

Performance Testing

Monday, August 21, 2017 11:56 AM

Performance testing is needed to determine the software meets speed, scalability and stability requirements under expected workloads

Key Performance Test

Load Test : Checks the application's ability to perform under *anticipated user loads*. The objective is to identify *performance bottlenecks* before the software application goes live

Stress Test: Involves testing an application under *extreme workloads* to see how it handles high traffic or data processing. The objective is to identify *breaking point of an application*

Endurance Test: This test is done to make sure the software can handle the *expected load over a long period of time* and helps identify issue like *memory leakages*

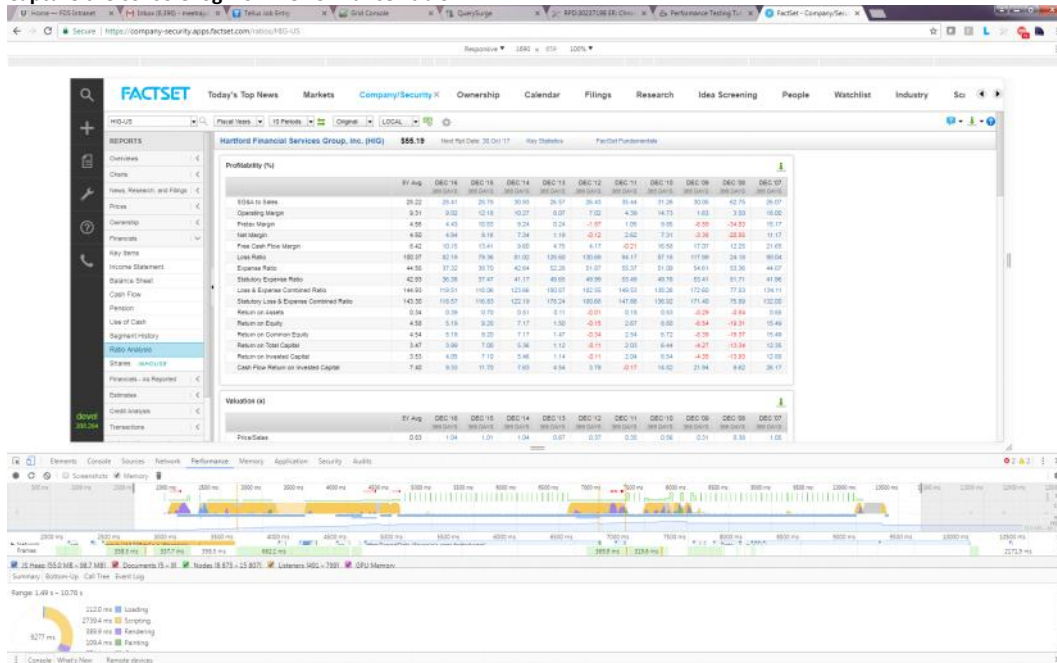
Approach:

UI and Backend can be run as 2 different set of test targeting UI and backend separately

UI Approach:

Perform Single User Test (SUT) by using the most used client flow/s

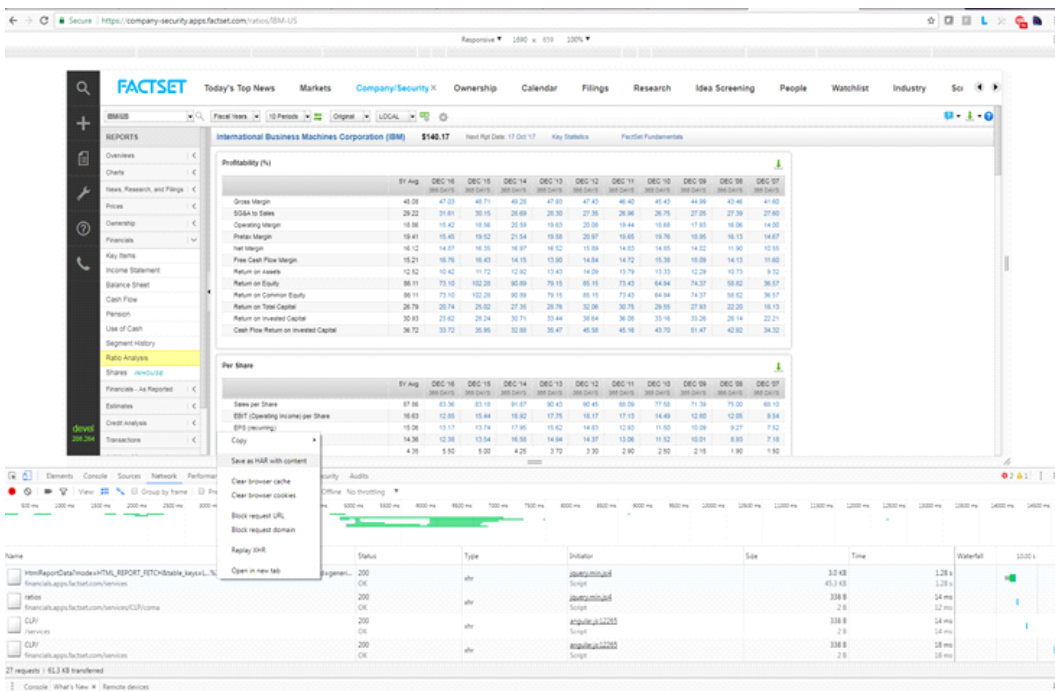
Capture the console log from Performance Tab on



