

Your Current Monitoring Is Not Enough

The Business Benefits of Proactive
Monitoring with ProTop

White Star Software



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 have lived and breathed the Progress DBA life for over 30 years, and we still love it
- We are the first and most avid user of ProTop
 - It is part of our day-to-day professional life
- Our tools are built by and for technical experts

Who Is White Star Software?



Tom Bascom, Adam Backman and Dan Foreman

- GIANTS in the Progress world since the late 80's / early 90's

Paul Koufalis, Nectarios Daloglou and JC Bellemare

- The new kids on the block

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
- False alarm avoidance features
- 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 Enrichers

```
ztime Session blocked > 300 seconds  
[2018/10/10 08:56:06.874-07:00]  
[server: MyServer]  
[dbname: /db/prod/demo344.db_4007]  
[cfgname: xyzcorp]
```

Usr	Name	PID	Flags	Duration	Wait	Resrc	Id				
76	mfg	29858	SAB*	00:10:00	REC XQH	69184005	sod_det	147:/dev/pts/95:10658	?	109	
109	mfg	29952	SAB*	00:10:00	REC XQH	69184005	sod_det	147:/dev/pts/95:10658	?	76	

Continuous Evolution



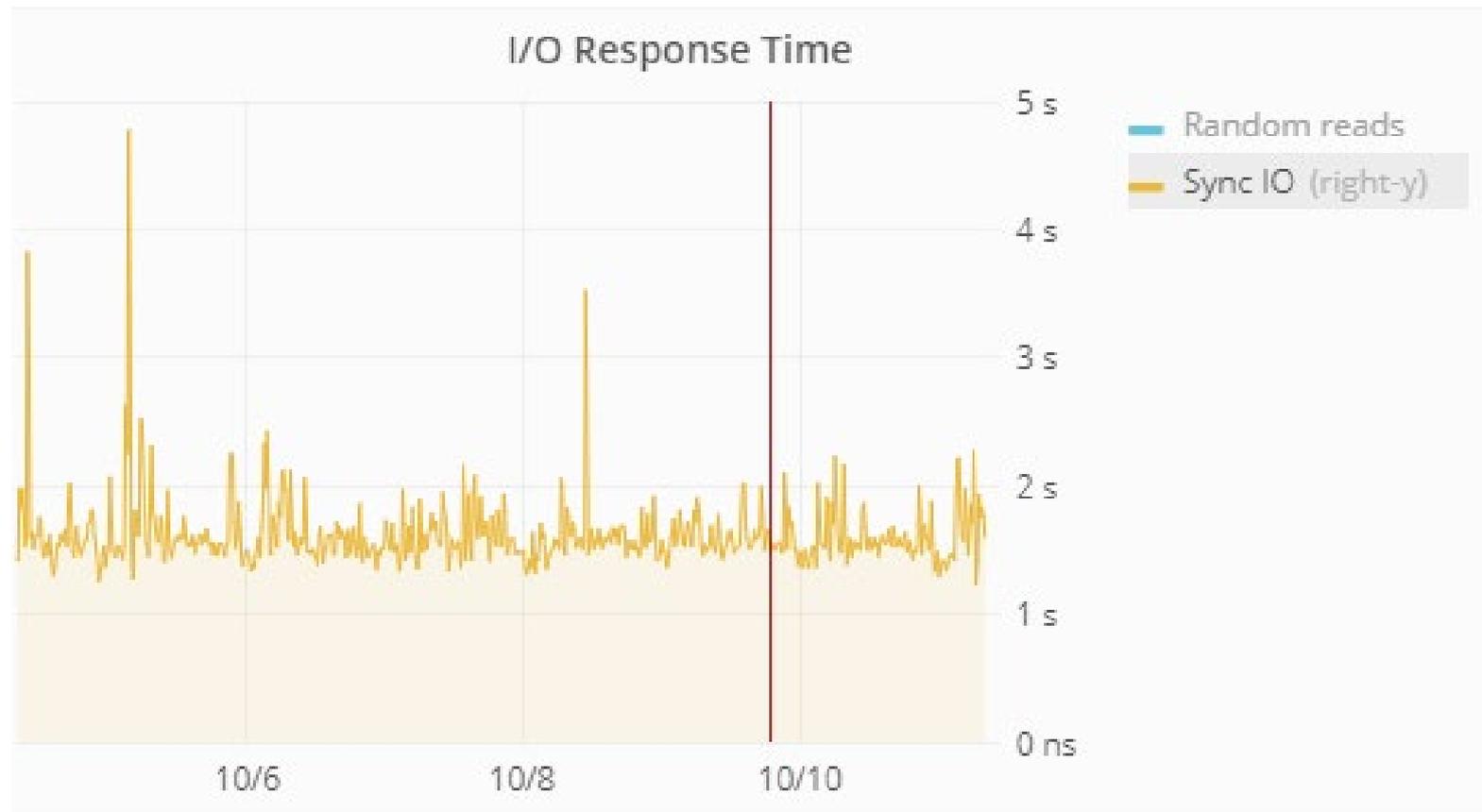
- User Experience Metrics



Continuous Evolution



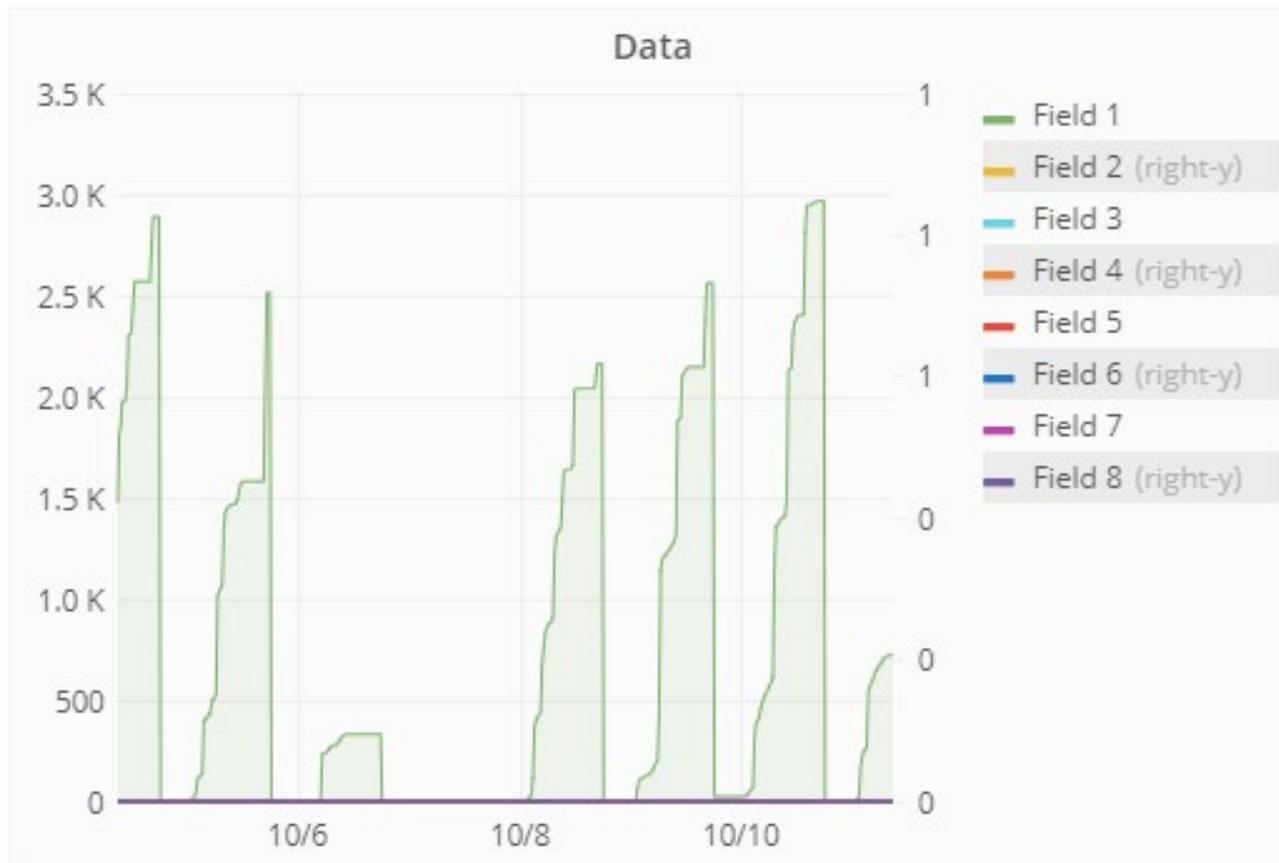
- SyncIO Trending





Continuous Evolution

- Custom Application Metrics



Single Pane of Glass



Critical Resources													
Name	HB Age	Bkp Age	Alert Status	Cnx	Blocked	Trx	Cur Lk	BI Cts	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

Resources													
Name	HB Age	Bkp Age	Alert Status	Cnx	Blocked	Trx	Cur Lk	BI Cts	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										

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/impsx [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/tmq/rona-tmq 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/dpTIK40 bi backup phase 3...
01:04:01	demo354.db_4229	dbDown /database/db01/cc/rona-cc [DOWN: proutli status: ...

