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PERFORMANCE TEST

EmbedIT
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Definition

- < Performance test determines how a system performs in items of responsiveness and stability under a particular workload
- < It can also serve to investigate, measure, validate or verify other quality attributes of the system, such as scalability, reliability and resource usage

http://en.wikipedia.org/wiki/Software_performance_testing

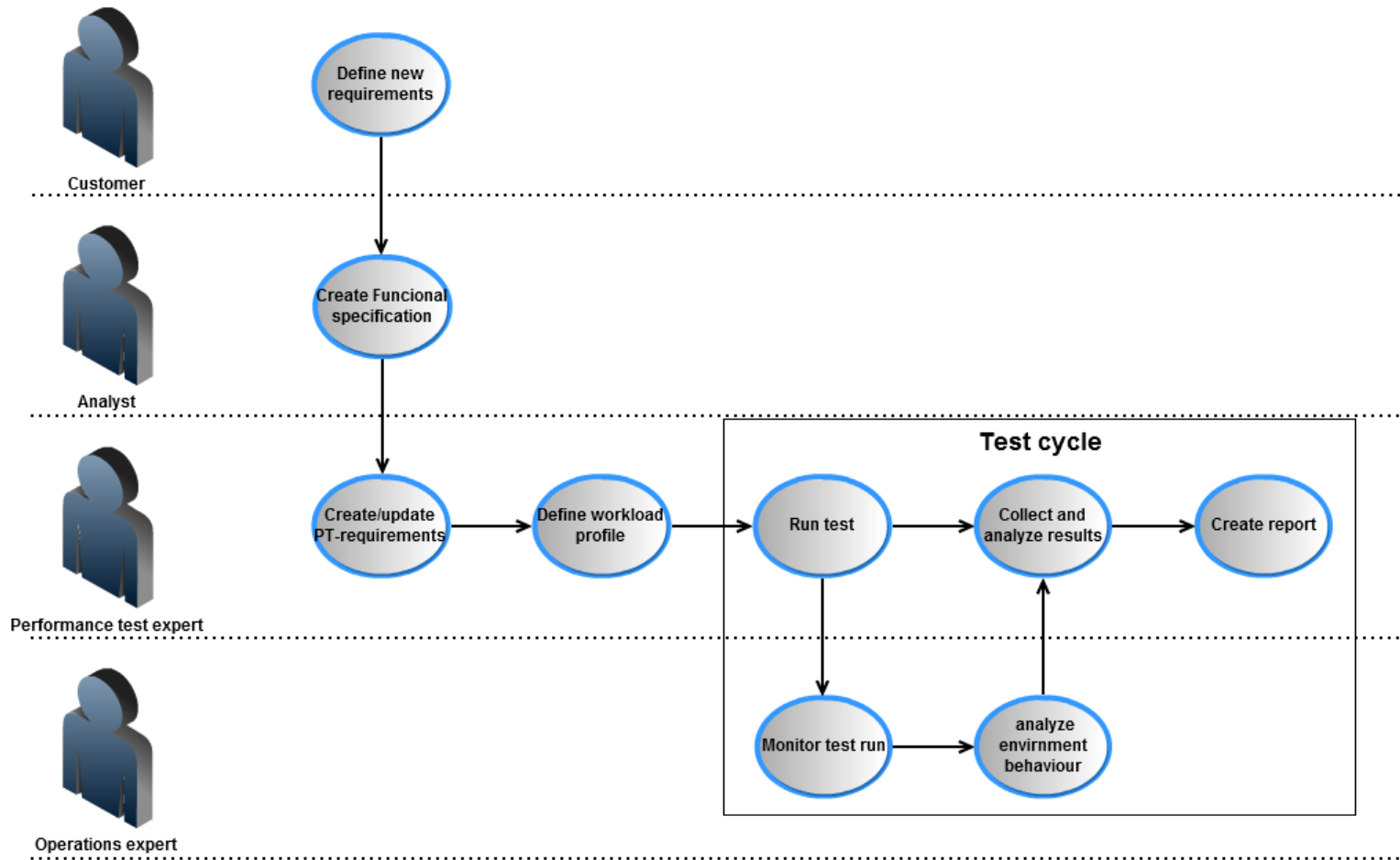


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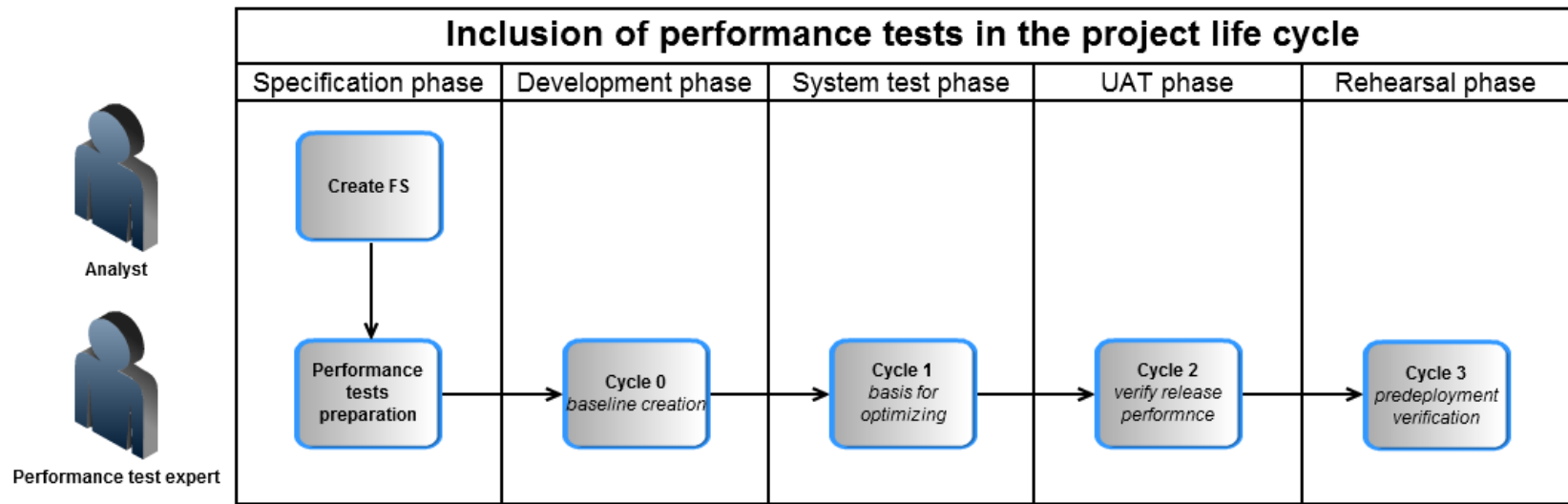
Motivation

- < Prove that the system in a new version is stable under the real workload
- < Prevent future performance issues
- < Perform tests which can't be executed manually
- < Help to increase system overall stability
- < Set the limits and find the bottlenecks of the application
- < Ensure that application will be ready for business attractive terms

