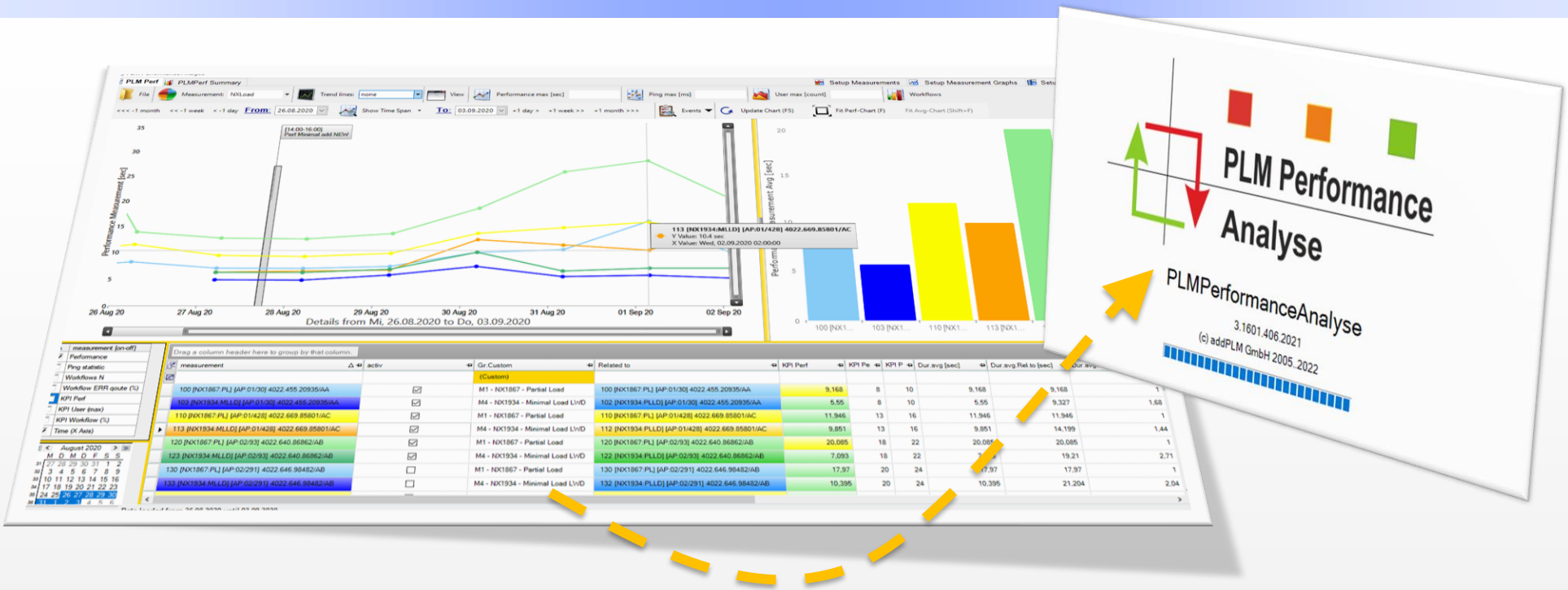


PLM - Performance - Analyse

the solution for automated and permanent performance measurements for NX in TC Environment

PLM – Performance Analyse Overview

PLM – Performance Analyse

The PLMPerformance Analyse software is a solution for automated and permanent performance measurements for NX in the TC Environment

Description:
All complex software solutions are evaluated in addition to the software quality, especially on performance behavior. The software performance is perceived as a “felt speed” by almost all users. Experience has shown that the performance decreases permanently and that this is perceived, discussed and criticized only after a reduction of 30% -40%. This often leads to unusable statements that make it difficult to improve the performance of the system.
A particularly problem is to evaluate the impact of individual measures in time relation, if no continuous measurements are available.
To improve this situation we developed the **P**LM**P**erformance**A**nalyse **(PPA)**

The software supplies:
- Performance data on **loading assemblies**
- Performance data on **starting TeamCenter and NX** for each workstation
- the **user count of logged in users in TC**
- location-based ping times
- an interactive user interface that displays the data graphically and time-based

