PLM Europe
The Voice of Siemens PLM Software Users

Presentation date: 08.10.2019 11:00 – 12:00

Presenter name: Josef Feuerstein

Co Presenter: Sascha Güth

Room name: Estrel Hall C5+6

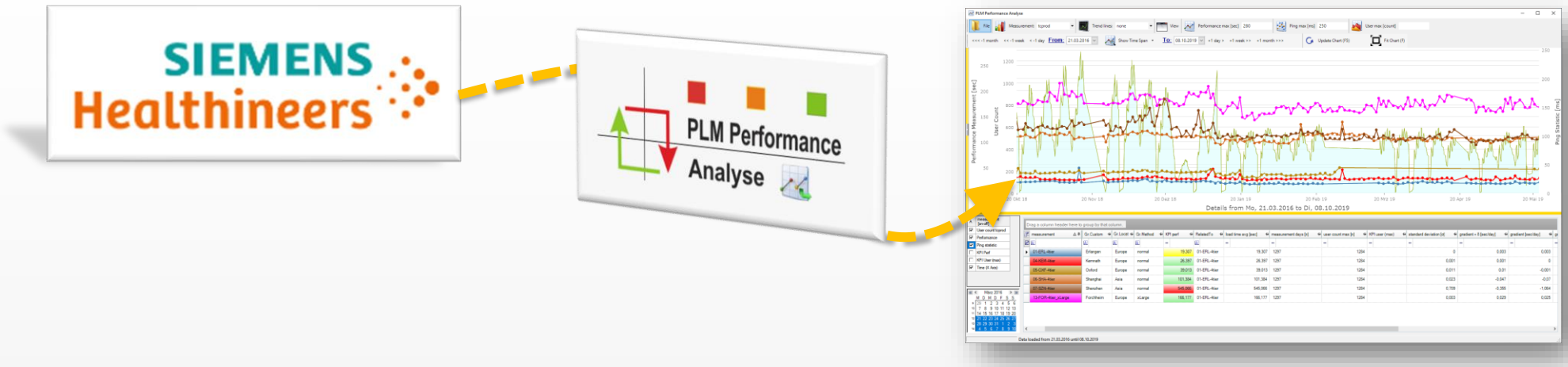
Presentation title: PLM Performance measuring & monitoring

2019

® PLM Europe 2018 – All rights reserved

Your name/Company

Introduction



Siemens Healthineers started in **March 2016** to introduce systematic performance measurements in their TC/NX system.
The goal was to determine objective values for the performance behavior of NX assemblies.

Presentation Abstract / Introduction

PLM Performance Analyse Setup

Basics data collection

Basics measurement data

Overview PLM Performance Analyse

Summery

Presentation Abstract

PLM Performance measuring & monitoring

Abstract:

All complex software solutions are evaluated in addition to the software quality, especially on **performance behaviour**. The software performance is perceived as a “felt speed” by almost all users.

Experience has shown that the performance changes / decreases permanently and that this is perceived, discussed and criticized only after a reduction of 30% -50%. This often leads to unusable statements that make it difficult to improve the performance of the system.

You will learn:

how to measure continuously PLMSystem performance. How it helps you to monitor and to analyse specific performance.

Additional we show how the **customer Siemens Healthineers** is using and improving there system with the help of our solution PLMPerformance Analyse.

Presentation Abstract / Introduction

PLM Performance Analyse Setup

Basics data collection

Basics measurement data

Overview PLM Performance Analyse

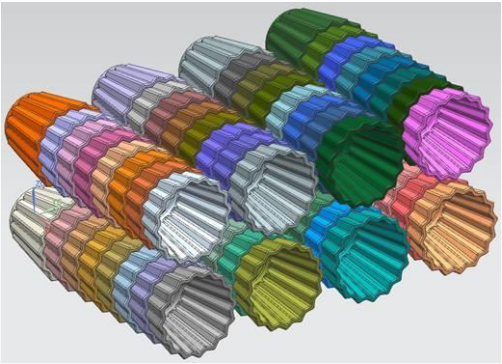
Summery

PLM Performance Analyse Setup

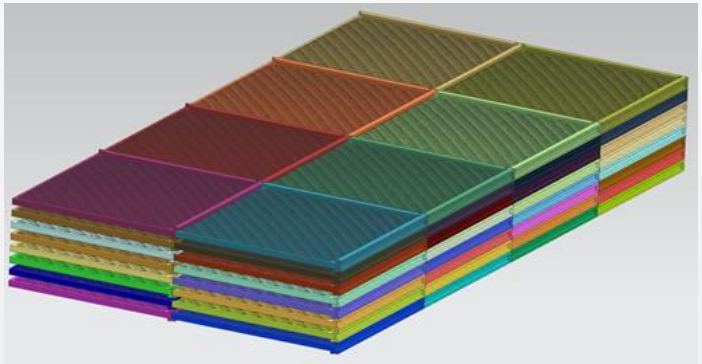
Measuring loading time of 3 different NX assemblies on 8 locations

