



Leveraging ProTop from Dev to Prod

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Who is WSS?

- WSS is where you will find 5 of the top OpenEdge DBAs in the world:

Adam Backman, Tom Bascom, Dan Foreman, Paul Koufalis and Nectarios Daloglou

- We have lived the Progress DBA life for over 30 years and we still love it
- We are the first and most avid users of ProTop
- It is part of our day-to-day professional lives

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Who is Paul Koufalis?

- Progress DBA and UNIX admin since 1994
- Expert OpenEdge technical consulting
- Wide range of experience
- Small 10 person offices to 3500+ concurrent users
- AIX, HPUX, Linux, Windows...if Progress runs on it, I've worked on it
- Father to these two monkeys
- pk@wss.com





Before we start...

- Think about some recurring issues that you may face:
 - Code works great in dev/test but slow in production
 - Same code is fast at customer A but slow at customer B
 - Users complain about mysterious slowdowns or freezes but issue disappears before you can investigate
 - RF gun users lose connection and leave open screen, blocking other users and causing BI growth
 - What else?



What is ProTop

- ProTop is a free, open source, real-time monitoring tool
 - Download it at protop.wss.com
- Monitor hundreds of database, UBroker and related metrics
- Mix and match screens to show information that is relevant to you
- Optionally connect ProTop to one of our web portals (ex.: <https://dashboard.protop-europe.com/>)
 - See 24h of database trend data (more with paid version)



What is ProTop good for?

- Checking Your Configuration
- Identifying Performance Problem Areas
- Correlating Scattered Metrics
- Drilling Down to the Details
- Finding Trends
- Development and Testing
 - Comparing Theory to Reality
 - Preventing Performance Problems at the Source



Download and Install ProTop

- Go to <https://wss.com/progress-openedge-monitoring-with-protop/#download>
 - In Europe: dashboard.protop-europe.com
- Pick the right ProTop for you and follow Windows or *nix instructions :

Progress OpenEdge Version	UNIX/Linux Install	Windows Install
11.7	Download	Download
11.6	Download	Download
11.5	Download	Download
11.4	Download	Download
11.3	Download	Download
11.2	Download	Download
10.2B	Download	Download
10.2B08 32-Bit	Download	Download
Source Code*	Download	Download

**Requires Compile License*

➔ [Installation Instructions for UNIX/Linux](#)

➔ [Installation Instructions for Windows](#)



DEMO #1: ProTop Free Real-Time Monitor

- Lego-type screen builder: mix-and-match interesting data collector screens
- Options are case-sensitive: b is not the same as B
- Help screen “h”

```
ProTop Help
Command Keys are Case-Sensitive

d = Performance Dashboard
t = Table Activity
i = Index Activity
u = User IO Activity
x = Active Transactions
L = Login Brokers
a = Storage Areas
^b = Buffer Pools
j = PASOE

U = User Information Viewer

T = Show Table and Index Range Info
A = Generate DBAnalys Output

^p = programmer mode
^d = dump & load scripts

I = Set Refresh Interval

R = Switch between Raw and Rate Sampling
p = Pause to allow manual Screen Capture
Z = Set Top X Row Limit

c = Configuration Viewer
l = Latches and Resources
k = Checkpoints
b = Blocked Sessions
r = OE Replication Agents
s = Server Activity
f = File IO
B = BigB Guesstimator
@ = "Classic" App Servers

# = Set Usr#
* = Client Statement Cache

6 = Set Table Name
7 = Set Index Name

z = Modify Sort Columns

S = Switch between Auto and On-Demand Sampling
M = Send Screen Capture as an e-mail
^ = Modify _Lock Scan Limit

O = OS Info (if avail)
Q = SQL activity
D = Disk Free Space
/ = Sequences
N = Network Traffic
m = Multi-Tenant Info
w = Who is Connected?
^a = After-Imaging Info
e = Application Specific

P = Set Process Id
C = Clear Client Statement Cache

8 = Monitor Users of a Table
9 = Monitor Users of an Index

^t = show session temp-tables
Y = show session user*stat
y = run profiler on this session

& = Show Global Properties

<space> = Refresh Sample
h, ? = Help
q = Quit
```




DEMO #2: Who is reading so much?

Users Of A Table

Usr#	User Name	Turns	Create	Read v	Update	Delete	Line#	Program Name
> 22	paul	289.00	0	252293	0	0	12	./readalot.p
21	paul	265.49	0	231774	0	0	11	./readalot.p
20	paul	226.50	0	197731	0	0	12	./readalot.p
19	paul	0.07	0	59	0	0	51	./usrexp.p
0	paul	0.00	0	0	0	0		



DEMO #3: Blocked clients

- ProTop shows you who/what/where/why

Blocked Sessions

Ustr	Tenant	Name	PID	Flags	Durati	v Wait	Resrc	Id	Table	Blocker-Ustr#:Device:PID	Blocker-StatementCache	WaitList	BlkBy
> 14	0	paul	17115	S4B*	00:00:24	REC XQH	385		Customer 12:batch:17111 ?	15 16 17			12
15	0	paul	17113	S4B*	00:00:24	REC XQH	385		Customer 12:batch:17111 ?	14 16 17			12
16	0	paul	17114	S4B*	00:00:24	REC XQH	385		Customer 12:batch:17111 ?	14 15 17			12
17	0	paul	17112	S4B*	00:00:24	REC XQH	385		Customer 12:batch:17111 ?	14 15 16			12