How to Create test for Jmeter?

Approach #1 HAR file to .jmx file <http://converter.blazemeter.com/>

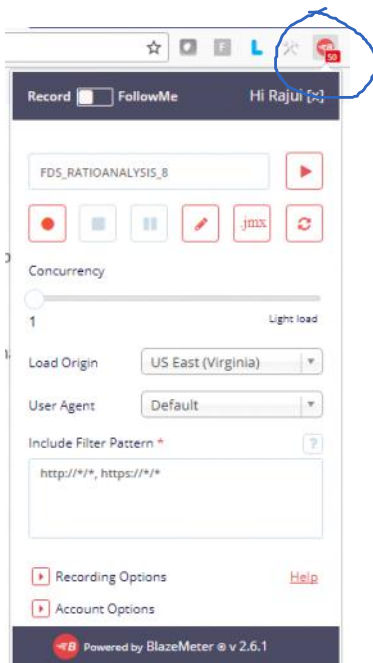
1. Convert the step performed on the SUT to HAR file as shown below.
 - Navigate to network tab and right click on any one request name and save as HAR file



2: Convert HAR file to .jmx file (format needed for Jmeter). Use url below
<http://converter.blazemeter.com/>

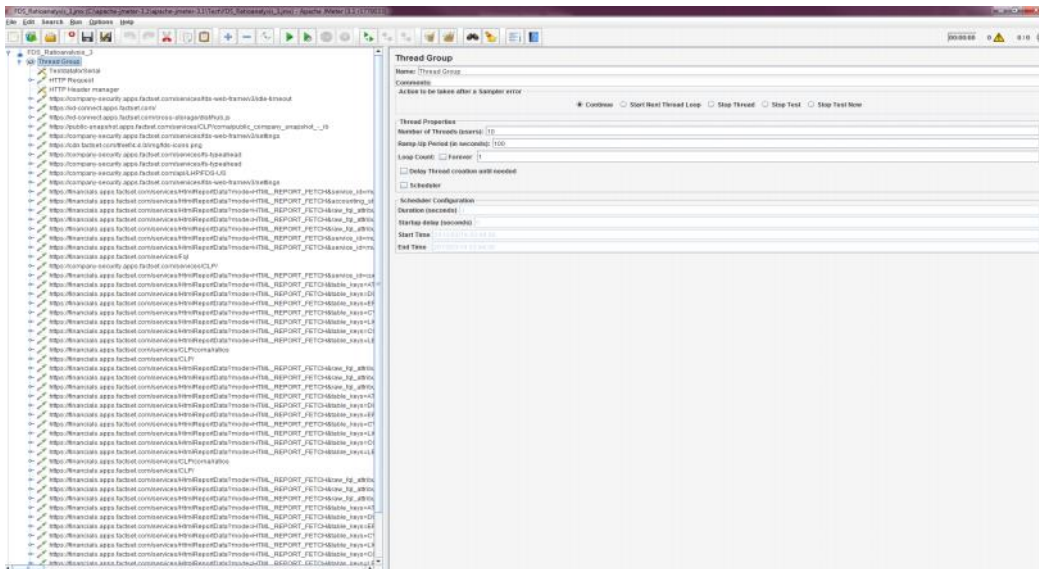
Approach#2 Using Blazemeter Chrome Extension

1. Get the Blazemeter Chrome extension from <https://guide.blazemeter.com/hc/en-us/articles/206732579-Chrome-Extension>
2. On the browser it will look like below when clicked on **Red icon**
3. When click on record button it will star recording the HTTP/s request generated by your business transaction (like fiddler)
4. Once done click on Pencil icon to edit the recorded transactions
5. Click on .jmx icon to generate a jmx file for load test



Once jmx file is available

3: Upload the .jmx file to Jmeter using the Yellow Folder button.