With this solution you achieve:
objective evaluation of the system performance
it helps to identify all kinds of performance degradation
it delivers important data to detect time-based performance problems

Basics data collection

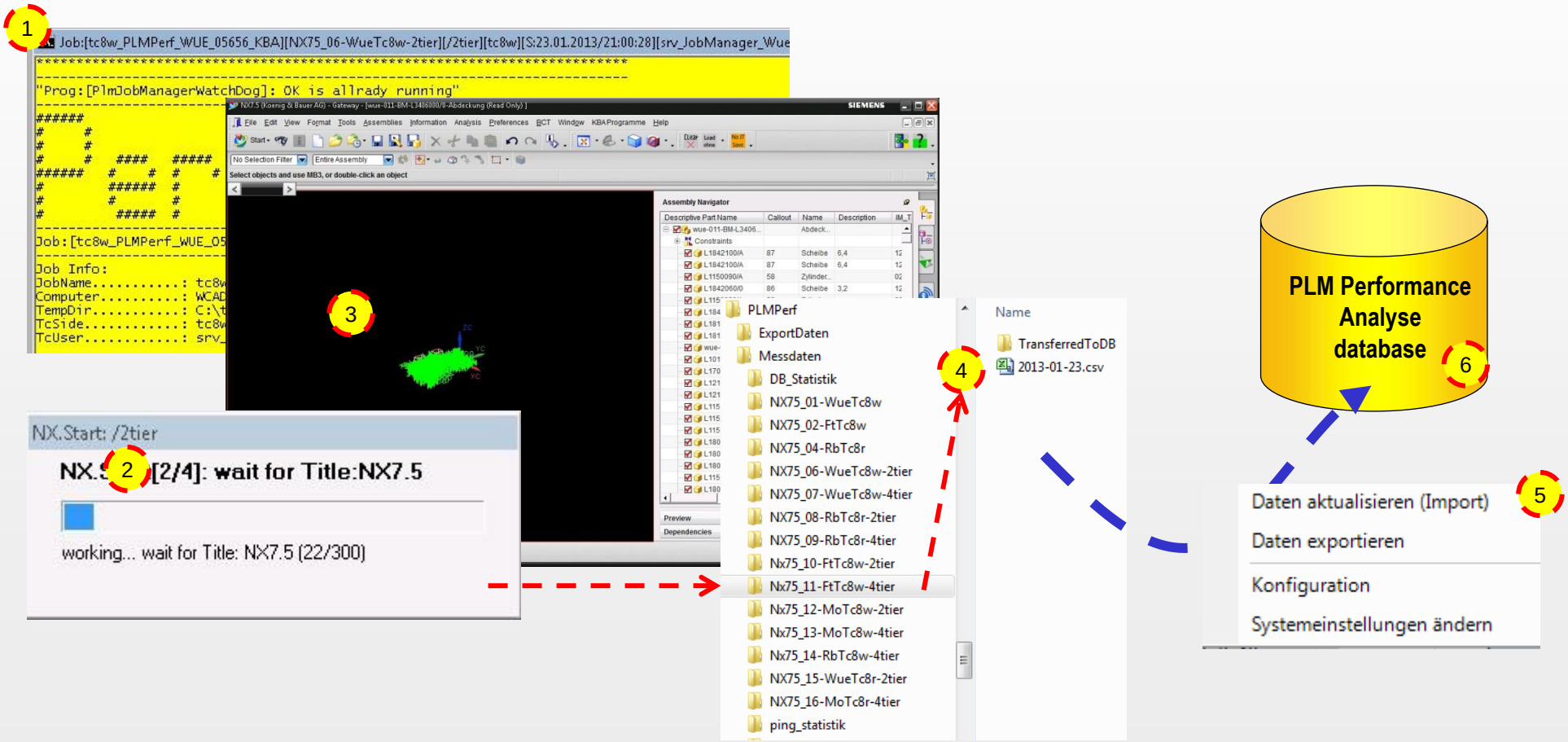