SPORTSIZO 0 0

/data/sportsiz0/sportsiz0

```

Login Name: paul          Login Time: Thu May 23 03:48:37 2019      Logical Rd:          0          BI Reads:          0
      Ustr#: 12          Device/IP:                                Disk Reads:         0          BI Writes:         0
Connect Id: 13          Full Name:                                Hit%                0          AI Reads:          0
      PID: 17111        Phone:                                    Logical Wr:         0          AI Writes:         0
      Server: 0          E-Mail:                                Record Locks:      0
Session Info: ABL SELF S4B* Batch TRX
TRX Info: BEGIN FWD 428 Duration:  Waiting On:  --  0

```

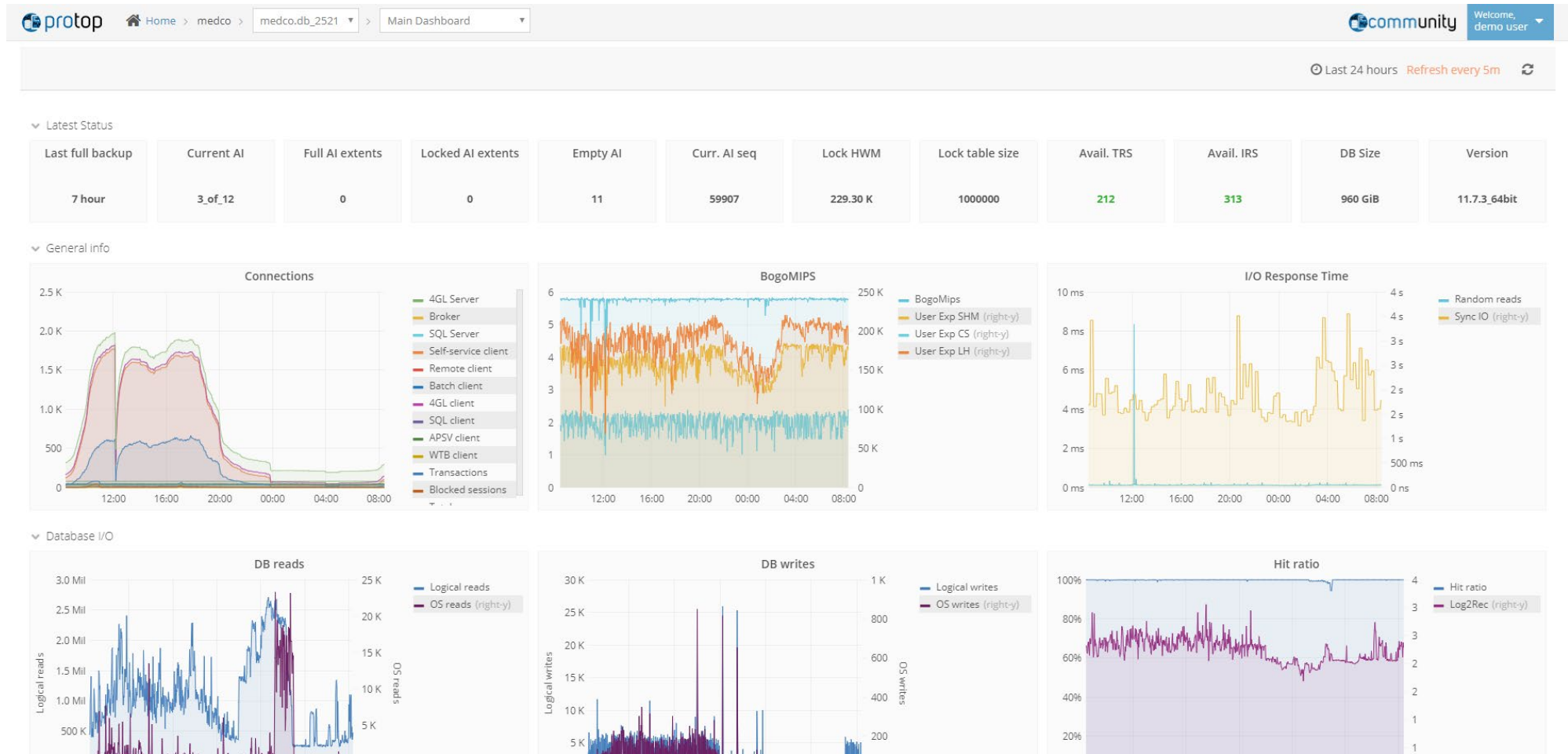


DEMO #4: Other cool features

- (T)able and Index Range Info
- Ctrl-P: Programmer Mode
- Ctrl-D: Dump & Load scripts (free vs paid version)
- Ctrl-U: Update Statistics scripts
- Ctrl-R: Generate DB Analysis
- Y: Session user*stats
- y: Profiler



DEMO #5: web portal



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System resource analysis

- Sometimes the problem is not Progress. How do you prove?
- ProTop measures OpenEdge related system activity through six metrics:
 - bogoMIPS: single-threaded CPU speed
 - User Experience Shared Memory: 4GL query speed for shared memory client
 - User Experience Localhost: 4GL query speed for localhost tcp/ip connection
 - User Experience Client/Server: 4GL query speed for remote tcp/ip connection
 - Random Reads: Random disk reads to database file system
 - Synchronous IO: unbuffered synchronous IO speed (i.e. AI/BI writes)