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_4022	OSWr OS writes/sec 7002 > 5000

Web Portal



- Alert enrichers provide crucial details

Alerts Feed

14:16:41	z1061.toto	tblTurn Table turns/sec 259.57 > 10
14:16:35	z1061.toto	otrx Old Transaction 7307 > 7200 [2018/10/11 04:46:26.690-05:00] [server: MyServer] [dbname: /db/prod/sands.db_3510] [cfgname: xyzcorp]
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	

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

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

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

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	

Years of History



Database I/O

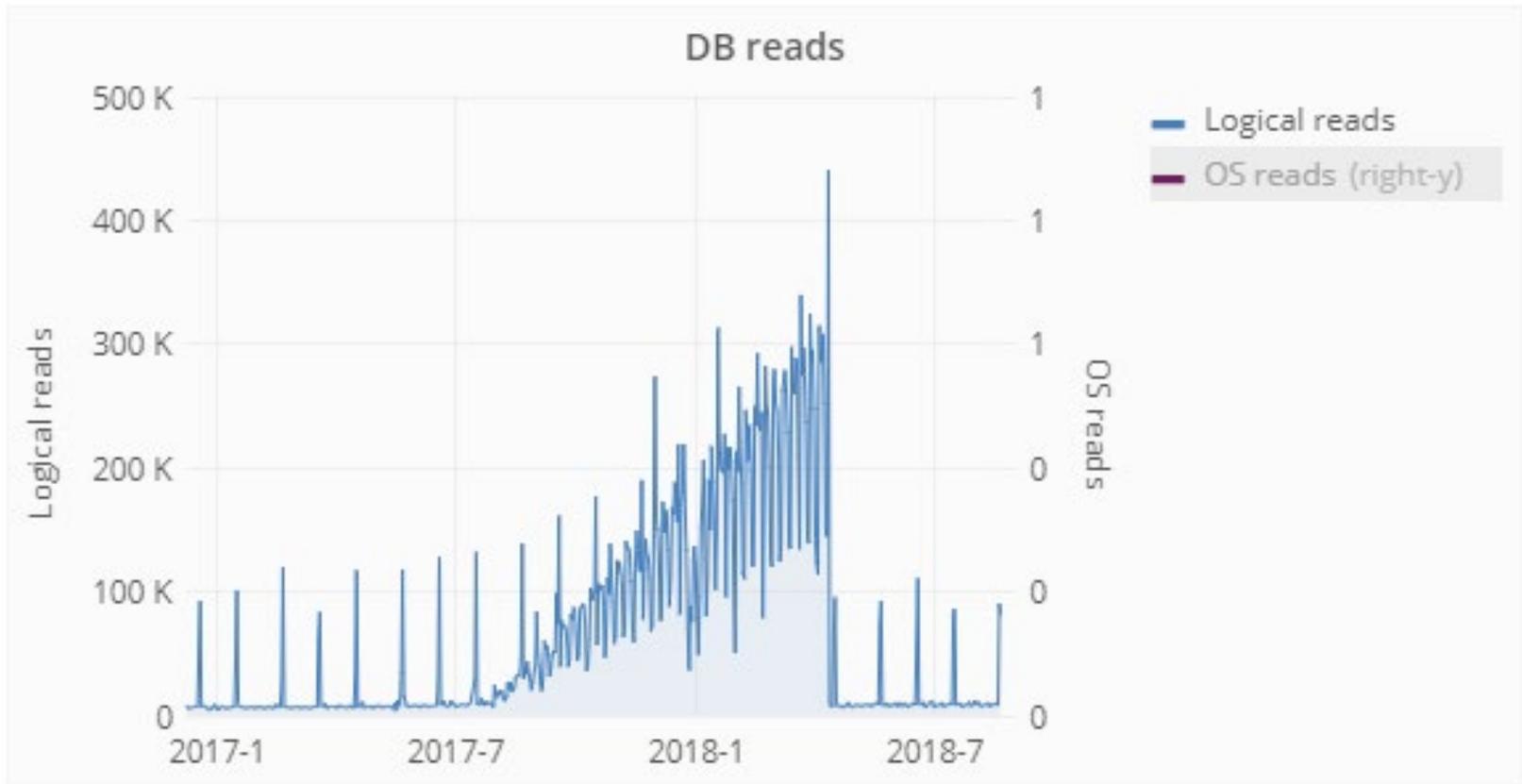
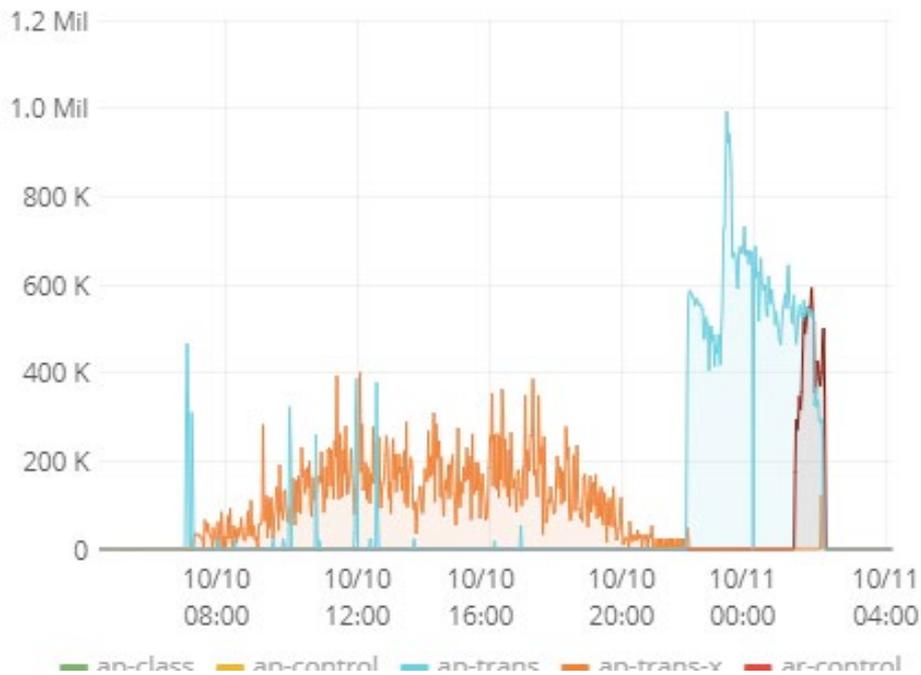