Basics measurement data

Overview surface PLM Performance Analyse

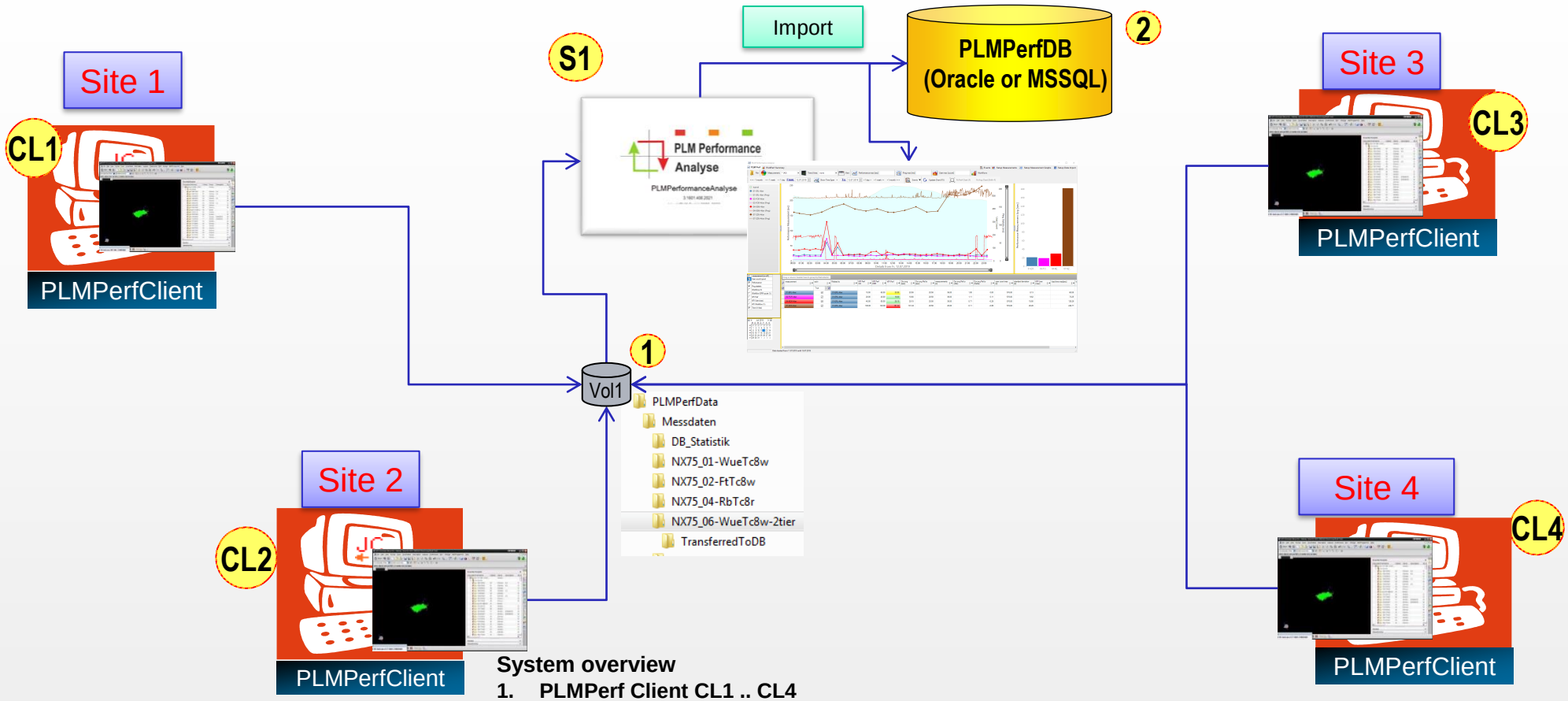
Summery

Acquire of measurement data

Process of data collection:
The measured data is acquired 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.