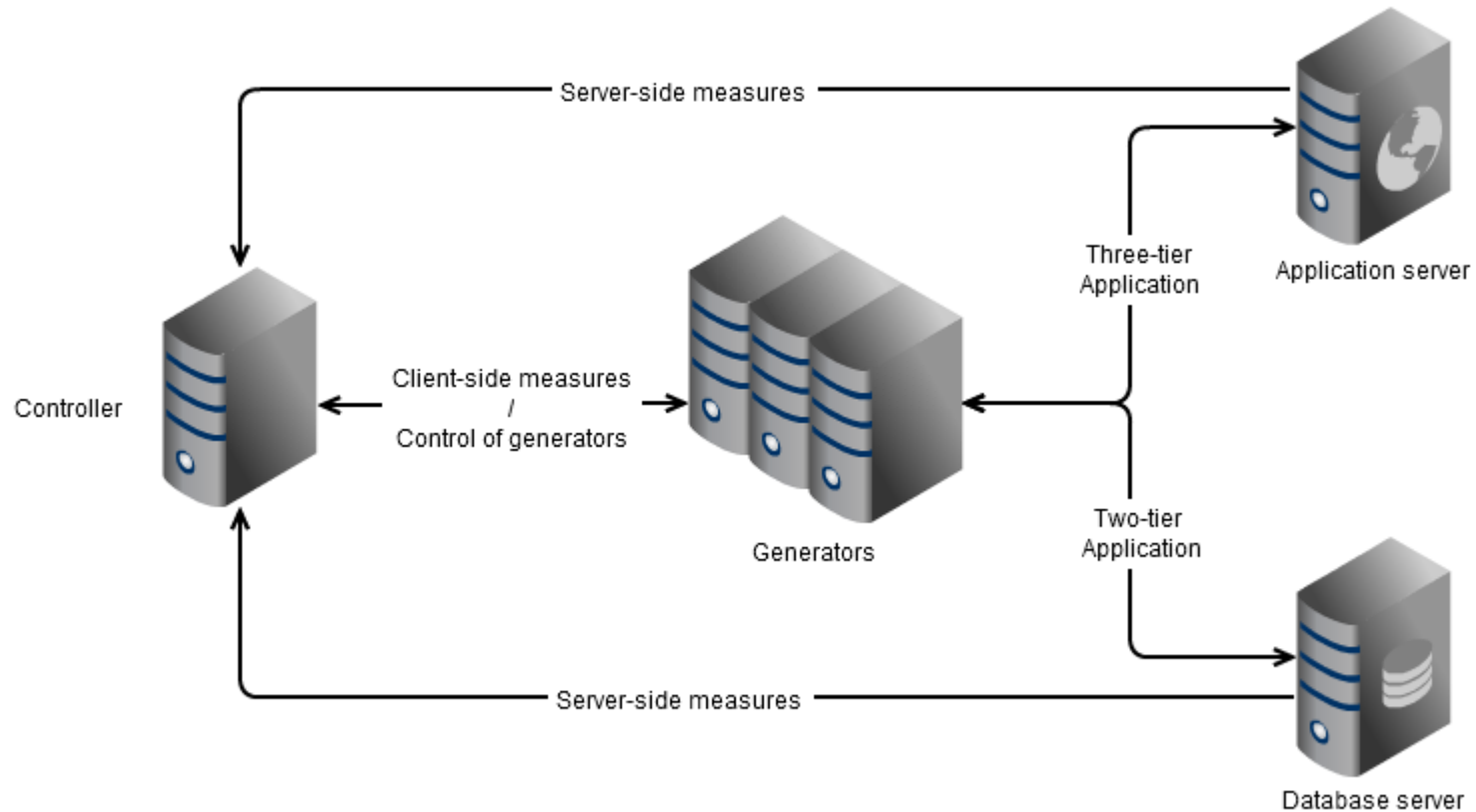
Processes architecture and technologies



Processes architecture and technologies



Processes **architecture** and technologies



Processes **architecture** and technologies

< **Performance test prerequisites**

- < non-functional requirements
- < functional specification

< **Test data preparation**

- < static data
- < random generated data
- < load required data from database
- < production data scaling - synthetic data