Table and Index Statistics



Record reads



Turn

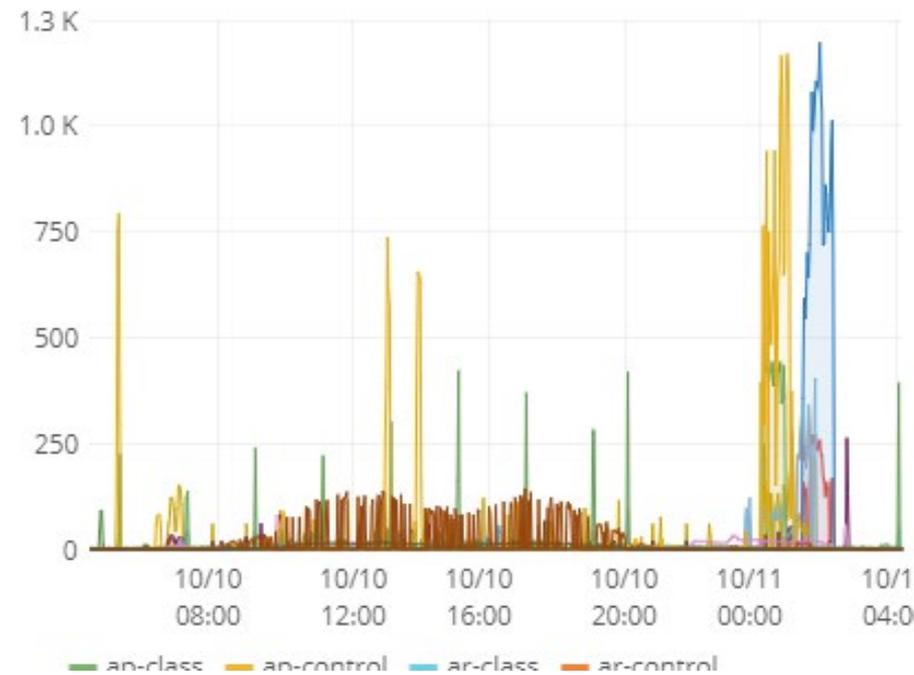
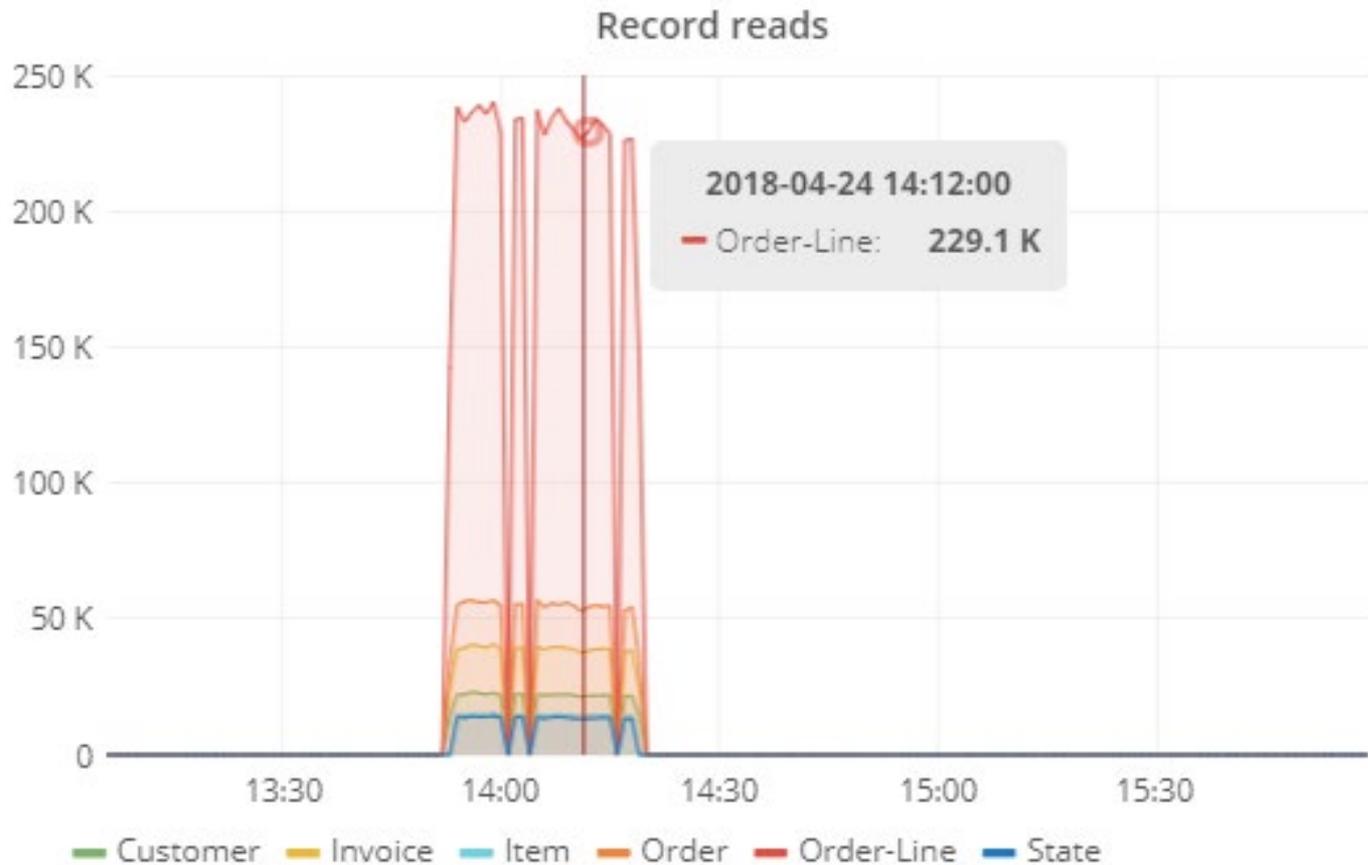


