

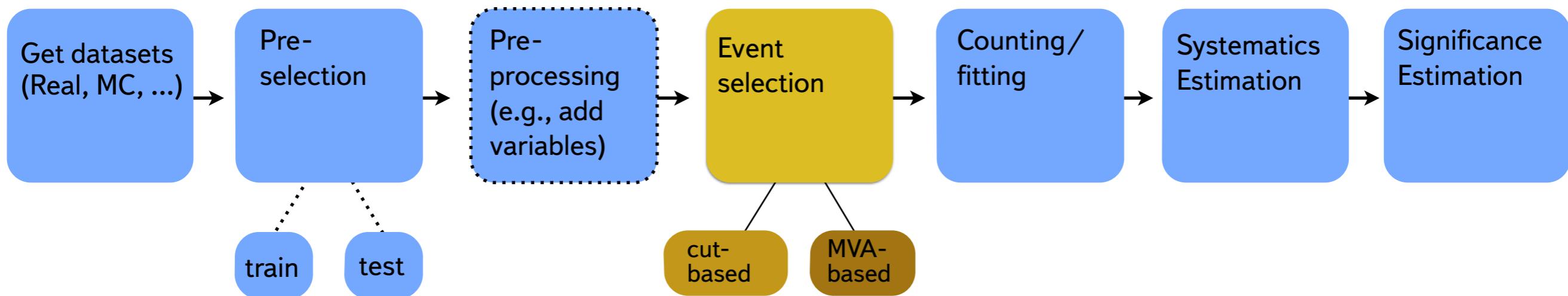
Yandex

Event Filter Tutorial

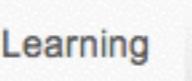
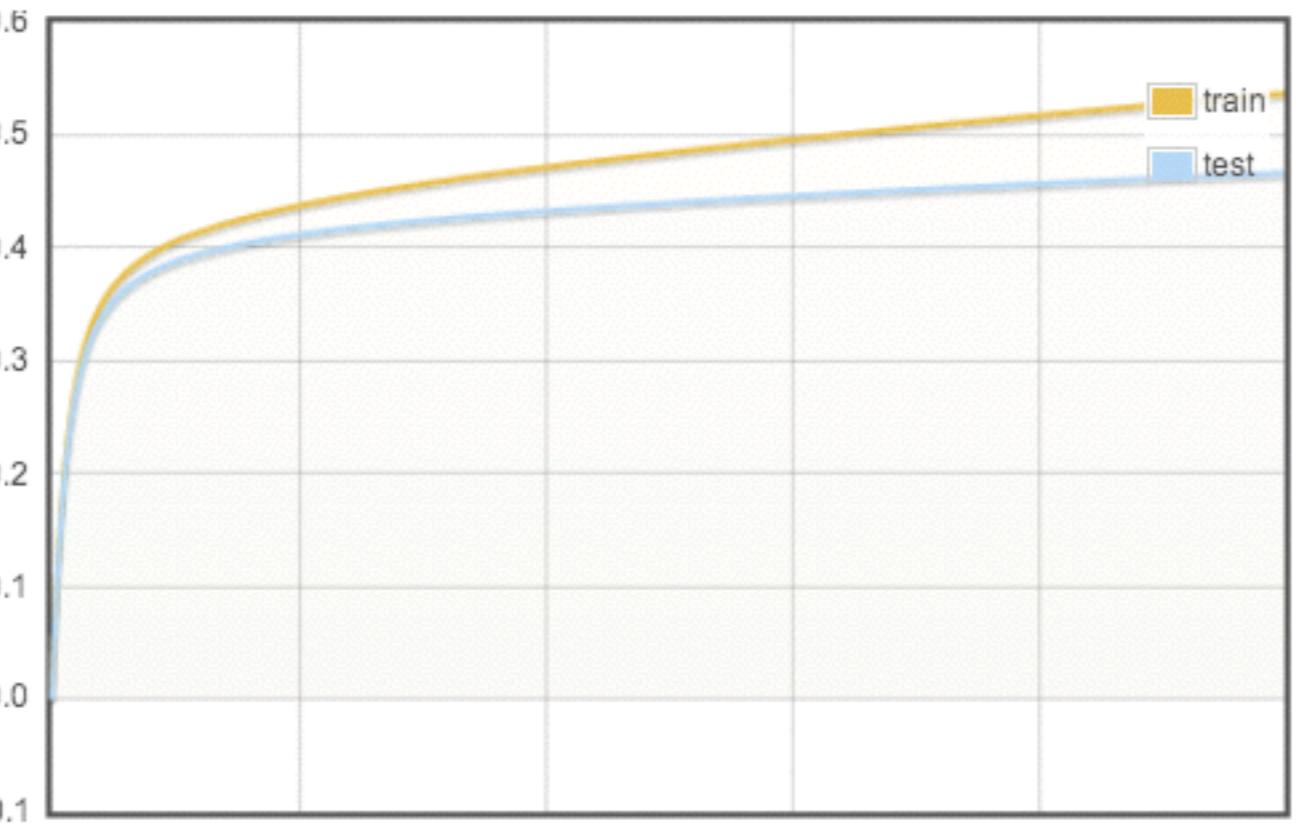
Andrey Ustyuzhanin
April 10 2014