System resource analysis: what do you want to see

- HIGH bogomIPS:
 - 6 or higher = fast Intel Xeon CPU
 - 4 to 6 = older Xeon CPU
 - Less than 4 = old and slow
- HIGH User Experience SHM: The faster you can read records from –B, the better
- Relatively high User Exp LH and CS: LH should be close to SHM. CS varies based on a number of factors
- Random Reads: low single-digit ms
- SyncIO: 10 sec = “normal” SAN.
 - 10 sec => 16 MB BI cluster format takes 1.67 sec (freeze time when BI has to grow by one cluster)

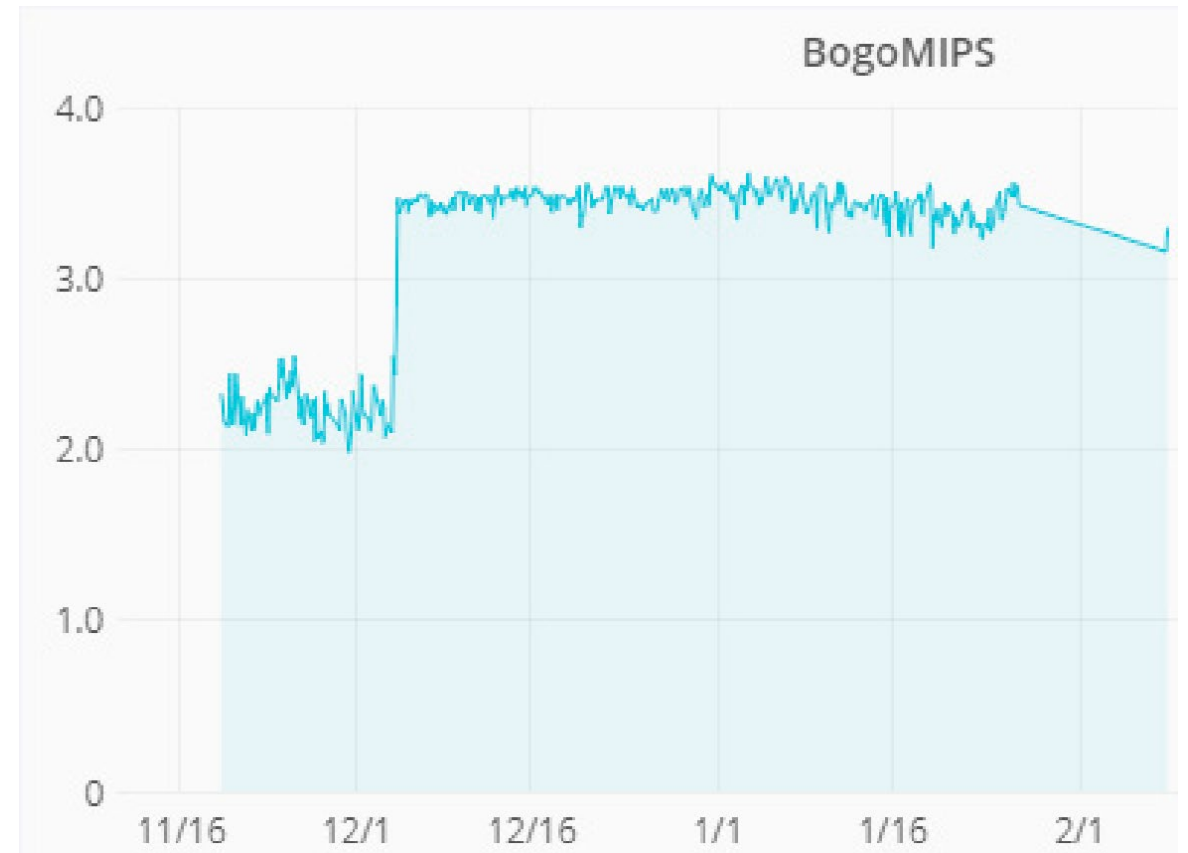
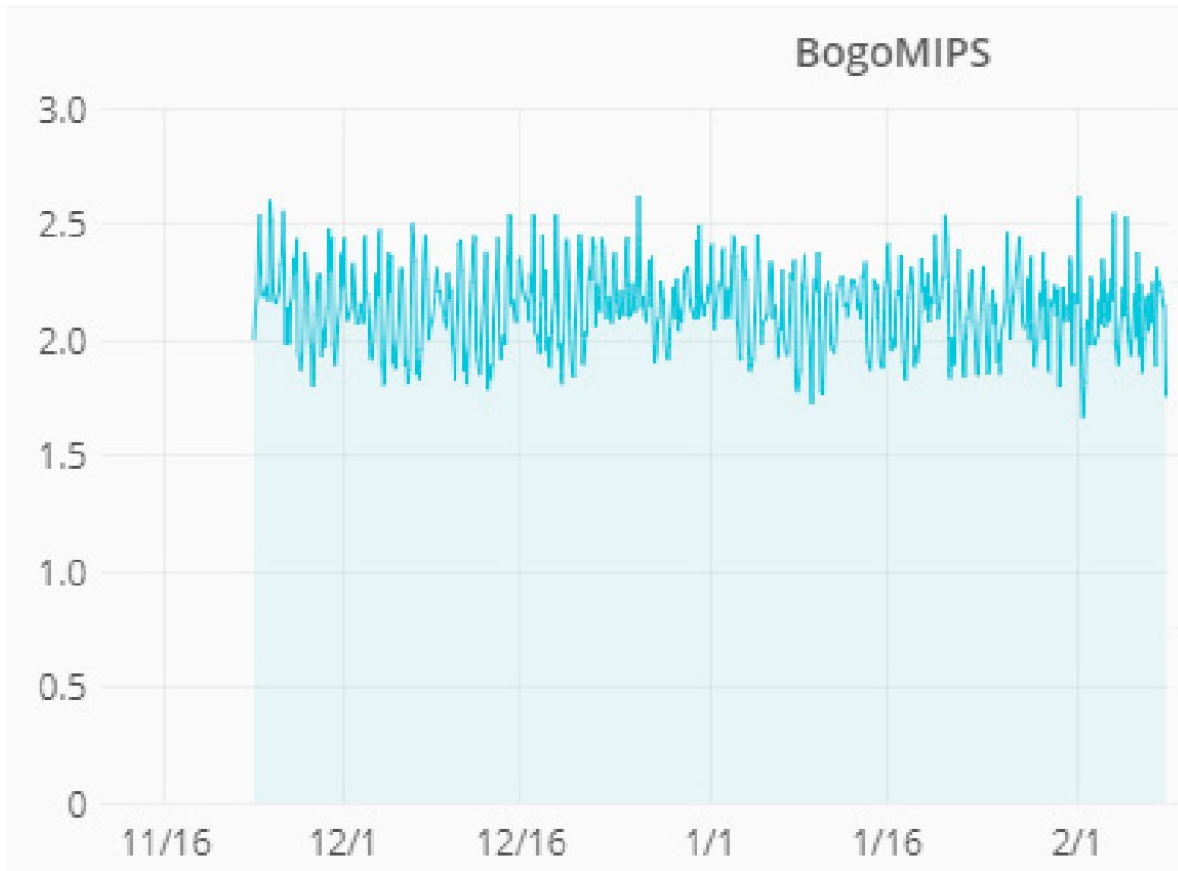