- **Assemblies:**

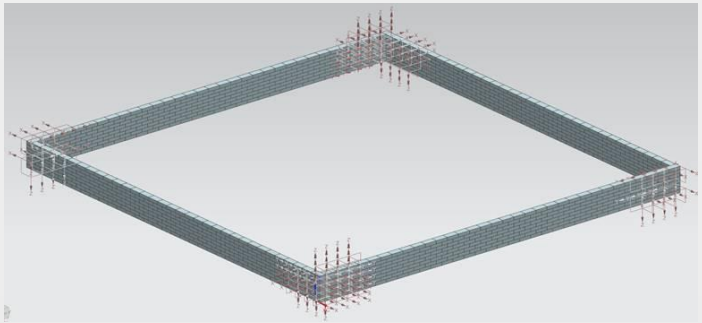
Normal
8 levels – 191 components



Large
8 levels – 191 components
bigger prt files then normal



xLarge
12 levels – 3071 components



Presentation Abstract / Introduction

PLM Performance Analyse Setup

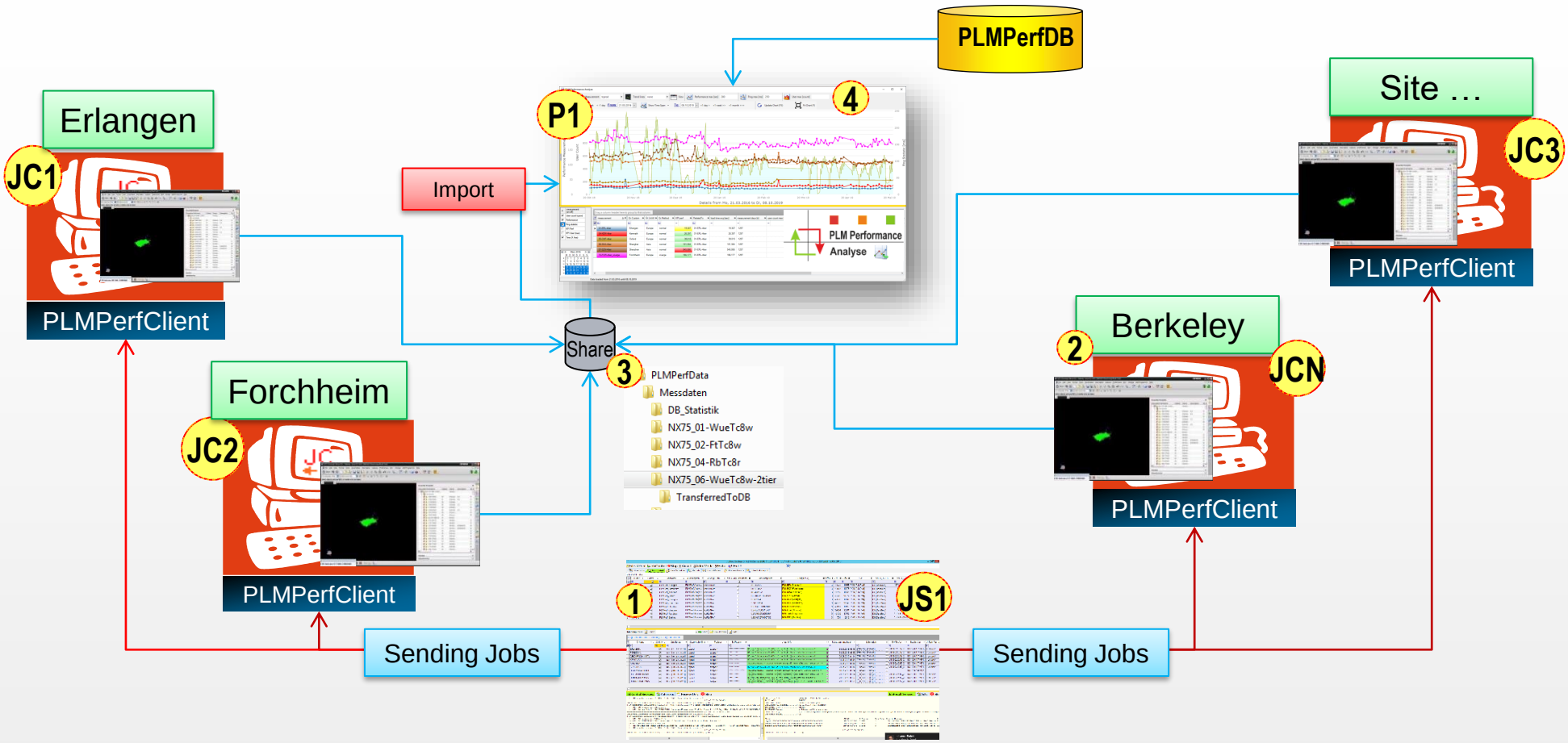
Basics data collection

Basics measurement data

Overview PLM Performance Analyse

Summery

Acquire of measurement data: system sketch



System overview

1. JobServer (JS1): distributes the PLMPerf Jobs to the JobClients (JC1…JCN)

2. JobClient (JC1…JCN): executes the PLMPerf Job (NXJournal) and stores the results .csv file

3. PLMPerf Analyse: imports the measured data from the share (3) and presents in in the GUI

The following Locations are in scope of measuring:

- Erlangen Germany
- Forchheim Germany
- Kemnath Germany
- Oxford England
- Shanghai China
- Shenzhen China
- Flanders USA
- Berkeley USA

Acquire of measurement data: Locations are in scope of measuring

- Erlangen Germany
- Forchheim Germany
- Kemnath Germany
- Oxford England
- Flanders USA
- Berkeley USA
- Shanghai China
- Shenzhen China

Acquire of measurement data: Locations are in scope of measuring

- Erlangen Germany
- Forchheim Germany
- Kemnath Germany
- Oxford England
- Flanders USA
- Berkeley USA
- Shanghai China
- Shenzhen China

Measurement data recording

Process of data collection:

The measured data is recorded by an automatic start of NX on the different sites **(1..3)** and stored in central directories **(4)**. These processes can be controlled via the Windows Task Scheduler or via the PLMJobManager. The performance analysis imports the measured data from the directories into the database **(6)** via batch **(5)**. Now the data are available for the analysis.

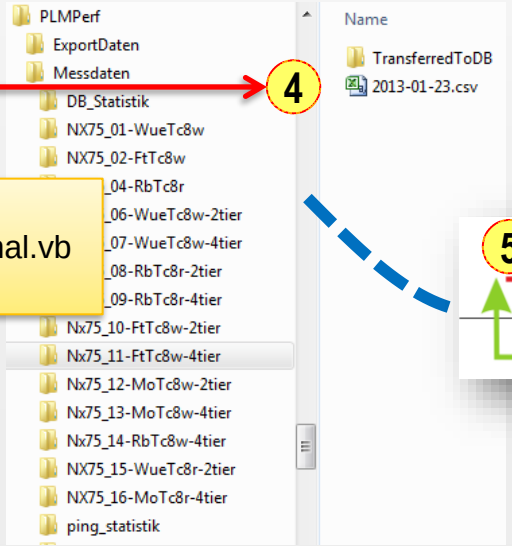
1

```
Job:[tc8w_PLMPerf_WUE_05656_KBA][NX75_06-WueTc8w-2tier][/2tier][tc8w][S:23.01.2013/21:00:28][srv_JobManager_Wue
"Prog:[PlmJobManagerWatchDog]: OK is allrady running"
Job:[tc8w_PLMPerf_WUE_05656_KBA][NX75_06-WueTc8w-2tier][/2tier][tc8w][S:23.01.2013/21:00:28][s
Job Info:
JobName...........: tc8w_PLMPerf_WUE_05656_KBA
Computer..........: WCAD112054
TempDir...........: C:\temp\JobClient\tc8w_PLMPerf_WUE_05656_KBA\JobTemp_NX75_06-WueTc8w-2tier
TcSide............: tc8w
TcUser............: srv_JobManager_Wue
```

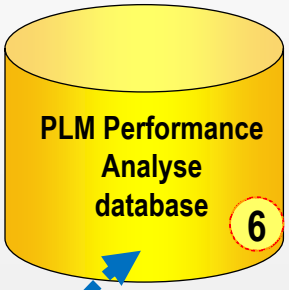
2

3

```
…
CALL %UGII_ROOT_DIR%\run_journal.exe" -pim -u=.. -p=.. -g=.. PerfJournal.vb
CALL PLMPerfCmd.exe –i=NxSyslog.syslog
```



