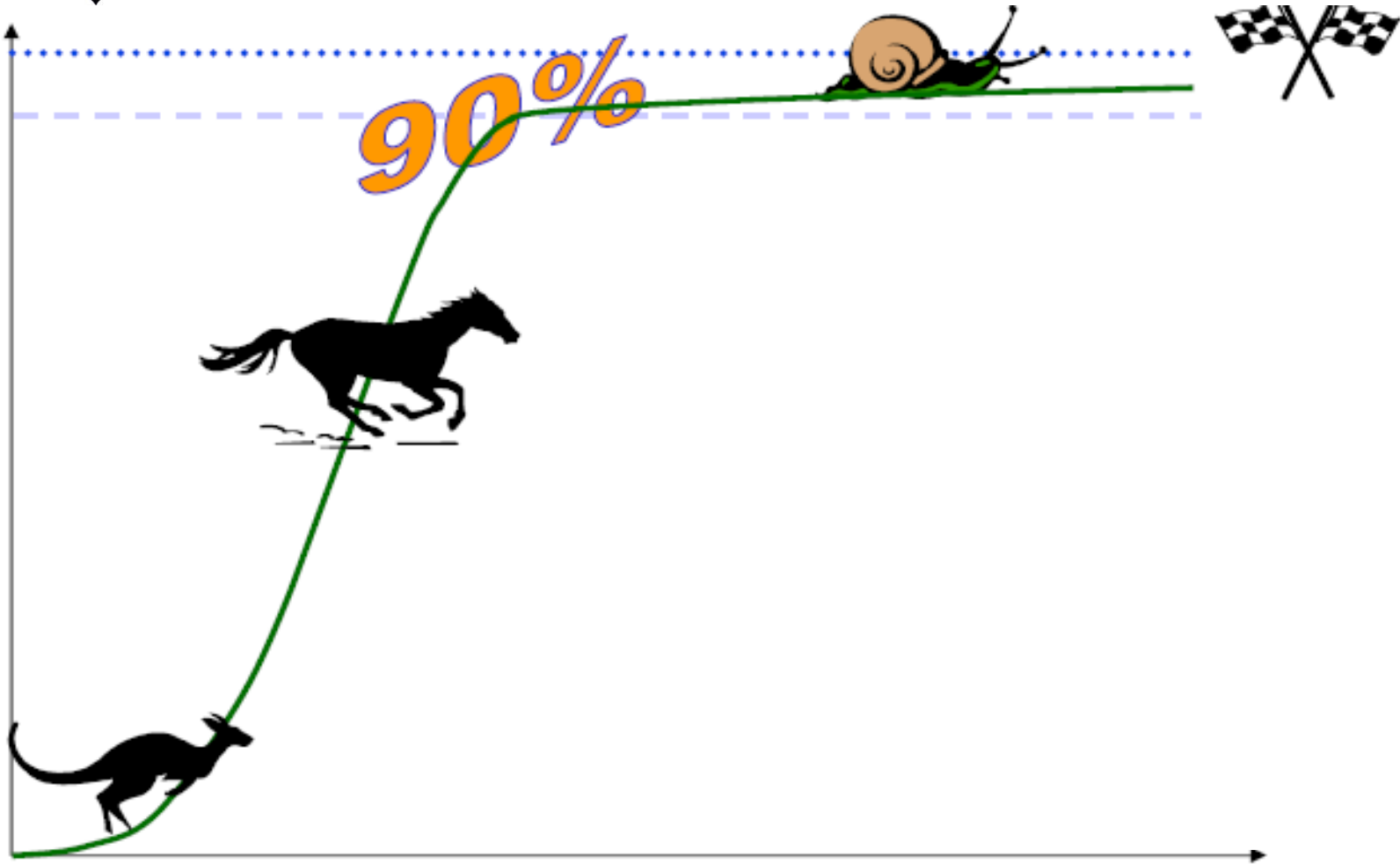
User support activity in VERSUS

1. User support as a WG5 activity outside the project to be discussed (mailing list, other,...);
2. Web forum support will not be guaranteed but available for consultation.





90% Syndrome





QUESTIONS?

