

Connecting Verification Tools to Enhance their Power

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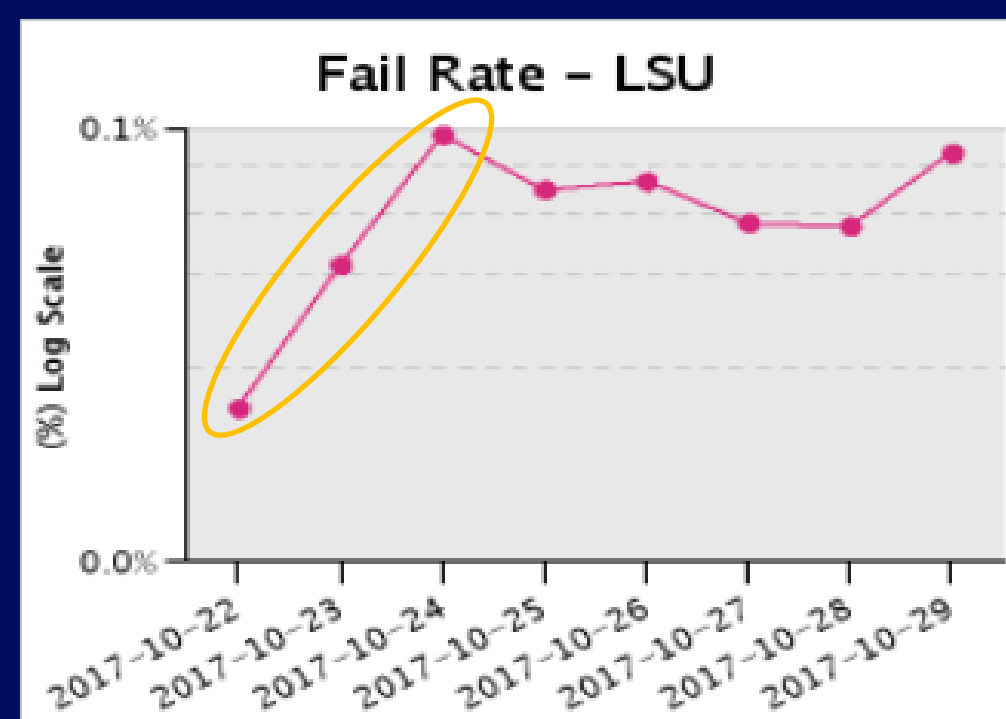
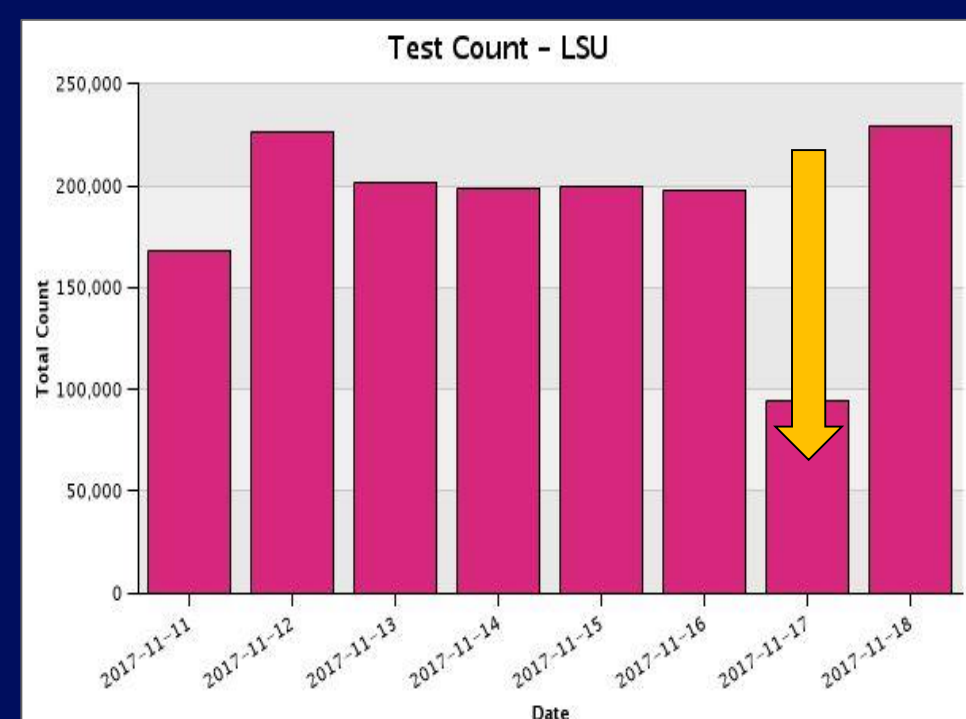
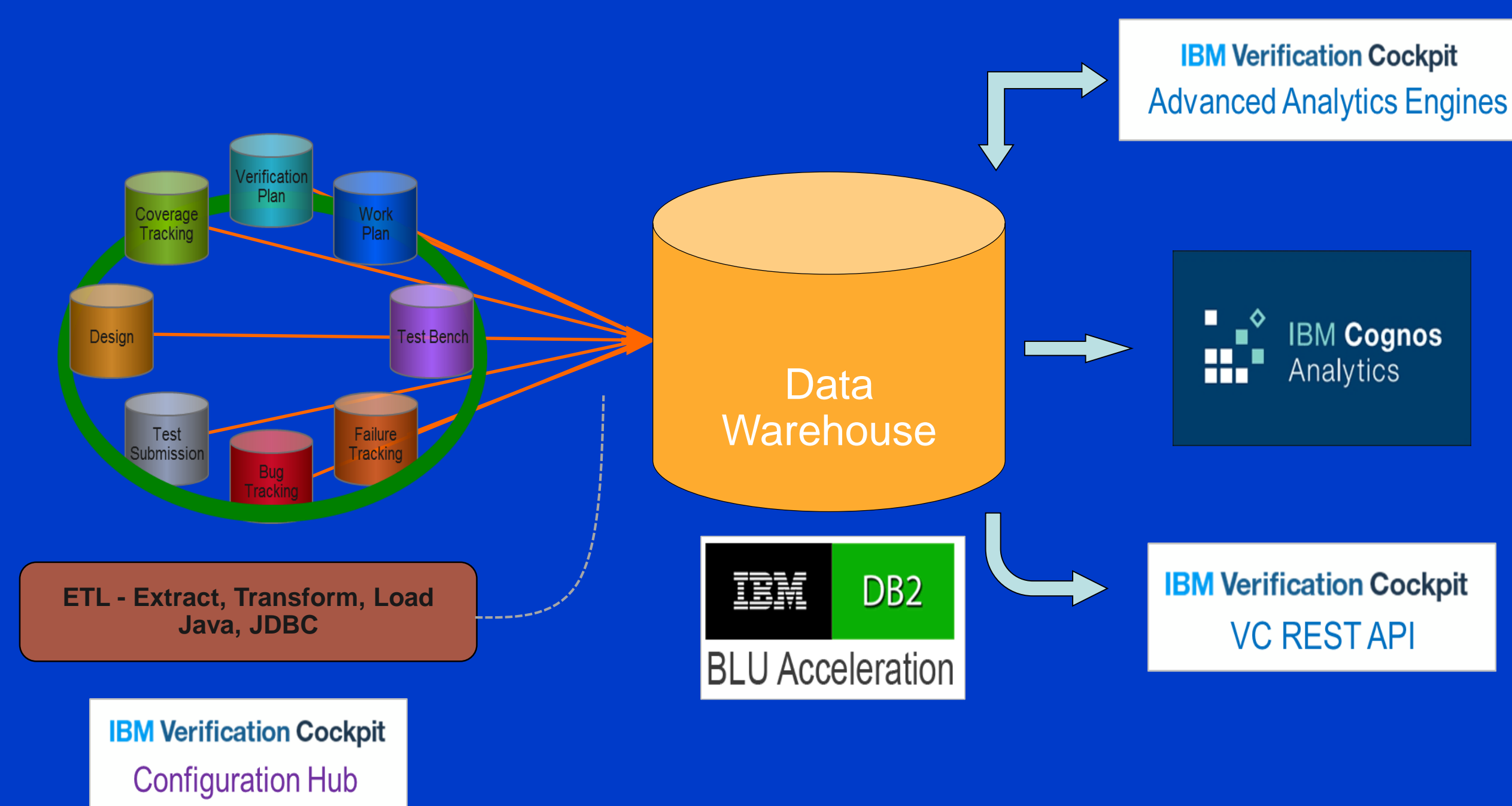
HELP