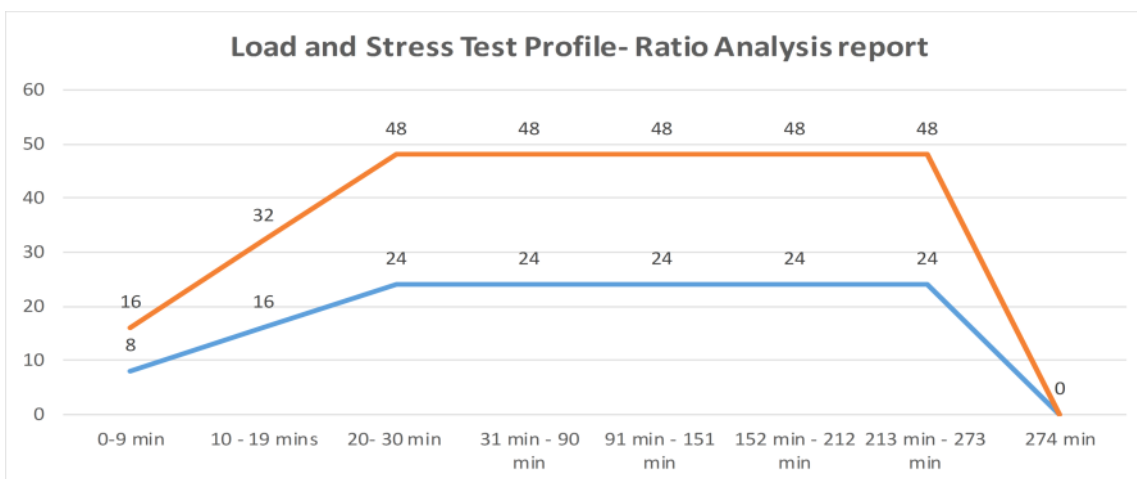
4: Create load testing profile for your application and execute test

Conventional way

- Define/determine the per hour volume that your application generates in production
- Scale that down in proportion as the test has to run in Staging region (1/3rd or 1/4)

Example for **Company Security >> Financials>> Ratio Analysis** <http://is.factset.com/Workspace/?viewId=3692#>

Production	Ratios	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17
	Production Client Usage of report	8265	8077	8463	7416	7941	7707	7617
	Daily Hits by clients	413	404	423	371	397	385	381
	Per hour volume	52	50	53	46	50	48	48
Staging region	Per hour volume	13	13	13	12	12	12	12
	Load test	26	25	26	23	25	24	24
	Stress Test	52	50	53	46	50	48	48
	Endurance Test	26	25	26	23	25	24	24



Jmeter Tool Download (Free and Open source)

http://jmeter.apache.org/download_jmeter.cgi

Binaries

[apache-jmeter-3.2.tgz md5 sha pgp](#)
[apache-jmeter-3.2.zip md5 sha pgp](#)

Blazemeter Chrome extension (Free and Open source)

<https://guide.blazemeter.com/hc/en-us/articles/206732579-Chrome-Extension>

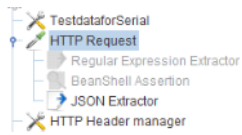
Attached is my project for reference



FDS_Ratioa
nalysis_3

Run time generation of new Lima token for each run

1. To generate new lima token each time (to avoid caching etc)
2. Add following additional steps in the test case



Tellus PHP profiling

Monday, February 05, 2018 10:25 AM

Profiling Test 1: Create one-time Ad Hoc job with one test plan and 10 test cases.

Tested with PHP 7.1 x86, Apache 2.4 (on laptop with small Cron database), Xdebug 2.6.0.

Tellus Program Structure Overview:

The entry point is CalendarCreateEvent.php.

It calls CalendarModel.php, which calls Multiplan.php and Cron.php.

Multiplan.php calls functions insertEventAssociationsForSinglePlan, cacheJustifierTestCases, etc.

