

# Your Current Monitoring is Not Enough

The Business Benefits of Proactive Monitoring with ProTop



**White Star**  
software

# Why are you here?

- Excellent performance and availability are good for business
- You can do more and you can do it faster
- Users are happy
- Support staff are happier

# Why Are You Here?

Common pain points:

- USERS are de facto monitoring service
- **\*Stuff\*** happens...then stops. No idea what/why
- Zero visibility into root cause of issues
- Zero visibility into effect of changes

# Why ProTop? Why WSS?

- We are in the business of problem avoidance
- You are also in the business of problem avoidance
  
- Our goals are aligned
  
- We are the first and most avid user of ProTop
  - It is part of our day-to-day professional life



# Why ProTop? Why WSS?

## We offer

- Free tools for real-time analysis
- Historical data for intuitive anomaly detection
- Performance, monitoring and alerting tools
- Our expertise, if you need it, when you need it
- 24/7 guaranteed support

# About White Star Software

- The Oldest and Most Respected Independent Progress OpenEdge Consulting Firm
- 5 of the top OpenEdge DBAs in the world: Adam Backman, Tom Bascom, Dan Foreman, Paul Koufalis and Nectarios Daloglou
- Our Performance, Monitoring and Alerting Tool, ProTop. An incredibly powerful single-pane-of-glass view of your entire OpenEdge ecosystems
- Real World Training From Real World DBAs

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# What Our Partners Say



“At MIP we have a challenging environment for our DBAs, who administer well over 1,000 databases across our internal development teams, and our 60+ customers. As a tool, ProTop is unparalleled. We are able to spot and resolve issues incredibly quickly, and we have often been able to avert problems before they materialise. As a company, White Star provides us with a level of responsiveness, and depth of expertise, that we simply don't find with other partners. Implementing ProTop is probably the best decision we made this year!”

**Patrick O'Reilly**

Chief Technology Officer  
MIP Holdings (Pty) Ltd



Let's Get Started





# What is ProTop ?

- Flexible, highly configurable alerting system
- Single-pane-of-glass web portal
- Years of trend history at your fingertips
- Real-time monitoring console

# Flexible Alerting

- Hundreds of available metrics
- Unlimited threshold definitions
- Alert fatigue avoidance
- Multiple alerting levels
  - Reduce spam/noise: configure where alerts go
- Automated script response
- Alert Enrichers
  - Time-consuming information gathering executed automatically

# Flexible Alerting

- Simple text-file configuration
  - quick and easy to maintain and deploy
- Hierarchical alerting structure
  - Global default configuration
  - Or specify by environment, server, database, etc.

# Flexible Alerting

```
Metric Threshold SS Notify Message Action
=====
otrx num > 7200 "" "hourly" "Old Tx &1 &2 &3" zOldTRXDetails,alarm
ztime num > 300 "" "hourly" "Blocked &2 &3 s" zBlockedDetails,alert
HR num < 98 "3:3" "hourly" "Hit% &2 &3 (&1)" alert

asMode char = "Not Running" "2:2" "hourly" "&1 &2 &3" script,alarm
```

# Flexible Alerting

- Built-in Monitoring Agents for OpenEdge components
- Built-in log file monitor
- Easily extendable to monitor almost anything

# Alert Enhancers

```
ztime Session blocked > 300 seconds
[2019/07/18 09:20:58.257-04:00]
[server: ██████████]
[dbname: /d00/apprise]
[cfgname: ██████████]

usrnum=493 tId=0 userName=Jbingham userPID=3796 userFlags=R4 * blkDura=00:05:01 blkWait=REC XQH blkResrc=13032363
blkNote=oe-header 502:ops-ajmartin:3668 -1 taskhist.p blkBy=502 xtime=33356
```

Usr Name	PID	Flags	Duration	Wait	Resrc Id	
493 Jbingham	3796	R4 *	00:05:01	REC	XQH 13032363	oe-header 502:ops-ajmartin:3668 41 taskhist.p