Acquire of measurement data: system sketch



System overview

1. **PLMPerf Client CL1 .. CL4**
   - Perform the measurements
     boundary condition : technical IT infrastructure and installation in the same way as the workstations of the construction
   - Import of the measurement data into the central measurement directories

2. **PLMPerf Server (S1)**
   - Import of the measurement data **(1)** of the clients **CL1 .. CL4** into the PLMPerfDB **(2) via** PLMPerfServer **(S1)**
   - Display the measurement data with the PLMPerfServer – (**S1**)

Basics data collection

Basics measurement data

Overview surface PLM Performance Analyse

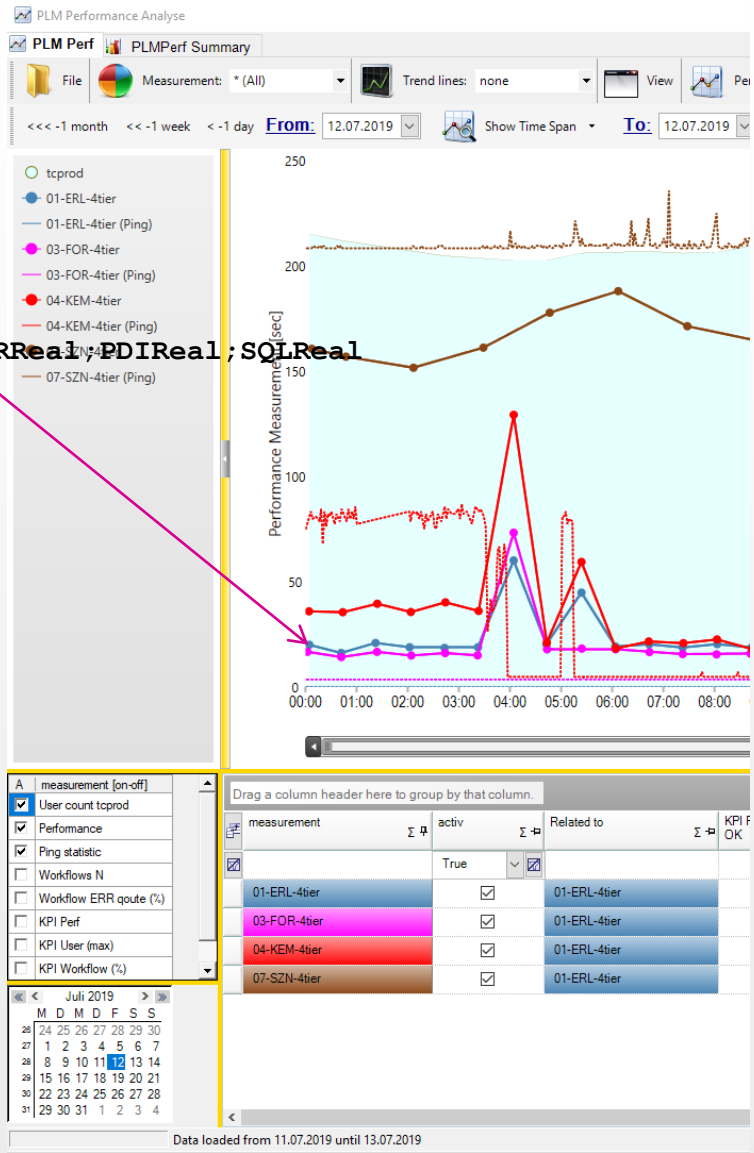
Summery

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;UGMGRReal;PDIReal;SQLReal
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**

