Software Engineering Conference Russia

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Enterprise class SQL Server monitoring in distributed production environments with high number of servers

Roman Dimenko

About myself

- DBA and DBD since early 2000`s
- Managed distributed DB teams up to 20 people
- Worked with DELL EMC, Microsoft, Spar, McDonald`s
- High load OLTP databases, DWH
- Industries: telecom, fintech, adtech, retail, cloud

Statement of the problem

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- Levels of monitoring (from hardware to business logic)
- Service models (managed service) and service providers and what they use

Comparison of existing solutions

- Monitoring
- Tuning
- SQL Server
- Windows
- Network
- Reporting
- Alerting
- Advice

Features

- Historical monitoring data

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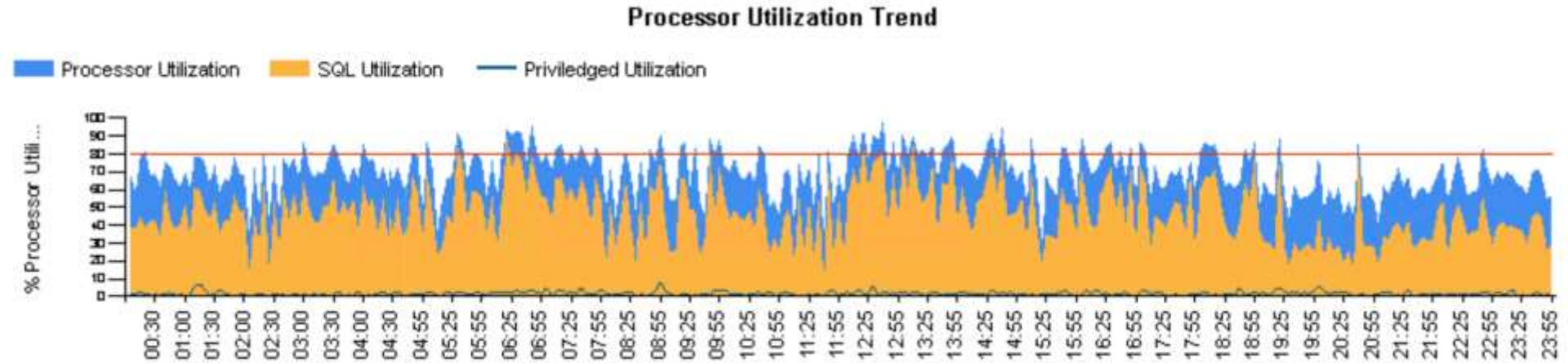
- Close to real-time
- Alerts via email
- Customizable thresholds
- Advanced SQL Server features monitoring