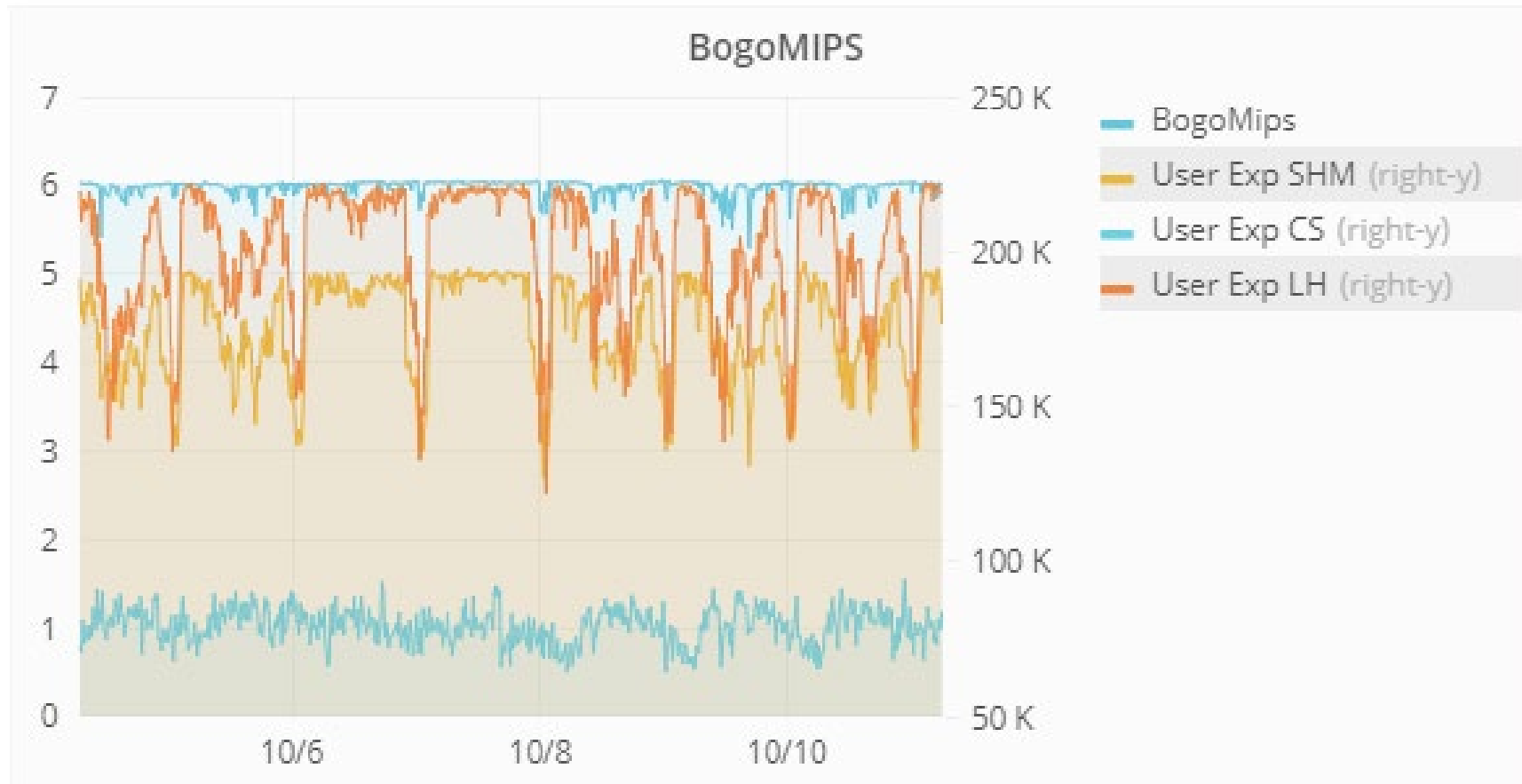
Record  
lock

Table  
name

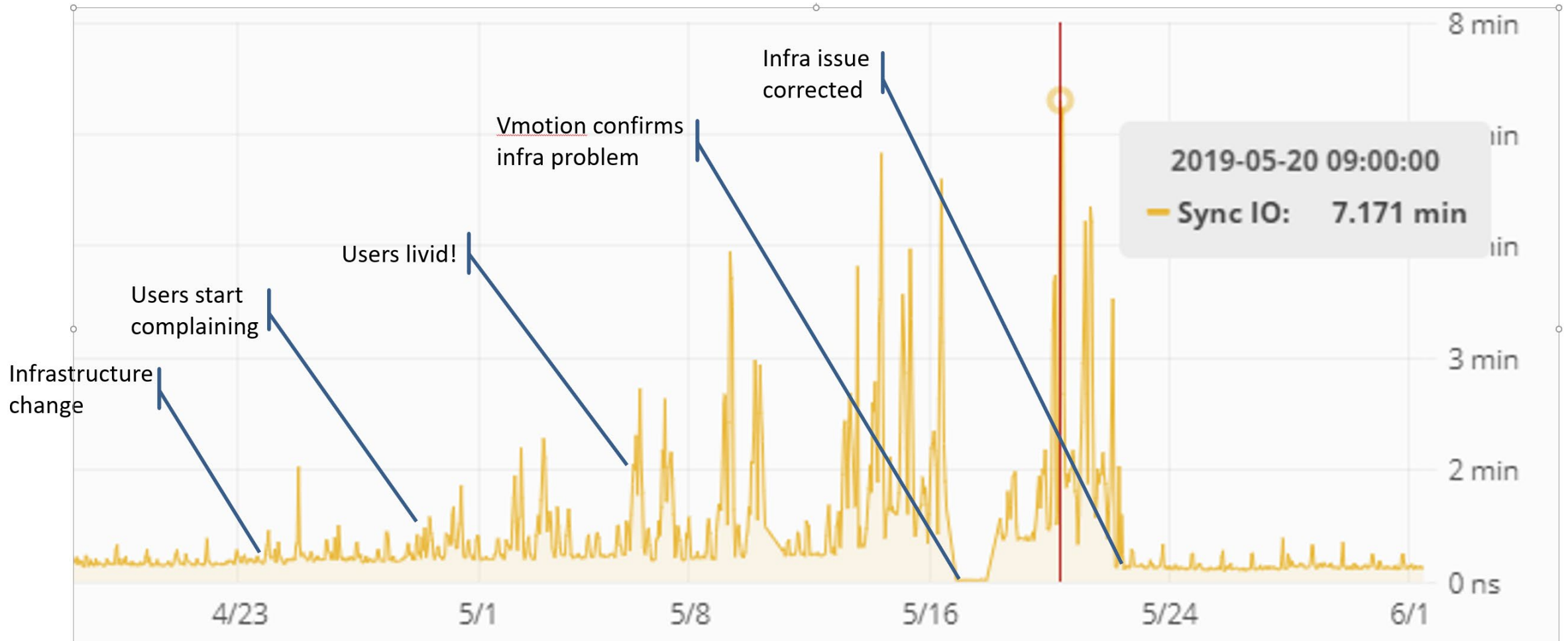
Offending  
user

Program  
and line #

# Continuous Evolution



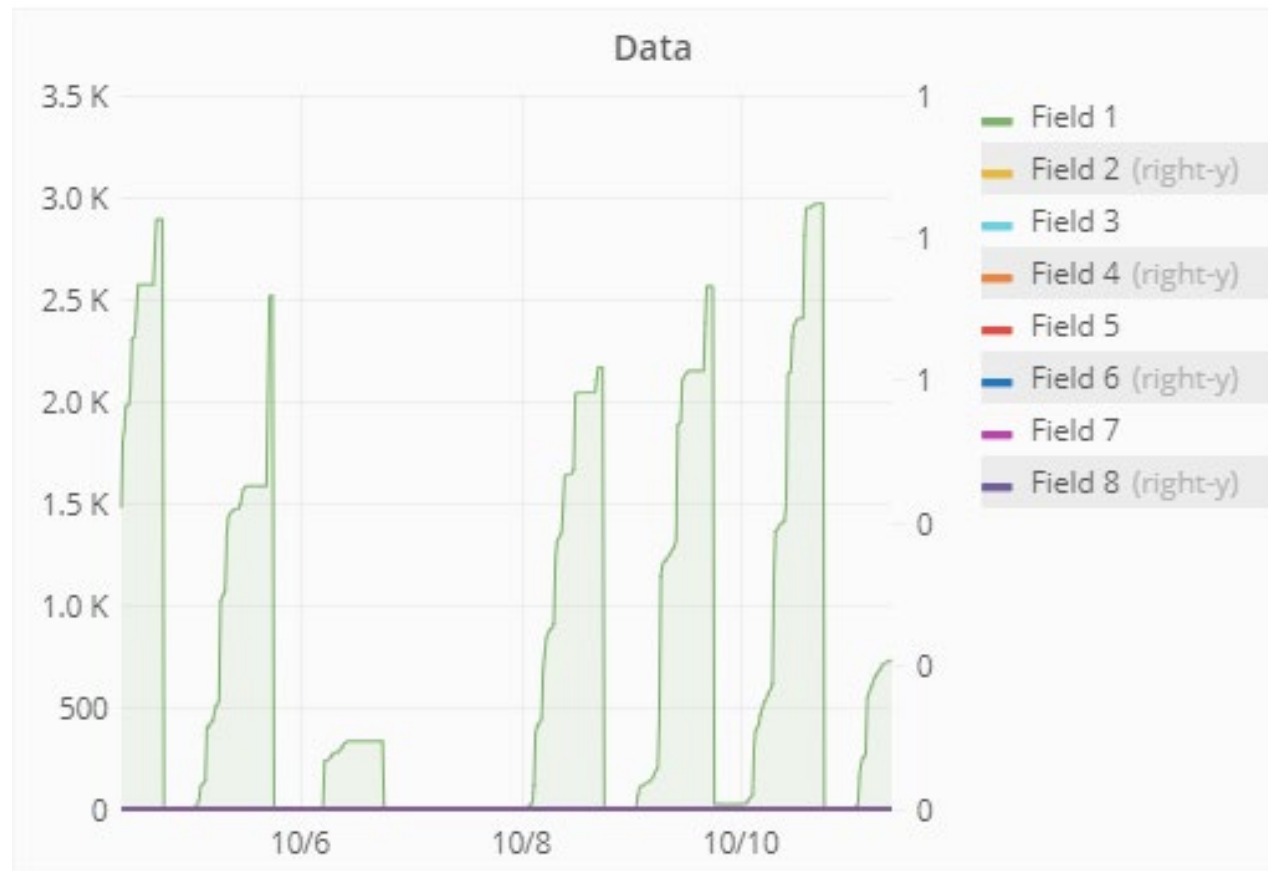
# Continuous Evolution





# Continuous Evolution

- Custom Application Metrics



# Single Pane of Glass

protop Home > Dashboard community Last Update 2018/10/11 03:44:05 Welcome, demo user

### Critical Resources

Name	HB Age	Bkp Age	Alert Status	Cnx	Blocked	Trx	Cur Lk	BI CIs	Hit%	Log Rd	OS Rd	LatchTMO	io Resp
demo26.db_2801	00:00:00	07:56	1	322	0	82	126	10	99.99%	135,255	15	2	1.12
elektrik.db_4054	00:44:35	23:44	1	61	0	0	0	0	81.63%	360,325	66,180	0	0.58
hammer.db_4073	00:00:35	02:40	2	401	0	98	2,654	1	99.43%	16,735	95	5	7.57
elektrik.db_4022	00:00:35	1d 00:30	1	13	0	0	0	1	0.12%	13,180	13,164	0	0.80
elektrik.db_4020	00:00:35	23:34	1	536	0	7,147	8	0	99.97%	512,825	132	0	0.59
hammer.db_4269	00:00:35	02:39	1	9	0	0	0	0	99.79%	9	0	0	4.59
hammer.db_4072	00:00:35	1d 02:40	2	681	0	191	163	0	98.72%	520,238	6,685	19	9.73
hammer.db_4060	00:00:35	02:42	1	671	0	93	4	0	99.76%	57,263	138	0	7.19
demo354.db_4229	00:00:35	1d 02:39	4	5	0	0	0	0	100.00%	51	0	0	1.43
demo346.db_4051	00:01:35		1	0	0	0	0	0	0.00%	0	0	0	0.00

### Critical Alerts

2018/10/11

03:31:03	demo26.db_2801	otrx Old Transaction 7442 > 7200