< **Issue reporting**

- < test run evaluation
- < issues are created in tracking system

Processes architecture and technologies

< Silk Performer

< Overall management of the performance test

Application recording

Code adjustments

Workload and agents configuration

Test run and monitoring

Results analysis

< Structural programming language

< Wide protocol support

< Front-end diagnostics from the end user perspective - TrueLog

Processes architecture and technologies

< Other supported protocols



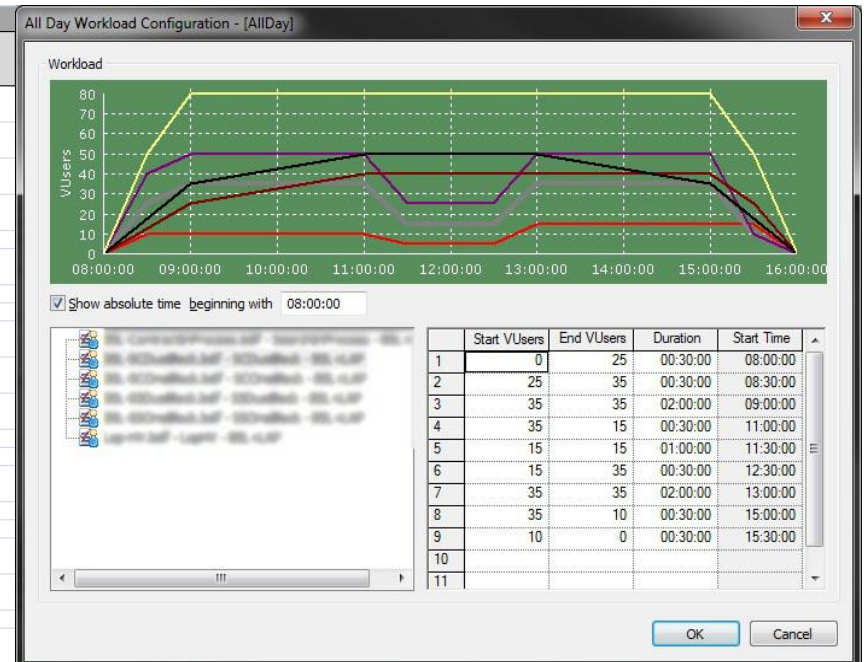
Baseline test Requirements

< Expected scenarios

< Workload

< Non-functional requirements

Business transactions					
Business transaction	Number of transactions [in one hour]	Time - 90 percentil [s]	Note	Source of information	Updated by
System1 : Script1	2800	3	Time needed to perform action	Function specification	John Doe
System1 : Script2	1600	3	Time needed to generating report	Function specification	Jane Doe
System1 : Script3	100	2	Time needed for aquire set of information	Analyst	John Doe
System1 : Script4	100	5	Time needed to display screen with fully loaded data	Developer	Jane Doe
System1 : Script5	100	8	Time needed to perform action	Analyst	John Doe
System1 : Script6	100	8	Time needed to evaluate a statement	specification	Jane Doe
System1 : Script7	700	8	Time needed to generating report	Developer	John Doe
System1 : Script8	200	8	Time needed to perform action	Analyst	Jane Doe
System2 : Script1	160	8	Time needed for aquire set of information	Function specification	John Doe
System2 : Script2	560	8	Time needed to display screen with fully loaded data	Developer	Jane Doe
System2 : Script3	420	3	Time needed to evaluate a statement	specification	John Doe
System2 : Script4	250	3	Time needed to perform action	Analyst	Jane Doe
System2 : Script5	590	3	Time needed to generating report	Developer	John Doe
System2 : Script6	1500	3	Time needed for aquire set of information	Function specification	Jane Doe
System3 : Script1	250	5	Time needed to generating report	Analyst	John Doe
System3 : Script2	350	5	Time needed to perform action	Analyst	John Doe
System3 : Script3	400	3	Time needed to generating report	Function specification	John Doe
System3 : Script4	120	7	Time needed to display screen with fully loaded data	Developer	John Doe
System3 : Script5	740	1	Time needed to generating report	Analyst	John Doe
System3 : Script6	100	2	Time needed for aquire set of information	Function specification	John Doe



Questionnaire

Workload

Baseline test Run

The screenshot displays the Silk Performer Workbench interface during a baseline test run. The main window shows a summary table of test results, a detailed user status table, and an output log.

Summary	Status	Users	created	exec.	failed	Cpu	Mem.	Responsiv...	Transacti...	Tra. Busy T...	Progress	Errors	Time	Conne...	Conne...	Conne...	Reques...	Reques...	Respon...
All Users	executing	320	320	320	0	38%	27%	98%	188	10.18	38%	6	00:31:01	100006	0	0	105855	0	105855
10.129.21.11	executing	8	8	8	0	17%	27%	98%	67	37.28	38%	6	00:31:01	3845	0	0	4394	0	4394
10.129.21.13	executing	8	8	8	0	6%	18%	98%	67	20.79	38%	2	00:31:01	3398	0	0	4003	0	4003
10.129.21.15	executing	8	8	8	0	0%	19%	99%	94	2.68	38%	17	00:31:01	4169	0	0	3557	0	3557
10.129.21.17	executing	8	8	8	0	38%	17%	91%	82	22.43	38%	6	00:31:01	3759	0	0	4381	0	4381
10.129.21.19	executing	8	8	8	0	0%	17%	99%	67	22.67	38%	0	00:31:01	3394	0	0	3549	0	3549
10.129.21.21	executing	8	8	8	0	3%	18%	96%	81	4.10	38%	6	00:31:01	3728	0	0	3912	0	3912
10.129.21.23	executing	8	8	8	0	15%	17%	99%	125	1.03	38%	1	00:31:01	6700	0	0	6993	0	6993
10.129.21.25	executing	8	8	8	0	23%	16%	97%	430	2.40	38%	18	00:31:01	15696	0	0	16681	0	16681
10.129.21.27	executing	8	8	8	0	3%	19%	99%	61	29.86	38%	10	00:31:01	3373	0	0	3511	0	3511
10.129.21.29	executing	8	8	8	0	2%	18%	99%	58	27.03	38%	3	00:31:01	3377	0	0	3522	0	3522
10.129.21.31	executing	8	8	8	0	20%	18%	96%	67	27.31	38%	3	00:31:01	3665	0	0	3821	0	3821
10.129.21.33	executing	8	8	8	0	16%	17%	95%	100	23.68	38%	10	00:31:01	4638	0	0	4859	0	4859
10.129.21.35	executing	8	8	8	0	9%	18%	97%	82	21.89	38%	3	00:31:01	4102	0	0	4294	0	4294
10.129.21.37	executing	8	8	8	0	13%	17%	96%	88	24.94	38%	9	00:31:01	4195	0	0	4396	0	4396
10.129.21.39	executing	8	8	8	0	13%	17%	96%	88	24.94	38%	9	00:31:01	4195	0	0	4396	0	4396