CPU load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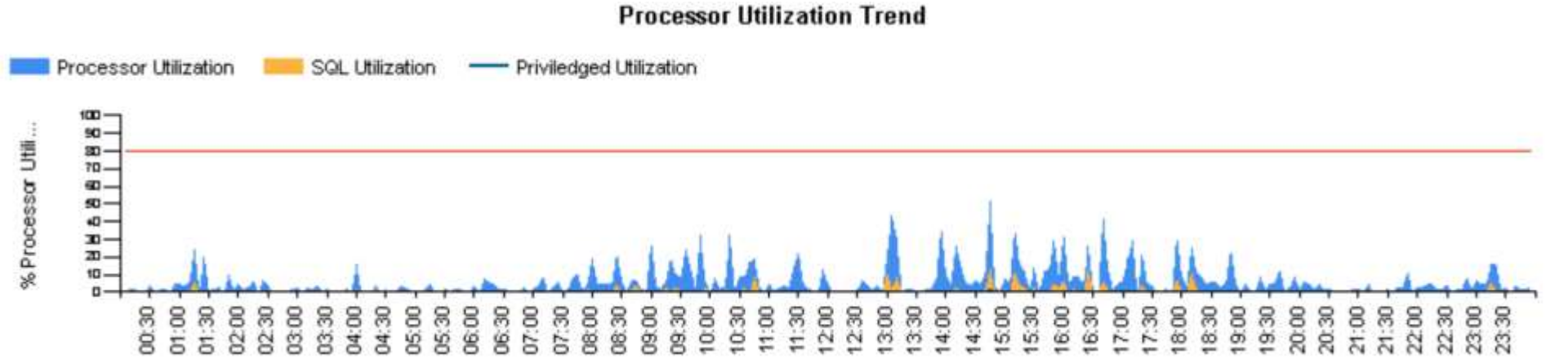
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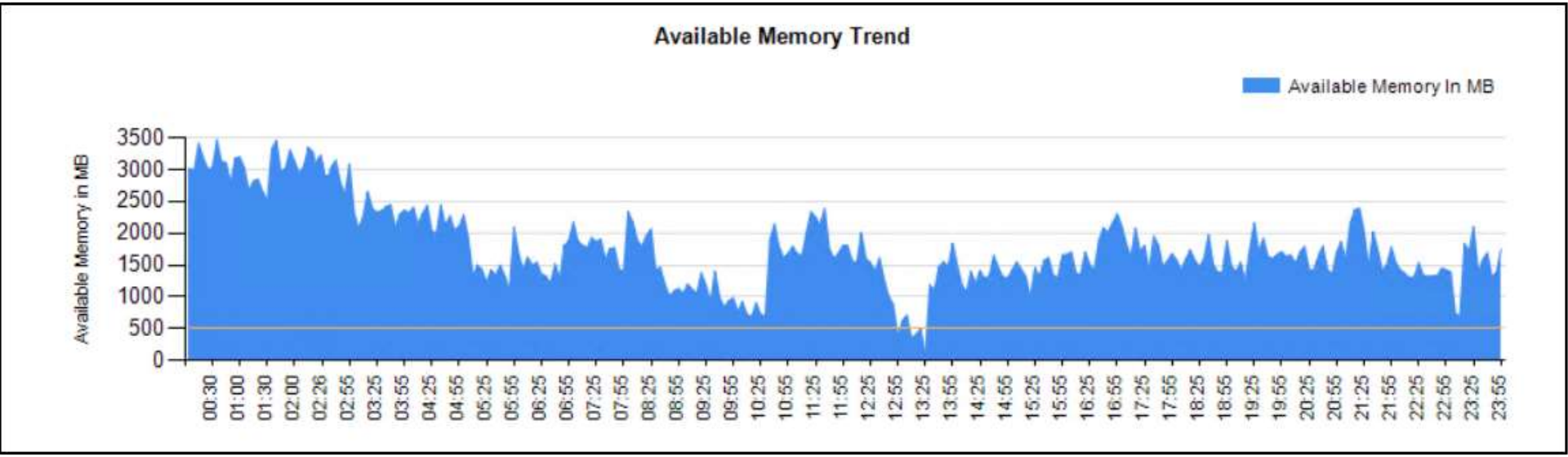
Memory consumption