Basics data collection

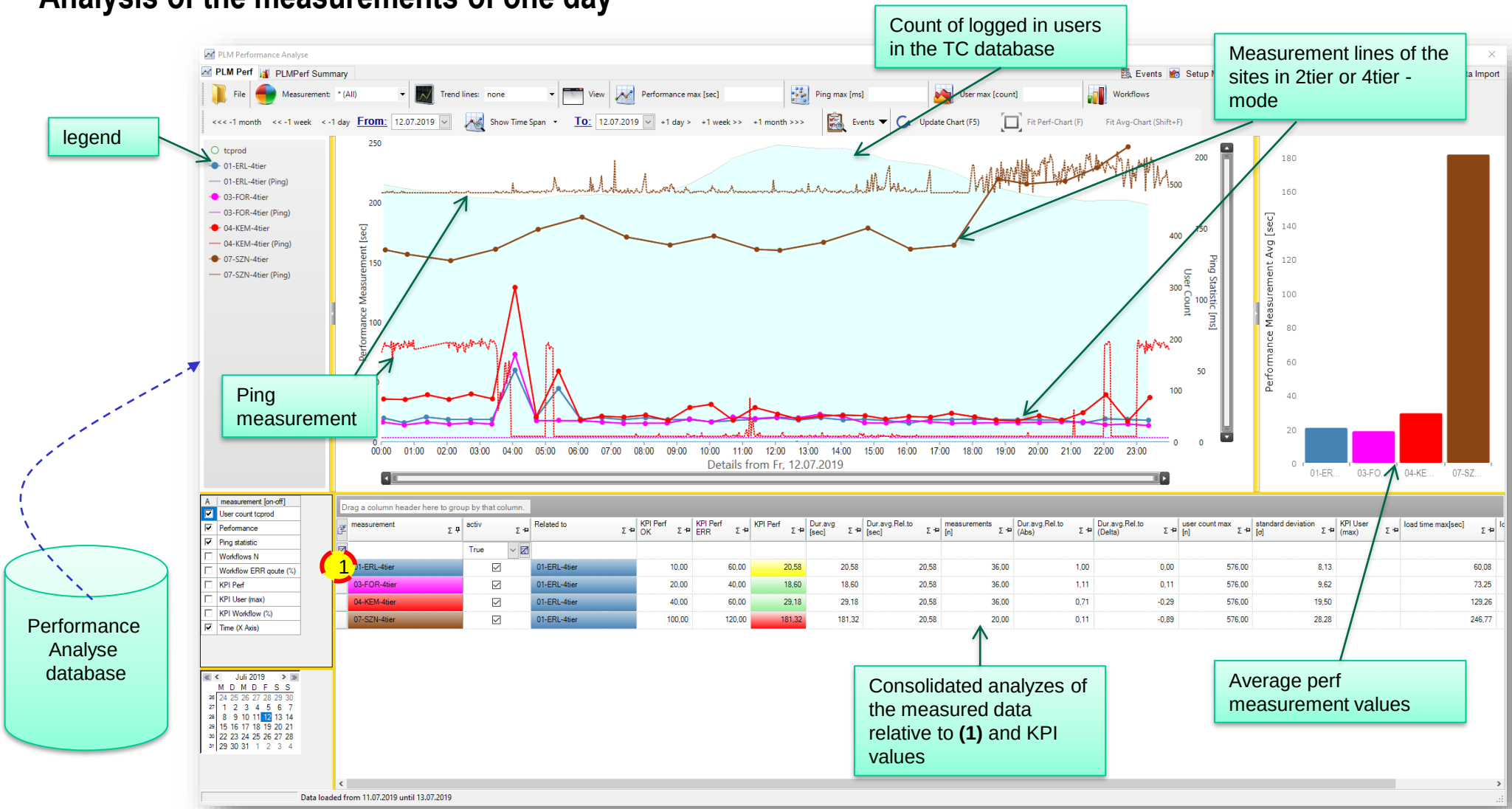
Basics measurement data

Overview surface PLM Performance Analyse

Summery

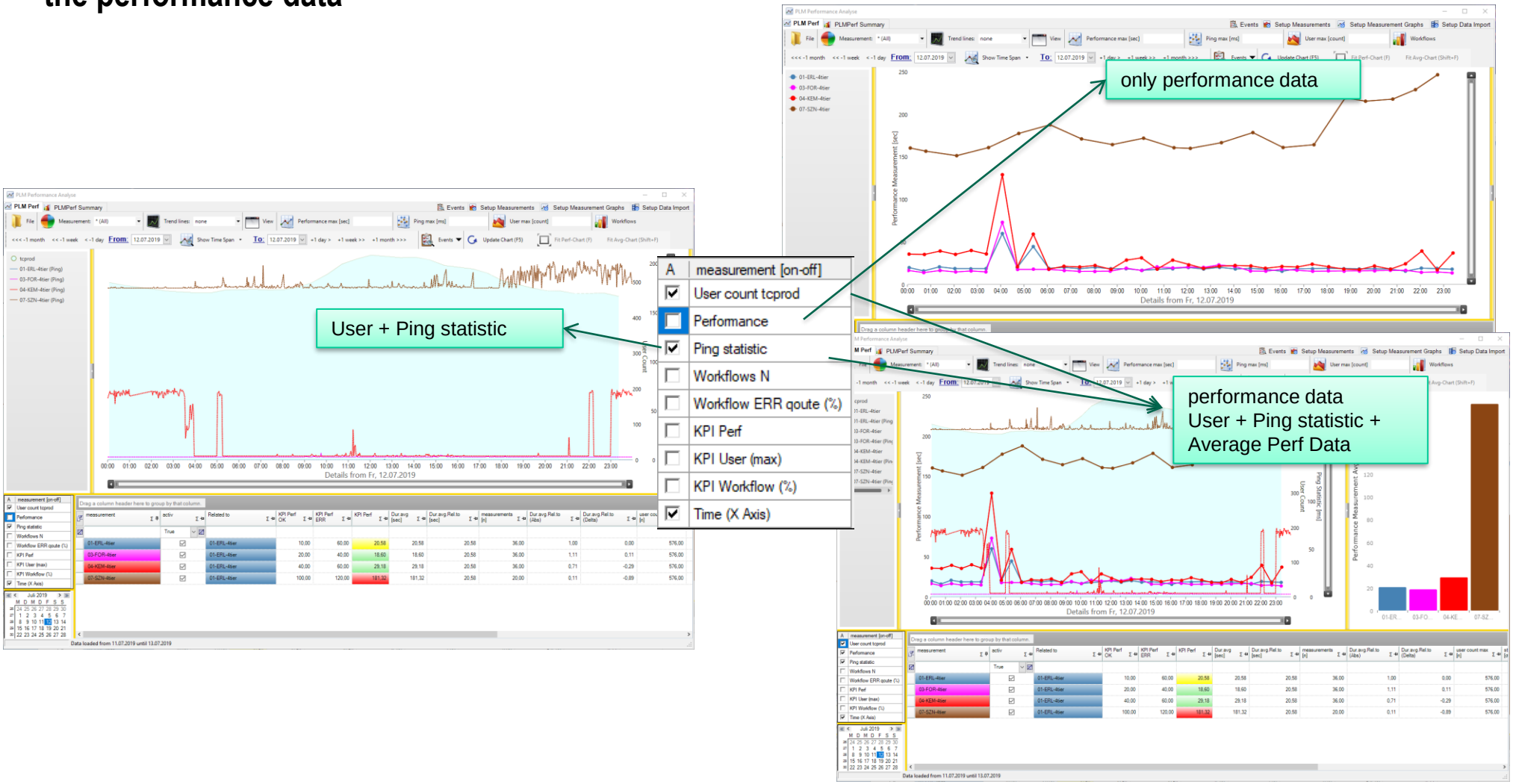
Overview surface PLM Performance Analyse

Analysis of the measurements of one day



Overview surface PLM Performance Analyse

The various data can be switched on and off, this leads to different views on the performance data