DEMO #6: System metrics

- Flat vs variable bogomIPS
- Relative User Exp SHM vs LH vs CS



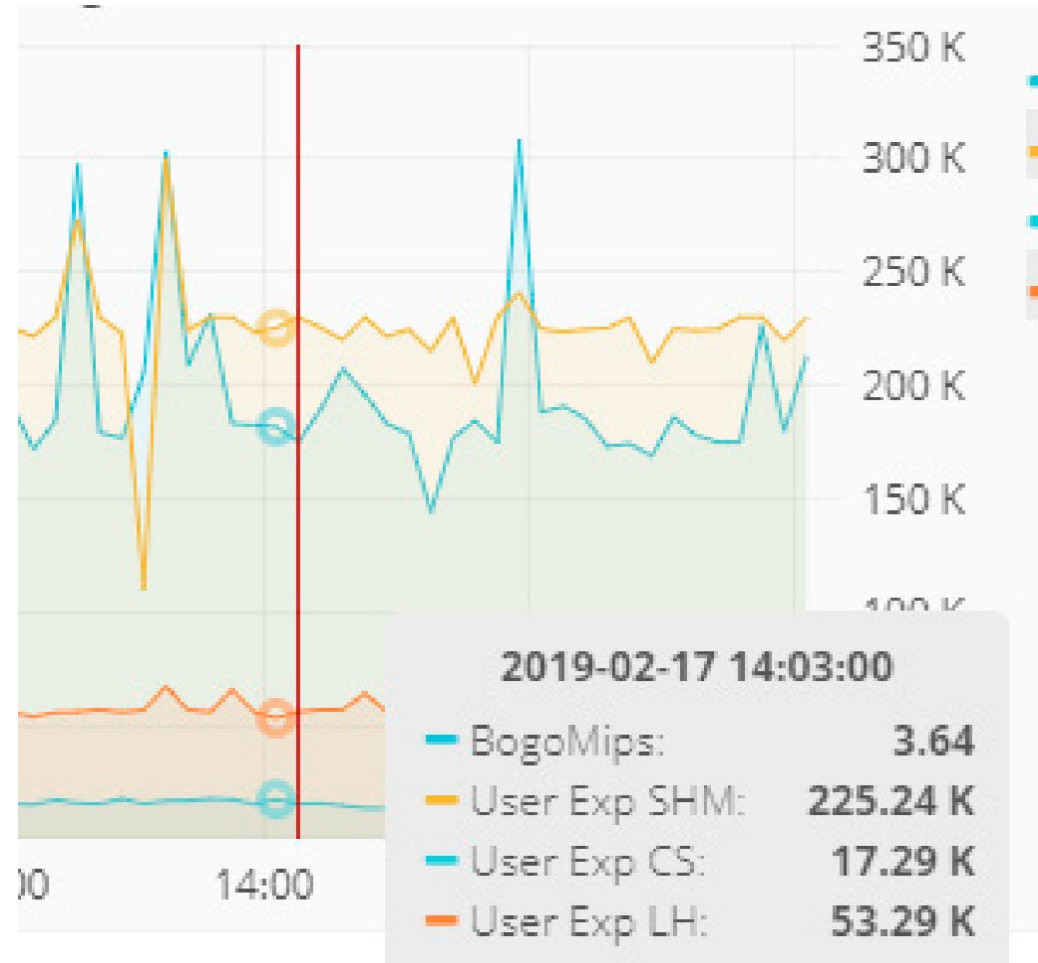
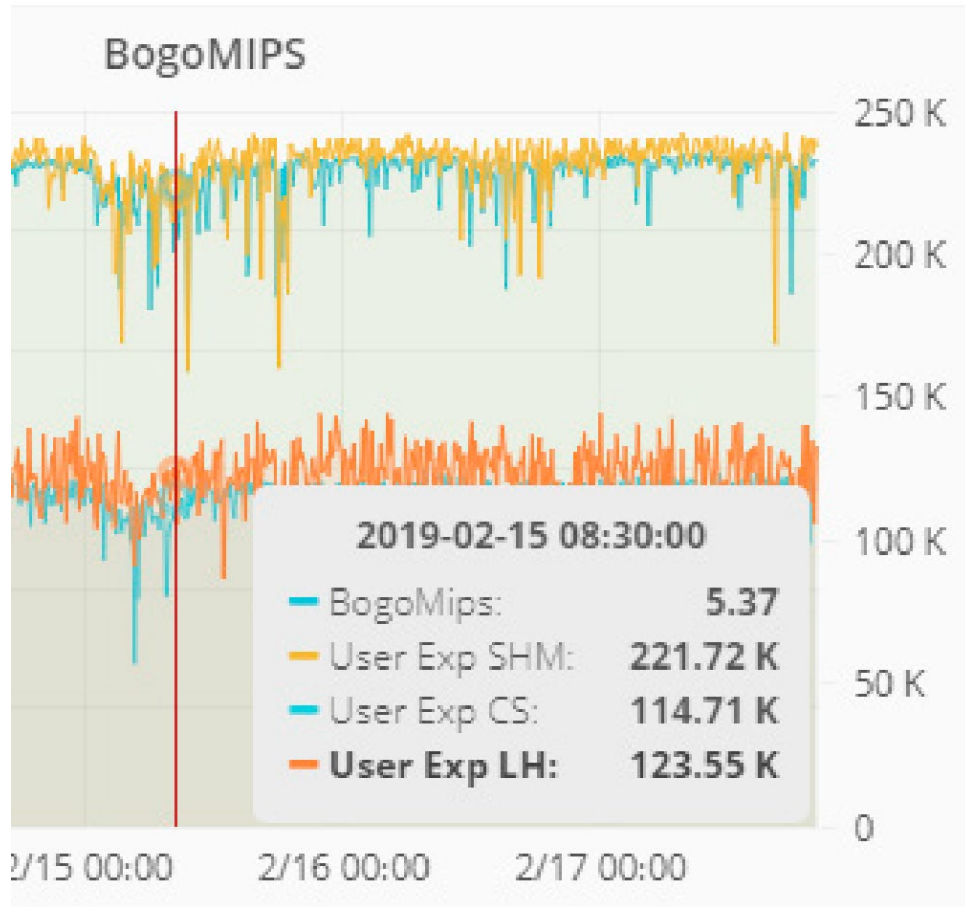
System metrics: problematic results