Quest for sensitivity

Analysis Value Chain

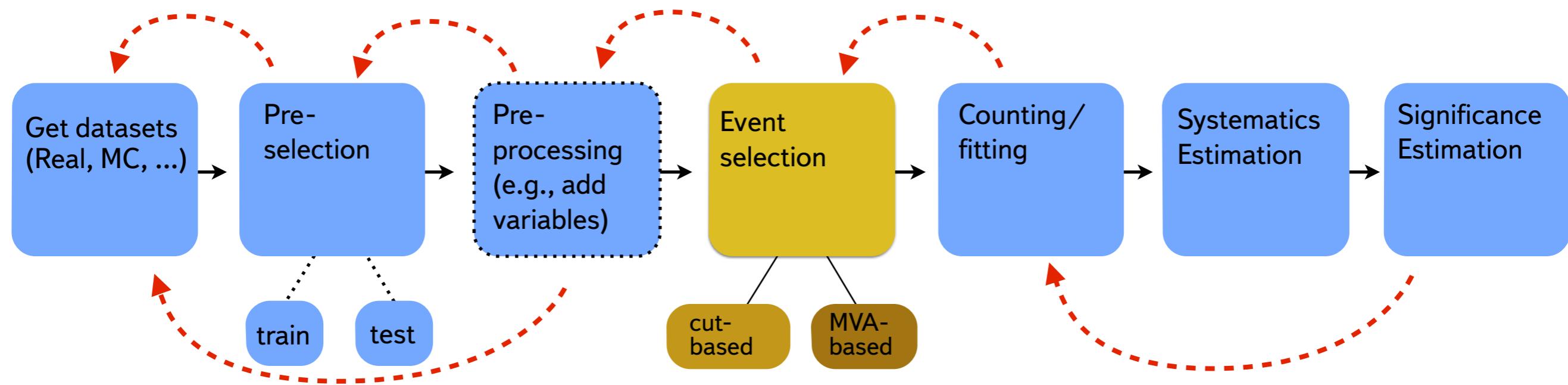


Event Filter (<https://volhcb16.cern.ch/>)

Home	Datasets	Pools	Formulas	Predictions	Tasks	About			
BDT9_Fladio1_i10000_w001_x64			Fladio1	B_s0_TAU_ps, mu_MINIPS, ...	336903	1	2013-04-19 10:12:49	-0.0543496	 Export  Remote
D0mumu-test				Formula «mc_Bu2X-B2psiX_2a»			45:23	1.46709	 Export  Remote
default					 Learning	 Factors	 Export	:34:52	0.243071  Export  Remote
form_1							:00:32	-0.000751594  Export  Remote	
marco_new_test							:18:07	0.3142  Export  Remote	
mc_Bu2X-B2psiX_2							:43:10	0.607015  Export  Remote	
mc_Bu2X-B2psiX_2a							:53:19	0.46621  Export  Remote	
merger_3							:37:05	0.0453774  Export  Remote	
MN_13_Fladio1_i10000_w001_x64							:25:23	-0.382667  Export  Remote	
MN_13_Fladio1_i10000_w002_x64							:43:21	0  Export Remote	

Analysis complexity

Case: $\tau \rightarrow 3\mu$ (LHCb)