03:10:12	elektrik.db_4054	(10354) Replication (target) cannot be disabled for datab...
03:00:10	elektrik.db_4054	dbDown /improdb/db/mpsx [DOWN] missing .lk file
02:30:26	hammer.db_4073	OSWr OS writes/sec 522 > 500
01:42:19	elektrik.db_4022	OSWr OS writes/sec 1069 > 500
01:40:01	elektrik.db_4020	OSWr OS writes/sec 1509 > 500
01:37:15	hammer.db_4269	(2526) Disconnecting client 23 of dead server 3.
01:25:06	hammer.db_4072	ztime Session blocked > 600 seconds
01:08:22	hammer.db_4073	The platon:/database/db01/rmq/rona-trmq bi backup phase 30...
01:08:03	hammer.db_4060	The platon:/database/db01/bc/rona-bc bi backup phase 304 ...
01:07:51	hammer.db_4072	The platon:/database/db01/tkc/dpTKc40 bi backup phase 3...
01:04:01	demo354.db_4229	dbDown /database/db01/cc/rona-cc [DOWN: proutil status: ...

### Resources

Name	HB Age	Bkp Age	Alert Status	Cnx	Blocked	Trx	Cur Lk	BI CIs	Hit%	Log Rd	OS Rd	LatchTMO	io Resp
+ abc	00:00:35		2										
+ bang	00:00:35		0										
+ bib	00:00:35		2										
+ circle	00:00:35		0										
+ contractor	00:00:35		1										
+ demo18	00:00:35		5										
+ demo26	00:00:00		1										
+ demo3	00:00:00		-										
+ demo340	00:00:35		0										
+ demo342	00:00:35		6										
+ demo344	00:00:35		10										
+ demo345	00:00:35		39										