Motivation

- The verification process uses many tools, each handling a specific aspect of the process
- Each tool can provide its view on the state of the process
 - But these views do not necessarily show the entire picture
- Challenges
 - Independent sources with different APIs and vocabulary
 - Vast amount of data

Our Solution

- Vision: A consolidated platform for planning, tracking, analysis, and optimization of a large scale verification project
 - Connect all the data sources to a centralized data warehouse
 - Extract data from the data sources
 - Transform to a common vocabulary
 - Load the data into the warehouse
 - Provide arsenal of analysis engines ranging from “simple” dashboards to advanced analytics engine



Verification Dashboards

- We all like DNNs, but don't underestimate descriptive analytics
- Using the right on status and trend view is a powerful tool
 - Provides concise and informative view of the status and progress
 - Used by verification leads, team members, and managers

Combining Multiple Sources – Regression Test Quality Analysis

- Goal – Run optimized regression in quality and resources
- Use descriptive analysis to rank the regression tests according to their ability to fulfill verification goals
 - Target areas in the design that changed recently
 - Find bugs
 - Improve coverage
- Analysis method – Statistics on measures related to the tests
 - Multi sources – Job submission, defect tracking, coverage database, version control
 - Cross sources – Probability of hitting rare events, defects per million tests

				HDWB				Tracker			Clear	
Rank	Menu	List	CQ Per M Tests	Total Count	Pass Rate	Fail Rate	zFail Rate	Avg Bone Pile	Sim Errors	CQs	Opened	Av
1	lsu_dev	lsu_uldriks	4,065,041	246	44.715%	46.748%	8.537%	12	12	1	1	
2	lsu_misc	lsu_stressExceptions	2,615	764,963	99.932%	0.024%	0.043%	14	4	1	2	
3	lsu_main	lsu_gold_vec_rev	0.880	3,409,594	99.986%	0.012%	0.002%	13	14	2	3	
4	lsu_main	lsu_gold	0.307	9,785,930	99.989%	0.005%	0.006%	23	15	1	3	
5	lsu_core	lsu_core_vec_rev_directe	0.000	219	0.000%	100.000%	0.000%	0	0	0	0	
5	lsu_main	lsu_gold_mvctrl	0.000	1,297,118	99.996%	0.000%	0.004%	20	4	1	0	
5	lsu_misc	lsu_clkGatingOnVsOff	0.000	12,615	99.849%	0.055%	0.095%	2	2	1	0	
5	lsu_misc	lsu_disables	0.000	346,978	99.973%	0.002%	0.025%	2	4	1	0	
5	lsu_misc	lsu_hw_prefetch	0.000	1,004,005	99.990%	0.005%	0.005%	6	9	1	0	
5	lsu_misc	lsu_setpAggr	0.000	1,034,860	99.963%	0.011%	0.026%	6	8	1	0	

Contact us for questions

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