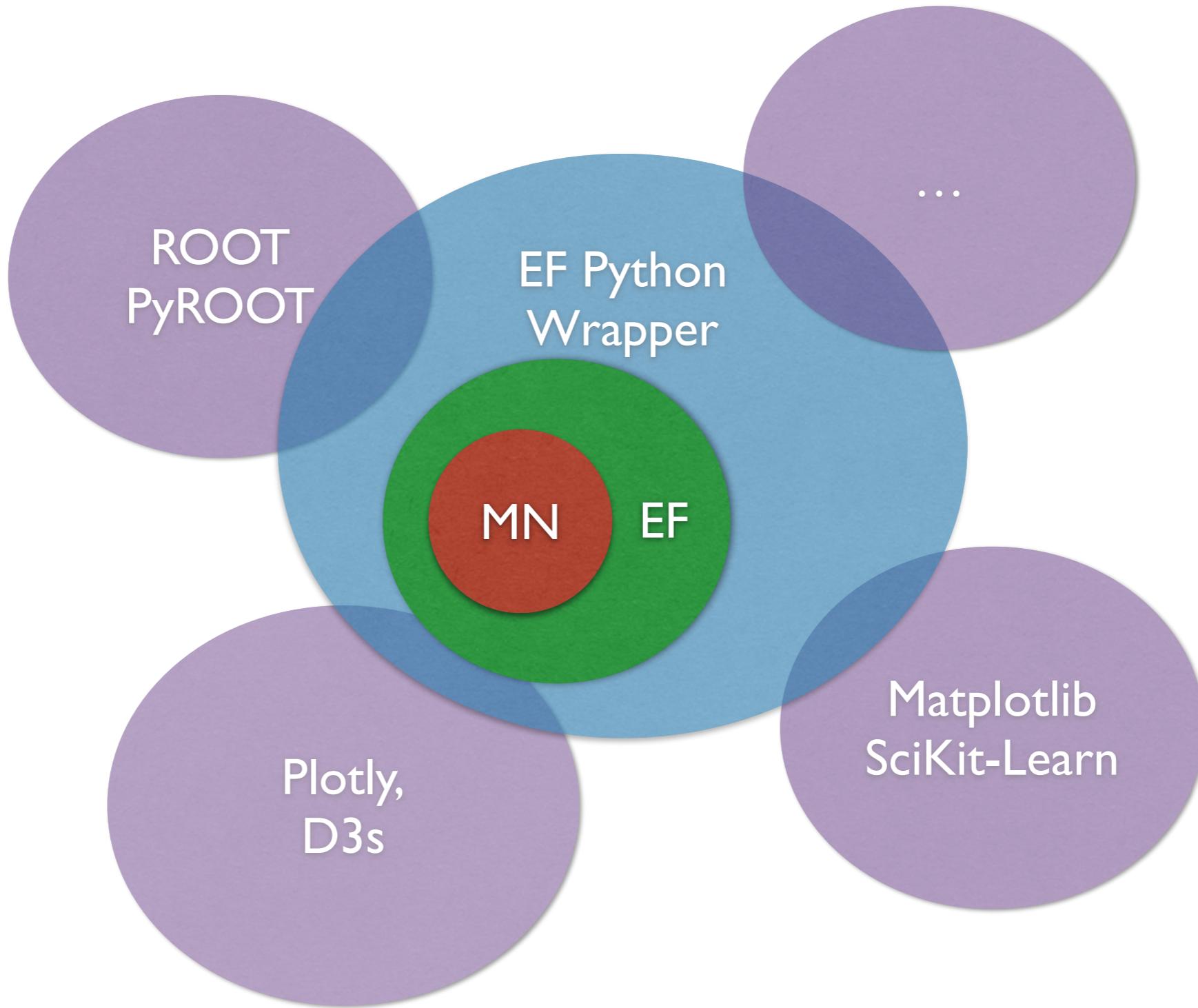
Repeat count: 10^2 10^2 10^3 10^2 10^2 10^2