Profiling Result in %:

Incl.	Self	Called	Function	Location
100.00	0.15	(0)	{main}	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\CalendarCreateEvent.php
92.30	0.08	1	CalendarModel::requestCreateEvent	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\CalendarModel.php
91.24	0.00	1	CalendarModel::createOneTimeEvent	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\CalendarModel.php
59.55	0.00	1	Multiplan::createOneTimeEvent	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Multiplan.php
53.13	53.13	32	php::PDOStatement->execute	php:internal
51.65	0.00	1	Multiplan::insertEventAssociations	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Multiplan.php
51.65	0.00	1	Multiplan::insertEventAssociationsForSinglePlan	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Multiplan.php
28.95	1.18	1	Cron->create	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Cron.php
15.23	0.00	1	Cron->execCron	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Cron.php
15.23	15.23	1	php::exec	php:internal
10.21	0.08	21	Logger->log	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\Logger.php
10.06	0.00	21	LoggerAppenderRollingFile->append	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\appenders\Logg...
10.06	0.00	21	LoggerAppenderRollingFile->doAppend	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\LoggerAppende...
10.06	0.00	21	LoggerRoot->callAppenders	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\Logger.php
10.06	0.00	21	LoggerRoot->logEvent	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\Logger.php
7.33	0.00	21	<cycle 2>	(unknown)
7.25	0.00	22	LoggerAppenderRollingFile->write <cycle 2>	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\appenders\Logg...
7.25	7.25	22	php::filesize	php:internal
6.72	0.00	14	Logger->debug	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\Logger.php
6.04	6.04	5	php::file_get_contents	php:internal
4.94	0.00	1	Cron->generate_keyword_table	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Cron.php
4.17	1.18	1	Multiplan::cacheJustifierTestCases	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Multiplan.php
3.99	0.08	1	Multiplan::insertEvent	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Multiplan.php
3.84	0.00	2	Tellus\Util::connectDB	C:\Users\jhwang\Documents\Source\tellus\htdocs\php\dbUtil.php
3.84	3.84	2	php::PDO->__construct	php:internal
3.76	0.00	1	Cron->getTestPlanSettings	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Cron.php
3.69	0.00	1	MonsterUtil::curl_get_contents	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\MonsterUtil.php
3.69	0.00	1	MonsterUtil::postTimingToMonster	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\MonsterUtil.php
3.61	0.00	1	Cron->curl_get_contents	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Cron.php
3.61	0.00	1	Cron->postCronJobRegistrationTimeToMons...	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Cron.php
3.49	0.00	7	Logger->info	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\Logger.php
2.73	0.00	21	LoggerLayoutPattern->format	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\layouts\LoggerL...
2.58	1.18	1	Multiplan::insertGroupPlanAssociationsWithS...	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Multiplan.php
2.51	1.18	21	LoggerPatternConverterFile->convert	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\pattern\LoggerP...
2.51	0.00	21	LoggerPatternConverterFile->format	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\pattern\LoggerP...
2.51	0.08	1	require_once:C:\Users\jhwang\Documents\S...	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\CalendarModel.php
2.43	1.25	1	require_once:C:\Users\jhwang\Documents\S...	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Multiplan.php
1.78	0.00	6	Logger::configure	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\Logger.php
1.71	0.00	6	LoggerConfiguratorDefault->configure	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\configurators\L...
1.33	1.18	42	LoggerLoggingEvent->getLocationInformation	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\LoggerLoggingE...
1.33	0.00	6	LoggerConfigurationAdapterXML->convert	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\configurators\L...
1.33	0.00	6	LoggerConfiguratorDefault->parse	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\configurators\L...
1.33	0.00	6	LoggerConfiguratorDefault->parseFile	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\configurators\L...
1.25	0.08	1	Multiplan::insertGroups	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Multiplan.php
1.25	1.25	1	php::PDO->commit	php:internal
1.25	0.00	1	Multiplan::updateCronID	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Multiplan.php
1.25	0.08	6	LoggerConfigurationAdapterXML->loadXML	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\configurators\L...
1.18	0.00	1	Multiplan::getPlaylist	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Multiplan.php
1.18	0.00	1	Multiplan::insertGroupWithStatement	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Multiplan.php
1.18	1.18	5	php::PDO->lastInsertId	php:internal
1.18	1.18	12	php::file_exists	php:internal
1.18	1.18	1	php::file_put_contents	php:internal
1.18	0.00	1	require_once:C:\Users\jhwang\Documents\S...	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Cron.php
0.53	0.00	1	CalendarModel::ensureTestCases	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\CalendarModel.php
0.53	0.00	1	CalendarModel::fillTellusTestCasesInfo	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\CalendarModel.php
0.53	0.23	1	CalendarModel::getTellusTestCasesInfoAsMap	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\CalendarModel.php
0.38	0.00	6	LoggerConfiguratorDefault->configureAppen...	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\configurators\L...
0.38	0.00	6	LoggerConfiguratorDefault->doConfigure	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\configurators\L...