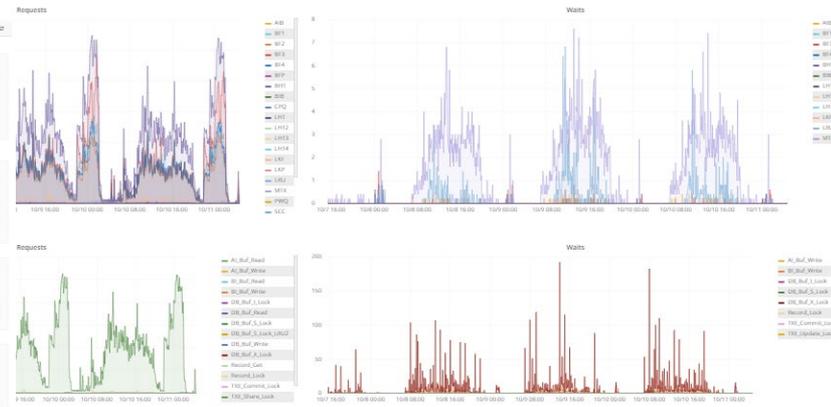
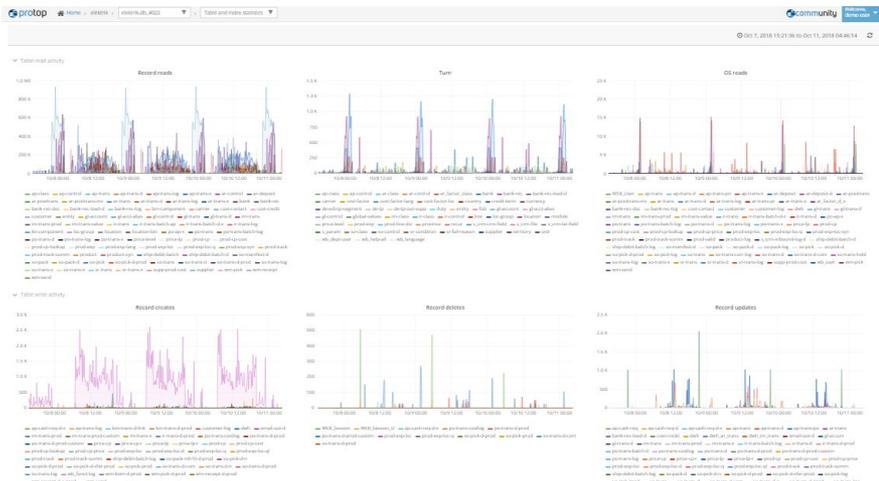
Table and Index Statistics



Table read activity



Hundreds of Trended Metrics



Real-Time Console



toto Auto Interval Rate JSON 11106 0 0.549 ProTop Version 3.3tx as of September 12, 2018 11:25 2018/10/11 06:10:59
 toto 0 0 /home/paul/toto/toto protopdev

```

u#Udtiu
Hit%      100.00      Commits:      0      Examined:      0      APW Writes:      0      DB UpTime: 29d 21:44      Connections:      3
Log Reads:      3600      Undos:      0      New RM:      0      APW Write%      0      Backup Age: 300d 16:11      -n %      14
OS Reads:      0      From RM:      0      Bufs Scanned:      0      Oldest TRX: 00:00:00      Brokers:      1
Rec Reads:      1696      Lock Tbl HWM:      694      RM Locked:      0      APW Scan Wrs:      0      Curr BIClstr:      0      4gl Servers:      0
Idx Reads:      1696      Curr # Locks:      0      From Free:      0      APW Q Wrts:      0      Old BIClstr:      0      SQL Servers:      0
LogRd/RecRd:      2.12      Lock Tbl%      0.00%      Front2Bk:      0      Chkpt Q Wrts:      0      Num BIClstrs:      0      4gl Clients:      2
Log Writes:      0      Rec Lk/s:      0      Flushed Bufs:      0      BI MB Used:      0      SQL Clients:      0
OS Writes:      0      Lk Dura (ms): ?      Mod Bufs:      30      Chkpt Len:      0      App Server:      0
Rec Creates:      0      Evicted:      0      Web Speed:      0
Idx Creates:      0      BI      AI      Curr AI Ext:      1 of 3      BIW/AIW/WDOG:      0 0 0
Rec Updates:      0      Notes:      0 0      Curr Seq#:      16      AI Mgmt:      0
Rec Deletes:      0      Sync IO (sec):      0.00      BI/AI Write%      0 0      Empty AI:      0      APWs:      0
Idx Deletes:      0      Random IO (ms):      0.19      Wrts to Log:      0 0      Full AI:      2      Local:      1
Idx Blk Spl:      0      BogoMIPS:      2.30      BI/AI Wrts:      0 0      Partial Wr:      0 0      Locked AI:      0      Batch:      1
Rec Waits:      0      User Exp SHM:      51519      Busy Waits:      0 0      pica Used:      0      TRX:      0
Resrc Waits:      0      Empty Wts:      0 0      pica Used%      0.00      Blocked:      0
Latch Waits:      0
  