User	Agent	Status	Current Transa...	Lst Resp.	Avg. Resp.	Transacti...	Tra. Bu...	Progress	Errors	Time	Conne...	Conne...	Conne...	Reques...	R...
10.129.21.11	10.129.21.11	executing	Transacti...	77.59	36.33	41	10.61	31%	0	00:31:01	245	0	0	251	
10.129.21.11	10.129.21.11	executing	Transacti...	47.62	39.21	27	8.64	24%	0	00:25:01	180	0	0	186	
10.129.21.11	10.129.21.11	executing	Transacti...	66.08	38.83	19	8.26	18%	0	00:19:01	150	0	0	156	
10.129.21.11	10.129.21.11	executing	Transacti...	114.84	85.23	35	6.54	29%	0	00:31:01	1166	0	0	1246	
10.129.21.11	10.129.21.11	thinktime	Agent ID	18.03	22.52	30	9.03	33%	1	00:25:01	969	0	0	1036	
10.129.21.11	10.129.21.11	executing	Transacti...	65.91	65.91	23	9.03	27%	5	00:19:01	671	0	0	719	
10.129.21.11	10.129.21.11	executing	Transacti...	718.02	585.66	8	35.89	26%	0	00:28:10	464	0	0	484	
10.129.21.11	10.129.21.11	executing	Transacti...	542.81	542.81	5	27.39	13%	0	00:22:28	303	0	0	316	
10.129.21.13	10.129.21.13	executing	Transacti...	704.31	677.60	8	43.05	29%	0	00:31:01	512	0	0	531	
10.129.21.13	10.129.21.13	wait user	Transacti...	854.35	854.35	8	48.80	33%	1	00:30:04	509	0	0	529	

User	Agent	Line	Time	Type	Text	Info
10.129.21.51	970	00:30:37	Function	BrowserFind		
10.129.21.51	976	00:30:43	Function	BrowserGetProperty		
10.129.21.51	534	00:30:43	Function	BrowserListBoxSelect		
10.129.21.25	114	00:30:44	Warning	BrowserNativeClick	BrowserEngine: 52 - No valid low-level click position found. High-level fallback used.	
10.129.21.51	979	00:30:46	Function	BrowserNativeClick		
10.129.21.51	951	00:30:47	Function	BrowserFind		
10.129.21.51	952	00:30:49	Function	BrowserFind		
10.129.21.51	951	00:30:52	Function	BrowserFind		
10.129.21.51	952	00:30:53	Function	BrowserFind		
10.129.21.51	959	00:30:55	Timer	8.72		