Profiling Time in Microseconds:

Incl.	Self	Called	Function	Location
1 323 650	2 000	(0)	{main}	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\CalendarCreateEvent.php
1 221 652	1 000	1	CalendarModel::requestCreateEvent	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\CalendarModel.php
1 207 649	0	1	CalendarModel::createOneTimeEvent	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\CalendarModel.php
788 235	0	1	Multiplan::createOneTimeEvent	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Multiplan.php
703 223	703 223	32	php::PDOStatement->execute	php:internal
683 631	0	1	Multiplan::insertEventAssociations	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Multiplan.php
683 631	0	1	Multiplan::insertEventAssociationsForSinglePlan	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Multiplan.php
383 212	15 600	1	Cron->create	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Cron.php
201 606	0	1	Cron->execCron	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Cron.php
201 606	201 606	1	php::exec	php:internal
135 195	999	21	Logger->log	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\Logger.php
133 196	0	21	LoggerAppenderRollingFile->append	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\appenders\...
133 196	0	21	LoggerAppenderRollingFile->doAppend	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\LoggerApp...
133 196	0	21	LoggerRoot->callAppenders	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\Logger.php
133 196	0	21	LoggerRoot->logEvent	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\Logger.php
96 996	0	21	<cycle 2>	(unknown)
95 997	0	22	LoggerAppenderRollingFile->write <cycle 2>	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\appenders\...
95 997	95 997	22	php::filesize	php:internal
88 996	0	14	Logger->debug	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\Logger.php
80 002	80 002	5	php::file_get_contents	php:internal
65 401	0	1	Cron->generate_keyword_table	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Cron.php
55 202	15 599	1	Multiplan::cacheJustifierTestCases	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Multiplan.php
52 802	999	1	Multiplan::insertEvent	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Multiplan.php
50 800	0	2	Tellus\Util::connectDB	C:\Users\jhwang\Documents\Source\tellus\htdocs\php\dbUtil.php
50 800	50 800	2	php::PDO->__construct	php:internal
49 801	0	1	Cron->getTestPlanSettings	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Cron.php
48 800	0	1	MonsterUtil::curl_get_contents	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\MonsterUtil.php
48 800	0	1	MonsterUtil::postTimingToMonster	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\MonsterUtil.php
47 801	0	1	Cron->curl_get_contents	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Cron.php
47 801	0	1	Cron->postCronJobRegistrationTimeToMons...	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Cron.php
46 199	0	7	Logger->info	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\Logger.php
36 198	0	21	LoggerLayoutPattern->format	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\layouts\Lo...
34 200	15 599	1	Multiplan::insertGroupPlanAssociationsWithS...	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Multiplan.php
33 200	15 599	21	LoggerPatternConverterFile->convert	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\pattern\Lo...
33 200	0	21	LoggerPatternConverterFile->format	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\pattern\Lo...
33 200	1 000	1	require_once:C:\Users\jhwang\Documents\S...	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\CalendarModel.php
32 200	16 600	1	require_once:C:\Users\jhwang\Documents\S...	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Multiplan.php
23 599	0	6	Loggers::configure	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\Logger.php
22 600	0	6	LoggerConfiguratorDefault->configure	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\configurat...
17 601	15 600	42	LoggerLoggingEvent->getLocationInformation	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\LoggerLog...
17 598	0	6	LoggerConfigurationAdapterXML->convert	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\configurat...
17 598	0	6	LoggerConfiguratorDefault->parse	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\configurat...
17 598	0	6	LoggerConfiguratorDefault->parseFile	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\configurat...
16 601	999	1	Multiplan::insertGroups	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Multiplan.php
16 601	16 601	1	php::PDO->commit	php:internal
16 600	0	1	Multiplan::updateCronID	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Multiplan.php
16 599	1 000	6	LoggerConfigurationAdapterXML->loadXML	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\configurat...
15 601	0	1	Multiplan::getPlaylist	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Multiplan.php
15 601	0	1	Multiplan::insertGroupWithStatement	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Multiplan.php
15 600	15 600	5	php::PDO->lastInsertId	php:internal
15 599	15 599	12	php::file_exists	php:internal
15 599	15 599	1	php::file_put_contents	php:internal
15 599	0	1	require_once:C:\Users\jhwang\Documents\S...	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Cron.php
7 000	0	1	CalendarModel::ensureTestCases	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\CalendarModel.php
7 000	0	1	CalendarModel::fillTellusTestCaseInfo	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\CalendarModel.php
7 000	3 000	1	CalendarModel::getTellusTestCaseInfoAsMap	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\CalendarModel.php
5 000	0	6	LoggerConfiguratorDefault->configureAppe...	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\configurat...
5 000	0	6	LoggerConfiguratorDefault->doConfigure	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\configurat...