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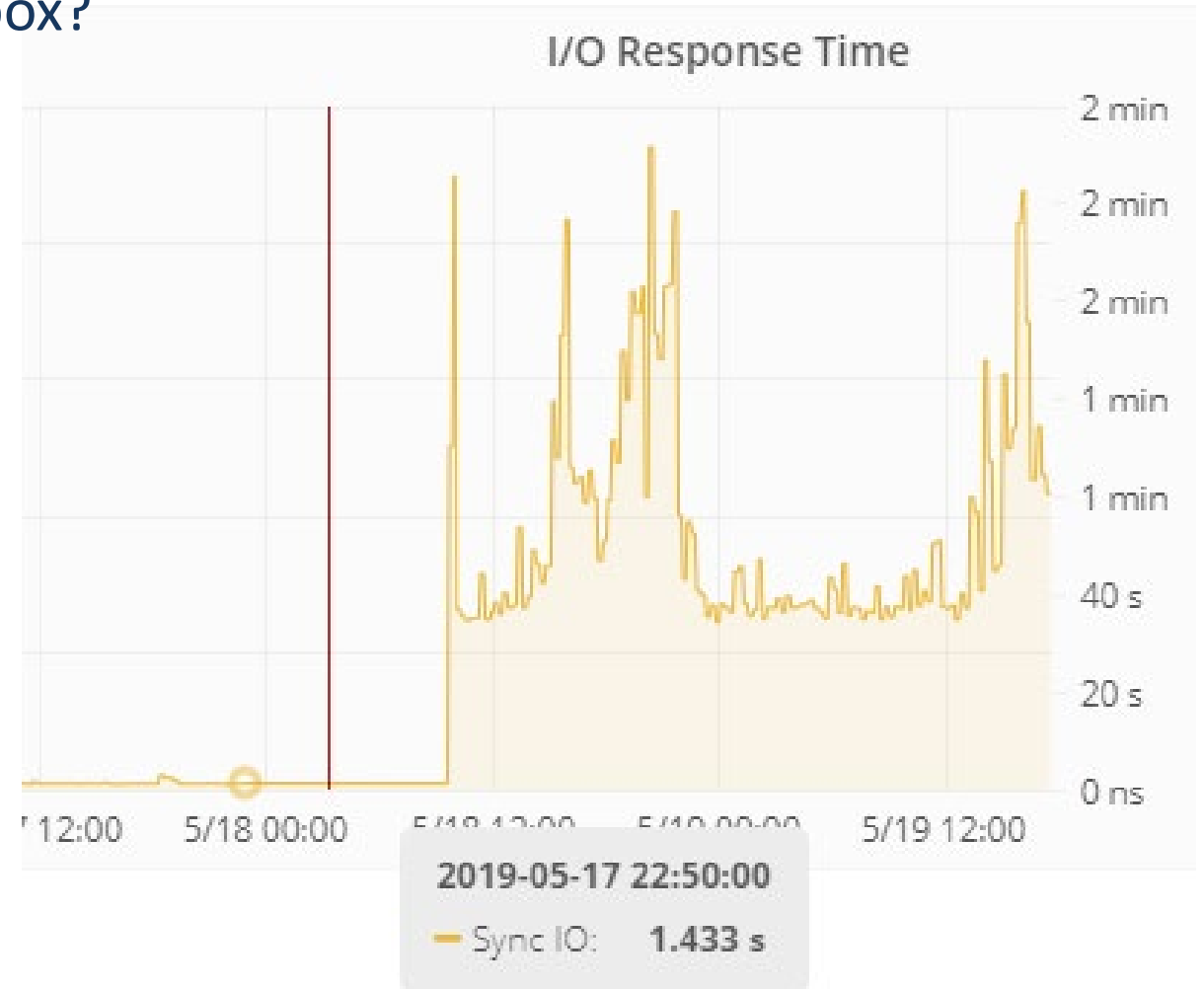
System metrics: problematic results