### Alerts Feed

2018/10/11

03:43:44	demo03.db_3904	(794) Usernum 911 terminated abnormally.
03:43:44	demo03.db_3889	(794) Usernum 797 terminated abnormally.
03:43:20	bib.bib_db9	Full backup successfully completed. (1364)
03:43:19	bib.bib_db8	Full backup started. (1362)
03:39:35	demo341.db_3960	(794) Usernum 172 terminated abnormally.
03:39:34	demo341.db_3959	(794) Usernum 107 terminated abnormally.
03:39:32	demo341.db_3957	(794) Usernum 92 terminated abnormally.
03:39:05	demo344.db_4011	fsPctUsed Disk space % 81.02 > 80
03:37:00	medco.db_2500	fsPctUsed Disk space % 83.66 > 80
03:34:23	tennis.db_3996	tblRd 5313 > 5000
03:34:22	tennis.db_3996	tblRd 11892 > 5000
03:34:05	demo344.db_4011	fsPctUsed Disk space % 81.02 > 80
03:33:03	demo03.db_3905	(794) Usernum 928 terminated abnormally.
03:32:00	tennis.db_3990	(1362) Full backup started.
03:31:29	tennis.db_4000	(1364) Full backup successfully completed.
03:31:04	demo26.db_2801	otrx Old Transaction 7442 > 3600
03:31:03	demo26.db_2801	otrx Old Transaction 7442 > 7200
03:30:58	tennis.db_4001	(1364) Full backup successfully completed.
03:30:37	tennis.db_4001	(1362) Full backup started.
03:29:46	tennis.db_4001	tblRd 13100 > 5000
03:29:22	tennis.db_3996	tblRd 8605 > 5000
03:29:07	tennis.db_3990	tblRd 12175 > 5000
03:29:04	demo344.db_4011	fsPctUsed Disk space % 81.02 > 80
03:28:38	demo355.db_4252	Log2Rec 8.63 > 3
03:25:06	elektrik.db_4073	OSWr OS writes/sec 7082 > 5000

# Web Portal

Alerts Feed

14:16:41	z1061.toto	tblTurn Table turns/sec 259.57 > 10
14:16:35	z1061.toto	
14:16:29	z1061.toto	
14:16:24	z1061.toto	
14:16:19	z1061.toto	
13:42:24	z1061.toto	
13:42:19	z1061.toto	

```

otime Session blocked > 30 second
[2018/04/24 13:42:19.790-04:00]
[server: protopdev]
[dbname: /home/paul/toto/toto]
[cfname: toto]

usrnum=8 tId=0 userName=paul user
By=7 xtime=49218

  Usr Name      PID      FL
  -----
    8 paul      20201    S4
        
```

```

otrx Old Transaction 7307 > 7200
[2018/10/11 04:46:26.690-05:00]
[server: MyServer]
[dbname: /db/prod/sands.db_3510]
[cfname: xyzcorp]
        
```

Usr Name	PID	Device	Flags	Duration	Wait
35 xia	24393	/dev/pts/38	S4 *	02:01:48	
27 spack1	12776	/dev/pts/21	S4 *	01:04:35	
40 produi	10435	/dev/pts/25	S4 *	00:00:00	
22 produi	11752	/dev/pts/20	S4 *	00:00:00	
36 produi	13484	/dev/pts/29	S4 *	00:00:00	
14 produi	16813	/dev/pts/12	S4 *	00:00:00	



```

tblRd Table reads/sec 67453 > 50000
[2019/10/08 15:54:32.625+02:00]
[server: SV015153]
[dbname: e:\probase\elocum]
[cfname: prod_elocum]

```

```
tblNum=7 tblAreaNum=9 tblPool=B1 tblName=doccpt dbaRM= dbaRecs=11681705 dbaFragPct=0.00% dbaScatter=1 tblTurn=0.01 dbaAvgRow=211 tblCr=0
```

usr#	User Name	PID	Flags	LogRds	Reclks	LkHWM	Line#	Procedure
341	sysprogress	3936	R4B	140449	0			
347	sysprogress	3632	R4B	20849	0			
342	sysprogress	2976	R4B	4352	0			
346	sysprogress	2952	R4B	3150	0			
339	sysprogress	808	R4B	426	0			
317	sysprogress	6940	R4	421	195			
86	86	4976	PT3	145	0			
366	sysprogress	1944	RAB	122	1			
362	sysprogress	3808	RAB	54	2			
361	sysprogress	2964	RAB	52	0			
369	sysprogress	3416	RAB	43	0			