Result Highlights:

- It takes 1.324 seconds in total.
- It spends very little time in CalendarCreateEvent.php itself (2.00 millisecond or 0.15%) and CalendarModel.php itself (1.00 millisecond or 0.08%).
- It spends 788 milliseconds (59.55% time) in Multiplan.php (most DB operations are here).
 - Largest Multiplan.php components:
 - 703 msec or 53.13% of total is spent in php::PDOStatement->execute (executing SQL)
 - => SQL is 53.13% of total time.**
 - 683 msec or 51.65% of total: Multiplan.php::insertEventAssociationsForSinglePlan, including all its function calls; it spent practically 0 tie in insertEventAssociationsForSinglePlan itself, though.
 - 55 msec or 4.17% of total: Multiplan::cacheJustifierTestCases
- It spends 383 milliseconds or 28.95% in Cron.php (creating Cron job).
 - Largest Cron.php components:
 - 202 msec or 15.23% of total: php::exec (Executing external staf cron command)
 - => External cron command takes 15.23% of total time.**
 - 65.4 msec or 4.94% of total: Cron->generate_keyword_table
- 10.21% is spent in logging.

6. => About 419 msec or 31.64% is spend in PHP itself

SQL	53.13%
PHP	31.64%
Cron	15.23%

Tellus PHP Profiling with Call to Tellus Scheduler

This test has more test plans and test cases, so it shows the effect of PHP more pronouncedly (than DB or Cron), and it adds calling `prioritize` (call to Tellus Scheduler).

Test Configuration: Online one-time job, 3 test plans, 25 test cases, schedulers for tomorrow (will prioritize).

Profile time in %:

Incl.	Self	Called	Function	Location
100.00	0.01	(0)	{main}	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\CalendarCreateEvent.php
98.57	0.00	1	CalendarModel::requestCreateEvent	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\CalendarModel.php
98.27	0.01	1	CalendarModel::createOneTimeEvent	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\CalendarModel.php
73.38	0.01	1	CalendarModel::prioritize	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\CalendarModel.php
73.33	0.01	1	Tellus\SchedulerUtil::scheduleJobs	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\SchedulerUtil.php
73.03	73.03	1	php:curl_exec	php:internal
17.91	17.91	83	php:PDOStatement->execute	php:internal
17.72	0.00	1	Multiplan::createOneTimeEvent	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Multiplan.php
16.27	0.13	1	Multiplan::insertEventAssociations	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Multiplan.php
16.27	0.00	1	Multiplan::insertEventAssociationsForSinglePlanJobs	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Multiplan.php
6.11	0.01	1	Cron->create	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Cron.php
3.34	0.03	42	Logger->log	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\Logger.php
3.26	0.02	42	LoggerRoot->logEvent	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\Logger.php
3.22	0.01	42	LoggerAppenderRollingFile->doAppend	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\LoggerAppender.php
3.22	0.00	42	LoggerRoot->callAppenders	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\Logger.php
3.20	0.03	42	LoggerAppenderRollingFile->append	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\appenders\LoggerAppenderFile.php
2.91	0.04	43	LoggerAppenderRollingFile->write <cycle 2>	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\appenders\LoggerAppenderRolling...
2.91	0.04	42	<cycle 2>	(unknown)
2.85	2.85	43	php:filesize	php:internal
2.74	0.00	3	Cron->execCron	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Cron.php
2.74	2.74	3	php:exec	php:internal
2.41	0.01	33	Logger->debug	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\Logger.php
1.12	0.00	3	Cron->curl_get_contents	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Cron.php