4



6

5

Presentation Abstract / Introduction

PLM Performance Analyse Setup

Basics data collection

Basics measurement data

Overview PLM Performance Analyse

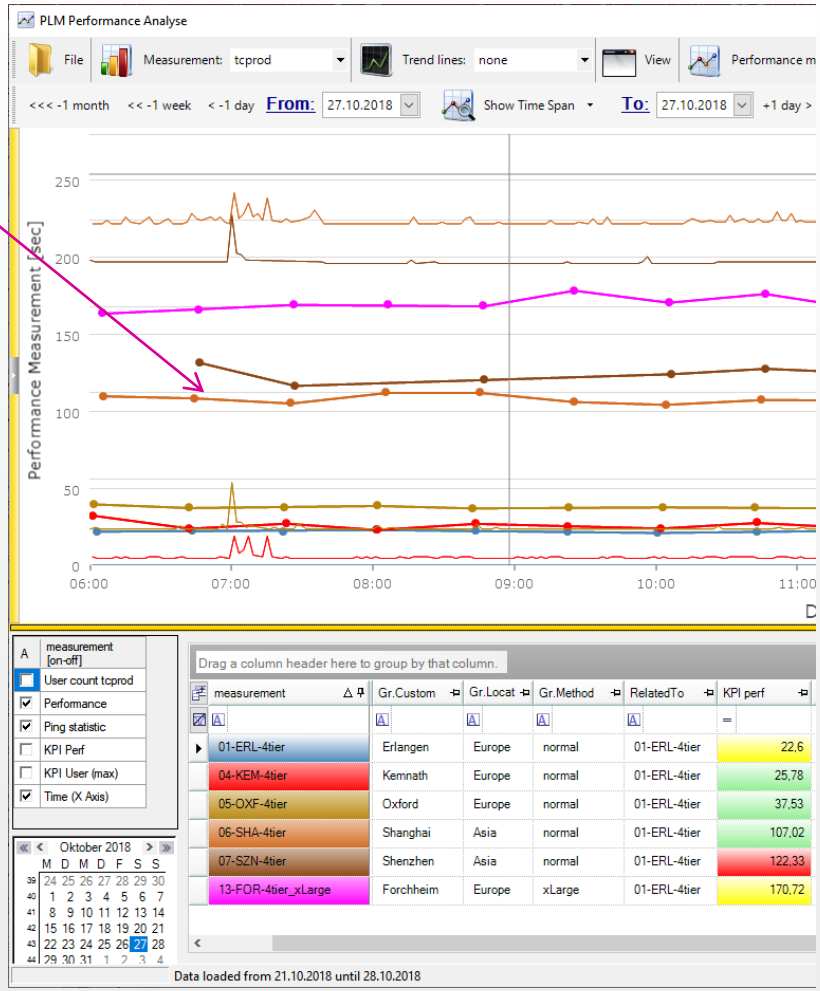
Summery

Loading performance measurement data source

```
2055 ==============================================================
2056 Timing Report for NX when connected to Teamcenter vs rest of native NX
2057 --------------------------------------------------------------
2058 Subsystem summary breakdown:
2059 ----------------------------
2060 TOTAL CPU =          9.16            REAL =        18.58
2061 TCIN  CPU =          2.82 ( 30.75%) REAL =         3.92 ( 21.09%)
2062 PDI   CPU =          0.11 (  1.19%) REAL =         0.56 (  3.03%)
2063 FCC   CPU =          0.00 (  0.00%) REAL =         0.06 (  0.34%)
2064 SOA   CPU =          0.00 (  0.00%) REAL =         0.00 (  0.00%)
2065 SQL                                 REAL =         3.55 ( 19.11%)
```

```
MessungNr;Datum;Zeit;Users;LoadUpdCpuReal;LoadUpdCpu;TotalReal…
1;04.10.2011;06:11:56;85;18,580;5,594;40,67;22,12;15,43;11,81
2;04.10.2011;06:11:56;85;17,623;5,703;24,64;11,39;4,20;1,07
3;04.10.2011;06:11:56;85;17,921;5,781;25,44;12,14;4,70;1,42
1;04.10.2011;06:41:21;83;16,820;5,843;24,86;11,97;4,67;1,53
2;04.10.2011;06:41:21;83;12,596;6,125;24,33;11,54;4,29;1,03
```

MessungNr:	**Measuring point number of the measurement series**
Datum;Zeit:	**Time of the measurement process (end)**
Users:	**Number of TC users during the measurement**
LoadUpdCpuReal:	**value displayed in the graph**



Structure ping statistics

```
***** Ping-Statistik ******
Datum;Uhrzeit;Sender;Empfänger;gesendet;empfangen;verloren;Minimum;Maximum;Mittelwert
14.10.2011;00:54:16;FCAD50657;ORA_IM9W;20;20;0;7;25;7;
14.10.2011;00:55:19;FCAD50657;ORA_IM9W;20;20;0;7;17;8;
14.10.2011;00:56:19;FCAD50657;ORA_IM9W;20;20;0;7;13;7;
14.10.2011;00:57:19;FCAD50657;ORA_IM9W;20;20;0;7;16;9;
```

Datum;Uhrzeit:	**Time of the measurement**
Sender:	**Name of the client that has send the ping**
Empfänger:	**Name of the server which received the ping**
gesendet:	**is only stored in DB, not in use**
empfangen:	**is only stored in DB, not in use**
verloren:	**is only stored in DB, not in use**
Minimum:	**is only stored in DB, not in use**
Maximum:	**is only stored in DB, not in use**
Mittelwert:	**This values are displayed in the graphical view as yellow dots**