System metrics: problematic results

- Can you guess when they put in a Nutanix box?





Paid features

- Previous slides and demos are part of ProTop Free
- Future slides show paid features

- ProTop Enterprise Monitoring and Alerting is sold as an annual subscription service



Alerts

- All data available in ProTop can be used to generate alerts
 - Hundreds of metrics
- Unlimited threshold definitions
- False alarm avoidance features
- Multiple alerting levels
 - Reduce spam/noise: configure where alerts go
- Alert enhancers provide extra information to simplify and accelerate troubleshooting
- Custom script response



Alert flexibility

- Simple text-file configuration
 - quick and easy to maintain and deploy
- Hierarchical alerting structure
 - Global default configuration
 - Or specify by environment, server, database, etc.
 - Example: `alert.cfg`, `alert.mycompany.cfg`, `alert.myserver.cfg`, `alert.mydatabase.cfg`



Alert flexibility

Metric	Threshold	SS	Notify	Message	Action
otrx	num > 7200	""	"hourly"	"Old Tx &1 &2 &3"	zOldTRXDetails,page
otrx	num > 3600	""	"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



Alert enrichers

- Show zoomed PDF



Noise reduction: you decide what goes where

Email list

Comma-separated list of email addresses.

Pager list

Support List

Info List

Alert List

Alarm List

Backup List

Hb List

Code List

If you wish to receive emails when info, alert, alarm, backup, etc... alerts are generated, please select to which email list they should go (Email or Pager List). Page alerts always go to the Pager List.



DEMO #7: Single pane of glass view

protop Home Dashboard community Last Update: 2019/03/31 20:27:03 Welcome, demo user

Critical Resources

Name	HB Age	Bip Age	Alert Status	Cnx	Blocked	Tix	Cur LA	Bl Cts	Hlth	Log Rd	OS Rd	Latch/MO	In Resp
demo329_db_5581	01:01:34	4d 04:15	2	6	0	0	0	0	100.00%	154	0	0	6.37
demo329_db_5582	01:01:34	4d 04:13	2	6	0	0	0	0	100.00%	143	0	0	3.17
demo169_db_4843	00:00:34	1425d 14:42	4	9	0	0	0	0	100.00%	0	0	0	6.02
demo352_db_5563	00:00:34	02:23	0	80	0	4	0	0	100.00%	777	0	0	0.48
Health_db_5530	00:00:34	02:16	0	161	0	0	0	0	100.00%	45	0	0	0.75
Health_db_5534	00:00:34	02:12	0	182	0	0	0	0	99.83%	712	1	0	0.71
Health_db_5531	00:00:34	02:12	0	182	0	0	0	0	100.00%	84	0	0	0.98
demo335_db_5436	00:00:34		20	0	0	0	0	0	0.00%	0	0	0	0.00
Winchester_db_4878	00:00:34	1d 18:24	4	52	0	11	0	0	99.90%	1,598	2	0	3.88
Health_db_5533	00:00:34	02:14	0	193	0	681	1	0	100.00%	249,278	10	0	0.75

Resources

Name	HB Age	Bip Age	Alert Status	Cnx	Blocked	Tix	Cur LA	Bl Cts	Hlth	Log Rd	OS Rd	Latch/MO	In Resp
+ demo2		00:00:00	-										
+ demo		00:00:00	-										
+ thchorata		00:00:34	12										
+ itaggsawar		00:00:00	-										
+ demo106		00:00:33	50										
+ demo113		00:00:00	0										
+ demo116		00:00:33	2										
+ demo117		00:00:34	0										
+ demo146		00:00:33	17										
+ demo15		00:01:33	21										
+ demo150		00:00:33	6										
+ demo169		00:00:33	4										
+ demo176		00:00:00	-										
+ demo183		00:00:33	0										
+ demo184		00:00:34	8										
+ demo190		00:00:33	27										
+ demo196		00:00:00	-										
+ demo214		00:23:35	6										
+ demo215		00:00:00	-										
+ demo216		23:59:59	0										
+ demo217		00:00:34	4										
+ demo218		01:02:27	2										
+ demo221		00:00:00	4										
+ demo227		00:01:33	12										
+ demo237		00:00:00	0										