1.12	0.00	3	Cron->postCronJobRegistrationTimeToMonster	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Cron.php
0.94	0.00	9	Logger->info	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\Logger.php
0.73	0.01	1	Multiplan::cacheJustifierTestCases	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Multiplan.php
0.72	0.01	1	Multiplan::updateCronID	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Multiplan.php
0.70	0.70	7	php:file_get_contents	php:internal
0.55	0.00	1	MonsterUtil::curl_get_contents	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\MonsterUtil.php
0.55	0.00	1	MonsterUtil::postTimingToMonster	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\MonsterUtil.php
0.53	0.00	3	Cron->generate_keyword_table	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Cron.php
0.50	0.50	3	php:fclose	php:internal
0.50	0.04	3	Cron->saveStatxRequestInDB	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Cron.php
0.45	0.00	1	Multiplan::insertGroups	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Multiplan.php
0.45	0.01	3	Multiplan::insertGroupWithStatement	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Multiplan.php
0.42	0.02	3	Cron->generate_keyword_table	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Cron.php
0.42	0.00	6	Logger::configure	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\Logger.php
0.40	0.03	1	require_once:C:\Users\jhwang\Documents\Source...	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\CalendarModel.php
0.39	0.01	6	LoggerConfiguratorDefault->configure	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\configurators\LoggerConfiguratorD...
0.32	0.00	6	LoggerConfiguratorDefault->doConfigure	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\configurators\LoggerConfiguratorD...
0.31	0.00	6	LoggerConfiguratorDefault->configureAppender	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\configurators\LoggerConfiguratorD...
0.30	0.03	1	Multiplan::insertEvent	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Multiplan.php
0.27	0.25	3	Multiplan::getPlaylist	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Multiplan.php
0.26	0.06	42	LoggerLayoutPattern->format	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\layouts\LoggerLayoutPattern.php
0.26	0.12	6	LoggerConfiguratorDefault->createAppenderLayout	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\configurators\LoggerConfiguratorD...
0.25	0.00	1	Multiplan::insertInstance	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Multiplan.php
0.24	0.00	1	Multiplan::cacheJustifierTestPlans	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Multiplan.php
0.23	0.23	3	php:file_put_contents	php:internal
0.23	0.00	1	Multiplan::insertChunksWithGroups	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Multiplan.php
0.23	0.00	3	Multiplan::insertChunksWithStatement	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Multiplan.php
0.20	0.00	1	CalendarModel::ensureTestCases	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\CalendarModel.php
0.20	0.01	3	CalendarModel::fillTellusTestCasesInfo	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\CalendarModel.php
0.20	0.07	3	CalendarModel::getTellusTestCasesInfoAsMap	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\CalendarModel.php
0.17	0.01	1	require_once:C:\Users\jhwang\Documents\Source...	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Multiplan.php
0.16	0.16	11	php:PDO->lastInsertId	php:internal
0.15	0.07	3	Cron->getTestPlanSettings	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar\php\Cron.php
0.14	0.01	6	LoggerLayoutPattern->activateOptions	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\layouts\LoggerLayoutPattern.php
0.14	0.06	42	LoggerPatternConverterFile->convert	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\pattern\LoggerPatternConverterFile...