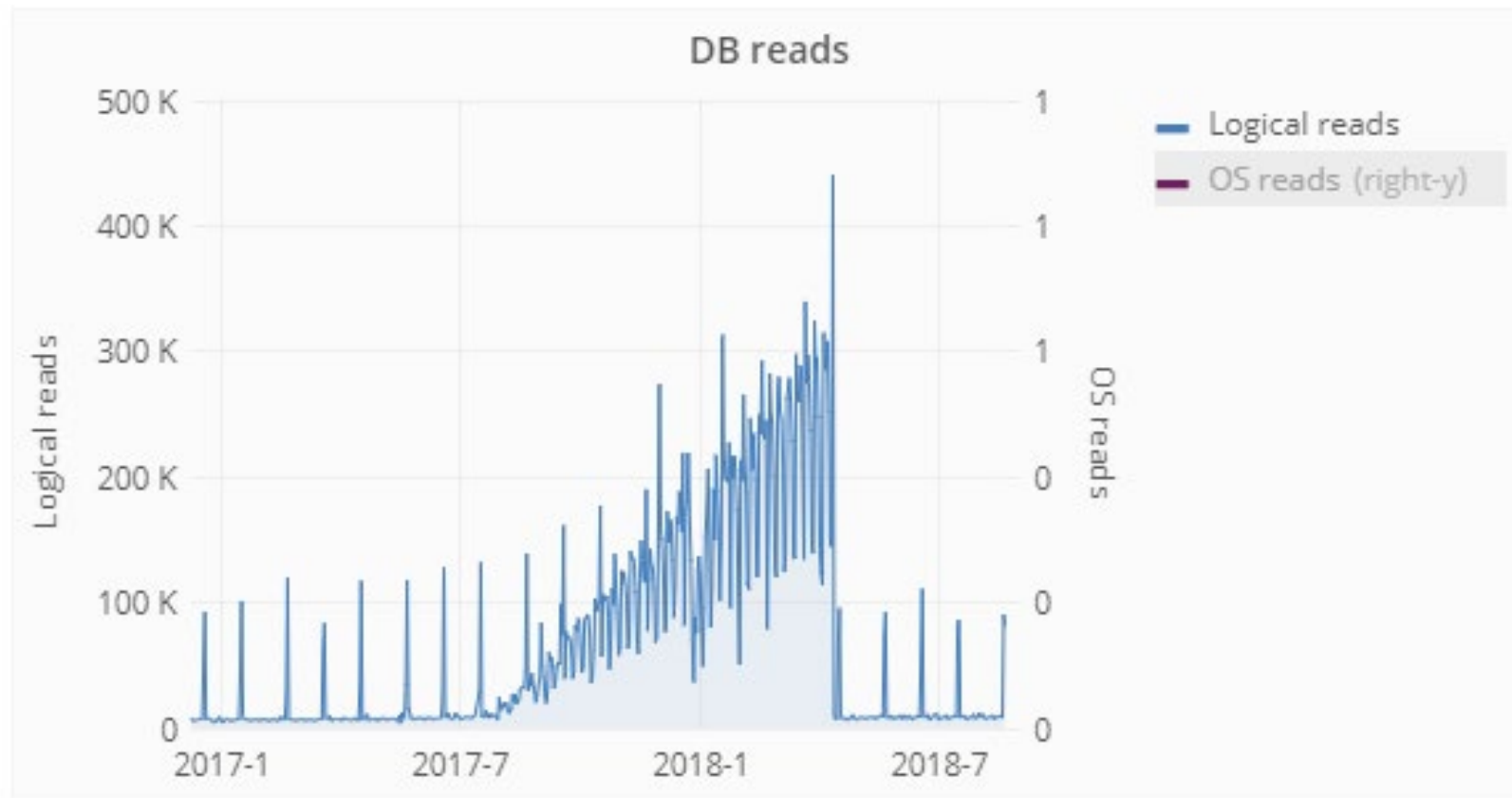
tblNum	Table Name	Records	Create	Read	Update	Delete	Churn
7	doccpt	11681705	0	67453	2	0	0.01
28	soldes	5266614	0	4517	5	0	0.00 ***
23	solan1	5049626	0	1212	3	0	0.00
24	solana	6065249	0	732	3	0	0.00
27	solbud	9565302	0	209	1	0	0.00
6	cenjou	1278574	0	198	5	0	0.00
21	relban	3258112	0	31	0	0	0.00
8	doclib	221783	0	1	0	0	0.00 ***
9	docmod	14733	0	1	0	0	0.00 ***
19	rapban	3881225	0	0	0	0	0.00
1	abomul	30345	0	0	0	0	0.00

idxNum	Index Name	Blocks	Create	Read	Split	Delete	BlkDel
25	doccpt.Libelle	47440	2	65752	0	1	0
94	soldes.AUXILI	28189	0	6582	0	0	0
1	_File._File-Name	0	0	5097	0	0	0
23	doccpt.exercice-journal	31376	0	1741	0	0	0
72	solana.GL-SOCIETE	48334	0	725	0	0	0
65	solan1.GL-SOCIETE	36141	0	696	0	0	0
64	solan1.PRIMAIRE	33476	0	504	0	0	0
93	soldes.PRIMAIRE	25326	0	364	0	0	0
92	solbud.materiel	3462	0	193	0	0	0
6	_Index-Field._Index/Number	0	0	146	0	0	0
19	cenjou.VISU	3986	0	92	0	0	0

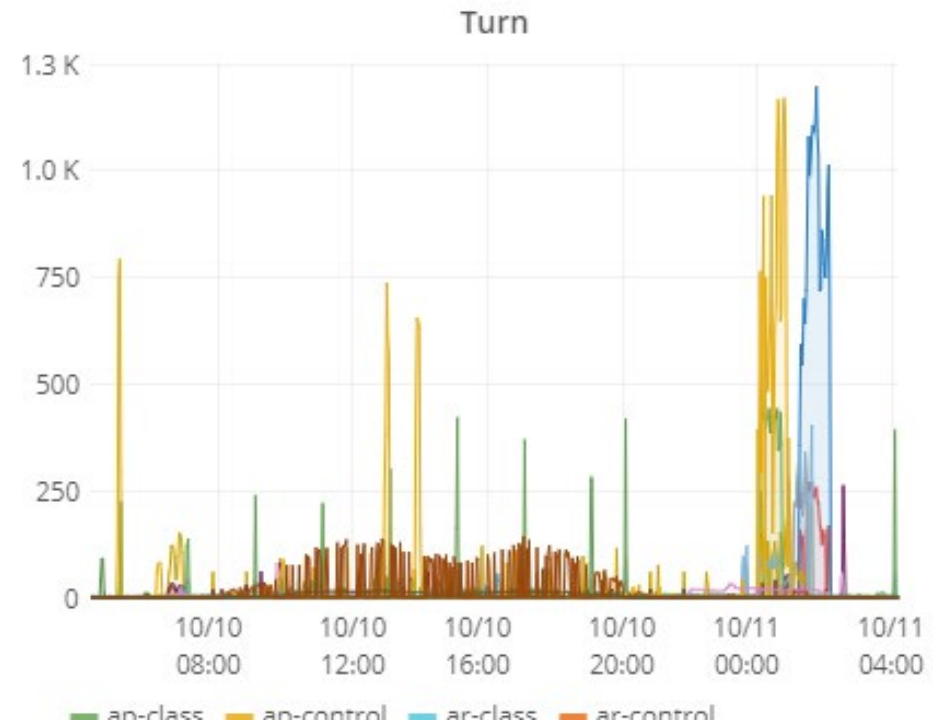
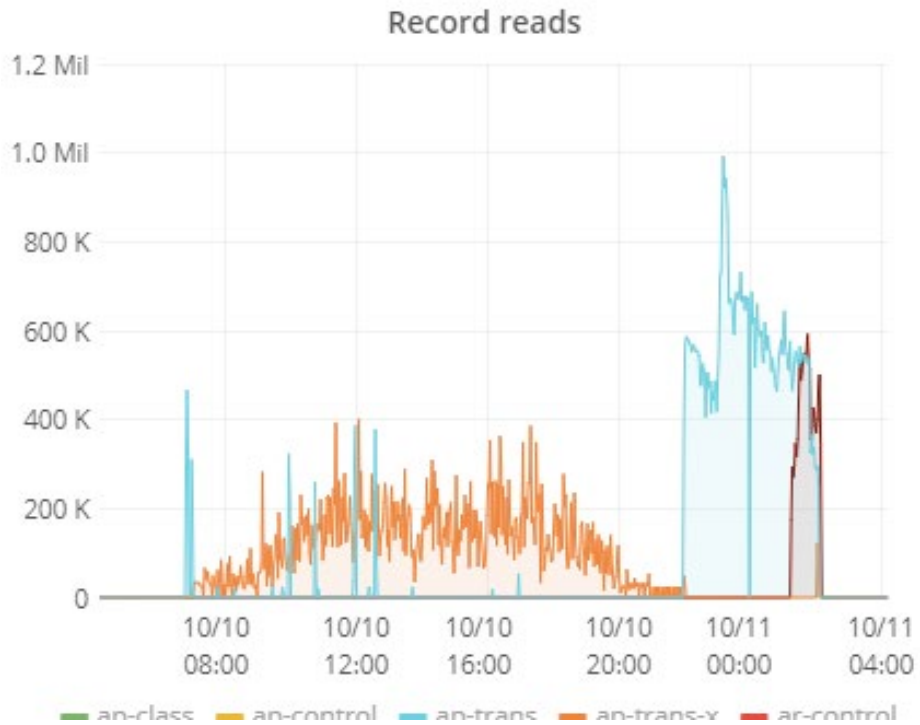