Further plans

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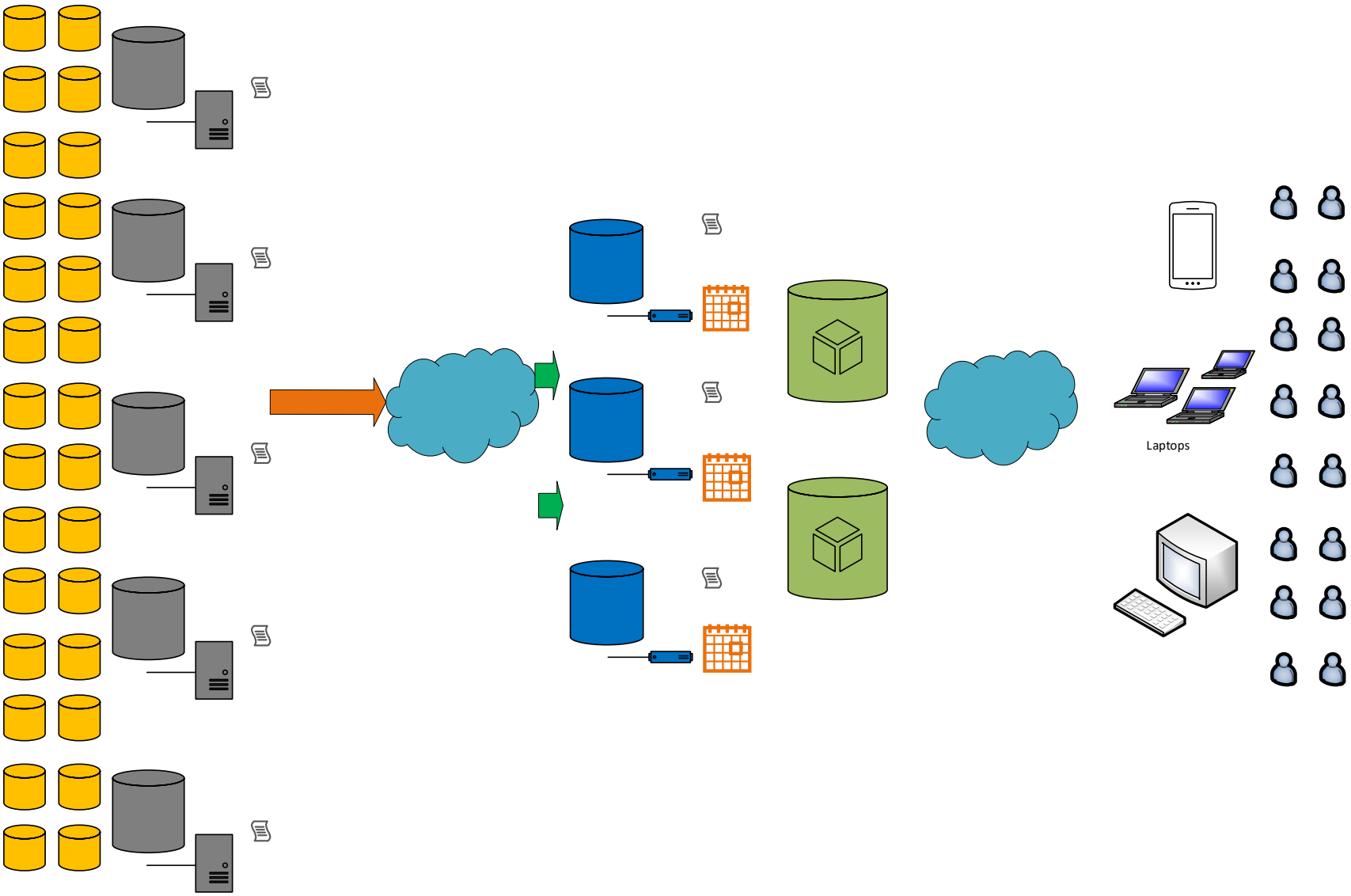
- AI, Data mining

Architecture



Problems solved

- More than 100 counters
- Machine Metrics
- SQL Server metrics
- Database metrics
- High Availability metrics (AO, Logshipping, Mirroring)
- BI metrics (SSRS, SSAS)