Monitor

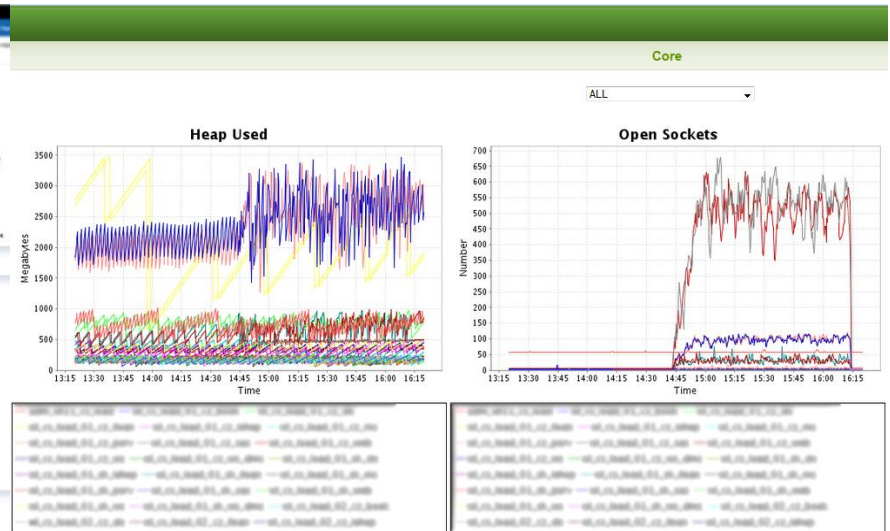
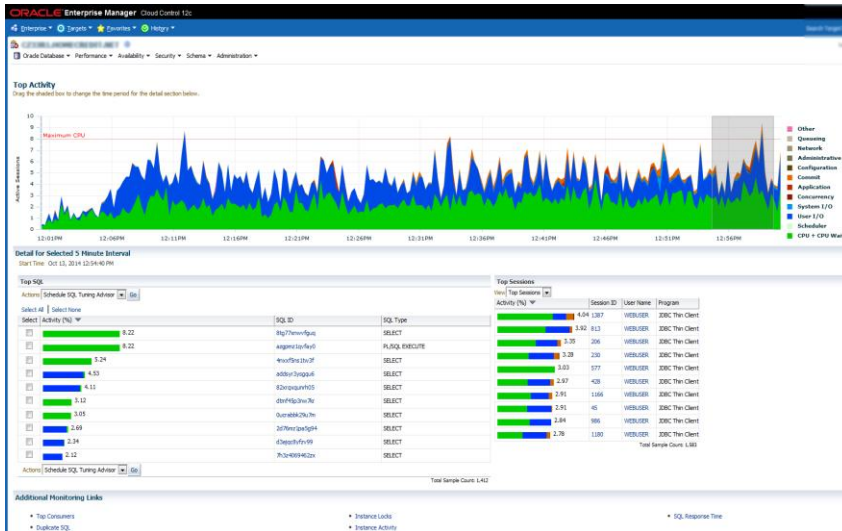
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Baseline test HW Monitoring

< Database

< Application server



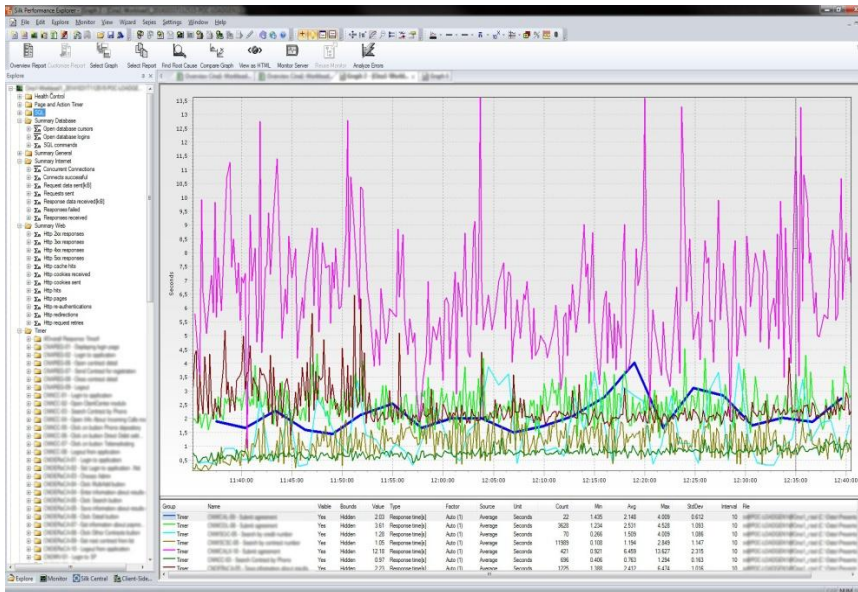
- < Oracle Enterprise Manager
- < AWR Report
- < ASH Report
- < Nagios