# Years of History

Database I/O

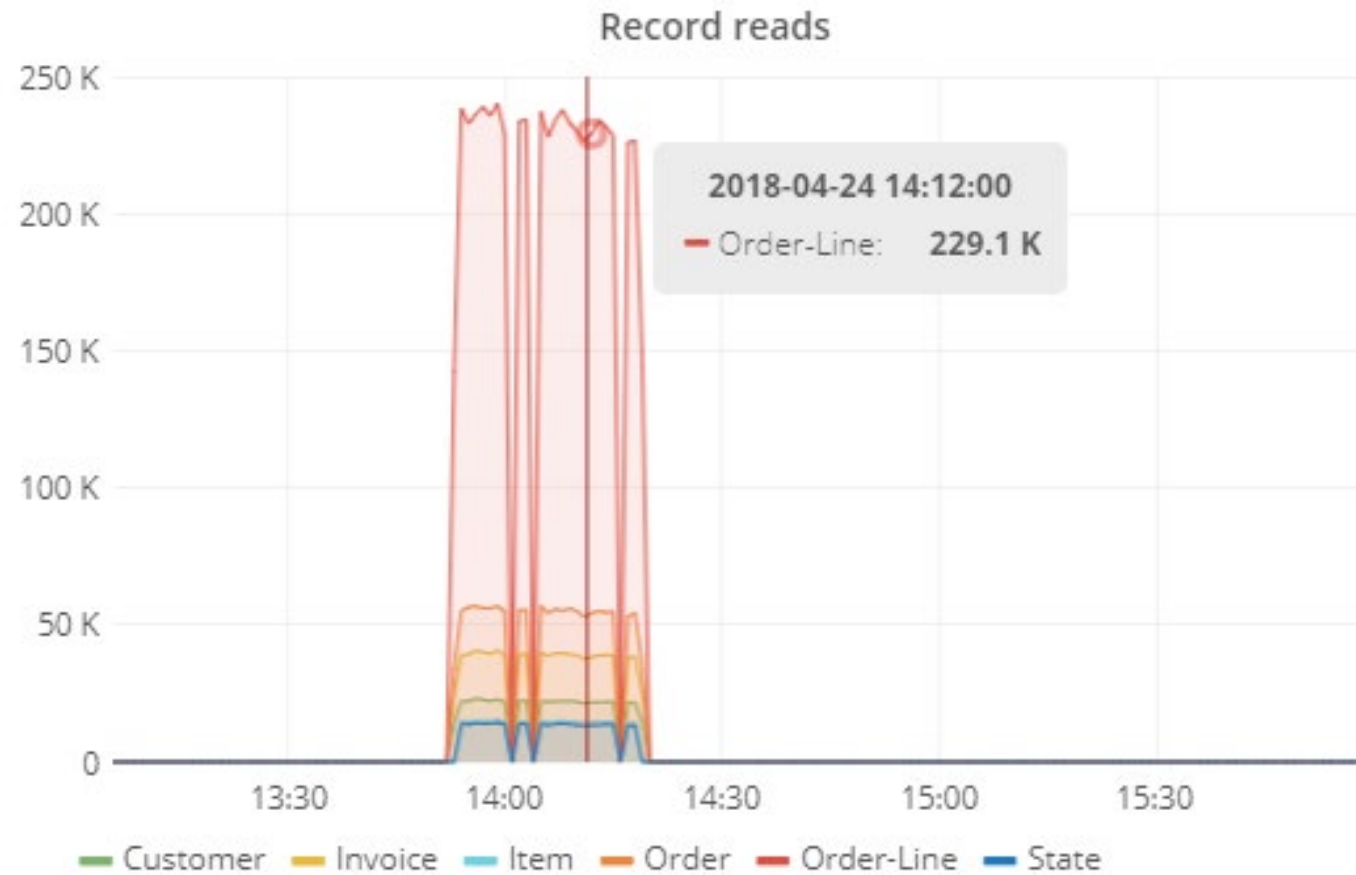


# Table and Index Statistics



# Table and Index Statistics

Table read activity



# Hundreds of Trended Metrics





# Real-Time Console

sports120 Auto Interval Rate DS 92 6688 0.837 ProTop Version 3.141x as of October 04, 2019 10:20 2019/10/08 12:43:06  
 sports120 5 11163 0 /data/sports120/sports120 prototest