```

Table Activity

Tbl#	Area#	BX	Table Name	RM Chain	#Records	Frag% Scat	Churn	AvgRow	Create	Read v	Update	Delete	OS Read
>	1	7	B1 Invoice		147	0.00% 2	0.00	38	0	0	0	0	0
	2	8	B1 Customer	1	83	0.00% 1	0.00	149	0	0	0	0	0
	3	7	B1 Item		55	0.00% 1	0.00	93	0	0	0	0	0
	4	8	B1 Order	6	207	0.00% 1	0.00	57	0	0	0	0	0
	5	8	B1 Order-Line	1	873	0.00% 1	0.00	36	0	0	0	0	0

Index Activity

Idx#	Area#	BX	Index Name	Blocks	Util Lvl	Idx Root	Note	Create	Read v	Split	Delete	BlkDl
>	1	6	B1 _File_ File-Name	0	0.00% 0	128	P	0	306	0	0	0
	2	6	B1 _Field_ File/Field	0	0.00% 0	256	PU	0	306	0	0	0
	5	6	B1 _Index_ File/Index	0	0.00% 0	384	PU	0	306	0	0	0
	6	6	B1 _Index-Field_ Index/Number	0	0.00% 0	480	PU	0	306	0	0	0
	3	6	B1 _Field_ Field-Name	0	0.00% 0	288	U	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
>	6	0 paul protop	PT3	26	0	0	100.00%	0	3	771	lib/vstlib.p
	5	0 paul pt3agent	PT3	0	0	0	100.00%	0	3		