Presentation Abstract / Introduction

PLM Performance Analyse Setup

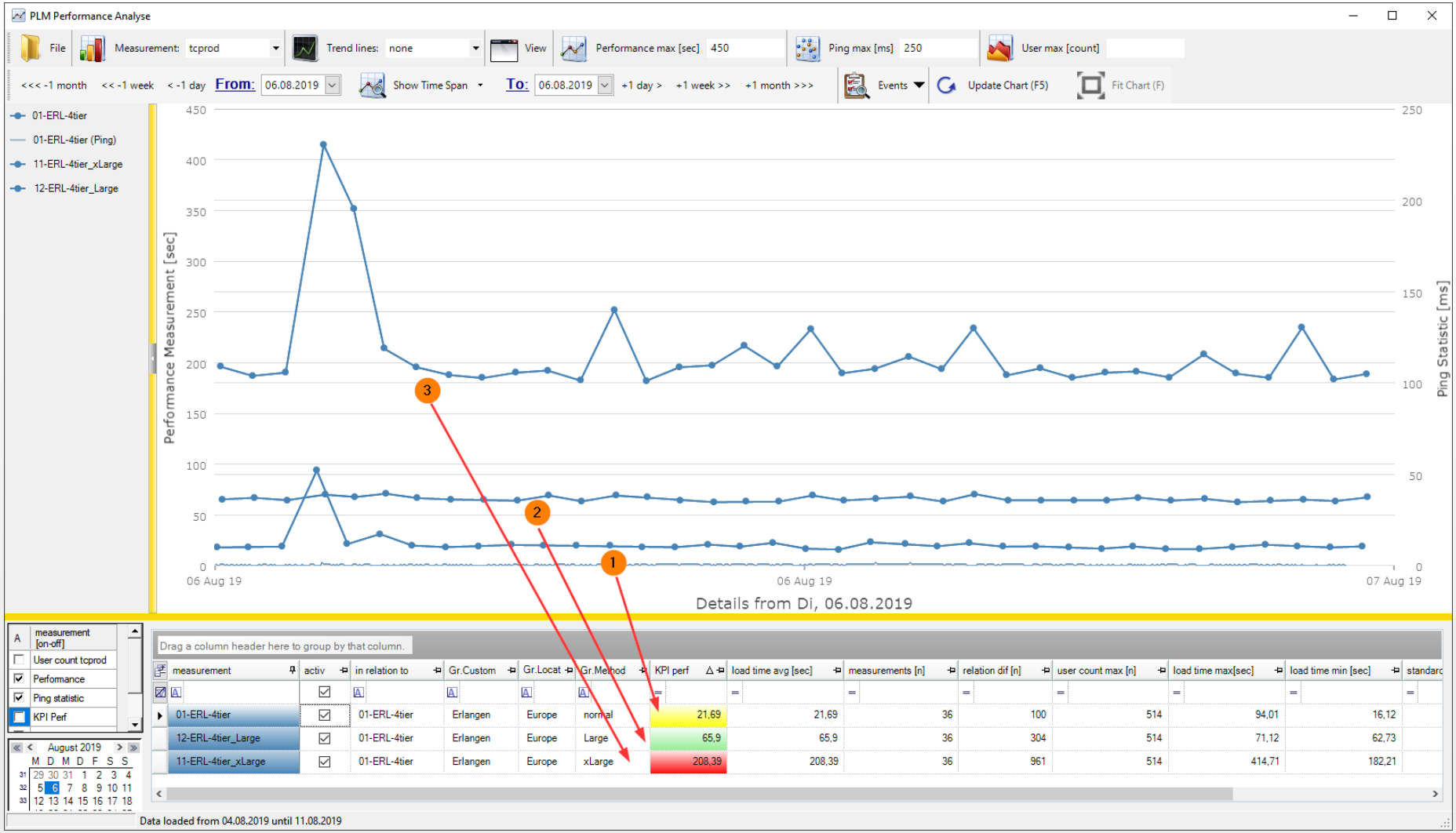
Basics data collection

Basics measurement data

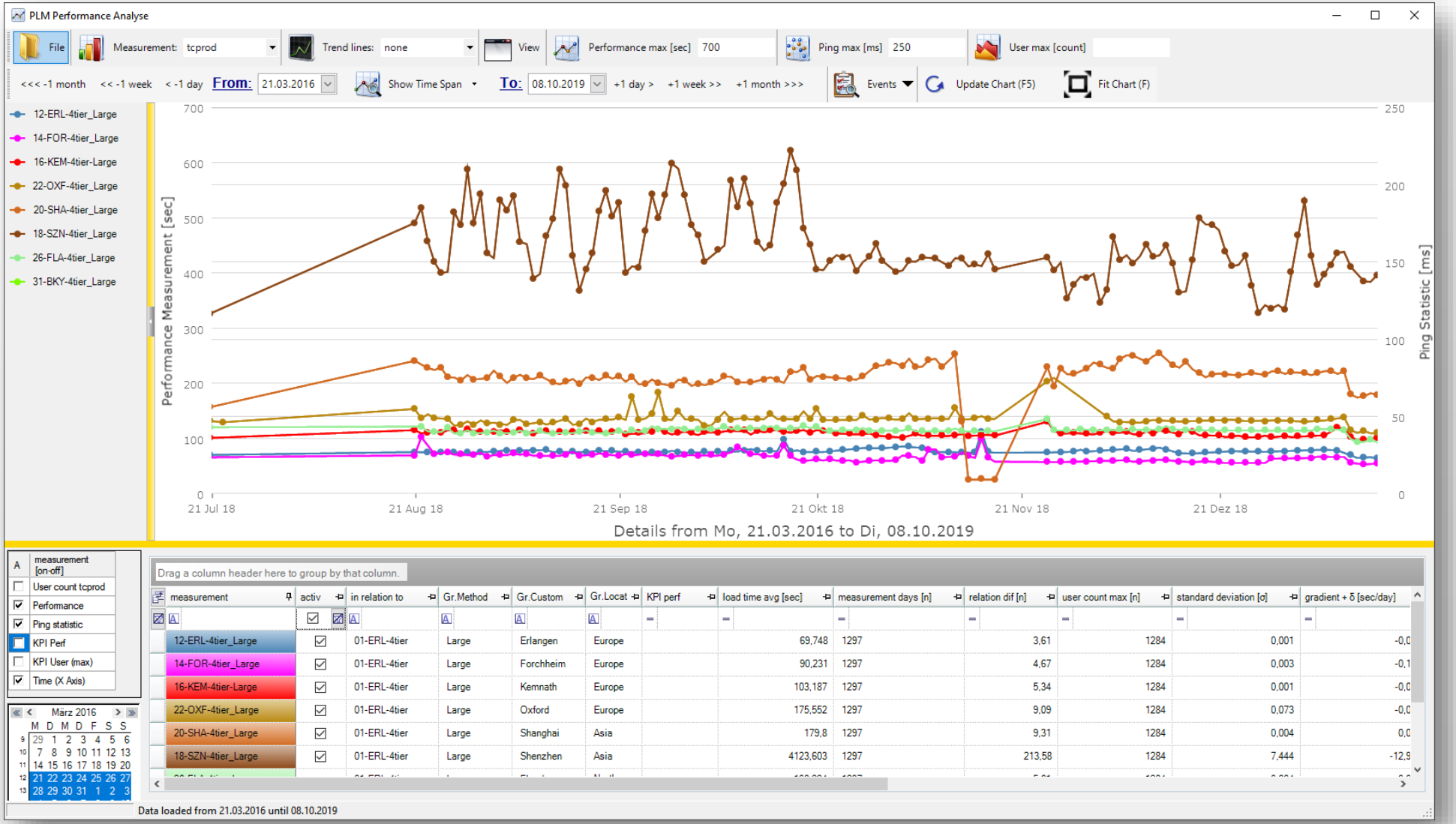
Overview PLM Performance Analyse

Summery

loading time of 3 NX assemblies on same locations

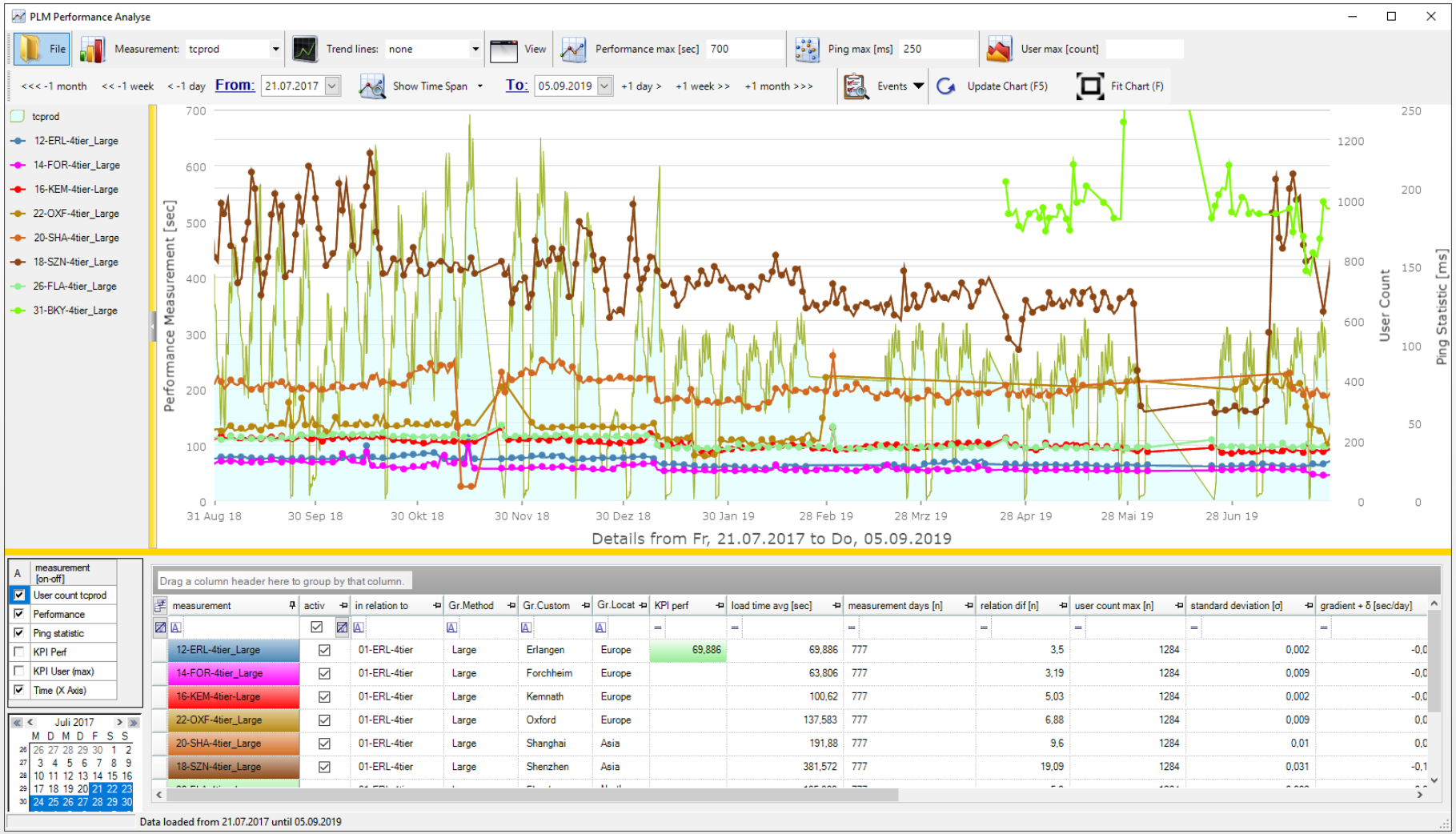


Measurement on 8 different locations

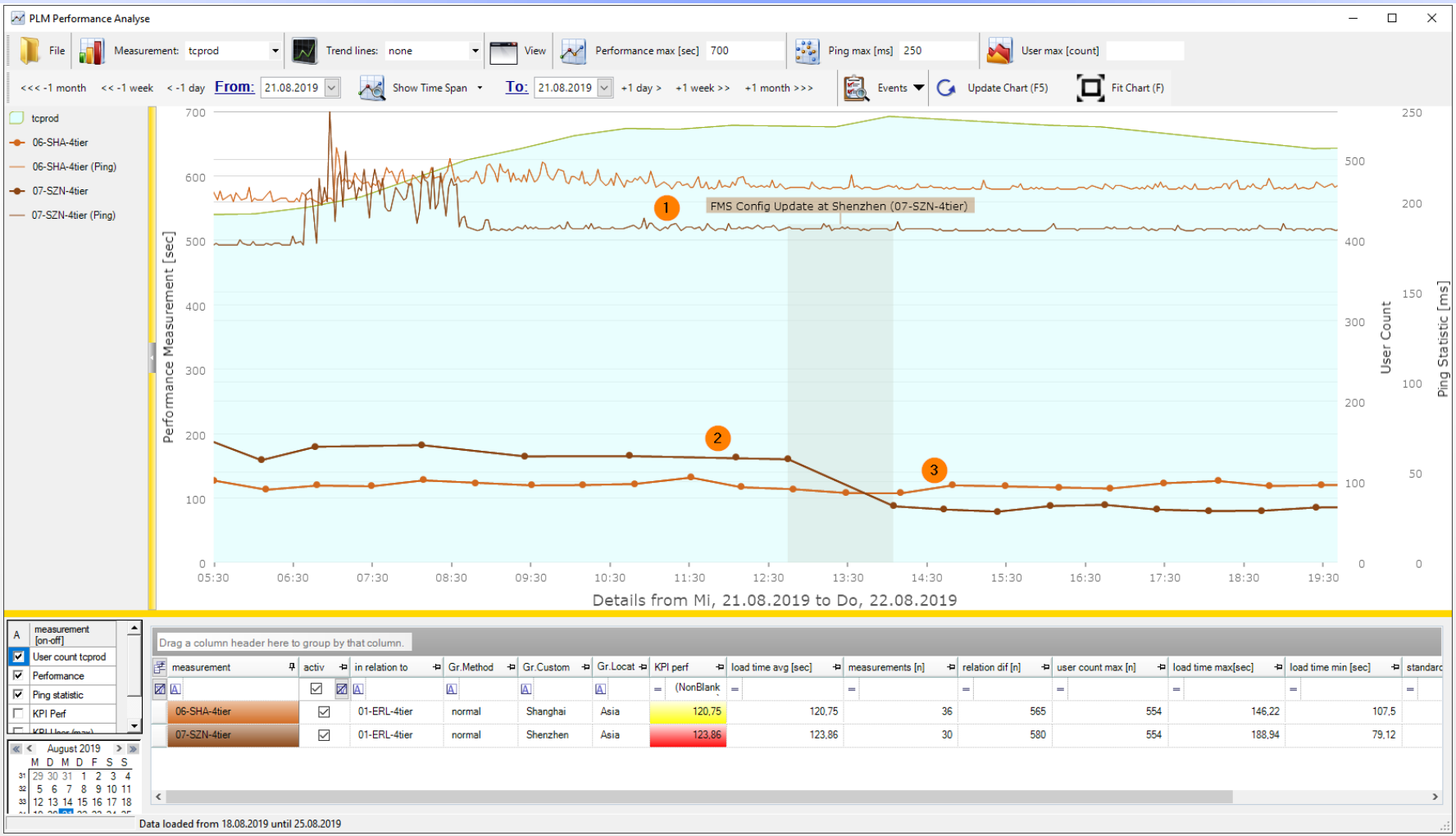


Measurement over time

Measurements from 21.07.2017 to 05.09.2019



Siemens Healthineers analyse performance issue