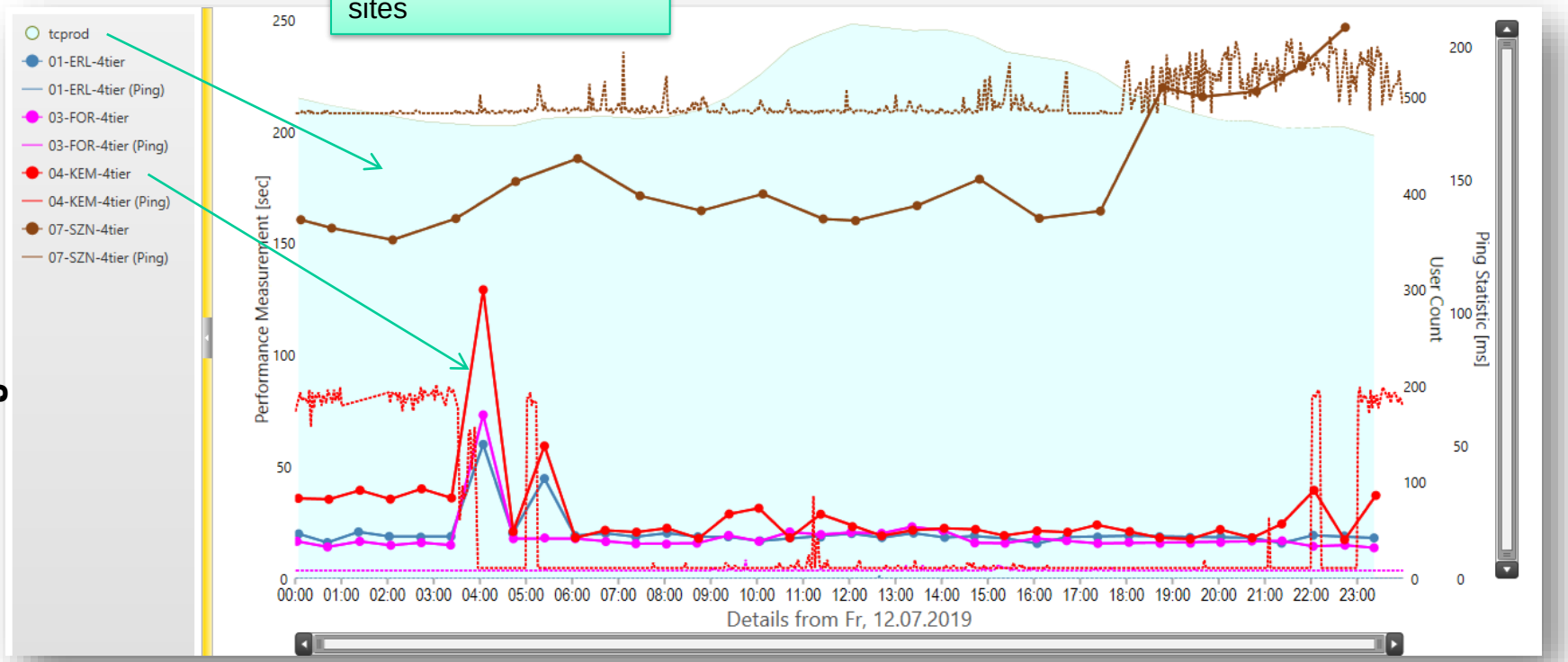
Overview surface PLM Performance Analyse

Details of the evaluation

measurement	activ	Related to	measurements [n]	Dur.avg [sec]	Dur.avg.Rel.to (Abs)	Dur.avg.Rel.to (Delta)	standard deviation [σ]	KPI Perf	Dur.avg.Rel.to [sec]	user count max [n]	load time max[sec]	load time min [sec]
	Tr											
01-ERL-4tier	☑	01-ERL-4tier	36,00	20,58	1,00	0,00	8,13	20,58	20,58	576,00	60,08	15,73
03-FOR-4tier	☑	01-ERL-4tier	36,00	18,60	1,11	0,11	9,62	18,60	20,58	576,00	73,25	13,78
04-KEM-4tier	☑	01-ERL-4tier	36,00	29,18	0,71	-0,29	19,50	29,18	20,58	576,00	129,26	17,39
07-SZN-4tier	☑	01-ERL-4tier	20,00	181,32	0,11	-0,89	28,28	181,32	20,58	576,00	246,77	151,61