Critical Alerts

20:09:11	demo214_db_4973	ai_Empty Empty AI Extents 0 < 2
20:08:48	Health_db_5530	{334} proctort list session enc.
20:08:47	Health_db_5530	{451} proctort list session begin for guard on /devpts/0.
20:08:38	demo337_db_5455	dbDown c:\media\bases\wkb [DOWN] missing .ik file
20:08:27	Health_db_5533	{7129} Utr 242 set name to
20:07:44	demo332_db_5364	stix Util (ramaction) [KAS64] + zsu
20:07:28	demo214_db_4979	ai_Empty Empty AI Extents 0 < 2
20:07:22	demo352_db_5563	{13154} Marked after-image extent /u/epz/pack/package.a1...
20:06:19	demo214_db_4980	ai_Empty Empty AI Extents 0 < 2
20:06:08	demo214_db_4971	ai_Empty Empty AI Extents 0 < 2
20:05:23	demo337_db_5447	dbDown c:\media\bases\mssa [DOWN] missing .ik file
20:05:23	demo337_db_5446	dbDown c:\media\bases\mssq [DOWN] missing .ik file
20:05:22	demo337_db_5445	dbDown c:\media\bases\mst [DOWN] missing .ik file
20:05:21	demo337_db_5443	dbDown c:\media\bases\msec [DOWN] missing .ik file
20:05:21	demo337_db_5444	dbDown c:\media\bases\mstb [DOWN] missing .ik file
20:04:27	demo337_db_5442	dbDown c:\media\bases\msscon [DOWN] missing .ik file
20:04:21	demo214_db_4977	ai_Empty Empty AI Extents 0 < 2
20:04:06	demo214_db_4987	dbDown E:\bdprod\areport [DOWN] missing .ik file
20:04:05	demo214_db_4986	dbDown E:\bdprod\areport [DOWN] missing .ik file
20:04:04	demo214_db_4984	dbDown E:\bdprod\areport [DOWN] missing .ik file
20:04:03	demo214_db_4983	dbDown E:\bdprod\areport [DOWN] missing .ik file
20:04:02	demo214_db_4982	dbDown E:\bdprod\areport [DOWN] missing .ik file
20:03:56	demo214_db_4985	dbDown E:\bdprod\areport [DOWN] missing .ik file
20:03:41	demo7_db_16	dbDown /d/csddev/csddev [DOWN] missing .ik file
20:03:16	Health_db_5532	{453} Logout by root on batch.
20:03:15	Health_db_5532	{452} Login by root on batch.
20:03:10	demo214_db_4974	ai_Empty Empty AI Extents 0 < 2

Alerts Feed

20:26:19	demo329_db_5581	dbDown /d/bases/gwms/demo/gwms [DOWN] missing .ik file
20:26:08	demo329_db_5582	dbDown /d/bases/gwms/demo/gwms [DOWN] missing .ik file
20:24:20	demo169_db_4843	dbDown /zwe/epz/ast-demo-dev/db/epzmenu [DOWN] missing .ik...
20:23:22	demo352_db_5563	{453} Logout by Arimage list on batch.
20:23:21	demo352_db_5563	{7129} Utr 66 set name to Arimage list.
20:23:20	demo352_db_5563	{452} Login by root on batch.
20:23:02	loc_db_5463	{794} Usernum 1846 terminated abnormally.
20:23:01	loc_db_5462	{794} Usernum 1846 terminated abnormally.
20:21:54	demo343_db_5502	TRX TR0/sec 0415 > 5000
20:19:24	Winchester_db_4878	ai_Locked Locked AI Extents 24 x 1
20:18:18	Winchester_db_4878	ai_Empty Empty AI Extents 0 < 2
20:18:40	Health_db_5530	{452} Login by guard on /devpts/0.
20:18:39	Health_db_5530	{453} Logout by guard on batch.
20:17:53	Health_db_5534	{7129} Utr 242 set name to Arimage list.
20:17:42	Health_db_5531	{7129} Utr 256 set name to Arimage list.
20:16:58	demo330_db_4787	{1362} Full backup started.
20:16:49	demo398_db_5815	{794} Usernum 463 terminated abnormally.
20:16:42	demo398_db_5814	{794} Usernum 461 terminated abnormally.
20:16:41	demo398_db_5813	{794} Usernum 461 terminated abnormally.
20:16:41	demo398_db_5812	{794} Usernum 461 terminated abnormally.
20:16:37	demo330_db_4786	{1362} Full backup successfully completed.
20:16:05	Health_db_5531	{3789} Marked after-image extent /u/epz/pack/package.a1 EM...
20:15:59	Health_db_5531	{11805} Unlocking after-image file 200 and locking ALL FU...
20:15:23	Health_db_5534	{452} Login by guard on batch.
20:15:22	demo335_db_5436	fsUsed Disk space % 88.32 > 60
20:15:21	demo335_db_5436	fsUsed Disk space % 88.32 > 60
20:15:19	demo37_db_7	ai_Empty Empty AI Extents 0 < 2
20:15:12	Lumber_db_4662	{43} ** Cannot find or open file _csd\check2_w.em...
20:15:06	Lumber_db_4661	{43} ** Cannot find or open file _csd\check2_w.em...
20:15:00	Lumber_db_4664	{43} ** Cannot find or open file _csd\check2_w.em...