measurement	activ	in relation to	Gr.Method	Gr.Custom	Gr.Locat	KPI perf	load time avg [sec]	measurements [n]	relation dif [n]	user count max [n]	load time max[sec]	load time min [sec]
						(NonBlank						
06-SHA-4tier	☑	01-ERL-4tier	normal	Shanghai	Asia	120,75	120,75	36	565	554	146,22	107,5
07-SZN-4tier	☑	01-ERL-4tier	normal	Shenzhen	Asia	123,86	123,86	30	580	554	188,94	79,12

1. Ping in Shenzhen is better (lower) than in Shanghai
2. But assembly load performance in Shenzhen is worst (higher) than in Shanghai
3. After editing the FMS configuration in Shenzhen that load performance is slightly better than in Shanghai which corresponds to the expected result

Presentation Abstract / Introduction

PLM Performance Analyse Setup

Basics data collection

Basics measurement data

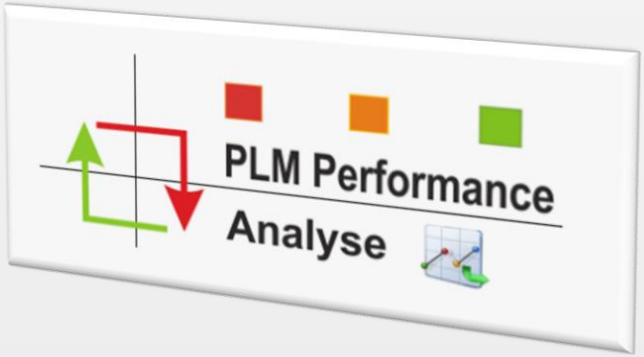
Overview PLM Performance Analyse

Summery

Summary

The automatic discovery of performance data has the following advantages :

- ✓ The measurements treat objectively the evaluation of the performance
- ✓ "indirectly" the entire PLM IT infrastructure is analyzed as all systems are addressed by the measurement
- ✓ Smaller performance differences which infiltrates to the systems are recorded systematically and time based. The time based measurement has the great advantage that e.g. performance impacts due to changes in the IT system or to the Software can be understood in a better way
- ✓ The system informs the administrators via email when high values are measured

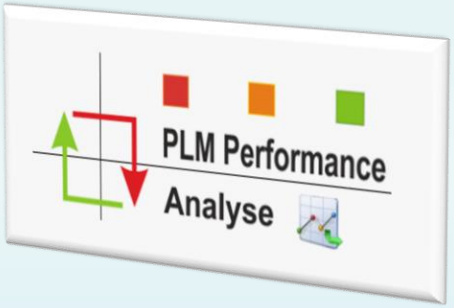


Contact us:
Josef Feuerstein Josef.Feuerstein@addPLM.com
Sascha Güth Sascha.Gueth@addPLM.com

PLM Europe
The Voice of Siemens PLM Software Users

addPLM - GmbH

THANK YOU FOR YOUR ATTENTION



Visit us at the Exhibition Hall Market PLACE #50D

2019

08 October 2019

www.plm-europe.org
www.siemens.com/plm