Profile time in microseconds:

Incl.	Self	Called	Function	Location
13 846 672	1 999	(0)	{main}	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\CalendarCreateEvent.php
13 648 058	0	1	CalendarModel::requestCreateEvent	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\CalendarModel.php
13 607 054	999	1	CalendarModel::createOneTimeEvent	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\CalendarModel.php
10 187 664	999	1	CalendarModel::prioritize	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\CalendarModel.php
10 153 063	1 000	1	Tellus\SchedulerUtil::scheduleJobs	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\SchedulerUtil.php
10 111 860	10 111 860	1	php:curl_exec	php:internal
2 479 687	2 479 687	83	php:PDOStatement->execute	php:internal
2 453 306	0	1	Multiplan::createOneTimeEvent	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Multiplan.php
2 252 898	17 599	1	Multiplan::insertEventAssociations	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Multiplan.php
2 252 898	0	1	Multiplan::insertEventAssociationsForSinglePlanJobs	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Multiplan.php
845 677	999	1	Cron->create	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Cron.php
462 221	3 996	42	Logger->log	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\Logger.php
451 219	2 998	42	LoggerRoot->logEvent	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\Logger.php
446 220	1 999	42	LoggerAppenderRollingFile->doAppend	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\LoggerAppender.php
446 220	0	42	LoggerRoot->callAppenders	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\Logger.php
443 220	3 998	42	LoggerAppenderRollingFile->append	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\appenders\LoggerAppend...
403 209	5 997	43	LoggerAppenderRollingFile->write < cycle 2 >	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\appenders\LoggerAppend...
403 209	5 997	42	< cycle 2 >	(unknown)
395 212	395 212	43	php:filesize	php:internal
378 833	0	3	Cron->execCron	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Cron.php
378 833	378 833	3	php:exec	php:internal
333 416	2 000	33	Logger->debug	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\Logger.php
155 210	0	3	Cron->curl_get_contents	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Cron.php
155 210	0	3	Cron->postCronJobRegistrationTimeToMonster	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Cron.php
130 806	0	9	Logger->info	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\Logger.php
100 601	999	1	Multiplan::cacheJustifierTestCases	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Multiplan.php
99 805	1 000	1	Multiplan::updateCronID	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Multiplan.php
97 006	97 006	7	php:file_get_contents	php:internal
76 008	0	1	MonsterUtil::curl_get_contents	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\MonsterUtil.php
76 008	0	1	MonsterUtil::postTimingToMonster	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\MonsterUtil.php
74 008	0	3	Cron->generate_json_file	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Cron.php
69 005	69 005	3	php:close	php:internal
68 605	6 000	3	Cron->saveStaxRequestInDB	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Cron.php
61 802	0	1	Multiplan::insertGroups	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Multiplan.php
61 801	999	3	Multiplan::insertGroupWithStatement	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Multiplan.php
58 004	2 998	3	Cron->generate_keyword_table	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Cron.php
57 601	0	6	Logger::configure	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\Logger.php
55 603	4 000	1	require_once:C:\Users\jhwang\Documents\Source...	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\CalendarModel.php
53 599	999	6	LoggerConfiguratorDefault->configure	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\configurators\LoggerConf...
44 600	0	6	LoggerConfiguratorDefault->doConfigure	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\configurators\LoggerConf...
43 600	0	6	LoggerConfiguratorDefault->configureAppender	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\configurators\LoggerConf...
41 003	3 999	1	Multiplan::insertEvent	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Multiplan.php
37 201	34 201	3	Multiplan::getPlaylist	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Multiplan.php
35 988	8 997	42	LoggerLayoutPattern->format	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\layouts\LoggerLayoutPatte...
35 600	16 599	6	LoggerConfiguratorDefault->createAppenderLayout	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\configurators\LoggerConf...
35 201	0	1	Multiplan::insertInstance	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Multiplan.php
33 200	0	1	Multiplan::cacheJustifierTestPlans	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Multiplan.php
32 002	32 002	3	php:file_put_contents	php:internal
31 199	0	1	Multiplan::insertChunksWithGroups	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Multiplan.php
31 198	0	3	Multiplan::insertChunksWithStatement	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Multiplan.php
28 002	0	1	CalendarModel::ensureTestCases	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\CalendarModel.php
28 002	999	3	CalendarModel::fillTellusTestCaseInfo	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\CalendarModel.php
27 002	9 999	3	CalendarModel::getTellusTestCaseInfoAsMap	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\CalendarModel.php
24 002	2 000	1	require_once:C:\Users\jhwang\Documents\Source...	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Multiplan.php
22 598	22 598	11	php:PDO->lastInsertId	php:internal
21 001	9 999	3	Cron->getTestPlanSettings	C:\Users\jhwang\Documents\Source\tellus\htdocs\calendar.php\Cron.php
18 999	999	6	LoggerLayoutPattern->activateOptions	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\layouts\LoggerLayoutPatte...
18 988	7 995	42	LoggerPatternConverterFile->convert	C:\Users\jhwang\Documents\Source\tellus\htdocs\vendor\apache\log4php\src\main\php\pattern\LoggerPatternCon...

Total time was 13.847 seconds.

It shows that 10.188 seconds or 73.58% of total time is spent in CalendarModel::prioritize, and almost all of it (10.153 seconds or 73.33% of total) is a call to Tellus\SchedulerUtil::scheduleJobs, which is call to Tellus Scheduler ("RestfulSchedulingService", not STAF Cron) to prioritize jobs.

=> **Tellus Scheduler taking more than 10 seconds is much too long** (it should be a fraction of a second).

Conclusion:

The profiling results show that two top "bottlenecks" are SQL server and Tellus Scheduler. Slightly over half of the time is spent waiting for database. So database optimization would be the most helpful. (SQL optimization would be separate tools/effort.)

Tellus Scheduler took more than 10 seconds to prioritize jobs, which is more than 70% of job submission time, and that is much too long. In my humble opinion, it is probably not worth fixing that, as the effort would be like re-implementing Kubernetes job scheduler, so it might be better to just wait for something like Kubernetes. Kubernetes should take about a second or so for job submission.

Also about 31% of the time is spent in PHP itself, so PHP optimization would help, though to a lesser extent.

In this test, STAF Cron took 202 milliseconds or about 15% (on laptop with small Cron database), but in production server, we have previously encountered time of about 6 seconds with large Cron database. (It's been reduced to about 1-2 seconds after we deleted old unneeded jobs.) So we need to keep Cron time

low.

About 10% is spent in logging. That is not insignificant, so we should try to minimize logging.

Files



tellus_php_
profiler_o...



tellus_php_
profiler_o...