Zoom in on One User



toto Auto Interval Rate JSON 9769 0 0.037 ProTop Version 3.3tx as of September 12, 2018 11:25 2018/10/11 06:10:21
 toto 0 0 /home/paul/toto/toto protopdev

```

Login Name: paul          Login Time: Thu Oct 11 05:54:59 2018      Logical Rd:      0          BI Reads:      0
  Usr#: 6                Device/IP: /dev/pts/0          Disk Reads:     0          BI Writes:     0
Connect Id: 7            Full Name:                    Hit%            100         AI Reads:      0
  PID: 10322             Phone:                          Logical Wr:     0          AI Writes:     0
  Server: 0              E-Mail:                          Record Locks:   0
Session Info: ABL SELF PT3
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	7	Invoice		147	0.00%	2	0.00	38	0	0	0	0	?
2	8	Customer	1	83	0.00%	1	0.00	149	0	0	0	0	?
3	7	Item		55	0.00%	1	0.00	93	0	0	0	0	?
4	8	Order	6	207	0.00%	1	0.00	57	0	0	0	0	?
5	8	Order-Line	1	873	0.00%	1	0.00	36	0	0	0	0	?
6	7	Salesrep		9	0.00%	1	0.00	83	0	0	0	0	?

Session Index Activity

Idx#	Area#	Index Name	Blocks	Util Lvl%	Idx Root	Note	Create	Read v	Split	Delete	BlkDl
> 32	7	Ref-Call.Txt	1	55.10%	1		0	0	0	0	0
31	7	Ref-Call.Sibling	1	4.40%	1	U	0	0	0	0	0
30	7	Ref-Call.Cust-Num	1	4.20%	1	U	0	0	0	0	0
29	7	Ref-Call.Call-Num	1	3.20%	1	PU	0	0	0	0	0
28	6	Local-Default.default	1	0.60%	1	P	0	0	0	0	0
27	7	State.State	1	11.90%	1	PU	0	0	0	0	0

Session 4GL Call Stack

Dep v	Line#	Program Name
>	1	644 connectFlags lib/vstlib.p

User's Other Sessions

USR v	PID	Flags	Server	Device/IP Address	Login Time	Line#	Program Name
>	5	27087	PT3	0	Sep 14 11:49:27	0	
	0	26594	LX	0 /dev/pts/3	Sep 11 08:26:26	0	





#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 !?!

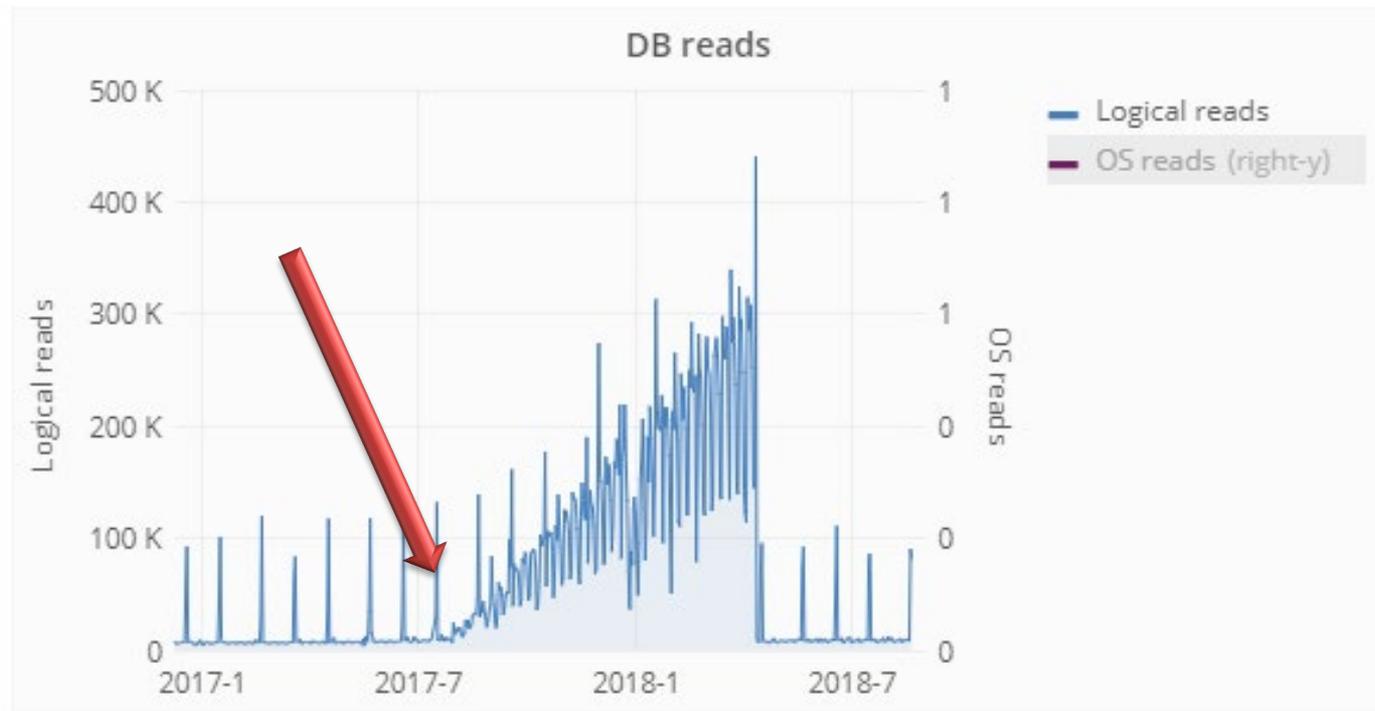
- Overnight batch jobs not finishing by morning
- History shows chain taking longer and longer to run
- Customer only noticed when critical information not available to morning shift



#2: Still running !?!

- What happened on Aug 1? CODE CHANGE!

Database I/O





#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.

Questions?



Wrap-Up



- No other monitoring tool provides the depth and breadth of information provided by ProTop

Thank You!

ProTop



The #1 OpenEdge Database Monitoring Tool



protop

<https://protop.wss.com>

White Star Software

White Star Software



-
- The oldest and most respected independent DBA consulting firm in the world
 - Four of the world's top OpenEdge DBAs
 - Author of ProTop, the #1 FREE OpenEdge Database Monitoring Tool
 - <https://protop.wss.com>