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DEMO #8: Advanced Dashboards

- Years of history
- Table and Index Statistics
- AppServer
- Latches
- Configuration
- Server (Linux and Windows)
- PASOE
- Raw data (dedicated portal only)



DEMO #9: Health Check

- Automated periodic health checks
- Categorized and sorted by priority



CASE STUDY: Variable performance across customers

- Partner with 100+ sites
- Small subset of customers complaining of unacceptable performance
- Code is the same. Why such massive differences across installations?
- Partner suspects infrastructure but customers Did not believe them
 - No proof !!



Case study continued...

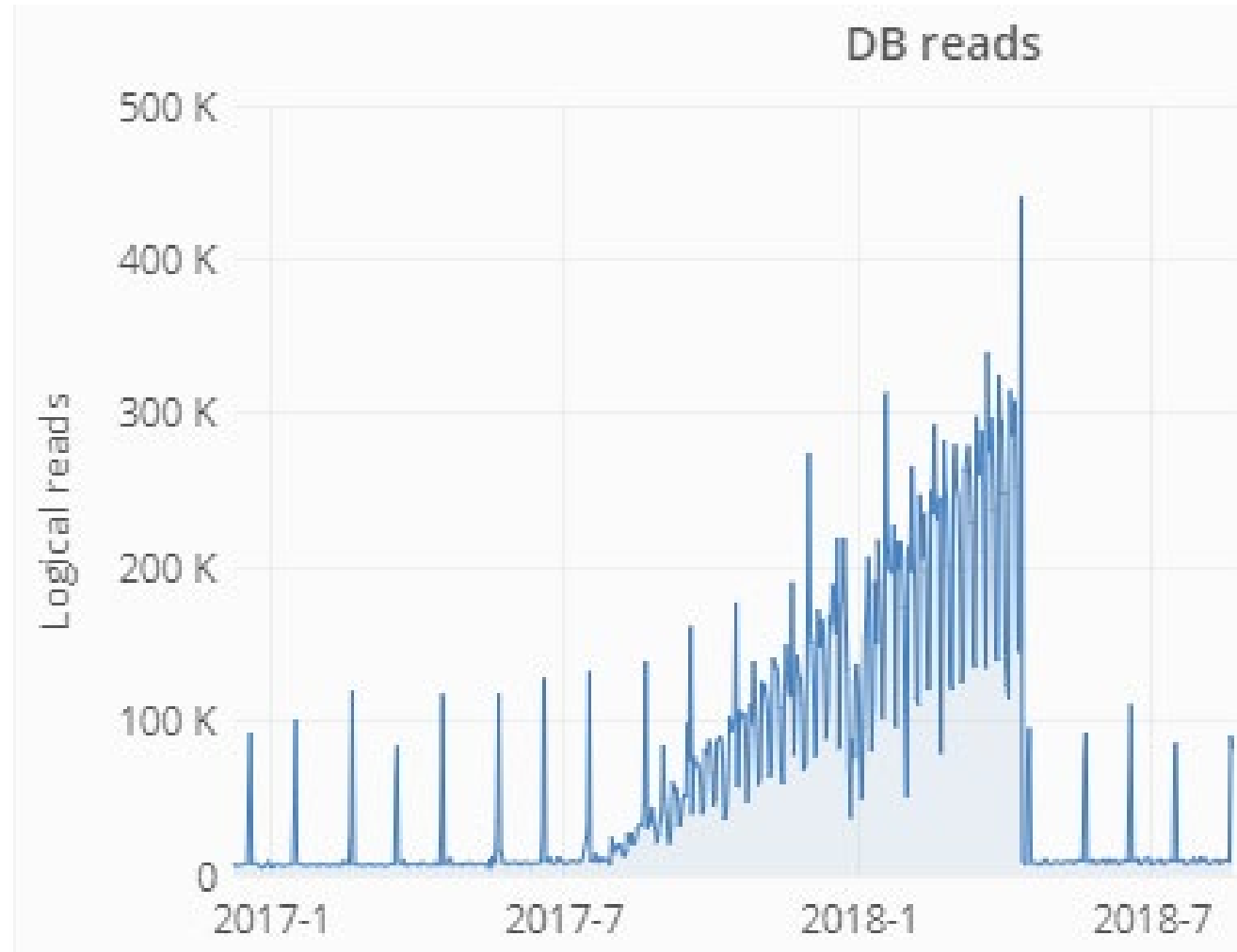
- With ProTop, was able to identify specific infrastructure issues
- Prove beyond any doubt that problem was NOT OpenEdge-related

- < demo report >



CASE STUDY: Bad code

- Nightly batch job finishing later and later
- Business noticed when job not finished by start-of-day
- ProTop clearly shows the issue:
 - bad code scanning entire table
 - Table grew and grew
 - 300K reads/sec !!





Yes but who responds to these alerts?

- Your choice: we can respond or your team can respond, or both
- Many of our customers have excellent technical people in place
 - We are there to mentor and support them as needed
- For guaranteed support, WSS offers the DBAppraise 24/7 support add-on to ProTop subscriptions



DBAppraise 24/7 support add-on

- 24/7 support with 1 hour SLA
- We take the calls or we backstop your team
- Support from some of the top DBAs in the world
- No hourly cost for production support means no budget surprises
 - 1h or 10h, production support is included in subscription
- Alternatively, WSS also provides occasional 24/7 support to cover vacations



DBAPPRAISE

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Questions?





protop

#1 OpenEdge Database Monitoring Tool

<http://protop.wss.com>

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