Hit%	100.00	Commits:	96	Examined:	27	APW Writes:	35	DB UpTime:	12d 22:46	Connections:	14
Log Reads:	1128024	Undos:	1	New RM:	17	APW Write%:	100	Backup Age:	97d 14:14	-n %	67
Log Writes:	576			From RM:	17	BuFs Scanned:	0			Brokers:	2
OS Reads:	0	Lock Tbl HWM:	7474	RM Locked:	1	APW Scan Wrs:	0	Oldest TRX:	1 01:12:51	SQL Servers:	0
OS Writes:	35	Curr # Locks:	2134	From Free:	0	APW Q Wrts:	0	Curr BIClstr:	16766	SQL Clients:	0
LogRd/LogWr:	1956.88	Lock Tbl%:	26.05%	Front2Bk:	0	Chkpt Q Wrts:	35	Old BIClstr:	1	4gl Servers:	0
LogRd/RecRd:	2.08	Rec Lk/s:	4662	Mod BuFs:	193	Flushed BuFs:	0	Num BIClstrs:	16765	4gl RemCnx:	0
Rec Reads:	543159	Lk Dura (ms):	302.95	Evicted:	0	Chkpt Len:	00:00:05	BI MB Used:	8383	App Server:	0
Idx Reads:	543123									Web Speed:	0
Rec Creates:	2									Local:	1
Idx Creates:	81	Sync IO (sec):	12.04			Notes:	766	AI	0	Curr AI Ext:	Disabled
Rec Updates:	93	(MB/sec):	7.97			BI/AI Write%:	95		0	Curr Seq#:	0
Rec Deletes:	0	Random IO (ms):	0.49			Wrts to Log:	13		0	Empty AI:	0
Idx Deletes:	80	BogoMIPS:	1.57			BI/AI Wrts:	12		0	Full AI:	0
Idx Blk Spl:	0	User Exp SHM:	101118			Partial Wr:	1		0	Locked AI:	0
Rec Waits:	0					Busy Waits:	0		0	pica Used:	0
Resrc Waits:	0					Empty Wts:	0		0	pica Used%:	0.00
Latch Waits:	34										
Latch Reqs:	4019340										
Latch/logRd:	3.56										

## Table Activity

Tbl#	Area#	BX	Table Name	RM Chain	#Records	Frag%	Scat	Churn	AvgRow	Create	Read v	Update	Delete	OS Read
>	1	12	B1 Invoice		147	0.00%	2	0.00	38	0	0	0	0	0
	2	9	B1 Customer		111127	500.00%	6	0.00	20291	0	0	0	0	0
	3	8	B1 Item		55	0.00%	1	0.00	141	0	0	0	0	0
	4	11	B1 OrderLine		13970	0.00%	1	0.00	43	0	0	0	0	0
	5	12	B1 Salesrep		9	0.00%	1	0.00	83	0	0	0	0	0
	6	12	B1 State		51	0.00%	1	0.00	34	0	0	0	0	0
	7	12	B1 LocalDefault		10	0.00%	1	0.00	72	0	0	0	0	0

## Index Activity

Idx#	Area#	BX	Index Name	Blocks	Util	Lvl%	Idx Root	Note	Create	Read v	Split	Delete	Blkd1
>	1	6	B1 _File._File-Name	1	76.30%	1	14080	P	0	0	0	0	0
	2	6	B1 _Field._File/Field	10	84.40%	2	14112	PU	0	0	0	0	0
	3	6	B1 _Field._Field-Name	10	88.30%	2	14144	U	0	0	0	0	0
	4	6	B1 _Field._Field-Position	7	73.90%	2	14176	U	0	0	0	0	0
	5	6	B1 _Index._File/Index	3	40.10%	2	14208	PU	0	0	0	0	0
	6	6	B1 _Index-Field._Index/Number	3	39.20%	2	14240	PU	0	0	0	0	0
	7	6	B1 _Index-Field._Field	1	95.20%	1	14272		0	0	0	0	0
	8	12	B1 Invoice.InvoiceNum	1	32.70%	1	608	PU	0	0	0	0	0

## User IO Activity

Usr#	Tenant	Name	PID	Flags	Blk Ac v	OS Rd	OS Wr	Hit%	Rec Lck	Lk HWM	Line#	Program Name
>	0	-32767	paul BROK	LX	0	0	0	0.00%	0	1		
	1	-32767	paul SERV	@X	0	0	0	0.00%	0	1		
	5	0	protop paul	PT3	0	0	0	0.00%	0	2		811 lib/vstlib.p
	6	-32767	paul BIW	HX	0	0	0	0.00%	0	1		
	7	-32767	paul APW	HX	0	0	0	0.00%	0	1		
	8	-32767	paul APW	HX	0	0	0	0.00%	0	1		
	9	-32767	paul APW	HX	0	0	0	0.00%	0	1		
	10	0	paul	S4B	0	0	0	0.00%	0	2		16 churn.p



# Zoom in on One User

sports120 Auto Interval Rate DS 92 5836 0.053 ProTop Version 3.141x as of October 04, 2019 10:20 2019/10/08 12:44:03  
 sports120 5 56 1 /data/sports120/sports120 prototest

Login Name: paul Login Time: Mon Oct 7 11:30:11 2019 -Bp Bufs: 0 BI Reads: 0 Logical Rd: 0  
 Usr#: Device/IP: -Bp Used: 0 BI Writes: 0 Logical Wr: 0  
 Connect Id: Full Name: AI Reads: 0 Disk Reads: 0  
 PID: 30698 Phone: Server: 0 AI Writes: 0 Hit%: 0  
 TID: 30698 E-Mail: Serv PID: 0 Num TRX: 0  
 Serv TID: 0 Curr Locks: 0  
 Lock HWM: 2

Session Info: ABL SELF S4B Batch  
 TRX Info: --None--

### Session Table Activity

Tbl#	Area#	Table Name	RM Chain	#Records	Frag% Scat	Turns	AvgRow	Create	Read v	Update	Delete	OS Read
>	1	12 Invoice		147	0.00%	2	0.00	38	0	0	0	?
	2	9 Customer		111127	500.00%	6	0.00	20291	0	0	0	?
	3	8 Item		55	0.00%	1	0.00	141	0	0	0	?
	4	11 OrderLine		13970	0.00%	1	0.00	43	0	0	0	?
	5	12 Salesrep		9	0.00%	1	0.00	83	0	0	0	?
	6	12 State		51	0.00%	1	0.00	34	0	0	0	?
	7	12 LocalDefault		10	0.00%	1	0.00	72	0	0	0	?
	8	12 RefCall		13	0.00%	1	0.00	189	0	0	0	?