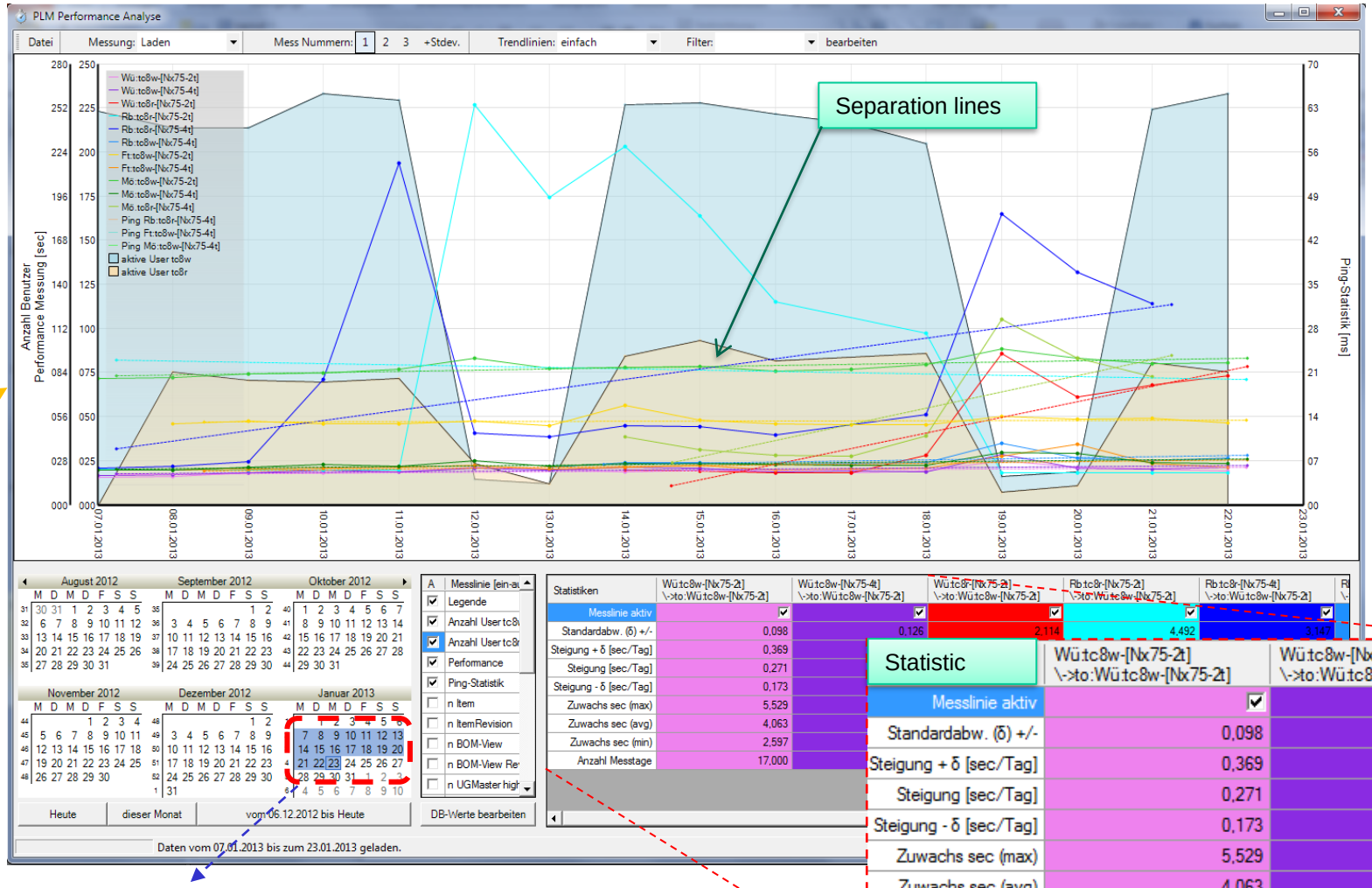
reference values of the sites

legend

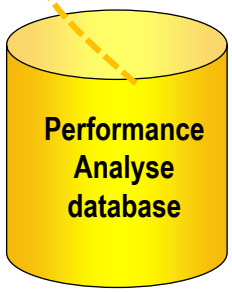


Overview surface PLM Performance Analyse

Analysis of the measurements for several days with separation lines



Statistic	Wü:tc8w-[Nx75-2t] \->to:Wü:tc8w-[Nx75-2t]	Wü:tc8w-[Nx75-4t] \->to:Wü:tc8w-[Nx75-2t]
Messlinie aktiv	☑	☑
Standardabw. (δ) +/-	0,098	0,126
Steigung + δ [sec/Tag]	0,369	0,423
Steigung [sec/Tag]	0,271	0,297
Steigung - δ [sec/Tag]	0,173	0,171
Zuwachs sec (max)	5,529	6,344
Zuwachs sec (avg)	4,063	4,459
Zuwachs sec (min)	2,597	2,573
Anzahl Messtage	17,000	17,000



Selection of the measurement period (in the example 10 days)

Basics data collection

Basics measurement data

Overview surface PLM Performance Analyse

Summery

Summery

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

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THANK YOU FOR YOUR ATTENTION