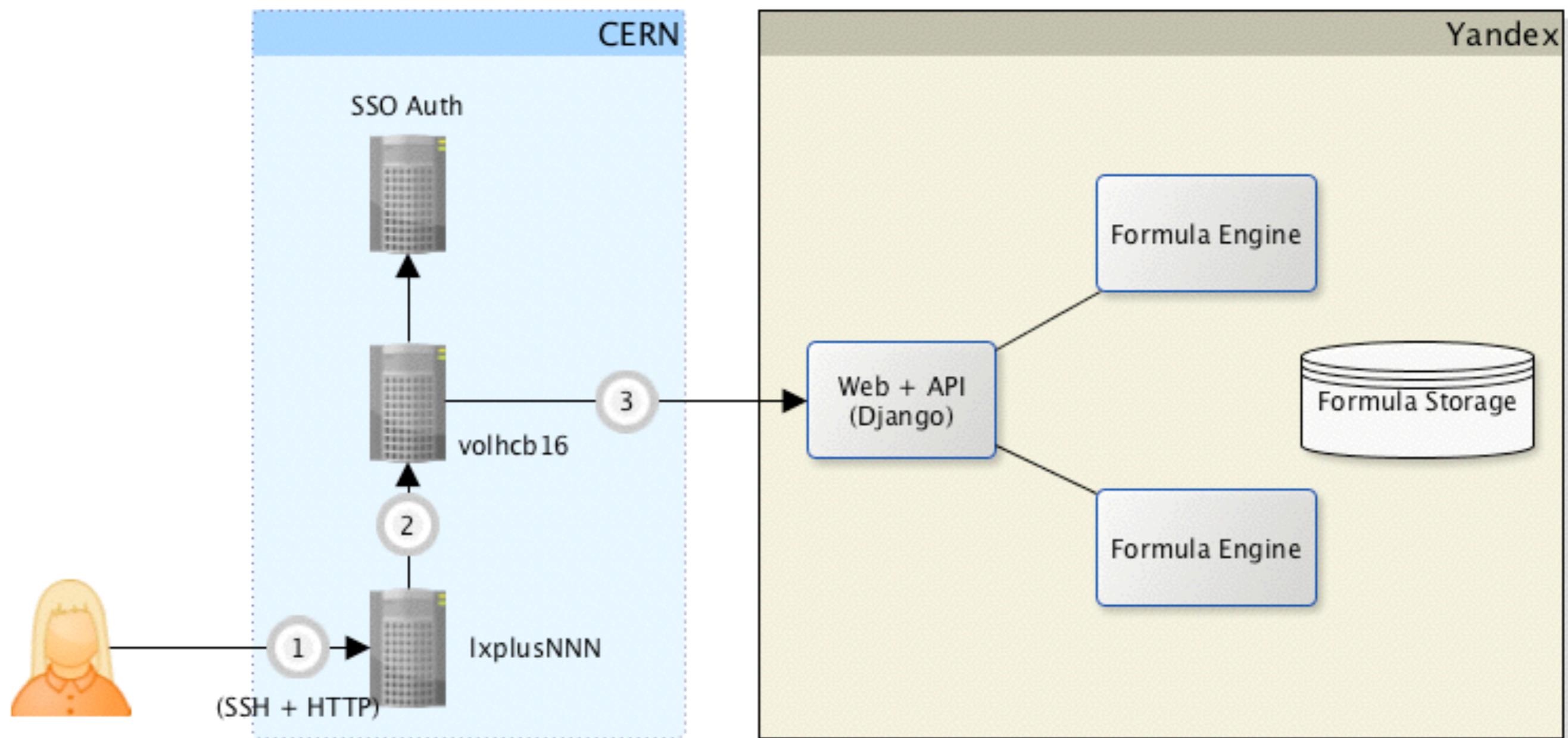
Trained models: ~1500

15

Requires dedicated framework!

Landscape





EventFilter deploy landscape

EventFilter IPython wrapper howto:
<http://bit.ly/1ktUS4e>

HowTo setup

- Prerequisites
 - SSH client, lxplus account and webbrowser with internet connection
- Running Event Filter in IPython Notebook
 - login to lxplus with port forwarding:
`ssh -L 8888:localhost:8888 lxplus.cern.ch`
 - create environment:
`git clone https://:@git.cern.ch/kerberos/event_filter_tutorial`
`cd event_filter_tutorial`
 - run
`./run_filter_tutorial.sh`
 - open URL `http://127.0.0.1:8888/` in your browser.
- Inside IPython Notebook Dashboard

....

HowTo outline

- › Introduction into IPython
- › Event Filter
- › TMVA
- › Model Comparison
- › SciKit-Learn classifiers
- › uBoost
- › other ...

Conclusion

- › EventFilter development is based on real analysis needs
- › Prototype for a broader Framework
- › Open-source, supposed to be fun
- › Welcome to join! (cases? wrappers?)

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