### Session Index Activity

Idx#	Area#	Index Name	Blocks	Util	Lvl	Idx Root	Note	Create	Read v	Split	Delete	BlkDI
>	50	11 Order.OrderStatus	1	36.50%	1	17344		0	0	0	0	0
	49	11 Order.OrderDate	5	63.50%	2	17792		0	0	0	0	0
	48	11 Order.CustOrder	11	88.20%	2	18240	U	0	0	0	0	0
	47	11 Order.OrderNum	10	87.90%	2	18720	PU	0	0	0	0	0
	46	11 BillTo.custnumbillto	65	70.50%	2	19168	PU	0	0	0	0	0
	45	11 ShipTo.custnumshipto	1	0.90%	1	19616	PU	0	0	0	0	0
	44	7 Benefits.EmpNo	1	4.80%	1	128	PU	0	0	0	0	0
	43	7 Department.DeptCode	1	2.10%	1	160	PU	0	0	0	0	0


### Session 4GL Call Stack

Dep v	Line#	Program Name
>	1	16 churn.p

### User's Other Sessions

USR v	PID	Flags	Server	Device/IP	Address	Login Time	Line#	Program Name
>	0			/dev/pts/0		Sep 25 13:56:34	0	
	1			/dev/pts/0		Oct 4 20:58:49	0	
	5			/dev/pts/1		Oct 8 12:42:58	688	connectFlags lib/vstlib.p
	6			/dev/pts/0		Oct 4 20:58:49	0	
	7			/dev/pts/0		Oct 4 20:58:49	0	
	8			/dev/pts/2		Oct 7 11:21:15	0	
	9			/dev/pts/2		Oct 7 11:21:36	0	
	10			/dev/pts/2		Oct 7 11:30:10	16	churn.p





Case  
Study

# #1: To Kill or Not to Kill

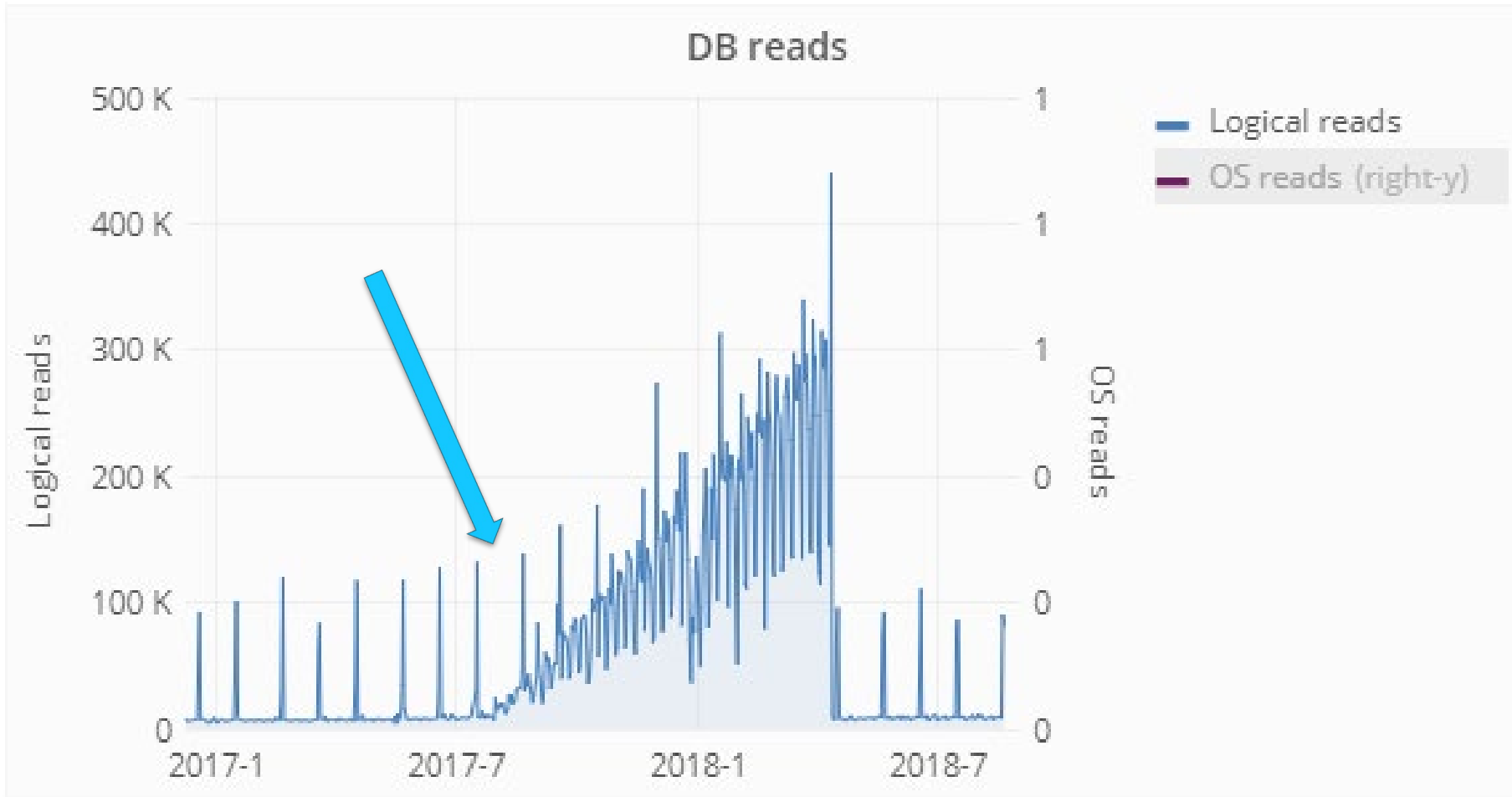
- Old Transaction + BI Growing
- Alert at 2h, alarm at 4h and page at 6h
  - DBA notified by SMS
- Trend data shows 13K read/sec in one table last 28 hours
  - Near zero write activity
- Real-time monitor confirmed inactive process running one line of code
- Safe to SIGINT

## #2: Still running !?!

- Overnight batch jobs not finishing by morning
- History shows chain taking longer and longer to run
- Customer only noticed when critical information not available to morning shift

## #2: Still running !?!

### Database I/O



- What happened on Aug 1?
- CODE CHANGE!

## #3: False Alarm?

- Spotty network between replication source and target
- OE Replication interruptions common
- Decrease sensitivity from 1:1 to 3:3, i.e. only generate alert if 3 failures in three samples
- Two SMS alerts generated: Replication down AND no heartbeat on target.
  - This is no false alarm! Power outage at DR site.



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Questions?



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