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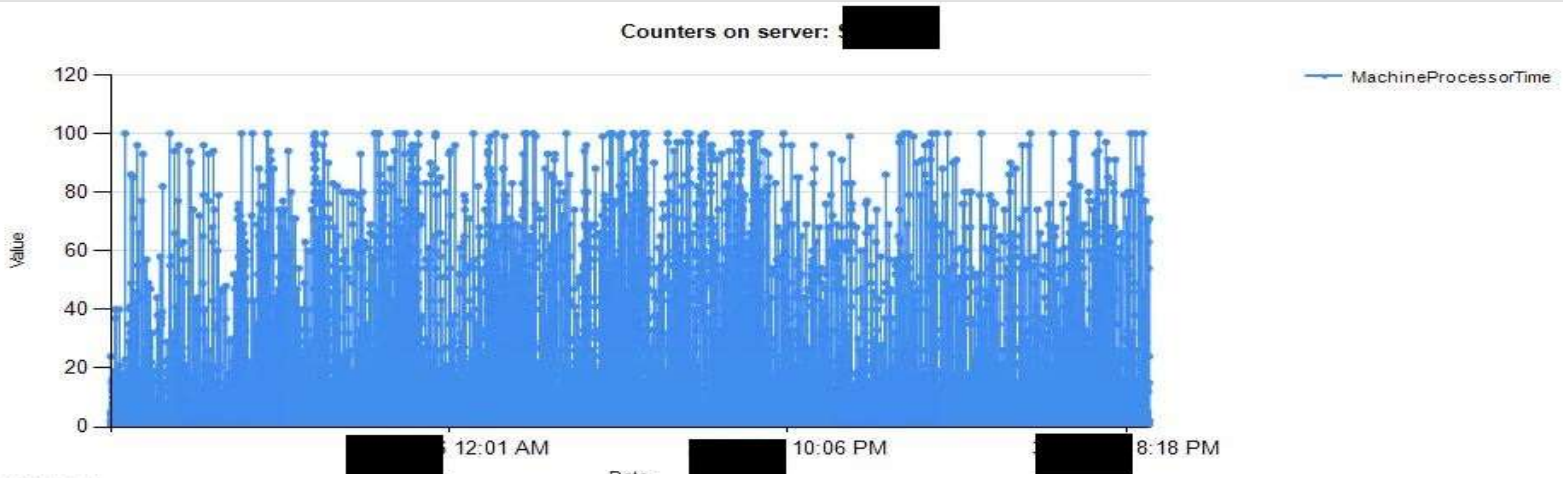
Автоматический мониторинг загрузки процессора на сервере



Activity Report

Server Name	SQL Query	Database Name	Program Name	dd hh mm ss mss	Session ID	Login Name	Wait Info
SQLCLUSTER2	<?query -- sp_server_diagnostics --?>	master	Microsoft® Windows® Operating System	00 00:12:27.426	52	NT AUTHORITY\SYSTEM	(263ms) SP_SERVER_DIAGNOSTICS_SLEEP
SQLCLUSTER2	<?query -- select p.[redacted] , p.[redacted] , p.employeeid , p.lastupdated , sourcetype = case when p.[source] = 1 then 'O[redacted]nber' else '[redacted]Number' end , createuser = 'DailyJob' , createdate = getdate() into #[redacted]umbers_[redacted]sprogram from Invent[redacted]bers p (nolock) where exists (select 1 from [redacted]Services_Subscriptio[redacted]mployeeID m (nolock) where AddonID = 14 and SubscriptionStatus IN ('O[redacted]', 'Trial') and AddOnStatus != 'Expired' and m.employee_id = p.employeeid and not exists(select * from [redacted]teparts where p[redacted]eparts.employeeid = p.employeeid)) and p.[source] = 1 --?>	[redacted]	SQLAgent - TSQL JobStep (Job 0x24DEEF4FFC29D441BE932B23300438C3 : Step 1)	00 00:02:05.300	87	[redacted]erver	(28ms)PAGEIOLATCH_SH:Inventory:1 (*)
SQLCLUSTER2		master	Microsoft SQL Server	00 00:02:01.550	77	LinkedServer	
SQLCLUSTER2		master	Microsoft SQL Server	00 00:01:56.993	76	LinkedServer	
SQLCLUSTER2	<?query -- begin tran --?>	[redacted]Services	SQLCLUST[redacted]rs [redacted]MS_Tables_2	00 00:00:04.826	70	[redacted]erver	
SQLCLUSTER2	<?query -- begin tran --?>	[redacted]Services	SQLCLUSTE[redacted] [redacted]e	00 00:00:04.313	71	[redacted]erver	

Problems solved

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- Ability to drill down from high level problem to root cause
- Meet growing business needs

Business value

- Operations throughput

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- Decision making

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Real life cases

- Examples: DELL EMC, VIVA, Spar, Stock market Brokers
- DELL EMC From Nagios and basic alerts to comprehensive DB monitoring
- VIVA From basic alerts
- Spar From no monitoring
- Stock market brokers From SCOM
- WallMart from no monitoring

Nagios case detailed (DELL EMC)

- Before
- Only basic monitoring
- After
- Comprehensive monitoring

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- Authors

Questions

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- Early adopters are welcome

Thank you!