- < WebLogic DomainHealth
- < Application logs
- < Oracle JRockit
- < Nagios

Baseline test Results

< Analyze client site data

< Report



Script1.bdf											
Name	Minimum (s)	Average (s)	Maximum (s)	Std. Deviation (s)	Count (-)	Percentile 90 (s)	Percentile 95 (s)	SLA bound 1 (s)	under SLA1 (%)	SLA bound 2 (s)	under SLA2 (%)
Script1 - Transaction1	0,61	1,20	2,25	0,41	40,00	1,78	2,06	3,00	100,00	4,00	100,00
Script1 - Transaction2	0,31	0,59	3,31	0,42	80,00	0,92	1,11	3,00	98,75	4,00	100,00
Script1 - Transaction3	0,58	0,97	1,81	0,35	40,00	1,47	1,67	3,00	100,00	4,00	100,00
Script1 - Transaction4	1,06	1,68	3,99	0,61	41,00	2,59	2,65	4,00	100,00	5,00	100,00
Script1 - Transaction5	0,19	0,36	1,31	0,26	41,00	0,65	0,87	3,00	100,00	4,00	100,00
Script1 - Transaction6	0,19	0,41	1,64	0,25	41,00	0,64	0,73	3,00	100,00	4,00	100,00
Script1 - Transaction7	0,53	0,64	2,08	0,28	40,00	0,72	1,08	3,00	100,00	4,00	100,00
Script1 - Transaction8	0,48	0,70	2,09	0,25	40,00	0,95	1,14	3,00	100,00	4,00	100,00
Script1 - Transaction9	1,00	1,54	3,28	0,51	40,00	2,17	2,34	3,00	97,50	4,00	100,00

Script2.bdf											
Name	Minimum (s)	Average (s)	Maximum (s)	Std. Deviation (s)	Count (-)	Percentile 90 (s)	Percentile 95 (s)	SLA bound 1 (s)	under SLA1 (%)	SLA bound 2 (s)	under SLA2 (%)
Script1 - Transaction1	0,52	0,69	4,29	0,20	623,00	0,86	1,03	3,00	99,84	4,00	99,84
Script1 - Transaction2	0,37	0,67	1,92	0,23	621,00	0,97	1,14	3,00	100,00	4,00	100,00

Script3.bdf											
Name	Minimum (s)	Average (s)	Maximum (s)	Std. Deviation (s)	Count (-)	Percentile 90 (s)	Percentile 95 (s)	SLA bound 1 (s)	under SLA1 (%)	SLA bound 2 (s)	under SLA2 (%)
Script1 - Transaction1	0,53	1,13	4,87	0,45	247,00	1,61	2,15	3,00	99,60	4,00	99,60
Script1 - Transaction2	0,53	1,24	7,32	0,54	533,00	1,64	2,12	3,00	97,94	4,00	98,81
Script1 - Transaction3	0,00	0,63	1,98	0,33	128,00	1,11	1,56	3,00	100,00	4,00	100,00
Script1 - Transaction4	0,00	1,90	5,27	0,57	124,00	2,54	2,86	3,00	95,97	4,00	98,39
Script1 - Transaction5	6,79	7,63	10,53	0,64	117,00	8,51	9,01	8,00	80,34	12,00	100,00
Script1 - Transaction6	0,34	0,60	2,26	0,32	331,00	1,01	1,34	3,00	100,00	4,00	100,00
Script1 - Transaction7	0,00	1,49	3,49	0,49	128,00	2,11	2,90	4,00	100,00	5,00	100,00
Script1 - Transaction8	0,00	0,33	1,28	0,19	128,00	0,59	0,78	3,00	100,00	4,00	100,00
Script1 - Transaction9	0,19	0,72	10,45	1,04	125,00	1,15	1,40	3,00	98,45	4,00	98,45
Script1 - Transaction10	0,02	0,49	6,82	0,97	247,00	2,11	2,95	3,00	98,36	4,00	99,88
Script1 - Transaction11	0,02	0,05	0,95	0,05	250,00	0,06	0,14	3,00	100,00	4,00	100,00
Script1 - Transaction12	1,05	1,53	8,88	0,67	371,00	2,09	2,20	3,00	98,92	4,00	99,46
Script1 - Transaction13	0,45	0,76	2,96	0,32	228,00	1,19	1,44	3,00	100,00	4,00	100,00
Script1 - Transaction14	1,14	1,63	2,20	0,19	112,00	1,84	2,09	3,00	100,00	4,00	100,00
Script1 - Transaction15	0,28	1,25	10,72	1,05	117,00	1,86	2,39	3,00	97,44	4,00	98,29
Script1 - Transaction16	0,00	0,78	3,65	0,45	125,00	1,18	1,58	3,00	98,40	4,00	100,00
Script1 - Transaction17	0,02	0,03	0,66	0,05	246,00	0,05	0,06	3,00	100,00	4,00	100,00

Other test

< **Stress test**

- < Finding application limits and bottlenecks

< **Module test**

- < Detailed, focused on internal module performance

< **What-if test**

- < Simulate unusual state and check if the system is able to handle it

< **Comparative HW test**

- < Same application is tested on different HW platform

Conclusion

Questions?

